UPPER ELK RIVER WATERSHED (06030003) OF THE TENNESSEE RIVER BASIN

WATERSHED WATER QUALITY MANAGEMENT PLAN

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER POLLUTION CONTROL
WATERSHED MANAGEMENT SECTION
2003
GLOSSARY

1Q20. The lowest average 1 consecutive days flow with average recurrence frequency of once every 20 years.

30Q2. The lowest average 3 consecutive days flow with average recurrence frequency of once every 2 years.

7Q10. The lowest average 7 consecutive days flow with average recurrence frequency of once every 10 years.

303(d). The section of the federal Clean Water Act that requires a listing by states, territories, and authorized tribes of impaired waters, which do not meet the water quality standards that states, territories, and authorized tribes have set for them, even after point sources of pollution have installed the minimum required levels of pollution control technology.

305(b). The section of the federal Clean Water Act that requires EPA to assemble and submit a report to Congress on the condition of all water bodies across the Country as determined by a biennial collection of data and other information by States and Tribes.

AFO. Animal Feeding Operation.

Ambient Sites. Those sites established for long term instream monitoring of water quality.

ARAP. Aquatic Resource Alteration Permit.

Assessment. The result of an analysis of how well streams meet the water quality criteria assigned to them.

Bankfull Discharge. The momentary maximum peak flow before a stream overflows its banks onto a floodplain.

Basin. An area that drains several smaller watersheds to a common point. Most watersheds in Tennessee are part of the Cumberland, Mississippi, or Tennessee Basin (The Conasauga River and Barren River Watersheds are the exceptions).

Benthic. Bottom dwelling.

Biorecon. A qualitative multihabitat assessment of benthic macroinvertebrates that allows rapid screening of a large number of sites. A Biorecon is one tool used to recognize stream impairment as judged by species richness measures, emphasizing the presence or absence of indicator organisms without regard to relative abundance.

BMP. An engineered structure or management activity, or combination of these, that eliminates or reduces an adverse environmental effect of a pollutant.
**BOD.** Biochemical Oxygen Demand. A measure of the amount of oxygen consumed in the biological processes that break down organic and inorganic matter.

**CAFO.** Concentrated Animal Feeding Operation.

**Designated Uses.** The part of Water Quality Standards that describes the uses of surface waters assigned by the Water Quality Control Board. All streams in Tennessee are designated for Recreation, Fish and Aquatic Life, Irrigation, and Livestock Watering and Wildlife. Additional designated uses for some, but not all, waters are Drinking Water Supply, Industrial Water Supply, and Navigation.

**DMR.** Discharge Monitoring Report. A report that must be submitted periodically to the Division of Water Pollution Control by NPDES permitees.

**DO.** Dissolved oxygen.

**EPA.** Environmental Protection Agency. The EPA Region 4 web site is [http://www.epa.gov/region4/](http://www.epa.gov/region4/)

**Field Parameter.** Determinations of water quality measurements and values made in the field using a kit or probe. Common field parameters include pH, DO, temperature, conductivity, and flow.

**Fluvial Geomorphology.** The physical characteristics of moving water and adjoining landforms, and the processes by which each affects the other.

**HUC-8.** The 8-digit Hydrologic Unit Code corresponding to one of 54 watersheds in Tennessee.

**HUC-10.** The 10-digit NRCS Hydrologic Unit Code. HUC-10 corresponds to a smaller land area than HUC-8.

**HUC-12.** The 12-digit NRCS Hydrologic Unit Code. HUC-12 corresponds to a smaller land area than HUC-10.

**MRLC.** Multi-Resolution Land Classification.

**MS4.** Municipal Separate Storm Sewer System.

**Nonpoint Source (NPS).** Sources of water pollution without a single point of origin. Nonpoint sources of pollution are generally associated with surface runoff, which may carry sediment, chemicals, nutrients, pathogens, and toxic materials into receiving waterbodies. Section 319 of the Clean Water Act of 1987 requires all states to assess the impact of nonpoint source pollution on the waters of the state and to develop a program to abate this impact.

**NPDES.** National Pollutant Discharge Elimination System. Section 402 of the Clean Water Act of 1987 requires dischargers to waters of the U.S. to obtain NPDES permits.

**NRCS.** Natural Resources Conservation Service. NRCS is part of the federal Department of Agriculture. The NRCS home page is [http://www.nrcs.usda.gov](http://www.nrcs.usda.gov)
**Point Source.** Any discernable, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural storm water discharges and return flows from irrigated agriculture (Clean Water Act Section 502(14)).

**Q Design.** The average daily flow that a treatment plant or other facility is designed to accommodate.

**Reference Stream (Reference Site).** A stream (site) judged to be least impacted. Data from reference streams are used for comparisons with similar streams.

**SBR.** Sequential Batch Reactor.

**Stakeholder.** Any person or organization affected by the water quality or by any watershed management activity within a watershed.

**STATSGO.** State Soil Geographic Database. STATSGO is compiled and maintained by the Natural Resources Conservation Service.

**STORET.** The EPA repository for water quality data that is used by state environmental agencies, EPA and other federal agencies, universities, and private citizens. STORET (Storage and Retrieval of National Water Quality Data System) data can be accessed at http://www.epa.gov/storet/

**TDA.** Tennessee Department of Agriculture. The TDA web address is http://www.state.tn.us/agriculture

**TDEC.** Tennessee Department of Environment and Conservation. The TDEC web address is http://www.tdec.net

**TMDL.** Total Maximum Daily Load. A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of the amount to the pollutant's sources. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation includes a margin of safety to ensure that the waterbody can be used for the purposes the State has designated. The calculation must also account for seasonal variation in water quality. A TMDL is required for each pollutant in an impaired stream as described in Section 303 of the Federal Clean Water Act of 1987. Updates and information on Tennessee’s TMDLs can be found at http://www.tdec.net/wpc/tmdl/

**TMSP.** Tennessee Multi-Sector Permit.

**USGS.** United States Geological Survey. USGS is part of the federal Department of the Interior. The USGS home page is http://www.usgs.gov/.

**WAS.** Waste Activated Sludge.
**Water Quality Standards.** A triad of designated uses, water quality criteria, and antidegradation statement. Water Quality Standards are established by Tennessee and approved by EPA.

**Watershed.** A geographic area which drains to a common outlet, such as a point on a larger stream, lake, underlying aquifer, estuary, wetland, or ocean.

**WET.** Whole Effluent Toxicity.

**WWTP.** Waste Water Treatment Plant
In 1996, the Tennessee Department of Environment and Conservation Division of Water Pollution Control adopted a watershed approach to water quality. This approach is based on the idea that many water quality problems, like the accumulation of point and nonpoint pollutants, are best addressed at the watershed level. Focusing on the whole watershed helps reach the best balance among efforts to control point sources of pollution and polluted runoff as well as protect drinking water sources and sensitive natural resources such as wetlands. Tennessee has chosen to use the USGS 8-digit Hydrologic Unit Code (HUC-8) as the organizing unit.

The Watershed Approach recognizes awareness that restoring and maintaining our waters requires crossing traditional barriers (point vs. nonpoint sources of pollution) when designing solutions. These solutions increasingly rely on participation by both public and private sectors, where citizens, elected officials, and technical personnel all have opportunities to participate. The Watershed Approach provides the framework for a watershed-based and community-based approach to address water quality problems.

Chapter 1 of the Upper Elk River Watershed Water Quality Management Plan discusses the Watershed Approach and emphasizes that the Watershed Approach is not a regulatory program or an EPA mandate; rather it is a decision-making process that reflects a common strategy for information collection and analysis as well as a common understanding of the roles, priorities, and responsibilities of all stakeholders within a watershed. Traditional activities like permitting, planning and monitoring are also coordinated in the Watershed Approach.

A detailed description of the watershed can be found in Chapter 2. The Upper Elk River Watershed is approximately 1,277 square miles and includes parts of eight Middle Tennessee counties. A part of the Tennessee River drainage basin, the watershed has 1,813 stream miles.

Land Use in the Upper Elk River Watershed is based on MRLC Satellite Imagery.

One Designated State Natural Areas, two interpretive areas, and one wildlife management area are located in the watershed. Eighty-seven rare plant and animal species have been documented in the watershed, including four rare fish species, thirteen rare mussel species, three rare snail species, and one rare crustacean species. Portions of one stream in the Upper Elk River Watershed are listed in the National Rivers Inventory as having one or more outstanding natural or cultural values.

A review of water quality sampling and assessment is presented in Chapter 3. Using the Watershed Approach to Water Quality, 78 sampling sites were utilized in the Upper Elk River Watershed. These were ambient, ecoregion, watershed monitoring sites or ARAP inspection sites. Monitoring results support the conclusion that 50% of total stream miles (based on RF3) fully support designated uses.

Water Quality Assessment in the Upper Elk River Watershed is Based on the 1998 303(d) List.
Also in Chapter 3, a series of maps illustrate Overall Use Support in the watershed, as well as Use Support for the individual uses of Fish and Aquatic Life Support, Recreation, Irrigation, and Livestock Watering and Wildlife. Another series of maps illustrate streams that are listed for impairment by specific causes (pollutants) such as Organic Enrichment/Low Dissolved Oxygen, Pathogens, Habitat Alteration and Siltation.

Point and Nonpoint Sources are addressed in Chapter 4, which is organized by HUC-10 subwatersheds. Maps illustrating the locations of STORET monitoring sites and USGS stream gauging stations are presented in each subwatershed.

Point source contributions to the Upper Elk River Watershed consist of nine individual NPDES-permitted facilities, one of which discharges into streams that have been listed on the 1998 303(d) list. Other point source permits in the watershed are Aquatic Resource Alteration Permits (129), Tennessee Multi-Sector Permits (41), Mining Permits (11), Water Treatment Plant Permits (2) and Concentrated Animal Feeding Operation Permits (7). Agricultural operations include cattle, chicken, hog, and sheep farming. Maps illustrating the locations of NPDES and ARAP permit sites are presented in each subwatershed.

Chapter 5 is entitled Water Quality Partnerships in the Upper Elk River Watershed and highlights partnerships between agencies and between agencies and landowners that are essential to success. Programs of federal agencies (Natural Resources Conservation Service, U.S. Fish and Wildlife Service, U.S. Geological Survey, Tennessee Valley Authority), and state agencies (TDEC Division of Community Assistance, TDEC Division of Water Supply, and Tennessee Department of Agriculture) are summarized. Local initiatives of active watershed organizations (Tims Ford Council) are also described.

Point and Nonpoint source approaches to water quality problems in the Upper Elk River Watershed are addressed in Chapter 6. Chapter 6 also includes comments received during public meetings, along with an assessment of needs for the watershed.

The full Upper Elk River Watershed Water Quality Management Plan can be found at: http://www.state.tn.us/environment/wpc/watershed/wsmplans/.
1.1 BACKGROUND. The Division of Water Pollution Control is responsible for administration of the Tennessee Water Quality Control Act of 1977 (TCA 69–3–101). Information about the Division of Water Pollution Control, updates and announcements, may be found at [http://www.state.tn.us/environment/wpc/index.html](http://www.state.tn.us/environment/wpc/index.html), and a summary of the organization of the Division of Water Pollution Control may be found in Appendix I.

The mission of the Division of Water Pollution Control is to abate existing pollution of the waters of Tennessee, to reclaim polluted waters, to prevent the future pollution of the waters, and to plan for the future use of the waters so that the water resources of Tennessee might be used and enjoyed to the fullest extent consistent with the maintenance of unpolluted waters.

The Division monitors, analyzes, and reports on the quality of Tennessee's water. In order to perform these tasks more effectively, the Division adopted a Watershed Approach to Water Quality in 1996.

This Chapter summarizes TDEC's Watershed Approach to Water Quality.

1.2 WATERSHED APPROACH TO WATER QUALITY. The Watershed Approach to Water Quality is a coordinating framework designed to protect and restore aquatic systems and protect human health more effectively (EPA841-R-95-003). The Approach is based on the concept that many water quality problems, like the accumulation of pollutants or nonpoint source pollution, are best addressed at the watershed level. In addition, a watershed focus helps identify the most cost-effective pollution control strategies to meet clean water goals. Tennessee’s Watershed Approach, updates and public participation opportunities, may be found on the web at [http://www.state.tn.us/environment/wpc/wshed1.htm](http://www.state.tn.us/environment/wpc/wshed1.htm).
Watersheds are appropriate as organizational units because they are readily identifiable landscape units with readily identifiable boundaries that integrate terrestrial, aquatic, and geologic processes. Focusing on the whole watershed helps reach the best balance among efforts to control point source pollution and polluted runoff as well as protect drinking water sources and sensitive natural resources such as wetlands (EPA-840-R-98-001).

Four main features are typical of the Watershed Approach: 1) Identifying and prioritizing water quality problems in the watershed, 2) Developing increased public involvement, 3) Coordinating activities with other agencies, and 4) Measuring success through increased and more efficient monitoring and other data gathering.

Typically, the Watershed Approach meets the following description (EPA841-R-95-003):

- Features watersheds or basins as the basic management units
- Targets priority subwatersheds for management action
- Addresses all significant point and nonpoint sources of pollution
- Addresses all significant pollutants
- Sets clear and achievable goals
- Involves the local citizenry in all stages of the program
- Uses the resources and expertise of multiple agencies
- Is not limited by any single agency’s responsibilities
- Considers public health issues

An additional characteristic of the Watershed Approach is that it complements other environmental activities. This allows for close cooperation with other state agencies and local governments as well as with federal agencies such as the Tennessee Valley Authority and the U.S. Army Corps of Engineers, U.S. Department of Agriculture (e.g., Natural Resources Conservation Service, United States Forest Service), U.S. Department of the Interior (e.g. United States Geological Survey, U.S. Fish and Wildlife Service, National Park Service). When all permitted dischargers are considered together, agencies are better able to focus on those controls necessary to produce measurable improvements in water quality. This also results in a more efficient process: It encourages agencies to focus staff and financial resources on prioritized geographic locations and makes it easier to coordinate between agencies and individuals with an interest in solving water quality problems (EPA841-R-003).

The Watershed Approach is not a regulatory program or a new EPA mandate; rather it is a decision making process that reflects a common strategy for information collection and analysis as well as a common understanding of the roles, priorities, and responsibilities of all stakeholders within a watershed. The Watershed Approach utilizes features already in state and federal law, including:

- Water Quality Standards
- National Pollutant Discharge Elimination System (NPDES)
- Total Maximum Daily Loads (TMDLs)
- Clean Lakes Program
- Nonpoint Source Program
- Groundwater Protection
Traditional activities like permitting, planning, and monitoring are also coordinated in the Watershed Approach. A significant change from the past, however, is that the Watershed Approach encourages integration of traditional regulatory (point source pollution) and nonregulatory (nonpoint sources of pollution) programs. There are additional changes from the past as well:

<table>
<thead>
<tr>
<th>THE PAST</th>
<th>WATERSHED APPROACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on fixed-station ambient monitoring</td>
<td>Focus on comprehensive watershed monitoring</td>
</tr>
<tr>
<td>Focus on pollutant discharge sites</td>
<td>Focus on watershed-wide effects</td>
</tr>
<tr>
<td>Focus on WPC programs</td>
<td>Focus on coordination and cooperation</td>
</tr>
<tr>
<td>Focus on point sources of pollution</td>
<td>Focus on all sources of pollution</td>
</tr>
<tr>
<td>Focus on dischargers as the problem</td>
<td>Focus on dischargers as an integral part of the solution</td>
</tr>
<tr>
<td>Focus on short-term problems</td>
<td>Focus on long-term solutions</td>
</tr>
</tbody>
</table>

Table 1-1. Contrast Between the Watershed Approach and the Past.

This approach places greater emphasis on all aspects of water quality, including chemical water quality (conventional pollutants, toxic pollutants), physical water quality (temperature, flow), habitat quality (channel morphology, composition and health of benthic communities), and biodiversity (species abundance, species richness).

1.2.A. Components of the Watershed Approach. Tennessee is composed of fifty-five watersheds corresponding to the 8-digit USGS Hydrologic Unit Codes (HUC-8). These watersheds, which serve as geographic management units, are combined in five groups according to year of implementation.

Figure 1-1. Watershed Groups in Tennessee's Watershed Approach to Water Quality.
Each year, TDEC conducts monitoring in one-fifth of Tennessee's watersheds; assessment, priority setting and follow-up monitoring are conducted in another one fifth of watersheds; modeling and TMDL studies in another one fifth; developing management plans in another one fifth; and implementing management plans in another one fifth of watersheds.

<table>
<thead>
<tr>
<th>GROUP</th>
<th>WEST TENNESSEE</th>
<th>MIDDLE TENNESSEE</th>
<th>EAST TENNESSEE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nonconnah</td>
<td>Harpeth</td>
<td>Conasauga</td>
</tr>
<tr>
<td></td>
<td>South Fork</td>
<td>Stones</td>
<td>Emory</td>
</tr>
<tr>
<td></td>
<td>Forked Deer</td>
<td></td>
<td>Ocoee</td>
</tr>
<tr>
<td></td>
<td>South Fork</td>
<td></td>
<td>Watauga</td>
</tr>
<tr>
<td></td>
<td>Forked Deer</td>
<td></td>
<td>Watts Bar</td>
</tr>
<tr>
<td>2</td>
<td>Loosahatchie</td>
<td>Caney Fork</td>
<td>Fort Loudoun</td>
</tr>
<tr>
<td></td>
<td>Middle Fork</td>
<td>Collins</td>
<td>Hiwassee</td>
</tr>
<tr>
<td></td>
<td>Forked Deer</td>
<td>Lower Elk</td>
<td>South Fork</td>
</tr>
<tr>
<td></td>
<td>North Fork</td>
<td>Pickwick Lake</td>
<td>Holston</td>
</tr>
<tr>
<td></td>
<td>Forked Deer</td>
<td>Upper Elk</td>
<td>Powell</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wheeler Lake</td>
<td>South Fork</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cumberland</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Cordell Hull</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lake)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Upper Cumberland</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Old Hickory</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lake)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Upper Cumberland</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Cumberland</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lake)</td>
</tr>
<tr>
<td>3</td>
<td>Tennessee</td>
<td>Buffalo</td>
<td>Little Tennessee</td>
</tr>
<tr>
<td></td>
<td>Western Valley</td>
<td>Lower Duck</td>
<td>Lower Clinch</td>
</tr>
<tr>
<td></td>
<td>(Beech River)</td>
<td>Upper Duck</td>
<td>North Fork</td>
</tr>
<tr>
<td></td>
<td>Tennessee</td>
<td></td>
<td>Holston</td>
</tr>
<tr>
<td></td>
<td>Western Valley</td>
<td></td>
<td>Powell</td>
</tr>
<tr>
<td></td>
<td>(KY Lake)</td>
<td></td>
<td>South Fork</td>
</tr>
<tr>
<td></td>
<td>Wolf River</td>
<td></td>
<td>Cumberland</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Lower)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Upper)</td>
</tr>
<tr>
<td>4</td>
<td>Lower Hatchie</td>
<td>Barren</td>
<td>Holston</td>
</tr>
<tr>
<td></td>
<td>Upper Hatchie</td>
<td>Obey</td>
<td>Powell</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Red</td>
<td>South Fork</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Upper Cumberland</td>
<td>Cumberland</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Cordell Hull</td>
<td>(Lower)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lake)</td>
<td>Upper Clinch</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Upper Cumberland</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Clear Fork)</td>
</tr>
<tr>
<td>5</td>
<td>Mississippi</td>
<td>Guntersville Lake</td>
<td>Lower French</td>
</tr>
<tr>
<td></td>
<td>North Fork</td>
<td>Lower Cumberland</td>
<td>Broad</td>
</tr>
<tr>
<td></td>
<td>Obion</td>
<td>(Cheatham Lake)</td>
<td>Nolichucky</td>
</tr>
<tr>
<td></td>
<td>South Fork</td>
<td>Lower Cumberland</td>
<td>Pigeon</td>
</tr>
<tr>
<td></td>
<td>Obion</td>
<td>(Lake Barkley)</td>
<td>Upper French</td>
</tr>
</tbody>
</table>

*Table 1-2. Watershed Groups in Tennessee’s Watershed Approach.*
In succeeding years of the cycle, efforts rotate among the watershed groups. The activities in the five year cycle provide a reference for all stakeholders.

Figure 1-2. The Watershed Approach Cycle.
The six key activities that take place during the cycle are:

1. Planning and Existing Data Review. Existing data and reports from appropriate agencies and organizations are compiled and used to describe the current conditions and status of rivers and streams. Reviewing all existing data and comparing agencies’ work plans guide the development of an effective monitoring strategy.

2. Monitoring. Field data is collected for streams in the watershed. These data supplement existing data and are used for the water quality assessment.

3. Assessment. Monitoring data are used to determine the status of the stream’s designated use supports.

4. Wasteload Allocation/TMDL Development. Monitoring data are used to determine nonpoint source contributions and pollutant loads for permitted dischargers releasing wastewater to the watershed. Limits are set to assure that water quality is protected.

5. Permits. Issuance and expiration of all discharge permits are synchronized based on watersheds. Currently, 1700 permits have been issued in Tennessee under the federally delegated National Pollutant Discharge Elimination System (NPDES).

6. Watershed Management Plans. These plans include information for each watershed including general watershed description, water quality goals, major water quality concerns and issues, and management strategies.

Public participation opportunities occur throughout the entire five year cycle. Participation in Years 1, 3 and 5 is emphasized, although additional meetings are held at stakeholder’s request. People tend to participate more readily and actively in protecting the quality of waters in areas where they live and work, and have some roles and responsibilities:

- Data sharing
- Identification of water quality stressors
- Participation in public meetings
- Commenting on management plans
- Shared commitment for plan implementation
1.2.B: Benefits of the Watershed Approach. The Watershed Approach fosters a better understanding of the physical, chemical and biological effects on a watershed, thereby allowing agencies and citizens to focus on those solutions most likely to be effective. The Approach recognizes the need for a comprehensive, ecosystem-based approach that depends on local governments and local citizens for success (EPA841-R-95-004). On a larger scale, many lessons integrating public participation with aquatic ecosystem-based programs have been learned in the successful Chesapeake Bay, Great Lakes, Clean Lakes, and National Estuary Programs.

Benefits of the Watershed Approach include (EPA841-R-95-004):

- Focus on water quality goals and ecological integrity rather than on program activities such as number of permits issued.

- Improve basis for management decisions through consideration of both point and nonpoint source stressors. A watershed strategy improves the scientific basis for decision making and focuses management efforts on basins and watersheds where they are most needed. Both point and nonpoint control strategies are more effective under a watershed approach because the Approach promotes timely and focused development of TMDLs.

- Enhance program efficiency, as the focus becomes watershed. A watershed focus can improve the efficiency of water management programs by facilitating consolidation of programs within each watershed. For example, handling all point source dischargers in a watershed at the same time reduces administrative costs due to the potential to combine hearings and notices as well as allowing staff to focus on more limited areas in a sequential fashion.

- Improve coordination between federal, state and local agencies including data sharing and pooling of resources. As the focus shifts to watersheds, agencies are better able to participate in data sharing and coordinated assessment and control strategies.

- Increase public involvement. The Watershed Approach provides opportunities for stakeholders to increase their awareness of water-related issues and inform staff about their knowledge of the watershed. Participation is via three public meetings over the five-year watershed management cycle as well as meetings at stakeholder’s request. Additional opportunities are provided through the Department of Environment and Conservation homepage and direct contact with local Environmental Assistance Centers.

- Greater consistency and responsiveness. Developing goals and management plans for a basin or watershed with stakeholder involvement results in increased responsiveness to the public and consistency in determining management actions. In return, stakeholders can expect improved consistency and continuity in decisions when management actions follow a watershed plan.
Additional benefits of working at the watershed level are described in the Clean Water Action Plan (EPA-840-R-98-001), and can be viewed at http://www.cleanwater.gov/action/toc.html.

The Watershed Approach represents awareness that restoring and maintaining our waters requires crossing traditional barriers (point vs. nonpoint sources of pollution) when designing solutions. These solutions increasingly rely on participation by both public and private sectors, where citizens, elected officials and technical personnel all have opportunity to participate. This integrated approach mirrors the complicated relationships in which people live, work and recreate in the watershed, and suggests a comprehensive, watershed-based and community-based approach is needed to address these (EPA841-R-97-005).
CHAPTER 2

DESCRIPTION OF THE UPPER ELK RIVER WATERSHED

2.1. Background

2.2. Description of the Watershed
   2.2.A. General Location
   2.2.B. Population Density Centers

2.3. General Hydrologic Description
   2.3.A. Hydrology
   2.3.B. Dams

2.4. Land Use

2.5. Ecoregions and Reference Streams

2.6. Natural Resources
   2.6.A. Designated State Natural Areas
   2.6.B. Rare Plants and Animals
   2.6.C. Wetlands

2.7. Cultural Resources
   2.7.A. Nationwide Rivers Inventory
   2.7.B. Interpretive Areas
   2.7.C. Wildlife Management Area

2.8. Tennessee Rivers Assessment Project

2.1. BACKGROUND: The Upper Elk River Watershed contains productive, nutrient-rich waters, resulting in algae, rooted vegetation, and occasionally high densities of fish. The plateau of the watershed receives slightly more precipitation with cooler annual temperatures than the surrounding lower-elevation regions and is characterized by high gradient streams.

Tims Ford and Woods Reservoirs, managed by TVA, are popular boating and fishing areas. The lakes support largemouth and smallmouth bass, while areas below the dams are fished for stocked rainbow trout. The land supports cotton, corn, and soybean production as well as swine and cattle.

This Chapter describes the location and characteristics of the Upper Elk River Watershed.
2.2. DESCRIPTION OF THE WATERSHED.

**2.2.A. General Location.** The Upper Elk River Watershed is located in Middle Tennessee and includes parts of Bedford, Coffee, Franklin, Giles, Grundy, Lincoln, Marshall, and Moore Counties.

![General Location of the Upper Elk River Watershed.](image)

<table>
<thead>
<tr>
<th>COUNTY</th>
<th>% OF WATERSHED IN EACH COUNTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lincoln</td>
<td>33.4</td>
</tr>
<tr>
<td>Franklin</td>
<td>30.1</td>
</tr>
<tr>
<td>Moore</td>
<td>9.7</td>
</tr>
<tr>
<td>Coffee</td>
<td>8.7</td>
</tr>
<tr>
<td>Grundy</td>
<td>7.6</td>
</tr>
<tr>
<td>Giles</td>
<td>6.1</td>
</tr>
<tr>
<td>Marshall</td>
<td>4.3</td>
</tr>
<tr>
<td>Bedford</td>
<td>0.1</td>
</tr>
</tbody>
</table>

*Table 2-1. The Upper Elk River Watershed Includes Parts of Eight Middle Tennessee Counties.*
2.2.B. Population Density Centers. Six state highways and two interstates serve the major communities in the Upper Elk River Watershed.

![Figure 2-2. Municipalities and Roads in the Upper Elk River Watershed.](image)

<table>
<thead>
<tr>
<th>MUNICIPALITY</th>
<th>POPULATION</th>
<th>COUNTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tullahoma</td>
<td>18,835</td>
<td>Coffee, Franklin</td>
</tr>
<tr>
<td>Fayetteville*</td>
<td>7,211</td>
<td>Lincoln</td>
</tr>
<tr>
<td>Winchester*</td>
<td>6,515</td>
<td>Franklin</td>
</tr>
<tr>
<td>Lynchburg*</td>
<td>5,241</td>
<td>Moore</td>
</tr>
<tr>
<td>Decherd</td>
<td>2,326</td>
<td>Franklin</td>
</tr>
<tr>
<td>Cowan</td>
<td>1,752</td>
<td>Franklin</td>
</tr>
<tr>
<td>Estill Springs</td>
<td>1,466</td>
<td>Franklin</td>
</tr>
<tr>
<td>Monteagle</td>
<td>1,029</td>
<td>Marion, Grundy</td>
</tr>
<tr>
<td>Huntland</td>
<td>854</td>
<td>Franklin</td>
</tr>
<tr>
<td>Petersburg</td>
<td>503</td>
<td>Lincoln, Marshall</td>
</tr>
<tr>
<td>Elkton</td>
<td>501</td>
<td>Giles</td>
</tr>
</tbody>
</table>

2.3. GENERAL HYDROLOGIC DESCRIPTION.

2.3.A. Hydrology. The Upper Elk River Watershed, designated 06030003 by the USGS, drains approximately 1,277 square miles before flowing into the Lower Elk River Watershed.

*Figure 2-3. The Upper Elk River Watershed is Part of the Tennessee River Basin.*
Figure 2-4. Hydrology in the Upper Elk River Watershed. There are 1,813 total stream miles recorded in River Reach File 3 in the Upper Elk River Watershed. Location of the Elk River, Tims Ford and Woods Reservoirs, and the cities of Fayetteville, Monteagle, and Tullahoma are shown for reference.
2.3.B. Dams. There are 22 dams inventoried by TDEC Division of Water Supply in the Upper Elk River Watershed. These dams either retain 30 acre-feet of water or have structures at least 20 feet high.

Figure 2-5. Location of Inventoried Dams in the Upper Elk River Watershed. More information is provided in Upper Elk-Appendix II and on the TDEC homepage at:
http://gwidc.gwi.memphis.edu/website/dams/viewer.htm
2.4. LAND USE: Land Use/Land Cover information was provided by EPA Region 4 and was interpreted from 1992 Multi-Resolution Land Cover (MRLC) satellite imagery.

Figure 2-6. Illustration of Select Land Cover/Land Use Data from MRLC Satellite Imagery.
Figure 2-7. Land Use Distribution in the Upper Elk River Watershed. More information is provided in Upper Elk-Appendix II.
2.5. ECOREGIONS AND REFERENCE STREAMS. Ecoregions are relatively homogeneous areas of similar geography, topography, climate and soils that support similar plant and animal life. Ecoregions serve as a spatial framework for the assessment, management, and monitoring of ecosystems and ecosystem components. Ecoregion studies can aid the selection of regional stream reference sites, identifying high quality waters, and developing ecoregion-specific chemical and biological water quality criteria.

There are eight Level III Ecoregions and twenty-five Level IV subecoregions in Tennessee. The Upper Elk River Watershed lies within 2 Level III ecoregions (Interior Plateau and Southwestern Appalachians) and contains 4 Level IV subecoregions (Griffen, Omernik, Azavedo):

- The Cumberland Plateau’s (68a) tablelands and open low mountains are about 1000 feet higher than the ecoregion to the west, and receive slightly more precipitation with cooler annual temperatures than the surrounding lower-elevation ecoregions. The plateau surface is less dissected with lower relief than other ecoregions. Elevations are usually 1200-2000 feet, with the Crab Orchard Mountains reaching over 3000 feet. Pennsylvanian-age conglomerate, sandstone, siltstone, and shale is covered by mostly well-drained, acid soils of low fertility. The region is forested, with some agriculture and coal mining activities.

- The Plateau Escarpment (68c) is characterized by steep, forested slopes and high velocity, high gradient streams. Local relief is often 1000 feet or more. The geologic strata include Mississippian-age limestone, sandstone, shale, and siltstone, and Pennsylvanian-age shale, siltstone, sandstone, and conglomerate. Streams have cut down into the limestone, but the gorge talus slopes are composed of colluvium with huge angular, slabby blocks of sandstone. Vegetation community types in the ravines and gorges include mixed oak and chestnut oak on the upper slopes, more mesic forests on the middle and lower slopes (beech-tulip poplar, sugar maple-baswood-ash-buckeye), with hemlock along rocky streamsides and river birch along floodplain terraces.

- The Eastern Highland Rim (71g) has level terrain, with landforms characterized as tablelands of moderate relief and irregular plains. Mississippian-age limestone, chert, shale, and dolomite predominate, and karst terrain sinkholes and depressions are especially noticeable between Sparta and McMinnville. Numerous springs and spring-associated fish fauna also typify the region. Natural vegetation for the region is transitional between the oak-hickory type to the west and the mixed mesophytic forests of the Appalachian ecoregions to the east. Bottomland hardwood forests were once abundant in some areas, although much of the original bottomland forest has been inundated by several large impoundments. Barrens and former prairie areas are now mostly oak thickets or pasture and cropland.

- The Outer Nashville Basin (71h) is a heterogeneous region, with rolling and hilly topography and slightly higher elevations. The region encompasses most of the outer areas of the generally no-cherty Mississippian-age
formations, and some Devonian-age Chattanooga shale, remnants of the Highland Rim. The region’s limestone rocks and soils are high in phosphorus, and commercial phosphate is mined. Deciduous forest with pasture and cropland are the dominant land covers. Streams are low to moderate gradient, with productive, nutrient-rich waters, resulting in algae, rooted vegetation, and occasionally high densities of fish. The Nashville Basin as a whole has a distinctive fish fauna, notable for fish that avoid the region, as well as those that are present.
Each Level IV Ecoregion has at least one reference stream associated with it. A reference stream represents a least impacted condition and may not be representative of a pristine condition.

**Figure 2-9. Ecoregion Monitoring Sites in Level IV Ecoregions 68a, 68c, 71g, and 71h.** The Upper Elk River Watershed is shown for reference. More information is provided in Upper Elk-Appendix II.
2.6. NATURAL RESOURCES.

2.6.A. Designated State Natural Areas. The Natural Areas Program was established in 1971 with the passage of the Natural Areas Preservation Act. The Upper Elk River Watershed has one Designated State Natural Area:

Figure 2-10. Hawkins Cove Designated State Natural Area is in the Upper Elk River Watershed.
2.6. B: Rare Plants and Animals. The Heritage Program in the TDEC Division of Natural Heritage maintains a database of rare species that is shared by partners at The Nature Conservancy, Tennessee Wildlife Resources Agency, the US Fish and Wildlife Service, and the Tennessee Valley Authority. The information is used to: 1) track the occurrence of rare species in order to accomplish the goals of site conservation planning and protection of biological diversity, 2) identify the need for, and status of, recovery plans, and 3) conduct environmental reviews in compliance with the federal Endangered Species Act.

<table>
<thead>
<tr>
<th>GROUPING</th>
<th>NUMBER OF RARE SPECIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crustaceans</td>
<td>1</td>
</tr>
<tr>
<td>Insects</td>
<td>1</td>
</tr>
<tr>
<td>Mussels</td>
<td>13</td>
</tr>
<tr>
<td>Snails</td>
<td>3</td>
</tr>
<tr>
<td>Amphibians</td>
<td>1</td>
</tr>
<tr>
<td>Birds</td>
<td>6</td>
</tr>
<tr>
<td>Fish</td>
<td>4</td>
</tr>
<tr>
<td>Mammals</td>
<td>3</td>
</tr>
<tr>
<td>Reptiles</td>
<td>0</td>
</tr>
<tr>
<td>Plants</td>
<td>55</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>87</strong></td>
</tr>
</tbody>
</table>

*Table 2-3. There are 87 Rare Plant and Animal Species in the Upper Elk River Watershed.*
In the Upper Elk River Watershed, there are four rare fish species, thirteen rare mussel species, and three rare snail species.

<table>
<thead>
<tr>
<th>SCIENTIFIC NAME</th>
<th>COMMON NAME</th>
<th>FEDERAL STATUS</th>
<th>STATE STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carpiodes velifer</td>
<td>Highfin carpsucker</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>Fundulus julisia</td>
<td>Barrens topminnow</td>
<td>MC</td>
<td>E</td>
</tr>
<tr>
<td>Etheostoma cinereum</td>
<td>Ashy darter</td>
<td>MC</td>
<td>T</td>
</tr>
<tr>
<td>Etheostoma wapiti</td>
<td>Boulder darter</td>
<td>LE</td>
<td>E</td>
</tr>
<tr>
<td>Dromus dromas</td>
<td>Dromedary pearlymussel</td>
<td>LE</td>
<td>E</td>
</tr>
<tr>
<td>Fusconaia edgarina</td>
<td>Shiny pigtoe</td>
<td>LE</td>
<td>E</td>
</tr>
<tr>
<td>Fusconaia cuneolus</td>
<td>Fine-rayed pigtoe</td>
<td>LE</td>
<td>E</td>
</tr>
<tr>
<td>Hemistena lata</td>
<td>Cracking pearlymussel</td>
<td>LE</td>
<td>E</td>
</tr>
<tr>
<td>Conradilla caelata</td>
<td>Birdwing pearlymussel</td>
<td>LE</td>
<td>E</td>
</tr>
<tr>
<td>Obovaria subrotunda</td>
<td>Round hickorynut</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pegias fabula</td>
<td>Little-wing pearlymussel</td>
<td>LE</td>
<td>E</td>
</tr>
<tr>
<td>Pleurobema oviforme</td>
<td>Tennessee clubshell</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ptychobranchus subtentum</td>
<td>Fluted kidneyshell</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Quadrula intermedia</td>
<td>Cumberland monkeyface</td>
<td>LE</td>
<td>E</td>
</tr>
<tr>
<td>Toxolasma cylindrellus</td>
<td>Pale lilliput</td>
<td>LE</td>
<td>E</td>
</tr>
<tr>
<td>Toxolasma lividum</td>
<td>Purple lilliput</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Villosa fabalis</td>
<td>Rayed bean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leptoxis subglovosa umbilicata</td>
<td>Umbilicate rocksnail</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithasia geniculata</td>
<td>Ornate rocksnail</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithasia lima</td>
<td>Warty rocksnail</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.6.C. Wetlands. The Division of Natural Heritage maintains a database of wetland records in Tennessee. These records are a compilation of field data from wetland sites inventoried by various state and federal agencies. Maintaining this database is part of Tennessee’s Wetland Strategy, which is described at http://www.state.tn.us/environment/epo/wetlands/strategy.zip.

Figure 2-11. Location of Wetland Sites in TDEC Division of Natural Heritage Database in Upper Elk River Watershed. This map represents an incomplete inventory and should not be considered a dependable indicator of the presence of wetlands in the watershed. More information is provided in Upper Elk-Appendix II.
2.7. CULTURAL RESOURCES.

2.7.A. Nationwide Rivers Inventory. The Nationwide Rivers Inventory, required under the Federal Wild and Scenic Rivers Act of 1968, is a listing of free-flowing rivers that are believed to possess one or more outstanding natural or cultural values. Exceptional scenery, fishing or boating, unusual geologic formations, rare plant and animal life, cultural or historic artifacts that are judged to be of more than local or regional significance are the values that qualify a river segment for listing. The Tennessee Department of Environment and Conservation and the Rivers and Trails Conservation Assistance branch of the National Park Service jointly compile the Nationwide Rivers Inventory from time to time (most recently in 1997). Under a 1980 directive from the President’s Council on Environmental Quality, all Federal agencies must seek to avoid or mitigate actions that would have an adverse effect on Nationwide Rivers Inventory segments.

The most recent version of the Nationwide Rivers Inventory lists portions of one stream in the Upper Elk River Watershed:

Elk River, significant recorded archaeological sites; fine float and game fish stream.

<table>
<thead>
<tr>
<th>RIVER</th>
<th>SCENIC</th>
<th>RECREATION</th>
<th>FISH</th>
<th>WILDLIFE</th>
<th>HISTORIC</th>
<th>CULTURAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elk River</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

*Table 2-5. Attributes of Streams Listed in the Nationwide Rivers Inventory.*

Additional information may be found online at [http://www.ncrc.nps.gov/rtca/nri/tn.htm](http://www.ncrc.nps.gov/rtca/nri/tn.htm)

2.7.B. Interpretive Areas. Some sites representative of the cultural heritage are under state or federal protection:

- Tims Ford State Park, containing the 10,700 acre Tims Ford Reservoir and 5 miles of paved hiking trails.

- South Cumberland Recreation Area, located in Monteagle, is part of ten different park areas and offers a museum, scenic sites, and hiking trails.

In addition, many local interpretive areas are common, most notably, Elkton City Park and Drycreek Beach in Winchester.
2.7.C. Wildlife Management Area. The Tennessee Wildlife Resources Agency manages one Wildlife Management Area in the Upper Elk Watershed.

Figure 2-12. TWRA Manages Wildlife Management Areas in the Upper Elk River Watershed.
2.8. TENNESSEE RIVERS ASSESSMENT PROJECT. The Tennessee Rivers Assessment is part of a national program operating under the guidance of the National Park Service’s Rivers and Trails Conservation Assistance Program. The Assessment is an inventory of river resources, and should not be confused with “Assessment” as defined by the Environmental Protection Agency. A more complete description can be found in the Tennessee Rivers Assessment Summary Report, which is available from the Department of Environment and Conservation and on the web at:

http://www.state.tn.us/environment/wpc/publications/riv/

<table>
<thead>
<tr>
<th>STREAM</th>
<th>NSQ</th>
<th>RB</th>
<th>RF</th>
<th>STREAM</th>
<th>NSQ</th>
<th>RB</th>
<th>RF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency Creek</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>Lick Creek</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Big Lost Creek</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>North Mouse Creek</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Bullett Creek</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>Oostanaula Creek</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Candies Creek</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>Price Creek</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chatata Creek</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>Rogers Creek</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Chestuee Creek</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>South Chestuee Creek</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Childers Creek</td>
<td>1</td>
<td>3</td>
<td></td>
<td>South Mouse Creek</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Coker Creek</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>Spring Creek (Eastern)</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Conasauga Creek</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>Spring Creek (Western)</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Coppinger Creek</td>
<td>4</td>
<td>3</td>
<td></td>
<td>Sugar Creek</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gunstocker Creek</td>
<td>3</td>
<td>1,2</td>
<td>2</td>
<td>Towee Creek</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Upper Elk River</td>
<td>2,3</td>
<td>1,3</td>
<td></td>
<td>Turtletown Creek</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2-6. Stream Scoring from the Tennessee Rivers Assessment Project.

Categories: NSQ, Natural and Scenic Qualities
            RB, Recreational Boating
            RF, Recreational Fishing

Scores: 1. Statewide or greater Significance; Excellent Fishery
        2. Regional Significance; Good Fishery
        3. Local Significance; Fair Fishery
        4. Not a significant Resource; Not Assessed
CHAPTER 3

WATER QUALITY ASSESSMENT OF THE UPPER ELK RIVER WATERSHED

3.1 Background

3.2 Data Collection
   3.2.A. Ambient Monitoring Sites
   3.2.B. Ecoregion Sites
   3.2.C. Watershed Screening Sites
   3.2.D. Special Surveys

3.3 Status of Water Quality
   3.3.A. Assessment Summary
   3.3.B. Use Impairment Summary

3.4 Fluvial Geomorphology

3.1. BACKGROUND. Section 305(b) of The Clean Water Act requires states to report the status of water quality every two years. Historically, Tennessee’s methodologies, protocols, frequencies and locations of monitoring varied depending upon whether sites were ambient, ecoregion, or intensive survey. Alternatively, in areas where no direct sampling data existed, water quality may have been assessed by evaluation or by the knowledge and experience of the area by professional staff.

In 1996, Tennessee began the watershed approach to water quality protection. In the Watershed Approach, resources—both human and fiscal—are better used by assessing water quality more intensively on a watershed-by-watershed basis. In this approach, water quality is assessed in year three of the watershed cycle, following one to two years of data collection. More information about the Watershed Approach may be found in Chapter 1 and at http://www.state.tn.us/environment/wpc/watershed/.

The assessment information is used in the 305(b) Report (The Status of Water Quality in Tennessee) and the 303(d) list as required by the Clean Water Act.

The 305(b) Report documents the condition of the State’s waters. Its function is to provide information used for water quality based decisions, evaluate progress, and measure success.
Tennessee uses the 305(b) Report to meet four goals (from 2002 305(b) Report):

1. Assess the general water quality conditions of rivers, streams, lakes and wetlands
2. Identify causes of water pollution and the sources of pollutants
3. Specify waters which have been found to pose human health risks due to elevated bacteria levels or contamination of fish
4. Highlight areas of improved water quality

EPA aggregates the state use support information into a national assessment of the nation’s water quality. This aggregated use support information can be viewed at EPA’s “Surf Your Watershed” site at http://www.epa.gov/surf/

The 303(d) list is a compilation of the waters of Tennessee that are water quality limited and fail to support some or all of their classified uses. Water quality limited streams are those that have one or more properties that violate water quality standards. Therefore, the water body is considered to be impacted by pollution and is not fully meeting its designated uses. The 303(d) list does not include streams determined to be fully supporting designated uses as well as streams the Division of Water Pollution Control cannot assess due to lack of water quality information. Also absent are streams where a control strategy is already in the process of being implemented.

Once a stream is placed on the 303(d) list, it is considered a priority for water quality improvement efforts. These efforts not only include traditional regulatory approaches such as permit issuance, but also include efforts to control pollution sources that have historically been exempted from regulations, such as certain agricultural and forestry activities. If a stream is on the 303(d) list, the Division of Water Pollution Control cannot use its regulatory authority to allow additional sources of the same pollutant(s) for which it is listed.

States are required to develop Total Maximum Daily Loads (TMDLs) for 303(d)-listed waterbodies. The TMDL process establishes the maximum amount of a pollutant that a waterbody can assimilate without exceeding water quality standards and allocates this load among all contributing pollutant sources. The purpose of the TMDL is to establish water quality objectives required to reduce pollution from both point and nonpoint sources and to restore and maintain the quality of water resources.

The current 303(d) List is available on the TDEC homepage at: http://www.state.tn.us/environment/wpc/publications/2002303dpropfinal.pdf

and information about Tennessee’s TMDL program may be found at: http://www.state.tn.us/environment/wpc/tmdl/.

This chapter provides a summary of water quality in the Upper Elk River Watershed, summarizes data collection and assessment results, and describes impaired waters.
3.2. DATA COLLECTION. Comprehensive water quality monitoring in the Upper Elk River Watershed was conducted in 1997 and 1998. Data were collected from 82 sites and are from one of four types of sites: 1) Ambient sites, 2) Ecoregion sites, 3) Watershed sites or 4) Aquatic Resources Alteration Permit (ARAP) inspection sites.

Figure 3-1. Number of Sampling Sites Using the Traditional Approach (1996) and Watershed Approach (1999) in the Upper Elk River Watershed.
Figure 3-2. Location of Monitoring Sites in the Upper Elk River Watershed. Red, Watershed Monitoring Sites; Black, Observational Data Sites; Orange, Rapid Bioassessment Sites; Green, Ambient Monitoring Sites. Locations of Fayetteville, Monteagle, and Tullahoma are shown for reference.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>NUMBER</th>
<th>CHEMICAL ONLY</th>
<th>BIOLOGICAL ONLY</th>
<th>BIOLOGICAL PLUS CHEMICAL (FIELD PARAMETERS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient</td>
<td>9</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecoregion</td>
<td>1</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Watershed</td>
<td>67</td>
<td>67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARAP Site Inspections</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>78</strong></td>
<td><strong>27</strong></td>
<td><strong>68</strong></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

Table 3-1. Monitoring Sites in the Upper Elk River Watershed During the Data Collection Phase of the Watershed Approach.

In addition to the sampling events, 60 citizen complaints were investigated.
3.2.A. Ambient Monitoring Sites. These fixed-station chemical monitoring sites are sampled quarterly or monthly by the Environmental Assistance Center-Nashville and Environmental Assistance Center-Columbia staff (this is in addition to samples collected by water and wastewater treatment plant operators). Samples are analyzed by the Tennessee Department of Health, Division of Environmental Laboratory Services. Ambient monitoring data are used to assess water quality in major bodies of water where there are NPDES facilities and to identify trends in water quality. Water quality parameters traditionally measured at ambient sites in the Upper Elk River Watershed are provided in Upper Elk-Appendix IV.

Data from ambient monitoring stations are entered into the STORET (Storage and Retrieval) system administered by EPA. Some ambient monitoring stations are scheduled to be monitored as watershed sampling sites.

3.2.B. Ecoregion Sites. Ecoregions are relatively homogeneous areas of similar geography, topography, climate and soils that support similar plants and animals. The delineation phase of the Tennessee Ecoregion Project was completed in 1997 when the ecoregions and subecoregions were mapped and summarized (EPA/600/R-97/022). There are eight Level III Ecoregions and twenty-five Level IV subecoregions in Tennessee (see Chapter 2 for more details). The Upper Elk River Watershed lies within 2 Level III ecoregions (Interior Plateau and Southwestern Appalachians) and contains 4 subecoregions (Level IV):

- Cumberland Plateau (68a)
- Plateau Escarpment (68c)
- Eastern Highland Rim (71g)
- Outer Nashville Basin (71h)


Ecoregion stations are scheduled to be monitored as Watershed sampling sites.
Boxes and bars illustrate 10th, 25th, median, 75th, and 90th percentiles. Extreme values are also shown as dots. Fecal, fecal coliform bacteria; TN, Total Nitrogen; TP, Total Phosphorus.
Figure 3-4. Benthic Macroinvertebrate and Habitat Scores for Upper Elk River Watershed Ecoregion Sites. Boxes and bars illustrate 10th, 25th, median, 75th, and 90th percentiles. Extreme values are also shown as dots. NCBI, North Carolina Biotic Index. Index Score and Habitat Riffle/Run scoring system are described in TDEC’s Quality System Standard Operating Procedure for Macroinvertebrate Surveys (2002).

3.2.C. Watershed Screening Sites. Activities that take place at watershed sites are benthic macroinvertebrate stream surveys, physical habitat determinations and/or
chemical monitoring. Following review of existing data, watershed sites are selected in Year 1 of the watershed approach when preliminary monitoring strategies are developed. Additional sites may be added in Year 2 when additional monitoring strategies are implemented.

A Biological Reconnaissance (BioRecon) is used as a screening tool to describe the condition of water quality, in general, by determining the absence or presence of clean water indicator organisms, such as EPT (Ephemeroptera [mayfly], Plecoptera [stonefly], Trichoptera [caddisfly]). Factors and resources used for selecting BioRecon sites are:

- The current 303(d) list,
- HUC-10 maps (every HUC-10 is scheduled for a BioRecon)
- Land Use/Land Cover maps
- Topographic maps
- Locations of NPDES facilities
- Sites of recent ARAP activities.

An intensive multiple or single habitat assessment involves the regular monitoring of a station over a fixed period of time. Intensive surveys (Rapid Bioassessment Protocols) are performed when BioRecon results warrant it.

3.2.D. Special Surveys. These investigations are performed when needed and include:

- ARAP in-stream investigation
- Time-of-travel dye study
- Sediment oxygen demand study
- Lake eutrophication study

3.3. STATUS OF WATER QUALITY. Overall use support is a general description of water quality conditions in a water body based on determination of individual use supports. Use support determinations, which can be classified as monitored or evaluated, are based on:
All readily available data are considered, including data from TDEC Environmental Assistance Centers, Tennessee Department of Health (Aquatic Biology Section of Laboratory Services), Tennessee Wildlife Resources Agency, National Park Service, Tennessee Valley Authority, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Geological Survey, U.S. Forest Service, universities and colleges, the regulated community, and the private sector.

The assessment is based on the degree of support of designated uses as measured by compliance with Tennessee’s water quality standards.

**Figure 3-5a. Water Quality Assessment for Streams and Rivers in the Upper Elk River Watershed.** Assessment data are based on the 2000 Water Quality Assessment.
Figure 3-5b. Water Quality Assessment for Lakes in the Upper Elk River Watershed. Assessment data are based on the 2000 Water Quality Assessment. More information is provided in Upper Elk-Appendix III.

3.3.A. Assessment Summary.
Figure 3-6a. Overall Use Support Attainment in the Upper Elk River Watershed. Assessment data are based on the 2000 Water Quality Assessment. Blue, Fully Supports Designated Use; Yellow, Partially Supports Designated Use; Red, Does Not Support Designated Use; Gray, Not Assessed. Water Quality Standards are described at [http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm](http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm). Fayetteville, Monteagle, and Tullahoma are shown for reference. More information is provided in Upper Elk-Appendix III.
Figure 3-6b. Fish and Aquatic Life Use Support Attainment in the Upper Elk River Watershed. Assessment data are based on the 2000 Water Quality Assessment. Blue, Fully Supports Designated Use; Yellow, Partially Supports Designated Use; Red, Does Not Support Designated Use; Gray, Not Assessed. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Fayetteville, Monteagle, and Tullahoma are shown for reference.
Figure 3-6c. Recreation Use Support Attainment in the Upper Elk River Watershed. Assessment data are based on the 2000 Water Quality Assessment. Blue, Fully Supports Designated Use; Yellow, Partially Supports Designated Use; Red, does not support Designated Use; Gray, Not Assessed. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Fayetteville, Monteagle, and Tullahoma are shown for reference.
Figure 3-6d. Irrigation Use Support Attainment in the Upper Elk River Watershed. Assessment data are based on the 2000 Water Quality Assessment. Blue, Fully Supports Designated Use; Gray, Not Assessed. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Fayetteville, Monteagle, and Tullahoma are shown for reference.
Figure 3-6e. Livestock Watering and Wildlife Use Support Attainment in the Upper Elk River Watershed. Assessment data are based on the 2000 Water Quality Assessment. Blue, Fully Supports Designated Use; Gray, Not Assessed. Water Quality Standards are described at [http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm](http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm). Fayetteville, Monteagle, and Tullahoma are shown for reference.

3.3.B. Use Impairment Summary.
Figure 3-7a. Impaired Streams Due to Habitat Alteration in the Upper Elk River Watershed. Assessment data are based on the 2000 Water Quality Assessment.: Yellow, Partially Supports Designated Use; Red, Does Not Support Designated Use; Fayetteville, Monteagle, and Tullahoma are shown for reference. More information is provided in Upper Elk-Appendix III.
**Figure 3-7b. Impaired Streams Due to Organic Enrichment/Low Dissolved Oxygen Levels in the Upper Elk River Watershed.** Assessment data are based on the 2000 Water Quality Assessment. Yellow, Partially Supports designated Use; Red, Does Not Support Designated Use; Fayetteville, Monteagle, and Tullahoma are shown for reference. More information is provided in Upper Elk-Appendix III.
**Figure 3-7c. Impaired Streams Due to Pathogens in the Upper Elk River Watershed.** Assessment data are based on the 2000 Water Quality Assessment. Yellow, Partially Supports Designated Use; Red, Does Not Support Designated Use; Fayetteville, Monteagle, and Tullahoma are shown for reference. More information is provided in Upper Elk-Appendix III.
The listing of impaired waters that do not support designated uses (the 303(d) list) is traditionally submitted to EPA every two years. A copy of the most recent 303(d) list may be downloaded from: [http://www.state.tn.us/environment/water.htm](http://www.state.tn.us/environment/water.htm)

In the year 2002 and beyond, the 303(d) list will be compiled by using EPA’s ADB (Assessment Database) software developed by RTI (Research Triangle Institute). The ADB allows for a more detailed segmentation of waterbodies. While this results in a more accurate description of the status of water quality, it makes it difficult when comparing water quality assessments with and without using this tool. A more meaningful comparison will be between assessments conducted in Year 3 of each succeeding five-year cycle.

The ADB was used to create maps that illustrate water quality. These maps may be viewed on TDEC’s homepage at [http://www.state.tn.us/environment/water.htm](http://www.state.tn.us/environment/water.htm). Summary maps of each watershed may be viewed at [http://www.state.tn.us/environment/wpc/watershed/mapsummary.htm](http://www.state.tn.us/environment/wpc/watershed/mapsummary.htm).

### 3.4. FLUVIAL GEOMORPHOLOGY

Stream width, depth, and cross-sectional dimensions at bankful discharge are key parameters used in characterizing the shape and stability of rivers. Characterization of streams using the fluvial geomorphic stream classification system, which allows prediction of stream stability and physical evolution, is a valuable management tool (Rosgen, 1996).

A fluvial geomorphic curve illustrates relationships between drainage area, bankful dimensions of width, depth and cross-sectional area, and bankful discharge of stream
systems that are in dynamic equilibrium. It is a tool to evaluate and predict the physical impacts of channel modifications, flow alterations, and other watershed changes, as well as determining appropriate physical parameters for stream and riparian restoration. Regional curves have been developed and applied in various regions of the country since the mid-1970’s (Dunne and Leopold, 1978).

There are several benefits to using regional curves:

- Serving as a valuable regional-specific database for watershed management
- Providing an unbiased, scientific evaluation of the environmental impacts of proposed ARAP and other permitted activities
- Providing a scientific foundation for evaluating and documenting long-term geomorphic and hydrologic changes in the region
- Quantifying environmental impacts
- Suggesting the best approach to restore streams that have been modified

Ultimately, a regional curve will be created that illustrates the relationship between bankful width and drainage area.
CHAPTER 4

POINT AND NONPOINT SOURCE CHARACTERIZATION OF THE
UPPER ELK RIVER WATERSHED

4.1. Background.

4.2. Characterization of HUC-10 Subwatersheds
   4.2.A. 0603000301 (Elk River)
   4.2.B. 0603000302 (Elk River)
   4.2.C. 0603000303 (Elk River)
   4.2.D. 0603000304 (Boiling Fork Creek)
   4.2.E. 0603000305 (Elk River)
   4.2.F. 0603000306 (Beans Creek)
   4.2.G. 0603000307 (Mulberry Creek)
   4.2.H. 0603000308 (Cane Creek)
   4.2.I. 0603000309 (Elk River)

4.1. BACKGROUND. This chapter is organized by HUC-10 subwatershed, and the
description of each subwatershed is divided into four parts:

   i. General description of the subwatershed
   ii. Description of point source contributions
      ii.a. Description of facilities discharging to water bodies listed on the 1998 303(d) list
   iii. Description of nonpoint source contributions

The Upper Elk River Watershed (HUC 06030003) has been delineated into nine HUC
10-digit subwatersheds.

Information for this chapter was obtained from databases maintained by the Division of
Water Pollution Control or provided in the WCS (Watershed Characterization System)
data set. The WCS used was version 1.1 beta (developed by Tetra Tech, Inc for EPA
Region 4) released in 2000.

WCS integrates with ArcView® v3.2 and Spatial Analyst® v1.1 to analyze user-delineated
(sub)watersheds based on hydrologically connected water bodies. Reports are
generated by integrating WCS with Microsoft® Word. Land Use/Land Cover information
from 1992 MRLC (Multi-Resolution Land Cover) data are calculated based on the
proportion of county-based land use/land cover in user-delineated (sub)watersheds.
Nonpoint source data in WCS are based on agricultural census data collected 1992–
1998; nonpoint source data were reviewed by Tennessee NRCS staff.
Figure 4-1. The Upper Elk River Watershed is Composed of Nine USGS-Delineated Subwatersheds (10-Digit Subwatersheds). Locations of Fayetteville, Monteagle, and Tullahoma are shown for reference.
4.2. CHARACTERIZATION OF HUC-10 SUBWATERSHEDS. The Watershed Characterization System (WCS) software and data sets provided by EPA Region IV were used to characterize each subwatershed in the Hiwassee River Watershed.

<table>
<thead>
<tr>
<th>HUC-10</th>
<th>HUC-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>0603000301</td>
<td>060300030101 (Elk River)</td>
</tr>
<tr>
<td></td>
<td>060300030102 (Dry Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030103 (Elk River)</td>
</tr>
<tr>
<td>0603000302</td>
<td>060300030201 (Woods Reservoir)</td>
</tr>
<tr>
<td></td>
<td>060300030202 (Betsy Willis Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030203 (Mud Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030204 (Beans Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030205 (Bradley Creek)</td>
</tr>
<tr>
<td>0603000303</td>
<td>060300030301 (Tims Ford Reservoir)</td>
</tr>
<tr>
<td></td>
<td>060300030302 (Spring Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030303 (Hessey Branch)</td>
</tr>
<tr>
<td></td>
<td>060300030304 (Taylor Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030305 (Rock Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030306 (Little Hurricane Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030307 (Owl Hollow Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030308 (Hurricane Creek)</td>
</tr>
<tr>
<td>0603000304</td>
<td>060300030401 (Boiling Fork Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030402 (Norwood Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030403 (Dry Creek)</td>
</tr>
<tr>
<td>0603000305</td>
<td>060300030501 (Elk River)</td>
</tr>
<tr>
<td></td>
<td>060300030502 (Murrell Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030503 (Farris Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030504 (Elk River)</td>
</tr>
<tr>
<td></td>
<td>060300030505 (Elk River)</td>
</tr>
<tr>
<td></td>
<td>060300030506 (Norris Creek)</td>
</tr>
<tr>
<td>0603000306</td>
<td>060300030601 (Upper Beans Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030602 (Lower Beans Creek)</td>
</tr>
<tr>
<td>0603000307</td>
<td>060300030701 (East Fork Mulberry Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030702 (West Fork Mulberry Creek)</td>
</tr>
<tr>
<td>0603000308</td>
<td>060300030801 (Upper Cane Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030802 (Lower Cane Creek)</td>
</tr>
<tr>
<td>0603000309</td>
<td>060300030901 (Elk River)</td>
</tr>
<tr>
<td></td>
<td>060300030902 (Swan Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030903 (Elk River)</td>
</tr>
<tr>
<td></td>
<td>060300030904 (Bradshaw Creek)</td>
</tr>
<tr>
<td></td>
<td>060300030905 (Elk River)</td>
</tr>
</tbody>
</table>

Table 4-1. HUC-12 Drainage Areas are Nested Within HUC-10 Drainages. NRCS worked with USGS to delineate the HUC-10 and HUC-12 drainage boundaries.
4.2.A. 0603000301.

Figure 4-2. Location of Subwatershed 0603000301. All Upper Elk HUC-10 subwatershed boundaries are shown for reference.
4.2.A.i. General Description.

Figure 4-3. Illustration of Land Use Distribution in Subwatershed 0603000301.
Figure 4-4. Land Use Distribution in Subwatershed 0603000301. More information is provided in Upper Elk River-Appendix IV.
Figure 4-5. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000301.

Table 4-2. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000301. More details are provided in Upper Elk-Appendix IV.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Coffee</td>
<td>40,339</td>
<td>45,347</td>
<td>0.16</td>
<td>63</td>
<td>71</td>
<td>12.7</td>
</tr>
<tr>
<td>Franklin</td>
<td>34,725</td>
<td>37,152</td>
<td>0.12</td>
<td>41</td>
<td>44</td>
<td>7.3</td>
</tr>
<tr>
<td>Grundy</td>
<td>13,362</td>
<td>14,012</td>
<td>24.53</td>
<td>3,277</td>
<td>3,437</td>
<td>4.9</td>
</tr>
<tr>
<td>Marion</td>
<td>24,860</td>
<td>26,674</td>
<td>0.16</td>
<td>40</td>
<td>42</td>
<td>5.0</td>
</tr>
<tr>
<td>Totals</td>
<td>113,286</td>
<td>123,185</td>
<td></td>
<td>3,421</td>
<td>3,594</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Table 4-3. Population Estimates in Subwatershed 0603000301.

<table>
<thead>
<tr>
<th>Populated Place</th>
<th>County</th>
<th>Population</th>
<th>Total</th>
<th>Public Sewer</th>
<th>Septic Tank</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coalmont</td>
<td>Grundy</td>
<td>857</td>
<td>300</td>
<td>4</td>
<td>268</td>
<td>28</td>
</tr>
<tr>
<td>Monteagle</td>
<td>Marion</td>
<td>1,187</td>
<td>453</td>
<td>258</td>
<td>191</td>
<td>4</td>
</tr>
<tr>
<td>Tracy City</td>
<td>Grundy</td>
<td>1,512</td>
<td>660</td>
<td>43</td>
<td>603</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>3,556</strong></td>
<td><strong>1,413</strong></td>
<td><strong>305</strong></td>
<td><strong>1,062</strong></td>
<td><strong>46</strong></td>
</tr>
</tbody>
</table>

Table 4-4. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0603000301.
Figure 4-6. Location of Historical Streamflow Data Collection Sites in Subwatershed 0603000301. Subwatershed 060300030101, 060300030102, and 060300030103 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

Figure 4-7. Location of STORET Monitoring Sites in Subwatershed 0603000301. Subwatershed 060300030101, 060300030102, and 060300030103 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.
4.2.A.ii. Point Source Contributions.

Figure 4-8. Location of Active Point Source Facilities in Subwatershed 0603000301. Subwatershed 060300030101, 060300030102, and 060300030103 boundaries are shown for reference. More information is provided in the following charts.
Figure 4-9. Location of Active Point Source Facilities in Subwatershed 0603000301. Subwatershed 060300030101, 060300030102, and 060300030103 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

Figure 4-10. Location of Water Treatment Plant Sites in Subwatershed 0603000301. Subwatershed 060300030101, 060300030102, and 060300030103 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.
Figure 4-11. Location of Active Mining Sites in Subwatershed 0603000301. Subwatershed 060300030101, 060300030102, and 060300030103 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

Figure 4-12. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000301. Subwatershed 060300030101, 060300030102, and 060300030103 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.
4.2.A.iii. Nonpoint Source Contributions.

<table>
<thead>
<tr>
<th>LIVESTOCK (COUNTS)</th>
<th>Beef Cow</th>
<th>Cattle</th>
<th>Milk Cow</th>
<th>Chickens</th>
<th>Chickens Sold</th>
<th>Hogs</th>
<th>Sheep</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,367</td>
<td>3,195</td>
<td>193</td>
<td>6</td>
<td>5,325,369</td>
<td>725</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

*Table 4-5. Summary of Livestock Count Estimates in Subwatershed 0603000301. According to the 1997 Census of Agriculture (http://www.nass.usda.gov/census/), “Cattle” includes heifers, heifer calves, steers, bulls and bull calves; “Chickens” are layers 20 weeks and older; “Chickens Sold” are all chickens used to produce meat.*

<table>
<thead>
<tr>
<th>INVENTORY</th>
<th>REMOVAL RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>Forest Land (thousand acres)</td>
</tr>
<tr>
<td>Coffee</td>
<td>114.4</td>
</tr>
<tr>
<td>Franklin</td>
<td>183.4</td>
</tr>
<tr>
<td>Grundy</td>
<td>174.5</td>
</tr>
<tr>
<td>Totals</td>
<td>472.3</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>CROPS</th>
<th>TONS/ACRE/YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn (Row Crops)</td>
<td>5.14</td>
</tr>
<tr>
<td>Soybeans (Row Crops)</td>
<td>4.73</td>
</tr>
<tr>
<td>Cotton (Row Crops)</td>
<td>4.03</td>
</tr>
<tr>
<td>Grass (Hayland)</td>
<td>0.39</td>
</tr>
<tr>
<td>Legume (Hayland)</td>
<td>1.64</td>
</tr>
<tr>
<td>Legume/Grass (Hayland)</td>
<td>0.19</td>
</tr>
<tr>
<td>Grass (Pastureland)</td>
<td>0.79</td>
</tr>
<tr>
<td>Grass, Forbs, Legumes (Mixed Pasture)</td>
<td>0.36</td>
</tr>
<tr>
<td>Forest Land (Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Forest Land (Not Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Conservation Reserve Program Land</td>
<td>0.11</td>
</tr>
<tr>
<td>Wheat (Close Grown Cropland)</td>
<td>9.69</td>
</tr>
<tr>
<td>All Other Close Grown Cropland</td>
<td>5.82</td>
</tr>
<tr>
<td>Other Vegetable and Truck Crops</td>
<td>5.99</td>
</tr>
<tr>
<td>Other (Horticultural)</td>
<td>4.58</td>
</tr>
<tr>
<td>Nonagricultural Land Use</td>
<td>0.00</td>
</tr>
<tr>
<td>Farmsteads and Ranch Headquarters</td>
<td>0.28</td>
</tr>
<tr>
<td>Other Cropland (Not Planted)</td>
<td>4.35</td>
</tr>
</tbody>
</table>

*Table 4-7. Annual Estimated Total Soil Loss in Subwatershed 0603000301.*
4.2.B. 0603000302.

Figure 4-13. Location of Subwatershed 0603000302. All Upper Elk HUC-10 subwatershed boundaries are shown for reference.
4.2.B.i. General Description.

Figure 4-14. Illustration of Land Use Distribution in Subwatershed 0603000302.
Figure 4-15. Land Use Distribution in Subwatershed 0603000302. More information is provided in Upper Elk-Appendix IV.
Figure 4-16. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000302.

Table 4-8. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000302. More information is provided in Upper Elk-Appendix IV.
<table>
<thead>
<tr>
<th>County</th>
<th>1990</th>
<th>1997 Est.</th>
<th>Portion of Watershed (%)</th>
<th>1990</th>
<th>1997</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coffee</td>
<td>40,339</td>
<td>45,347</td>
<td>20.46</td>
<td>8,253</td>
<td>9,277</td>
<td>12.4</td>
</tr>
<tr>
<td>Franklin</td>
<td>34,725</td>
<td>37,152</td>
<td>13.03</td>
<td>4,526</td>
<td>4,842</td>
<td>7.0</td>
</tr>
<tr>
<td>Grundy</td>
<td>13,362</td>
<td>14,102</td>
<td>1.8</td>
<td>240</td>
<td>252</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>88,426</strong></td>
<td><strong>96,601</strong></td>
<td></td>
<td><strong>13,019</strong></td>
<td><strong>14,371</strong></td>
<td><strong>1.10</strong></td>
</tr>
</tbody>
</table>

*Table 4-9. Population Estimates in Subwatershed 0603000302.*
Figure 4-17. Location of Historical Streamflow Data Collection Sites in Subwatershed 0603000302. Subwatershed 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. More information is provided in Upper Elk - Appendix IV.

Figure 4-18. Location of STORET Monitoring Sites in Subwatershed 0603000302. Subwatershed 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. More information is provided in Upper Elk - Appendix IV.
4.2.B.iii. Point Source Contributions.

**Figure 4-19. Location of Active Point Source Facilities in Subwatershed 0603000302.**
Subwatershed 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. More information is provided in the following charts.
Figure 4-20. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0603000302. Subwatershed 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

Figure 4-21. Location of Active Mining Sites in Subwatershed 0603000302. Subwatershed 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.
Figure 4-22. Location of TMSP Facilities in Subwatershed 0603000302. Subwatershed 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

Figure 4-23. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000302. Subwatershed 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.
4.2.A.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List

There are three NPDES facilities discharging to water bodies listed on the 1998 303(d) list in Subwatershed 0603000302:

- TN0003751 (AEDC) discharges to Bradley, Brumalow, Rowland, and Spring Creeks and to Woods Reservoir
- TN0056430 (UT Space Institute) discharges to Rollins Creek @ RM 1.1
- TN0067202 (UT Space Institute) discharges to Rollins Creek Embayment of Woods Reservoir

Figure 4-24. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 0603000302. Subwatershed 0603000302, 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. The names of facilities are provided in Upper Elk-Appendix IV.
Table 4-10. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000302. Data are in million gallons per day (MGD). Data were obtained from the USGS publication *Flow Duration and Low Flows of Tennessee Streams Through 1992* or from permit files.

<table>
<thead>
<tr>
<th>PERMIT #</th>
<th>1Q10</th>
<th>3Q10</th>
<th>7Q10</th>
<th>3Q20</th>
<th>QDESIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN0003751</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>TN0056430</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>TN0067202</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.02</td>
</tr>
</tbody>
</table>

Table 4-11. Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000302. TDS, Total Dissolved Solids; TSS, Total Suspended Solids; TCR, Total Residual Chlorine.

<table>
<thead>
<tr>
<th>PERMIT #</th>
<th>DO</th>
<th>TDS</th>
<th>TSS</th>
<th>pH</th>
<th>OIL and GREASE</th>
<th>SETTLEABLE SOLIDS</th>
<th>FECAL COLIFORM</th>
<th>NH₃</th>
<th>CBOD₅</th>
<th>TEMP</th>
<th>TRC</th>
<th>TSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN0003751</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>TN0056430</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>TN0067202</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Table 4-12a. Inorganic Parameters Monitored for Daily Maximum Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000302.

<table>
<thead>
<tr>
<th>PERMIT #</th>
<th>Ag</th>
<th>Cu</th>
<th>Cd</th>
<th>Cr (Total)</th>
<th>Pb</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN0003751</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Table 4-12b. Parameters Monitored by NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000302. CAS (Chemical Abstract System) Codes: 71-55-6, Trichloroethane; 75-35-4, 1,1-Dichloroethene; 79-01-6, Trichloroethene; 127-18-4, Tetrachloroethene; 75-09-2, Methylene Chloride.
4.2.B.iii. Nonpoint Source Contributions.

**LIVESTOCK (COUNTS)**

<table>
<thead>
<tr>
<th></th>
<th>Beef Cow</th>
<th>Cattle</th>
<th>Milk Cow</th>
<th>Chickens</th>
<th>Chickens Sold</th>
<th>Hogs</th>
<th>Sheep</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5,608</td>
<td>13,816</td>
<td>1,281</td>
<td>12</td>
<td>2,607,744</td>
<td>3,475</td>
<td>85</td>
</tr>
</tbody>
</table>

*Table 4-13. Summary of Livestock Count Estimates in Subwatershed 0603000302.* According to the 1997 Census of Agriculture (http://www.nass.usda.gov/census/). “Cattle” includes heifers, heifer calves, steers, bulls and bull calves; “Chickens” are layers 20 weeks and older; “Chickens Sold” are all chickens used to produce meat.

**INVENTORY**

<table>
<thead>
<tr>
<th>County</th>
<th>Forest Land (thousand acres)</th>
<th>Timber Land (thousand acres)</th>
<th>Growing Stock (million cubic feet)</th>
<th>Sawtimber (million board feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coffee</td>
<td>114.4</td>
<td>114.2</td>
<td>2.8</td>
<td>12.7</td>
</tr>
<tr>
<td>Franklin</td>
<td>183.4</td>
<td>183.0</td>
<td>6.0</td>
<td>28.7</td>
</tr>
<tr>
<td>Grundy</td>
<td>174.5</td>
<td>165.9</td>
<td>5.6</td>
<td>17.7</td>
</tr>
<tr>
<td>Total</td>
<td>472.3</td>
<td>463.1</td>
<td>14.4</td>
<td>59.1</td>
</tr>
</tbody>
</table>


**CROPS**

<table>
<thead>
<tr>
<th>Crops</th>
<th>TONS/ACRE/YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legume/Grass (Hayland)</td>
<td>0.16</td>
</tr>
<tr>
<td>Grass (Hayland)</td>
<td>0.72</td>
</tr>
<tr>
<td>Forest Land (Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Forest Land (Not Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Corn (Row Crops)</td>
<td>8.29</td>
</tr>
<tr>
<td>Soybeans (Row Crops)</td>
<td>10.34</td>
</tr>
<tr>
<td>Cotton (Row Crops)</td>
<td>4.03</td>
</tr>
<tr>
<td>Wheat (Close Grown Cropland)</td>
<td>10.08</td>
</tr>
<tr>
<td>Grass (Pastureland)</td>
<td>0.94</td>
</tr>
<tr>
<td>Grass, Forbs, Legumes (Mixed Pasture)</td>
<td>0.38</td>
</tr>
<tr>
<td>Other Vegetable and Truck Crop</td>
<td>4.37</td>
</tr>
<tr>
<td>Other (Horticulture)</td>
<td>2.14</td>
</tr>
<tr>
<td>Other Cropland not Planted</td>
<td>4.56</td>
</tr>
<tr>
<td>Conservation Reserve Program Land</td>
<td>0.11</td>
</tr>
<tr>
<td>Non Agricultural Land Use</td>
<td>0.00</td>
</tr>
<tr>
<td>Farmsteads and Ranch Headquarters</td>
<td>0.16</td>
</tr>
</tbody>
</table>

*Table 4-15. Annual Estimated Total Soil Loss in Subwatershed 0603000302.*
4.2.C. 0603000303.

Figure 4-25. Location of Subwatershed 0603000303. All Upper Elk HUC-10 subwatershed boundaries are shown for reference.
4.2.C.i. General Description.

Figure 4-26. Illustration of Land Use Distribution in Subwatershed 0603000303.
Figure 4-27. Land Use Distribution in Subwatershed 0603000303. More information is provided in Upper Elk-Appendix IV.
Figure 4-28. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000303.

Table 4-16. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000303. More information is provided in Upper Elk-Appendix IV.
### County Population

<table>
<thead>
<tr>
<th>County</th>
<th>1990</th>
<th>1997 Est.</th>
<th>Portion of Watershed (%)</th>
<th>1990</th>
<th>1997</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coffee</td>
<td>40,339</td>
<td>45,347</td>
<td>2.22</td>
<td>895</td>
<td>1,006</td>
<td>12.4</td>
</tr>
<tr>
<td>Franklin</td>
<td>34,725</td>
<td>37,152</td>
<td>21.86</td>
<td>7,591</td>
<td>8,122</td>
<td>7.0</td>
</tr>
<tr>
<td>Moore</td>
<td>4,721</td>
<td>5,205</td>
<td>26.95</td>
<td>1,272</td>
<td>1,403</td>
<td>10.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>79,785</strong></td>
<td><strong>87,704</strong></td>
<td></td>
<td><strong>9,758</strong></td>
<td><strong>10,531</strong></td>
<td><strong>7.9</strong></td>
</tr>
</tbody>
</table>

*Table 4-17. Population Estimates in Subwatershed 0603000303.*

### Number of Housing Units

<table>
<thead>
<tr>
<th>Populated Place</th>
<th>County</th>
<th>Population</th>
<th>Total</th>
<th>Public Sewer</th>
<th>Septic Tank</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estill Springs</td>
<td>Franklin</td>
<td>1,412</td>
<td>615</td>
<td>50</td>
<td>562</td>
<td>3</td>
</tr>
<tr>
<td>Winchester</td>
<td>Franklin</td>
<td>6,305</td>
<td>2,625</td>
<td>2,318</td>
<td>307</td>
<td>0</td>
</tr>
<tr>
<td>Tullahoma</td>
<td>Coffee</td>
<td>16,757</td>
<td>7,109</td>
<td>6,184</td>
<td>920</td>
<td>5</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>24,474</strong></td>
<td><strong>10,349</strong></td>
<td><strong>8,552</strong></td>
<td><strong>1,789</strong></td>
<td><strong>8</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Table 4-18. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0603000303.*
Figure 4-29. Location of Historical Streamflow Data Collection Sites in Subwatershed 0603000303. Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

Figure 4-30. Location of STORET Monitoring Sites in Subwatershed 0603000303. Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.
4.2.C.ii. Point Source Contributions.

Figure 4-31. Location of Active Point Source Facilities in Subwatershed 0603000303. Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information is provided in the following charts.
Figure 4-32. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0603000303. Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

Figure 4-33. Location of Active Mining Sites in Subwatershed 0603000303. Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.
Figure 4-34. Location of Water Treatment Plant Sites in Subwatershed 0603000303. Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

Figure 4-35. Location of TMSP Facilities in Subwatershed 0603000303. Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.
Figure 4-36. Location of CAFO Facilities in Subwatershed 0603000303. Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. CAFO rules may be found at http://cfpub.epa.gov/npdes/afo/cafofinalrule.cfm. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

Figure 4-37. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000303. Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.
4.2.C.iii. Nonpoint Source Contributions.

<table>
<thead>
<tr>
<th>LIVESTOCK (COUNTS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef Cow</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>5,293</td>
</tr>
</tbody>
</table>

Table 4-19. Summary of Livestock Count Estimates in Subwatershed 0603000303. According to the 1997 Census of Agriculture (http://www.nass.usda.gov/census/), “Cattle” includes heifers, heifer calves, steers, bulls and bull calves; “Chickens” are layers 20 weeks and older; “Chickens Sold” are all chickens used to produce meat.

<table>
<thead>
<tr>
<th>INVENTORY</th>
<th>REMOVAL RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>Forest Land (thousand acres)</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Coffee</td>
<td>114.4</td>
</tr>
<tr>
<td>Franklin</td>
<td>183.4</td>
</tr>
<tr>
<td>Moore</td>
<td>36.6</td>
</tr>
<tr>
<td>Totals</td>
<td>334.4</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>CROPS</th>
<th>TONS/ACRE/YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn (Row Crops)</td>
<td>5.56</td>
</tr>
<tr>
<td>Soybeans (Row Crops)</td>
<td>4.76</td>
</tr>
<tr>
<td>Cotton (Row Crops)</td>
<td>4.03</td>
</tr>
<tr>
<td>Legume (Hayland)</td>
<td>1.35</td>
</tr>
<tr>
<td>Grass (Pastureland)</td>
<td>0.75</td>
</tr>
<tr>
<td>Grass, Forbs, Legumes (Mixed Pasture)</td>
<td>0.83</td>
</tr>
<tr>
<td>Forest Land (Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Forest Land (Not Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Wheat (Close Grown Cropland)</td>
<td>6.14</td>
</tr>
<tr>
<td>All Other Close Grown Cropland</td>
<td>5.82</td>
</tr>
<tr>
<td>Other Vegetable and Truck Crop</td>
<td>4.37</td>
</tr>
<tr>
<td>Other (Horticultural)</td>
<td>1.92</td>
</tr>
<tr>
<td>Conservation Reserve Program Land</td>
<td>0.09</td>
</tr>
<tr>
<td>Farmsteads and Ranch Headquarters</td>
<td>0.13</td>
</tr>
<tr>
<td>Other Cropland not Planted</td>
<td>2.37</td>
</tr>
<tr>
<td>Nonagricultural Land Use</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Table 4-21. Annual Estimated Total Soil Loss in Subwatershed 0603000303.
Figure 4-38. Location of Subwatershed 0603000304. All Upper Elk HUC-10 subwatershed boundaries are shown for reference.
4.2.D.1. General Description.

Figure 4-39. Illustration of Land Use Distribution in Subwatershed 0603000304.
Figure 4-40. Land Use Distribution in Subwatershed 0603000304. More information is provided in Upper Elk-Appendix IV.
Table 4-22. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000304. More information is provided in Upper Elk-Appendix IV.
### County Population

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Franklin</td>
<td>34,725</td>
<td>37,152</td>
<td>18.63</td>
<td>6,470</td>
<td>6,922</td>
<td>7.0</td>
</tr>
</tbody>
</table>

*Table 4-23. Population Estimates in Subwatershed 0603000304.*

<table>
<thead>
<tr>
<th>Populated Place</th>
<th>County</th>
<th>Population</th>
<th>Total</th>
<th>Public Sewer</th>
<th>Septic Tank</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cowan</td>
<td>Franklin</td>
<td>1,738</td>
<td>728</td>
<td>701</td>
<td>27</td>
<td>0</td>
</tr>
<tr>
<td>Decherd</td>
<td>Franklin</td>
<td>2,296</td>
<td>913</td>
<td>867</td>
<td>46</td>
<td>0</td>
</tr>
<tr>
<td>Winchester</td>
<td>Franklin</td>
<td>6,305</td>
<td>2,625</td>
<td>2,318</td>
<td>307</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>10,339</strong></td>
<td><strong>4,266</strong></td>
<td><strong>3,886</strong></td>
<td><strong>380</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

*Table 4-24. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0603000304.*
Figure 4-42. Location of Historical Streamflow Data Collection Sites in Subwatershed 0603000304. Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

Figure 4-43. Location of STORET Monitoring Sites in Subwatershed 0603000304. Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.
4.2.D.ii. Point Source Contributions.

Figure 4-44. Location of Active Point Source Facilities in Subwatershed 0603000304. Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. More information is provided in the following charts.
Table 4-25. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0603000304. Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

Figure 4-45. Location of Active Mining Sites in Subwatershed 0602000206. Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.
Figure 4-46. Location of TMSP Facilities in Subwatershed 0603000304. Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

Figure 4-47. Location of CAFO Facilities in Subwatershed 0603000304. Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. CAFO rules may be found at http://cfpub.epa.gov/npdes/afo/cafofinalrule.cfm. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.
Figure 4-48. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000304. Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

<table>
<thead>
<tr>
<th>LIVESTOCK (COUNTS)</th>
<th>Beef Cow</th>
<th>Milk Cow</th>
<th>Cattle</th>
<th>Chickens</th>
<th>Chickens Sold</th>
<th>Hogs</th>
<th>Sheep</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3,928</td>
<td>849</td>
<td>8,690</td>
<td>8</td>
<td>2,325,343</td>
<td>5,472</td>
<td>30</td>
</tr>
</tbody>
</table>

*Table 4-26. Summary of Livestock Count Estimates in Subwatershed 0603000304.* According to the 1997 Census of Agriculture (http://www.nass.usda.gov/census/), “Cattle” includes heifers, heifer calves, steers, bulls and bull calves; “Chickens” are layers 20 weeks and older; “Chickens Sold” are all chickens used to produce meat.

<table>
<thead>
<tr>
<th>INVENTORY</th>
<th>REMOVAL RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>Forest Land (thousand acres)</td>
</tr>
<tr>
<td>Franklin</td>
<td>183.4</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>CROPS</th>
<th>TONS/ACRE/YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest Land (Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Forest Land (Not Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Corn (Row Crops)</td>
<td>5.57</td>
</tr>
<tr>
<td>Soybeans (Row Crops)</td>
<td>3.88</td>
</tr>
<tr>
<td>Wheat (Close Grown Cropland)</td>
<td>5.55</td>
</tr>
<tr>
<td>All Other Close Grown Cropland</td>
<td>5.82</td>
</tr>
<tr>
<td>Legume (Hayland)</td>
<td>1.64</td>
</tr>
<tr>
<td>Grass (Pastureland)</td>
<td>0.32</td>
</tr>
<tr>
<td>Grass, Forbs, Legumes (Mixed Pasture)</td>
<td>0.52</td>
</tr>
<tr>
<td>Conservation Reserve Program Land</td>
<td>0.09</td>
</tr>
<tr>
<td>Other (Horticulture)</td>
<td>1.92</td>
</tr>
<tr>
<td>Other Cropland not Planted</td>
<td>2.04</td>
</tr>
<tr>
<td>Non Agricultural Land Use</td>
<td>0.00</td>
</tr>
<tr>
<td>Farmsteads and Ranch Headquarters</td>
<td>0.13</td>
</tr>
</tbody>
</table>

*Table 4-28. Annual Soil Loss in Subwatershed 0603000304.*
Figure 4-49. Location of Subwatershed 0603000305. All Upper Elk HUC-10 subwatershed boundaries are shown for reference.
4.2.E.i. General Description.

Figure 4-50. Illustration of Land Use Distribution in Subwatershed 0603000305.
Figure 4-51. Land Use Distribution in Subwatershed 0603000305. More information is provided in Upper Elk-Appendix IV.
Figure 4-52. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000305.

<table>
<thead>
<tr>
<th>STATSGO MAP UNIT ID</th>
<th>PERCENT HYDRIC</th>
<th>HYDROLOGIC GROUP</th>
<th>PERMEABILITY (in/hr)</th>
<th>SOIL pH</th>
<th>ESTIMATED SOIL TEXTURE</th>
<th>SOIL ERODIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN048</td>
<td>8.00</td>
<td>C</td>
<td>1.38</td>
<td>5.06</td>
<td>Silty Loam</td>
<td>0.42</td>
</tr>
<tr>
<td>TN054</td>
<td>0.00</td>
<td>C</td>
<td>3.04</td>
<td>4.84</td>
<td>Loam</td>
<td>0.32</td>
</tr>
<tr>
<td>TN060</td>
<td>5.00</td>
<td>B</td>
<td>1.30</td>
<td>5.32</td>
<td>Silty Loam</td>
<td>0.39</td>
</tr>
<tr>
<td>TN065</td>
<td>0.00</td>
<td>C</td>
<td>1.15</td>
<td>5.52</td>
<td>Loam</td>
<td>0.32</td>
</tr>
<tr>
<td>TN066</td>
<td>0.00</td>
<td>B</td>
<td>2.62</td>
<td>4.75</td>
<td>Loam</td>
<td>0.28</td>
</tr>
<tr>
<td>TN069</td>
<td>0.00</td>
<td>C</td>
<td>2.06</td>
<td>5.36</td>
<td>Loam</td>
<td>0.34</td>
</tr>
<tr>
<td>TN079</td>
<td>8.00</td>
<td>C</td>
<td>1.30</td>
<td>5.66</td>
<td>Silty Loam</td>
<td>0.35</td>
</tr>
<tr>
<td>TN200</td>
<td>1.00</td>
<td>B</td>
<td>2.81</td>
<td>5.28</td>
<td>Loam</td>
<td>0.31</td>
</tr>
<tr>
<td>TN215</td>
<td>9.00</td>
<td>C</td>
<td>1.57</td>
<td>5.02</td>
<td>Silty Loam</td>
<td>0.39</td>
</tr>
</tbody>
</table>

Table 4-29. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000305. More information is provided in Upper Elk-Appendix IV.
<table>
<thead>
<tr>
<th>County</th>
<th>1990</th>
<th>1997 Est.</th>
<th>Portion of Watershed (%)</th>
<th>ESTIMATED POPULATION IN WATERSHED</th>
<th>PERCENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Franklin</td>
<td>34,725</td>
<td>37,152</td>
<td>2.31</td>
<td>801</td>
<td>857</td>
</tr>
<tr>
<td>Lincoln</td>
<td>28,157</td>
<td>29,336</td>
<td>23.5</td>
<td>6,617</td>
<td>6,894</td>
</tr>
<tr>
<td>Moore</td>
<td>4,721</td>
<td>5,205</td>
<td>22.78</td>
<td>1,076</td>
<td>1,186</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>67,603</strong></td>
<td><strong>71,693</strong></td>
<td></td>
<td><strong>8,494</strong></td>
<td><strong>8,937</strong></td>
</tr>
</tbody>
</table>

*Table 4-30. Population Estimates in Subwatershed 0603000305.*

<table>
<thead>
<tr>
<th>Populated Place</th>
<th>County</th>
<th>Population</th>
<th>Total</th>
<th>Public Sewer</th>
<th>Septic Tank</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fayetteville</td>
<td>Lincoln</td>
<td>6,921</td>
<td>3,277</td>
<td>3,168</td>
<td>99</td>
<td>10</td>
</tr>
</tbody>
</table>

*Table 4-31. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0603000305.*
Figure 4-53. Location of Historical Streamflow Data Collection Sites in Subwatershed 0603000305. Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

Figure 4-54. Location of STORET Monitoring Sites in Subwatershed 0603000305. Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.
4.2.E.ii. Point Source Contributions.

Figure 4-55. Location of Active Point Source Facilities in Subwatershed 0603000305. Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in the following charts.
Figure 4-56. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0603000305. Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

Figure 4-57. Location of Active Mining Sites in Subwatershed 0603000305. Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.
Figure 4-58. Location of Water Treatment Plant Sites in Subwatershed 0603000305. Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

Figure 4-59. Location of TMSP Facilities in Subwatershed 0603000305. Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.
Figure 4-60. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000305. Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.
4.2.E.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List

There is one NPDES facility discharging to water bodies listed on the 1998 303(d) list in Subwatershed 0603000305:

- TN0027537 (TVA Tim's Ford Hydro Plant) discharges to Elk River @ RM 133.3

![Figure 4-61. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 0603000305. Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.]

<table>
<thead>
<tr>
<th>PERMIT #</th>
<th>1Q10</th>
<th>3Q10</th>
<th>7Q10</th>
<th>3Q20</th>
<th>QDESIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN0027537</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Varies by Outfall</td>
</tr>
</tbody>
</table>

Table 4-32. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000305.

<table>
<thead>
<tr>
<th>PERMIT #</th>
<th>PCB</th>
<th>SETTLEABLE SOLIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN0027537</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Table 4-33. Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000302. PCB, Polychlorinated Biphenyl.
4.2.E.iii. Nonpoint Source Contributions.

**LIVESTOCK (COUNTS)**

<table>
<thead>
<tr>
<th>LIVESTOCK (COUNTS)</th>
<th>Beef Cow</th>
<th>Milk Cow</th>
<th>Cattle</th>
<th>Chickens</th>
<th>Chickens Sold</th>
<th>Hogs</th>
<th>Sheep</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8,699</td>
<td>1,162</td>
<td>17,690</td>
<td>17</td>
<td>1,929,871</td>
<td>1,375</td>
<td>115</td>
</tr>
</tbody>
</table>

*Table 4-34. Summary of Livestock Count Estimates in Subwatershed 0603000305.* According to the 1997 Census of Agriculture [http://www.nass.usda.gov/census/]. “Cattle” includes heifers, heifer calves, steers, bulls and bull calves; “Chickens” are layers 20 weeks and older; “Chickens Sold” are all chickens used to produce meat.

**INVENTORY**

<table>
<thead>
<tr>
<th>COUNTY</th>
<th>FOREST LAND (THOUSAND ACRES)</th>
<th>TIMBER LAND (THOUSAND ACRES)</th>
<th>GROWING STOCK (MILLION CUBIC FEET)</th>
<th>SAWTIMBER (MILLION BOARD FEET)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Franklin</td>
<td>183.4</td>
<td>183.0</td>
<td>6.0</td>
<td>28.7</td>
</tr>
<tr>
<td>Lincoln</td>
<td>136.7</td>
<td>136.7</td>
<td>1.1</td>
<td>3.2</td>
</tr>
<tr>
<td>Moore</td>
<td>36.6</td>
<td>36.6</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Totals</td>
<td>356.7</td>
<td>356.3</td>
<td>7.1</td>
<td>31.9</td>
</tr>
</tbody>
</table>


**CROPS**

<table>
<thead>
<tr>
<th>CROPS</th>
<th>TONS/ACRE/YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn (Row Crops)</td>
<td>3.88</td>
</tr>
<tr>
<td>Soybeans (Row Crops)</td>
<td>6.92</td>
</tr>
<tr>
<td>Potatoes (Row Crops)</td>
<td>3.04</td>
</tr>
<tr>
<td>Tobacco (Row Crops)</td>
<td>9.27</td>
</tr>
<tr>
<td>Grass (Pastureland)</td>
<td>1.23</td>
</tr>
<tr>
<td>Grass, Forbs, Legumes (Mixed Pasture)</td>
<td>1.10</td>
</tr>
<tr>
<td>Grass (Hayland)</td>
<td>0.41</td>
</tr>
<tr>
<td>Legume (Hayland)</td>
<td>0.26</td>
</tr>
<tr>
<td>Legume/Grass (Hayland)</td>
<td>0.38</td>
</tr>
<tr>
<td>Forest Land (Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Forest Land (Not Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Wheat (Close Grown Cropland)</td>
<td>3.48</td>
</tr>
<tr>
<td>Other Close Grown Cropland</td>
<td>5.82</td>
</tr>
<tr>
<td>Fruit (Horticultural)</td>
<td>0.09</td>
</tr>
<tr>
<td>Other (Horticulture)</td>
<td>1.92</td>
</tr>
<tr>
<td>Other Vegetable and Truck Crops</td>
<td>2.52</td>
</tr>
<tr>
<td>Other Land in Farms</td>
<td>0.28</td>
</tr>
<tr>
<td>Conservation Reserve Program Land</td>
<td>0.28</td>
</tr>
<tr>
<td>Other Cropland not Planted</td>
<td>2.04</td>
</tr>
<tr>
<td>Non Agricultural Land Use</td>
<td>0.00</td>
</tr>
<tr>
<td>Farmsteads and Ranch Headquarters</td>
<td>0.35</td>
</tr>
</tbody>
</table>

*Table 4-36. Annual Estimated Soil Loss in Subwatershed 0603000305.*
Figure 4-62. Location of Subwatershed 0603000306. All Upper Elk HUC-10 subwatershed boundaries are shown for reference.
4.2.F.i General Description.

Figure 4-63. Illustration of Land Use Distribution in Subwatershed 0603000306.
Figure 4-64. Land Use Distribution in Subwatershed 0603000306. More information is provided in Upper Elk-Appendix IV.
Table 4-37. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000306. More information is provided in Upper Elk-Appendix IV.
### Table 4-38. Population Estimates in Subwatershed 0603000306.

<table>
<thead>
<tr>
<th>County</th>
<th>TOTAL COUNTY POPULATION</th>
<th>ESTIMATED POPULATION IN WATERSHED</th>
<th>PERCENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Franklin</td>
<td>34,725</td>
<td>37,152</td>
<td>13.41</td>
</tr>
<tr>
<td>Lincoln</td>
<td>28,157</td>
<td>29,336</td>
<td>1.66</td>
</tr>
<tr>
<td>Moore</td>
<td>4,721</td>
<td>5,205</td>
<td>0.11</td>
</tr>
<tr>
<td>Totals</td>
<td>67,603</td>
<td>71,693</td>
<td>5,130</td>
</tr>
</tbody>
</table>

### Table 4-39. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0603000306.

<table>
<thead>
<tr>
<th>Populated Place</th>
<th>County</th>
<th>Population</th>
<th>Total</th>
<th>Public Sewer</th>
<th>Septic Tank</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huntland</td>
<td>Franklin</td>
<td>885</td>
<td>367</td>
<td>35</td>
<td>332</td>
<td>0</td>
</tr>
</tbody>
</table>
4.2.F.ii. Point Source Contributions.

**Figure 4-66. Location of Active Point Source Facilities in Subwatershed 0603000306.** Subwatershed 060300030601 and 060300030602 boundaries are shown for reference. More information is provided in the following charts.
Figure 4-67. Location of Water Treatment Plant Sites in Subwatershed 0603000306. Subwatershed 060300030601 and 060300030602 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

Figure 4-68. Location of TMSP Facilities in Subwatershed 0603000306. Subwatershed 060300030601 and 060300030602 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.
Figure 4-69. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000306. Subwatershed 060300030601 and 060300030602 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.
4.2.F.iii. Nonpoint Source Contributions.

<table>
<thead>
<tr>
<th>LIVESTOCK (COUNTS)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef Cow</td>
<td>3,692</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk Cow</td>
<td>748</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cattle</td>
<td>8,059</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chickens</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chickens Sold</td>
<td></td>
<td></td>
<td>1,973,379</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hogs</td>
<td>4,449</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheep</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4-40. Summary of Livestock Count Estimates in Subwatershed 0603000306. According to the 1997 Census of Agriculture (http://www.nass.usda.gov/census/), “Cattle” includes heifers, heifer calves, steers, bulls and bull calves; “Chickens” are layers 20 weeks and older; “Chickens Sold” are all chickens used to produce meat.

<table>
<thead>
<tr>
<th>INVENTORY</th>
<th>REMOVAL RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>Forest Land</td>
</tr>
<tr>
<td></td>
<td>(thousand acres)</td>
</tr>
<tr>
<td>Franklin</td>
<td>183.4</td>
</tr>
<tr>
<td>Lincoln</td>
<td>136.7</td>
</tr>
<tr>
<td>Moore</td>
<td>36.6</td>
</tr>
<tr>
<td>Total</td>
<td>356.7</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>CROPS</th>
<th>TONS/ACRE/YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grass (Hayland)</td>
<td>0.23</td>
</tr>
<tr>
<td>Legume (Hayland)</td>
<td>1.47</td>
</tr>
<tr>
<td>Legume/Grass (Hayland)</td>
<td>0.37</td>
</tr>
<tr>
<td>Grass (Pastureland)</td>
<td>0.42</td>
</tr>
<tr>
<td>Grass, Forbs, Legumes (Mixed (Pasture)</td>
<td>0.57</td>
</tr>
<tr>
<td>Forest Land (Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Forest Land (Not Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Soybeans (Row Crops)</td>
<td>4.26</td>
</tr>
<tr>
<td>Corn (Row Crops)</td>
<td>5.36</td>
</tr>
<tr>
<td>Tobacco (Row Crops)</td>
<td>9.27</td>
</tr>
<tr>
<td>Potatoes (Row Crops)</td>
<td>3.04</td>
</tr>
<tr>
<td>Wheat (Close Grown Cropland)</td>
<td>5.29</td>
</tr>
<tr>
<td>Other Close Grown Cropland</td>
<td>5.82</td>
</tr>
<tr>
<td>Fruit (Horticulture)</td>
<td>0.09</td>
</tr>
<tr>
<td>Other (Horticulture)</td>
<td>1.92</td>
</tr>
<tr>
<td>Other Vegetable and Truck Crop</td>
<td>2.52</td>
</tr>
<tr>
<td>Conservation Reserve Program Land</td>
<td>0.11</td>
</tr>
<tr>
<td>Other Cropland not Planted</td>
<td>2.04</td>
</tr>
<tr>
<td>Non Agricultural Land Use</td>
<td>0.00</td>
</tr>
<tr>
<td>Farmsteads and Ranch Headquarters</td>
<td>0.16</td>
</tr>
<tr>
<td>Other Land in Farms</td>
<td>0.28</td>
</tr>
</tbody>
</table>

Table 4-42. Annual Estimated Total Soil Loss in Subwatershed 0603000306.
Figure 4-70. Location of Subwatershed 0603000307. All Upper Elk HUC-10 subwatershed boundaries are shown for reference.
4.2.G.i. General Description.

Figure 4-71. Illustration of Land Use Distribution in Subwatershed 0603000307.
Figure 4-72. Land Use Distribution in Subwatershed 0603000307. More information is provided in Upper Elk-Appendix IV.
Figure 4-73. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000307.

<table>
<thead>
<tr>
<th>STATSGO MAP UNIT ID</th>
<th>PERCENT HYDRIC</th>
<th>HYDROLOGIC GROUP</th>
<th>PERMEABILITY (in/hr)</th>
<th>SOIL pH</th>
<th>ESTIMATED SOIL TEXTURE</th>
<th>SOIL ERODIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN048</td>
<td>8.00</td>
<td>C</td>
<td>1.38</td>
<td>5.06</td>
<td>Silty Loam</td>
<td>0.42</td>
</tr>
<tr>
<td>TN054</td>
<td>0.00</td>
<td>C</td>
<td>3.04</td>
<td>4.84</td>
<td>Loam</td>
<td>0.32</td>
</tr>
<tr>
<td>TN064</td>
<td>7.00</td>
<td>C</td>
<td>1.19</td>
<td>5.82</td>
<td>Silty Loam</td>
<td>0.37</td>
</tr>
<tr>
<td>TN065</td>
<td>0.00</td>
<td>C</td>
<td>1.15</td>
<td>5.52</td>
<td>Loam</td>
<td>0.32</td>
</tr>
<tr>
<td>TN066</td>
<td>0.00</td>
<td>B</td>
<td>2.62</td>
<td>4.75</td>
<td>Loam</td>
<td>0.28</td>
</tr>
<tr>
<td>TN069</td>
<td>0.00</td>
<td>C</td>
<td>2.06</td>
<td>5.36</td>
<td>Loam</td>
<td>0.34</td>
</tr>
</tbody>
</table>

Table 4-43. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000307. More information is provided in Upper Elk-Appendix IV.
<table>
<thead>
<tr>
<th>County</th>
<th>1990</th>
<th>1997 Est.</th>
<th>Portion of Watershed (%)</th>
<th>1990</th>
<th>1997</th>
<th>PERCENT CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedford</td>
<td>30,411</td>
<td>34,411</td>
<td>0.05</td>
<td>14</td>
<td>16</td>
<td>14.3</td>
</tr>
<tr>
<td>Lincoln</td>
<td>28,157</td>
<td>28,157</td>
<td>8.12</td>
<td>2,286</td>
<td>2,382</td>
<td>4.2</td>
</tr>
<tr>
<td>Moore</td>
<td>4,721</td>
<td>4,721</td>
<td>40.36</td>
<td>1,905</td>
<td>2,101</td>
<td>10.3</td>
</tr>
<tr>
<td>Totals</td>
<td>63,289</td>
<td>63,289</td>
<td>4,205</td>
<td>4,499</td>
<td>7.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 4-44. Population Estimates in Subwatershed 0603000307.
Figure 4-74. Location of Historical Streamflow Data Collection Sites in Subwatershed 0603000307. Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

Figure 4-75. Location of STORET Monitoring Sites in Subwatershed 0603000307. Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.
4.2.G.ii. Point Source Contributions.

Figure 4-76. Location of Active Point Source Facilities in Subwatershed 0603000307. Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information is provided in the following charts.
Figure 4-77. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0603000307. Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

Figure 4-78. Location of Active Mining Sites in Subwatershed 0603000307. Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.
Figure 4-79. Location of Water Treatment Plant Sites in Subwatershed 0603000301. Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

Figure 4-80. Location of TMSP Facilities in Subwatershed 0603000307. Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.
Figure 4-81. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000307. Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

### LIVESTOCK (COUNTS)

<table>
<thead>
<tr>
<th></th>
<th>Beef Cow</th>
<th>Cattle</th>
<th>Milk Cow</th>
<th>Chickens</th>
<th>Chickens Sold</th>
<th>Hogs</th>
<th>Sheep</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>6,214</td>
<td>12,556</td>
<td>752</td>
<td>15</td>
<td>1,669,843</td>
<td>311</td>
<td>74</td>
</tr>
</tbody>
</table>

Table 4-45. Summary of Livestock Count Estimates in Subwatershed 0603000307. According to the 1997 Census of Agriculture [http://www.nass.usda.gov/census/](http://www.nass.usda.gov/census/), “Cattle” includes heifers, heifer calves, steers, bulls and bull calves; “Chickens” are layers 20 weeks and older; “Chickens Sold” are all chickens used to produce meat.

### INVENTORY

<table>
<thead>
<tr>
<th>County</th>
<th>Forest Land (thousand acres)</th>
<th>Timber Land (thousand acres)</th>
<th>Growing Stock (million cubic feet)</th>
<th>Sawtimber (million board feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedford</td>
<td>74.6</td>
<td>74.6</td>
<td>0.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Lincoln</td>
<td>136.7</td>
<td>136.7</td>
<td>1.1</td>
<td>3.2</td>
</tr>
<tr>
<td>Moore</td>
<td>36.6</td>
<td>36.6</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>247.9</strong></td>
<td><strong>247.9</strong></td>
<td><strong>1.6</strong></td>
<td><strong>4.5</strong></td>
</tr>
</tbody>
</table>


### CROPS

<table>
<thead>
<tr>
<th>Crops</th>
<th>TONS/ACRE/YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grass (Hayland)</td>
<td>0.78</td>
</tr>
<tr>
<td>Legume (Hayland)</td>
<td>0.22</td>
</tr>
<tr>
<td>Legume/Grass (Hayland)</td>
<td>0.41</td>
</tr>
<tr>
<td>Grass (Pastureland)</td>
<td>1.63</td>
</tr>
<tr>
<td>Grass, Forbs, Legumes (Mixed Pasture)</td>
<td>1.53</td>
</tr>
<tr>
<td>Forest Land (Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Forest Land (Not Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Corn (Row Crops)</td>
<td>3.89</td>
</tr>
<tr>
<td>Soybeans (Row Crops)</td>
<td>7.21</td>
</tr>
<tr>
<td>Tobacco (Row Crops)</td>
<td>9.27</td>
</tr>
<tr>
<td>Potatoes (Row Crops)</td>
<td>3.05</td>
</tr>
<tr>
<td>Wheat (Close Grown Cropland)</td>
<td>3.28</td>
</tr>
<tr>
<td>Fruit (Horticultural)</td>
<td>0.09</td>
</tr>
<tr>
<td>Other Vegetable and Truck Crop</td>
<td>2.52</td>
</tr>
<tr>
<td>Summer Fallow (Other Cropland)</td>
<td>4.60</td>
</tr>
<tr>
<td>Other Land in Farms</td>
<td>0.28</td>
</tr>
<tr>
<td>Conservation Reserve Program Land</td>
<td>0.30</td>
</tr>
<tr>
<td>Farmsteads and Ranch Headquarters</td>
<td>0.27</td>
</tr>
</tbody>
</table>

Table 4-47. Annual Estimated Total Soil Loss in Subwatershed 0603000307.
Figure 4-82. Location of Subwatershed 0603000308. All Upper Elk HUC-10 subwatershed boundaries are shown for reference.
4.2.G.i. General Description.

Figure 4-83. Illustration of Land Use Distribution in Subwatershed 0603000308.
Figure 4-84. Land Use Distribution in Subwatershed 0603000308. More information is provided in Upper Elk-Appendix IV.
**Figure 4-85.** STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000308.

<table>
<thead>
<tr>
<th>STATSGO MAP UNIT ID</th>
<th>HYDROLOGIC GROUP</th>
<th>PERMEABILITY (in/hr)</th>
<th>SOIL pH</th>
<th>ESTIMATED SOIL TEXTURE</th>
<th>SOIL ERODIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN065</td>
<td>C</td>
<td>1.15</td>
<td>5.52</td>
<td>Loam</td>
<td>0.32</td>
</tr>
<tr>
<td>TN066</td>
<td>B</td>
<td>2.62</td>
<td>4.75</td>
<td>Loam</td>
<td>0.28</td>
</tr>
<tr>
<td>TN069</td>
<td>C</td>
<td>2.06</td>
<td>5.36</td>
<td>Loam</td>
<td>0.34</td>
</tr>
<tr>
<td>TN084</td>
<td>C</td>
<td>1.80</td>
<td>4.99</td>
<td>Silty Loam</td>
<td>0.28</td>
</tr>
</tbody>
</table>

**Table 4-48.** Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000308. More information is provided in Upper Elk-Appendix IV.
<table>
<thead>
<tr>
<th>County</th>
<th>1990</th>
<th>1997 Est.</th>
<th>Portion of Watershed (%)</th>
<th>1990</th>
<th>1997</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lincoln</td>
<td>28,157</td>
<td>29,336</td>
<td>12.59</td>
<td>3,546</td>
<td>3,694</td>
<td>4.2</td>
</tr>
<tr>
<td>Marshall</td>
<td>21,539</td>
<td>25,687</td>
<td>8.77</td>
<td>1,890</td>
<td>2,254</td>
<td>19.3</td>
</tr>
<tr>
<td>Totals</td>
<td>49,696</td>
<td>55,023</td>
<td></td>
<td>5,436</td>
<td>5,948</td>
<td>9.4</td>
</tr>
</tbody>
</table>

*Table 4-49. Population Estimates in Subwatershed 0603000308.*

<table>
<thead>
<tr>
<th>Populated Place</th>
<th>County</th>
<th>Population</th>
<th>Total</th>
<th>Public Sewer</th>
<th>Septic Tank</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petersburg</td>
<td>Marshall</td>
<td>514</td>
<td>248</td>
<td>14</td>
<td>230</td>
<td>4</td>
</tr>
<tr>
<td>Fayetteville</td>
<td>Lincoln</td>
<td>6,921</td>
<td>3,277</td>
<td>3,168</td>
<td>99</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>7,435</td>
<td>3,525</td>
<td>3,182</td>
<td>329</td>
<td>14</td>
</tr>
</tbody>
</table>

*Table 4-50. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0603000308.*
**Figure 4-86.** Location of Historical Streamflow Data Collection Sites in Subwatershed 0603000308. Subwatershed 060300030801 and 060300030802 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

**Figure 4-87.** Location of STORET Monitoring Sites in Subwatershed 0603000308. Subwatershed 060300030801 and 060300030802 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.
4.2.G.ii. Point Source Contributions.

Figure 4-88. Location of Active Point Source Facilities in Subwatershed 0603000308. Subwatershed 060300030801 and 060300030802 boundaries are shown for reference. More information is provided in the following charts.
Figure 4-89. Location of TMSP Facilities in Subwatershed 0603000308. Subwatershed 060300030801 and 060300030802 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

Figure 4-90. Location of CAFO Facilities in Subwatershed 0603000308. Subwatershed 060300030801 and 060300030802 boundaries are shown for reference. CAFO rules may be found at http://cfpub.epa.gov/nepdes/afo/cafofinalrule.cfm. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.
Figure 4-91. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000308. Subwatershed 060300030801 and 060300030802 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

<table>
<thead>
<tr>
<th>LIVESTOCK (COUNTS)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef Cow</td>
<td>6,757</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cattle</td>
<td>14,159</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk Cow</td>
<td>1,193</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chickens</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chickens Sold</td>
<td>722,893</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hogs</td>
<td>930</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheep</td>
<td>94</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4-51. Summary of Livestock Count Estimates in Subwatershed 0603000308.

According to the 1997 Census of Agriculture (http://www.nass.usda.gov/census/), “Cattle” includes heifers, heifer calves, steers, bulls and bull calves; “Chickens” are layers 20 weeks and older; “Chickens Sold” are all chickens used to produce meat.

<table>
<thead>
<tr>
<th>INVENTORY</th>
<th></th>
<th></th>
<th>REMOVAL RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest Land (thousand acres)</td>
<td>136.7</td>
<td>136.7</td>
<td></td>
</tr>
<tr>
<td>Timber Land (thousand acres)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growing Stock (million cubic feet)</td>
<td>1.1</td>
<td>3.2</td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>CROPS</th>
<th>TONS/ACRE/YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grass (Hayland)</td>
<td>0.26</td>
</tr>
<tr>
<td>Legume (Hayland)</td>
<td>0.26</td>
</tr>
<tr>
<td>Legume/Grass (Hayland)</td>
<td>1.00</td>
</tr>
<tr>
<td>Grass (Pastureland)</td>
<td>1.01</td>
</tr>
<tr>
<td>Grass, Forbs, Legumes (Mixed Pasture)</td>
<td>0.86</td>
</tr>
<tr>
<td>Forest Land (Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Forest Land (Not Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Corn (Row Crops)</td>
<td>5.43</td>
</tr>
<tr>
<td>Soybeans (Row Crops)</td>
<td>6.73</td>
</tr>
<tr>
<td>Potatoes (Row Crops)</td>
<td>3.04</td>
</tr>
<tr>
<td>Tobacco (Row Crops)</td>
<td>9.27</td>
</tr>
<tr>
<td>Conservation Reserve Program Land</td>
<td>0.26</td>
</tr>
<tr>
<td>Wheat (Close Grown Cropland)</td>
<td>4.75</td>
</tr>
<tr>
<td>Other Vegetable and Truck Crops</td>
<td>2.52</td>
</tr>
<tr>
<td>Fruit (Horticulture)</td>
<td>0.09</td>
</tr>
<tr>
<td>Summer Fallow (Other Cropland)</td>
<td>8.75</td>
</tr>
<tr>
<td>Nonagricultural land Use</td>
<td>0.00</td>
</tr>
<tr>
<td>Farmsteads and Ranch Headquarters</td>
<td>0.30</td>
</tr>
<tr>
<td>Other Land in Farms</td>
<td>0.21</td>
</tr>
</tbody>
</table>

Table 4-53. Annual Estimated Total Soil Loss in Subwatershed 0603000308.
4.2.G. 0603000309.

Figure 4-92. Location of Subwatershed 0603000309. All Upper Elk HUC-10 subwatershed boundaries are shown for reference.
4.2.G.i. General Description.

Figure 4-93. Illustration of Land Use Distribution in Subwatershed 0603000309.
Figure 4-94. Land Use Distribution in Subwatershed 0603000309. More information is provided in Upper Elk-Appendix IV.
Figure 4-95. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000309.

Table 4-54. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000309. More information is provided in Upper Elk-Appendix IV.
### County Population

<table>
<thead>
<tr>
<th>County</th>
<th>1990</th>
<th>1997 Est.</th>
<th>Portion of Watershed (%)</th>
<th>1990</th>
<th>1997</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giles</td>
<td>25,741</td>
<td>28,515</td>
<td>13.95</td>
<td>3,592</td>
<td>3,979</td>
<td>10.8</td>
</tr>
<tr>
<td>Lincoln</td>
<td>28,157</td>
<td>29,336</td>
<td>31.21</td>
<td>8,768</td>
<td>9,156</td>
<td>4.2</td>
</tr>
<tr>
<td>Marshall</td>
<td>21,539</td>
<td>25,687</td>
<td>2.69</td>
<td>579</td>
<td>691</td>
<td>19.3</td>
</tr>
<tr>
<td>Totals</td>
<td>75,437</td>
<td>83,538</td>
<td>12,959</td>
<td>13,826</td>
<td>6.7</td>
<td></td>
</tr>
</tbody>
</table>

*Table 4-55. Population Estimates in Subwatershed 0603000309.*

### Number of Housing Units

<table>
<thead>
<tr>
<th>Populated Place</th>
<th>County</th>
<th>Population</th>
<th>Total</th>
<th>Public Sewer</th>
<th>Septic Tank</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ardmore</td>
<td>Giles</td>
<td>828</td>
<td>342</td>
<td>191</td>
<td>150</td>
<td>0</td>
</tr>
<tr>
<td>Elkton</td>
<td>Giles</td>
<td>463</td>
<td>184</td>
<td>1</td>
<td>183</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>1,291</td>
<td>526</td>
<td>192</td>
<td>333</td>
<td>0</td>
</tr>
</tbody>
</table>

*Table 4-56. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0603000309.*
Figure 4-96. Location of Historical Streamflow Data Collection Sites in Subwatershed 0603000309. Subwatershed 060300030901, 060300030902, 060300030903, 060300030904, and 060300030905 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

Figure 4-97. Location of STORET Monitoring Sites in Subwatershed 0603000309. Subwatershed 060300030901, 060300030902, 060300030903, 060300030904, and 060300030905 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.
4.2.G.ii. Point Source Contributions.

Figure 4-98. Location of Active Point Source Facilities in Subwatershed 0603000309. Subwatershed 060300030901, 060300030902, 060300030903, 060300030904, and 060300030905 boundaries are shown for reference. More information is provided in the following charts.
Figure 4-99. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0603000309. Subwatershed 060300030901, 060300030902, 060300030903, 060300030904, and 060300030905 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

Figure 4-100. Location of Active Mining Sites in Subwatershed 0603000309. Subwatershed 060300030901, 060300030902, 060300030903, 060300030904, and 060300030905 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.
Figure 4-101. Location of CAFO Facilities in Subwatershed 0603000309. Subwatershed 060300030901, 060300030902, 060300030903, 060300030904, and 060300030905 boundaries are shown for reference. CAFO rules may be found at http://cfpub.epa.gov/npdes/afo/cafofinalrule.cfm. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

Figure 4-102. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000309. Subwatershed 060300030901, 060300030902, 060300030903, 060300030904, and 060300030905 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.
4.2.G.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List

There is one NPDES facility discharging to water bodies listed on the 1998 303(d) list in Subwatershed 0603000309:

- TN0065498 (Unity Junior High School) discharges to Morton Branch @ RM 1.0

Table 4-57. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000309. Data are in million gallons per day (MGD). Data were obtained from the USGS publication Flow Duration and Low Flows of Tennessee Streams Through 1992 or from permit files.
Table 4-58. Parameters Monitored for Daily Maximum Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000309. TCR, Total Residual Chlorine; TSS, Total Suspended Solids.

<table>
<thead>
<tr>
<th>PERMIT #</th>
<th>E. Coli</th>
<th>CBOD₅</th>
<th>pH</th>
<th>NH₃</th>
<th>TRC</th>
<th>DO</th>
<th>TSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN0065498</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Table 4-59. Parameters Monitored by NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000309.

<table>
<thead>
<tr>
<th>PERMIT #</th>
<th>Flow</th>
<th>FECAL COLIFORM</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN0065498</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

### LIVESTOCK (COUNTS)

<table>
<thead>
<tr>
<th></th>
<th>Beef Cow</th>
<th>Cattle</th>
<th>Milk Cow</th>
<th>Chickens</th>
<th>Chickens Sold</th>
<th>Hogs</th>
<th>Sheep</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20,456</td>
<td>43,843</td>
<td>2,406</td>
<td>49</td>
<td>1,508,236</td>
<td>4,425</td>
<td>260</td>
</tr>
</tbody>
</table>

*Table 4-60. Summary of Livestock Count Estimates in Subwatershed 0603000309.*

According to the 1997 Census of Agriculture [http://www.nass.usda.gov/census/](http://www.nass.usda.gov/census/), “Cattle” includes heifers, heifer calves, steers, bulls and bull calves; “Chickens” are layers 20 weeks and older; “Chickens Sold” are all chickens used to produce meat.

### INVENTORY

<table>
<thead>
<tr>
<th>County</th>
<th>Forest Land (thousand acres)</th>
<th>Timber Land (thousand acres)</th>
<th>Growing Stock (million cubic feet)</th>
<th>Sawtimber (million board feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giles</td>
<td>171.8</td>
<td>171.8</td>
<td>3.3</td>
<td>11.4</td>
</tr>
<tr>
<td>Lincoln</td>
<td>136.7</td>
<td>136.7</td>
<td>1.1</td>
<td>3.2</td>
</tr>
<tr>
<td>Totals</td>
<td>308.5</td>
<td>308.5</td>
<td>4.4</td>
<td>14.6</td>
</tr>
</tbody>
</table>


### CROPS

<table>
<thead>
<tr>
<th>Crops</th>
<th>TONS/ACRE/YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grass (Hayland)</td>
<td>0.22</td>
</tr>
<tr>
<td>Legume (Hayland)</td>
<td>0.14</td>
</tr>
<tr>
<td>Legume/Grass (Hayland)</td>
<td>0.36</td>
</tr>
<tr>
<td>Grass (Pastureland)</td>
<td>1.09</td>
</tr>
<tr>
<td>Grass, Forbs, Legumes (Mixed Pasture)</td>
<td>0.89</td>
</tr>
<tr>
<td>Forest Land (Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Forest Land (Not Grazed)</td>
<td>0.00</td>
</tr>
<tr>
<td>Corn (Row Crops)</td>
<td>4.05</td>
</tr>
<tr>
<td>Soybeans (Row Crops)</td>
<td>5.89</td>
</tr>
<tr>
<td>Tobacco (Row Crops)</td>
<td>9.27</td>
</tr>
<tr>
<td>Potatoes (Row Crops)</td>
<td>3.04</td>
</tr>
<tr>
<td>All Other Row Crops</td>
<td>2.70</td>
</tr>
<tr>
<td>Conservation Reserve Program Land</td>
<td>0.27</td>
</tr>
<tr>
<td>Wheat (Close Grown Cropland)</td>
<td>3.02</td>
</tr>
<tr>
<td>Barley (Close Grown Cropland)</td>
<td>1.08</td>
</tr>
<tr>
<td>Fruit (Horticultural)</td>
<td>0.09</td>
</tr>
<tr>
<td>Other Vegetable and Truck Crops</td>
<td>3.09</td>
</tr>
<tr>
<td>Summer Fallow (Other Cropland)</td>
<td>1.21</td>
</tr>
<tr>
<td>Other Cropland not Planted</td>
<td>0.25</td>
</tr>
<tr>
<td>Other Land in Farms</td>
<td>0.27</td>
</tr>
<tr>
<td>Nonagricultural Land Use</td>
<td>0.00</td>
</tr>
<tr>
<td>Farmsteads and Ranch Headquarters</td>
<td>0.31</td>
</tr>
</tbody>
</table>

*Table 4-62. Annual Estimated Total Soil Loss in Subwatershed 0603000309.*
5.1 Background

5.2 Federal Partnerships
5.2.A. Natural Resources Conservation Service
5.2.B. United States Geological Survey
5.2.C. United States Fish and Wildlife Service
5.2.D. Tennessee Valley Authority

5.3 State Partnerships
5.3.A. TDEC Division of Water Supply
5.3.B. State Revolving Fund
5.3.C. Tennessee Department of Agriculture

5.4 Local Initiatives
5.4.A. Tims Ford Council

5.1. BACKGROUND. The Watershed Approach relies on participation at the federal, state, local and nongovernmental levels to be successful. Two types of partnerships are critical to ensure success:

- Partnerships between agencies
- Partnerships between agencies and landowners

This chapter describes both types of partnerships in the Upper Elk River Watershed. The information presented is provided by the agencies and organizations described.
5.2. FEDERAL PARTNERSHIPS.

5.2.A. Natural Resources Conservation Service. The Natural Resources Conservation Service (NRCS), an agency of the U.S. Department of Agriculture, provides technical assistance, information, and advice to citizens in their efforts to conserve soil, water, plant, animal, and air resources on private lands.

Performance & Results Measurement System (PRMS) is a Web-based database application providing USDA Natural Resources Conservation Service, conservation partners, and the public fast and easy access to accomplishments and progress toward strategies and performance. The PRMS may be viewed at http://prms.nrcs.usda.gov/prms. From the opening menu, select “Reports,” then select the Conservation Treatment of interest on the page that comes up. Select the desired location and time period from the drop down menus and choose “Refresh.” Choose “by HUC” in the “Location” option and choose “Refresh” again.

The data can be used to determine broad distribution trends in service provided to customers by NRCS conservation partnerships. These data do not show sufficient detail to enable evaluation of site-specific conditions (e.g., privately-owned farms and ranches) and are intended to reflect general trends.

<table>
<thead>
<tr>
<th>CONSERVATION PRACTICE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensive Nutrient Management Plans (Number)</td>
<td>6</td>
</tr>
<tr>
<td>Conservation Buffers (Acres)</td>
<td>83</td>
</tr>
<tr>
<td>Erosion Reduction (Tons/Year)</td>
<td>19,008</td>
</tr>
<tr>
<td>Inventory and Evaluations (Number)</td>
<td>1</td>
</tr>
<tr>
<td>Irrigation Management (Acres)</td>
<td>0</td>
</tr>
<tr>
<td>Nutrient Management (Acres)</td>
<td>3,497</td>
</tr>
<tr>
<td>Pest Management (Acres)</td>
<td>3,319</td>
</tr>
<tr>
<td>Prescribed Grazing (Acres)</td>
<td>1,756</td>
</tr>
<tr>
<td>Residue Management (Acres)</td>
<td>1,661</td>
</tr>
<tr>
<td>Tree and Shrub Practices (Acres)</td>
<td>86</td>
</tr>
<tr>
<td>Waste Management (Number)</td>
<td>5</td>
</tr>
<tr>
<td>Wetlands Created, Restored, or Enhanced (Acres)</td>
<td>64</td>
</tr>
<tr>
<td>Wildlife Habitat (Acres)</td>
<td>817</td>
</tr>
</tbody>
</table>

Table 5-1. Landowner Conservation Practices in Partnership with NRCS in Upper Elk River Watershed. Data are from PRMS for October 1, 2001 through September 30, 2002 reporting period. More information is provided in Upper Elk-Appendix V.

5.2.B. United States Geological Survey Water Resources Programs – Tennessee District. The U.S. Geological Survey (USGS) provides relevant and objective scientific studies and information for public use to evaluate the quantity, quality, and use of the Nation’s water resources. In addition to providing National assessments, the USGS also conducts hydrologic studies in cooperation with numerous Federal, State, and local agencies to address issues of National, regional, and local concern. Please visit http://water.usgs.gov/ for an overview of the USGS, Water Resources Discipline.
The USGS collects hydrologic data to document current conditions and provide a basis for understanding hydrologic systems and solving hydrologic problems. In Tennessee, the USGS records streamflow continuously at more than 89 gaging stations equipped with recorders and makes instantaneous measurements of streamflow at many other locations. Ground-water levels are monitored Statewide, and the physical, chemical, and biologic characteristics of surface and ground waters are analyzed. USGS activities also include the annual compilation of water-use records and collection of data for National baseline and water-quality networks. National programs conducted by the USGS include the National Atmospheric Deposition Program (http://bqs.usgs.gov/acidrain/), National Stream Quality Accounting Network (http://water.usgs.gov/nasqan/), and the National Water-Quality Assessment Program (http://water.usgs.gov/nawqa/).

USGS Water Resources Information on the Internet. Real-time and historical streamflow, water levels, and water-quality data at sites operated by the Tennessee District can be accessed at http://waterdata.usgs.gov/tn/nwis/nwis. Data can be retrieved by county, hydrologic unit code, or major river basin using drop-down menus. Contact Donna Flohr at (615) 837-4730 or dflohr@usgs.gov for specific information about streamflow data.

Recent publications by the USGS staff in Tennessee can be accessed by visiting http://tn.water.usgs.gov/pubpg.html. This web page provides searchable bibliographic information to locate reports and other products about specific areas.

5.2.C. U.S. Fish and Wildlife Service. The mission of the U. S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. Sustaining our nation’s fish and wildlife resources is a task that can be accomplished only through the combined efforts of governments, businesses, and private citizens. The U.S. Fish and Wildlife Service (Service) works with State and Federal agencies and Tribal governments, helps corporate and private landowners conserve habitat, and cooperates with other nations to halt illegal wildlife trade. The Service also administers a Federal Aid program that distributes funds annually to States for fish and wildlife restoration, boating access, hunter education, and related projects across America. The funds come from Federal excise taxes on fishing, hunting, and boating equipment.

Endangered Species Program. Through the Endangered Species Program, the Service consults with other federal agencies concerning their program activities and their effects on endangered and threatened species. Other Service activities under the Endangered Species Program include the listing of rare species under the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended: 16 U.S.C. 1531 et seq.) and the recovery of listed species. Once listed, a species is afforded the full range of protections available under the ESA, including prohibitions on killing, harming or otherwise taking a species. In some instances, species listing can be avoided by the development of Candidate Conservation Agreements, which may remove threats facing the candidate species, and funding efforts such as the Private Stewardship Grant Program. For a complete listing of endangered and threatened species in the Upper Elk River River watershed, please visit the Service’s website at http://www.cookeville.fws.gov.
Recovery is the process by which the decline of an endangered or threatened species is stopped and reversed, and threats to the species survival are eliminated, so that long-term survival in nature can be ensured. The goal of the recovery process is to restore listed species to a point where they are secure and self-sustaining in the wild and can be removed from the endangered species list. Under the ESA, the Service and National Marine Fisheries Service were delegated the responsibility of carrying out the recovery program for all listed species.

In a partnership with the Tennessee Nature Conservancy (TNC), Tennessee Wildlife Resources Agency (TWRA), and Tennessee Department of Environment and Conservation (TDEC) Division of Natural Heritage, the Service is developing a State Conservation Agreement for Cave Dependent Species in Tennessee (SCA). The SCA targets unlisted but rare species and protects these species through a suite of proactive conservation agreements. The goal is to preclude the need to list these species under the ESA. This agreement will cover middle and eastern Tennessee and will benefit water quality in many watersheds within the State.

In an effort to preclude the listing of a rare species, the Service engages in proactive conservation efforts for unlisted species. The program covers not only formal candidates but other rare species that are under threat. Early intervention preserves management options and minimizes the cost of recovery. Within this watershed, the Service is actively working with landowners to enhance and preserve populations of the Barrens topminnow (*Fundulus julisia*) to help restore this rare fish before it is necessary to list the species as endangered or threatened.

*Partners for Fish and Wildlife Program.* The U.S. Fish and Wildlife Service established the Partners for Fish and Wildlife Program to restore historic habitat types which benefit native fishes and wildlife. The program adheres to the concept that restoring or enhancing habitats such as wetlands or other unique habitat types will substantially benefit federal trust species on private lands by providing food and cover or other essential needs. Federal trust species include threatened and endangered species, as well as migratory birds (e.g. waterfowl, wading birds, shorebirds, neotropical migratory songbirds).

Participation is voluntary and various types of projects are available. Projects include livestock exclusion fencing, alternate water supply construction, streambank stabilization, restoration of native vegetation, wetland restoration/enhancement, riparian zone reforestation, and restoration of in-stream aquatic habitats.

The Service has completed two projects in the Beans Creek and Bradley Creek watersheds that included the installation of approximately 3,000 feet of livestock exclusion fencing with five associated alternate water sources. Three hardened heavy use areas were also installed to reduce sediment. Another project within the Upper Elk watershed that is pending completion includes the construction of exclusion fencing and an alternative water project. These projects are designed to enhance the habitat of the Barrens topminnow.

*How To Participate:*
- Interested landowners contact a “Partners for Fish and Wildlife” Biologist to discuss the proposed project and establish a site visit.
A visit to the site is then used to determine which activities the landowner desires and how those activities will enhance habitat for trust resources. Technical advice on proposed activities is provided by the Service, as appropriate.

Proposed cost estimates are discussed by the Service and landowner.

A detailed proposal which describes the proposed activities is developed by the Service biologist and the landowner. Funds are competitive, therefore the proposal is submitted to the Service’s Ecosystem team for ranking and then to the Regional Office for funding.

After funding is approved, the landowner and the Service co-sign a Wildlife Extension Agreement (minimum 10-year duration).

Project installation begins.

When the project is completed, the Service reimburses the landowner after receipts and other documentation are submitted according to the Wildlife Extension Agreement

For more information regarding the Endangered Species and Partners for Fish and Wildlife programs, please contact the Cookeville Ecological Services Field Office at 931/528-6481 or visit their website at http://www.cookeville.fws.gov.

**5.2.D. Tennessee Valley Authority (TVA).** TVA is encouraging watershed landowners to improve/protect stream riparian zones. Watersheds that are being targeted have streams listed on the 303(d) list. As a partner TVA is supplying fencing and native plants through the NRCS districts to land owners that are willing to create riparian areas along streams that livestock have had free range.

*Tims Ford Reservoir Water Quality Improvement Projects.* Tims Ford Reservoir is an impoundment that covers a surface area of 10,600 acres at normal summer pool located in the Upper Elk River Watershed. TVA completed Tims Ford Dam on the Elk River in 1970 for power generation, recreation, economic development, and flood control. With the completion of the project 246 miles of shoreline were created. TVA is working with reservoir residents to help protect and stabilize the shoreline around Tims Ford through workshops/demonstrations that educate our neighbors about the importance of riparian restoration and protection. Approximately 1.13 shoreline miles in 2002 was put into riparian habitat protection.

Also, TVA completed a shoreline survey that identified 54 miles of critical eroded shoreline on Tims Ford Reservoir in 2001. TVA will be working with partners to stabilize these critical eroded areas and look for funding to work in areas that a partnership is not available. In 2002 TVA partner to stabilize 1000 feet of critical eroded shoreline and in 2003 the plan calls for another 1000 feet to be stabilized.

TVA in partnership with TDEC, TERRM and TWRA leases approximately 800 acres for agriculture use around Tims Ford Reservoir. Agriculture tracts can be used for row crops, hay production and grazing. Starting in 2003 new leaseholders that graze cattle will have to install fencing to keep livestock out of the reservoir and tributaries. All agriculture tracts will be required to maintain a 50-foot riparian buffer.
The National Clean Boating Campaign is a partnership program which highlights the importance of clean water so boating will be fun and safe for future generations. The program demonstrates how boaters can be good stewards of the water environment through best boating and marina practices. Education events have been conducted at the two marinas on Tims Ford Reservoir. Booths have been setup at local community events to hand out literature about clean boating best management practices.

For more information, contact the Tennessee Valley Authority at the TVA information line (1-800-882-5263) or on the web at [http://www.tva.com](http://www.tva.com).
5.3. STATE PARTNERSHIPS.

5.3.A. TDEC Division of Water Supply. The Source Water Protection Program, authorized by the 1996 Amendments to the Safe Drinking Water Act, outline a comprehensive plan to achieve maximum public health protection. According to the plan, it is essential that every community take these six steps:

1) Delineate the drinking water source protection area
2) Inventory known and potential sources of contamination within these areas
3) Determine the susceptibility of the water supply system to these contaminants
4) Notify and involve the public about threats identified in the contaminant source inventory and what they mean to their public water system
5) Implement management measures to prevent, reduce or eliminate threats
6) Develop contingency planning strategies to deal with water supply contamination or service interruption emergencies (including natural disaster or terrorist activities).

Source water protection has a simple objective: to prevent the pollution of the lakes, rivers, streams, and ground water (wells and springs) that serve as sources of drinking water before they become contaminated. This objective requires locating and addressing potential sources of contamination to these water supplies. There is a growing recognition that effective drinking water system management includes addressing the quality and protection of the water sources.

Source Water Protection has a significant link with the Watershed Management Program goals, objectives and management strategies. Watershed Management looks at the health of the watershed as a whole in areas of discharge permitting, monitoring and protection. That same protection is important to protecting drinking water as well. Communication and coordination with a multitude of agencies is the most critical factor in the success of both Watershed Management and Source Water Protection.

Watershed management plays a role in the protection of both ground water and surface water systems. Watershed Management is particularly important in areas with karst (limestone characterized by solution features such as caves and sinkholes as well as disappearing streams and spring) since the differentiation between ground water and surface water is sometimes nearly impossible. What is surface water can become ground water in the distance of a few feet and vice versa.

Source water protection is not a new concept, but an expansion of existing wellhead protection measures for public water systems relying on ground water to now include surface water. This approach became a national priority, backed by federal funding, when the Safe Drinking Water Act amendments (SDWA) of 1996 were enacted. Under this Act, every public drinking water system in the country is scheduled to receive an assessment of both the sources of potential contamination to its water source of the threat these sources may pose by the year 2003 (extensions are available until 2004). The assessments are intended to enhance the protection of drinking water supplies within existing programs at the federal, state and local levels. Source water assessments were mandated and funded by Congress. Source water protection will be
left up to the individual states and local governments without additional authority from Congress for that progression.

As a part of the Source Water Assessment Program, public water systems are evaluated for their susceptibility to contamination. These individual source water assessments with susceptibility analyses are available to the public at http://www.state.tn.us/environment/dws as well as other information regarding the Source Water Assessment Program and public water systems.

Figure 5-1. Susceptibility for Contamination in the Upper Elk River Watershed.
5.3.B. State Revolving Fund. TDEC administers the state’s Clean Water State Revolving Fund Program. Amendment of the Federal Clean Water Act in 1987 created the Clean Water State Revolving Fund (SRF) Program to provide low-interest loans to cities, counties, and utility districts for the planning, design, and construction of wastewater facilities. The U.S. Environmental Protection Agency awards annual capitalization grants to fund the program and the State of Tennessee provides a twenty-percent funding match. TDEC has awarded loans totaling approximately $550 million since the creation of the SRF Program. SRF loan repayments are returned to the program and used to fund future SRF loans.

SRF loans are available for planning, design, and construction of wastewater facilities, or any combination thereof. Eligible projects include new construction or upgrading/expansion of existing facilities, including wastewater treatment plants, pump stations, force mains, collector sewers, interceptors, elimination of combined sewer overflows, and nonpoint source pollution remedies.

SRF loan applicants must pledge security for loan repayment, agree to adjust user rates as needed to cover debt service and fund depreciation, and maintain financial records that follow governmental accounting standards. SRF loan interest rates range from zero...
percent to market rate, depending on the community’s per-capita income, taxable sales, and taxable property values. Most SRF loan recipients qualify for interest rates between 2 and 4 percent. Interest rates are fixed for the life of the term of the loan. The maximum loan term is 20 years or the design life of the proposed wastewater facility, whichever is shorter.

TDEC maintains a Priority Ranking System and Priority List for funding the planning, design, and construction of wastewater facilities. The Priority Ranking List forms the basis for funding eligibility determinations and allocation of Clean Water SRF loans. Each project’s priority rank is generated from specific priority ranking criteria and the proposed project is then placed on the Project Priority List. Only projects identified on the Project Priority List may be eligible for SRF loans. The process of being placed on the Project Priority List must be initiated by a written request from the potential SRF loan recipient or their engineering consultant. SRF loans are awarded to the highest priority projects that have met SRF technical, financial, and administrative requirements and are ready to proceed.

Since SRF loans include federal funds, each project requires development of a Facilities Plan, an environmental review, opportunities for minority and women business participation, a State-approved sewer use ordinance and Plan of Operation, and interim construction inspections.

For further information about Tennessee’s Clean Water SRF Loan Program, call (615) 532-0445 or visit their Web site at http://www.tdec.net/srf.
5.3.C. The Tennessee Department of Agriculture. The Tennessee Department of Agriculture's Water Resources Section consists of the federal Section 319 Nonpoint Source Program and the Agricultural Resources Conservation Fund Program. Both of these are grant programs which award funds to various agencies, non-profit organizations, and universities that undertake projects to improve the quality of Tennessee's waters and/or educate citizens about the many problems and solutions to water pollution. Both programs fund projects associated with what is commonly known as "nonpoint source pollution."

The Tennessee Department of Agriculture's Nonpoint Source Program (TDA-NPS) has the responsibility for management of the federal Nonpoint Source Program, funded by the US Environmental Protection Agency through the authority of Section 319 of the Clean Water Act. This program was created in 1987 as part of the reauthorization of the Clean Water Act, and it established funding for states, territories and Indian tribes to address NPS pollution. Nonpoint source funding is used for installing Best Management Practices (BMPs) to stop known sources of NPS pollution, training, education, demonstrations and water quality monitoring. The TDA-NPS Program is a non-regulatory program, promoting voluntary, incentive-based solutions to NPS problems. The TDA-NPS Program basically funds three types of programs:

Figure 5-3. Location of Communities Receiving SRF Loans or Grants in the Upper Elk River Watershed. More information is provided in Upper Elk-Appendix V.
• BMP Implementation Projects. These projects aid in the improvement of an impaired waterbody, or prevent a non-impaired water from becoming listed on the 303(d) List.

• Monitoring Projects. Up to 20% of the available grant funds are used to assist the water quality monitoring efforts in Tennessee streams, both in the state's 5-year watershed monitoring program, and also in performing before-and-after BMP installation, so that water quality improvements can be verified. Some monitoring in the Upper Elk River Watershed was funded under an agreement with the Tennessee Department of Agriculture, Nonpoint Source Program, and the U.S. Environmental Protection Agency Assistance Agreements C9994674-99-0, C9994674-00-0, and C9994674-01-0.

• Educational Projects. The intent of educational projects funded through TDA-NPS is to raise the awareness of landowners and other citizens about practical actions that can be taken to eliminate nonpoint sources of pollution to the waters of Tennessee.

The Tennessee Department of Agriculture Agricultural Resources Conservation Fund Program (TDA-ARCF) provides cost-share assistance to landowners across Tennessee to install BMPs that eliminate agricultural nonpoint source pollution. This assistance is provided through Soil Conservation Districts, Resource Conservation and Development Districts, Watershed Districts, universities, and other groups. Additionally, a portion of the TDA-ARCF is used to implement information and education projects statewide, with the focus on landowners, producers, and managers of Tennessee farms and forests.

Participating contractors in the program are encouraged to develop a watershed emphasis for their individual areas of responsibility, focusing on waters listed on the Tennessee 303(d) List as being impaired by agriculture. Current guidelines for the TDA-ARCF are available. Landowners can receive up to 75% of the cost of the BMP as a reimbursement.

Since January of 1999, the Department of Agriculture and the Department of Environment and Conservation have had a Memorandum of Agreement whereby complaints received by TDEC concerning agriculture or silviculture projects would be forwarded to TDA for investigation and possible correction. Should TDA be unable to obtain correction, they would assist TDEC in the enforcement against the violator. More information about the joint policy to address Bad Actors in forestry operations is available at http://www.state.tn.us/environment/news/release/jan99/badact.htm
Figure 5-4. Location of BMPs installed from 1999 through 2002 in the Upper Elk River Watershed with Financial Assistance from the Tennessee Department of Agriculture’s Nonpoint Source and Agricultural Resources Conservation Fund Grant Programs.
5.4. LOCAL INITIATIVES.

5.4.A. Tims Ford Council (TFC). The objectives of TFC is to: promote and protect the quality of Tims Ford Reservoir and its shoreline environs; to provide a forum for discussion, education and appropriate action concerning reservoir issues and activities; and to maintain active liaison with appropriate federal, state and local authorities, departments and agencies. Membership in the Council is open to individuals or entities who endorse the above objectives. We have been active for over 10 years and have a current membership of 256 families. TFC publishes an annual newsletter, and maintains a web site to publicize our activities and accomplishments.

A Committee or Special Interest Group is formed to work any issue that the membership feels important. Current committees include:

- Tims Ford Reservoir Water Quality. In the past, this group has helped identify sewage collection system leaks, establish liaison with Winchester Utilities, TVA and TDEC. Currently staffed with over 25 members. This group is broken into 4 teams that take water samples from 6 locations around the lake. These samples are analyzed by the teams for temperature, acidity (pH), visibility, nitrate, phosphate, dissolved oxygen, alkalinity and bacterial pollutants. The results are shared with local water utilities, TVA and TDEC.
- Lake Clean Up. Held annually in cooperation with local civic organizations, this activity has removed 4 to 6 tons of waste materials from the lake each spring.
- Clean Boating Campaign. Co-Sponsored with TVA; we help advertise and recruit boaters to help make the lake a better place.
- Water Safety education and support of required boat safety training.
- Liaison with Winchester Utilities, TVA, TDEC and TF State Park.

Past issues and committees included:

- Property Tax Committee, providing citizens with information and procedures for seeking relief from high property taxes.
- Reducing Property Taxes for Senior Citizens, lobbying the Tennessee Legislature to provide Senior Citizens with a reduction in property tax.
- Provide a forum for candidates for county office to speak to Lake Issues.

Points of contact for issues related to the Tims Ford Reservoir include:

- Ronald Schmitz, Chairman (chairman@timsfordcouncil.com)
- Bill Riehl, Leader, Water Quality Issues (theriehl@aol.com)
- Monte Miller, Board Member (montemiller@timsfordcouncil.com)

The TFC web page can be found at http://www.timsfordcouncil.com/
CHAPTER 6

FUTURE DIRECTIONS IN THE UPPER ELK RIVER WATERSHED

6.1. Background

6.2. Comments from Public Meetings
   6.2.A. Year 1 Public Meeting
   6.2.B. Year 3 Public Meeting
   6.2.C. Year 5 Public Meeting

6.3. Approaches Used
   6.3.A. Point Sources
   6.3.B. Nonpoint Sources

6.4. Permit Reissuance Planning
   6.4.A. Municipal Permits
   6.4.B. Industrial Permits
   6.4.C. Water Treatment Plant Permits

6.1. BACKGROUND.

The Watershed Water Quality Management Plan serves as a comprehensive inventory of resources and stressors in the watershed, a recommendation for control measures, and a guide for planning activities in the next five-year watershed cycle and beyond. Water quality improvement will be a result of implementing both regulatory and nonregulatory programs.

In addition to the NPDES program, some state and federal regulations, such as the TMDL and ARAP programs, address point and nonpoint issues. Construction and MS4 stormwater rules (implemented under the NPDES program) are transitioning from Phase 1 to Phase 2. More information on stormwater rules may be found at: http://www.state.tn.us/environment/wpc/stormh2o/MS4.htm.

This Chapter addresses point and nonpoint source approaches to water quality problems in the Upper Elk River Watershed as well as specific NPDES permittee information.
6.2. COMMENTS FROM PUBLIC MEETINGS. Watershed meetings are open to the public, and most meetings were represented by citizens who live in the watershed, NPDES permitees, business people, farmers, and local river conservation interests. Locations for meetings were frequently chosen after consulting with people who live and work in the watershed. Everyone with an interest in clean water is encouraged to be a part of the public meeting process. The times and locations of watershed meetings are posted at: [http://www.state.tn.us/environment/wpc/public.htm](http://www.state.tn.us/environment/wpc/public.htm).

6.2.A. Year 1 Public Meeting. The first Upper Elk River Watershed public meeting was held April 22, 1997 in Winchester. The goals of the meeting were to 1) present, and review the objectives of, the Watershed Approach, 2) introduce local, state, and federal agency and nongovernment organization partners, 3) review water quality monitoring strategies, and 4) solicit input from the public.

6.2.B. Year 3 Public Meeting. The second Upper Elk River Watershed public meeting was held October 26, 1999 at the Winchester Courthouse. The goals of the meeting were to 1) provide an overview of the watershed approach, 2) review the monitoring strategy, 3) summarize the most recent water quality assessment, 4) discuss the TMDL schedule and citizens’ role in commenting on draft TMDLs, and 5) discuss BMPs and other nonpoint source tools available through the Tennessee Department of Agriculture 319 Program and NRCS conservation assistance programs.

6.2.C. Year 5 Public Meeting. The third scheduled Upper Elk River Watershed public meeting was held November 3, 2003 at the Winchester Courthouse. The meeting featured six educational components:

- Overview of draft Watershed Water Quality Management Plan slide show
- Benthic macroinvertebrate samples and interpretation
- SmartBoard™ with interactive GIS maps
- “How We Monitor Streams” self-guided slide show
- “Why We Do Biological Sampling” self-guided slide show
- Tennessee Valley Authority display

In addition, citizens had the opportunity to make formal comments on the draft Watershed Water Quality Management Plan and to rate the effectiveness of the meeting.
Figure 6-1. Attendance at Public Meetings in the Upper Elk River Watershed. The 1997 and 1999 watershed meeting numbers represent Upper Elk River, Lower Elk River, Pickwick Lake, and Wheeler Lake, Watershed joint meetings.
Figure 6-2. Informal discussions are important in meeting citizens’ interest in understanding Water Pollution Control’s activities in the watershed, and in communicating to the Department any concerns they might have.
Figure 6-3. Partners, like the Tennessee Valley Authority, are important in the watershed approach, and use the watershed meetings to communicate their activities to the public.
6.3. APPROACHES USED.

6.3.A. Point Sources. Point source contributions to stream impairment are primarily addressed by NPDES and ARAP permit requirements and compliance with the terms of the permits. Notices of NPDES and ARAP draft permits available for public comment can be viewed at [http://www.state.tn.us/environment/wpc/wpcppo/](http://www.state.tn.us/environment/wpc/wpcppo/). Discharge monitoring data submitted by NPDES-permitted facilities may be viewed at [http://www.epa.gov/enviro/html/pcs/pcs_query_java.html](http://www.epa.gov/enviro/html/pcs/pcs_query_java.html).

The purpose of the TMDL program is to identify remaining sources of pollution and allocate pollution control needs in places where water quality goals are still not being achieved. TMDL studies are tools that allow for a better understanding of load reductions necessary for impaired streams to return to compliance with water quality standards. More information about Tennessee’s TMDL program may be found at: [http://www.state.tn.us/environment/wpc/tmdl.php](http://www.state.tn.us/environment/wpc/tmdl.php)
TMDLs are prioritized for development based on many factors.

**Figure 6-4. Prioritization scheme for TMDL Development.**
6.3.B. Nonpoint Sources

Common nonpoint sources of pollution include urban runoff, riparian vegetation removal, and inappropriate land development, agricultural, and road construction practices. Since nonpoint pollution exists essentially everywhere rain falls and drains to a stream, existing point source regulations can have only a limited effect, so other measures are necessary.

There are several state and federal regulations that address some of the contaminants impacting waters in the Upper Elk River Watershed. Most of these are limited to only point sources: a pipe or ditch. Often, controls of point sources are not sufficient to protect waters, so other measures are necessary. Some measures include voluntary efforts by landowners and volunteer groups, while others may involve new regulations. Many agencies, including the Tennessee Department of Agriculture and NRCS, offer financial assistance to landowners for corrective actions (like Best Management Practices) that may be necessary for recovery of impacted streams. Many nonpoint problems will require an active civic involvement at the local level geared towards establishment of improved zoning guidelines, building codes, streamside buffer zones and greenways, and general landowner education.

The following text describes certain types of impairments, causes, suggested improvement measures, and control strategies. The suggested measures and streams are only examples and efforts should not be limited to only those streams and measures mentioned.

6.3.B.i. Sedimentation.

6.3.B.i.a. From Construction Sites. Construction activities have historically been considered “nonpoint sources.” In the late 1980’s, EPA designated them as being subject to NPDES regulation if more than 5 acres are disturbed. In the spring of 2003, that threshold became 1 acre. The general permit issued for such construction sites sets out conditions for maintenance of the sites to minimize pollution from stormwater runoff, including requirements for installation and inspection of erosion controls. Also, the general permit imposes more stringent inspection and self-monitoring requirements on sites in the watershed of streams that are already impaired due to sedimentation. Regardless of the size, no construction site is allowed to cause a condition of pollution.

Construction sites within a sediment-impaired watershed may also have higher priority for inspections by WPC personnel, and are likely to have enforcement actions for failure to control erosion. Historically, construction activities have not been a large source of the sediment problems within the Upper Elk River Watershed, due to the rather sparsely populated nature of most of the watershed. However, increased population growth in the urban centers of Fayetteville, Tullahoma, and Winchester/Decherd (among others) will require local regulation and oversight to prevent construction runoff from impacting area streams.

6.3.B.i.b. From Channel and/or Bank Erosion. Many streams in the Upper Elk River Watershed suffer from varying degrees of stream bank erosion. When stream channels are altered, or large tracts of land are cleared, increasing storm runoff, banks can
become unstable and highly erodible. Heavy livestock traffic can also severely disturb stream banks. Destabilized banks contribute to sediment loading and accelerate the loss of riparian vegetation. This cycle is especially problematic in the headwater areas of the Upper Elk River Watershed, where the very sandy plateau soils and shallow rooted trees are especially vulnerable. Most of the land and channel alterations center on agricultural practices, including row-cropping too close to the stream and livestock grazing.

Several agencies such as the Natural Resources Conservation Service (NRCS) and the Tennessee Department of Agriculture (TDA), as well as watershed citizen groups, are working to stabilize portions of stream banks using bioengineering and other techniques. Many of the affected streams could benefit from these types of projects, including Stewart Creek, Pleasant Valley Creek, Little Swan Creek, Farris Creek, and West Cane Creek. Other methods or controls that might be necessary to address common problems are:

**Voluntary activities**
- Re-establishment of bank vegetation (examples: Coffee Creek, Robinson Creek, Little Cane Creek, Stephens Creek, and many others).
- Establish buffer zones along streams running through row crop fields or nurseries (examples: Blue Spring Creek, Gum Creek, Hessey Branch).
- Establish off-channel watering areas for cattle by moving watering troughs and feeders back from stream banks (examples: Short Creek, Shelton Creek, and Indian Creek).
- Limit cattle access to streams and bank vegetation (examples: Mud Creek, Yellow Branch, and Childer Creek).

**Additional strategies**
- Better community planning for the impacts of development on small streams, especially development in growing areas (examples: small streams in and around Tullahoma, Winchester, and Fayetteville).
- Restrictions requiring post construction run-off rates to be no greater than pre-construction rates in order to avoid in-channel erosion (examples: Wagner Creek, Blue Creek, and Rock Creek).
- Additional restrictions on logging in streamside management zones.
- Prohibition on clearing of stream and ditch banks (example: Gum Creek). *Note: Permits may be required for any work along streams.*
- Additional restriction to road and utilities crossings of streams.
- Restrictions on the use of off-highway vehicles on stream banks and in stream channels.

6.3.B.1.c. From Agriculture and Silviculture. Even though there is an exemption in the Water Quality Control Act stating that normal agricultural and silvicultural practices that do not result in a point source discharge do not have to obtain a permit, efforts are being made to address impacts due to these practices.

The Master Logger Program has been in place for several years to train loggers how to plan their logging activities and to install Best Management Practices that lessen the impact of logging activities. Recently, laws and regulations were enacted which established the expected BMPs to be used and allows the Commissioners of the
Departments of Environment and Conservation and of Agriculture to stop a logging operation that has failed to install these BMPs and so are impacting streams. Only the headwater area of the Elk River on the plateau retains large tracts of forested land which have the potential to be affected by larger-scale logging operations.

Since the Dust Bowl era, the agriculture community has strived to protect the soil from wind and soil erosion. Agencies such as the Natural Resources Conservation Service (NRCS), the University of Tennessee Agricultural Extension Service, and the Tennessee Department of Agriculture have worked to identify better ways of farming, to educate the farmers, and to install the methods that address the sources of some of the impacts due to agriculture. Cost sharing is available for many of these measures. Agriculture is the most widespread land-use in the Upper Elk River Watershed, therefore impacting the greatest number of stream miles.

6.3.B.ii. Pathogen Contamination.

Possible sources of pathogens are inadequate or failing septic tank systems, overflows or breaks in public sewer collection systems, poorly disinfected discharges from sewage treatment plants, and fecal matter in streams and storm drains due to pets, livestock and wildlife. Permits issued by the Division of Water Pollution Control regulate discharges from point sources and require adequate control for these sources. Individual homes are required to have subsurface, on-site treatment (i.e., septic tank and field lines) if public sewers are not available. Septic tank and field lines are regulated by the Division of Ground Water Protection within the Columbia Environmental Assistance Center and delegated county health departments. In addition to discharges to surface waters, businesses may employ either subsurface or surface disposal of wastewater. The Division of Water Pollution Control regulates surface disposal.

Currently, only three stream systems in the Upper Elk River Watershed are known to have excessive pathogen contamination (however, many streams have not been screened). These are Juanita Creek (Grundy County), and Cane Creek and Swan Creek (Lincoln County). Juanita Creek is in a small urban area, with its bacterial contamination coming from stormwater runoff, failing septic systems, and sewage collection system leaks. Cane Creek and Swan Creek are in agricultural areas, with large livestock operations generating great quantities of manure. Measures that may be necessary to control pathogens in these streams, and in others with less serious problems, include:

Voluntary activities
- Limiting livestock access to streams, including use of off-channel watering of livestock (example: Cane Creek).
- Proper management of animal waste from feeding operations (example: Swan Creek).
- Better maintenance of sub-surface disposal systems.

Enforcement strategies
- Greater enforcement of regulations governing on-site wastewater treatment.
- Timely and appropriate enforcement for non-complying sewage treatment plants, large and small, and their collection systems.
• Identification of Concentrated Animal Feeding Operations not currently permitted, and enforcement of current regulations.

**Additional strategies**

• Restrict development in areas where sewer is not available and treatment by subsurface disposal is not an option due to poor soils, floodplains, or high water tables. This is particularly important in the headwaters of the Elk River Watershed, given the geology of the Cumberland Plateau and Escarpment.

• Develop and enforce leash laws and controls on pet fecal material in areas with higher population densities.

• Greater efforts by sewer utilities to identify leaking lines or overflowing manholes, (example: Juanita Creek).

• More efforts by local urban public works and utilities to identify and control contaminated stormwater runoff sources entering storm sewer systems.

**6.3.B.iii. Excessive Nutrients and/or Dissolved Oxygen Depletion.**

These two impacts are usually listed together because high nutrients often contribute to low dissolved oxygen within a stream. Since nutrients often have the same source as pathogens, the measures previously listed can also address many of these problems. Elevated nutrient loadings are also often associated with urban runoff from impervious surfaces, from fertilized lawns and croplands, and inappropriate sewage disposal practices.

Other sources of nutrients can be addressed by:

**Voluntary activities**

• Educate homeowners and lawn care companies in the proper application of fertilizers.

• Encourage landowners, developers, and builders to leave stream buffer zones. Streamside vegetation can filter out many nutrients and other pollutants before they reach the stream. These riparian buffers are also vital along livestock pastures. Caney Hollow Creek, Factory Branch, Farris Creek, Dry Creek, and many others could benefit from buffer zones that filter nutrient runoff.

• Use grassed drainage ways that can remove fertilizer before it enters streams.

• Use native plants for landscaping since they don’t require as much fertilizer and water.

Physical changes to streams can prevent them from providing enough oxygen to biodegrade the materials that are naturally present. A few additional actions can address this problem:

• Maintain shade over a stream. Cooler water can hold more oxygen and retard the growth of algae. As a general rule, all stream channels suffer from canopy removal. An intact riparian zone also acts as a buffer to filter out nutrient loads before they enter the water.
• Discourage impoundments. Ponds and lakes do not aerate water, and can cause an increase in water temperature. *Note: Permits may be required for any work on a stream, including impoundments.*

**Regulatory Strategies**
- Greater enforcement of regulations governing on-site wastewater treatment.
- More stringent permit limits for nutrients discharged from sewage treatment plants (including Rock Creek and East Fork Mulberry Creek).
- Timely and appropriate enforcement for non-complying sewage treatment plants, large and small, and their collection systems.
- Identification of Concentrated Animal Feeding Operations not currently permitted, and enforcement of current regulations.

6.3.B.iv. Toxins and Other Materials.

Although some toxic substances are discharged directly into streams from a point source, much of these materials are washed in during rainfalls from an upland location or via improper waste disposal practices that contaminate groundwater. In the Upper Elk River Watershed, a relatively small number of streams are damaged by stormwater runoff from industrial areas or urban areas. More stringent inspection and regulation of permitted industrial activities, and local stormwater quality initiatives and regulations, could help reduce the amount of contaminated runoff reaching state waters. Examples of streams that would benefit from these measures include Wagner Creek, Rock Creek, and Blue Creek.

Woods Reservoir represents a particularly large-scale example of toxic releases into streams. Due to decades of PCBs being discharged into this impoundment of the Elk River, the bottom sediment has become highly contaminated, and the lake is now posted for fish consumption due to this legacy pollutant.

Many materials enter our streams due to apathy, or lack of civility or knowledge by the public. Litter in roadside ditches, garbage bags tossed over bridge railings, paint brushes washed off over storm drains, and oil drained into ditches are all blatant examples of pollution in streams. Some can be addressed by:

**Voluntary activities**
- Providing public education.
- Painting warnings on storm drains that connect to a stream
- Sponsoring community clean-up days.
- Landscaping of public areas.
- Encouraging public surveillance of their streams and reporting of dumping activities to their local authorities.

**Needing regulation**
- Prohibition of illicit discharges to storm drains.
- Litter laws and strong enforcement at the local level.
**6.3.B.v. Habitat Alteration.**

The alteration of the habitat within a stream can have severe consequences. Whether it is the removal of the vegetation providing a root system network for holding soil particles together, the release of sediment, which increases the bed load and covers benthic life and fish eggs, the removal of gravel bars, “cleaning out” creeks with heavy equipment, or the impounding of the water in ponds and lakes, many alterations impair the use of the stream for designated uses. Habitat alteration also includes the draining or filling of wetlands.

Measures that can help address this problem are:

**Voluntary activities**
- Organizing stream cleanups removing trash, limbs and debris before they cause blockage.
- Avoiding use of heavy equipment to “clean out” streams.
- Planting vegetation along streams to stabilize banks and provide habitat (nearly all streams could benefit from this).
- Encouraging developers to avoid extensive culverts in streams.

**Current regulations**
- Restrict modification of streams by such means as culverting, lining, or impounding.
- Require off-site mitigation for impacts to streams and wetlands when modifications are allowed. Like most large dams, Tims Ford Dam and Woods Reservoir Dam have chronically caused serious impacts to the Elk River from low oxygen levels as well as unnatural thermal and flow alterations in the downstream tailwaters.

**Additional Enforcement**
- Increased enforcement may be needed when violations of current regulations occur.

In addition, there are three streams in the Upper Elk River Watershed that have been impacted due to unnatural flow and thermal alterations caused by permitted dischargers. The batch discharge system at the Tullahoma Sewage Treatment Plant has degraded Rock Creek, and some discharges from AEDC have impacted Rollins Branch and Rowlands Creek. New technology and facility design at these two facilities may be necessary to mitigate the long-standing negative effects produced by operations at these sites.
6.4. PERMIT REISSUANCE PLANNING

Under the *Tennessee Water Quality Control Act*, municipal, industrial and other dischargers of wastewater must obtain a permit from the Division. Approximately 1,700 permits have been issued in Tennessee under the federally delegated National Pollutant Discharge Elimination System (NPDES). These permits establish pollution control and monitoring requirements based on protection of designated uses through implementation of water quality standards and other applicable state and federal rules.

The following three sections provide specific information on municipal, industrial, and water treatment plant active permit holders in the Upper Elk River Watershed. Compliance information was obtained from EPA’s Permit Compliance System (PCS). All data was queried for a five-year period between January 1, 2001 and December 31, 2006. PCS can be accessed publicly through EPA’s Envirofacts website. This website provides access to several EPA databases to provide the public with information about environmental activities that may affect air, water, and land anywhere in the United States:

http://www.epa.gov/enviro/html/ef_overview.html

Stream Segment information, including designated uses and impairments, are described in detail in Chapter 3, *Water Quality Assessment of the Upper Elk River Watershed*. 
### Municipal Permits

**TN0021806 Monteagle Sewage Treatment Plant, Plant #1**

**Discharger rating:** Major  
**City:** Monteagle  
**County:** Grundy  
**EFO Name:** Chattanooga  
**Issuance Date:** 8/30/02  
**Expiration Date:** 8/30/07  
**Receiving Stream(s):** Mile 1.3 tributary to Gilliam Creek at mile 1.6 to Caldwell Creek at mile 1.5  
**HUC-12:** 060300030103  
**Effluent Summary:** Treated municipal wastewater from Outfall 001  
**Treatment system:** WAS to aerobic dig to dry beds or to land application

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>2 mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>3.1 lb/day</td>
<td>DMax Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>1.5 mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>1 mg/L</td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>2.1 lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>3 mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>2.3 mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>3.1 lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>1.5 mg/L</td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>4.8 lb/day</td>
<td>DMax Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Bypass of Treatment (occurrences)</td>
<td>All Year</td>
<td>Occurences/Month</td>
<td>MAvg Load</td>
<td>Continuous</td>
<td>Visual</td>
<td>Wet Weather</td>
<td></td>
</tr>
<tr>
<td>CBOD % Removal</td>
<td>All Year</td>
<td>40 Percent</td>
<td>DMin % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
<td></td>
</tr>
<tr>
<td>CBOD % Removal</td>
<td>All Year</td>
<td>85 Percent</td>
<td>MAvg % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>30 mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>52 lb/day</td>
<td>DMax Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>20 mg/L</td>
<td>DMin Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>42 lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>25 mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Winter</td>
<td>40 mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Winter</td>
<td>73 lb/day</td>
<td>DMax Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Winter</td>
<td>52 lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Winter</td>
<td>35 mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Winter</td>
<td>25 mg/L</td>
<td>DMin Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>D.O.</td>
<td>All Year</td>
<td>5 mg/L</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>E. coli</td>
<td>All Year</td>
<td>126 #/100mL</td>
<td>MAvg Geo Mean</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
</tbody>
</table>

*Table 6-1a.*
### Table 6-1b.

**Tables 6-1a – b. Permit Limits Monteagle Sewage Treatment Plant #1.**

**Compliance History:**

The following numbers of exceedences were noted in PCS:

- 1 Settleable Solids
- 7 Ammonia
- 2 CBOD
- 2 Fecal Coliform
- 12 Suspended Solids % Removal
- 1 Chlorine
- 25 bypasses
- 12 overflows

**Enforcement:**

Commissioner’s Order #04-0625

Database notes:

City of Monteagle is a municipality in Grundy County, Tennessee that owns and operates two wastewater treatment plants (WWT plants #1 and #2) and associated sewage collection systems. On November 20, 2002, the Water Quality Control Board...
issued Agreed Order #02-0192 to the Respondent to resolve two previous Director’s Orders (#01-0168D, #01-065D) for effluent violations. Follow-up compliance evaluation inspections at plants #1 and #2 revealed conditions in violation of permit parameters, persistent operational deficiencies, and failure to comply with the terms of the Agreed Order. Accumulation of waste sludge resulting from improper operation of plant #2 was observed in Trussel Creek and its tributary.

01/11/06 Agreed Order entered by the Secretary of State.
05/10/06 Requested an extension on the SORP until 5/22/06.
06/16/06 The Trussell Creek mitigation plan. Steps 1,2,4, &5 were acceptable. Step 3 was denied. Step 3 proposed to build a retention pond in Trusseell Creek.
10/3/06 Approval of sewer connections granted.
10/31/06 Letter sent from the permit section requesting additional samples as required by permit before the permit can be modified.

EFO Comments:
None.
TN0064815 Monteagle Sewage Treatment Plant, Plant #2

Discharger rating: Major
City: Monteagle
County: Grundy
EFO Name: Chattanooga
Issuance Date: 10/29/04
Expiration Date: 11/30/07
Receiving Stream(s): Unnamed tributary at mile 1.0 to Trussel Creek
HUC-12: 060300030103
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Secondary with trickling filter, submerged bed nitrification, clarification, chlorination, dechlorination and step aeration, and aerobic sludge digester

<table>
<thead>
<tr>
<th>Segment</th>
<th>Trussel Creek</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>TN06030003044_0730</td>
</tr>
<tr>
<td>Size</td>
<td>4.3</td>
</tr>
<tr>
<td>Unit</td>
<td>Miles</td>
</tr>
<tr>
<td>First Year on 303(d) List</td>
<td>2004</td>
</tr>
<tr>
<td>Designated Uses</td>
<td>Livestock Watering and Wildlife (Supporting), Irrigation (Supporting), Fish and Aquatic Life (Non-Supporting), Recreation (Not Assessed)</td>
</tr>
<tr>
<td>Causes</td>
<td>Solids (Suspended/Bedload), Nutrient/Eutrophication Biological Indicators, 461, Oxygen, Dissolved</td>
</tr>
<tr>
<td>Sources</td>
<td>Municipal Point Source Discharges</td>
</tr>
</tbody>
</table>

Table 6-2. Stream Segment Information for Monteagle Sewage Treatment Plant, Plant #2.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>4 mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>1.24 mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>3 mg/L</td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>2.6 lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>6 lb/day</td>
<td>WAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>10 mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>16 lb/day</td>
<td>WAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>7.5 mg/L</td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>2.36 mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>4.9 lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD % Removal</td>
<td>All Year</td>
<td>40 Percent</td>
<td>DMin % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
<td></td>
</tr>
<tr>
<td>CBOD % Removal</td>
<td>All Year</td>
<td>85 Percent</td>
<td>MAvg % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>40 mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>25 mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>73 lb/day</td>
<td>WAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>35 mg/L</td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>52 lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>D.O.</td>
<td>All Year</td>
<td>6 mg/L</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
</tbody>
</table>

Table 6-3a.
### Upper Elk River Watershed-Chapter 6

Revised 2003

#### Table 6-3b.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. coli</td>
<td>All Year</td>
<td>941</td>
<td>#/100mL</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>E. coli</td>
<td>All Year</td>
<td>126</td>
<td>#/100mL</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>MAvg Conc</td>
<td>DMax Load</td>
<td>Daily</td>
<td>Continuous</td>
<td>Effluent</td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>MAvg Conc</td>
<td>DMax Load</td>
<td>Daily</td>
<td>Continuous</td>
<td>Influent (Raw Sewage)</td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>MAvg Conc</td>
<td>DMax Load</td>
<td>Daily</td>
<td>Continuous</td>
<td>Influent (Raw Sewage)</td>
</tr>
<tr>
<td>NOEL 7day Ceriodaphnia Dubia</td>
<td>All Year</td>
<td>100</td>
<td>Percent</td>
<td>MAvg Min</td>
<td>Quarterly</td>
<td>Calculated</td>
<td>Effluent</td>
</tr>
<tr>
<td>NOEL 7day Fathead Minnows</td>
<td>All Year</td>
<td>100</td>
<td>Percent</td>
<td>MAvg Min</td>
<td>Quarterly</td>
<td>Calculated</td>
<td>Effluent</td>
</tr>
<tr>
<td>Nitrogen Total (as N)</td>
<td>All Year</td>
<td>5</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Bi-monthly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Phosphorus, Dissolved</td>
<td>All Year</td>
<td>10</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Bi-monthly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>1</td>
<td>mL/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.02</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>45</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>30</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>83</td>
<td>lb/day</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>83</td>
<td>lb/day</td>
<td>WAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS % Removal</td>
<td>All Year</td>
<td>40</td>
<td>Percent</td>
<td>DMin % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
</tr>
<tr>
<td>TSS % Removal</td>
<td>All Year</td>
<td>85</td>
<td>Percent</td>
<td>MAvg % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9</td>
<td>SU</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

#### Compliance History:
The following numbers of exceedences were noted in PCS:

- 21 Ammonia
- 3 COD
- 4 Suspended Solids % Removal

#### Enforcement:
*Commissioner’s Order #04-0625*

**Database notes:**

City of Monteagle is a municipality in Grundy County, Tennessee that owns and operates two wastewater treatment plants (WWT plants; plants #1 and #2) and associated sewage collection systems. On November 20, 2002, the Water Quality Control Board issued Agreed Order #02-0192 to the Respondent to resolve two previous Director’s Orders (#01-0168D, #01-065D) for effluent violations. Follow-up compliance evaluation inspections at plants #1 and #2 revealed conditions in violation of permit parameters, persistent operational deficiencies, and failure to comply with the terms of the Agreed Order. Accumulation of waste sludge resulting from improper operation of plant #2 was observed in Trussel Creek and its tributary.

01/11/06 Agreed Order entered by the Secretary of State.

05/10/06 Requested an extension on the SORP until 5/22/06.
06/16/06 The Trussell Creek mitigation plan. Steps 1, 2, 4, & 5 were acceptable. Step 3 was denied. Step 3 proposed to build a retention pond in Trussell Creek.
10/3/06 Approval of sewer connections granted by Dick Urban.
10/31/06 Letter sent from the permit section requesting additional samples as required by permit before the permit can be modified.

**EFO Comments:**
None.
TN0020508 Decherd Water Works Sewage Treatment Plant

Discharger rating: Major
City: Decherd
County: Franklin
EFO Name: Columbia
Issue Date: 6/30/04
Expiration Date: 7/31/07
Receiving Stream(s): Wagner Creek at mile 2.4
HUC-12: 060300030401
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Expansion of municipal treatment capacity discharging to
Outfall 001 from 0.5 to 1.0 MGD

<table>
<thead>
<tr>
<th>Segment</th>
<th>TN06030003032_1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Wagner Creek</td>
</tr>
<tr>
<td>Size</td>
<td>18.8</td>
</tr>
<tr>
<td>Unit</td>
<td>Miles</td>
</tr>
<tr>
<td>First Year on 303(d) List</td>
<td>2004</td>
</tr>
<tr>
<td>Designated Uses</td>
<td>Fish and Aquatic Life (Non-Supporting), Recreation (Non-Supporting), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)</td>
</tr>
<tr>
<td>Causes</td>
<td>Nitrates, Physical substrate habitat alterations, Escherichia coli</td>
</tr>
<tr>
<td>Sources</td>
<td>Municipal (Urbanized High Density Area), Municipal Point Source Discharges, Channelization</td>
</tr>
</tbody>
</table>

Table 6-4. Stream Segment Information for Decherd Sewage Treatment Plant, Plant #2.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>2.4</td>
<td>MGD</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>2.4</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>1.2</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>5</td>
<td>lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>1.8</td>
<td>mg/L</td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>1.8</td>
<td>mg/L</td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>9.2</td>
<td>lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>1.1</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>7.5</td>
<td>lb/day</td>
<td>WAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>15</td>
<td>lb/day</td>
<td>WAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>5</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>2</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>17.5</td>
<td>lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>8.3</td>
<td>lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>2.1</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>5</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>3.5</td>
<td>mg/L</td>
<td>WAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>29.2</td>
<td>lb/day</td>
<td>WAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>14.6</td>
<td>lb/day</td>
<td>WAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Table 6-5a.
<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen Total (as N)</td>
<td>Winter</td>
<td>35 mg/L</td>
<td>W Avg Concentration</td>
<td>3/Week Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bypass of Treatment (flow rate)</td>
<td>All Year</td>
<td>Visual</td>
<td>M Avg Concentration</td>
<td>Monthly Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bypass of Treatment (flow rate)</td>
<td>All Year</td>
<td>Visual</td>
<td>M Avg Load</td>
<td>Monthly Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBOD % Removal</td>
<td>All Year</td>
<td>40 Percent</td>
<td>M Avg % Removal</td>
<td>3/Week Calculated</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBOD % Removal</td>
<td>All Year</td>
<td>40 Percent</td>
<td>M Avg % Removal</td>
<td>3/Week Calculated</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>20 mg/L</td>
<td>D Max Concentration</td>
<td>3/Week Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>10 mg/L</td>
<td>M Avg Concentration</td>
<td>3/Week Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>15 mg/L</td>
<td>W Avg Load</td>
<td>3/Week Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>15 mg/L</td>
<td>W Avg Concentration</td>
<td>3/Week Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>83 lb/day</td>
<td>M Avg Load</td>
<td>3/Week Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>42 lb/day</td>
<td>M Avg Load</td>
<td>3/Week Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>10 mg/L</td>
<td>M Avg Concentration</td>
<td>3/Week Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>15 mg/L</td>
<td>W Avg Concentration</td>
<td>3/Week Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>126 #/100mL</td>
<td>M Avg Geo Mean</td>
<td>3/Week Grab</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>1000 #/100mL</td>
<td>D Max Concentration</td>
<td>3/Week Grab</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>200 #/100mL</td>
<td>M Avg Geo Mean</td>
<td>3/Week Grab</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>126 #/100mL</td>
<td>M Avg Geo Mean</td>
<td>3/Week Grab</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD D Max Concentration</td>
<td>Daily Continuous</td>
<td>Effluent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD D Max Concentration</td>
<td>Daily Continuous</td>
<td>Effluent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD M Avg Concentration</td>
<td>Daily Continuous</td>
<td>Effluent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD M Avg Concentration</td>
<td>Daily Continuous</td>
<td>Effluent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD M Avg Concentration</td>
<td>Daily Continuous</td>
<td>Effluent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD M Avg Concentration</td>
<td>Daily Continuous</td>
<td>Effluent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC25 7 day Ceriodaphnia Dubia</td>
<td>All Year</td>
<td>100 Percent</td>
<td>D Min Concentration</td>
<td>Quarterly Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC25 7 day Ceriodaphnia Dubia</td>
<td>All Year</td>
<td>100 Percent</td>
<td>D Min Concentration</td>
<td>Quarterly Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC25 7 day Fathead Minnows</td>
<td>All Year</td>
<td>100 Percent</td>
<td>D Min Concentration</td>
<td>Quarterly Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC25 7 day Fathead Minnows</td>
<td>All Year</td>
<td>100 Percent</td>
<td>D Min Concentration</td>
<td>Quarterly Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrogen Total (as N)</td>
<td>All Year</td>
<td>10 Percent</td>
<td>D Min Concentration</td>
<td>Quarterly Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrogen Total (as N)</td>
<td>All Year</td>
<td>10 Percent</td>
<td>D Min Concentration</td>
<td>Quarterly Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrogen Total (as N)</td>
<td>All Year</td>
<td>10 Percent</td>
<td>D Min Concentration</td>
<td>Quarterly Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrogen Total (as N)</td>
<td>Summer</td>
<td>11 mg/L</td>
<td>M Avg Concentration</td>
<td>2/Week Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrogen Total (as N)</td>
<td>Summer</td>
<td>91.7 lb/day</td>
<td>M Avg Load</td>
<td>2/Week Composite</td>
<td>Effluent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6-5b.
### Table 6-5c.

**Tables 6-5a-c. Permit Limits for Decherd Sewage Treatment Plant.**

**Compliance History:**
The following numbers of exceedences were noted in PCS:

- 2 Total Nitrogen
- 2 Settleable Solids
- 1 Total Phosphorus
- 1 Suspended Solids % Removal.
- 7 Overflows
- 21 Bypasses

**EFO Comments:**
None.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overflow Use Occurrences</td>
<td>All Year</td>
<td>Occurrences/Month</td>
<td>DMax Load</td>
<td>Continuous</td>
<td>Visual</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Overflow Use Occurrences</td>
<td>All Year</td>
<td>Occurrences/Month</td>
<td>MAvg Load</td>
<td>Continuous</td>
<td>Visual</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Overflow Use Occurrences</td>
<td>All Year</td>
<td>Occurrences/Month</td>
<td>MAvg Load</td>
<td>Continuous</td>
<td>Visual</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Phosphorus Total</td>
<td>All Year</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Phosphorus Total</td>
<td>All Year</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>2/Month</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Phosphorus Total</td>
<td>Summer</td>
<td>0.5 mg/L</td>
<td>MAvg Conc</td>
<td>2/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>lb/day</td>
<td>MAvg Load</td>
<td>2/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>1 mL/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>45 mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>30 mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>334 lb/day</td>
<td>WAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>167 lb/day</td>
<td>WAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>40 mg/L</td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>40 mg/L</td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>250 lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>125 lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>40 mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>40 mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS % Removal</td>
<td>All Year</td>
<td>85 Percent</td>
<td>MAvg % Removal</td>
<td>Monthly</td>
<td>Calculated %Removal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSS % Removal</td>
<td>All Year</td>
<td>40 Percent</td>
<td>DMin % Removal</td>
<td>3/Week</td>
<td>Calculated %Removal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSS % Removal</td>
<td>All Year</td>
<td>40 Percent</td>
<td>DMin % Removal</td>
<td>3/Week</td>
<td>Calculated %Removal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9 SU</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9 SU</td>
<td>MAvg Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5 SU</td>
<td>MMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5 SU</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
</tbody>
</table>
TN0025101 Lynchburg Sewage Treatment Plant

**Discharger rating:** Minor  
**City:** Lynchburg  
**County:** Moore  
**EFO Name:** Columbia  
**Issue Date:** 3/31/06  
**Expiration Date:** 5/31/08  
**Receiving Stream(s):** East Fork Mulberry Creek at mile 11.1  
**HUC-12:** 060300030701  
**Effluent Summary:** Treated municipal wastewater from Outfall 001  
**Treatment system:** Extended Aeration

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>7.8 lb/day</td>
<td></td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>3.9 mg/L</td>
<td></td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>5.8 mg/L</td>
<td></td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>9.7 lb/day</td>
<td></td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>14.5 lb/day</td>
<td></td>
<td>WAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>14 mg/L</td>
<td></td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>26 lb/day</td>
<td></td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>7 mg/L</td>
<td></td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>17 lb/day</td>
<td></td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>10.5 mg/L</td>
<td></td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Bypass of Treatment</td>
<td>All Year</td>
<td>Occurrences/Month</td>
<td>MAvg Load</td>
<td>Continuous Visual</td>
<td>Visual</td>
<td>Wet Weather</td>
<td></td>
</tr>
<tr>
<td>CBOD % Removal</td>
<td>All Year</td>
<td>40 Percent</td>
<td></td>
<td>DMin % Removal</td>
<td>3/Week</td>
<td>Calculated % Removal</td>
<td></td>
</tr>
<tr>
<td>CBOD % Removal</td>
<td>All Year</td>
<td>85 Percent</td>
<td></td>
<td>MAvg % Removal</td>
<td>3/Week</td>
<td>Calculated % Removal</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>40 mg/L</td>
<td></td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>25 mg/L</td>
<td></td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>88 lb/day</td>
<td></td>
<td>WAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>35 mg/L</td>
<td></td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>63 lb/day</td>
<td></td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>D.O.</td>
<td>All Year</td>
<td>6 mg/L</td>
<td></td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>E. coli</td>
<td>All Year</td>
<td>126 #/100mL</td>
<td></td>
<td>MAvg Geo Mean</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td></td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Overflow Use</td>
<td>All Year</td>
<td>Occurrences/Month</td>
<td>MAvg Load</td>
<td>Continuous Visual</td>
<td>Visual</td>
<td>Wet Weather</td>
<td></td>
</tr>
</tbody>
</table>

*Table 6-6a.*
<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overflow Use Occurences</td>
<td>All Year</td>
<td>Occurences/Month</td>
<td>MAvg Load</td>
<td>Continuous</td>
<td>Visual</td>
<td>Non Wet Weather</td>
<td></td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>1 mL/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.05 mg/L</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>45 mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>30 mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>75 lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>100 lb/day</td>
<td>WAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS % Removal</td>
<td>All Year</td>
<td>40 Percent</td>
<td>DMin Conc</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
<td></td>
</tr>
<tr>
<td>TSS % Removal</td>
<td>All Year</td>
<td>85 Percent</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9 SU</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6 SU</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
</tbody>
</table>

**Table 6-6b.**

*Tables 6-6a-b. Permit Limits for Lynchburg Sewage Treatment Plant.*

**Compliance History:**
The following numbers of exceedences were noted in PCS:

- 25 TSS
- 29 Ammonia
- 11 CBOD
- 50 Overflows
- 2 Bypasses

**EFO Comments:**
None – need to check with Nashville EFO.
TN0027766 TDEC Tims Ford State Park

**Discharger rating:** Major
**City:** Winchester
**County:** Franklin
**EFO Name:** Columbia
**Issuance Date:** 2/28/02
**Expiration Date:** 2/28/02
**Receiving Stream(s):** Elk River at mile 136.2
**HUC-12:** 060300030301
**Effluent Summary:** Treated domestic wastewater from Outfall 001
**Treatment system:** Holding tank to hauler to Tims Ford State Park/ Extended aeration

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>10</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>5</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>20</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>10</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>D.O.</td>
<td>All Year</td>
<td>5</td>
<td>mg/L</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>1000</td>
<td>#/100mL</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>200</td>
<td>#/100mL</td>
<td>MAvg Geo Mean</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>1</td>
<td>mL/L</td>
<td>DMax Conc</td>
<td>2/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>1</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>45</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>30</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9</td>
<td>SU</td>
<td>DMax Conc</td>
<td>2/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6</td>
<td>SU</td>
<td>DMin Conc</td>
<td>2/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Table 6-7. Permit Limits for Tims Ford State Park.

**EFO Comments:**
No Issues.
TN0021644 Cowan Sewage Treatment Plant

**Discharger rating:** Minor  
**City:** Cowan  
**County:** Franklin  
**EFO Name:** Columbia  
**Issuance Date:** 6/28/02  
**Expiration Date:** 5/29/07  
**Receiving Stream(s):** Boiling Fork Creek at mile 13.4  
**HUC-12:** 060300030403  
**Effluent Summary:** Treated municipal wastewater from Outfall 001  
**Treatment system:** Oxidation ditch activated sludge plant with chlorination/dechlorination

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>3</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>6.7</td>
<td>lb/day</td>
<td>DMax Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>2</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>1.5</td>
<td>mg/L</td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>5</td>
<td>lb/day</td>
<td>DMax Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>4</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>3</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>6.7</td>
<td>lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>2</td>
<td>mg/L</td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>10</td>
<td>lb/day</td>
<td>DMax Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Bypass of Treatment (occurrences)  
All Year  
Occurences/Month  
MAvg Load  
Continuous  
Visual  
Wet Weather

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBOD % Removal</td>
<td>All Year</td>
<td>40</td>
<td>Percent</td>
<td>DMin % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>25</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>10</td>
<td>mg/L</td>
<td>DMin Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>50</td>
<td>lb/day</td>
<td>DMax Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent (Raw Sewage)</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>15</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>33.4</td>
<td>lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent (Raw Sewage)</td>
<td></td>
</tr>
<tr>
<td>D.O.</td>
<td>All Year</td>
<td>6</td>
<td>mg/L</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>E. coli</td>
<td>All Year</td>
<td>126</td>
<td>#/100mL</td>
<td>MAvg Geo Mean</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>1000</td>
<td>#/100mL</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>200</td>
<td>#/100mL</td>
<td>MAvg Geo Mean</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>DMax Load</td>
<td>Daily</td>
<td>Continuous</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>DMax Load</td>
<td>Daily</td>
<td>Continuous</td>
<td>Effluent (Raw Sewage)</td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>MAvg Load</td>
<td>Daily</td>
<td>Continuous</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>MAvg Load</td>
<td>Daily</td>
<td>Continuous</td>
<td>Effluent (Raw Sewage)</td>
<td></td>
</tr>
</tbody>
</table>

*Table 6-8a.*
### Tables 6-8a-b. Permit Limits for Cowan Sewage Treatment Plant

#### Compliance History:
The following numbers of exceedences were noted in PCS:

- 1 Ammonia
- 1 Overflow

#### EFO Comments:
No issues.
TN0021814 Fayetteville Sewage Treatment Plant

Discharger rating: Major
City: Fayetteville
County: Lincoln
EFO Name: Columbia
Issuance Date: 1/31/02
Expiration Date: 1/31/07
Receiving Stream(s): Elk River Mile 90.0
HUC-12: 060300030505
Effluent Summary: Treated municipal and industrial wastewater
Treatment system: WAS to aerobic dig to land application 80%; 20% to dry beds to land application

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD % removal</td>
<td>All Year</td>
<td>40</td>
<td>Percent</td>
<td>DMin % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
</tr>
<tr>
<td>BOD % removal</td>
<td>All Year</td>
<td>85</td>
<td>Percent</td>
<td>MAvg % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
</tr>
<tr>
<td>BOD5</td>
<td>All Year</td>
<td>45</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>BOD5</td>
<td>All Year</td>
<td>1118</td>
<td>lb/day</td>
<td>DMax Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>BOD5</td>
<td>All Year</td>
<td>30</td>
<td>mg/L</td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>BOD5</td>
<td>All Year</td>
<td>838</td>
<td>lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>D.O.</td>
<td>All Year</td>
<td>2</td>
<td>mg/L</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>E. coli</td>
<td>All Year</td>
<td>126</td>
<td>#/100mL</td>
<td>WAvg Geo Mean</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>1000</td>
<td>#/100mL</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>200</td>
<td>#/100mL</td>
<td>WAvg Geo Mean</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>IC25 7day Ceriodaphnia Dubia</td>
<td>All Year</td>
<td>5.4</td>
<td>Percent</td>
<td>DMin Conc</td>
<td>Quarterly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>IC25 7day Fathead Minnows</td>
<td>All Year</td>
<td>5.4</td>
<td>Percent</td>
<td>DMin Conc</td>
<td>Quarterly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>1</td>
<td>mL/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.4</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>45</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>838</td>
<td>lb/day</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>1118</td>
<td>lb/day</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>30</td>
<td>mg/L</td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>40</td>
<td>mg/L</td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS % Removal</td>
<td>All Year</td>
<td>40</td>
<td>Percent</td>
<td>DMin % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
</tr>
<tr>
<td>TSS % Removal</td>
<td>All Year</td>
<td>85</td>
<td>Percent</td>
<td>WAvg % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9</td>
<td>SU</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Table 6-9. Permit Limits for Fayetteville Sewage Treatment Plant.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 6 TSS
- 2 Settleable Solids
- 2 E. coli
- 1 Fecal Coli
- 3 Fecal Coli
- 189 Overflows
Enforcement:
Agreed Order #05-0628

Database Notes: This permittee was originally on the Watch List for effluent violations. These Significant Non-Compliance (SNC) violation turned out to be data entry errors; however, the permittee has chronic collection system overflow problems. This Order includes CMOM requirements and a moratorium on connections to the collection system.

Submitted procedure to approve new sewer connections (item 9) on 11/7/05.
Submitted SEP for approval on 11/22/05. The SEP is for a greenway, but only has a very limited water quality component and does not include expenses. I will draft a letter for PED asking for the SEP to be revised to better address water quality concerns and requesting financial information on the proposal.
SEP proposal received 01/06/06, and approved 01/26/06. SEP valued at $25,000 (Required minimum is $10,000)
SORP received 03/14/06.
08/15/06 SSOER submitted as required by part XII, Item 3 of the order.
CMOM 2006 Self-assessment received 10/31/06.
Addendum to SEP received 11/17/06. SEP proposes to create greenway through town. Addendum changes specifications from crossing 2 city streets to only crossing 1.
11/27/06 SEP revision approved and approval letter issued on 11/30/06.
Sanitary Sewer Overflow Control Program submitted on 12/14/2006.

EFO Comments:
Recent unreported overflow.
### TN0021857 Winchester Sewage Treatment Plant

**Discharger rating:** Major  
**City:** Winchester  
**County:** Franklin  
**EFO Name:** Columbia  
**Issue Date:** 12/29/06  
**Expiration Date:** 12/30/07  
**Receiving Stream(s):** Elk River at mile 153.8  
**HUC-12:** 060300030301  
**Effluent Summary:** Treated domestic wastewater from Outfall 001  
**Treatment system:** WAS to aerobic dig to drybdts to land application

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>mg/L</td>
<td></td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Influent (Raw Sewage)</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>mg/L</td>
<td></td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>2 mg/L</td>
<td></td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>40 lb/day</td>
<td></td>
<td>DMax Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>1.5 mg/L</td>
<td></td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>27 lb/day</td>
<td></td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>1 mg/L</td>
<td></td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>10 mg/L</td>
<td></td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>200 lb/day</td>
<td></td>
<td>DMax Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>5 mg/L</td>
<td></td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>7.5 mg/L</td>
<td></td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>133 lb/day</td>
<td></td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Bypass of Treatment (occurrences)</td>
<td>All Year</td>
<td>Occurences/Month</td>
<td></td>
<td>MAvg Load</td>
<td>Continuous</td>
<td>Visual</td>
<td>Wet Weather</td>
</tr>
<tr>
<td>CBOD % Removal</td>
<td>All Year</td>
<td>40%</td>
<td>Percent</td>
<td>DMin % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
</tr>
<tr>
<td>CBOD % Removal</td>
<td>All Year</td>
<td>85%</td>
<td>Percent</td>
<td>MAvg % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>20 mg/L</td>
<td></td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>400 lb/day</td>
<td></td>
<td>DMax Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>15 mg/L</td>
<td></td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>10 mg/L</td>
<td></td>
<td>DMin Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>267 lb/day</td>
<td></td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>Winter</td>
<td>30 mg/L</td>
<td></td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>Winter</td>
<td>667 lb/day</td>
<td></td>
<td>DMax Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>Winter</td>
<td>25 mg/L</td>
<td></td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>Winter</td>
<td>534 lb/day</td>
<td></td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>Winter</td>
<td>20 mg/L</td>
<td></td>
<td>DMin Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>D.O.</td>
<td>All Year</td>
<td>6 mg/L</td>
<td></td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>E. coli</td>
<td>All Year</td>
<td>126 #/100mL</td>
<td></td>
<td>MAvg Geo Mean</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>E. coli</td>
<td>All Year</td>
<td>941 #/100mL</td>
<td></td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>IC25 7day Ceriodaphnia Dubia</td>
<td>All Year</td>
<td>25.6%</td>
<td>Percent</td>
<td>DMin Conc</td>
<td>Quarterly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>IC25 7day Fathead Minnows</td>
<td>All Year</td>
<td>25.6%</td>
<td>Percent</td>
<td>DMin Conc</td>
<td>Quarterly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Nitrogen Total (as N)</td>
<td>All Year</td>
<td>mg/L</td>
<td></td>
<td>MAvg Conc</td>
<td>2/Month</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

*Table 6-10a.*
<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overflow Use Occurences</td>
<td>All Year</td>
<td>Occurences/Month</td>
<td>MAvg Load</td>
<td>Continuous</td>
<td>Visual</td>
<td>Wet Weather</td>
<td></td>
</tr>
<tr>
<td>Overflow Use Occurences</td>
<td>All Year</td>
<td>Occurences/Month</td>
<td>MAvg Load</td>
<td>Continuous</td>
<td>Visual</td>
<td>Non Wet Weather</td>
<td></td>
</tr>
<tr>
<td>Phosphorus, Total</td>
<td>All Year</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>2/Month</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>1 mL/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.09 mg/L</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>45 mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>1068 lb/day</td>
<td>DMax Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>30 mg/L</td>
<td>WAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>801 lb/day</td>
<td>MAvg Load</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS % Removal</td>
<td>All Year</td>
<td>40 Percent</td>
<td>DMin % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
<td></td>
</tr>
<tr>
<td>TSS % Removal</td>
<td>All Year</td>
<td>85 Percent</td>
<td>MAvg % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>% Removal</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9 SU</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6 SU</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
</tbody>
</table>

Table 6-10b.

**Tables 6-10a-b. Permit Limits for Winchester Sewage Treatment Plant.**

**Compliance History:**
The following numbers of exceedences were noted in PCS:

- 3 Ammonia
- 32 Overflows
- 52 Bypasses

**EFO Comments:**
Need to confer with Nashville EFO.
TN0023469 Tullahoma Sewage Treatment Plant

Discharger rating: Major
City: Tullahoma
County: Coffee
EFO Name: Columbia
Issuance Date: 1/31/04
Expiration Date: 1/30/07
Receiving Stream(s): Rock Creek at mile 11.0
HUC-12: 060300030305
Effluent Summary: Treated municipal water from Outfall 001
Treatment system: WAS to thicker to aerobic dig to land application

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag (T)</td>
<td>All Year</td>
<td>0.05 mg/L</td>
<td>MAvg Conc</td>
<td>Semi-annually</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>3 mg/L</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>94 lb/day</td>
<td>DMax Load</td>
<td>Weekdays</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>2.25 mg/L</td>
<td>MAvg Conc</td>
<td>Weekdays</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>1.5 mg/L</td>
<td>WAvg Conc</td>
<td>Weekdays</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>63 lb/day</td>
<td>W Avg Load</td>
<td>Weekdays</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>6.5 mg/L</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>136 lb/day</td>
<td>MAvg Load</td>
<td>Weekdays</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>204 lb/day</td>
<td>DMax Load</td>
<td>Weekdays</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>3.25 mg/L</td>
<td>W Avg Conc</td>
<td>Weekdays</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>4.9 mg/L</td>
<td>MAvg Conc</td>
<td>Weekdays</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Bypass of Treatment (occurrences)</td>
<td>All Year</td>
<td>Occurrences/Month</td>
<td>MAvg Load</td>
<td>Continuous</td>
<td>Visual</td>
<td>Wet Weather</td>
<td></td>
</tr>
<tr>
<td>CBOD % Removal</td>
<td>All Year</td>
<td>40 Percent</td>
<td>DMin % Removal</td>
<td>Weekdays</td>
<td>Calculated</td>
<td>% Removal</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>40 mg/L</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>1043 lb/day</td>
<td>MAvg Load</td>
<td>Weekdays</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>35 mg/L</td>
<td>MAvg Conc</td>
<td>Weekdays</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>25 mg/L</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Cu (T)</td>
<td>All Year</td>
<td>0.031 mg/L</td>
<td>MAvg Conc</td>
<td>Semi-annually</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>D.O.</td>
<td>All Year</td>
<td>6 mg/L</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>E. coli</td>
<td>All Year</td>
<td>126 #/100mL</td>
<td>MAvg Geo Mean</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>1000 #/100mL</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>200 #/100mL</td>
<td>MAvg Geo Mean</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>IC25 7day Ceriodaphnia Dubia</td>
<td>All Year</td>
<td>95.6 Percent</td>
<td>DMin Conc</td>
<td>Monthly</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>IC25 7day Fathead Minnows</td>
<td>All Year</td>
<td>95.6 Percent</td>
<td>DMin Conc</td>
<td>Monthly</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>NOEL 7day Ceriodaphnia Dubia</td>
<td>All Year</td>
<td>96 Percent</td>
<td>DMin Conc</td>
<td>Quarterly</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>NOEL 7day Fathead Minnows</td>
<td>All Year</td>
<td>96 Percent</td>
<td>DMin Conc</td>
<td>Quarterly</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
</tbody>
</table>

Table 6-11a.
### Table 6-11b. Permit Limits for Tullahoma Sewage Treatment Plant.

#### Compliance History:
The following numbers of exceedences were noted in PCS:

- 3 Ammonia
- 1 Chlorine
- 1 Fecal coliform
- 20 Overflows
- 49 Bypasses

#### EFO Comments:
Need to confer with Nashville EFO.
TN0065498 Unity School

Discharger rating: Minor
City: Petersburg
County: Lincoln
EFO Name: Columbia
Issuance Date: 8/29/02
Expiration Date: 8/30/07
Receiving Stream(s): Morton Branch at mile 1.0
HUC-12: 060300030902
Effluent Summary: Treated domestic water from Outfall 001
Treatment system: Septic tank recirculating sand filter

<table>
<thead>
<tr>
<th>Segment</th>
<th>TN06030003063_0300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Morton Branch</td>
</tr>
<tr>
<td>Size</td>
<td>5.9</td>
</tr>
<tr>
<td>Unit</td>
<td>Miles</td>
</tr>
<tr>
<td>First Year on 303(d) List</td>
<td>-</td>
</tr>
<tr>
<td>Designated Uses</td>
<td>Fish and Aquatic Life (Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)</td>
</tr>
</tbody>
</table>

| Causes | N/A |
| Sources | N/A |

**Table 6-12. Stream Segment Information for Unity School.**

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>2.5</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>1.25</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>25</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>15</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>D.O.</td>
<td>All Year</td>
<td>6</td>
<td>mg/L</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>1000</td>
<td>#/100mL</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>200</td>
<td>#/100mL</td>
<td>MAvg Geo Mean</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>1</td>
<td>mL/L</td>
<td>DMax Conc</td>
<td>2Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.02</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>45</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>30</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>8.5</td>
<td>SU</td>
<td>DMax Conc</td>
<td>2Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5</td>
<td>SU</td>
<td>DMin Conc</td>
<td>2Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

**Table 6-13. Permit Limits for Unity School.**

**EFO Comments:**
No issues.
TN0067202 University of Tennessee Space Institute

Discharger rating: Minor
City: Tullahoma
County: Coffee
EFO Name: Columbia
Issuance Date: 6/28/02
Expiration Date: 8/30/07
Receiving Stream(s): Rollins Creek Embayment (Woods Reservoir) at mile 0.7
HUC-12: 060300030201
Effluent Summary: Treated domestic water from Outfall 001
Treatment system: Extended aeration

<table>
<thead>
<tr>
<th>Segment</th>
<th>TN06030003036_1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Woods Reservoir</td>
</tr>
<tr>
<td>Size</td>
<td>3908</td>
</tr>
<tr>
<td>Unit</td>
<td>Acres</td>
</tr>
<tr>
<td>First Year on 303(d) List</td>
<td>1990</td>
</tr>
<tr>
<td>Designated Uses</td>
<td>Irrigation (Supporting), Livestock Watering and Wildlife (Supporting), Recreation (Non-Supporting), Fish and Aquatic Life (Supporting), Industrial Water Supply (Supporting)</td>
</tr>
<tr>
<td>Causes</td>
<td>Polychlorinated biphenyls</td>
</tr>
<tr>
<td>Sources</td>
<td>Contaminated Sediments</td>
</tr>
</tbody>
</table>

### Table 6-14. Stream Segment Information for University of Tennessee Space Institute.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>4 mg/L</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>2 mg/L</td>
<td>MAvg Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>10 mg/L</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>5 mg/L</td>
<td>MAvg Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>20 mg/L</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>10 mg/L</td>
<td>MAvg Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>D.O.</td>
<td>All Year</td>
<td>5 mg/L</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Facial Coliform</td>
<td>All Year</td>
<td>1000 #/100ml</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Facial Coliform</td>
<td>All Year</td>
<td>200 #/100ml</td>
<td>MAvg Geo Mean</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>1 mL/L</td>
<td>DMax Conc</td>
<td>2/Week</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>1 mg/L</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>45 mg/L</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>30 mg/L</td>
<td>MAvg Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9 SU</td>
<td>DMax Conc</td>
<td>2/Week</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6 SU</td>
<td>DMin Conc</td>
<td>2/Week</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
</tbody>
</table>

### Table 6-15. Permit Limits for University of Tennessee Space Institute.

**EFO Comments:**
No issues.
TN0076007 Elkton Sewage Treatment Plant

Discharger rating: Minor
City: Elkton
County: Giles
EFO Name: Columbia
Issuance Date: 8/30/02
Expiration Date: 8/30/07
Receiving Stream(s): Elk River at mile 49.2
HUC-12: 0603000301905
Effluent Summary: Treated municipal water from Outfall 001
Treatment system: Septic tank effluent pump (STEP) collection system, recirculating sand filter with UV disinfection

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>25 mg/L</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>15 mg/L</td>
<td>MAvg Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>20 mg/L</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>10 mg/L</td>
<td>MAvg Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>D.O.</td>
<td>All Year</td>
<td>3 mg/L</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>E. coli</td>
<td>All Year</td>
<td>126 #/100mL</td>
<td>MAvg Geo Mean</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>200 #/100mL</td>
<td>MAvg Geo Mean</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>1000 #/100mL</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>MAvg Load</td>
<td>Weekdays</td>
<td>Instantaneous</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>DMax Load</td>
<td>Weekdays</td>
<td>Instantaneous</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>1 mL/L</td>
<td>DMax Conc</td>
<td>2/Week</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>20 mg/L</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>10 mg/L</td>
<td>MAvg Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5 SU</td>
<td>DMin Conc</td>
<td>2/Week</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9 SU</td>
<td>DMax Conc</td>
<td>2/Week</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
</tbody>
</table>

Table 6-16. Permit Limits for Elkton Sewage Treatment Plant.

EFO Comments:
Need to confer with Nashville EFO.
6.4.B. Industrial Permits

TN0078697 Pelham Industrial Park RSF

**Discharger rating:** Minor  
**City:** Pelham  
**County:** Grundy  
**EFO Name:** Chattanooga  
**Issue Date:** 7/29/05  
**Expiration Date:** 7/29/07  
**Receiving Stream(s):** Elk River at mile 195.2  
**HUC-12:** 060300030103  
**Effluent Summary:** Sanitary wastewater from Outfall 001  
**Treatment system:** Recirculating sand filter

<table>
<thead>
<tr>
<th>Segment</th>
<th>TN06030003044_1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Elk River</td>
</tr>
<tr>
<td>Size</td>
<td>17.9</td>
</tr>
<tr>
<td>Unit</td>
<td>Miles</td>
</tr>
<tr>
<td>First Year on 303(d) List</td>
<td>-</td>
</tr>
<tr>
<td>Designated Uses</td>
<td>Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting), Domestic Water Supply (Supporting), Industrial Water Supply (Supporting), Fish and Aquatic Life (Supporting)</td>
</tr>
<tr>
<td>Causes</td>
<td>N/A</td>
</tr>
<tr>
<td>Sources</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Table 6-17. Stream Segment Information for Pelham Industrial Park RSF.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>2 mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Summer</td>
<td>4 mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>4 mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>Winter</td>
<td>8 mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Bypass of Treatment</td>
<td>All Year</td>
<td></td>
<td>Occurences/Month</td>
<td>Continuous</td>
<td>Visual</td>
<td>Wet Weather</td>
<td></td>
</tr>
<tr>
<td>CBOD % Removal</td>
<td>Summer</td>
<td>40 Percent</td>
<td>DMin % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>Percent Removal</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Winter</td>
<td>40 Percent</td>
<td>DMin % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>Percent Removal</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>15 mg/L</td>
<td>MAvg Conc</td>
<td>Semi-annually</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>10 mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>20 mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Influent (Raw Sewage)</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Summer</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Influent (Raw Sewage)</td>
<td></td>
</tr>
<tr>
<td>CBOD5</td>
<td>Winter</td>
<td>30 mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
</tbody>
</table>

Table 6-18a.
<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBOD5</td>
<td>Winter</td>
<td>mg/L</td>
<td></td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Influent (Raw Sewage)</td>
</tr>
<tr>
<td>CBOD5</td>
<td>Winter</td>
<td>mg/L</td>
<td></td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Influent (Raw Sewage)</td>
</tr>
<tr>
<td>D.O.</td>
<td>All Year</td>
<td>3 mg/L</td>
<td></td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>E. coli</td>
<td>All Year</td>
<td>126</td>
<td>#/100mL</td>
<td>MAvg Geo Mean</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>E. coli</td>
<td>All Year</td>
<td>941</td>
<td>#/100mL</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td></td>
<td>MAvg Load</td>
<td>Daily</td>
<td>Continuous</td>
<td>Effluent</td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td></td>
<td>DMax Load</td>
<td>Daily</td>
<td>Continuous</td>
<td>Effluent</td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td></td>
<td>MAvg Load</td>
<td>Daily</td>
<td>Continuous</td>
<td>Effluent</td>
</tr>
<tr>
<td>Overflow Use Occurences</td>
<td>All Year</td>
<td>Occurences/Month</td>
<td>MAvg Load</td>
<td>Continuous</td>
<td>Visual</td>
<td>Non Wet Weather</td>
<td></td>
</tr>
<tr>
<td>Overflow Use Occurences</td>
<td>All Year</td>
<td>Occurences/Month</td>
<td>MAvg Load</td>
<td>Continuous</td>
<td>Visual</td>
<td>Wet Weather</td>
<td></td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>1 mg/L</td>
<td></td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.63</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>10</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>20</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>mg/L</td>
<td></td>
<td>MAvg Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Influent (Raw Sewage)</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>mg/L</td>
<td></td>
<td>DMax Conc</td>
<td>3/Week</td>
<td>Composite</td>
<td>Influent (Raw Sewage)</td>
</tr>
<tr>
<td>TSS % Removal</td>
<td>All Year</td>
<td>40 Percent</td>
<td>DMin % Removal</td>
<td>3/Week</td>
<td>Calculated</td>
<td>Percent Removal</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6 SU</td>
<td></td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9 SU</td>
<td></td>
<td>DMax Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Table 6-18b.

Tables 6-18a-b. Permit Limits for Pelham Industrial Park RSF.

EFO Comments:
No issues.
TN0003751 Arnold Engineering Development Center

Discharger rating: Minor
City: Arnold Air Force Base
County: Franklin
EFO Name: Columbia
Issuance Date: 4/8/05
Expiration Date: 5/31/07
Receiving Stream(s): Unnamed tributary to Rowland Creek (001); unnamed tributary to Bradley Creek (002, SW2 & 007); unnamed tributary to Brumalow Creek (003, SW3 & 005); unnamed tributary to Spring Creek (006); and Woods Reservoir (004 & 008)
HUC-12: 060300030205
Effluent Summary: Treated process wastewater, non-process wastewater, sanitary wastewater, remediated groundwater and storm water runoff from Outfall 001; process wastewater, non-process wastewater, remediated groundwater, and storm water runoff from Outfall SW2; process wastewater, non-process wastewater and storm water runoff from SW3 (incl. Outfall 005); non-process wastewater during scheduled maintenance activities that require shutdown of the pumping station and system malfunctions from Outfalls 002 and 003; treated sanitary wastewater from Outfall 004; steam plant condensate and reverse osmosis wastewater, process wastewater, noncontact cooling water and storm water runoff from Outfall 005; treated groundwater from Outfall 006; nonprocess wastewater, building groundwater drainage, and non-industrial
Treatment system: WAS to anaerobic digester to dry bed to land application

<table>
<thead>
<tr>
<th>Segment</th>
<th>TN06030003435_1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Rollins Creek</td>
</tr>
<tr>
<td>Size</td>
<td>11.9</td>
</tr>
<tr>
<td>Unit</td>
<td>Miles</td>
</tr>
<tr>
<td>First Year on 303(d) List</td>
<td>-</td>
</tr>
<tr>
<td>Designated Uses</td>
<td>Irrigation (Supporting), Livestock Watering and Wildlife (Supporting), Fish and Aquatic Life (Non-Supporting), Industrial Water Supply (Supporting), Recreation (Not Assessed)</td>
</tr>
<tr>
<td>Causes</td>
<td>Low flow alterations, Temperature, water</td>
</tr>
<tr>
<td>Sources</td>
<td>Industrial Point Source Discharge</td>
</tr>
</tbody>
</table>

Table 6-19. Stream Segment Information for Arnold Engineering Development Center.
<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag (T)</td>
<td>All Year</td>
<td>0.003</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>2.2</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>1.1</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Weekly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>25</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>15</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Weekly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Cd (T)</td>
<td>All Year</td>
<td>0.005</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Cd (T)</td>
<td>All Year</td>
<td>0.003</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Weekly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Cr (T)</td>
<td>All Year</td>
<td>0.2</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Cr (T)</td>
<td>All Year</td>
<td>0.1</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Monthly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Cu (T)</td>
<td>All Year</td>
<td>0.04</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Cu (T)</td>
<td>All Year</td>
<td>0.03</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Monthly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>D.O.</td>
<td>All Year</td>
<td>6</td>
<td>mg/L</td>
<td>DMin Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Dissolved Solids, Total (TDS)</td>
<td>All Year</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Dissolved Solids, Total (TDS)</td>
<td>All Year</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Monthly</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Dissolved Solids, Total (TDS)</td>
<td>All Year</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Monthly</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>DMax Load</td>
<td>Continuous</td>
<td>Recorder</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>MAvg Load</td>
<td>Continuous</td>
<td>Recorder</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>IC25 7 day Ceriodaphnia</td>
<td>All Year</td>
<td>100</td>
<td>Percent</td>
<td>DMin Conc</td>
<td>Semi-annually</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Dubia</td>
<td>All Year</td>
<td>100</td>
<td>Percent</td>
<td>DMin Conc</td>
<td>Semi-annually</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>IC25 7 day Fathead Minnows</td>
<td>All Year</td>
<td>100</td>
<td>Percent</td>
<td>DMin Conc</td>
<td>Semi-annually</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Oil and Grease (Freon EM)</td>
<td>All Year</td>
<td>15</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Oil and Grease (Freon EM)</td>
<td>All Year</td>
<td>10</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Pb (T)</td>
<td>All Year</td>
<td>0.1</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Pb (T)</td>
<td>All Year</td>
<td>0.01</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Weekly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.019</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.011</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Monthly</td>
<td>Composite</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Temperature (°C)</td>
<td>All Year</td>
<td>°C</td>
<td>DMax Conc</td>
<td>Continuous</td>
<td>Recorder</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9</td>
<td>SU</td>
<td>DMax Conc</td>
<td>Continuous</td>
<td>Recorder</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Continuous</td>
<td>Recorder</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Table 6-20. Permit Limits for Outfall 001 at Arnold Engineering Development Center.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>COD</td>
<td>All Year</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>1/Discharge</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>DMax Load</td>
<td>1/Discharge</td>
<td>Instantaneous</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Oil and Grease (Freon EM)</td>
<td>All Year</td>
<td>15</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>1/Discharge</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>40</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>1/Discharge</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Temperature (°C)</td>
<td>All Year</td>
<td>°C</td>
<td>DMax Conc</td>
<td>1/Discharge</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9</td>
<td>SU</td>
<td>DMax Conc</td>
<td>1/Discharge</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5</td>
<td>SU</td>
<td>DMin Conc</td>
<td>1/Discharge</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Table 6-21. Permit Limits for Outfall 002 and 003 at Arnold Engineering Development Center.
<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>8</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>5</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>2/Month</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>BOD5</td>
<td>All Year</td>
<td>45</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>BOD5</td>
<td>All Year</td>
<td>30</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>2/Month</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>D.O.</td>
<td>All Year</td>
<td>1</td>
<td>mg/L</td>
<td>DMin Conc</td>
<td>Weekdays</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>E. coli</td>
<td>All Year</td>
<td>126</td>
<td>#/100mL</td>
<td>MAvg Geo Mean</td>
<td>3/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>400</td>
<td>#/100mL</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>All Year</td>
<td>200</td>
<td>#/100mL</td>
<td>MAvg Geo Mean</td>
<td>2/Month</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>1</td>
<td>m/L</td>
<td>DMax Conc</td>
<td>2/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.5</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>2/Week</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>45</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>2/Month</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9</td>
<td>SU</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Table 6-22. Permit Limits for Outfall 004 at Arnold Engineering Development Center.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>DMax Load</td>
<td>Monthly</td>
<td>Estimate</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Oil and Grease (Freon EM)</td>
<td>All Year</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Quarterly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Temperature (°C)</td>
<td>All Year</td>
<td>°C</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9</td>
<td>SU</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Table 6-23. Permit Limits for Outfall 005 at Arnold Engineering Development Center.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1-Dichloroethylene</td>
<td>All Year</td>
<td>0.005</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Quarterly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>DMax Load</td>
<td>Quarterly</td>
<td>Estimate</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>MAvg Load</td>
<td>Quarterly</td>
<td>Estimate</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Methylene Chloride</td>
<td>All Year</td>
<td>0.025</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Quarterly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9</td>
<td>SU</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Table 6-24. Permit Limits for Outfall 006 at Arnold Engineering Development Center.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>DMax Load</td>
<td>Monthly</td>
<td>Estimate</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9</td>
<td>SU</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Table 6-25. Permit Limits for Outfall 007 and 008 at Arnold Engineering Development Center.
<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>DMax Load</td>
<td>Quarterly</td>
<td>Estimate</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Trichloroethylene</td>
<td>All Year</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Quarterly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>SU</td>
<td>DMax Conc</td>
<td>Quarterly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Quarterly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
</tbody>
</table>

Table 6-26. Permit Limits for Outfall 01b at Arnold Engineering Development Center.

**EFO Comments:**
Developing and testing of aerospace systems and components in aerodynamic, propulsion, and space environmental ground test facilities that simulate flight conditions. No issues.
TN0027537 TVA Tims Ford Hydro Plant

| Discharger rating: | Major |
| City:             | Winchester |
| County:           | Franklin |
| EFO Name:         | Columbia |
| Issuance Date:    | 4/30/02 |
| Expiration Date:  | 4/30/07 |
| Receiving Stream(s): | Elk River at mile 133.3 |
| HUC-12:           | 060300030501 |
| Effluent Summary: | cooling water from Outfall 001 |
| Treatment system: | No Limits. |

**Comments:**
Hydroelectric services
TN0001953 Jack Daniel Distillery, Lem Motlow Prop, Inc.

**Discharger rating:** Major  
**City:** Lynchburg  
**County:** Moore  
**EFO Name:** Columbia  
**Issue Date:** 12/16/02  
**Expiration Date:** 12/31/07  
**Receiving Stream(s):** East Fork Mulberry Creek at mile 12.9 (Outfalls 001 and SW1) and mile 13.3 (Outfalls 002, SW2 and SW3)  
**HUC-12:** 060300030701  
**Effluent Summary:** Cooling water, boiler blowdown, spring water, effluent from sequencing batch reactor (SBR), outside washwater and storm water runoff from Outfall 001, effluent from SBR from Outfall 002, and storm water runoff from Outfalls SW1, SW2 and SW3

**Treatment system:** Aeration, Mixing, Evaporation, Settling, Chemical Oxidation, Neutralization, Filtration, Ion Exchange, and Disinfection.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>3</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>2</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>15</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>10</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>D.O.</td>
<td>All Year</td>
<td>6</td>
<td>mg/L</td>
<td>DMin Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>IC25 7day Ceriodaphnia Dubia</td>
<td>All Year</td>
<td>51</td>
<td>Percent</td>
<td>DMin Conc</td>
<td>Annually</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>IC25 7day Fathead Minnows</td>
<td>All Year</td>
<td>51</td>
<td>Percent</td>
<td>DMin Conc</td>
<td>Annually</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Nitrogen Total (as N)</td>
<td>All Year</td>
<td>3</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Nitrogen Total (as N)</td>
<td>All Year</td>
<td>5</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.03</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Temperature (°C)</td>
<td>All Year</td>
<td>Deg. C</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Temperature (°C)</td>
<td>All Year</td>
<td>Deg. C</td>
<td>MAvg Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9</td>
<td>SU</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Table 6-27. Permit Limits for Outfall 001 at Jack Daniel Distillery, Lem Motlow Prop, Inc.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>4.5</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>7.5</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>3</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Ammonia as N (Total)</td>
<td>All Year</td>
<td>5</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>30</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>45</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>20</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>30</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Table 6-28a.
### Table 6-28b. Permit Limits for Outfall 002 at Jack Daniel Distillery, Lem Motlow Prop, Inc.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissolved Oxygen (D.O.)</td>
<td>All Year</td>
<td>6</td>
<td>mg/L</td>
<td>DMin Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>IC25 7-day Ceriodaphnia Dubia</td>
<td>All Year</td>
<td>60</td>
<td>Percent</td>
<td>DMin Conc</td>
<td>Quarterly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>IC25 7-day Ceriodaphnia Dubia</td>
<td>All Year</td>
<td>25</td>
<td>Percent</td>
<td>DMin Conc</td>
<td>Quarterly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>IC25 7-day Fathead Minnows</td>
<td>All Year</td>
<td>60</td>
<td>Percent</td>
<td>DMin Conc</td>
<td>Quarterly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>IC25 7-day Fathead Minnows</td>
<td>All Year</td>
<td>25</td>
<td>Percent</td>
<td>DMin Conc</td>
<td>Quarterly</td>
<td>Composite</td>
<td>Effluent</td>
</tr>
<tr>
<td>Nitrogen Total (as N)</td>
<td>All Year</td>
<td></td>
<td></td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Phosphorus, Total</td>
<td>All Year</td>
<td></td>
<td></td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Total Solids (TSS)</td>
<td>All Year</td>
<td>40</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

### Table 6-29. Permit Limits for Outfall 01B at Jack Daniel Distillery, Lem Motlow Prop, Inc.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>30</td>
<td>lb/day</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>90</td>
<td>lb/day</td>
<td>DMax Load</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>20</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>CBOD5</td>
<td>All Year</td>
<td>60</td>
<td>lb/day</td>
<td>MAvg Load</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>150</td>
<td>lb/day</td>
<td>DMax Load</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>30</td>
<td>mg/L</td>
<td>MAvg Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>90</td>
<td>lb/day</td>
<td>MAvg Load</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9</td>
<td>SU</td>
<td>DMax Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Weekly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

### Compliance History:
The following numbers of exceedences were noted in PCS:
- 4 Dissolved Oxygen
- 1 pH.

### EFO Comments:
No issues.
6.4.B. Water Treatment Plant Permits

TN0060372 Monteagle Water Treatment Plant

Discharger rating: Minor
City: Monteagle
County: Marion
EFO Name: Chattanooga
Issuance Date: 9/29/04
Expiration Date: 9/29/09
Receiving Stream(s): Laurel Branch at mile 0.3 to Trussell Creek
HUC-12: 060300030103
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Ferric chloride, chlorine, caustic soda, fluoride, potassium permanganate, Aquodine

<table>
<thead>
<tr>
<th>Segment</th>
<th>TN06030003044_0730</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Trussel Creek</td>
</tr>
<tr>
<td>Size</td>
<td>4.3</td>
</tr>
<tr>
<td>Unit</td>
<td>Miles</td>
</tr>
<tr>
<td>First Year on 303(d) List</td>
<td>2004</td>
</tr>
<tr>
<td>Designated Uses</td>
<td>Livestock Watering and Wildlife (Supporting), Irrigation (Supporting), Fish and Aquatic Life (Non-Supporting), Recreation (Not Assessed)</td>
</tr>
<tr>
<td>Causes</td>
<td>Solids (Suspended/Bedload), Nutrient/Eutrophication Biological Indicators, 461, Oxygen, Dissolved</td>
</tr>
<tr>
<td>Sources</td>
<td>Municipal Point Source Discharges</td>
</tr>
</tbody>
</table>

Table 6-31. Stream Segment Information for Monteagle Water Treatment Plant.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al (T)</td>
<td>All Year</td>
<td>0.75 mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Fe (T)</td>
<td>All Year</td>
<td>2 mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>DMax Load</td>
<td>Monthly</td>
<td>Instantaneous</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>0.5 mL/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.019 mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>40 mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9 SU</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5 SU</td>
<td>DMin Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
</tbody>
</table>

Table 6-32. Permit Limits for Monteagle Water Treatment Plant.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 1 Aluminum exceedence.

Comments:
Iron and turbidity removal Water Treatment Plant
TN0004979 Fayetteville Water Treatment Plant

Discharger rating: Minor
City: Fayetteville
County: Lincoln
EFO Name: Columbia
Issuance Date: 9/29/04
Expiration Date: 9/29/09
Receiving Stream(s): Elk River at miles 93.8
HUC-12: 060300030505
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Ferric chloride, chlorine, caustic soda, fluoride, potassium permanganate, Aquodine

<table>
<thead>
<tr>
<th>Segment</th>
<th>TN06030003010_1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Elk River</td>
</tr>
<tr>
<td>Size</td>
<td>13.91</td>
</tr>
<tr>
<td>Unit</td>
<td>Miles</td>
</tr>
<tr>
<td>First Year on 303(d) List</td>
<td>2004</td>
</tr>
</tbody>
</table>

Designated Uses: Domestic Water Supply (Supporting), Livestock Watering and Wildlife (Supporting), Irrigation (Supporting), Recreation (Non-Supporting), Industrial Water Supply (Supporting), Fish and Aquatic Life (Supporting)

Causes: Escherichia coli

Sources: Grazing in Riparian or Shoreline Zones

Table 6-33. Stream Segment Information for Fayetteville Water Treatment Plant.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al (T)</td>
<td>All Year</td>
<td>10</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>DMax Load</td>
<td>Monthly</td>
<td>Instantaneous</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>0.5</td>
<td>mL/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>1</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>40</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9</td>
<td>SU</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Table 6-34. Permit Limits for Fayetteville Water Treatment Plant.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 5 Settleable Solids

Comments:
Iron, manganese and turbidity removal Water Treatment Plant
TN0074853 Huntland Water Treatment Plant

Discharger rating: Minor
City: Huntland
County: Franklin
EFO Name: Columbia
Issuance Date: 9/29/04
Expiration Date: 9/29/09
Receiving Stream(s): Mathias Branch into Beans Creek at approximate mile 2.0
HUC-12: 060300030601
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: -

<table>
<thead>
<tr>
<th>Segment</th>
<th>TN06030003012_0999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Misc Tribs to Beans Creek</td>
</tr>
<tr>
<td>Size</td>
<td>26.3</td>
</tr>
<tr>
<td>Unit</td>
<td>Miles</td>
</tr>
<tr>
<td>First Year on 303(d) List</td>
<td>-</td>
</tr>
<tr>
<td>Designated Uses</td>
<td>Livestock Watering and Wildlife (Not Assessed), Fish and Aquatic Life (Not Assessed), Recreation (Not Assessed)</td>
</tr>
<tr>
<td>Causes</td>
<td>N/A</td>
</tr>
<tr>
<td>Sources</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Table 6-35. Stream Segment Information for Huntland Water Treatment Plant.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al (T)</td>
<td>All Year</td>
<td>0.75 mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>DMax Load</td>
<td>Monthly</td>
<td>Instantaneous</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>0.5 mL/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.019 mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>40 mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9 SU</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5 SU</td>
<td>DMin Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
</tbody>
</table>

Table 6-36. Permit Limits for Huntland Water Treatment Plant.

Compliance History:
None noted.

Comments:
Turbidity removal Water Treatment Plant
TN0073687 Center Grove Winchester Springs Utility Department

Discharger rating: Minor
City: Estill Springs
County: Franklin
EFO Name: Columbia
Issuance Date: 9/29/04
Expiration Date: 9/29/09
Receiving Stream(s): Little Hurricane Creek at mile 4.2
HUC-12: 060300030306
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Magnesium and turbidity removal with aluminum sulfate, polymer, sodium hydroxide

<table>
<thead>
<tr>
<th>Segment</th>
<th>TN06030003406_1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Little Hurricane Creek</td>
</tr>
<tr>
<td>Size</td>
<td>5.02</td>
</tr>
<tr>
<td>Unit</td>
<td>Miles</td>
</tr>
<tr>
<td>First Year on 303(d) List</td>
<td>-</td>
</tr>
<tr>
<td>Designated Uses</td>
<td>Fish and Aquatic Life (Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)</td>
</tr>
<tr>
<td>Causes</td>
<td>N/A</td>
</tr>
<tr>
<td>Sources</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Table 6-37. Stream Segment Information for Center Grove Winchester Springs Utility Department.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al (T)</td>
<td>All Year</td>
<td>0.75</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td></td>
<td>DMax Load</td>
<td>Monthly</td>
<td>Instantaneous</td>
<td>Effluent</td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>0.5</td>
<td>mL/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.019</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>40</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9</td>
<td>SU</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Table 6-38. Permit Limits for Center Grove Winchester Springs Utility Department.

Comments:
Turbidity removal Water Treatment Plant
### TN0074837 Estill Springs Water Treatment Plant

**Discharger rating:** Minor  
**City:** Estill Springs  
**County:** Franklin  
**EFO Name:** Columbia  
**Issuance Date:** 9/29/04  
**Expiration Date:** 9/29/09  
**Receiving Stream(s):** Taylor Creek at mile 1.5 of the Elk River  
**HUC-12:** 060300030304  
**Effluent Summary:** Filter backwash and/or sedimentation basin washdown from Outfall 001  
**Treatment system:** Chlorine, alum, caustic soda, phosphate and fluoride

<table>
<thead>
<tr>
<th>Segment</th>
<th>TN06030003432_1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Taylor Creek</td>
</tr>
<tr>
<td>Size</td>
<td>9.1</td>
</tr>
<tr>
<td>Unit</td>
<td>Miles</td>
</tr>
<tr>
<td>First Year on 303(d) List</td>
<td>-</td>
</tr>
<tr>
<td>Designated Uses</td>
<td>Fish and Aquatic Life (Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)</td>
</tr>
<tr>
<td>Causes</td>
<td>N/A</td>
</tr>
<tr>
<td>Sources</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Table 6-39. Stream Segment Information for Estill Springs Water Treatment Plant.**

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al (T)</td>
<td>All Year</td>
<td>0.75 mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>DMax Load</td>
<td>Monthly</td>
<td>Instantaneous</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>0.5 mL/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.019 mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>40 mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9 SU</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5 SU</td>
<td>DMin Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
</tbody>
</table>

**Table 6-40. Permit Limits for Estill Springs Water Treatment Plant.**

**Compliance History:**
The following numbers of exceedences were noted in PCS:

- 1 pH
- 1 Aluminum
- 7 Chlorine

**Comments:**
Iron, manganese and turbidity removal Water Treatment Plant
Discharger rating: Minor
City: Lynchburg
County: Moore
EFO Name: Columbia
Issuance Date: 9/29/04
Expiration Date: 9/29/09
Receiving Stream(s): Mulberry Creek
HUC-12: 060300030701
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Chlorine, potassium permanganate, aluminum sulfate added at flash mix for coagulation, oxidation and manganese reduction; fluoride, sodium phosphate added at clear well

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al (T)</td>
<td>All Year</td>
<td>0.75</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td></td>
<td>DMax Load</td>
<td>Monthly</td>
<td>Instantaneous</td>
<td>Effluent</td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>0.5 mL/L</td>
<td></td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.019</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>40</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9</td>
<td>SU</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

Table 6-41. Permit Limits for Metro Moore County Utility Department.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 23 Chlorine

Comments:
Manganese and turbidity removal Water Treatment Plant
TN0068462 Teal Hollow Springs Water Treatment Plant

Discharger rating: Minor
City: Kelso
County: Lincoln
EFO Name: Columbia
Issuance Date: 10/07/04
Expiration Date: 9/29/09
Receiving Stream(s): Unnamed tributary to Dukes Creek
HUC-12: 060300030504
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Aluminum chlorhydrate (ACS) as coagulant and disinfection with chlorine

<table>
<thead>
<tr>
<th>Segment</th>
<th>TN06030003010_0500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Dukes Creek</td>
</tr>
<tr>
<td>Size</td>
<td>14.4</td>
</tr>
<tr>
<td>Unit</td>
<td>Miles</td>
</tr>
<tr>
<td>First Year on 303(d) List</td>
<td>-</td>
</tr>
<tr>
<td>Designated Uses</td>
<td>Fish and Aquatic Life (Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)</td>
</tr>
<tr>
<td>Causes</td>
<td>N/A</td>
</tr>
<tr>
<td>Sources</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Table 6-42. Stream Segment Information for Teal Hollow Springs Water Treatment Plant.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al (T)</td>
<td>All Year</td>
<td>0.75 mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td>DMax Load</td>
<td>Monthly</td>
<td>Instantaneous</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>0.5 mL/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>0.019 mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>40 mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>9 SU</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5 SU</td>
<td>DMin Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
<td></td>
</tr>
</tbody>
</table>

Table 6-43. Permit Limits for Teal Hollow Springs Water Treatment Plant.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 2 Chlorine.

Comments:
Turbidity removal Water Treatment Plant
TN0005665 Winchester Water System WTP

Discharger rating: Minor
City: Winchester
County: Franklin
EFO Name: Columbia
Issuance Date: 2/15/06
Expiration Date: 9/27/09
Receiving Stream(s): Elk River at mile 154.7 to Tims Ford Reservoir
HUC-12: 060300030301
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Chlorine, fluoride, NaMnO4, PAC, aquadine, caustic soda

<table>
<thead>
<tr>
<th>Segment</th>
<th>TN06030003015_1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Elk River</td>
</tr>
<tr>
<td>Size</td>
<td>15.4</td>
</tr>
<tr>
<td>Unit</td>
<td>Miles</td>
</tr>
<tr>
<td>First Year on 303(d) List</td>
<td>1990</td>
</tr>
</tbody>
</table>

**Designated Uses**
Livestock Watering and Wildlife (Supporting), Domestic Water Supply (Supporting), Industrial Water Supply (Supporting), Fish and Aquatic Life (Non-Supporting), Recreation (Supporting), Irrigation (Supporting)

**Causes**
Low flow alterations, Temperature, water

**Sources**
Upstream Impoundments (e.g., Pl-566 NRCS Structures)

**Table 6-44. Stream Segment Information for Winchester Water System WTP.**

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SEASON</th>
<th>LIMIT</th>
<th>UNITS</th>
<th>SAMPLE DESIGNATOR</th>
<th>MONITORING FREQUENCY</th>
<th>SAMPLE TYPE</th>
<th>MONITORING LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al (T)</td>
<td>All Year</td>
<td>10</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Fe (T)</td>
<td>All Year</td>
<td>10</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>Flow</td>
<td>All Year</td>
<td>MGD</td>
<td></td>
<td>DMax Load</td>
<td>Monthly</td>
<td>Instantaneous</td>
<td>Effluent</td>
</tr>
<tr>
<td>Settleable Solids</td>
<td>All Year</td>
<td>0.5</td>
<td>mL/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TRC</td>
<td>All Year</td>
<td>1</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>TSS</td>
<td>All Year</td>
<td>40</td>
<td>mg/L</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>4.5</td>
<td>SU</td>
<td>DMax Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
<tr>
<td>pH</td>
<td>All Year</td>
<td>6.5</td>
<td>SU</td>
<td>DMin Conc</td>
<td>Monthly</td>
<td>Grab</td>
<td>Effluent</td>
</tr>
</tbody>
</table>

**Table 6-45. Permit Limits for Winchester Water System WTP.**

**Compliance History:**
The following numbers of exceedences were noted in PCS:

**Enforcement:**

**EFO Comments:** None
### APPENDIX II

<table>
<thead>
<tr>
<th>ID</th>
<th>NAME</th>
<th>HAZARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>267003</td>
<td>Cheston Lake</td>
<td>3</td>
</tr>
<tr>
<td>267005</td>
<td>Lake Finney</td>
<td>3</td>
</tr>
<tr>
<td>267006</td>
<td>Athletic Field</td>
<td>O</td>
</tr>
<tr>
<td>267010</td>
<td>Saint Andrews</td>
<td>3</td>
</tr>
<tr>
<td>287004</td>
<td>Logan</td>
<td>2</td>
</tr>
<tr>
<td>317005</td>
<td>Cumberland Mountain Lake</td>
<td>3</td>
</tr>
<tr>
<td>317011</td>
<td>Skymount #1</td>
<td>3</td>
</tr>
<tr>
<td>317012</td>
<td>Skymount #2</td>
<td>3</td>
</tr>
<tr>
<td>317013</td>
<td>Ramsey</td>
<td>1</td>
</tr>
<tr>
<td>317015</td>
<td>Cumberland Mountain Lake #3</td>
<td>3</td>
</tr>
<tr>
<td>527001</td>
<td>Timber Lake</td>
<td>3</td>
</tr>
<tr>
<td>527002</td>
<td>Lou's Lake</td>
<td>3</td>
</tr>
<tr>
<td>527003</td>
<td>Lincoln Lake</td>
<td>3</td>
</tr>
<tr>
<td>527005</td>
<td>Rambo (Oakwood Acres)</td>
<td>3</td>
</tr>
<tr>
<td>527007</td>
<td>Carter Lake</td>
<td>S</td>
</tr>
<tr>
<td>527009</td>
<td>Whitaker Lake</td>
<td>3</td>
</tr>
<tr>
<td>527010</td>
<td>Lake Fontaine</td>
<td>S</td>
</tr>
<tr>
<td>527011</td>
<td>Carter #2</td>
<td>L</td>
</tr>
<tr>
<td>597001</td>
<td>Allison Lake</td>
<td>2</td>
</tr>
<tr>
<td>597002</td>
<td>Mckinnon</td>
<td>S</td>
</tr>
<tr>
<td>647001</td>
<td>Cumberland Springs</td>
<td>B</td>
</tr>
<tr>
<td>957002</td>
<td>Ramsgate Development</td>
<td>N</td>
</tr>
</tbody>
</table>

**Table A2-1. Inventoried Dams in the Upper Elk River Watershed.** Hazard Codes: F, Federal; (H, 1), High; (S, 2), Significant; (L, 3), Low; (B), Breached; O, Too Small. TDEC only regulates dams indicated by a numeric hazard score.
<table>
<thead>
<tr>
<th>LAND COVER/LAND USE</th>
<th>ACRES</th>
<th>% OF WATERSHED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Water</td>
<td>17,318</td>
<td>2.1</td>
</tr>
<tr>
<td>Other Grasses</td>
<td>4,088</td>
<td>0.5</td>
</tr>
<tr>
<td>Pasture/Hay</td>
<td>219,649</td>
<td>26.8</td>
</tr>
<tr>
<td>Row Crops</td>
<td>109,141</td>
<td>13.3</td>
</tr>
<tr>
<td>Woody Wetlands</td>
<td>10,788</td>
<td>1.3</td>
</tr>
<tr>
<td>Emergent Herbaceous Wetlands</td>
<td>861</td>
<td>0.1</td>
</tr>
<tr>
<td>Deciduous Forest</td>
<td>300,081</td>
<td>36.6</td>
</tr>
<tr>
<td>Mixed Forest</td>
<td>104,756</td>
<td>12.8</td>
</tr>
<tr>
<td>Evergreen Forest</td>
<td>39,422</td>
<td>4.8</td>
</tr>
<tr>
<td>High Intensity: Commercial/Industrial</td>
<td>4,608</td>
<td>0.6</td>
</tr>
<tr>
<td>High Intensity: Residential</td>
<td>914</td>
<td>0.1</td>
</tr>
<tr>
<td>Low Intensity: Residential</td>
<td>5,817</td>
<td>0.7</td>
</tr>
<tr>
<td>Quarries/Strip Mines/Gravel Pits</td>
<td>453</td>
<td>0.1</td>
</tr>
<tr>
<td>Transitional</td>
<td>1,531</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>819,427</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table A2-2. Land Use Distribution in Upper Elk River Watershed. Data are from Multi-Resolution Land Characterization (MRLC) derived by applying a generalized Anderson level II system to mosaics of Landsat thematic mapper images collected every five years.
<table>
<thead>
<tr>
<th>Ecoregion</th>
<th>Reference Stream</th>
<th>Watershed</th>
<th>HUC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumberland Plateau (68a)</td>
<td>Rock Creek</td>
<td>South Fork Cumberland</td>
<td>05130104</td>
</tr>
<tr>
<td></td>
<td>Laurel Fork</td>
<td>South Fork Cumberland</td>
<td>05130104</td>
</tr>
<tr>
<td></td>
<td>Clear Creek</td>
<td>Emory River</td>
<td>06010208</td>
</tr>
<tr>
<td></td>
<td>Piney Creek</td>
<td>Watts Bar/Fort Loudoun Lake</td>
<td>06010201</td>
</tr>
<tr>
<td></td>
<td>Mullens Creek</td>
<td>Tennessee River</td>
<td>06020001</td>
</tr>
<tr>
<td></td>
<td>Daddy's Creek</td>
<td>Emory River</td>
<td>06010208</td>
</tr>
<tr>
<td></td>
<td>Island Creek</td>
<td>Emory River</td>
<td>06010208</td>
</tr>
<tr>
<td></td>
<td>Rock Creek</td>
<td>Emory River</td>
<td>06010208</td>
</tr>
<tr>
<td>Plateau Escarpment (68c)</td>
<td>Ellis Gap Branch</td>
<td>Tennessee River</td>
<td>06020001</td>
</tr>
<tr>
<td></td>
<td>Mud Creek</td>
<td>Upper Elk River</td>
<td>06030003</td>
</tr>
<tr>
<td></td>
<td>Crow Creek</td>
<td>Guntersville Lake</td>
<td>06030001</td>
</tr>
<tr>
<td></td>
<td>Crow Creek</td>
<td>Guntersville Lake</td>
<td>06030001</td>
</tr>
<tr>
<td>Eastern Highland Rim (71g)</td>
<td>Flat Fork</td>
<td>Cordell Hull lake</td>
<td>05130106</td>
</tr>
<tr>
<td></td>
<td>Hurricane Creek</td>
<td>Upper Elk River</td>
<td>06030003</td>
</tr>
<tr>
<td></td>
<td>Spring Creek</td>
<td>Cordell Hull Lake</td>
<td>05130106</td>
</tr>
<tr>
<td>Outer Nashville Basin (71h)</td>
<td>Carson Fork</td>
<td>Stones River</td>
<td>05130203</td>
</tr>
<tr>
<td></td>
<td>Clear Fork</td>
<td>Caney Fork River</td>
<td>05130108</td>
</tr>
<tr>
<td></td>
<td>Flynn Creek</td>
<td>Cordell Hull Lake</td>
<td>05130106</td>
</tr>
</tbody>
</table>

Table A2-3. Ecoregion Monitoring Sites in Ecoregions 68a, 68c, 71g, and 71h.
<table>
<thead>
<tr>
<th>CODE</th>
<th>NAME</th>
<th>AGENCY</th>
<th>AGENCY ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>TDEC/DNH STEWARTS SWAMP SITE</td>
<td>TDEC/DNH</td>
<td>S.USTNHP 334</td>
</tr>
<tr>
<td>27</td>
<td>TDEC/DNH GOOSE POND REGISTERED STATE NATURAL AREA</td>
<td>TDEC/DNH</td>
<td>S.USTNHP 243</td>
</tr>
<tr>
<td>37</td>
<td>TDEC/DNH AEDC POWERLINE BARRENS STATE NATURAL AREA</td>
<td>TDEC/DNH</td>
<td>M.USTNHP 86</td>
</tr>
<tr>
<td>93</td>
<td>TDEC/DNH AEDC COW POND AND FOREST SITE</td>
<td>TDEC/DNH</td>
<td>S.USTNHP 315</td>
</tr>
<tr>
<td>95</td>
<td>TDEC/DNH AEDC UPPER HICKERSON CREEK SITE</td>
<td>TDEC/DNH</td>
<td>S.USTNHP 774</td>
</tr>
<tr>
<td>104</td>
<td>TDEC/DNH DICKEL BARRENS SITE</td>
<td>TDEC/DNH</td>
<td>S.USTNHP 97</td>
</tr>
<tr>
<td>149</td>
<td>TDEC/DNH MINGO SWAMP WILDLIFE MANAGEMENT AREA SITE</td>
<td>TDEC/DNH</td>
<td>M.USTNHP 2494</td>
</tr>
<tr>
<td>191</td>
<td>TDEC/DNH BLUEBELL ISLAND SITE</td>
<td>TDEC/DNH</td>
<td></td>
</tr>
<tr>
<td>203</td>
<td>USACOE-NASHVILLE CLIENT SITE</td>
<td>USACOE-N</td>
<td></td>
</tr>
<tr>
<td>252</td>
<td>USACOE-NASHVILLE CLIENT SITE</td>
<td>USACOE-N</td>
<td></td>
</tr>
<tr>
<td>260</td>
<td>USACOE-NASHVILLE CLIENT SITE</td>
<td>USACOE-N</td>
<td></td>
</tr>
<tr>
<td>293</td>
<td>TDOT SR 50 MITIGATION/PERMIT SITE</td>
<td>TDOT</td>
<td></td>
</tr>
<tr>
<td>294</td>
<td>TDOT SR 50 MITIGATION/PERMIT SITE</td>
<td>TDOT</td>
<td></td>
</tr>
<tr>
<td>428</td>
<td>TDEC/WPC NORTH FORK ROCK CREEK WPC PERMIT SITE</td>
<td>TDEC/WPC</td>
<td></td>
</tr>
<tr>
<td>579</td>
<td>USFWS AEDC #47</td>
<td>USFWS</td>
<td>AEDC.47</td>
</tr>
<tr>
<td>580</td>
<td>USFWS AEDC #48</td>
<td>USFWS</td>
<td>AEDC.48</td>
</tr>
<tr>
<td>581</td>
<td>USFWS AEDC #49</td>
<td>USFWS</td>
<td>AEDC.49</td>
</tr>
<tr>
<td>582</td>
<td>USFWS AEDC #50</td>
<td>USFWS</td>
<td>AEDC.50</td>
</tr>
<tr>
<td>583</td>
<td>USFWS AEDC #51</td>
<td>USFWS</td>
<td>AEDC.51</td>
</tr>
<tr>
<td>584</td>
<td>USFWS AEDC #52</td>
<td>USFWS</td>
<td>AEDC.52</td>
</tr>
<tr>
<td>586</td>
<td>USFWS AEDC #54</td>
<td>USFWS</td>
<td>AEDC.54</td>
</tr>
<tr>
<td>587</td>
<td>USFWS AEDC #55</td>
<td>USFWS</td>
<td>AEDC.55</td>
</tr>
<tr>
<td>588</td>
<td>USFWS AEDC #56</td>
<td>USFWS</td>
<td>AEDC.56</td>
</tr>
<tr>
<td>589</td>
<td>USFWS AEDC #57</td>
<td>USFWS</td>
<td>AEDC.57</td>
</tr>
<tr>
<td>591</td>
<td>USFWS AEDC #59</td>
<td>USFWS</td>
<td>AEDC.59</td>
</tr>
<tr>
<td>592</td>
<td>USFWS AEDC #60</td>
<td>USFWS</td>
<td>AEDC.60</td>
</tr>
<tr>
<td>593</td>
<td>USFWS AEDC #61</td>
<td>USFWS</td>
<td>AEDC.61</td>
</tr>
<tr>
<td>594</td>
<td>USFWS AEDC #62</td>
<td>USFWS</td>
<td>AEDC.62</td>
</tr>
<tr>
<td>595</td>
<td>USFWS AEDC #63</td>
<td>USFWS</td>
<td>AEDC.63</td>
</tr>
<tr>
<td>596</td>
<td>USFWS AEDC #64</td>
<td>USFWS</td>
<td>AEDC.64</td>
</tr>
<tr>
<td>597</td>
<td>USFWS AEDC #65</td>
<td>USFWS</td>
<td>AEDC.65</td>
</tr>
<tr>
<td>598</td>
<td>USFWS AEDC #66</td>
<td>USFWS</td>
<td>AEDC.66</td>
</tr>
<tr>
<td>600</td>
<td>USFWS AEDC #68</td>
<td>USFWS</td>
<td>AEDC.68</td>
</tr>
<tr>
<td>601</td>
<td>USFWS AEDC #69</td>
<td>USFWS</td>
<td>AEDC.69</td>
</tr>
<tr>
<td>602</td>
<td>USFWS AEDC #70</td>
<td>USFWS</td>
<td>AEDC.70</td>
</tr>
<tr>
<td>603</td>
<td>USFWS AEDC #71</td>
<td>USFWS</td>
<td>AEDC.71</td>
</tr>
<tr>
<td>604</td>
<td>USFWS AEDC #72</td>
<td>USFWS</td>
<td>AEDC.72</td>
</tr>
<tr>
<td>605</td>
<td>USFWS AEDC #73</td>
<td>USFWS</td>
<td>AEDC.73</td>
</tr>
<tr>
<td>606</td>
<td>USFWS AEDC #74</td>
<td>USFWS</td>
<td>AEDC.74</td>
</tr>
<tr>
<td>607</td>
<td>USFWS AEDC #75</td>
<td>USFWS</td>
<td>AEDC.75</td>
</tr>
<tr>
<td>608</td>
<td>USFWS AEDC #76</td>
<td>USFWS</td>
<td>AEDC.76</td>
</tr>
<tr>
<td>609</td>
<td>USFWS AEDC #77</td>
<td>USFWS</td>
<td>AEDC.77</td>
</tr>
<tr>
<td>610</td>
<td>USFWS AEDC #78</td>
<td>USFWS</td>
<td>AEDC.78</td>
</tr>
<tr>
<td>611</td>
<td>USFWS AEDC #79</td>
<td>USFWS</td>
<td>AEDC.79</td>
</tr>
<tr>
<td>612</td>
<td>USFWS AEDC #80</td>
<td>USFWS</td>
<td>AEDC.80</td>
</tr>
<tr>
<td>613</td>
<td>USFWS AEDC #81</td>
<td>USFWS</td>
<td>AEDC.81</td>
</tr>
<tr>
<td>614</td>
<td>USFWS AEDC #82</td>
<td>USFWS</td>
<td>AEDC.82</td>
</tr>
<tr>
<td>615</td>
<td>USFWS AEDC #83</td>
<td>USFWS</td>
<td>AEDC.83</td>
</tr>
<tr>
<td>616</td>
<td>USFWS AEDC #84</td>
<td>USFWS</td>
<td>AEDC.84</td>
</tr>
<tr>
<td>617</td>
<td>USFWS AEDC #85</td>
<td>USFWS</td>
<td>AEDC.85</td>
</tr>
<tr>
<td>Page</td>
<td>Document ID</td>
<td>Agency</td>
<td>Document Number</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>--------</td>
<td>-----------------</td>
</tr>
<tr>
<td>618</td>
<td>USFWS AEDC #86</td>
<td>USFWS</td>
<td>AEDC.86</td>
</tr>
<tr>
<td>619</td>
<td>USFWS AEDC #87</td>
<td>USFWS</td>
<td>AEDC.87</td>
</tr>
<tr>
<td>620</td>
<td>USFWS AEDC #88</td>
<td>USFWS</td>
<td>AEDC.88</td>
</tr>
<tr>
<td>670</td>
<td>USFWS AEDC #137</td>
<td>USFWS</td>
<td>AEDC.137</td>
</tr>
<tr>
<td>671</td>
<td>USFWS AEDC #138</td>
<td>USFWS</td>
<td>AEDC.138</td>
</tr>
<tr>
<td>683</td>
<td>USFWS AEDC #150</td>
<td>USFWS</td>
<td>AEDC.150</td>
</tr>
<tr>
<td>684</td>
<td>USFWS AEDC #151</td>
<td>USFWS</td>
<td>AEDC.151</td>
</tr>
<tr>
<td>687</td>
<td>USFWS AEDC #154</td>
<td>USFWS</td>
<td>AEDC.154</td>
</tr>
<tr>
<td>688</td>
<td>USFWS AEDC #155</td>
<td>USFWS</td>
<td>AEDC.155</td>
</tr>
<tr>
<td>689</td>
<td>USFWS AEDC #156</td>
<td>USFWS</td>
<td>AEDC.156</td>
</tr>
<tr>
<td>692</td>
<td>USFWS AEDC #159</td>
<td>USFWS</td>
<td>AEDC.159</td>
</tr>
<tr>
<td>693</td>
<td>USFWS AEDC #160</td>
<td>USFWS</td>
<td>AEDC.160</td>
</tr>
<tr>
<td>694</td>
<td>USFWS AEDC #161</td>
<td>USFWS</td>
<td>AEDC.161</td>
</tr>
<tr>
<td>695</td>
<td>USFWS AEDC #162</td>
<td>USFWS</td>
<td>AEDC.162</td>
</tr>
<tr>
<td>696</td>
<td>USFWS AEDC #163</td>
<td>USFWS</td>
<td>AEDC.163</td>
</tr>
<tr>
<td>697</td>
<td>USFWS AEDC #164</td>
<td>USFWS</td>
<td>AEDC.164</td>
</tr>
<tr>
<td>698</td>
<td>USFWS AEDC #165</td>
<td>USFWS</td>
<td>AEDC.165</td>
</tr>
<tr>
<td>699</td>
<td>USFWS AEDC #166</td>
<td>USFWS</td>
<td>AEDC.166</td>
</tr>
<tr>
<td>700</td>
<td>USFWS AEDC #167</td>
<td>USFWS</td>
<td>AEDC.167</td>
</tr>
<tr>
<td>701</td>
<td>USFWS AEDC #168</td>
<td>USFWS</td>
<td>AEDC.168</td>
</tr>
<tr>
<td>702</td>
<td>USFWS AEDC #169</td>
<td>USFWS</td>
<td>AEDC.169</td>
</tr>
<tr>
<td>703</td>
<td>USFWS AEDC #170</td>
<td>USFWS</td>
<td>AEDC.170</td>
</tr>
<tr>
<td>704</td>
<td>USFWS AEDC #171</td>
<td>USFWS</td>
<td>AEDC.171</td>
</tr>
<tr>
<td>705</td>
<td>USFWS AEDC #172</td>
<td>USFWS</td>
<td>AEDC.172</td>
</tr>
<tr>
<td>706</td>
<td>USFWS AEDC #173</td>
<td>USFWS</td>
<td>AEDC.173</td>
</tr>
<tr>
<td>707</td>
<td>USFWS AEDC #174</td>
<td>USFWS</td>
<td>AEDC.174</td>
</tr>
<tr>
<td>708</td>
<td>USFWS AEDC #175</td>
<td>USFWS</td>
<td>AEDC.175</td>
</tr>
<tr>
<td>709</td>
<td>USFWS AEDC #176</td>
<td>USFWS</td>
<td>AEDC.176</td>
</tr>
<tr>
<td>710</td>
<td>USFWS AEDC #177</td>
<td>USFWS</td>
<td>AEDC.177</td>
</tr>
<tr>
<td>711</td>
<td>USFWS AEDC #178</td>
<td>USFWS</td>
<td>AEDC.178</td>
</tr>
<tr>
<td>712</td>
<td>USFWS AEDC #179</td>
<td>USFWS</td>
<td>AEDC.179</td>
</tr>
<tr>
<td>713</td>
<td>USFWS AEDC #180</td>
<td>USFWS</td>
<td>AEDC.180</td>
</tr>
<tr>
<td>714</td>
<td>USFWS AEDC #181</td>
<td>USFWS</td>
<td>AEDC.181</td>
</tr>
<tr>
<td>715</td>
<td>USFWS AEDC #182</td>
<td>USFWS</td>
<td>AEDC.182</td>
</tr>
<tr>
<td>716</td>
<td>USFWS AEDC #183</td>
<td>USFWS</td>
<td>AEDC.183</td>
</tr>
<tr>
<td>717</td>
<td>USFWS AEDC #184</td>
<td>USFWS</td>
<td>AEDC.184</td>
</tr>
<tr>
<td>718</td>
<td>USFWS AEDC #185</td>
<td>USFWS</td>
<td>AEDC.185</td>
</tr>
<tr>
<td>719</td>
<td>USFWS AEDC #186</td>
<td>USFWS</td>
<td>AEDC.186</td>
</tr>
<tr>
<td>720</td>
<td>USFWS AEDC #187</td>
<td>USFWS</td>
<td>AEDC.187</td>
</tr>
<tr>
<td>721</td>
<td>USFWS AEDC #188</td>
<td>USFWS</td>
<td>AEDC.188</td>
</tr>
<tr>
<td>722</td>
<td>USFWS AEDC #189</td>
<td>USFWS</td>
<td>AEDC.189</td>
</tr>
<tr>
<td>723</td>
<td>USFWS AEDC #190</td>
<td>USFWS</td>
<td>AEDC.190</td>
</tr>
<tr>
<td>724</td>
<td>USFWS AEDC #191</td>
<td>USFWS</td>
<td>AEDC.191</td>
</tr>
<tr>
<td>725</td>
<td>USFWS AEDC #192</td>
<td>USFWS</td>
<td>AEDC.192</td>
</tr>
<tr>
<td>726</td>
<td>USFWS AEDC #193</td>
<td>USFWS</td>
<td>AEDC.193</td>
</tr>
<tr>
<td>727</td>
<td>USFWS AEDC #194</td>
<td>USFWS</td>
<td>AEDC.194</td>
</tr>
<tr>
<td>728</td>
<td>USFWS AEDC #195</td>
<td>USFWS</td>
<td>AEDC.195</td>
</tr>
<tr>
<td>729</td>
<td>USFWS AEDC #196</td>
<td>USFWS</td>
<td>AEDC.196</td>
</tr>
<tr>
<td>730</td>
<td>USFWS AEDC #197</td>
<td>USFWS</td>
<td>AEDC.197</td>
</tr>
<tr>
<td>731</td>
<td>USFWS AEDC #198</td>
<td>USFWS</td>
<td>AEDC.198</td>
</tr>
<tr>
<td>732</td>
<td>USFWS AEDC #199</td>
<td>USFWS</td>
<td>AEDC.199</td>
</tr>
<tr>
<td>733</td>
<td>USFWS AEDC #200</td>
<td>USFWS</td>
<td>AEDC.200</td>
</tr>
<tr>
<td>734</td>
<td>USFWS AEDC #201</td>
<td>USFWS</td>
<td>AEDC.201</td>
</tr>
<tr>
<td>735</td>
<td>USFWS AEDC #202</td>
<td>USFWS</td>
<td>AEDC.202</td>
</tr>
<tr>
<td>736</td>
<td>USFWS AEDC #203</td>
<td>USFWS</td>
<td>AEDC.203</td>
</tr>
<tr>
<td>737</td>
<td>USFWS AEDC #204</td>
<td>USFWS</td>
<td>AEDC.204</td>
</tr>
<tr>
<td>738</td>
<td>USFWS AEDC #205</td>
<td>USFWS</td>
<td>AEDC.205</td>
</tr>
<tr>
<td>739</td>
<td>USFWS AEDC #206</td>
<td>USFWS</td>
<td>AEDC.206</td>
</tr>
<tr>
<td>741</td>
<td>USFWS AEDC #208</td>
<td>USFWS</td>
<td>AEDC.208</td>
</tr>
<tr>
<td>742</td>
<td>USFWS AEDC #209</td>
<td>USFWS</td>
<td>AEDC.209</td>
</tr>
<tr>
<td>745</td>
<td>USFWS AEDC #212</td>
<td>USFWS</td>
<td>AEDC.212</td>
</tr>
<tr>
<td>746</td>
<td>USFWS AEDC #213</td>
<td>USFWS</td>
<td>AEDC.213</td>
</tr>
<tr>
<td>747</td>
<td>USFWS AEDC #214</td>
<td>USFWS</td>
<td>AEDC.214</td>
</tr>
<tr>
<td>748</td>
<td>USFWS AEDC #215</td>
<td>USFWS</td>
<td>AEDC.215</td>
</tr>
<tr>
<td>749</td>
<td>USFWS AEDC #216</td>
<td>USFWS</td>
<td>AEDC.216</td>
</tr>
<tr>
<td>750</td>
<td>USFWS AEDC #217</td>
<td>USFWS</td>
<td>AEDC.217</td>
</tr>
<tr>
<td>751</td>
<td>USFWS AEDC #218</td>
<td>USFWS</td>
<td>AEDC.218</td>
</tr>
<tr>
<td>753</td>
<td>USFWS AEDC #220</td>
<td>USFWS</td>
<td>AEDC.220</td>
</tr>
<tr>
<td>754</td>
<td>USFWS AEDC #221</td>
<td>USFWS</td>
<td>AEDC.221</td>
</tr>
<tr>
<td>755</td>
<td>USFWS AEDC #222</td>
<td>USFWS</td>
<td>AEDC.222</td>
</tr>
<tr>
<td>756</td>
<td>USFWS AEDC #223</td>
<td>USFWS</td>
<td>AEDC.223</td>
</tr>
<tr>
<td>757</td>
<td>USFWS AEDC #224</td>
<td>USFWS</td>
<td>AEDC.224</td>
</tr>
<tr>
<td>758</td>
<td>USFWS AEDC #225</td>
<td>USFWS</td>
<td>AEDC.225</td>
</tr>
<tr>
<td>759</td>
<td>USFWS AEDC #226</td>
<td>USFWS</td>
<td>AEDC.226</td>
</tr>
<tr>
<td>760</td>
<td>USFWS AEDC #227</td>
<td>USFWS</td>
<td>AEDC.227</td>
</tr>
<tr>
<td>761</td>
<td>USFWS AEDC #228</td>
<td>USFWS</td>
<td>AEDC.228</td>
</tr>
<tr>
<td>762</td>
<td>USFWS AEDC #229</td>
<td>USFWS</td>
<td>AEDC.229</td>
</tr>
<tr>
<td>763</td>
<td>USFWS AEDC #230</td>
<td>USFWS</td>
<td>AEDC.230</td>
</tr>
<tr>
<td>764</td>
<td>USFWS AEDC #231</td>
<td>USFWS</td>
<td>AEDC.231</td>
</tr>
<tr>
<td>765</td>
<td>USFWS AEDC #232</td>
<td>USFWS</td>
<td>AEDC.232</td>
</tr>
<tr>
<td>786</td>
<td>USFWS AEDC #253</td>
<td>USFWS</td>
<td>AEDC.253</td>
</tr>
<tr>
<td>787</td>
<td>USFWS AEDC #254</td>
<td>USFWS</td>
<td>AEDC.254</td>
</tr>
<tr>
<td>788</td>
<td>USFWS AEDC #255</td>
<td>USFWS</td>
<td>AEDC.255</td>
</tr>
<tr>
<td>789</td>
<td>USFWS AEDC #256</td>
<td>USFWS</td>
<td>AEDC.256</td>
</tr>
<tr>
<td>790</td>
<td>USFWS AEDC #257</td>
<td>USFWS</td>
<td>AEDC.257</td>
</tr>
<tr>
<td>791</td>
<td>USFWS AEDC #258</td>
<td>USFWS</td>
<td>AEDC.258</td>
</tr>
<tr>
<td>792</td>
<td>USFWS AEDC #259</td>
<td>USFWS</td>
<td>AEDC.259</td>
</tr>
<tr>
<td>793</td>
<td>USFWS AEDC #260</td>
<td>USFWS</td>
<td>AEDC.260</td>
</tr>
<tr>
<td>795</td>
<td>USFWS AEDC #262</td>
<td>USFWS</td>
<td>AEDC.262</td>
</tr>
<tr>
<td>796</td>
<td>USFWS AEDC #263</td>
<td>USFWS</td>
<td>AEDC.263</td>
</tr>
<tr>
<td>797</td>
<td>USFWS AEDC #264</td>
<td>USFWS</td>
<td>AEDC.264</td>
</tr>
<tr>
<td>798</td>
<td>USFWS AEDC #265</td>
<td>USFWS</td>
<td>AEDC.265</td>
</tr>
<tr>
<td>799</td>
<td>USFWS AEDC #266</td>
<td>USFWS</td>
<td>AEDC.266</td>
</tr>
<tr>
<td>800</td>
<td>USFWS AEDC #267</td>
<td>USFWS</td>
<td>AEDC.267</td>
</tr>
<tr>
<td>801</td>
<td>USFWS AEDC #268</td>
<td>USFWS</td>
<td>AEDC.268</td>
</tr>
<tr>
<td>802</td>
<td>USFWS AEDC #269</td>
<td>USFWS</td>
<td>AEDC.269</td>
</tr>
<tr>
<td>803</td>
<td>USFWS AEDC #270</td>
<td>USFWS</td>
<td>AEDC.270</td>
</tr>
<tr>
<td>804</td>
<td>USFWS AEDC #271</td>
<td>USFWS</td>
<td>AEDC.271</td>
</tr>
<tr>
<td>805</td>
<td>USFWS AEDC #272</td>
<td>USFWS</td>
<td>AEDC.272</td>
</tr>
<tr>
<td>806</td>
<td>USFWS AEDC #273</td>
<td>USFWS</td>
<td>AEDC.273</td>
</tr>
<tr>
<td>807</td>
<td>USFWS AEDC #274</td>
<td>USFWS</td>
<td>AEDC.274</td>
</tr>
<tr>
<td>808</td>
<td>USFWS AEDC #275</td>
<td>USFWS</td>
<td>AEDC.275</td>
</tr>
<tr>
<td>809</td>
<td>USFWS AEDC #276</td>
<td>USFWS</td>
<td>AEDC.276</td>
</tr>
<tr>
<td>810</td>
<td>USFWS AEDC #277</td>
<td>USFWS</td>
<td>AEDC.277</td>
</tr>
<tr>
<td>Number</td>
<td>Description</td>
<td>Agency</td>
<td>Code</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------------------------</td>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td>811</td>
<td>USFWS AEDC #278</td>
<td>USFWS</td>
<td>AEDC.278</td>
</tr>
<tr>
<td>812</td>
<td>USFWS AEDC #279</td>
<td>USFWS</td>
<td>AEDC.279</td>
</tr>
<tr>
<td>813</td>
<td>USFWS AEDC #280</td>
<td>USFWS</td>
<td>AEDC.280</td>
</tr>
<tr>
<td>814</td>
<td>USFWS AEDC #281</td>
<td>USFWS</td>
<td>AEDC.281</td>
</tr>
<tr>
<td>815</td>
<td>USFWS AEDC #282</td>
<td>USFWS</td>
<td>AEDC.282</td>
</tr>
<tr>
<td>816</td>
<td>USFWS AEDC #283</td>
<td>USFWS</td>
<td>AEDC.283</td>
</tr>
<tr>
<td>817</td>
<td>USFWS AEDC #284</td>
<td>USFWS</td>
<td>AEDC.284</td>
</tr>
<tr>
<td>818</td>
<td>USFWS AEDC #285</td>
<td>USFWS</td>
<td>AEDC.285</td>
</tr>
<tr>
<td>819</td>
<td>USFWS AEDC #286</td>
<td>USFWS</td>
<td>AEDC.286</td>
</tr>
<tr>
<td>820</td>
<td>USFWS AEDC #287</td>
<td>USFWS</td>
<td>AEDC.287</td>
</tr>
<tr>
<td>821</td>
<td>USFWS AEDC #288</td>
<td>USFWS</td>
<td>AEDC.288</td>
</tr>
<tr>
<td>822</td>
<td>USFWS AEDC #289</td>
<td>USFWS</td>
<td>AEDC.289</td>
</tr>
<tr>
<td>823</td>
<td>USFWS AEDC #290</td>
<td>USFWS</td>
<td>AEDC.290</td>
</tr>
<tr>
<td>824</td>
<td>USFWS AEDC #291</td>
<td>USFWS</td>
<td>AEDC.291</td>
</tr>
<tr>
<td>825</td>
<td>USFWS AEDC #292</td>
<td>USFWS</td>
<td>AEDC.292</td>
</tr>
<tr>
<td>826</td>
<td>USFWS AEDC #293</td>
<td>USFWS</td>
<td>AEDC.293</td>
</tr>
<tr>
<td>931</td>
<td>TDEC/DNH RON JONES: GRUNDY COUNTY SITE 11</td>
<td>TDEC/DNH</td>
<td>F88J01TNUS</td>
</tr>
<tr>
<td>964</td>
<td>TDEC/DNH RON JONES: FRANKLIN CO SITE 57</td>
<td>TDEC/DNH</td>
<td>F88J01TNUS</td>
</tr>
<tr>
<td>1258</td>
<td>TWRA SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>1513</td>
<td>USACOE TDOT (UTILIZE COFFEE COUNTY WETLAND BANK)</td>
<td>USFWS</td>
<td></td>
</tr>
<tr>
<td>1908</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>1909</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>1910</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2072</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2073</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2074</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2075</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2076</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2077</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2078</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2377</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2378</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2379</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2380</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2381</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2382</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2383</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2384</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2385</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2386</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2387</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2388</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2389</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2390</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2391</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2392</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2393</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2394</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2395</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2396</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2397</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>2398</td>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
</tr>
<tr>
<td>TWRA MINGO SWAMP SITE</td>
<td>TWRA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TDOT UNNAMED TRIBUTARIES TO SWAN CREEK SITE</td>
<td>TDOT 93.654</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NRCS SITE</td>
<td>NRCS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USACOE NASHVILLE SITE</td>
<td>USACOE-N 960048390</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USACOE LAWRENCE KENNERLY FARM (FRANKLIN) SITE</td>
<td>USACOE-N 960047999</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TDEC/DNH POND SPRING SITE</td>
<td>TDEC/DNH</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table A2-4. Wetland Sites in Upper Elk River Watershed in TDEC Database. TDEC, Tennessee Department of Environment and Conservation; USACOE-N, United States Army Corps of Engineers-Nashville District; WPC, Water Pollution Control; TDOT, Tennessee Department of Transportation’ USFWS, United States Fish and Wildlife Service; TWRA, Tennessee Wildlife Resources Agency; DNH, Division of Natural Heritage. This table represents an incomplete inventory and should not be considered a dependable indicator of the presence of wetlands in the watershed.
## APPENDIX III

<table>
<thead>
<tr>
<th>SEGMENT NAME</th>
<th>WATERBODY SEGMENT ID</th>
<th>SEGMENT SIZE (MILES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beans Creek</td>
<td>TN06030003012_2000</td>
<td>10.6</td>
</tr>
<tr>
<td>Beans Creek</td>
<td>TN06030003012_1000</td>
<td>10.7</td>
</tr>
<tr>
<td>Beans Creek</td>
<td>TN06030003049_1000</td>
<td>26.6</td>
</tr>
<tr>
<td>Boiling Fork Creek</td>
<td>TN06030003030_1000</td>
<td>32.4</td>
</tr>
<tr>
<td>Bostick Creek</td>
<td>TN06030003044_0300</td>
<td>4.9</td>
</tr>
<tr>
<td>Bradley Creek</td>
<td>TN06030003051_1000</td>
<td>40.6</td>
</tr>
<tr>
<td>Bradshaw Creek</td>
<td>TN06030003064_1000</td>
<td>27.0</td>
</tr>
<tr>
<td>Brumalow Creek</td>
<td>TN06030003441_1000</td>
<td>6.9</td>
</tr>
<tr>
<td>Buckeye Creek</td>
<td>TN06030003056_0120</td>
<td>8.6</td>
</tr>
<tr>
<td>Caldwell Creek</td>
<td>TN06030003044_0700</td>
<td>14.1</td>
</tr>
<tr>
<td>Caney Hollow Creek</td>
<td>TN06030003012_0100</td>
<td>13.4</td>
</tr>
<tr>
<td>Carr Creek</td>
<td>TN06030003001_0300</td>
<td>10.7</td>
</tr>
<tr>
<td>Coffee Creek</td>
<td>TN06030003015_0300</td>
<td>12.4</td>
</tr>
<tr>
<td>Coldwater Creek</td>
<td>TN06030003006_1000</td>
<td>37.3</td>
</tr>
<tr>
<td>Dick Creek</td>
<td>TN06030003043_0100</td>
<td>5.2</td>
</tr>
<tr>
<td>Dry Creek</td>
<td>TN06030003044_0600</td>
<td>13.8</td>
</tr>
<tr>
<td>Dry Creek</td>
<td>TN06030003051_0100</td>
<td>9.7</td>
</tr>
<tr>
<td>Dry Creek</td>
<td>TN06030003053_0200</td>
<td>10.4</td>
</tr>
<tr>
<td>Dukes Creek</td>
<td>TN06030003010_0500</td>
<td>14.4</td>
</tr>
<tr>
<td>East Fork Mulberry Creek</td>
<td>TN06030003056_0400</td>
<td>19.0</td>
</tr>
<tr>
<td>East Fork Mulberry Creek</td>
<td>TN06030003056_0200</td>
<td>14.0</td>
</tr>
<tr>
<td>Elk River</td>
<td>TN06030003001_1000</td>
<td>50.1</td>
</tr>
<tr>
<td>Elk River</td>
<td>TN06030003010_1000</td>
<td>35.3</td>
</tr>
<tr>
<td>Elk River</td>
<td>TN06030003041_1000</td>
<td>7.7</td>
</tr>
<tr>
<td>Elk River</td>
<td>TN06030003044_2000</td>
<td>3.4</td>
</tr>
<tr>
<td>Elk River</td>
<td>TN06030003044_1000</td>
<td>17.9</td>
</tr>
<tr>
<td>Factory Branch</td>
<td>TN06030003012_0200</td>
<td>20.5</td>
</tr>
<tr>
<td>Fall Lick Creek</td>
<td>TN06030003091_1000</td>
<td>2.2</td>
</tr>
<tr>
<td>Farris Creek</td>
<td>TN06030003015_0100</td>
<td>17.2</td>
</tr>
<tr>
<td>Gilliam Creek</td>
<td>TN06030003044_0720</td>
<td>4.3</td>
</tr>
<tr>
<td>Hurricane Creek</td>
<td>TN06030003055_1000</td>
<td>7.7</td>
</tr>
<tr>
<td>Indian Creek</td>
<td>TN06030003012_0500</td>
<td>9.0</td>
</tr>
<tr>
<td>Indian Creek</td>
<td>TN06030003065_1000</td>
<td>20.5</td>
</tr>
<tr>
<td>Kelly Creek</td>
<td>TN06030003003_1000</td>
<td>26.1</td>
</tr>
<tr>
<td>Lees Creek</td>
<td>TN06030003010_0600</td>
<td>9.1</td>
</tr>
<tr>
<td>Little Hurricane Creek</td>
<td>TN06030003040_1000</td>
<td>5.0</td>
</tr>
<tr>
<td>Little Norris Creek</td>
<td>TN06030003059_0100</td>
<td>26</td>
</tr>
<tr>
<td>Molino Creek</td>
<td>TN06030003001_0400</td>
<td>9.3</td>
</tr>
<tr>
<td>Mud Creek</td>
<td>TN06030003043_1000</td>
<td>17.2</td>
</tr>
<tr>
<td>Mulberry Creek</td>
<td>TN06030003056_1000</td>
<td>2.0</td>
</tr>
<tr>
<td>Murrel Creek</td>
<td>TN06030003015_0400</td>
<td>7.2</td>
</tr>
<tr>
<td>Norris Creek</td>
<td>TN06030003059_1000</td>
<td>49.6</td>
</tr>
<tr>
<td>Norwood Creek</td>
<td>TN06030003030_0200</td>
<td>20.4</td>
</tr>
<tr>
<td>Poorhouse Creek</td>
<td>TN06030003053_0300</td>
<td>5.8</td>
</tr>
<tr>
<td>Robinson Creek</td>
<td>TN06030003010_0300</td>
<td>5.2</td>
</tr>
<tr>
<td>Rock Creek</td>
<td>TN06030003053_1000</td>
<td>7.0</td>
</tr>
<tr>
<td>Rose Creek</td>
<td>TN06030003043_0200</td>
<td>4.1</td>
</tr>
<tr>
<td>Shelton Creek</td>
<td>TN06030003010_0400</td>
<td>11.6</td>
</tr>
<tr>
<td>SEGMENT NAME</td>
<td>WATERBODY SEGMENT ID</td>
<td>SEGMENT SIZE (MILES)</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Short Creek</td>
<td>TN06030003001 0200</td>
<td>5.4</td>
</tr>
<tr>
<td>Short Creek</td>
<td>TN06030003015 0200</td>
<td>5.8</td>
</tr>
<tr>
<td>Sinking Creek</td>
<td>TN06030003001 0500</td>
<td>11.6</td>
</tr>
<tr>
<td>Spring Creek</td>
<td>TN06030003035 0100</td>
<td>16.9</td>
</tr>
<tr>
<td>Stephens Creek</td>
<td>TN06030003010 0100</td>
<td>11.0</td>
</tr>
<tr>
<td>Stewart Creek</td>
<td>TN06030003010 0700</td>
<td>9.6</td>
</tr>
<tr>
<td>Swan Creek</td>
<td>TN06030003063 1000</td>
<td>5.6</td>
</tr>
<tr>
<td>Taylor Creek</td>
<td>TN06030003432_1000</td>
<td>9.1</td>
</tr>
<tr>
<td>Trussel Creek</td>
<td>TN06030003044 0730</td>
<td>4.3</td>
</tr>
<tr>
<td>Tucker Creek</td>
<td>TN06030003010 0200</td>
<td>14.6</td>
</tr>
<tr>
<td>Turkey Creek</td>
<td>TN06030003076 1000</td>
<td>6.2</td>
</tr>
<tr>
<td>Wells Creek</td>
<td>TN060300030310 0800</td>
<td>3.1</td>
</tr>
</tbody>
</table>

*Table A3-1a. Streams Fully Supporting Designated Uses in Upper Elk River Watershed. Data are based on Year 2000 Water Quality Assessment.*

<table>
<thead>
<tr>
<th>SEGMENT NAME</th>
<th>WATERBODY SEGMENT ID</th>
<th>SEGMENT SIZE (MILES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Creek</td>
<td>TN06030003053 0100</td>
<td>10.9</td>
</tr>
<tr>
<td>Blue Spring Creek</td>
<td>TN06030003051 0200</td>
<td>13.0</td>
</tr>
<tr>
<td>Childer Creek</td>
<td>TN06030003085 1000</td>
<td>8.9</td>
</tr>
<tr>
<td>Dry Creek</td>
<td>TN06030003026_1000</td>
<td>21.1</td>
</tr>
<tr>
<td>East Fork Mulberry Creek</td>
<td>TN06030003056 0300</td>
<td>16.8</td>
</tr>
<tr>
<td>Elk River</td>
<td>TN06030003015 1000</td>
<td>15.4</td>
</tr>
<tr>
<td>Elk River</td>
<td>TN06030003035 1000</td>
<td>6.2</td>
</tr>
<tr>
<td>Robinson Creek</td>
<td>TN06030003012 0400</td>
<td>23.0</td>
</tr>
<tr>
<td>Swan Creek</td>
<td>TN06030003063 2000</td>
<td>9.9</td>
</tr>
<tr>
<td>Wagner Creek</td>
<td>TN06030003032 1000</td>
<td>18.8</td>
</tr>
</tbody>
</table>

*Table A3-1b. Streams Partially Supporting Designated Uses in Upper Elk River Watershed. Data are based on Year 2000 Water Quality Assessment.*

<table>
<thead>
<tr>
<th>SEGMENT NAME</th>
<th>WATERBODY SEGMENT ID</th>
<th>SEGMENT SIZE (MILES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Betsy Willis Creek</td>
<td>TN06030003044 0100</td>
<td>22.5</td>
</tr>
<tr>
<td>Cane Creek</td>
<td>TN06030003060 1000</td>
<td>44.5</td>
</tr>
<tr>
<td>Gum Creek</td>
<td>TN06030003552 1000</td>
<td>12.9</td>
</tr>
<tr>
<td>Hessey Branch</td>
<td>TN06030003567_1000</td>
<td>9.6</td>
</tr>
<tr>
<td>Patton Creek</td>
<td>TN06030003044_0200</td>
<td>4.2</td>
</tr>
<tr>
<td>Rock Creek</td>
<td>TN06030003053 2000</td>
<td>16.1</td>
</tr>
<tr>
<td>Rollins Creek</td>
<td>TN06030003435 1000</td>
<td>11.9</td>
</tr>
<tr>
<td>Yellow Branch</td>
<td>TN06030003041_0100</td>
<td>7.1</td>
</tr>
</tbody>
</table>

*Table A3-1c. Streams Not Supporting Designated Uses in Upper Elk River Watershed. Data are based on Year 2000 Water Quality Assessment.*
<table>
<thead>
<tr>
<th>SEGMENT NAME</th>
<th>WATERBODY SEGMENT ID</th>
<th>SEGMENT SIZE (MILES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bee Spring Branch</td>
<td>TN06030003065_0500</td>
<td>2.6</td>
</tr>
<tr>
<td>Bell Branch</td>
<td>TN06030003065_0400</td>
<td>3.4</td>
</tr>
<tr>
<td>Birdsong Branch</td>
<td>TN06030003065_0200</td>
<td>5.8</td>
</tr>
<tr>
<td>Brown Branch</td>
<td>TN06030003065_0100</td>
<td>3.8</td>
</tr>
<tr>
<td>Buchanon Creek</td>
<td>TN06030003060_0900</td>
<td>11.9</td>
</tr>
<tr>
<td>Chicken Creek</td>
<td>TN06030003064_0500</td>
<td>15.4</td>
</tr>
<tr>
<td>Corn Branch</td>
<td>TN06030003044_0620</td>
<td>5.3</td>
</tr>
<tr>
<td>Craighead Creek</td>
<td>TN06030003060_0200</td>
<td>13.7</td>
</tr>
<tr>
<td>Dry Creek</td>
<td>TN06030003044_0710</td>
<td>8.7</td>
</tr>
<tr>
<td>Dyer Branch</td>
<td>TN06030003063_0200</td>
<td>7.2</td>
</tr>
<tr>
<td>East Fork Bradshaw Creek</td>
<td>TN06030003064_0400</td>
<td>21</td>
</tr>
<tr>
<td>Elk River</td>
<td>TN06030003044_3000</td>
<td>10.1</td>
</tr>
<tr>
<td>Flatrock Branch</td>
<td>TN06030003044_0610</td>
<td>6.0</td>
</tr>
<tr>
<td>Gimlet Creek</td>
<td>TN060300030356_0110</td>
<td>10.3</td>
</tr>
<tr>
<td>Gingerbread Creek</td>
<td>TN06030003060_0800</td>
<td>6.7</td>
</tr>
<tr>
<td>Good Branch</td>
<td>TN06030003056_0420</td>
<td>5.5</td>
</tr>
<tr>
<td>Hannah Gap Branch</td>
<td>TN06030003060_0710</td>
<td>13</td>
</tr>
<tr>
<td>Hayes Branch</td>
<td>TN06030003060_0100</td>
<td>3.4</td>
</tr>
<tr>
<td>Indian Camp Creek</td>
<td>TN06030003044_0500</td>
<td>6.0</td>
</tr>
<tr>
<td>Keith Cove Creek</td>
<td>TN060300030330_0100</td>
<td>12.4</td>
</tr>
<tr>
<td>Leatherwood Creek</td>
<td>TN06030003064_0600</td>
<td>6.0</td>
</tr>
<tr>
<td>Little Bradshaw Creek</td>
<td>TN06030003064_0200</td>
<td>17.5</td>
</tr>
<tr>
<td>Little Cane Creek</td>
<td>TN06030003060_0700</td>
<td>15.9</td>
</tr>
<tr>
<td>Little Creek</td>
<td>TN06030003064_0100</td>
<td>6.6</td>
</tr>
<tr>
<td>Little Swan Creek</td>
<td>TN06030003063_0400</td>
<td>11.6</td>
</tr>
<tr>
<td>Louse Creek</td>
<td>TN06030003056_0330</td>
<td>2.7</td>
</tr>
<tr>
<td>McAfee Creek</td>
<td>TN06030003063_0100</td>
<td>10.0</td>
</tr>
<tr>
<td>Middle Cane Creek</td>
<td>TN06030003060_0500</td>
<td>7.6</td>
</tr>
<tr>
<td>Misc Tribs to Swan Creek</td>
<td>TN06030003063_0999</td>
<td>25.0</td>
</tr>
<tr>
<td>Misc. Tribs</td>
<td>TN060300030301_0999</td>
<td>64.2</td>
</tr>
<tr>
<td>Misc. Tribs</td>
<td>TN060300030315_0999</td>
<td>11.9</td>
</tr>
<tr>
<td>Misc. trib</td>
<td>TN060300030444_0999</td>
<td>29.1</td>
</tr>
<tr>
<td>Misc. trib to Beans Creek</td>
<td>TN06030003012_0999</td>
<td>26.3</td>
</tr>
<tr>
<td>Misc. Tribs to Woods Reservoir</td>
<td>TN06030003036T_1000</td>
<td>14.3</td>
</tr>
<tr>
<td>Misc. tribs.</td>
<td>TN06030003010_0999</td>
<td>31.2</td>
</tr>
<tr>
<td>Morton Branch</td>
<td>TN06030003063_0300</td>
<td>5.9</td>
</tr>
<tr>
<td>Negro Den Creek</td>
<td>TN06030003044_0410</td>
<td>9.3</td>
</tr>
<tr>
<td>Negro Den Creek</td>
<td>TN06030003044_0400</td>
<td>1.6</td>
</tr>
<tr>
<td>Pinnel Creek</td>
<td>TN06030003060_0100</td>
<td>11.3</td>
</tr>
<tr>
<td>Pitts Branch</td>
<td>TN06030003056_0320</td>
<td>4.1</td>
</tr>
<tr>
<td>Pleasant Valley Creek</td>
<td>TN06030003060_0300</td>
<td>23.5</td>
</tr>
<tr>
<td>Price Creek</td>
<td>TN06030003056_0310</td>
<td>7.0</td>
</tr>
<tr>
<td>Reeves Branch</td>
<td>TN06030003001_0100</td>
<td>4.1</td>
</tr>
<tr>
<td>Sally Creek</td>
<td>TN06030003044_0630</td>
<td>7.2</td>
</tr>
<tr>
<td>Saunders Creek</td>
<td>TN06030003060_0600</td>
<td>5.5</td>
</tr>
<tr>
<td>Snuff Branch</td>
<td>TN06030003065_0300</td>
<td>9.2</td>
</tr>
<tr>
<td>Stone Creek</td>
<td>TN06030003056_0410</td>
<td>11.5</td>
</tr>
<tr>
<td>Tims Ford Misc. Tribs</td>
<td>TN06030003016T_1000</td>
<td>30.1</td>
</tr>
</tbody>
</table>
**Table A3-1d. Streams Not Assessed in Upper Elk River Watershed.** Data are based on Year 2000 Water Quality Assessment.

<table>
<thead>
<tr>
<th>SEGMENT NAME</th>
<th>WATERBODY SEGMENT ID</th>
<th>SEGMENT SIZE (ACRES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wabash Creek</td>
<td>TN06030003056_0210</td>
<td>3.8</td>
</tr>
<tr>
<td>West Cane Creek</td>
<td>TN06030003060_0400</td>
<td>20.5</td>
</tr>
<tr>
<td>West Fork Bradshaw Creek</td>
<td>TN06030003064_0300</td>
<td>15.5</td>
</tr>
</tbody>
</table>

**Table A3-1e. Fully Supporting Lakes in Upper Elk River Watershed.** Data are based on Year 2000 Water Quality Assessment.

<table>
<thead>
<tr>
<th>SEGMENT NAME</th>
<th>WATERBODY SEGMENT ID</th>
<th>SEGMENT SIZE (ACRES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tims Ford Reservoir</td>
<td>TN06030003016_1000</td>
<td>10596</td>
</tr>
</tbody>
</table>

**Table A3-1f. Lakes Not Supporting Designated Uses in Upper Elk River Watershed.** Data are based on Year 2000 Water Quality Assessment.

<table>
<thead>
<tr>
<th>SEGMENT NAME</th>
<th>WATERBODY SEGMENT ID</th>
<th>SIZE (MILES)</th>
<th>SUPPORT DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Betsy Willis Creek</td>
<td>TN06030003044_0100</td>
<td>22.5</td>
<td>Not supporting</td>
</tr>
<tr>
<td>Blue Spring Creek</td>
<td>TN06030003051_0200</td>
<td>13.0</td>
<td>Partial</td>
</tr>
<tr>
<td>Gum Creek</td>
<td>TN06030003052_1000</td>
<td>12.9</td>
<td>Not supporting</td>
</tr>
<tr>
<td>Patton Creek</td>
<td>TN06030003044_0200</td>
<td>4.2</td>
<td>Not supporting</td>
</tr>
<tr>
<td>Wagner Creek</td>
<td>TN06030003032_1000</td>
<td>18.8</td>
<td>Partial</td>
</tr>
<tr>
<td>Yellow Branch</td>
<td>TN06030003041_0100</td>
<td>7.1</td>
<td>Not supporting</td>
</tr>
</tbody>
</table>

**Table A3-2a. Stream Impairment Due to Habitat Alterations in Upper Elk River Watershed.** Data are based on Year 2000 Water Quality Assessment.

<table>
<thead>
<tr>
<th>SEGMENT NAME</th>
<th>WATERBODY SEGMENT ID</th>
<th>SIZE (MILES)</th>
<th>SUPPORT DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Creek</td>
<td>TN06030003026_1000</td>
<td>21.1</td>
<td>Partial</td>
</tr>
<tr>
<td>East Fork Mulberry Creek</td>
<td>TN06030003056_0300</td>
<td>16.8</td>
<td>Partial</td>
</tr>
<tr>
<td>Elk River</td>
<td>TN06030003035_1000</td>
<td>6.2</td>
<td>Partial</td>
</tr>
<tr>
<td>Rock Creek</td>
<td>TN06030003053_2000</td>
<td>16.1</td>
<td>Not supporting</td>
</tr>
<tr>
<td>Swan Creek</td>
<td>TN06030003063_2000</td>
<td>9.9</td>
<td>Partial</td>
</tr>
</tbody>
</table>

**Table A3-2b. Stream Impairment Due to Organic Enrichment/Low Dissolved Oxygen Levels in Upper Elk River Watershed.** Data are based on Year 2000 Water Quality Assessment.
Table A3-2c. Stream Impairment Due to Pathogens in Upper Elk River Watershed. Data are based on Year 2000 Water Quality Assessment.

<table>
<thead>
<tr>
<th>SEGMENT NAME</th>
<th>WATERBODY SEGMENT ID</th>
<th>SIZE (MILES)</th>
<th>SUPPORT DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cane Creek</td>
<td>TN06030003060_1000</td>
<td>44.5</td>
<td>Not supporting</td>
</tr>
<tr>
<td>Swan Creek</td>
<td>TN06030003063_2000</td>
<td>9.9</td>
<td>Partial</td>
</tr>
</tbody>
</table>

Table A3-2d. Stream Impairment Due to Siltation in Upper Elk River Watershed. Data are based on Year 2000 Water Quality Assessment.

<table>
<thead>
<tr>
<th>SEGMENT NAME</th>
<th>WATERBODY SEGMENT ID</th>
<th>SIZE (MILES)</th>
<th>SUPPORT DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Betsy Willis Creek</td>
<td>TN06030003044_0100</td>
<td>22.5</td>
<td>Not supporting</td>
</tr>
<tr>
<td>Childer Creek</td>
<td>TN06030003085_1000</td>
<td>8.9</td>
<td>Partial</td>
</tr>
<tr>
<td>East Fork Mulberry Creek</td>
<td>TN06030003056_0300</td>
<td>16.8</td>
<td>Partial</td>
</tr>
<tr>
<td>Gum Creek</td>
<td>TN06030003552_1000</td>
<td>12.9</td>
<td>Not supporting</td>
</tr>
<tr>
<td>Hessey Branch</td>
<td>TN06030003567_1000</td>
<td>9.6</td>
<td>Not supporting</td>
</tr>
<tr>
<td>Patton Creek</td>
<td>TN06030003044_0200</td>
<td>4.2</td>
<td>Not supporting</td>
</tr>
<tr>
<td>Robinson Creek</td>
<td>TN06030003012_0400</td>
<td>23.0</td>
<td>Partial</td>
</tr>
<tr>
<td>Rock Creek</td>
<td>TN06030003053_2000</td>
<td>16.1</td>
<td>Not supporting</td>
</tr>
<tr>
<td>Yellow Branch</td>
<td>TN06030003041_0100</td>
<td>7.1</td>
<td>Not supporting</td>
</tr>
</tbody>
</table>
### APPENDIX IV

**LAND USE/LAND COVER** | **AREAS IN HUC-10 SUBWATERSHEDS (ACRES)** | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 |
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
Deciduous Forest |  |  |  |  |  |  |  |  |  |  |
Emergent Herbaceous Wetlands |  |  |  |  |  |  |  |  |  |  |
Evergreen Forest |  |  |  |  |  |  |  |  |  |  |
High Intensity: Commercial/Industrial/Transportation |  |  |  |  |  |  |  |  |  |  |
High Intensity: Residential |  |  |  |  |  |  |  |  |  |  |
Low Intensity: Residential |  |  |  |  |  |  |  |  |  |  |
Mixed Forest |  |  |  |  |  |  |  |  |  |  |
Open Water |  |  |  |  |  |  |  |  |  |  |
Other Grasses: Urban/Recreational |  |  |  |  |  |  |  |  |  |  |
Pasture/Hay |  |  |  |  |  |  |  |  |  |  |
Row Crops |  |  |  |  |  |  |  |  |  |  |
Transitional |  |  |  |  |  |  |  |  |  |  |
Woody Wetlands |  |  |  |  |  |  |  |  |  |  |
Quarries/Strip Mines |  |  |  |  |  |  |  |  |  |  |
**Total** |  |  |  |  |  |  |  |  |  |  |

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 |
--- | --- | --- | --- | --- | --- | --- | --- | --- |
58,740 | 107,565 | 107,546 | 67,495 | 114,874 | 55,221 | 63,780 | 67,650 | 178,460 |

**Table A4-1. Land Use Distribution in the Upper Elk River Watershed by HUC-10.** Data are from 1992 Multi-Resolution Land Characterization (MRLC) derived by applying a generalized Anderson Level II system to mosaics of Landsat thematic mapper images collected every five years.
<table>
<thead>
<tr>
<th>HYDROLOGIC SOIL GROUPS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GROUP A SOILS</strong> have low runoff potential and high infiltration rates even when wet. They consist chiefly of sand and gravel and are well to excessively drained.</td>
</tr>
<tr>
<td><strong>GROUP B SOILS</strong> have moderate infiltration rates when wet and consist chiefly of soils that are moderately deep to deep, moderately to well drained, and moderately coarse to coarse textures.</td>
</tr>
<tr>
<td><strong>GROUP C SOILS</strong> have low infiltration rates when wet and consist chiefly of soils having a layer that impedes downward movement of water with moderately fine to fine texture.</td>
</tr>
<tr>
<td><strong>GROUP D SOILS</strong> have high runoff potential, very low infiltration rates, and consist chiefly of clay soils.</td>
</tr>
</tbody>
</table>

*Table A4-2. Hydrologic Soil Groups in Tennessee as Described in WCS.*
<table>
<thead>
<tr>
<th>STATION</th>
<th>HUC-10</th>
<th>AGENCY</th>
<th>NAME</th>
<th>AREA (SQ MILES)</th>
<th>LOW FLOW (CFS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>03578000</td>
<td>0603000301</td>
<td>USGS</td>
<td>Elk River</td>
<td>65.6</td>
<td>1.36 1.50 1.12</td>
</tr>
<tr>
<td>03578500</td>
<td>0603000302</td>
<td>USGS</td>
<td>Bradley Creek</td>
<td>41.3</td>
<td>3.2  4.4  3.0</td>
</tr>
<tr>
<td>03579000</td>
<td>0603000302</td>
<td>USGS</td>
<td>Woods Reservoir</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03579100</td>
<td>0603000303</td>
<td>USGS</td>
<td>Elk River</td>
<td>275.0</td>
<td>19.3 21.5 17.9</td>
</tr>
<tr>
<td>03579500</td>
<td>0603000303</td>
<td>USGS</td>
<td>Elk River</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03579800</td>
<td>0603000304</td>
<td>USGS</td>
<td>Miller Creek</td>
<td>4.30</td>
<td>0</td>
</tr>
<tr>
<td>03579900</td>
<td>0603000304</td>
<td>USGS</td>
<td>Boiling Fork Creek</td>
<td>17.0</td>
<td>0.15 0.18 0.11</td>
</tr>
<tr>
<td>03582200</td>
<td>0603000305</td>
<td>USGS</td>
<td>Trib to Norris Creek</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03582205</td>
<td>0603000305</td>
<td>USGS</td>
<td>Norris Creek</td>
<td>15.1</td>
<td>0</td>
</tr>
<tr>
<td>351144086164401</td>
<td>0603000305</td>
<td>TVA</td>
<td>Tims Ford Dam Tailwater</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03580750</td>
<td>0603000305</td>
<td>USGS</td>
<td>Elk River</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03582300</td>
<td>0603000305</td>
<td>USGS</td>
<td>Norris Creek</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03582395</td>
<td>0603000305</td>
<td>USGS</td>
<td>Tanyard Branch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>350832086341001</td>
<td>0603000305</td>
<td>TVA</td>
<td>Elk River</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03582000</td>
<td>0603000305</td>
<td>USGS</td>
<td>Elk River</td>
<td>827.0</td>
<td>95.2 168 112</td>
</tr>
<tr>
<td>03580990</td>
<td>0603000307</td>
<td>USGS</td>
<td>Jack Daniel Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03581000</td>
<td>0603000307</td>
<td>USGS</td>
<td>East Fork Mulberry Creek</td>
<td>23.4</td>
<td>2.01 2.23 1.88</td>
</tr>
<tr>
<td>03581500</td>
<td>0603000307</td>
<td>USGS</td>
<td>West Fork Mulberry Creek</td>
<td>41.2</td>
<td>0</td>
</tr>
<tr>
<td>03582591</td>
<td>0603000308</td>
<td>USGS</td>
<td>Cane Creek</td>
<td>93.0</td>
<td>0</td>
</tr>
<tr>
<td>03582600</td>
<td>0603000308</td>
<td>USGS</td>
<td>Cane Creek</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03582646</td>
<td>0603000309</td>
<td>USGS</td>
<td>Swan Creek</td>
<td>22.5</td>
<td>0</td>
</tr>
<tr>
<td>03583000</td>
<td>0603000309</td>
<td>USGS</td>
<td>Bradshaw Creek</td>
<td>36.5</td>
<td>0 0 0</td>
</tr>
<tr>
<td>03583200</td>
<td>0603000309</td>
<td>USGS</td>
<td>Chicken Creek</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table A4-3. Historical Streamflow Data Summary Based on Mean Daily Flows in Upper Elk River Watershed. USGS, United States Geological Survey; TVA, Tennessee Valley Authority.*
<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SUBWATERSHED</th>
<th>01</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>07</th>
<th>08</th>
<th>09</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. coli</td>
<td>A, B</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fecal Coliform</td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fecal Streptococcus</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enterococcus</td>
<td>B</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Coliform</td>
<td>A, B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acidity</td>
<td></td>
<td>A, B</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alkalinity (Total)</td>
<td>C, D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOD&lt;sub&gt;5&lt;/sub&gt;</td>
<td></td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color (Apparent)</td>
<td>C</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color (True)</td>
<td>C</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conductivity (Field)</td>
<td>C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COD (Low)</td>
<td></td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DO</td>
<td></td>
<td>B</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow</td>
<td></td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardness (Total)</td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH (Field)</td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH (Lab)</td>
<td>C, D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residue (Dissolved)</td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residue (Setttable)</td>
<td>A, B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residue (Suspended)</td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residue (Total)</td>
<td>B, C, D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turbidity</td>
<td>A, B</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biorecon</td>
<td>A, B</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RBP III</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ag</td>
<td></td>
<td>C, D</td>
<td>~</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Al</td>
<td></td>
<td>A, B, C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ammonia N</td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As</td>
<td>A, B, C</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cd</td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cl&lt;sup&gt;-&lt;/sup&gt;</td>
<td></td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CN&lt;sup&gt;-&lt;/sup&gt;</td>
<td>A, B</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cr (Total)</td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cu</td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fe</td>
<td>A, B, C</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hg</td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mn</td>
<td>A, B, C</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N (Total Kjeldahl)</td>
<td>A, B</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ni</td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO&lt;sub&gt;2&lt;/sub&gt;</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO&lt;sub&gt;3&lt;/sub&gt;</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO&lt;sub&gt;2&lt;/sub&gt;+NO&lt;sub&gt;3&lt;/sub&gt;</td>
<td>A, B</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P (Total)</td>
<td>A, B</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pb</td>
<td>A, B, C, D</td>
<td>K</td>
<td>◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Se</td>
<td>A, B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parameter</td>
<td>Codes</td>
<td>Symbol</td>
<td>Notes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>----------------------------</td>
<td>--------</td>
<td>-------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SO$_4$</td>
<td>K ◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOC</td>
<td>A, B K ◊</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TON</td>
<td>B K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zn</td>
<td>A, B, C, D K ◊ ~ ▼, ↔</td>
<td></td>
<td>K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table A4-4a. Water Quality Parameters Monitored in the Upper Elk River Watershed. Codes are described in Table A4-4b.*
<table>
<thead>
<tr>
<th>CODE</th>
<th>STATION</th>
<th>ALIAS</th>
<th>AGENCY</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>GILL001.4GY</td>
<td>TDEC</td>
<td>Gilliam Creek @RM 1.4</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>GILL001.7GY</td>
<td>TDEC</td>
<td>Gilliam Creek @ RM 1.7</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>GILLAMTRIB@1.5</td>
<td>TDEC</td>
<td>Unnamed Trib to Gilliam Creek @ RM 1.5</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>TRUSSELTRIB@1.1</td>
<td>TDEC</td>
<td>Unnamed Trib to Trussel Creek @ RM 1.1</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>BRADL000.0CE</td>
<td>TISSUE23</td>
<td>TDEC</td>
<td>Bradley Creek @ RM 0.0</td>
</tr>
<tr>
<td>F</td>
<td>BRUMA000.0FR</td>
<td>TISSUE24</td>
<td>TDEC</td>
<td>Brumalow Creek @ RM 0.0</td>
</tr>
<tr>
<td>G</td>
<td>ROLL000.0FR</td>
<td>TISSUE25</td>
<td>TDEC</td>
<td>Rollins Creek @ RM 0.0</td>
</tr>
<tr>
<td>H</td>
<td>WOODSRES01</td>
<td>TDEC</td>
<td>Woods Reservoir</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>WOODSRES02</td>
<td>TDEC</td>
<td>Woods Reservoir</td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>WOODSRES03</td>
<td>TDEC</td>
<td>Woods Reservoir</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>ECO68C13</td>
<td>TDEC</td>
<td>Mud Creek @ RM 5.6</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>ROCK010.0FR</td>
<td>TDEC</td>
<td>Rock Creek @ RM 10.1</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>ROCK010.2BE</td>
<td>ROCKCREEKIS04</td>
<td>TDEC</td>
<td>Rock Creek @ RM 10.2</td>
</tr>
<tr>
<td>N</td>
<td>ROCK010.3FR</td>
<td>ROCKCREEKIS20</td>
<td>TDEC</td>
<td>Rock Creek @ RM 10.3</td>
</tr>
<tr>
<td>O</td>
<td>ROCK010.4FR</td>
<td>002280</td>
<td>TDEC</td>
<td>Rock Creek @ RM 10.4</td>
</tr>
<tr>
<td>P</td>
<td>ROCK010.5CE</td>
<td>ROCKCREEKIS27</td>
<td>TDEC</td>
<td>Rock Creek @ RM 10.5</td>
</tr>
<tr>
<td>Q</td>
<td>ROCK010.6FR</td>
<td>ROCKCREEKIS21</td>
<td>TDEC</td>
<td>Rock Creek @ RM 10.6</td>
</tr>
<tr>
<td>R</td>
<td>ROCK010.75FR</td>
<td>002270</td>
<td>TDEC</td>
<td>Rock Creek @ RM 10.75</td>
</tr>
<tr>
<td>S</td>
<td>ROCK010.85FR</td>
<td>002260</td>
<td>TDEC</td>
<td>Rock Creek @ RM 10.85</td>
</tr>
<tr>
<td>T</td>
<td>ROCK010.8BE</td>
<td>03</td>
<td>TDEC</td>
<td>Rock Creek @ RM 10.8</td>
</tr>
<tr>
<td>U</td>
<td>ROCK011.3BE</td>
<td>01</td>
<td>TDEC</td>
<td>Rock Creek @ RM 11.3</td>
</tr>
<tr>
<td>V</td>
<td>ROCK011.5FR</td>
<td>002250</td>
<td>TDEC</td>
<td>Rock Creek @ RM 11.5</td>
</tr>
<tr>
<td>W</td>
<td>ROCK011.8CE</td>
<td>ROCKCREEKIS23</td>
<td>TDEC</td>
<td>Rock Creek @ RM 11.8</td>
</tr>
<tr>
<td>X</td>
<td>ROCK012.0CE</td>
<td>ROCKCREEKIS24</td>
<td>TDEC</td>
<td>Rock Creek @ RM 12.0</td>
</tr>
<tr>
<td>Y</td>
<td>ROCK012.8CE</td>
<td>ROCKCREEKIS25</td>
<td>TDEC</td>
<td>Rock Creek @ RM 12.8</td>
</tr>
<tr>
<td>Z</td>
<td>ROCK012.9CE</td>
<td>ROCKCREEKIS26</td>
<td>TDEC</td>
<td>Rock Creek @ RM 12.9</td>
</tr>
<tr>
<td>$</td>
<td>ELK169.9FR</td>
<td>TISSUE26</td>
<td>TDEC</td>
<td>Elk River @ RM 169.9</td>
</tr>
<tr>
<td>α</td>
<td>POORH000.1FR</td>
<td>002170</td>
<td>TDEC</td>
<td>Poorhouse Creek @ RM 0.1</td>
</tr>
<tr>
<td>β</td>
<td>ROCK003.4FR</td>
<td>002360</td>
<td>TDEC</td>
<td>Rock Creek @ RM 3.4</td>
</tr>
<tr>
<td>γ</td>
<td>ROCK003.5FR</td>
<td>ROCKCREEKIS15</td>
<td>TDEC</td>
<td>Rock Creek @ RM 3.5</td>
</tr>
<tr>
<td>δ</td>
<td>ROCK005.2FR</td>
<td>002350</td>
<td>TDEC</td>
<td>Rock Creek @ RM 5.2</td>
</tr>
<tr>
<td>λ</td>
<td>ROCK005.7FR</td>
<td>ROCKCREEKIS14</td>
<td>TDEC</td>
<td>Rock Creek @ RM 5.7</td>
</tr>
<tr>
<td>π</td>
<td>ROCK006.6FR</td>
<td>ROCKCREEKIS13</td>
<td>TDEC</td>
<td>Rock Creek @ RM 6.6</td>
</tr>
<tr>
<td>ψ</td>
<td>ROCK006.8FR</td>
<td>002340</td>
<td>TDEC</td>
<td>Rock Creek @ RM 6.8</td>
</tr>
<tr>
<td>♈</td>
<td>ROCK006.9FR</td>
<td>ROCKCREEKIS12</td>
<td>TDEC</td>
<td>Rock Creek @ RM 6.9</td>
</tr>
<tr>
<td>▲</td>
<td>ROCK007.2FR</td>
<td>ROCKCREEKIS11</td>
<td>TDEC</td>
<td>Rock Creek @ RM 7.2</td>
</tr>
<tr>
<td>♦</td>
<td>ROCK007.7FR</td>
<td>002330</td>
<td>TDEC</td>
<td>Rock Creek @ RM 7.7</td>
</tr>
<tr>
<td>♣</td>
<td>ROCK007.9FR</td>
<td>002320</td>
<td>TDEC</td>
<td>Rock Creek @ RM 7.9</td>
</tr>
<tr>
<td>♥</td>
<td>ROCK008.1FR</td>
<td>ROCKCREEKIS10</td>
<td>TDEC</td>
<td>Rock Creek @ RM 8.1</td>
</tr>
<tr>
<td>♦</td>
<td>ROCK008.2FR</td>
<td>ROCKCREEKIS18</td>
<td>TDEC</td>
<td>Rock Creek @ RM 8.2</td>
</tr>
<tr>
<td>♀</td>
<td>ROCK008.4FR</td>
<td>ROCKCREEKIS09</td>
<td>TDEC</td>
<td>Rock Creek @ RM 8.4</td>
</tr>
<tr>
<td>Ω</td>
<td>ROCK008.6FR</td>
<td>ROCKCREEKIS08</td>
<td>TDEC</td>
<td>Rock Creek @ RM 8.6</td>
</tr>
<tr>
<td>Λ</td>
<td>ROCK009.1BE</td>
<td>ROCKCREEKIS07</td>
<td>TDEC</td>
<td>Rock Creek @ RM 9.1</td>
</tr>
<tr>
<td>∨</td>
<td>ROCK009.2CE</td>
<td>02310</td>
<td>TDEC</td>
<td>Rock Creek @ RM 9.2</td>
</tr>
<tr>
<td>¥</td>
<td>ROCK009.3FR</td>
<td>ROCKCREEKIS19</td>
<td>TDEC</td>
<td>Rock Creek @ RM 9.3</td>
</tr>
<tr>
<td>₤</td>
<td>ROCK009.8BE</td>
<td>ROCKCREEKIS06</td>
<td>TDEC</td>
<td>Rock Creek @ RM 9.8</td>
</tr>
<tr>
<td>@</td>
<td>ROCK010.05FR</td>
<td>002300</td>
<td>TDEC</td>
<td>Rock Creek @ RM 10.05</td>
</tr>
<tr>
<td>&amp;</td>
<td>ROCK010.0BE</td>
<td>ROCKCREEKIS05</td>
<td>TDEC</td>
<td>Rock Creek @ RM 10.0</td>
</tr>
<tr>
<td>Station Code</td>
<td>Agency</td>
<td>Station Name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>--------</td>
<td>----------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03579620</td>
<td>USGS</td>
<td>Rock Creek @ Tullahoma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03580681</td>
<td>USGS</td>
<td>Hurricane Creek @ Motlow State CC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03580684</td>
<td>USGS</td>
<td>Hurricane Creek below Motlow state CC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03580688</td>
<td>USGS</td>
<td>Hurricane Creek near Raysville</td>
<td></td>
<td></td>
</tr>
<tr>
<td>475768</td>
<td>TVA</td>
<td>Tims Ford Reservoir</td>
<td></td>
<td></td>
</tr>
<tr>
<td>477072</td>
<td>TVA</td>
<td>Tims Ford Reservoir</td>
<td></td>
<td></td>
</tr>
<tr>
<td>477415</td>
<td>TVA</td>
<td>Tims Ford Reservoir @ Estill Springs Park</td>
<td></td>
<td></td>
</tr>
<tr>
<td>477635</td>
<td>TVA</td>
<td>Tims Ford Reservoir</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECO71G10</td>
<td>TDEC</td>
<td>Hurricane Creek @ RM 9.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROCK011.0</td>
<td>TDEC</td>
<td>Rock Creek @ RM 11.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WAGNE001.6FR</td>
<td>TDEC</td>
<td>Wagner Creek @ RM 1.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WAGNE002.7FR</td>
<td>TDEC</td>
<td>Wagner Creek @ RM 2.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>477416</td>
<td>TVA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOILINGFK013.6</td>
<td>TDEC</td>
<td>Boiling Fork Creek @ RM 13.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WAGNER002.5</td>
<td>TDEC</td>
<td>Wagner Creek @ RM 2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COFFEE001.1MR</td>
<td>TDEC</td>
<td>Coffee Creek @ RM 1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>475050</td>
<td>TVA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>475623</td>
<td>TVA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>475687</td>
<td>TVA</td>
<td>Tims Ford Dam Scrollcase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>475687C</td>
<td>TVA</td>
<td>Tims Ford Dam Taildeck (Continuous)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>476831</td>
<td>TVA</td>
<td>Tims Ford Tailrace</td>
<td></td>
<td></td>
</tr>
<tr>
<td>476831C</td>
<td>TVA</td>
<td>Tims Ford Wet Well (Continuous)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>477619</td>
<td>TVA</td>
<td>Unnamed Trib to Tims Ford Tailrace</td>
<td></td>
<td></td>
</tr>
<tr>
<td>477651</td>
<td>TVA</td>
<td>Tims Ford Dam Forebay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELK133.0FR</td>
<td>TDEC</td>
<td>Elk River below Tims Ford Dam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELK093.9</td>
<td>TDEC</td>
<td>Elk River @ RM 93.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EFMUL006.3MR</td>
<td>TDEC</td>
<td>East Fork Mulberry Creek @ RM 6.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EFMUL014.3MR</td>
<td>TDEC</td>
<td>East Fork Mulberry Creek @ RM 14.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WFMUL001.9LI</td>
<td>TDEC</td>
<td>West Fork Mulberry Creek @ RM 1.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WFMUL008.6MR</td>
<td>TDEC</td>
<td>West Fork Mulberry Creek @ RM 8.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03580995</td>
<td>USGS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EFKMULBERY11.1</td>
<td>TDEC</td>
<td>East Fork Mulberry Creek @ RM 11.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUSHM002.2RU</td>
<td>TDEC</td>
<td>Bushman Creek @ RM 2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWAN008.1LI</td>
<td>TDEC</td>
<td>Swan Creek @ RM 8.1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table A4-4b. Water Quality Monitoring Stations in the Upper Elk River Watershed.** TDEC, Tennessee Department of Environment and Conservation; USGS, United States Geologic Survey; TVA, Tennessee Valley Authority; NPS, National Park Service.
<table>
<thead>
<tr>
<th>FACILITY NUMBER</th>
<th>FACILITY NAME</th>
<th>SIC</th>
<th>SIC NAME</th>
<th>MADI</th>
<th>WATERBODY</th>
<th>HUC-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN0021806</td>
<td>Monteagle STP #1</td>
<td>4952</td>
<td>Sewerage System</td>
<td>Minor</td>
<td>Unnamed Trib @ RM 1.3 to Gilliam Creek</td>
<td>0603000301</td>
</tr>
<tr>
<td>TN0064815</td>
<td>Monteagle STP #2</td>
<td>4952</td>
<td>Sewerage System</td>
<td>Minor</td>
<td>Unnamed Trib @ RM 1.0 to Trussel Creek</td>
<td>0603000301</td>
</tr>
<tr>
<td>TN0003751</td>
<td>Arnold Engineering Development Center</td>
<td>9711</td>
<td>National Security</td>
<td>Major</td>
<td>Unnamed Tribs to Rowland, Bradley, Spring, and Brumalow, Creeks, and to Woods Reservoir</td>
<td>0603000302</td>
</tr>
<tr>
<td>TN0067202</td>
<td>UT Space Institute</td>
<td>4952</td>
<td>Sewerage System</td>
<td>Minor</td>
<td>Rollins Creek Embayment of Woods Reservoir</td>
<td>0603000302</td>
</tr>
<tr>
<td>TN0056430</td>
<td>UT Space Institute</td>
<td>8221</td>
<td>Colleges and Universities</td>
<td>Minor</td>
<td>Rollins Creek @ RM 1.1</td>
<td>0603000302</td>
</tr>
<tr>
<td>TN0021857</td>
<td>Winchester STP</td>
<td>4952</td>
<td>Sewerage System</td>
<td>Major</td>
<td>Elk River @ RM 153.8</td>
<td>0603000303</td>
</tr>
<tr>
<td>TN0023469</td>
<td>Tullahoma STP</td>
<td>4952</td>
<td>Sewerage System</td>
<td>Major</td>
<td>Rock Creek @ RM 11.0</td>
<td>0603000303</td>
</tr>
<tr>
<td>TN0027766</td>
<td>Tims Ford STP</td>
<td>4952</td>
<td>Sewerage System</td>
<td>Minor</td>
<td>Elk River @ RM 136.2</td>
<td>0603000303</td>
</tr>
<tr>
<td>TN0020508</td>
<td>Decherd STP</td>
<td>4952</td>
<td>Sewerage System</td>
<td>Minor</td>
<td>Wagner Creek @ RM 2.4</td>
<td>0603000304</td>
</tr>
<tr>
<td>TN0021644</td>
<td>Cowan STP</td>
<td>4952</td>
<td>Sewerage System</td>
<td>Minor</td>
<td>Boiling Fork Creek @ RM 13.4</td>
<td>0603000304</td>
</tr>
<tr>
<td>TN0021814</td>
<td>Fayetteville STP</td>
<td>4952</td>
<td>Sewerage System</td>
<td>Major</td>
<td>Elk River @ RM 90.0</td>
<td>0603000305</td>
</tr>
<tr>
<td>TN0005037</td>
<td>TN Game and Fish @ Flintville</td>
<td>0921</td>
<td>Fish Hatcheries</td>
<td>Minor</td>
<td>Shelton Branch @ RM 4.0</td>
<td>0603000305</td>
</tr>
<tr>
<td>TN0027537</td>
<td>Tims Ford Hydro Plant (TVA)</td>
<td>4911</td>
<td>Hydroelectric Power Generation</td>
<td>Minor</td>
<td>Elk River @ RM 133.3</td>
<td>0603000305</td>
</tr>
<tr>
<td>TN0001953</td>
<td>Jack Daniel Distillery</td>
<td>2085</td>
<td>Distilled and Blended Liquors</td>
<td>Minor</td>
<td>East Fork Mulberry Creek @ RM 12.9 and RM 13.3</td>
<td>0603000307</td>
</tr>
<tr>
<td>TN0025101</td>
<td>Lynchburg STP</td>
<td>4952</td>
<td>Sewerage System</td>
<td>Minor</td>
<td>East Fork Mulberry Creek @ RM 11.1</td>
<td>0603000307</td>
</tr>
<tr>
<td>TN0076007</td>
<td>Elkton STP</td>
<td>8211</td>
<td>Elementary and Secondary Schools</td>
<td>Minor</td>
<td>Elk River @ RM 49.2</td>
<td>0603000309</td>
</tr>
<tr>
<td>TN0065498</td>
<td>Unity Junior HS</td>
<td>4952</td>
<td>Sewerage System</td>
<td>Minor</td>
<td>Morton Branch @ RM 1.0</td>
<td>0603000309</td>
</tr>
<tr>
<td>TN0074331</td>
<td>I-65 Welcome Center</td>
<td>4952</td>
<td>Sewerage System</td>
<td>Minor</td>
<td>Elk River @ RM 49.2</td>
<td>0603000309</td>
</tr>
</tbody>
</table>

Table A4-5. Active Permitted Point Source Facilities in the Upper Elk River Watershed. SIC, Standard Industrial Classification; MADI, Major Discharge Indicator.
<table>
<thead>
<tr>
<th>FACILITY NUMBER</th>
<th>PERMITTEE</th>
<th>SIC</th>
<th>SIC NAME</th>
<th>WATERBODY</th>
<th>HUC-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>TN0066541</td>
<td>Rogers Group</td>
<td>1422</td>
<td>Crushed and Broken Limestone</td>
<td>Unnamed Trib to Jay Creek</td>
<td>0603000301</td>
</tr>
<tr>
<td>TN0066028</td>
<td>Coffee County Hwy Dept</td>
<td>1422</td>
<td>Crushed and Broken Limestone</td>
<td>Unnamed Trib to Betsy Willis Creek</td>
<td>0603000302</td>
</tr>
<tr>
<td>TN0071781</td>
<td>Cumberland Mtn Sand Co.</td>
<td>1442</td>
<td>Construction Sand and Gravel</td>
<td>Unnamed Trib to Betsy Willis Ck</td>
<td>0603000302</td>
</tr>
<tr>
<td>TN0065986</td>
<td>Rogers Group</td>
<td>1422</td>
<td>Crushed and Broken Limestone</td>
<td>Unnamed Trib to Beans Creek</td>
<td>0603000302</td>
</tr>
<tr>
<td>TN0068951</td>
<td>Franklin County Hwy Dept</td>
<td>1422</td>
<td>Crushed and Broken Limestone</td>
<td>Hessey Branch</td>
<td>0603000303</td>
</tr>
<tr>
<td>TN0066311</td>
<td>Rogers Group</td>
<td>1422</td>
<td>Crushed and Broken Limestone</td>
<td>Unnamed Trib to Boiling Fork Ck</td>
<td>0603000304</td>
</tr>
<tr>
<td>TN0070874</td>
<td>Rogers Group</td>
<td>1422</td>
<td>Crushed and Broken Limestone</td>
<td>Norris Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>TN0076171</td>
<td>HMA Contractors</td>
<td>1422</td>
<td>Crushed and Broken Limestone</td>
<td>Unnamed Trib To Elk River</td>
<td>0603000305</td>
</tr>
<tr>
<td>TN0066273</td>
<td>Rogers Group</td>
<td>1422</td>
<td>Crushed and Broken Limestone</td>
<td>Unnamed Trib to Price Branch</td>
<td>0603000307</td>
</tr>
<tr>
<td>TN0070815</td>
<td>Burgreen Contracting Co.</td>
<td>1422</td>
<td>Crushed and Broken Limestone</td>
<td>Elk River</td>
<td>0603000309</td>
</tr>
<tr>
<td>TN0066176</td>
<td>Lincoln County Hwy Dept</td>
<td>1422</td>
<td>Crushed and Broken Limestone</td>
<td>Unnamed Trib to Elk River</td>
<td>0603000309</td>
</tr>
</tbody>
</table>

Table A4-6. Active Permitted Mining Sites in the Upper Elk River Watershed. SIC, Standard Industrial Classification.
<table>
<thead>
<tr>
<th>FACILITY NUMBER</th>
<th>FACILITY NAME</th>
<th>SECTOR</th>
<th>RECEIVING STREAM</th>
<th>AREA*</th>
<th>HUC-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNR053487</td>
<td>Arnold Engineering Development Center</td>
<td>AA</td>
<td>Unnamed Trib to Brumalow Creek</td>
<td>0.9</td>
<td>0603000302</td>
</tr>
<tr>
<td>TNR054377</td>
<td>C.D. Dalton Lumber Company</td>
<td>A</td>
<td>Rock Creek</td>
<td>30.7</td>
<td>0603000302</td>
</tr>
<tr>
<td>TNR050176</td>
<td>Tyson Foods, Incorporated</td>
<td>U, P</td>
<td>Taylor Creek to Tims Ford lake</td>
<td>36.0</td>
<td>0603000303</td>
</tr>
<tr>
<td>TNR050415</td>
<td>Universal Technologies, Inc.</td>
<td>AA</td>
<td>Tims Ford lake</td>
<td>2.7</td>
<td>0603000303</td>
</tr>
<tr>
<td>TNR050989</td>
<td>Wilson Sporting Goods Co.</td>
<td>Y</td>
<td>Rock Creek</td>
<td>3.6</td>
<td>0603000303</td>
</tr>
<tr>
<td>TNR051205</td>
<td>Schmiede Corporation</td>
<td>AB</td>
<td>Norman Creek</td>
<td>80.0</td>
<td>0603000303</td>
</tr>
<tr>
<td>TNR051840</td>
<td>Lannom Tannery Landfill</td>
<td>Z</td>
<td>Dry Creek</td>
<td>8.5</td>
<td>0603000303</td>
</tr>
<tr>
<td>TNR053290</td>
<td>Tullahoma Regional Airport</td>
<td>S</td>
<td>NF and SF Rock Creek</td>
<td>5.0</td>
<td>0603000303</td>
</tr>
<tr>
<td>TNR053596</td>
<td>Deutch</td>
<td>AC</td>
<td>Harton Creek</td>
<td>11.0</td>
<td>0603000303</td>
</tr>
<tr>
<td>TNR053599</td>
<td>Tennessee Tanning Company</td>
<td>Z</td>
<td>Tullahoma MS4</td>
<td>4.0</td>
<td>0603000303</td>
</tr>
<tr>
<td>TNR053613</td>
<td>Baseball Factory</td>
<td>Y, V</td>
<td>Norman Creek, NF Rock Creek</td>
<td>10.7</td>
<td>0603000303</td>
</tr>
<tr>
<td>TNR053614</td>
<td>Worth Bat Company</td>
<td>Y</td>
<td>Rock Creek</td>
<td>16.0</td>
<td>0603000303</td>
</tr>
<tr>
<td>TNR053640</td>
<td>Lannom Tannery Hide House</td>
<td>Z</td>
<td>Dry Creek</td>
<td>3.3</td>
<td>0603000303</td>
</tr>
<tr>
<td>TNR053683</td>
<td>Rock-Tenn Company</td>
<td>B</td>
<td>Tullahoma MS4</td>
<td>2.7</td>
<td>0603000303</td>
</tr>
<tr>
<td>TNR050264</td>
<td>Columbian TecTank</td>
<td>AA</td>
<td>Unnamed Trib to Tims Ford lake</td>
<td>3.0</td>
<td>0603000303</td>
</tr>
<tr>
<td>TNR050619</td>
<td>Winchester Radiator</td>
<td>M</td>
<td>Boiling Fork Creek</td>
<td>7.5</td>
<td>0603000304</td>
</tr>
<tr>
<td>TNR051438</td>
<td>Del-Met TN, Incorporated</td>
<td>Y</td>
<td>Wagner Creek</td>
<td>9.1</td>
<td>0603000304</td>
</tr>
<tr>
<td>TNR052092</td>
<td>Tepro, Incorporated</td>
<td>Y</td>
<td>Boiling Fork Creek</td>
<td>7.0</td>
<td>0603000304</td>
</tr>
<tr>
<td>TNR053297</td>
<td>Shaw Industries, Incorporated</td>
<td>V</td>
<td>None (Wooded Property)</td>
<td>86.1</td>
<td>0603000304</td>
</tr>
<tr>
<td>TNR053312</td>
<td>Winchester Municipal Airport</td>
<td>S</td>
<td>Boiling Fork Creek</td>
<td>135.0</td>
<td>0603000304</td>
</tr>
<tr>
<td>TNR053453</td>
<td>Nissan Powertrain Assembly</td>
<td>AB</td>
<td>Sinkholes</td>
<td>35.0</td>
<td>0603000304</td>
</tr>
<tr>
<td>TNR054324</td>
<td>Diversatech Plastics</td>
<td>Y</td>
<td>Boiling Fork Creek</td>
<td>9.2</td>
<td>0603000304</td>
</tr>
<tr>
<td>TNR050123</td>
<td>Small &amp; Small Oil Company</td>
<td>P</td>
<td>Norris Creek</td>
<td>0.4</td>
<td>0603000305</td>
</tr>
<tr>
<td>TNR050525</td>
<td>Frito-Lay, Incorporated</td>
<td>U</td>
<td>Unnamed Trib to Elk River</td>
<td>777.0</td>
<td>0603000305</td>
</tr>
<tr>
<td>TNR050634</td>
<td>Stovall Body Shop</td>
<td>M</td>
<td>Unnamed Trib to Elk River</td>
<td>6.0</td>
<td>0603000305</td>
</tr>
<tr>
<td>TNR051007</td>
<td>Goodman Company</td>
<td>AB</td>
<td>Unnamed Trib to Elk River</td>
<td>52.0</td>
<td>0603000305</td>
</tr>
<tr>
<td>TNR054051</td>
<td>VAW of America, Incorporated</td>
<td>AA</td>
<td>Elk River Chenault Ford Creek</td>
<td>30.0</td>
<td>0603000305</td>
</tr>
<tr>
<td>TNR054289</td>
<td>WW Iron Works, Incorporated</td>
<td>AA</td>
<td>Unnamed Trib to Elk River</td>
<td>2.0</td>
<td>0603000305</td>
</tr>
<tr>
<td>TNR055027</td>
<td>Caldwell Chemical Coatings</td>
<td>C</td>
<td>Unnamed Trib to Elk River</td>
<td>5.0</td>
<td>0603000305</td>
</tr>
<tr>
<td>TNR054536</td>
<td>Thompson Appalachian Hardwoods</td>
<td>A</td>
<td>Mathis Creek</td>
<td>17.0</td>
<td>0603000306</td>
</tr>
<tr>
<td>TNR054588</td>
<td>Elora Pallet Shop</td>
<td>A</td>
<td>Persimmon Creek</td>
<td>1.0</td>
<td>0603000306</td>
</tr>
<tr>
<td>TNR050887</td>
<td>Jack Daniels Distillery</td>
<td>L, A, P</td>
<td>EF Mulberry Creek Unnamed Trib to EF Mulberry Creek</td>
<td>243.4</td>
<td>0603000307</td>
</tr>
<tr>
<td>Permit Number</td>
<td>Facility Name</td>
<td>Sector</td>
<td>Trib to Creek/Stream</td>
<td>Area (acres)</td>
<td>Waterbody ID</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------</td>
<td>--------</td>
<td>----------------------</td>
<td>--------------</td>
<td>--------------</td>
</tr>
<tr>
<td>TNR053035</td>
<td>Lincoln Road Builders, Inc.</td>
<td>D</td>
<td>Unnamed Trib to Price Branch</td>
<td>0.5</td>
<td>0603000307</td>
</tr>
<tr>
<td>TNR050143</td>
<td>Bradford Auto Salvage</td>
<td>M</td>
<td></td>
<td>3.0</td>
<td>0603000308</td>
</tr>
<tr>
<td>TNR050149</td>
<td>Melvin’s Truck Center</td>
<td>M, N, P</td>
<td>Cold Water Creek</td>
<td>12.0</td>
<td>0603000308</td>
</tr>
<tr>
<td>TNR051165</td>
<td>Creson Body Shop</td>
<td>M</td>
<td>Unnamed Trib to Craighead Creek</td>
<td>12.0</td>
<td>0603000308</td>
</tr>
<tr>
<td>TNR051173</td>
<td>Honea’s Garage</td>
<td>M, P</td>
<td>Cold Water Creek</td>
<td>14.0</td>
<td>0603000308</td>
</tr>
<tr>
<td>TNR051481</td>
<td>The Car Shoppe</td>
<td>M</td>
<td>Walker Creek</td>
<td>25.0</td>
<td>0603000308</td>
</tr>
<tr>
<td>TNR051950</td>
<td>Fayetteville Hot Mix Plant</td>
<td>D</td>
<td>Cane Creek</td>
<td>12.0</td>
<td>0603000308</td>
</tr>
<tr>
<td>TNR054309</td>
<td>Summa Technology, Inc.</td>
<td>AB, AA</td>
<td>Buchanan Creek</td>
<td>8.5</td>
<td>0603000308</td>
</tr>
</tbody>
</table>

Table A4-7: Active Permitted TMSP Facilities in the Upper Elk River Watershed. Area, acres of property associated with industrial activity. Sector details may be found in Table A4-8.
<table>
<thead>
<tr>
<th>SECTOR</th>
<th>TMSP SECTOR NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Timber Products Facilities</td>
</tr>
<tr>
<td>AA</td>
<td>Facilities That Manufacture Metal Products including Jewelry, Silverware and Plated Ware</td>
</tr>
<tr>
<td>AB</td>
<td>Facilities That Manufacture Transportation Equipment, Industrial or Commercial Machinery</td>
</tr>
<tr>
<td>AC</td>
<td>Facilities That Manufacture Electronic and Electrical Equipment and Components, Photographic and Optical Goods</td>
</tr>
<tr>
<td>AD</td>
<td>Facilities That Are Not Covered Under Sectors A Thru AC (Monitoring Required)</td>
</tr>
<tr>
<td>AE</td>
<td>Facilities That Are Not Covered Under Sectors A Thru AC (Monitoring Not Required)</td>
</tr>
<tr>
<td>B</td>
<td>Paper and Allied Products Manufacturing Facilities</td>
</tr>
<tr>
<td>C</td>
<td>Chemical and Allied Products Manufacturing Facilities</td>
</tr>
<tr>
<td>D</td>
<td>Asphalt Paving, Roofing Materials, and Lubricant Manufacturing Facilities</td>
</tr>
<tr>
<td>E</td>
<td>Glass, Clay, Cement, Concrete, and Gypsum Product Manufacturing Facilities</td>
</tr>
<tr>
<td>F</td>
<td>Primary Metals Facilities</td>
</tr>
<tr>
<td>G</td>
<td>Metal Mines (Ore Mining and Dressing) (RESERVED)</td>
</tr>
<tr>
<td>H</td>
<td>Inactive Coal Mines and Inactive Coal Mining-Related Facilities</td>
</tr>
<tr>
<td>I</td>
<td>Oil or Gas Extraction Facilities</td>
</tr>
<tr>
<td>J</td>
<td>Construction Sand and Gravel Mining and Processing and Dimension Stone Mining and Quarrying Facilities</td>
</tr>
<tr>
<td>K</td>
<td>Hazardous Waste Treatment Storage or Disposal Facilities</td>
</tr>
<tr>
<td>L</td>
<td>Landfills and Land Application Sites</td>
</tr>
<tr>
<td>M</td>
<td>Automobile Salvage Yards</td>
</tr>
<tr>
<td>N</td>
<td>Scrap Recycling and Waste and Recycling Facilities</td>
</tr>
<tr>
<td>O</td>
<td>Steam Electric Power Generating Facilities</td>
</tr>
<tr>
<td>P</td>
<td>Vehicle Maintenance or Equipment Cleaning areas at Motor Freight Transportation Facilities, Passenger Transportation Facilities, Petroleum Bulk Oil Stations and Terminals, the United States Postal Service, or Railroad Transportation Facilities</td>
</tr>
<tr>
<td>Q</td>
<td>Vehicle Maintenance Areas and Equipment Cleaning Areas of Water Transportation Facilities</td>
</tr>
<tr>
<td>R</td>
<td>Ship or Boat Building and Repair Yards</td>
</tr>
<tr>
<td>S</td>
<td>Vehicle Maintenance Areas, Equipment Cleaning Areas or From Airport Deicing Operations located at Air Transportation Facilities</td>
</tr>
<tr>
<td>T</td>
<td>Wastewater Treatment Works</td>
</tr>
<tr>
<td>U</td>
<td>Food and Kindred Products Facilities</td>
</tr>
<tr>
<td>V</td>
<td>Textile Mills, Apparel and other Fabric Product Manufacturing Facilities</td>
</tr>
<tr>
<td>W</td>
<td>Furniture and Fixture Manufacturing Facilities</td>
</tr>
<tr>
<td>X</td>
<td>Printing and Platemaking Facilities</td>
</tr>
<tr>
<td>Y</td>
<td>Rubber and Miscellaneous Plastic Product Manufacturing Facilities</td>
</tr>
<tr>
<td>Z</td>
<td>Leather Tanning and Finishing Facilities</td>
</tr>
</tbody>
</table>

Table A4-8. TMSP Sectors and Descriptions.
<table>
<thead>
<tr>
<th>FACILITY NUMBER</th>
<th>PERMITEE</th>
<th>COUNTY</th>
<th>LIVESTOCK</th>
<th>WATERBODY</th>
<th>HUC-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNA000034</td>
<td>Cowan Poultry</td>
<td>Franklin</td>
<td>Poultry</td>
<td>Norwood Creek</td>
<td>0603000304</td>
</tr>
<tr>
<td>TNA000010</td>
<td>C&amp;L Dairy</td>
<td>Lincoln</td>
<td>Dairy</td>
<td>Turkey Branch</td>
<td>0603000309</td>
</tr>
<tr>
<td>TNA000057</td>
<td>Stubblefield Dairy</td>
<td>Lincoln</td>
<td>Dairy</td>
<td>Chicken Creek</td>
<td>0603000309</td>
</tr>
</tbody>
</table>

*Table A4-9. CAFO Sites in the Upper Elk River Watershed.*
<table>
<thead>
<tr>
<th>LOG NUMBER</th>
<th>COUNTY</th>
<th>DESCRIPTION</th>
<th>WATERBODY</th>
<th>HUC-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>98.592</td>
<td>Grundy</td>
<td>Debris Removal</td>
<td>Patton Creek</td>
<td>0603000301</td>
</tr>
<tr>
<td>97.719</td>
<td>Coffee</td>
<td>Culvert</td>
<td>Blue Spring Creek</td>
<td>0603000302</td>
</tr>
<tr>
<td>94.796</td>
<td>Coffee/Franklin</td>
<td>Gravel Dredging</td>
<td>Rock Creek</td>
<td>0603000303</td>
</tr>
<tr>
<td>96.036</td>
<td>Moore</td>
<td>Driveway Crossing</td>
<td>Hurricane Creek</td>
<td>0603000303</td>
</tr>
<tr>
<td>96.037</td>
<td>Moore</td>
<td>Hurricane Creek</td>
<td></td>
<td>0603000303</td>
</tr>
<tr>
<td>96.327</td>
<td>Franklin</td>
<td>Bridge Replacement</td>
<td>Dry Creek</td>
<td>0603000303</td>
</tr>
<tr>
<td>96.486</td>
<td>Franklin</td>
<td>Bridge Replacement</td>
<td>Dry Creek</td>
<td>0603000303</td>
</tr>
<tr>
<td>96.495</td>
<td>Moore</td>
<td>Hurricane Creek</td>
<td></td>
<td>0603000303</td>
</tr>
<tr>
<td>97.472</td>
<td>Coffee</td>
<td>Channel Relocation</td>
<td>Unnamed Trib to Upper Rock Ck</td>
<td>0603000303</td>
</tr>
<tr>
<td>97.538</td>
<td>Coffee</td>
<td>Utility Line Crossing</td>
<td>North Fork Rock Creek</td>
<td>0603000303</td>
</tr>
<tr>
<td>97.569</td>
<td>Coffee</td>
<td>Water/Sewer Line</td>
<td>North Fork Rock Creek</td>
<td>0603000303</td>
</tr>
<tr>
<td>97.761</td>
<td>Coffee</td>
<td>Sewer Line Crossing</td>
<td>West Fork Rock Creek</td>
<td>0603000303</td>
</tr>
<tr>
<td>97.882</td>
<td>Coffee</td>
<td>Force Main</td>
<td>South Fork Blue Creek</td>
<td>0603000303</td>
</tr>
<tr>
<td>98.385</td>
<td>Coffee</td>
<td>Upgrade Wing Walls</td>
<td>Riley Creek</td>
<td>0603000303</td>
</tr>
<tr>
<td>98.400</td>
<td>Coffee</td>
<td>Bank Stabilization</td>
<td>North Fork Blue Creek</td>
<td>0603000303</td>
</tr>
<tr>
<td>98.483</td>
<td>Coffee</td>
<td>Stream Relocation</td>
<td>Unnamed Trib to Rock Creek</td>
<td>0603000303</td>
</tr>
<tr>
<td>9810.058</td>
<td>Franklin</td>
<td>Gravel Dredging</td>
<td>Rock Creek</td>
<td>0603000303</td>
</tr>
<tr>
<td>9810.059</td>
<td>Franklin</td>
<td>Gravel Dredging</td>
<td>Rock Creek</td>
<td>0603000303</td>
</tr>
<tr>
<td>9808.0011</td>
<td>Franklin</td>
<td>Waterline Crossing</td>
<td>Wagener Creek</td>
<td>0603000304</td>
</tr>
<tr>
<td>99.263</td>
<td>Franklin</td>
<td>Bank Stabilization</td>
<td>Blue Spring Creek</td>
<td>0603000304</td>
</tr>
<tr>
<td>94.186A</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Coffee Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>94.186B</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Coffee Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>94.186C</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Coffee Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>94.186D</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Coffee Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>95.433</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Dry Prong Farris Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>95.762</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Norris Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>96.035</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Hurricane Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>96.147</td>
<td>Wilson</td>
<td>Stream Relocation</td>
<td>Unnamed Trib to Sinking Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>96.347</td>
<td>Wilson</td>
<td>Rip-Rap</td>
<td>Vivrett Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>96.351</td>
<td>Moore</td>
<td>Bridge Replacement</td>
<td>Farris Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>96.605</td>
<td>Wilson</td>
<td>Pedestrian Walking</td>
<td>Sinking Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>96.856A</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Elk River</td>
<td>0603000305</td>
</tr>
<tr>
<td>96.877</td>
<td>Lincoln</td>
<td>Debris Removal</td>
<td>Unnamed Trib to Elk River</td>
<td>0603000305</td>
</tr>
<tr>
<td>97.038</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Norris Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>97.066</td>
<td>Lincoln</td>
<td>NPDES Outfall</td>
<td>Elk River</td>
<td>0603000305</td>
</tr>
<tr>
<td>97.355</td>
<td>Wilson</td>
<td>Stream relocation</td>
<td>Unnamed Trib to Stone Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>97.598</td>
<td>Lincoln</td>
<td>Stream Relocation</td>
<td>Unnamed Trib to Norris Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>97.682</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Norris Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>98.034</td>
<td>Moore</td>
<td>Bridge Replacement</td>
<td>Bean Hollow Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>98.856C</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Elk River</td>
<td>0603000305</td>
</tr>
<tr>
<td>98.856D</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Elk River</td>
<td>0603000305</td>
</tr>
<tr>
<td>Project ID</td>
<td>Location</td>
<td>Type</td>
<td>Description</td>
<td>Location</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>------</td>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>9810.057</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Norris Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>9810.091</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Norris Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>9810.092</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Norris Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>9810.159</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Little Norris Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>9810.245</td>
<td>Lincoln</td>
<td>Road Crossing</td>
<td>Norris Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>9810.246</td>
<td>Lincoln</td>
<td>Road Crossing</td>
<td>Tucker Norris Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>9908.0010</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Norris Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>9910.022</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Wet Prong Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>9910.023</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Wet Prong Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>9910.024</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Bull Run Creek</td>
<td>0603000305</td>
</tr>
<tr>
<td>96.726</td>
<td>Franklin</td>
<td>Gravel Dredging</td>
<td>Caney Hollow Creek</td>
<td>0603000306</td>
</tr>
<tr>
<td>94.228A</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>West Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>94.228B</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>West Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>94.228C</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>West Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>95.099</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>96.024</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Bagle Hollow Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>96.034</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Goodbranch Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>96.189</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>96.226</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>96.264</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Booneville Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>96.323</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>96.395</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Stone Creek/Dogtail Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>96.583</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>96.725</td>
<td>Moore</td>
<td>Rip-Rap Replacement</td>
<td>Unnamed Trib to Buckeye Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>97.560</td>
<td>Moore</td>
<td>Bank Stabilization</td>
<td>Buckeye Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>97.718</td>
<td>Moore</td>
<td>Retaining Walls</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>97.845</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>98.035</td>
<td>Moore</td>
<td>Bridge Replacement</td>
<td>Buckeye Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.005</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.028</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.029</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.030</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.031</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.032</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.033</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.034</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.035</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.036</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Dogtail Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.037</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.038</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.039</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.041</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.070</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.093</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.154</td>
<td>Moore</td>
<td>Driveway Crossing</td>
<td>Cave Hollow Spring</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.195</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.204</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.209</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.212</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.213</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>ARAP Number</td>
<td>Agency</td>
<td>Project Type</td>
<td>Location</td>
<td>Date</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
<td>-----------------------</td>
<td>---------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>9810.220</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>Stone Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.255</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.256</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.257</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.258</td>
<td>Moore</td>
<td>Gravel Dredging</td>
<td>East Fork Mulberry Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9908.0015</td>
<td>Marshall</td>
<td>Road Crossing</td>
<td>Belfast Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>94.143</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Pleasant Valley Creek</td>
<td>0603000308</td>
</tr>
<tr>
<td>95.722</td>
<td>Marshall</td>
<td>Gravel Dredging</td>
<td>Cane Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>97.514</td>
<td>Lincoln</td>
<td>Culvert Replacement</td>
<td>Wells Branch</td>
<td>0603000307</td>
</tr>
<tr>
<td>98.291</td>
<td>Lincoln</td>
<td>Gas Line</td>
<td>Cane Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9808.0000</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Cane Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9810.199</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Cane Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>9908.027</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Cane Creek, Unnamed Trib to Cane Creek</td>
<td>0603000307</td>
</tr>
<tr>
<td>94.033</td>
<td>Giles</td>
<td>Bank Stabilization</td>
<td>Bee Spring Branch</td>
<td>0603000309</td>
</tr>
<tr>
<td>94.054C</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Tackett Branch Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>94.054G</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Yellow Branch Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>94.189</td>
<td>Giles</td>
<td>Gravel Dredging</td>
<td>Indian Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>94.383</td>
<td>Giles</td>
<td>Gravel Dredging</td>
<td>Bradshaw Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>94.383A</td>
<td>Giles</td>
<td>Gravel Dredging</td>
<td>Bradshaw Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>94.383B</td>
<td>Giles</td>
<td>Gravel Dredging</td>
<td>Bradshaw Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>94.454</td>
<td>Giles</td>
<td>Gravel Dredging</td>
<td>Indian Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>95.086</td>
<td>Giles</td>
<td>Gravel Dredging</td>
<td>Indian Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>95.086A</td>
<td>Giles</td>
<td>Gravel Dredging</td>
<td>Indian Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>95.899</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Little Bradshaw Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>96.190</td>
<td>Giles</td>
<td>Gravel Dredging</td>
<td>Indian Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>96.232</td>
<td>Giles</td>
<td>Gravel Dredging</td>
<td>Gilliam Spring Branch</td>
<td>0603000309</td>
</tr>
<tr>
<td>96.487</td>
<td>Grundy</td>
<td>Bridge Replacement</td>
<td>Unnamed Trib to Spring Branch</td>
<td>0603000309</td>
</tr>
<tr>
<td>96.691</td>
<td>Marshall</td>
<td>Gravel Dredging</td>
<td>Unnamed Trib to East Fork Bradshaw Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>96.912</td>
<td>Giles</td>
<td>Culvert</td>
<td>Snuff Branch</td>
<td>0603000309</td>
</tr>
<tr>
<td>96.914</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Coldwater Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>97.242</td>
<td>Lincoln</td>
<td>Gravel Dredging</td>
<td>Swan Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>97.512</td>
<td>Lincoln</td>
<td>Culvert Replacement</td>
<td>East Fork Bradshaw Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>97.513</td>
<td>Lincoln</td>
<td>Culvert Replacement</td>
<td>Swan Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>97.570D</td>
<td>Giles</td>
<td>Gravel Dredging</td>
<td>Bradshaw Creek</td>
<td>0603000309</td>
</tr>
<tr>
<td>97.755</td>
<td>Giles</td>
<td>Gravel Dredging</td>
<td>Elk River</td>
<td>0603000309</td>
</tr>
<tr>
<td>9808.0001</td>
<td>Giles</td>
<td>Bank Stabilization</td>
<td>Snuff Branch</td>
<td>0603000309</td>
</tr>
<tr>
<td>9810.123</td>
<td>Giles</td>
<td>Gravel Dredging</td>
<td>Elk River</td>
<td>0603000309</td>
</tr>
<tr>
<td>99.227</td>
<td>Giles</td>
<td>Habitat Enhancement</td>
<td>Elk River</td>
<td>0603000309</td>
</tr>
</tbody>
</table>

Table A4-10. Individual ARAP Permits Issued January 1994 Through June 2000 in the Upper Elk River Watershed.
## APPENDIX V

<table>
<thead>
<tr>
<th>CONSERVATION PRACTICE</th>
<th>UNITS</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alley Cropping</td>
<td>Acres</td>
<td>0</td>
</tr>
<tr>
<td>Contour Buffer Strips</td>
<td>Acres</td>
<td>0</td>
</tr>
<tr>
<td>Crosswind Trap Strips</td>
<td>Acres</td>
<td>0</td>
</tr>
<tr>
<td>Field Borders</td>
<td>Feet</td>
<td>10,000</td>
</tr>
<tr>
<td>Filter Strips</td>
<td>Acres</td>
<td>52</td>
</tr>
<tr>
<td>Grassed Waterways</td>
<td>Acres</td>
<td>2</td>
</tr>
<tr>
<td>Riparian Forest Buffers</td>
<td>Acres</td>
<td>24</td>
</tr>
<tr>
<td>Streambank and Shoreline Protection</td>
<td>Feet</td>
<td>0</td>
</tr>
<tr>
<td>Windbreaks and Shelterbelts</td>
<td>Feet</td>
<td>0</td>
</tr>
<tr>
<td>Hedgerow Plantings</td>
<td>Feet</td>
<td>0</td>
</tr>
<tr>
<td>Herbaceous Wind Barriers</td>
<td>Feet</td>
<td>0</td>
</tr>
<tr>
<td>Total Conservation Buffers</td>
<td>Acres</td>
<td>83</td>
</tr>
</tbody>
</table>

Table A5-1a. Conservation Buffers Conservation Practices in Partnership with NRCS in Pickwick Lake Watershed. Data are from Performance & Results Measurement System (PRMS) for October 1, 2001 through September 30, 2002 reporting period.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erosion Reduction Applied (Acres)</td>
<td>3,909</td>
</tr>
<tr>
<td>Highly Erodible Land With Erosion Control Practices (Acres)</td>
<td>2,398</td>
</tr>
<tr>
<td>Estimated Annual Soil Saved By Erosion Control Measures (Tons/Year)</td>
<td>19,008</td>
</tr>
<tr>
<td>Total Estimated Soil Saved (Tons/Year)</td>
<td>19,008</td>
</tr>
</tbody>
</table>

Table A5-1b. Erosion Control Conservation Practices in Partnership with NRCS in Upper Elk River Watershed. Data are from PRMS for October 1, 2001 through September 30, 2002 reporting period.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres of AFO Nutrient Management Applied</td>
<td>552</td>
</tr>
<tr>
<td>Acres of Non-AFO Nutrient Management Applied</td>
<td>2,945</td>
</tr>
<tr>
<td>Total Acres Applied</td>
<td>3,497</td>
</tr>
</tbody>
</table>

Table A5-1c. Nutrient Management Conservation Practices in Partnership with NRCS in Upper Elk River Watershed. Data are from PRMS for October 1, 2001 through September 30, 2002 reporting period.
<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres of Pest Management Systems Applied</td>
<td>3,319</td>
</tr>
</tbody>
</table>

*Table A5-1d. Pest Management Conservation Practices in Partnership with NRCS in Upper Elk River Watershed. Data are from PRMS for October 1, 2001 through September 30, 2002 reporting period.*

<table>
<thead>
<tr>
<th>CONSERVATION PRACTICE</th>
<th>ACRES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres Prepared for Revegetation of Forestland</td>
<td>0</td>
</tr>
<tr>
<td>Acres Improved Through Forest Stand Improvement</td>
<td>762</td>
</tr>
<tr>
<td>Acres of Tree and Shrub Establishment</td>
<td>86</td>
</tr>
</tbody>
</table>

*Table A5-1e. Tree and Shrub Conservation Practices in Partnership with NRCS in Upper Elk River Watershed. Data are from PRMS for October 1, 2001 through September 30, 2002 reporting period.*

<table>
<thead>
<tr>
<th>CONSERVATION PRACTICE</th>
<th>ACRES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres of Wetlands Created or Restored</td>
<td>0</td>
</tr>
<tr>
<td>Acres of Wetlands Enhanced</td>
<td>64</td>
</tr>
<tr>
<td>Total Acres Created, Restored, or Enhanced</td>
<td>64</td>
</tr>
</tbody>
</table>

*Table A5-1f. Wetland Conservation Practices in Partnership with NRCS in Upper Elk River Watershed. Data are from PRMS for October 1, 2001 through September 30, 2002 reporting period.*

<table>
<thead>
<tr>
<th>CONSERVATION PRACTICE</th>
<th>ACRES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres of Upland Habitat Management</td>
<td>319</td>
</tr>
<tr>
<td>Acres of Wetland Habitat Management</td>
<td>0</td>
</tr>
<tr>
<td>Total Acres Wildlife Habitat Management</td>
<td>319</td>
</tr>
</tbody>
</table>

*Table A5-1g. Wildlife Habitat Management Conservation Practices in Partnership with NRCS in Upper Elk River Watershed. Data are from PRMS for October 1, 2001 through September 30, 2002 reporting period.*

<table>
<thead>
<tr>
<th>COMMUNITY</th>
<th>PROJECT DESCRIPTION</th>
<th>AWARD DATE</th>
<th>AWARD AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monteagle</td>
<td>Wastewater Treatment Plant and Collection System</td>
<td>06/01/90</td>
<td>$1,310,000</td>
</tr>
<tr>
<td>Tullahoma</td>
<td>Wastewater Treatment Plant Upgrades and Collection System Rehabilitation</td>
<td>09/29/93</td>
<td>$10,207,000</td>
</tr>
</tbody>
</table>

*Table A5-2. Communities in Upper Elk River Watershed Receiving SRF Grants or Loans.*
<table>
<thead>
<tr>
<th>NRCS CODE</th>
<th>PRACTICE</th>
<th>NUMBER OF BMPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>312</td>
<td>Animal Waste System</td>
<td>21</td>
</tr>
<tr>
<td>327</td>
<td>Conservation Cover</td>
<td>5</td>
</tr>
<tr>
<td>342</td>
<td>Critical Area Treatment</td>
<td>7</td>
</tr>
<tr>
<td>362</td>
<td>Diversion</td>
<td>5</td>
</tr>
<tr>
<td>371</td>
<td>Waste Storage Facility</td>
<td>1</td>
</tr>
<tr>
<td>378</td>
<td>Pond</td>
<td>14</td>
</tr>
<tr>
<td>382</td>
<td>Fencing</td>
<td>13</td>
</tr>
<tr>
<td>382a</td>
<td>Livestock Exclusion</td>
<td>3</td>
</tr>
<tr>
<td>382d</td>
<td>Fencing for Rotational Grazing System</td>
<td>1</td>
</tr>
<tr>
<td>410</td>
<td>Grade Stabilization Structure</td>
<td>1</td>
</tr>
<tr>
<td>412</td>
<td>Grassed Waterway</td>
<td>4</td>
</tr>
<tr>
<td>512</td>
<td>Pasture and Hayland Planting</td>
<td>110</td>
</tr>
<tr>
<td>512a</td>
<td>Cropland Conversion</td>
<td>3</td>
</tr>
<tr>
<td>516</td>
<td>Pipeline</td>
<td>3</td>
</tr>
<tr>
<td>558</td>
<td>Roof Run-off Management</td>
<td>1</td>
</tr>
<tr>
<td>561</td>
<td>Heavy Use Area</td>
<td>17</td>
</tr>
<tr>
<td>576</td>
<td>Stream Crossing</td>
<td>1</td>
</tr>
<tr>
<td>590</td>
<td>Nutrient Management</td>
<td>1</td>
</tr>
<tr>
<td>612</td>
<td>Tree Planting</td>
<td>3</td>
</tr>
<tr>
<td>614</td>
<td>Tank or Trough</td>
<td>12</td>
</tr>
<tr>
<td>614b</td>
<td>Alternative Watering System Spring Source</td>
<td>2</td>
</tr>
<tr>
<td>633</td>
<td>Waste Utilization</td>
<td>1</td>
</tr>
<tr>
<td>728</td>
<td>Stream Crossing</td>
<td>1</td>
</tr>
<tr>
<td>769</td>
<td>Incinerator</td>
<td>1</td>
</tr>
</tbody>
</table>