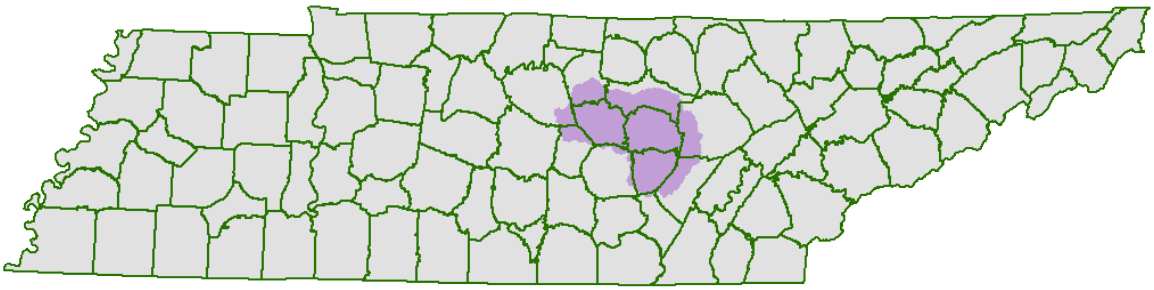
CANEY FORK RIVER WATERSHED (05130108) OF THE CUMBERLAND RIVER BASIN

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/

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

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

CHAPTER 1

WATERSHED APPROACH TO WATER QUALITY

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, 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.

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:

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

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.

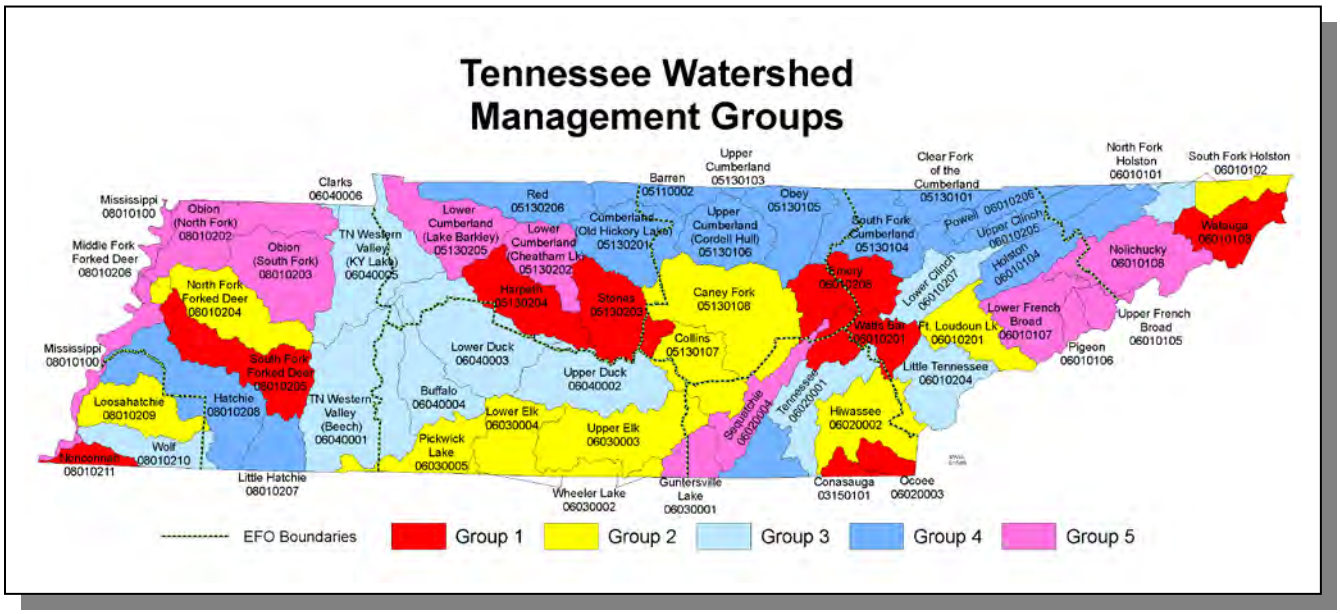


Figure 1-1. Watershed Groups in Tennessee's Watershed Approach to Water Quality.

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.

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

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.

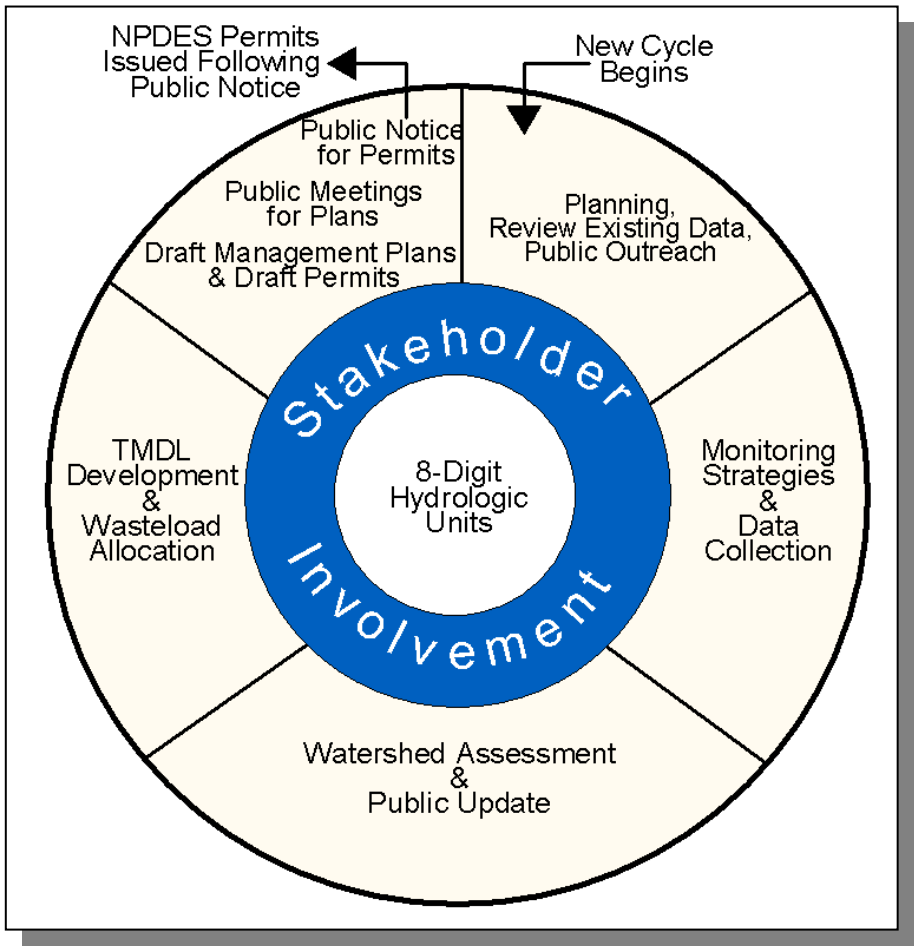


Figure 1-2. The Watershed Approach Cycle.

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 CANEY FORK RIVER WATERSHED

2.1. BACKGROUND. The Caney Fork River Watershed contains low to moderate gradient streams, with productive, nutrient-rich waters, resulting in algae, rooted vegetation, and occasionally high densities of fish. There are numerous springs and spring-associated fish fauna.

Streams in the watershed have cut down into the limestone, but the gorge talus slopes are composed of colluvium with huge angular, slabby blocks of sandstone. The area contains numerous waterfalls, cascades, and timberlands. It is the location of several scenic recreation areas.

This Chapter describes the location and characteristics of the Caney Fork River Watershed.

2.2. DESCRIPTION OF THE WATERSHED.

2.2.A. General Location. Located in Middle Tennessee, the Caney Fork River watershed includes parts of Bledsoe, Cannon, Cumberland, DeKalb, Putnam, Sequatchie, Smith, Van Buren, Warren, White, and Wilson Counties.

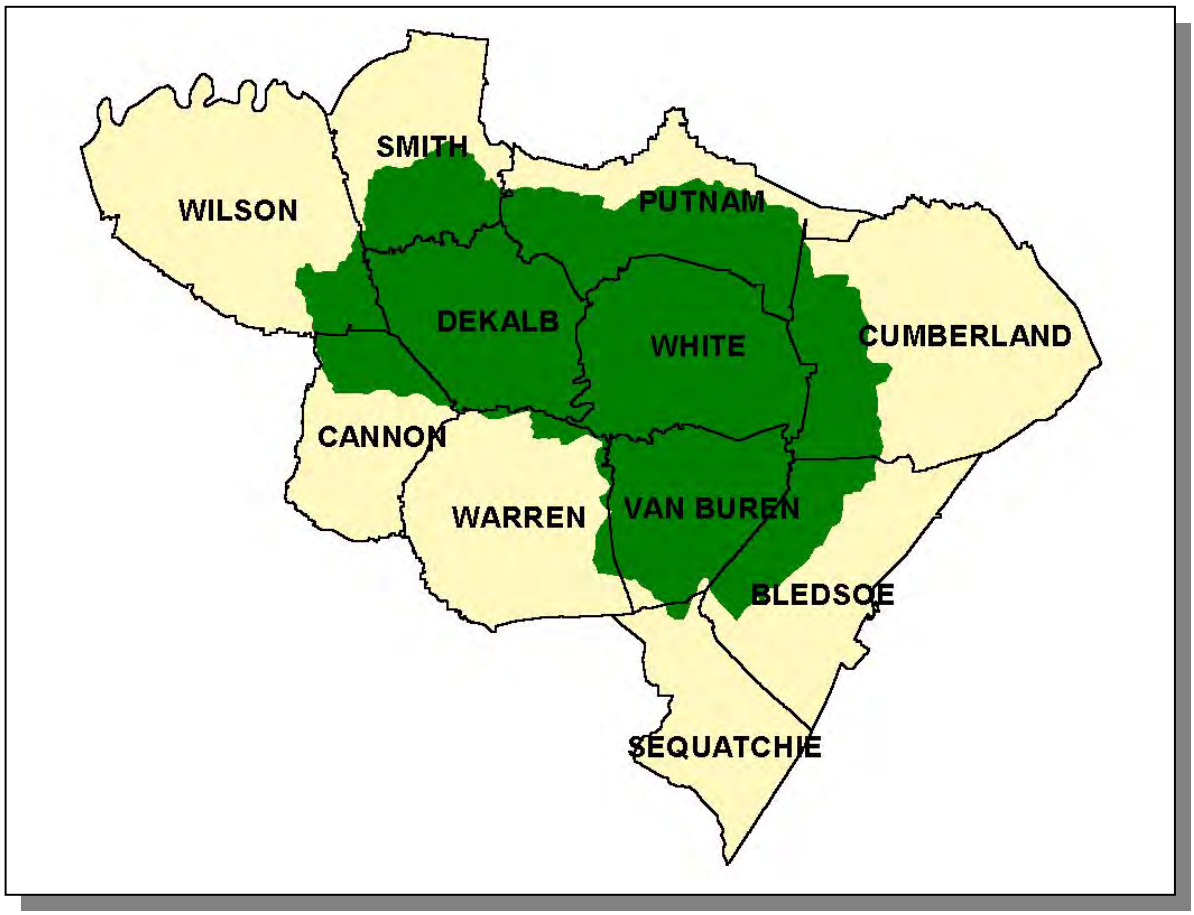


Figure 2-1. General Location of the Caney Fork River Watershed.

COUNTY	% OF WATERSHED IN EACH COUNTY
Wilson	21.4
DeKalb	18.7
Van Buren	15.4
Putnam	14.9
Cumberland	8.8
Bledsoe	6.7
Smith	6.7
Cannon	3.9
Warren	2.0
White	1.4
Sequatchie	0.2

Table 2-1. The Caney Fork River Watershed Includes Parts of Eleven Middle Tennessee Counties.

2.2.B. Population Density Centers. One interstate and six state highways serve the major communities in the Caney Fork River Watershed.

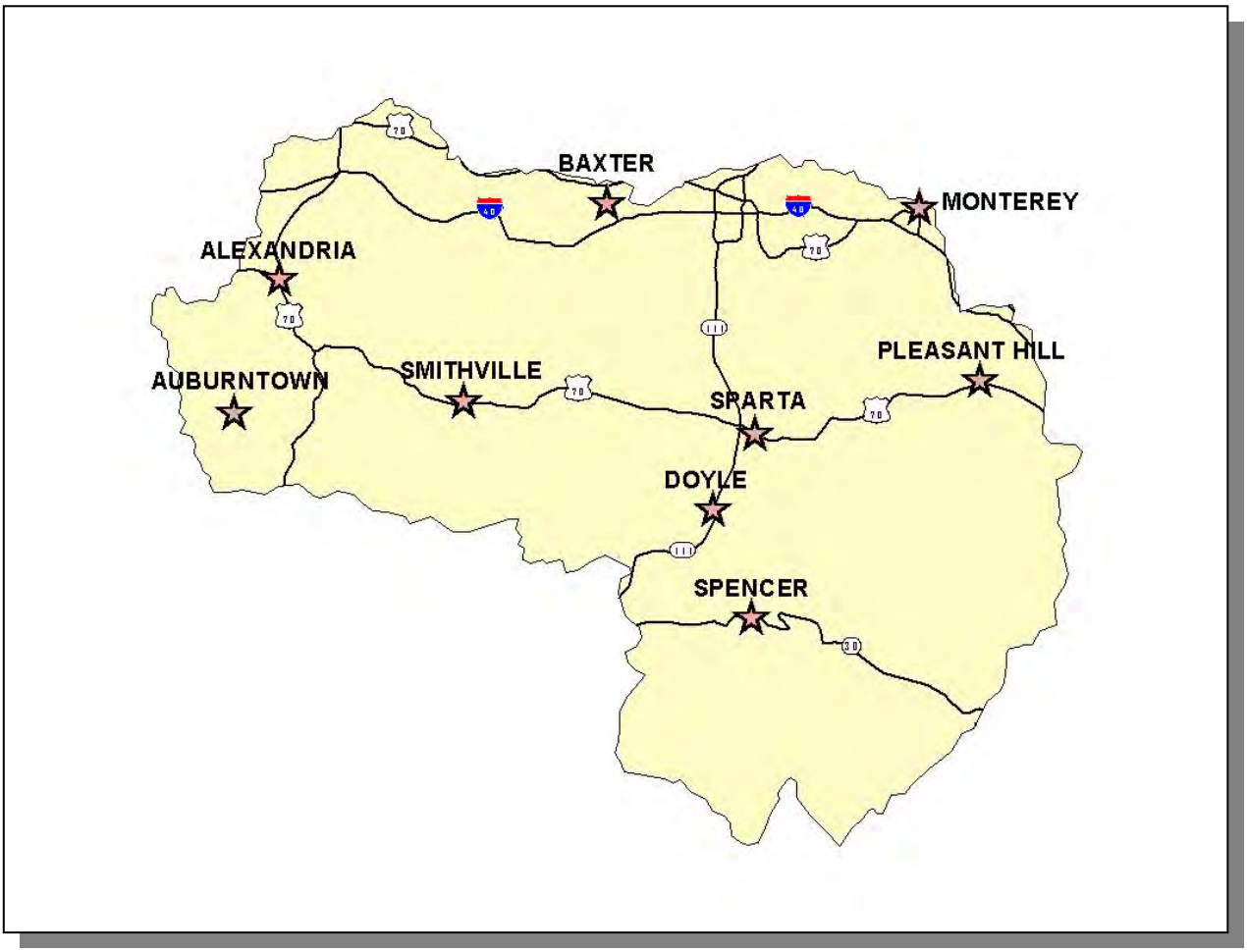


Figure 2-2. Municipalities and Roads in the Caney Fork River Watershed.

MUNICIPALITY	POPULATION	COUNTY
Sparta*	4,990	White
Smithville*	4,110	DeKalb
Monterey	2,872	Putnam
Baxter	1,434	Putnam
Spencer	1,171	Van Buren
Alexandria	744	DeKalb
Pleasant Hill	575	Cumberland
Doyle	374	White
Auburntown	259	Cannon

Table 2-2. Municipalities in the Caney Fork River Watershed. *Population based on 1996 census (Tennessee Blue Book). Asterisk (*) indicates county seat.*

2.3. GENERAL HYDROLOGIC DESCRIPTION.

2.3.A. Hydrology. The Caney Fork River Watershed, designated 05130108 by the USGS, is approximately 1,771 square miles and empties to the Cumberland River.

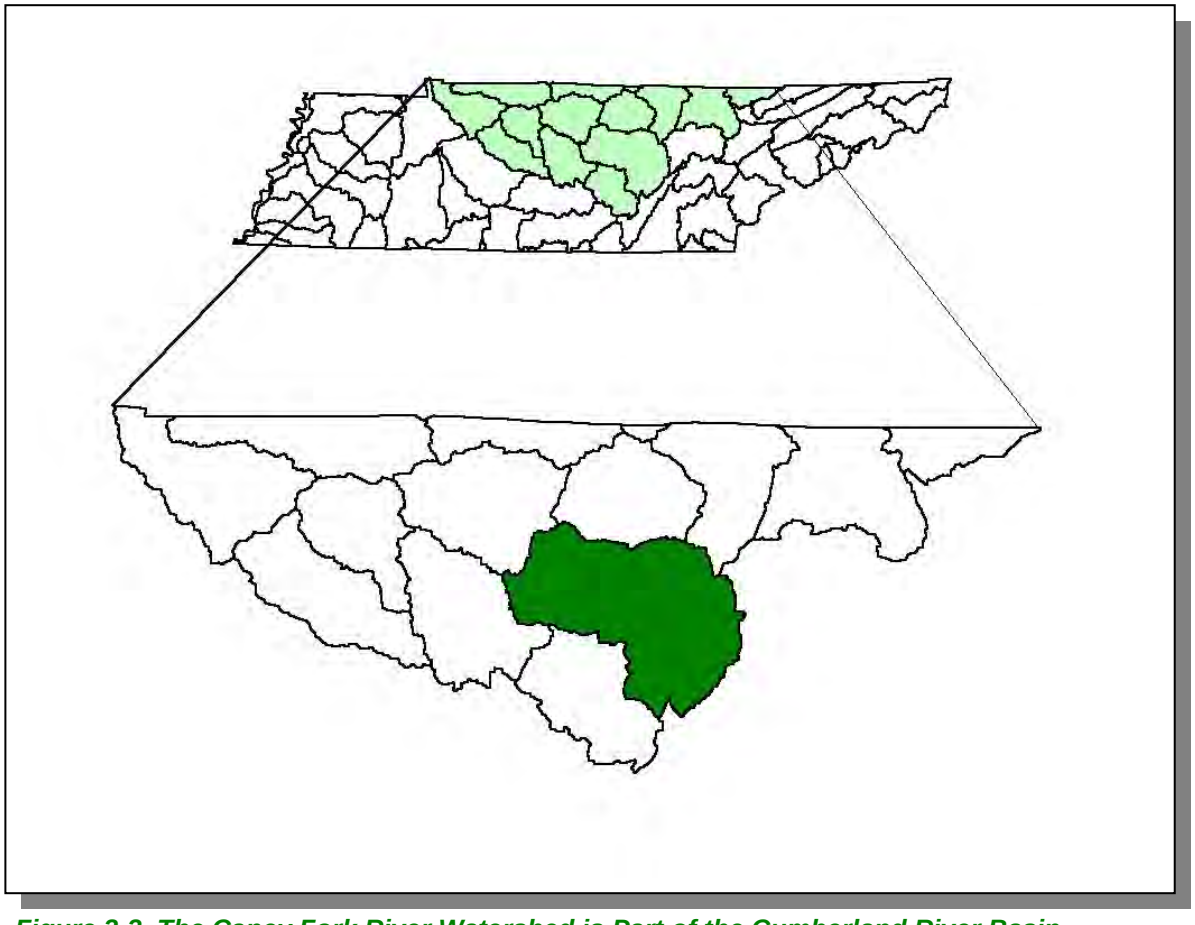


Figure 2-3. The Caney Fork River Watershed is Part of the Cumberland River Basin.

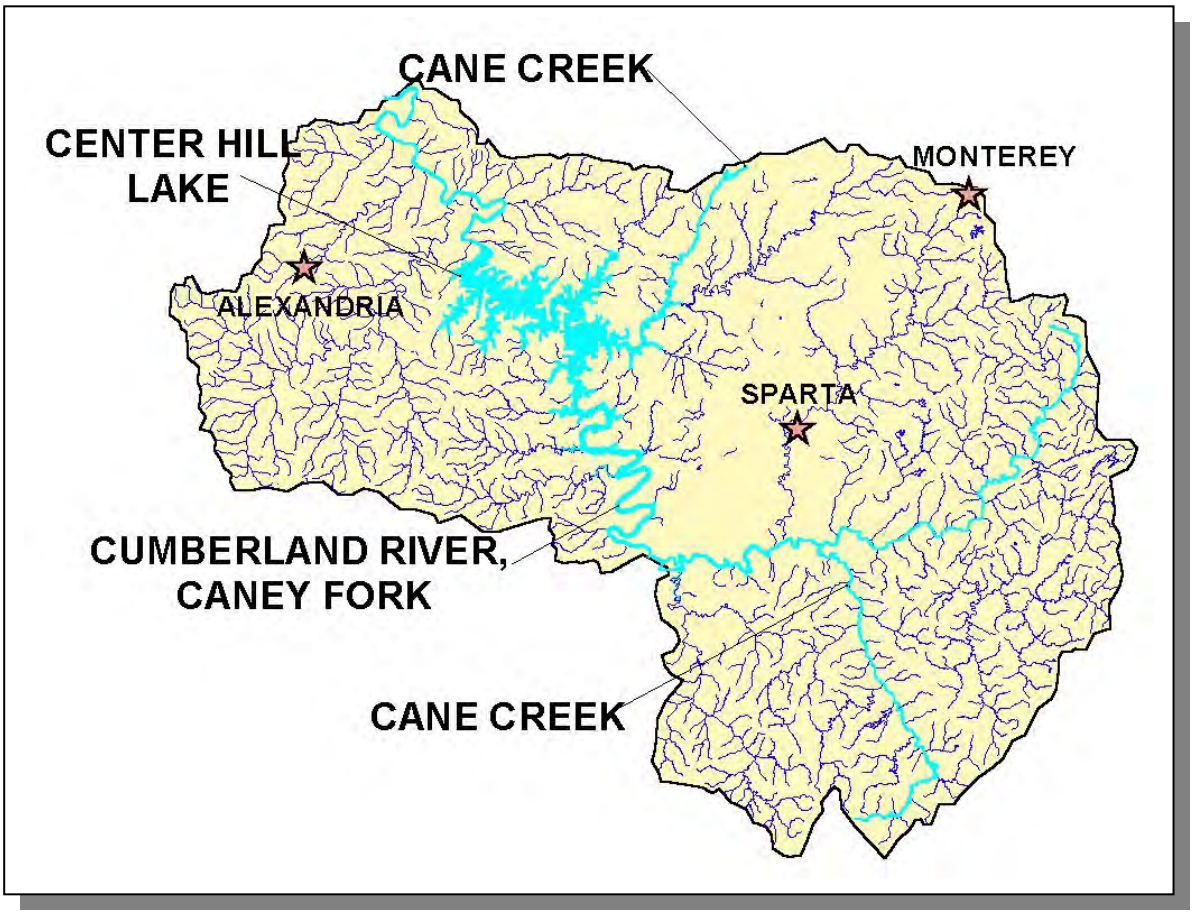


Figure 2-4. Hydrology in the Caney Fork River Watershed. *There are 2,038 stream miles and 25,817 lake acres recorded in River Reach File 3 in the Caney Fork River Watershed. Location of the Caney Fork River, Cane Creek, Center Hill Lake and the cities of Alexandria, Monterey, and Sparta are shown for reference.*

2.3.B. Dams. There are 48 dams inventoried by TDEC Division of Water Supply in the Caney Fork River Watershed. These dams either retain 30 acre-feet of water or have structures at least 20 feet high.

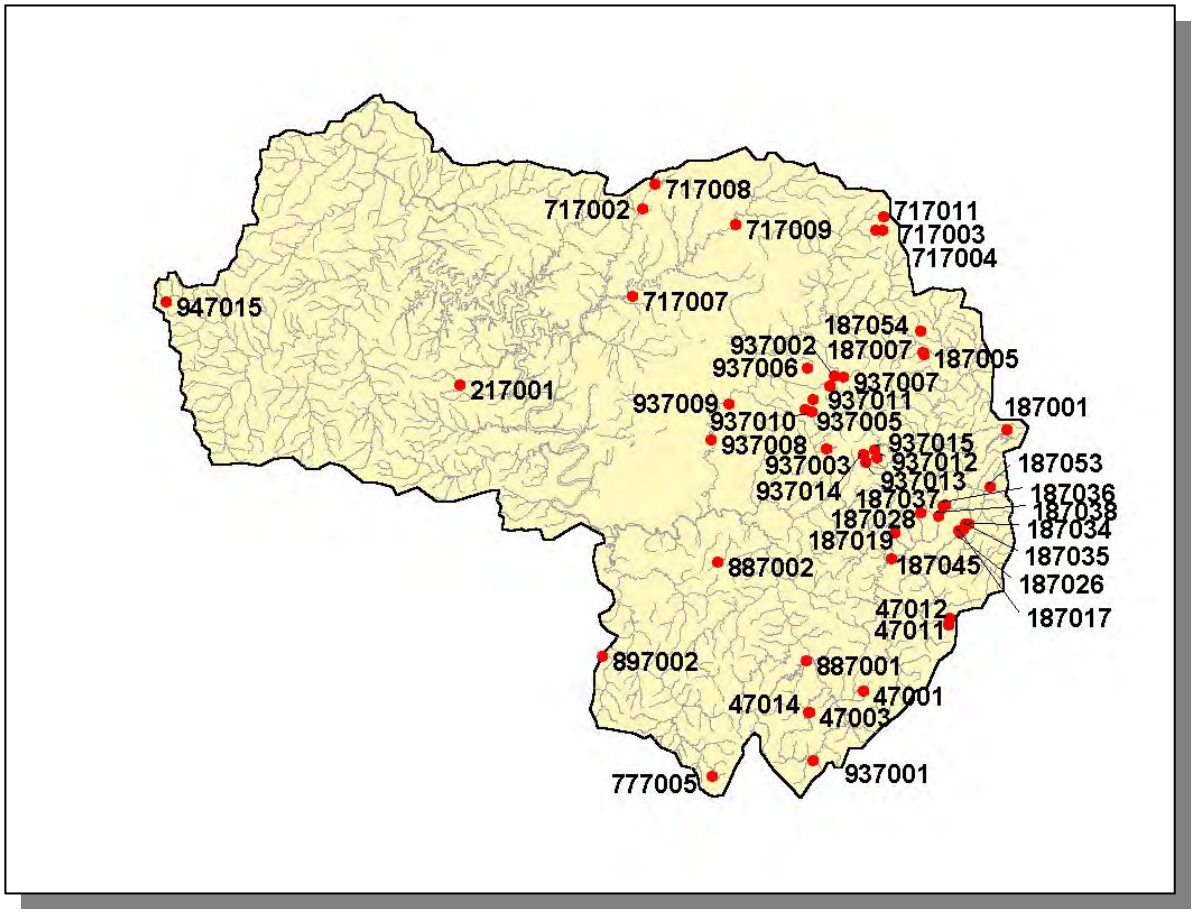


Figure 2-5. Location of Inventoried Dams in the Caney Fork River Watershed. *More information is provided in Caney Fork-Appendix II and on the TDEC homepage at: http://gwidc.gwi.memphis.edu/website/dams/viewer.htm*

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.

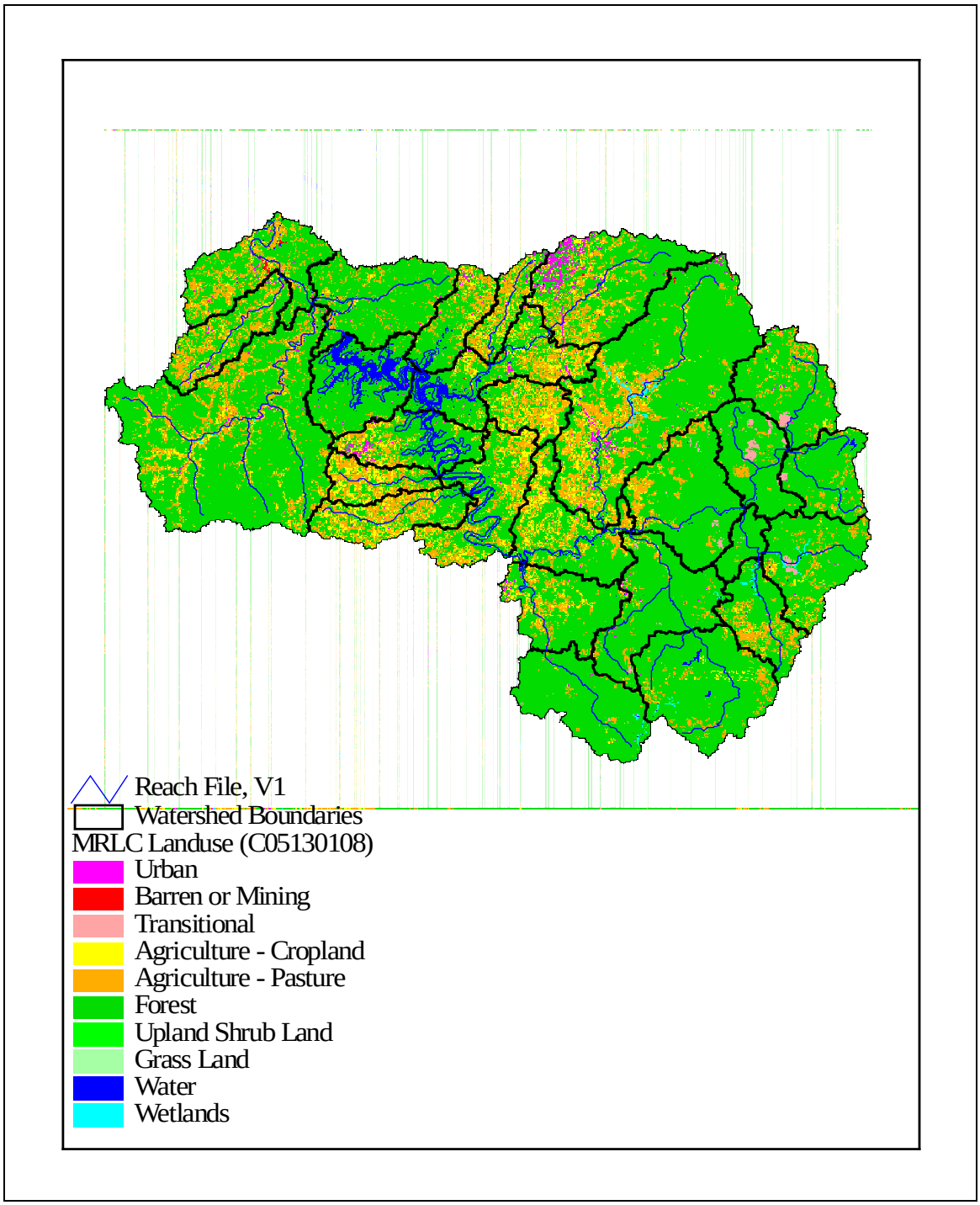


Figure 2-6. Illustration of Select Land Cover/Land Use Data from MRLC Satellite Imagery.

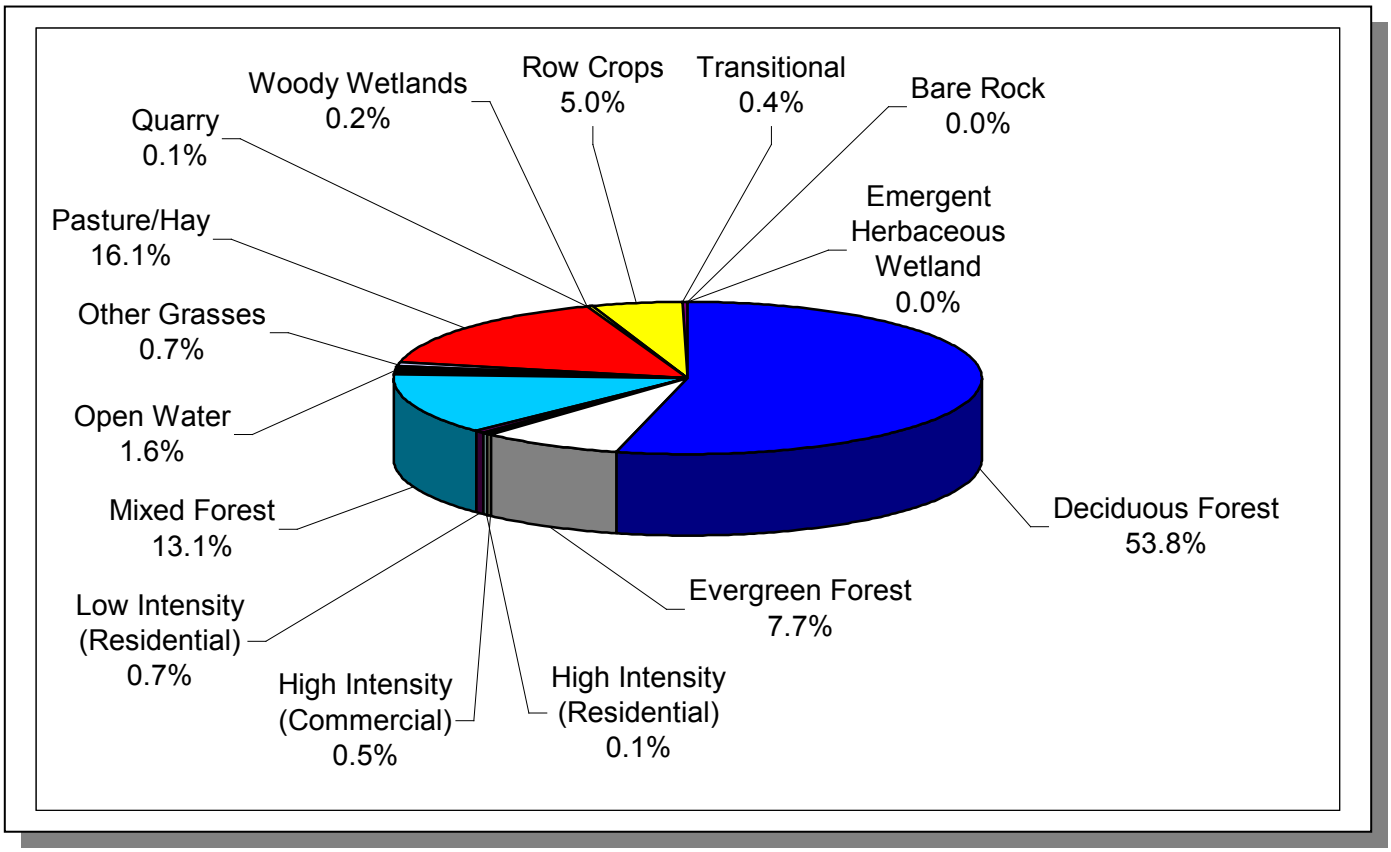


Figure 2-7. Land Use Distribution in the Caney Fork River Watershed. *More information is provided in Caney Fork-Appendix II.*

2.5. ECOREGIONS AND REFERENCE STREAMS. Ecoregions are defined as 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 include 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 Caney Fork 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 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 compared to the Cumberland Mountains or the Plateau Escarpment (68c). Elevations are generally 1200-2000 feet, with the Crab Orchard Mountains reaching over 3000 feet. Pennsylvania-age conglomerate, sandstone, siltstone, and shale is covered by mostly well-drained, acidic 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 Pennsylvania-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-basswood-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 noticable 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 (68, 69) to the east. Bottomland hardwood forest has been inundated by several large impoundments. Barrens and former prairie areas are now mostly oak thickets or pasture and cropland.

- Outer Nashville Basin (71h) is a more heterogenous region than the Inner Nashville Basin, with more rolling and hilly topography and slightly higher

elevations. The region encompasses most all of the outer areas of the generally non-cherty Ordovician limestone bedrock. The higher hills and knobs are capped by the more 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 forests 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.

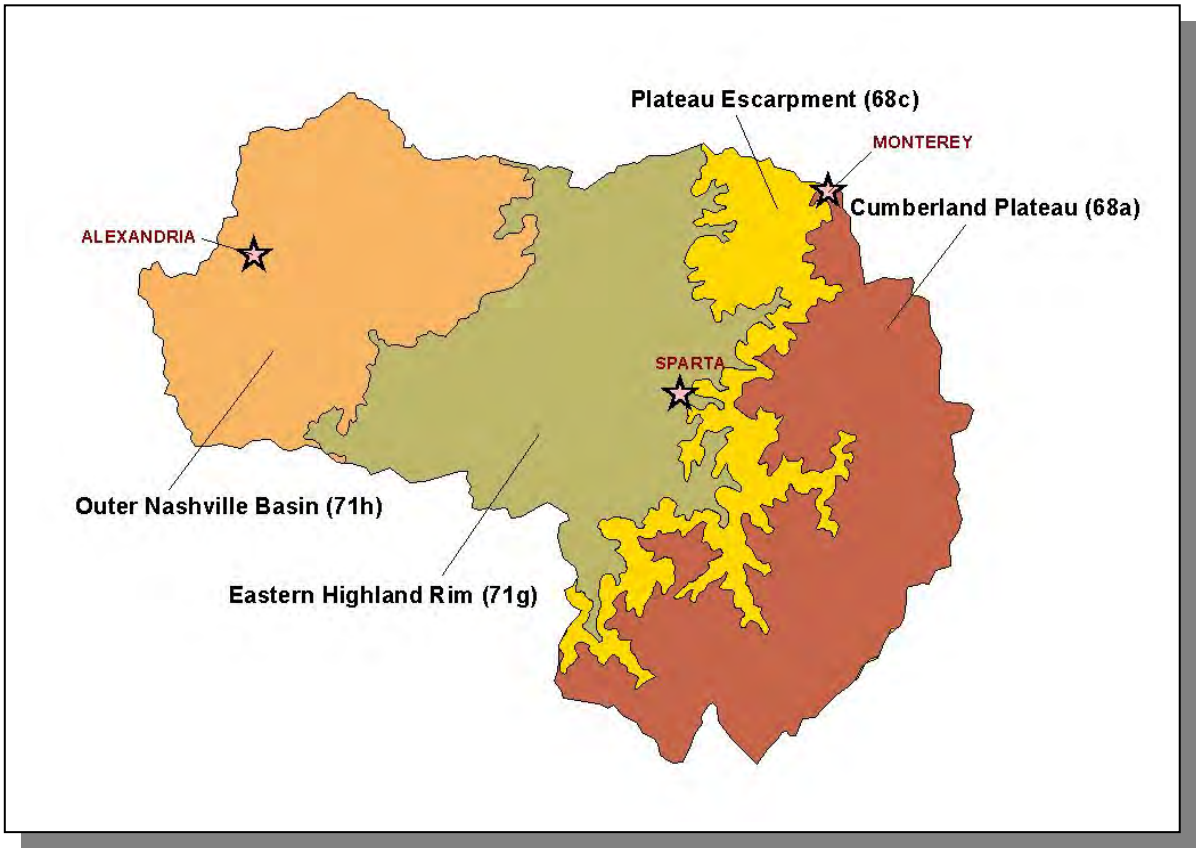


Figure 2-8. Level IV Ecoregions in the Caney Fork River Watershed. *Locations of Alexandria, Monterey, and Sparta are shown for reference.*

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.

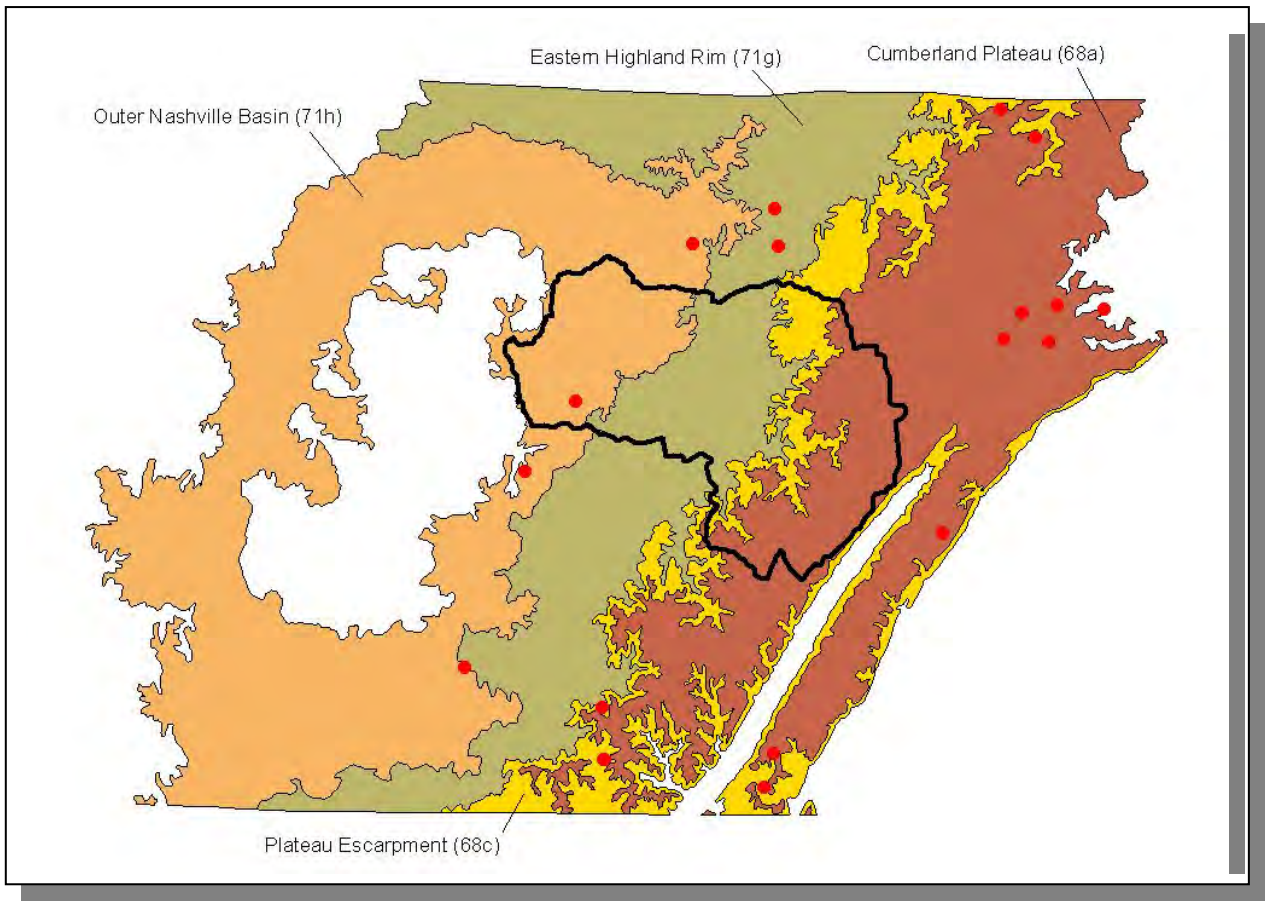


Figure 2-9. Ecoregion Monitoring Sites in Level IV Ecoregions 68a, 68c, 71g, and 71h. *The Caney Fork River Watershed is shown for reference. More information is provided in Caney Fork-Appendix II.*

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 Caney Fork River Watershed has five Designated State Natural Areas:

Bone Cave State Natural Area contains a cave of significant archaeological, historical, and scenic value.

Burgess Falls State Natural Area Sanctuary, which offers state protection to all areas, features, plants, animals, and artifacts as well as rugged hiking trails.

Fall Creek Falls State Natural Area contains oak and hickory forest, tulip poplar, hemlock forest, mountain laurel, and rhododendron.

Short Mountain State Natural Area is a remnant of the Cumberland Plateau, with scenic rock formations and a thriving flora population.

Virgin Falls Pocket Wilderness is a 317-acre tract containing a 5 mile hiking trail that terminates at scenic Virgin Falls

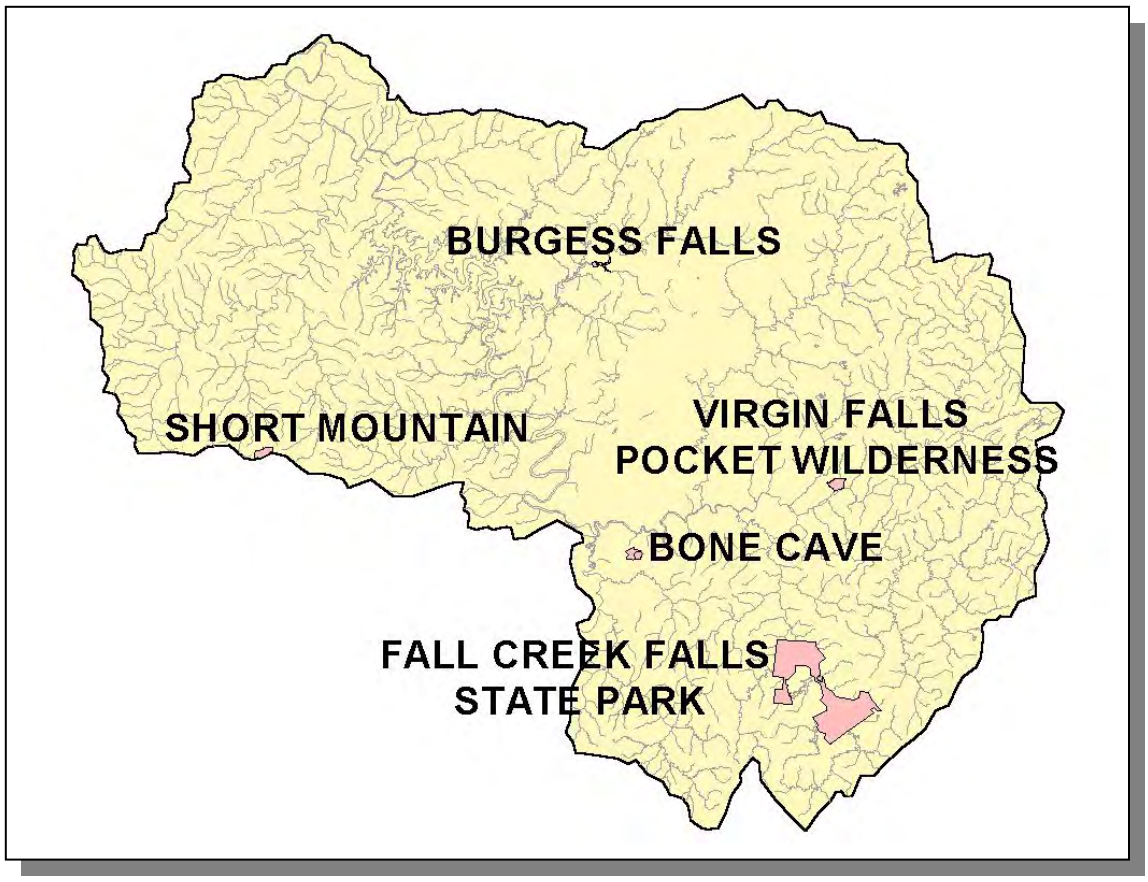


Figure 2-10. There are Five Designated State Natural Areas in the Caney Fork River Watershed.

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.

GROUPING	NUMBER OF RARE SPECIES
Crustaceans	1
Insects	0
Mussels	9
Snails	1
Amphibians	0
Birds	3
Fish	4
Mammals	5
Reptiles	0
Plants	36
Total	**59**

Table 2-3. There are 59 Rare Plant and Animal Species in the Caney Fork River Watershed.

In the Caney Fork River Watershed, there are four rare fish species, seven rare mussel species, one rare snail species, and one rare crustacean species.

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS
Erimystax cahni	Slender chub	LT	T
Etheostoma sp d	Jewel darter (doration)	LE	E
Notropis rupestris	Bedrock shiner		D
Etheostoma etnieri	Cherry darter		
Cyprogenia irrorate	Eastern fanshell pearlymussel	LE	E
Dromus dromas	Dromedary pearlymussel	LE	E
Epioblasma brevidens	Cumberlandian combshell	LE	E
Pegias fabula	Little-wing pearlymussel	LE	E
Plethobasus cicatricosus	White wartyback	LE	E
Pleurobema gibberum	Cumberland pigtoe	LE	E
Villosa trabalis	Cumberland bean	LE	E
Lithasia geniculata	Ornate rocksnail	LE	E
Cambarus pristinus	A crayfish	MC	E

Table 2-4. Rare Aquatic Species in the Caney Fork River Watershed. *Federal Status: LE, Listed Endangered by the U.S. Fish and Wildlife Service, LT, Listed Threatened by the U.S. Fish and Wildlife Service, MC, Management Concern for the U.S. Fish and Wildlife Service. State Status: E, Listed Endangered by the Tennessee Wildlife Resources Agency; D, Deemed in Need of Management by the Tennessee Wildlife Resources Agency, T, Listed Threatened by the Tennessee Wildlife Resources Agency. More information may be found at* http://www.state.tn.us/environment/nh/tnanimal.html

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.

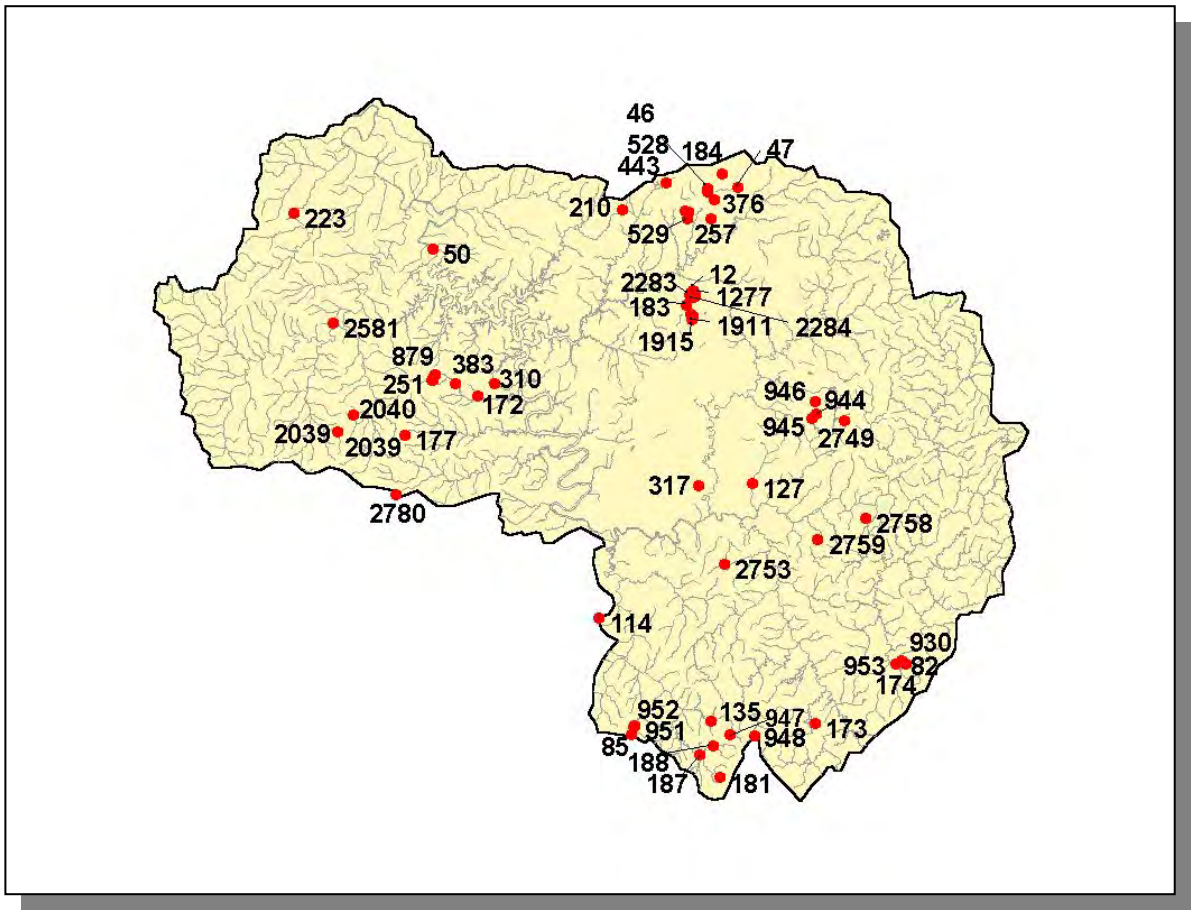


Figure 2-11. Location of Wetland Sites in TDEC Division of Natural Heritage Database in Caney Fork River Watershed. This map represents an incomplete inventory and should not be considered a dependable indicator of the presence of wetlands. *There may be additional wetland sites in the watershed. More information is provided in Caney Fork-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 eight streams in the Caney Fork River Watershed:

Bee Creek. Small, twisting, plunging stream with small to medium drops; penetrates Bledsoe State Forest; boulders, ledges, and bluffs; dense forested corridor that provides for wildlife habitat.

Cane Creek of Caney Fork. Flows through Fall Creek Falls State Forest and Park; narrowly incised with rugged, rocky landscape; dense laurel thickets; good whitewater.

Cumberland River, Caney Fork. Ledges, numerous drops, huge boulders, sheer cliffs, and limestone bluffs; rugged gorge area; excellent water quality; numerous springs; abundance of wildlife.

Falling Water River. Clear, scenic stream: Burgess Falls.

Pine Creek of Caney Fork. Small, scenic fishing stream.

Rocky River. Scenic stream; Karst topography; Norton Springs.

Sink Creek. Scenic floating stream.

Smith Fork. Scenic stream flowing over limestone bed with riffles and deep pools; high limestone bluffs and beautiful valley of farms and woodlands line corridor.

RIVER	SCENIC	RECREATION	GEOLOGIC	FISH	WILDLIFE
Bee Creek	X	X	X	X	X
Cane Creek	X	X	X	X	X
Cumberland River, Caney Fork	X	X	X	X	X
Falling Water River	X	X	X	X	X
Pine Creek		X		X	X
Rocky River	X	X	X	X	X
Sink Creek	X	X		X	X
Smith Fork	X	X	X	X	X

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

2.7.B. Greenways. South Carter Street Riverfront Park in Sparta has completed a paved greenway trail along the Calfkiller River.

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

- Bridgestone/Firestone Conservation Area consists of 4000 donated acres in Scott's Gulf with plans for a hikers' entrance to the Caney Fork River.
- Burgess Falls State Park contains a streamside nature trail that winds through lush woodlands descending below scenic limestone.
- Edgar Evins State Rustic Park, 6000 acres on Center Hill Reservoir with fishing, boating, and scenic hiking trails.
- Fall Creek Falls State Park, 20,000 acres that include the highest waterfall in the U.S. east of the Rockies.
- Sparta Rock House, a state-owned historic site that was once operated as a stage coach inn frequented by Andrew Jackson on trips from Nashville to Washington.
- Virgin Falls, formed by an underground stream and a 110-foot drop off. Overlooks, streams, caving, and a backpacking area as well as an 8 mile hiking trail.

In addition, there are many local interpretive areas, most notably Smithville's Greenbrook Community Park and Standing Stone Monument in Monterey City Park.

2.7.D. Wildlife Management Area. The Tennessee Wildlife Resources Agency manages the Pea Ridge Wildlife Management Area.

Figure 2-12. TWRA Manages Pea Ridge Wildlife Management Area in the Caney Fork River Watershed. *Locations of Alexandria, Monterey, and Sparta are shown for reference.*

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/

STREAM	NSQ	RB	RF	STREAM	NSQ	RB	RF
Beaverdam Creek	4			Little Cane Creek	2		
Bee Creek	1,3			Little Laurel Creek	3		
Big Indian Creek	1	2	1	Little Lost Creek	2		
Big Lost Creek	3			Long Branch Creek	3		
Blue Springs Creek	2			Lost Creek	3		
Bridge Creek	2			Maxwell Branch Mine Lick Creek	2		
Buck Creek	2			Meadow Branch Creek	3		
Calfkiller River	2	2	1,2	Meadow Creek	2		
Cane Creek	1,2	2	2	Milsea Branch Clifty Creek	3		
Caney Fork River	1,2,3	1,2	1,2	Mine Lick Creek	2		
Cherry Creek	3		3	Mount Pleasant Branch Dry Fork Creek	3		
Clear Fork Creek	2		3	Pine Creek			
Clifty Creek	1			Piney Creek	1		
Connell Creek	2			Post Oak Creek	3		3
Dry Creek	1	2	2	Rocky River	2	3	1,2
Dry Fork Creek	1			Samples Fork Creek	1		
Fall Creek	3		2	Sandy Branch Rocky River			
Falling Water River		2	2	Sanders Fork Creek	2		
Glade Creek	2			Sink Creek	1		
Helton Creek	2		2	Smith Fork Creek	2	2	2
Hickman Creek	3			Snow Creek			3
Hickory Valley Branch Caney Fork River	3			Taylor Creek	3		
Hughes Creek	3			West Fork Creek	3		
Hurricane Creek	2			Wilkerson Creek	3		
Laurel Branch Creek	3						
Laurel Creek	2		2				

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 CANEY FORK RIVER WATERSHED.

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 Caney Fork River Watershed, summarizes data collection and assessment results, and describes impaired waters.

3.2. DATA COLLECTION. Comprehensive water quality monitoring in the Caney Fork River Watershed was conducted in 1999. Data were collected from 48 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.

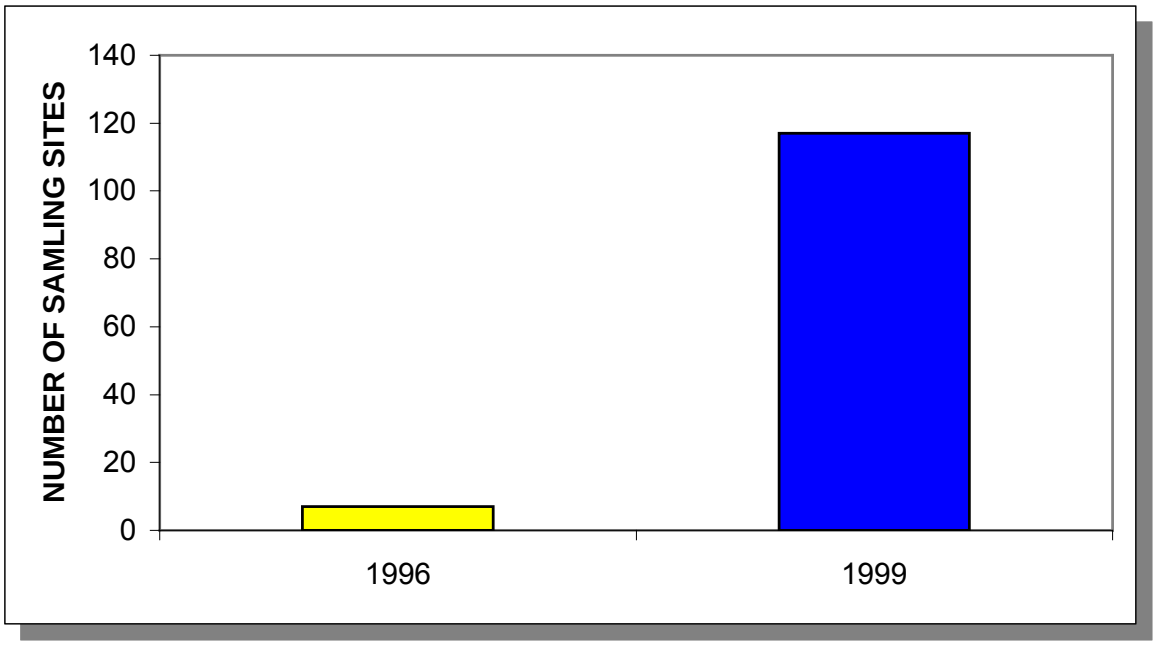


Figure 3-1. Number of Sampling Sites Using the Traditional Approach (1996) and Watershed Approach (1999) in the Caney Fork River Watershed.

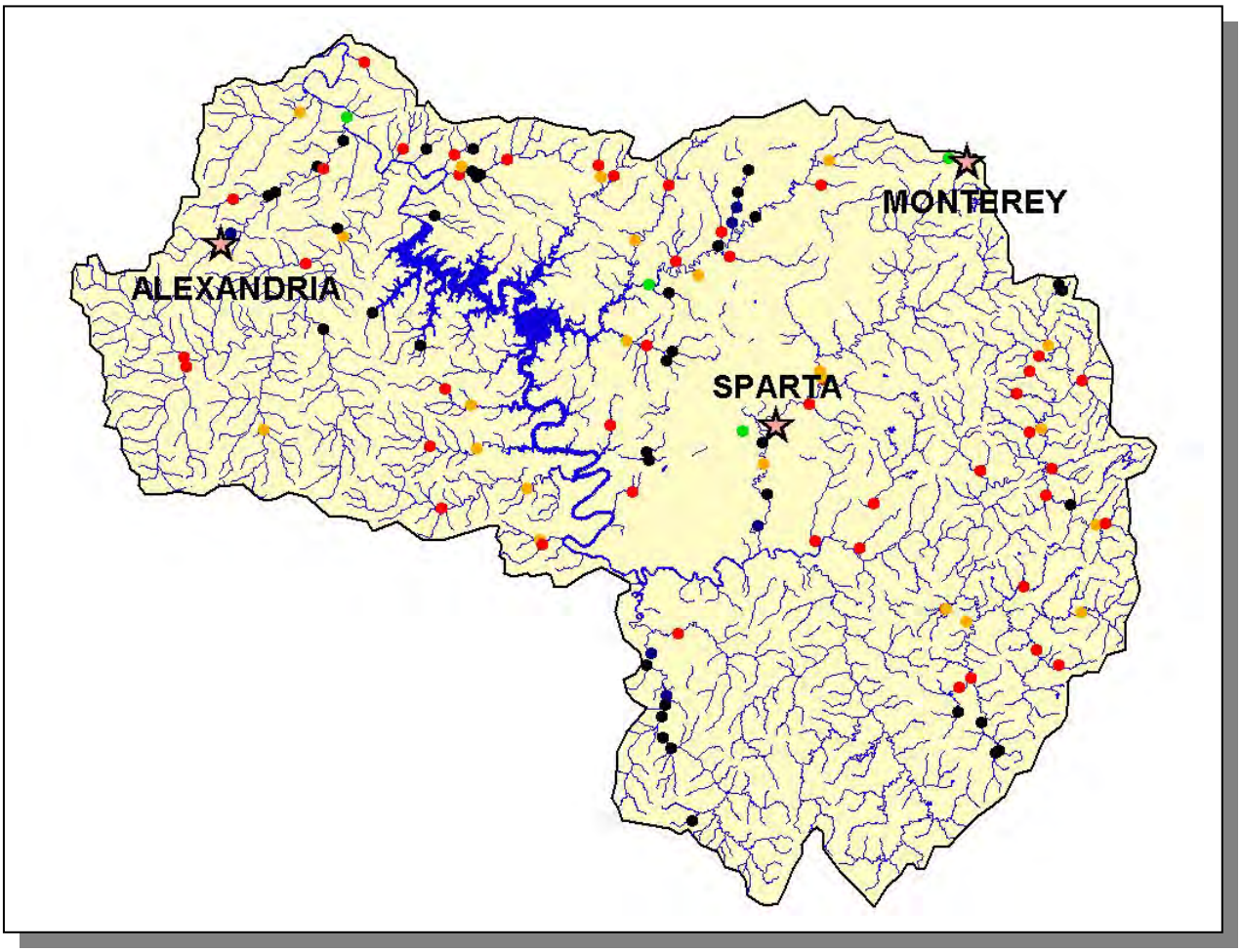


Figure 3-2. Location of Monitoring Sites in the Caney Fork River Watershed. *Red, Watershed Monitoring Sites; Black, Observational Data Sites; Blue, Rapid Bioassessment Sites; Green, Ambient Monitoring Sites, Orange, Chemical Monitoring Sites. Locations of Alexandria, Monterey, and Sparta are shown for reference.*

TYPE	NUMBER	TOTAL NUMBER OF SAMPLING EVENTS		
		CHEMICAL ONLY	BIOLOGICAL ONLY	BIOLOGICAL PLUS CHEMICAL (FIELD PARAMETERS)
Ambient	29	29		
Ecoregion	3			3
Special Survey	11	11		
Watershed	121	8	24	1
Totals	**164**	**48**	**24**	**4**

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

In addition to the 164 sampling events, there were over 5 citizen complaints and 1 occurrence of dead fish (fish kill) 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-Cookeville 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 Caney Fork River Watershed are provided in Appendix IV.

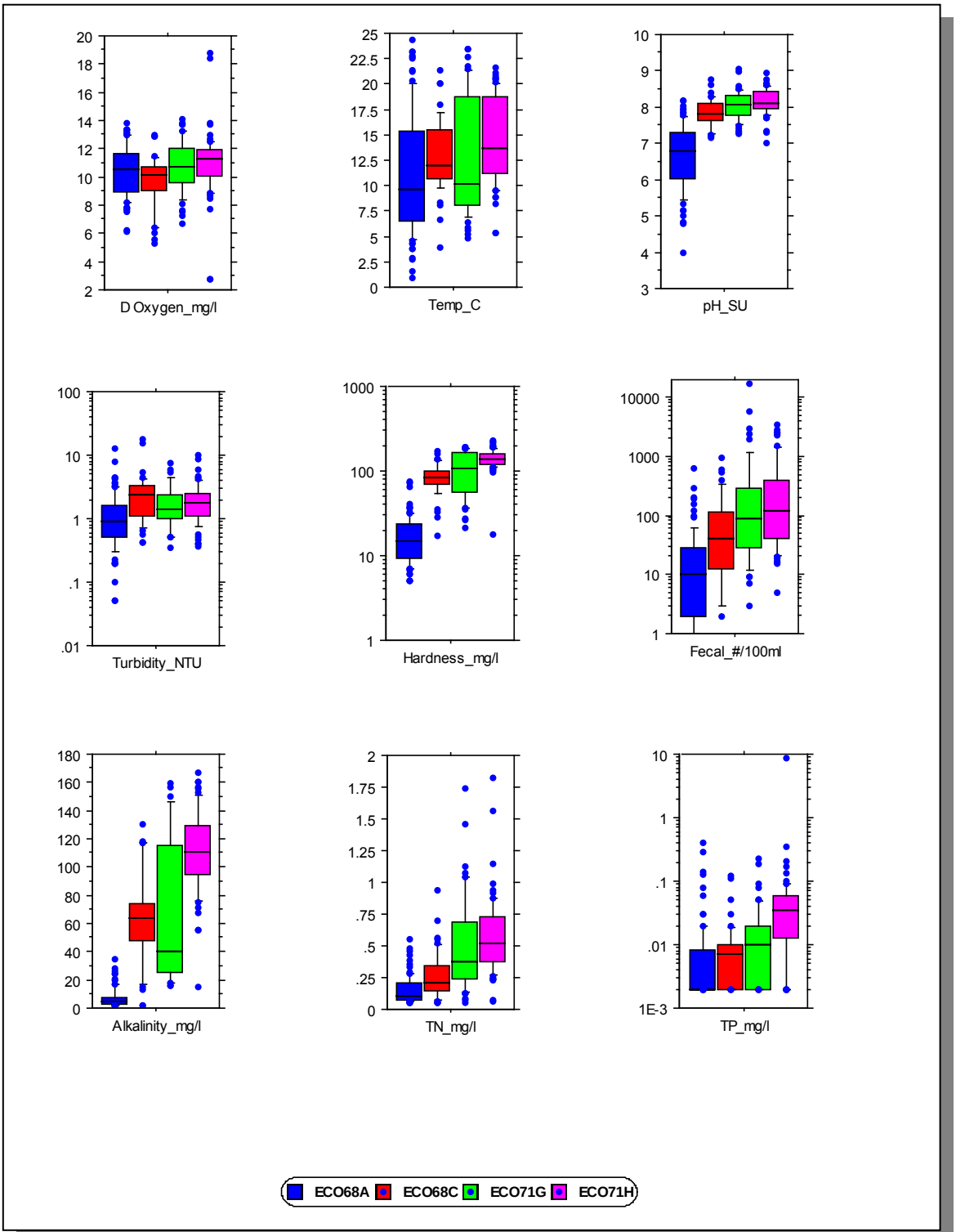
Data from ambient monitoring stations are entered into the STORET (Storage and Retrieval) system administered by EPA. Some ambient monitoring stations are scheduled to be monitored as watershed sampling sites.

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 Caney Fork 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)
- Outer Nashville Basin (71h)
- Eastern Highland Rim (71g)

Ecoregion reference sites are chemically monitored using methodology outlined in the Division's Chemical Standard Operating Procedure (Standard Operating Procedure for Modified Clean Technique Sampling Protocol). Macroinvertebrate samples are collected in spring and fall. These biological sample collections follow methodology outlined in the Tennessee Biological Standard Operating Procedures Manual. Volume 1: Macroinvertebrates and EPA's Revision to Rapid Bioassessment Protocols for use in Streams and Rivers.

Ecoregion stations are scheduled to be monitored as Watershed sampling sites.



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.***

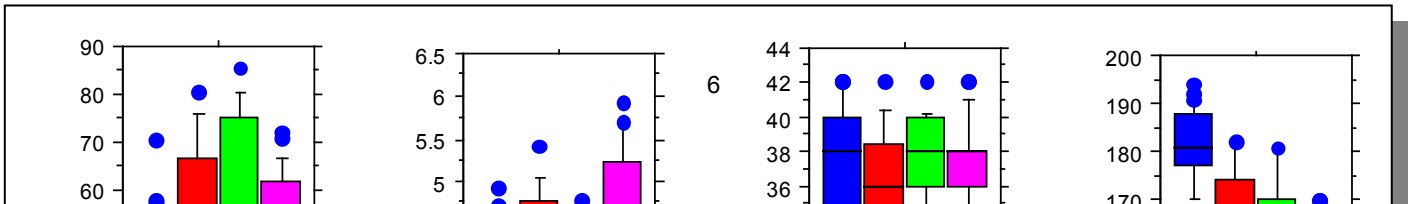


Figure 3-4. Benthic Macroinvertebrate and Habitat Scores for Caney Fork River Watershed Ecoregion Sites. *Boxes and bars illustrate 10th, 25th, median, 75th, and 90th percentiles. Extreme values are also shown as dots. NCBI, North Carolina Biotic Index. Index Score and Habitat Riffle/Run scoring system are described in TDEC's Quality System Standard Operating Procedure for Macroinvertebrate Surveys (2002).*

3.2.C. Watershed 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:

- Data less than 5 years old (monitored)
- Data more than 5 years old (evaluated)
- Knowledge and experience of the area by technical staff (evaluated)
- Complaint investigation (monitored, if samples are collected)
- Other readily available Agencies' data (monitored)
- Readily available Volunteer Monitoring data (monitored, if certain quality assurance standards are met)

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.

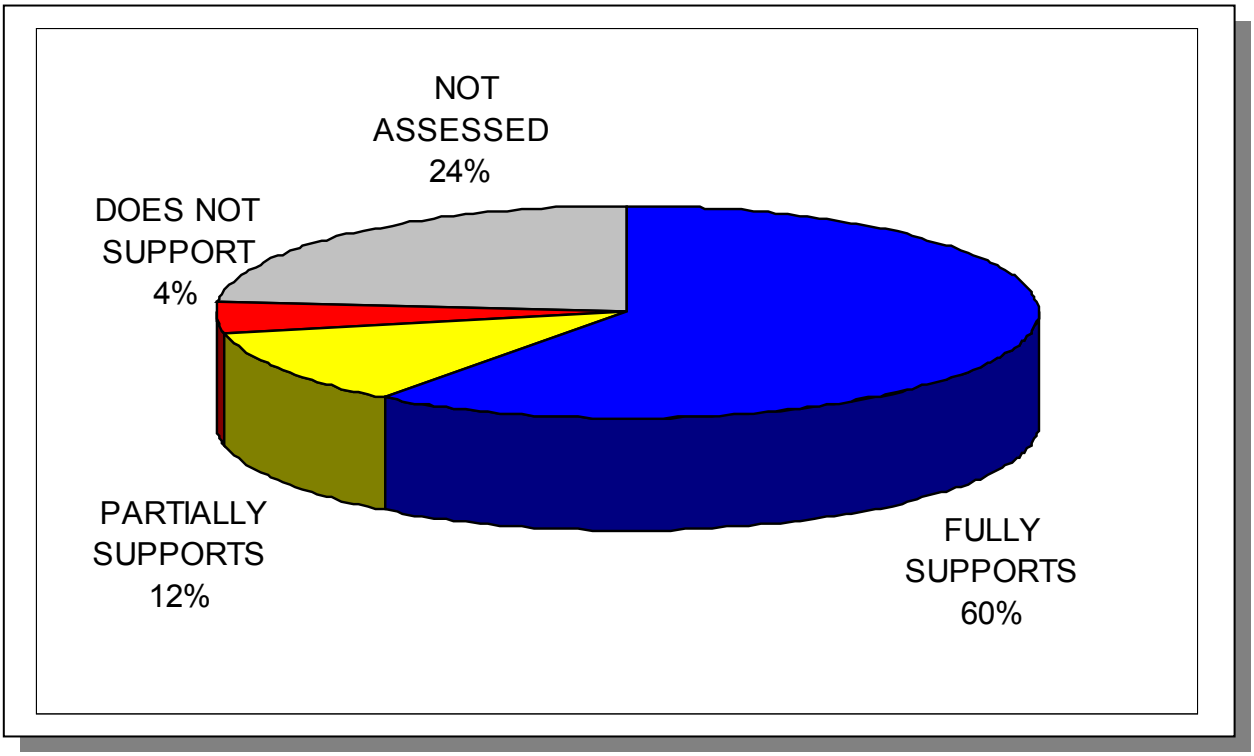


Figure 3-3a. Water Quality Assessment for Streams and Rivers in the Caney Fork River Watershed. *Assessment data are based on the 2000 Water Quality Assessment. More information is provided in Appendix III.*

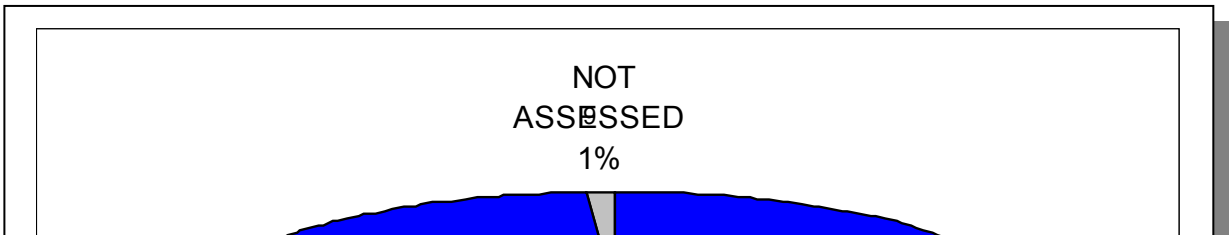


Figure 3-3b. Water Quality Assessment for Lakes in the Caney Fork River Watershed. *Assessment data are based on the 2000 Water Quality Assessment. More information is provided in Appendix III.*

3.3.A. Assessment Summary.

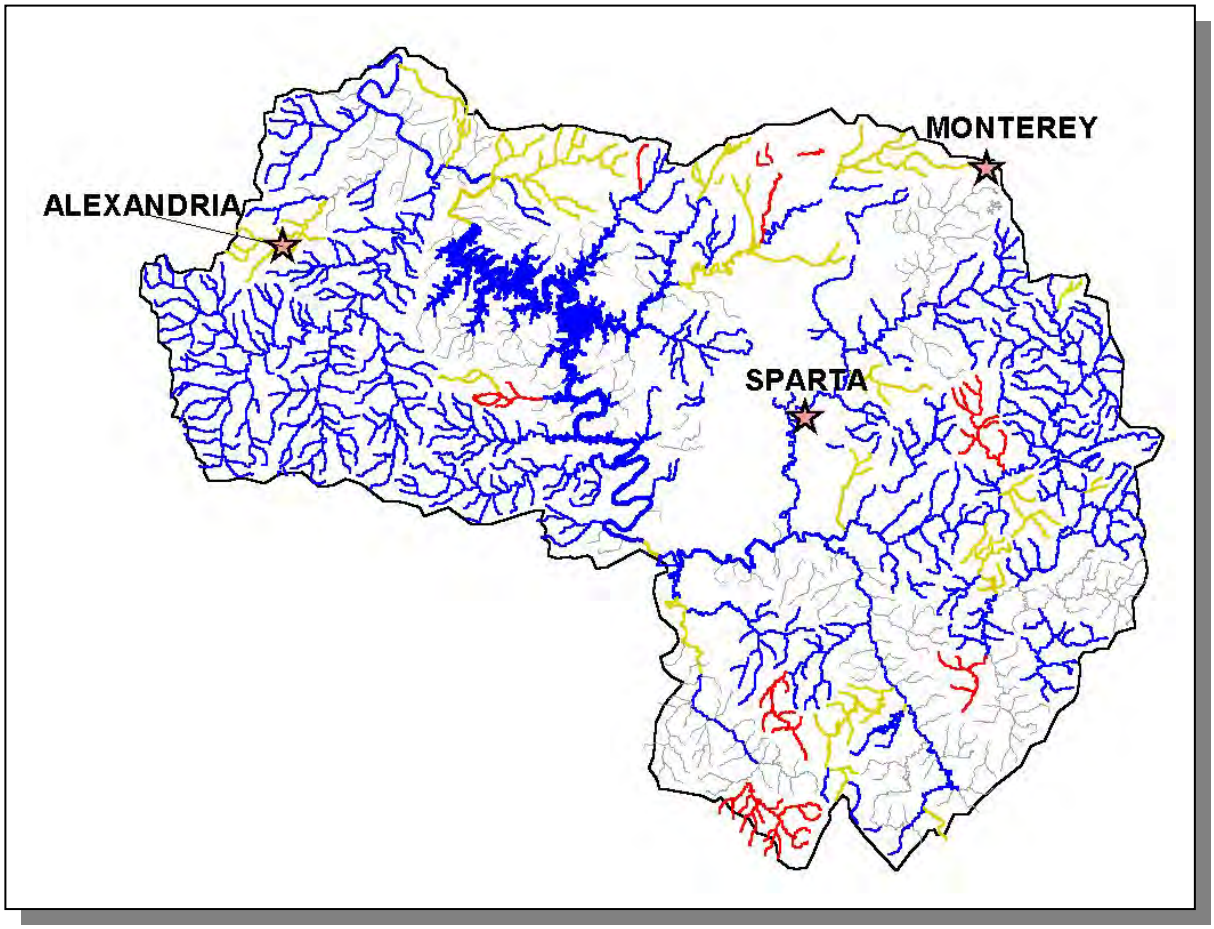


Figure 3-4a. Overall Use Support Attainment in the Caney Fork River Watershed. *Assessment data are based on the 2000 Water Quality Assessment. Blue, Fully Supports Designated Use; Yellow, Partially Supports Designated Use; Red, Does Not Support Designated Use; Gray, Not Assessed. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Alexandria, Monterey, and Sparta are shown for reference. More information is provided in Appendix III.*

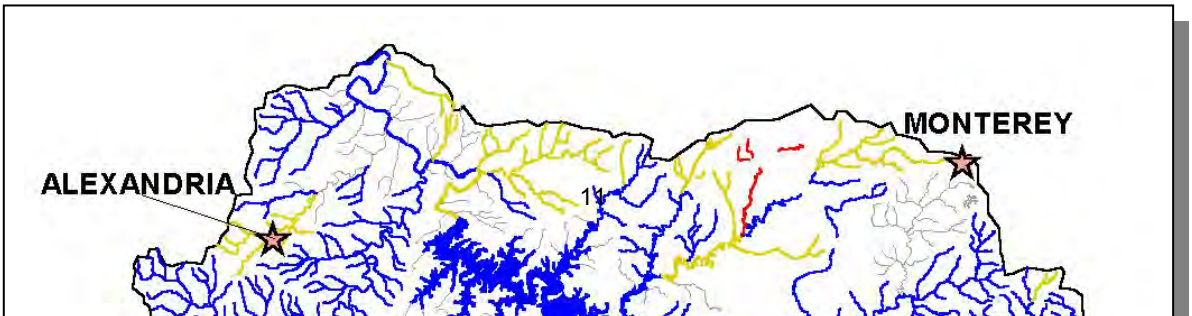


Figure 3-4b. Fish and Aquatic Life Use Support Attainment in the Caney Fork River Watershed. *Assessment data are based on the 2000 Water Quality Assessment. Blue, Fully Supports Designated Use; Yellow, Partially Supports Designated Use; Red, Does Not Support Designated Use; Gray, Not Assessed. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Alexandria, Monterey, and Sparta are shown for reference. More information is provided in Appendix III.*

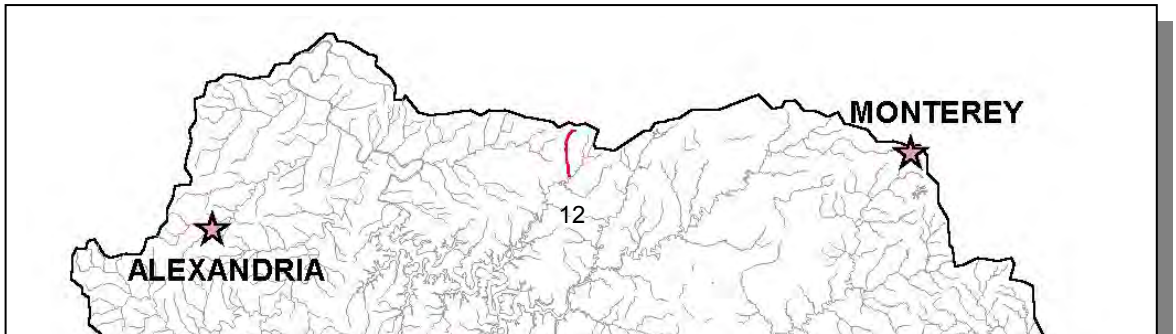


Figure 3-4c. Recreation Use Support Attainment in the Caney Fork River Watershed. *Assessment data are based on the 2000 Water Quality Assessment. Blue, Fully Supports Designated Use; Yellow, Partially Supports Designated Use; Gray, Not Assessed. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Alexandria, Monterey, and Sparta are shown for reference. More information is provided in Appendix III.*

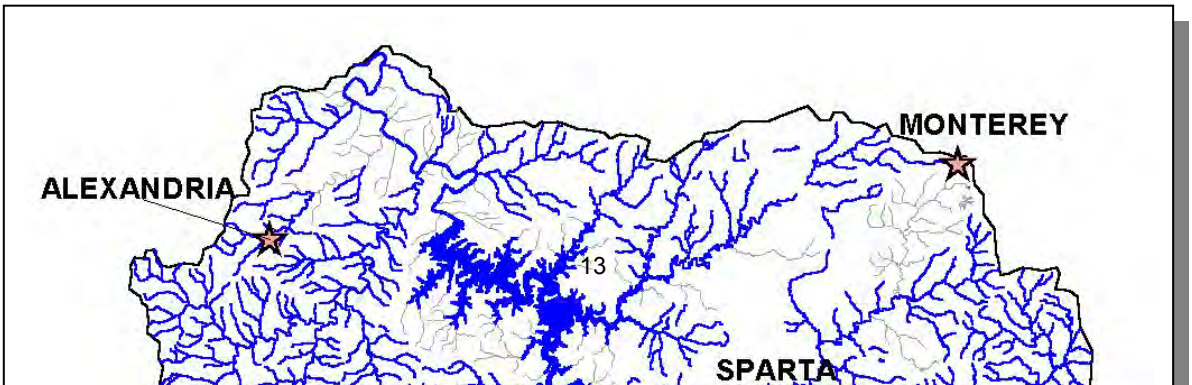


Figure 3-4d. Irrigation Use Support Attainment in the Caney Fork River Watershed. *Assessment data are based on the 2000 Water Quality Assessment. Blue, Fully Supports Designated Use; Gray, Not Assessed. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Alexandria, Monterey, and Sparta are shown for reference. More information is provided in Appendix III.*

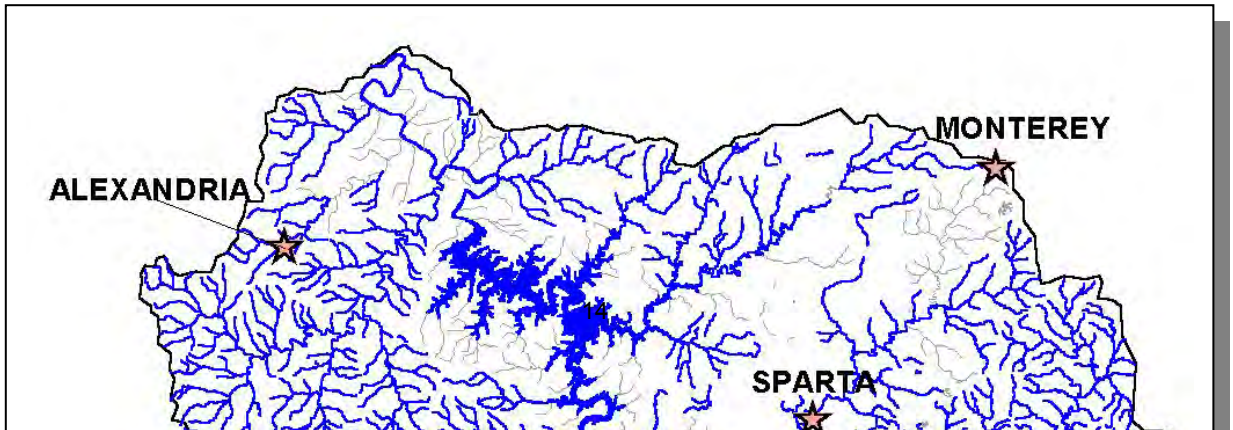


Figure 3-4e. Livestock Watering and Wildlife Use Support Attainment in the Caney Fork River Watershed. *Assessment data are based on the 2000 Water Quality Assessment. Blue, Fully Supports Designated Use; Gray, Not Assessed. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Alexandria, Monterey, and Sparta are shown for reference. More information is provided in Appendix III.*

3.3.B. Use Impairment Summary.

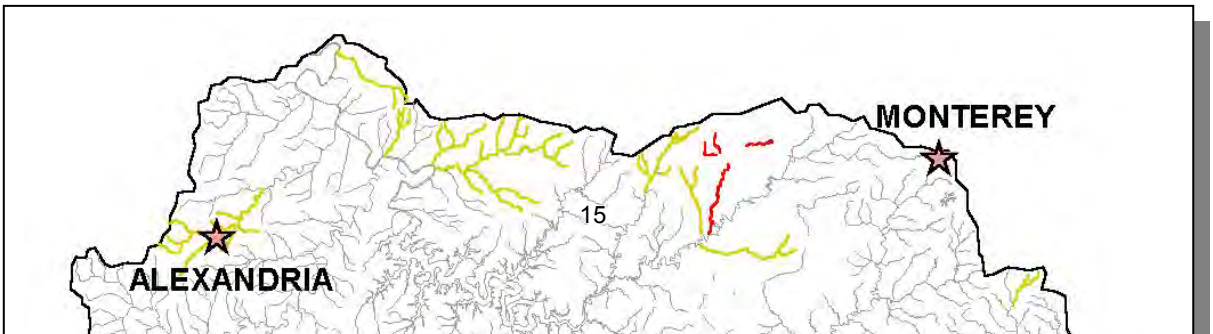


Figure 3-5a. Impaired Streams Due to Habitat Alteration in the Caney Fork River Watershed. *Assessment data are based on the 2000 Water Quality Assessment.; Yellow, Partially Supports Designated Use; Red, Does Not Support Designated Use. Alexandria, Monterey, and Sparta are shown for reference. More information is provided in Appendix III.*

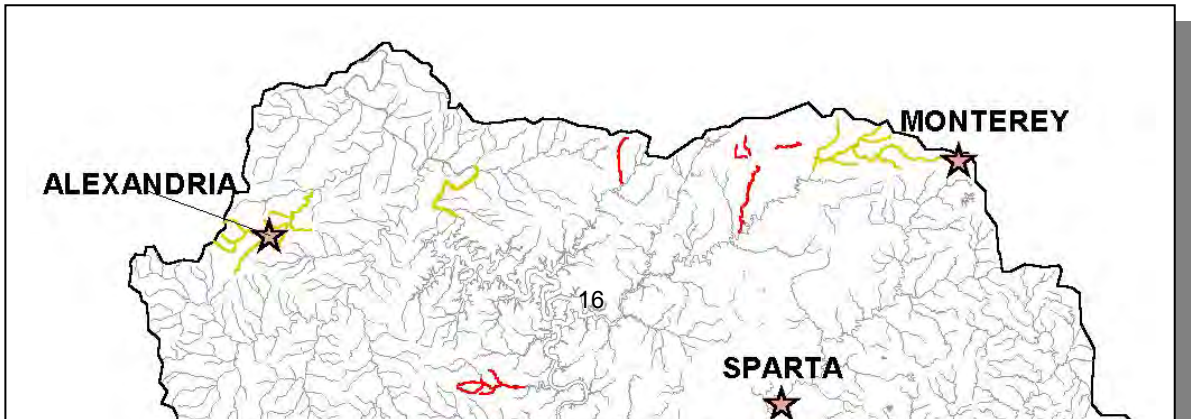


Figure 3-5b. Impaired Streams Due to Organic Enrichment/Low Dissolved Oxygen Levels in the Caney Fork River Watershed. *Assessment data are based on the 2000 Water Quality Assessment. Yellow, Partially Supports Designated Use; Red, Does Not Support Designated Use. Alexandria, Monterey, and Sparta are shown for reference. More information is provided in Appendix III.*

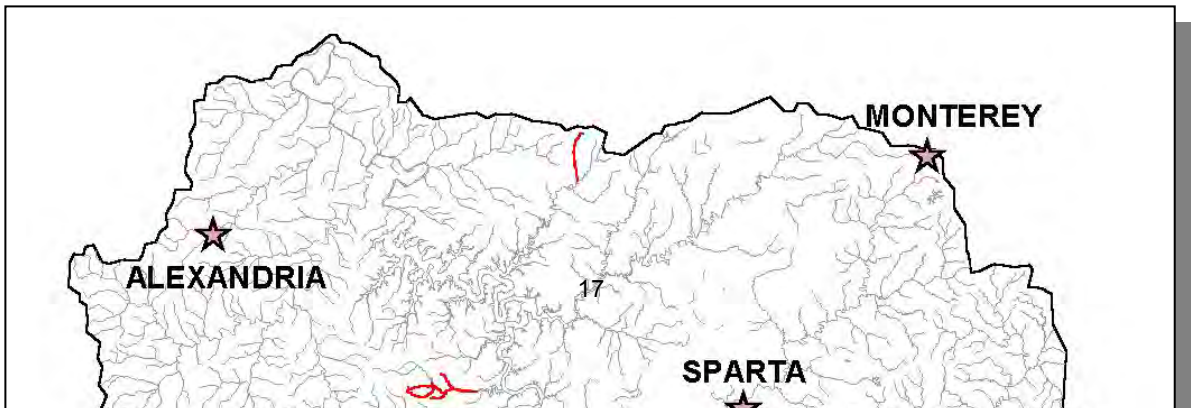


Figure 3-5c. Impaired Streams Due to Pathogens in the Caney Fork River Watershed. *Assessment data are based on the 2000 Water Quality Assessment. Yellow, Partially Supports Designated Use; Red, Does Not Support Designated Use. Alexandria, Monterey, and Sparta are shown for reference. More information is provided in Appendix III.*

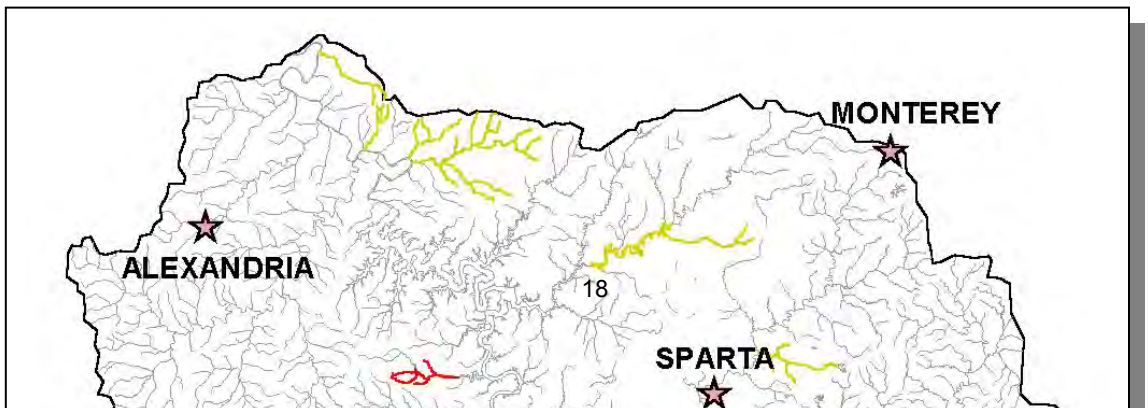


Figure 3-5d. Impaired Streams Due to Siltation in the Caney Fork River Watershed. *Assessment data are based on the 2000 Water Quality Assessment. Yellow, Partially Supports Designated Use; Red, Does Not Support Designated Use. Alexandria, Monterey, and Sparta are shown for reference More information is provided in 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.

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, Summary maps of each watershed may be viewed at 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 bankfull width and drainage area.

CHAPTER 4

POINT AND NONPOINT SOURCE CHARACTERIZATION OF THE CANEY FORK RIVER WATERSHED

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 Caney Fork River Watershed (HUC 05130108) 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.

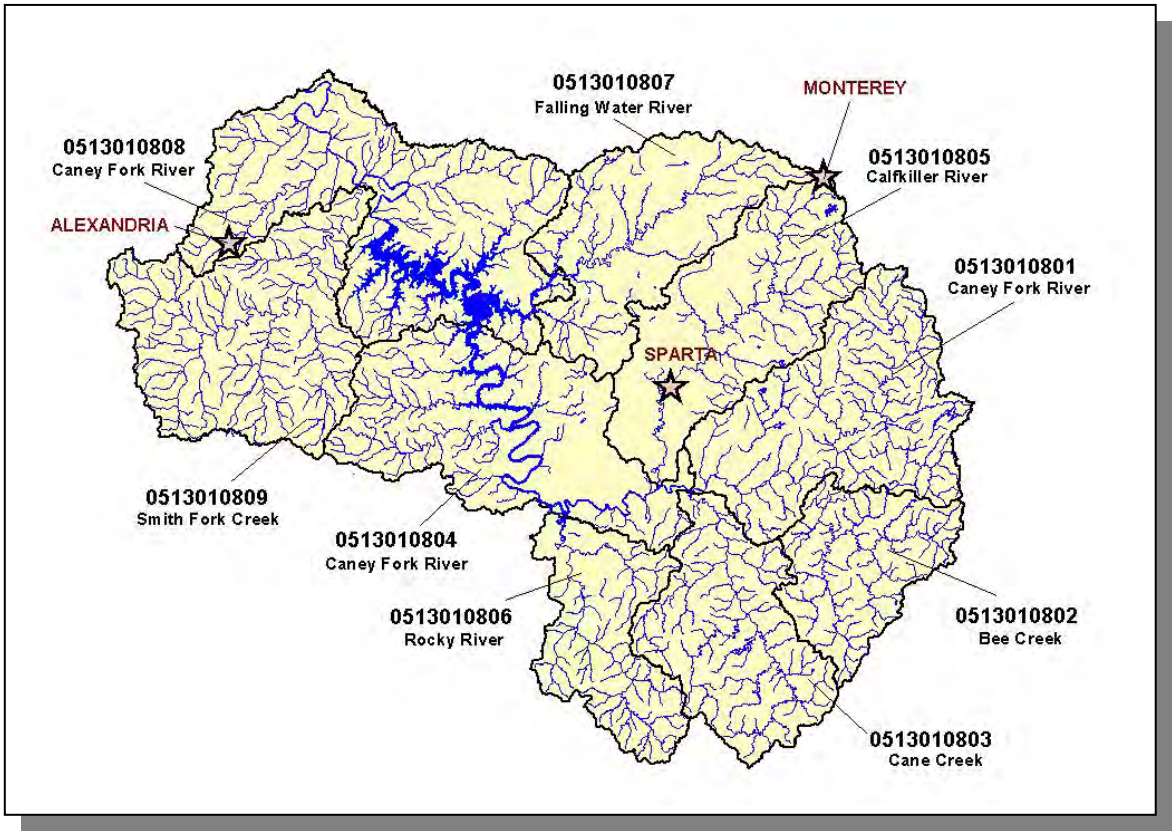


Figure 4-1. The Caney Fork River Watershed is Composed of Nine USGS-Delineated Subwatersheds (10-Digit Subwatersheds). *Locations of Alexandria, Monterey, and Sparta are shown for reference.*

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 Caney Fork River Watershed.

HUC-10	HUC-12	
0513010801	051301080101 (Caney Fork River)	051301080103 (Caney Fork River)
	051301080102 (Laurel Creek)	051301080104 (Caney Fork River)
0513010802	051301080201 (Bee Creek)	051301080203 (Bee Creek)
	051301080202 (Glade Creek)	
0513010803	051301080301 (Upper Cane Creek)	051301080303 (Lower Cane Creek)
	051301080302 (Piney Creek)	
0513010804	051301080401 (Caney Fork River)	051301080405 (Caney Fork River)
	051301080402 (Caney Fork River)	051301080406 (Fall Creek)
	051301080403 (Sink Creek)	051301080407 (Eagle Creek)
	051301080404 (Pine Creek)	
0513010805	051301080501 (Upper Calfkiller River)	051301080503 (Middle Calfkiller River)
	051301080502 (Bridge Creek)	051301080504 (Lower Calfkiller River)
0513010806	051301080601 (Rocky River)	051301080602 (Rocky River)
0513010807	051301080701 (Upper Falling Water River)	051301080704 (Cane Creek)
	051301080702 (Middle Falling Water River)	051301080705 (Taylor Creek)
	051301080703 (Lower Falling Water River)	
0513010808	051301080801 (Center Hill Lake)	051301080805 (Caney Fork River)
	051301080802 (Center Hill Lake)	051301080806 (Caney Fork River)
	051301080803 (Mine Lick Creek)	051301080807 (Hickman Creek)
	051301080804 (Center Hill Lake)	051301080808 Mulherrin Creek)
0513010809	051301080901 (Smith Fork Creek)	051301080904 (Clear Fork)
	051301080902 (Saunders Fork)	051301080905 (Dry Creek)
	051301080903 (Smith Fork Creek)	051301080906 (Smith Fork Creek)

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. 0513010801.

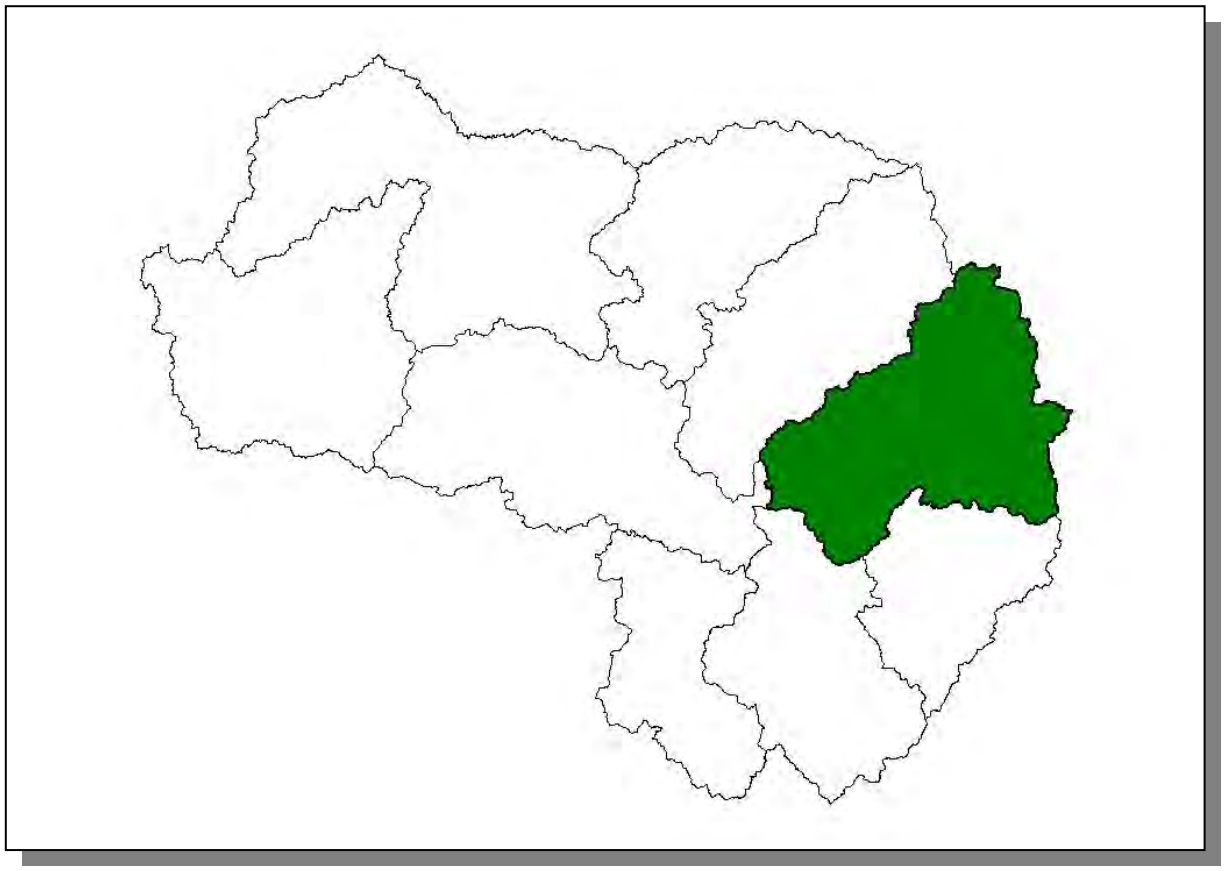


Figure 4-2. Location of Subwatershed 0513010801. *All Caney Fork HUC-10 subwatershed boundaries are shown for reference.*

4.2.A.i. General Description.

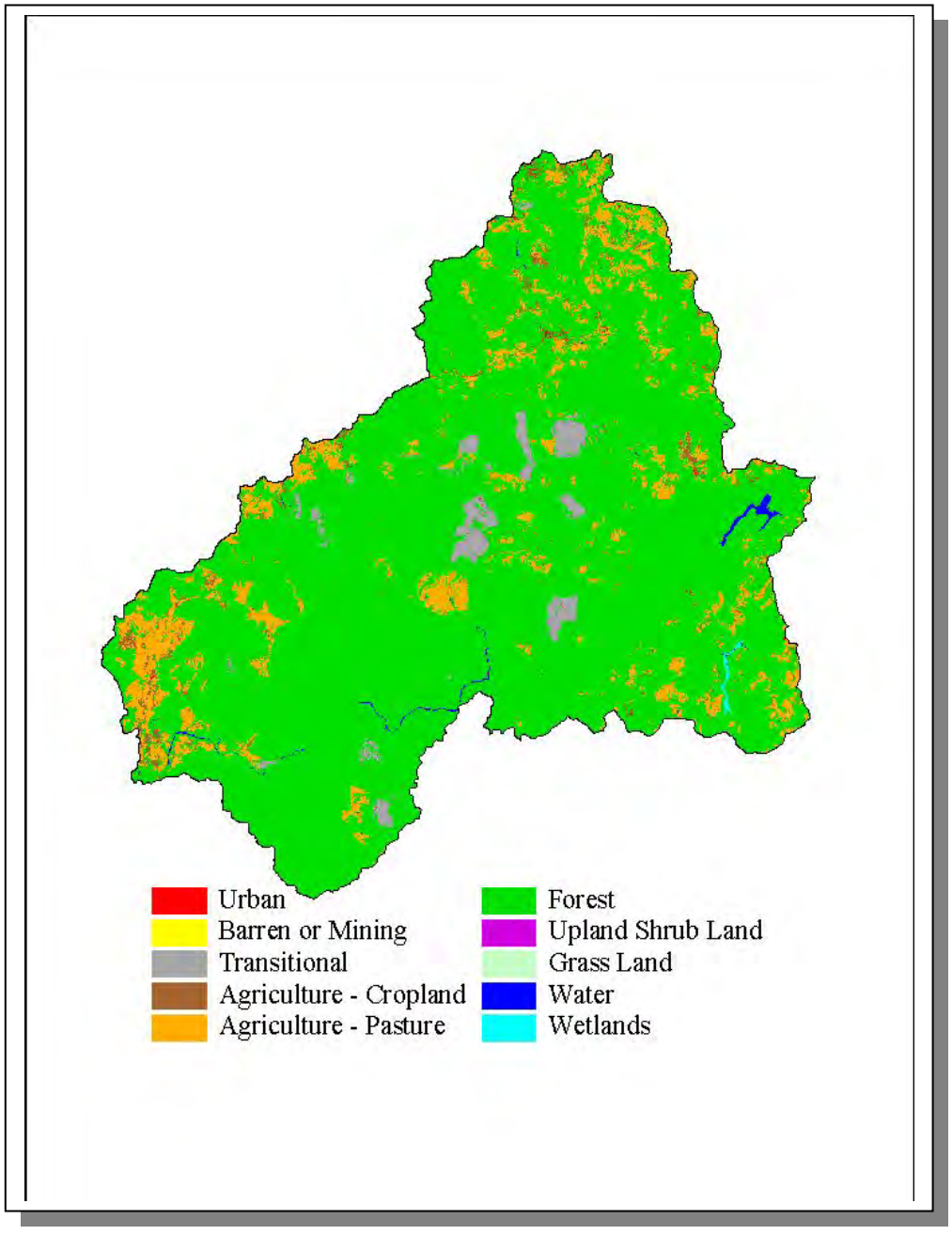


Figure 4-3. Illustration of Land Use Distribution in Subwatershed 0513010801.

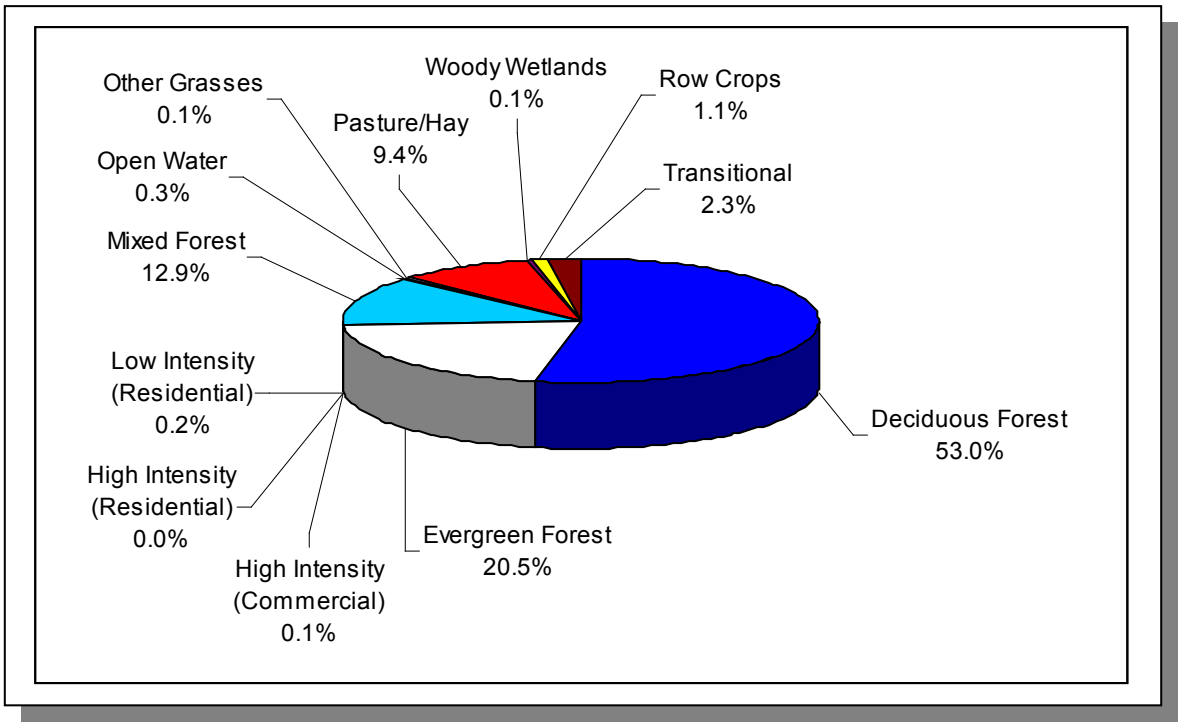


Figure 4-4. Land Use Distribution in Subwatershed 0513010801. *More information is provided in Caney Fork-Appendix IV.*

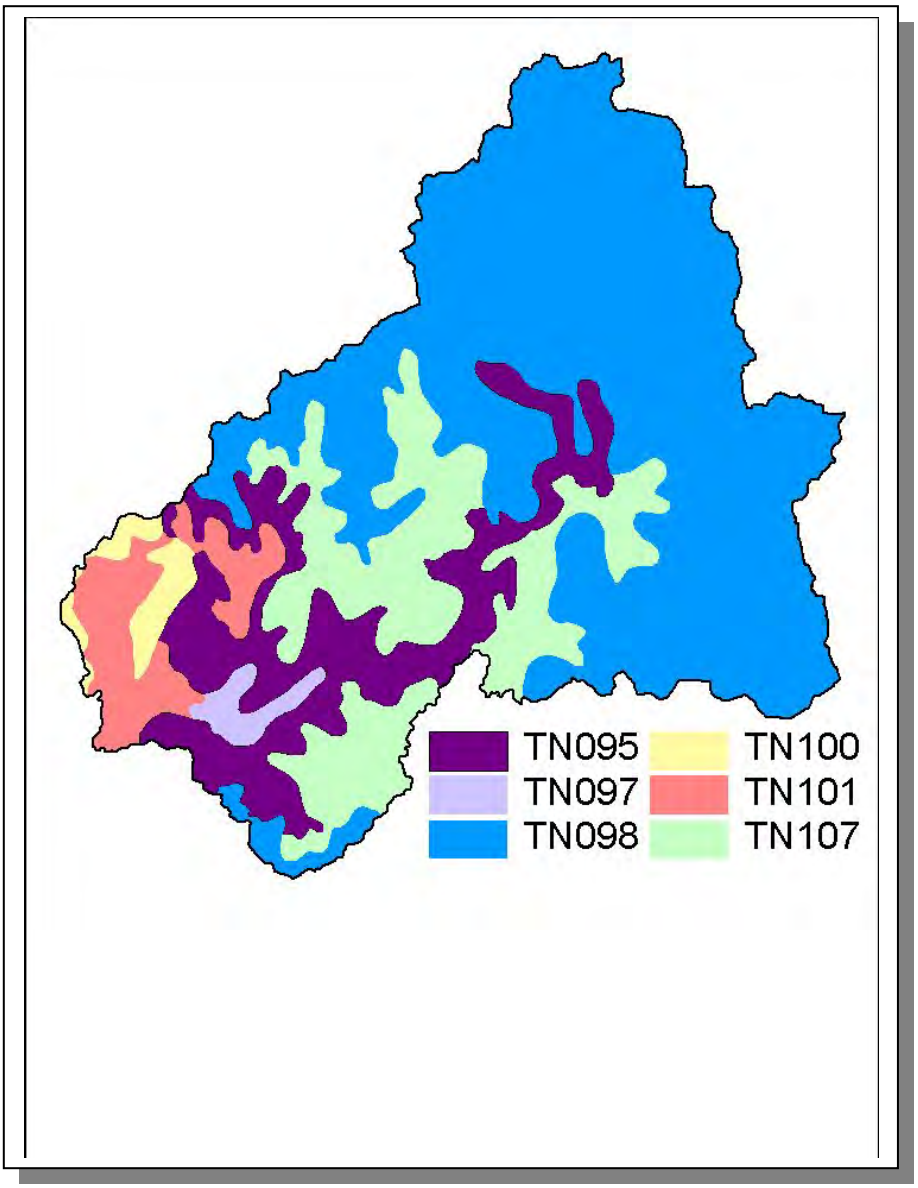


Figure 4-5. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010801.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN095	0.00	B	2.35	5.12	Loam	0.31
TN097	0.00	B	1.62	5.55	Loam	0.32
TN098	1.00	C	3.98	4.82	Loam	0.32
TN100	0.00	B	1.14	3.35	Silty Loam	0.21
TN101	0.00	B	1.71	5.39	Loam	0.35
TN107	1.00	C	6.34	4.84	Loam	0.28

Table 4-2. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010801. *More details are provided in Caney Fork-Appendix IV.*

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Cumberland	34,736	43,217	16.82	5,842	7,269	24.4
Putnam	51,373	58,326	0.15	78	89	14.1
Van Buren	4,846	5,060	6.03	292	305	4.5
White	20,090	22,201	25.04	5,031	5,560	10.5
Totals	**11,045**	**128,804**		**11,243**	**13,223**	**17.6**

Table 4-3. Population Estimates in Subwatershed 0513010801.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Pleasant Hill	Cumberland	474	228	77	151	0

Table 4-4. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0513010801.

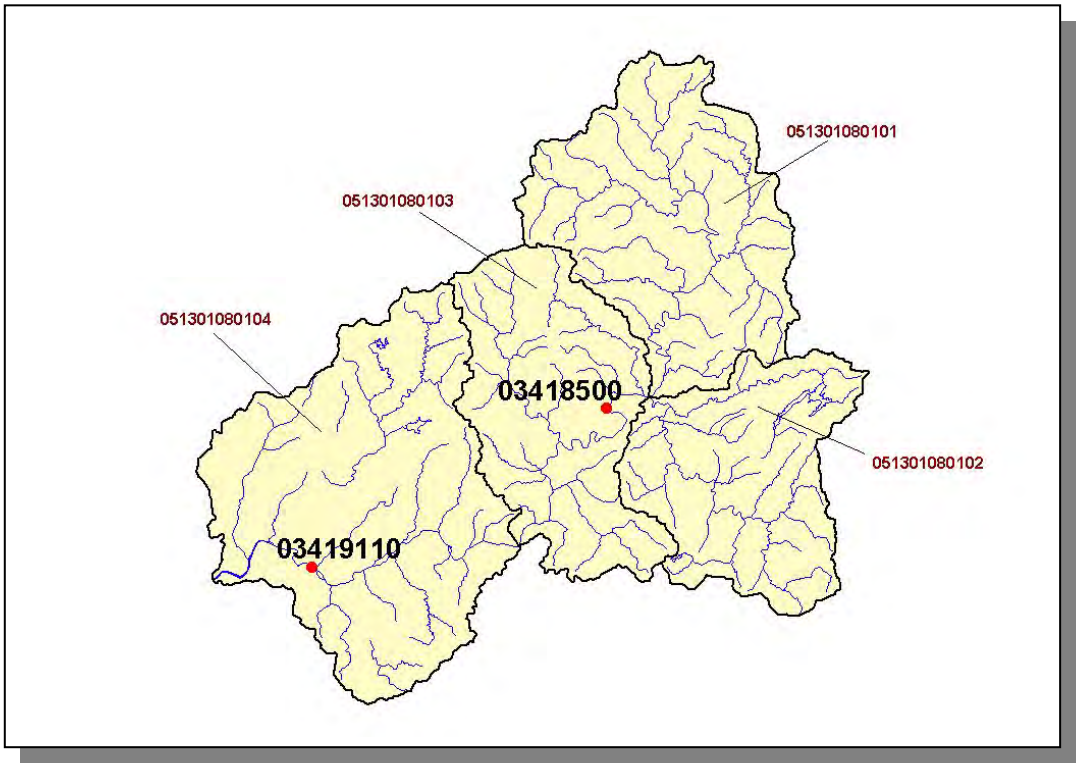


Figure 4-6. Location of Historical Streamflow Data Collection Sites in Subwatershed 0513010801. *Subwatershed 051301080101, 051301080102, 051301080103, and 051301080104 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

4.2.A.ii Point Source Contributions.

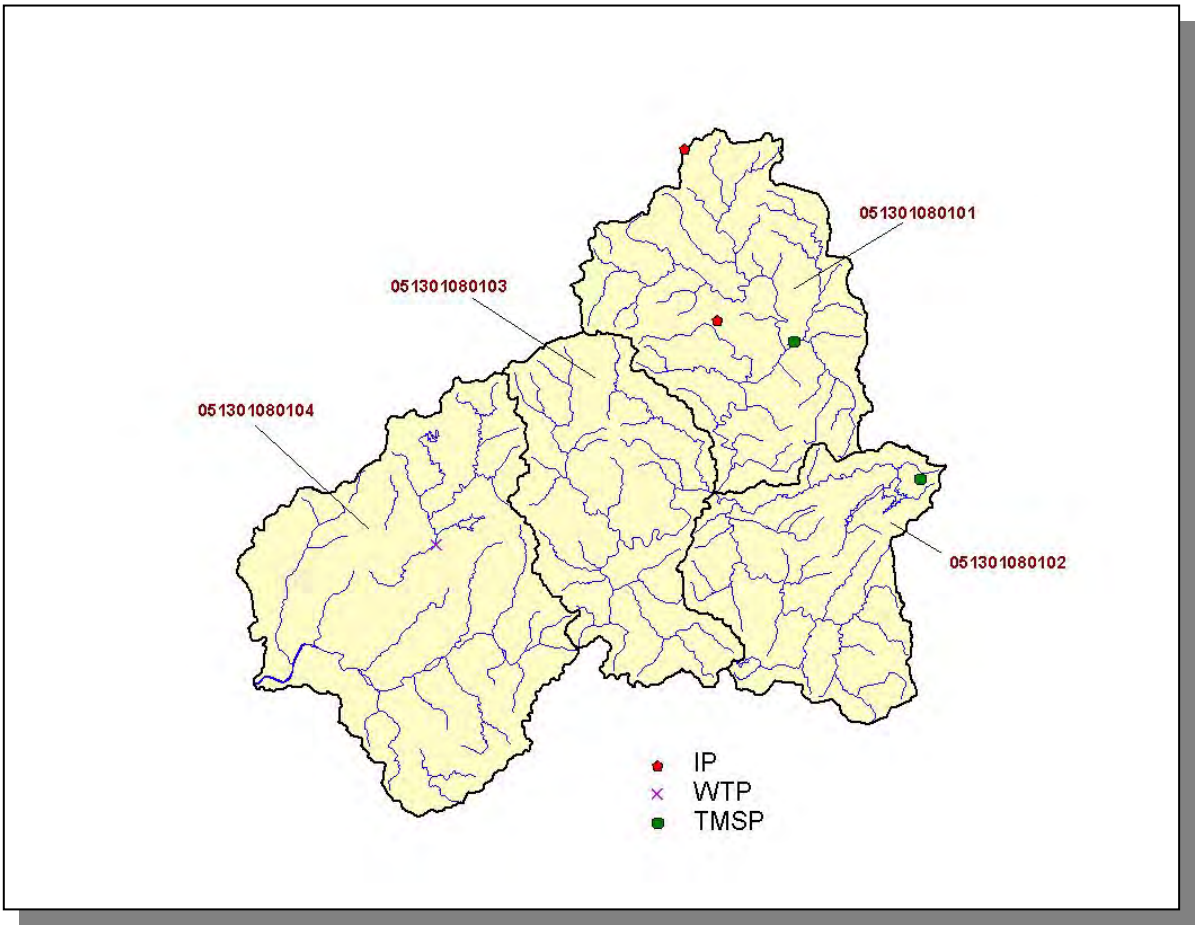


Figure 4-7. Location of Active Point Source Facilities in Subwatershed 0513010801. *Subwatershed 051301080101, 051301080102, 051301080103, and 051301080104 boundaries are shown for reference. More information is provided in the following figures.*

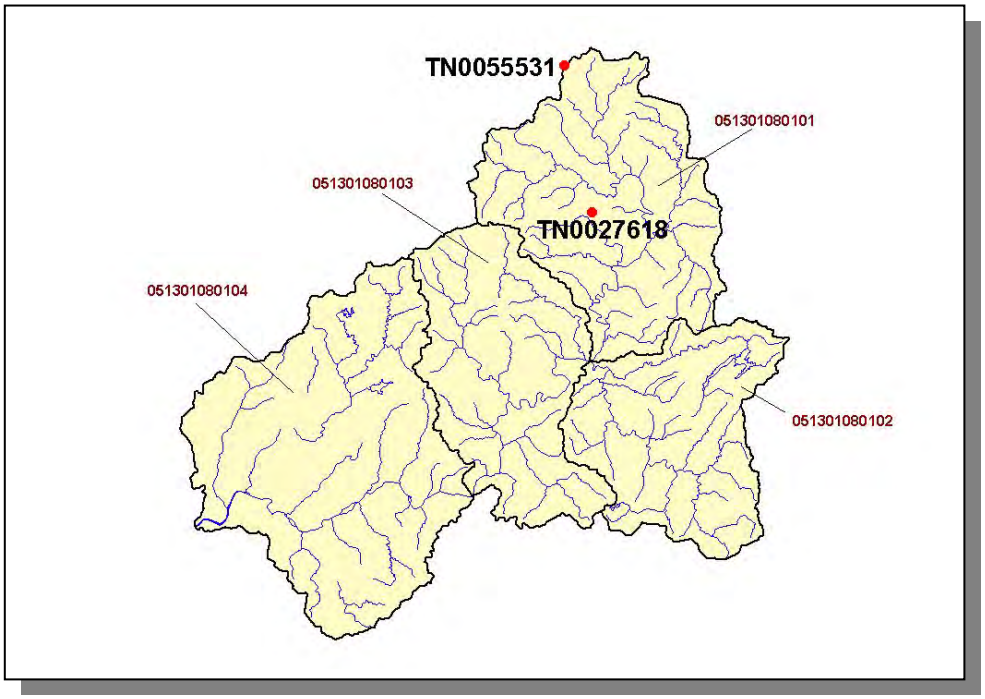


Figure 4-8. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0513010801. *Subwatershed 051301080101, 051301080102, 051301080103, and 051301080104 boundaries are shown for reference. More information, including the names of facilities, is provided in Caney Fork-Appendix IV.*

Figure 4-9. Location of TMSP Facilities in Subwatershed 0513010801. *Subwatershed 051301080101, 051301080102, 051301080103, and 051301080104 boundaries are shown for reference. More information, including the names of facilities, is provided in Caney Fork-Appendix IV.*

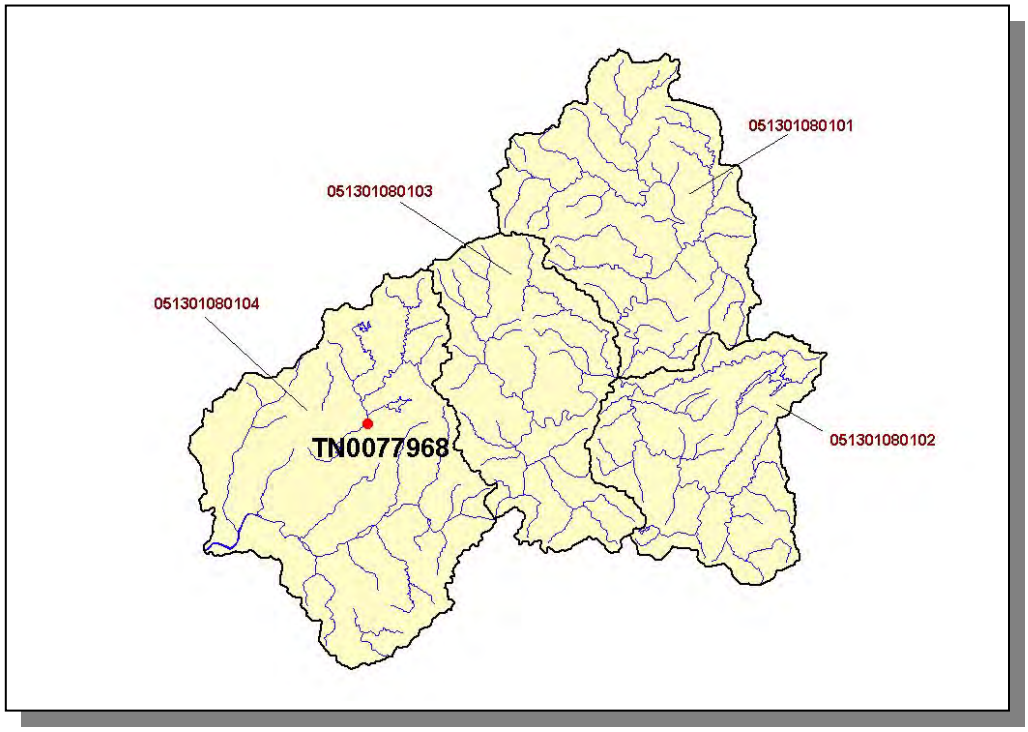


Figure 4-10. Location of Water Treatment Plant Sites in Subwatershed 0513010801. *Subwatershed 051301080101, 051301080102, 051301080103, and 051301080104 boundaries are shown for reference. More information, including the names of facilities, is provided in Caney Fork-Appendix IV.*

4.2.A.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
2,017	6,560	1,309	10	5,233,413	26	13

Table 4-5. Summary of Livestock Count Estimates in Subwatershed 0513010801. *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		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Cumberland	320.3	320.3	5.9	22.5
Putnam	152.5	152.3	3.6	16.4
Van Buren	145.0	135.4	2.3	9.5
Total	**129.4**	**129.4**	**4.9**	**23.3**

Table 4-6. Forest Acreage and Annual Removal Rates (1987-1994) in Subwatershed 0513010801.

CROPS	TONS/ACRE/YEAR
Corn (Row Crops)	7.83
Soybeans (Row Crops)	4.11
Grass (Hayland)	0.26
Legume/Grass (Hayland)	0.14
Grass (Pastureland)	0.96
Grass,Forbs, Legumes (Mixed Pasture)	1.14
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.66
Nonagricultural Land Use	0.00
Conservation Reserve Program Land	0.27
Tobacco (Row Crops)	5.65
Wheat (Close Grown Cropland)	6.20
Fruit (Horticultural)	0.19
Other Cropland (Not Planted)	2.93

Table 4-7. Annual Estimated Total Soil Loss in Subwatershed 0513010801.

4.2.B. 0513010802.

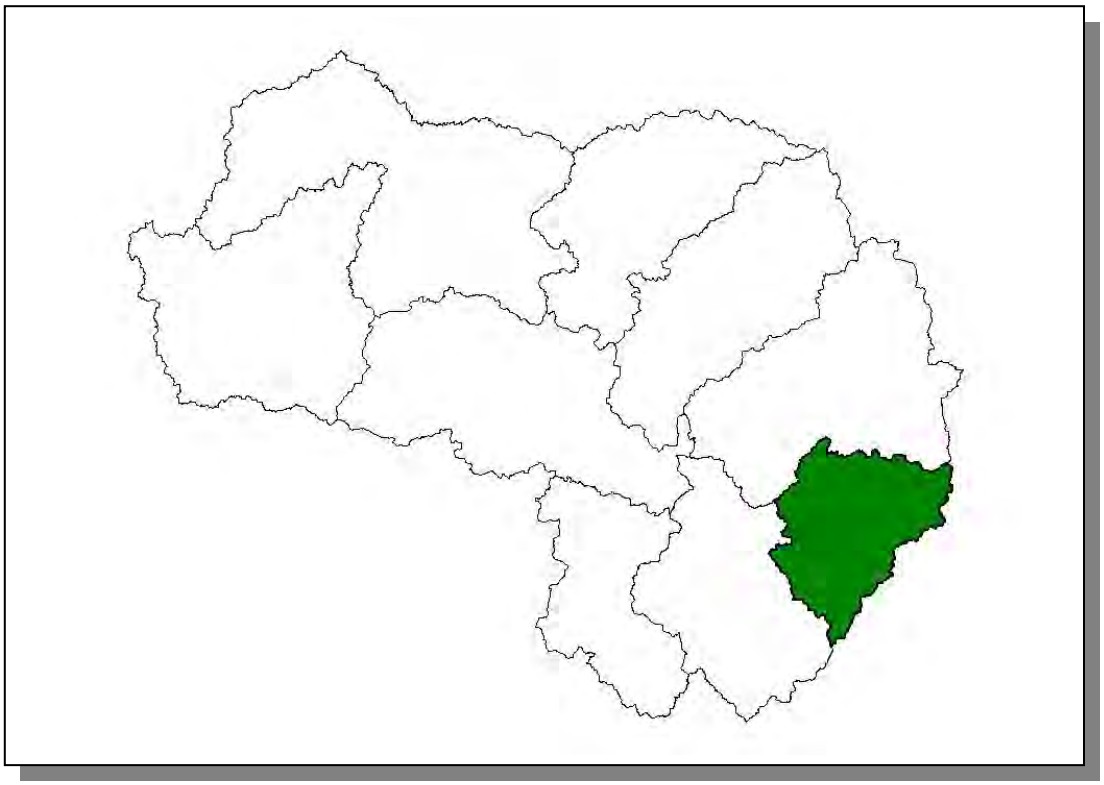


Figure 4-11. Location of Subwatershed 0513010802. *All Caney Fork HUC-10 subwatershed boundaries are shown for reference.*

4.2.B.i. General Description.

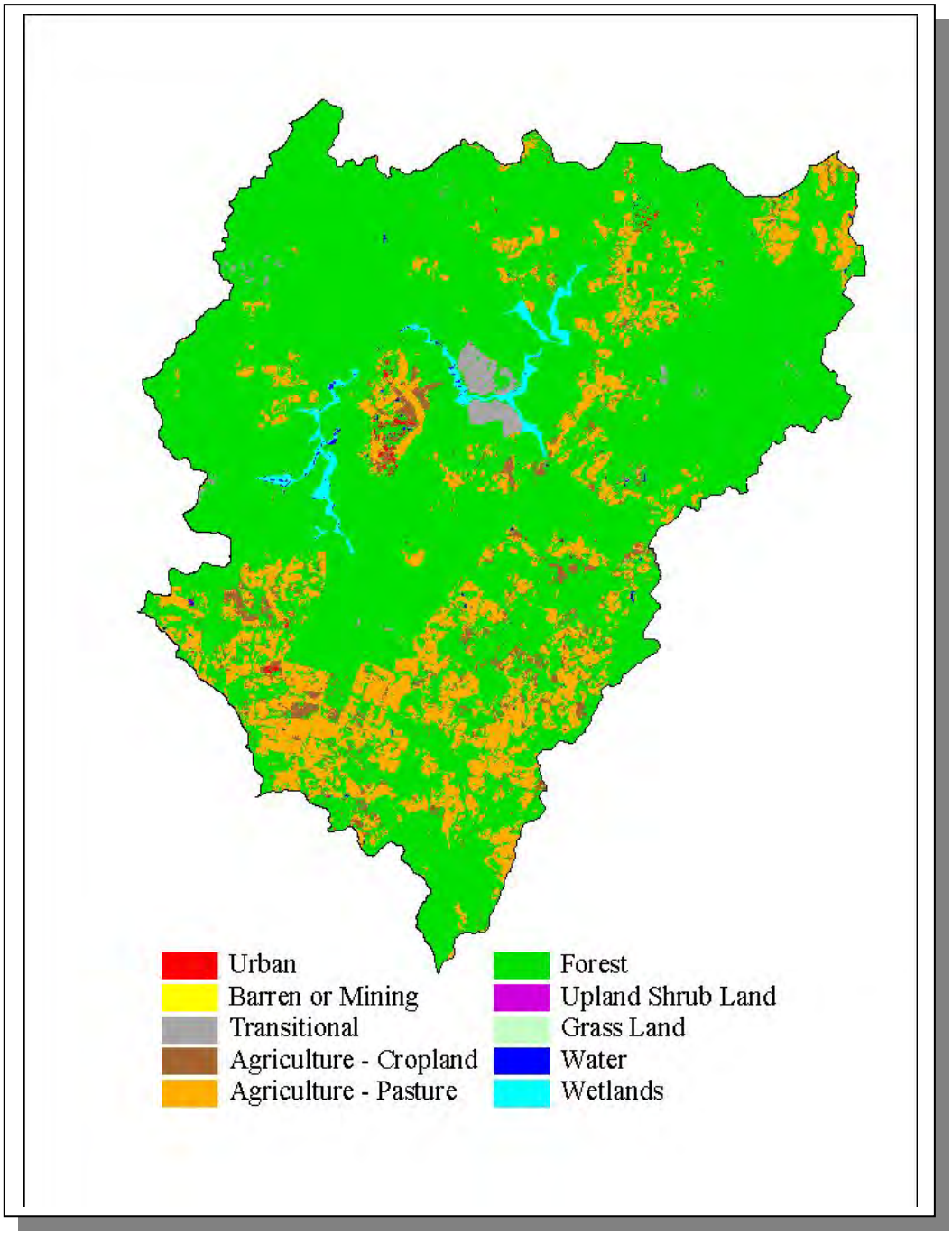


Figure 4-12. Illustration of Land Use Distribution in Subwatershed 0513010802.

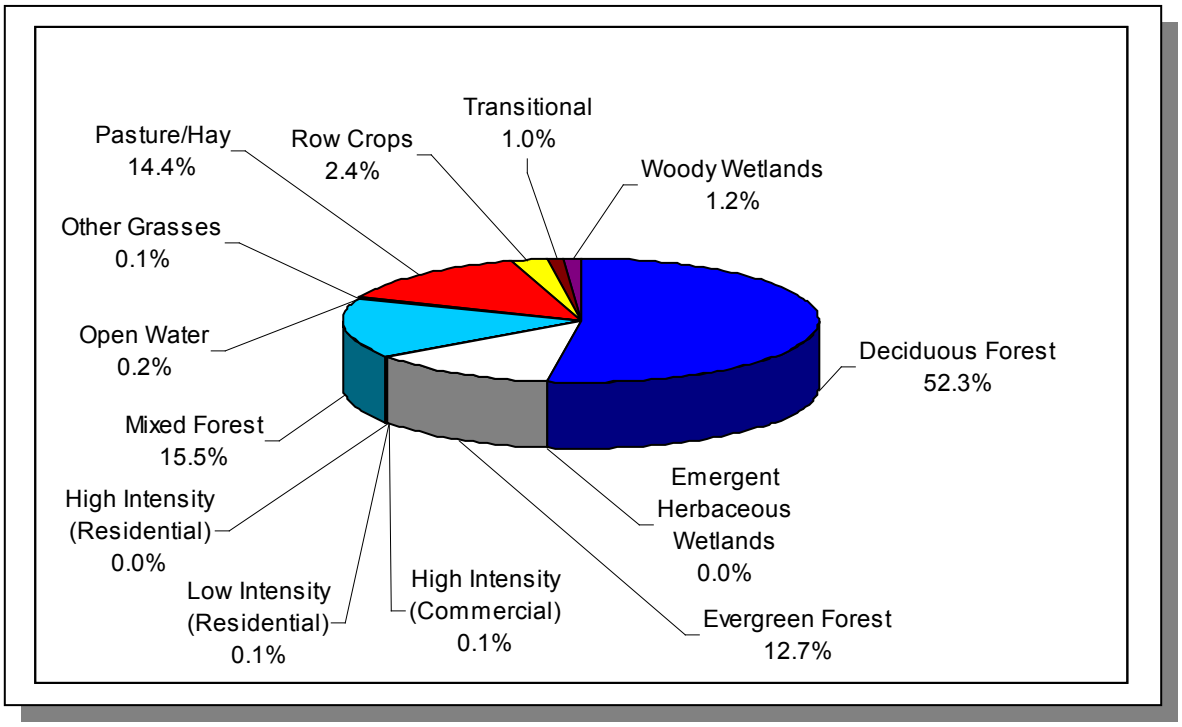


Figure 4-13. Land Use Distribution in Subwatershed 0513010802. *More information is provided in Caney Fork-Appendix IV.*

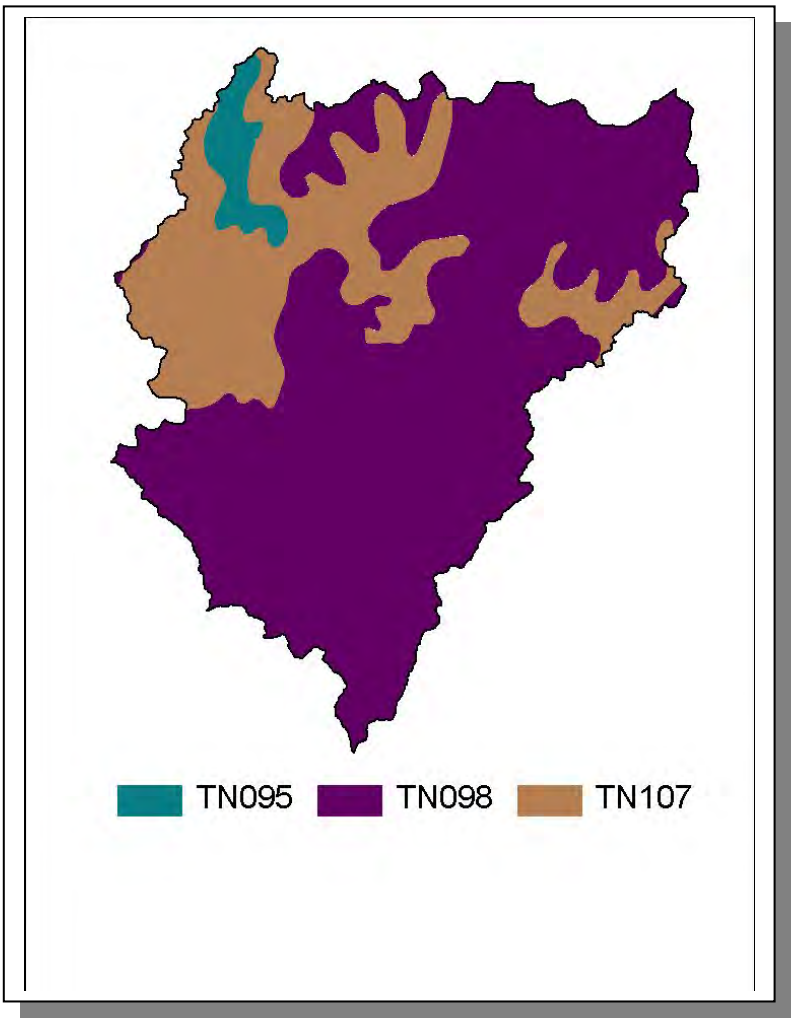


Figure 4-14. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010802.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN095	0.00	B	2.35	5.12	Loam	0.31
TN098	1.00	C	3.98	4.82	Loam	0.32
TN107	1.00	C	6.34	4.84	Loam	0.28

Table 4-8. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010802. *More information is provided in Caney Fork-Appendix IV.*

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Bledsoe	9,669	10,650	16.62	1,607	1,770	10.1
Cumberland	34,736	43,217	3.64	1,263	1,571	24.4
Van Buren	4,846	5,060	8.44	409	427	4.4
White	20,090	22,201	0.65	131	145	10.7
Total	**69,341**	**81,128**		**3,410**	**3,913**	**14.8**

Table 4-9. Population Estimates in Subwatershed 0513010802.

Figure 4-15. Location of Historical Streamflow Data Collection Sites in Subwatershed 0513010802. *Subwatershed 051301080201, 051301080202 and 051301080203 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

4.2.B.ii. Point Source Contributions.

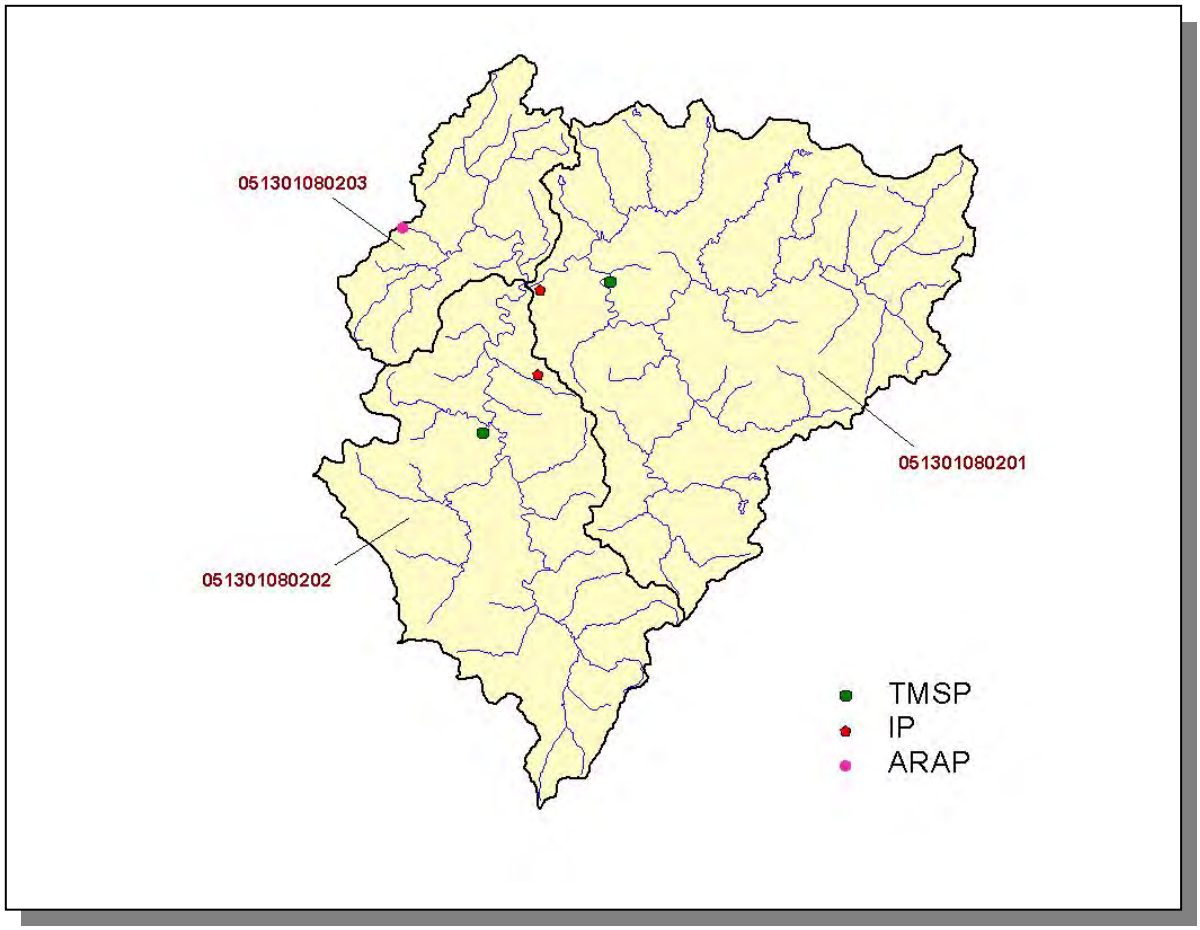


Figure 4-16. Location of Active Point Source Facilities in Subwatershed 0513010802. *Subwatershed 051301080201, 051301080202, and 051301080203 boundaries are shown for reference. More information is provided in the following figures.*

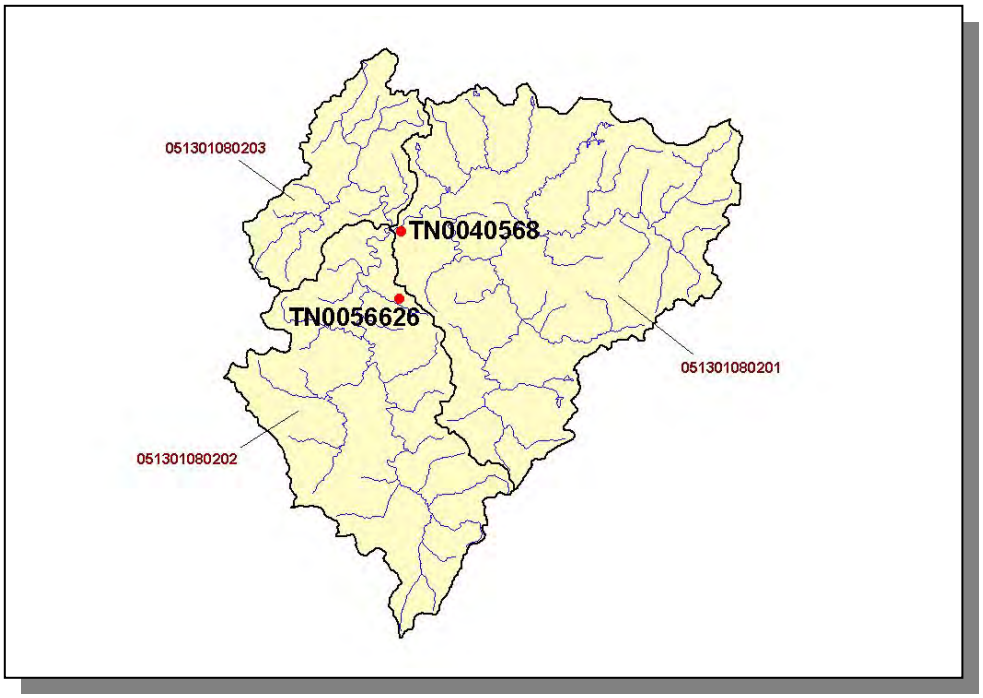


Figure 4-17. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0513010802. *Subwatershed 051301080201, 051301080202, and 051301080203 boundaries are shown for reference. More information, including the names of facilities, is provided in Caney Fork-Appendix IV.*

Figure 4-18. Location of TMSP Facilities in Subwatershed 0513010802. *Subwatershed 051301080201, 051301080202, and 051301080203 boundaries are shown for reference. More information, including the names of facilities, is provided in Caney Fork-Appendix IV.*

Figure 4-19. Location of ARAP Sites (Individual Permits) in Subwatershed 0513010802. *Subwatershed 051301080201, 051301080202, and 051301080203 boundaries are shown for reference. More information, including the names of facilities, is provided in Caney Fork-Appendix IV.*

4.2.B.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
3,354	7,335	469	7	0	340	57

Table 4-10. Summary of Livestock Count Estimates in Subwatershed 0513010802. *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		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Bledsoe	186.2	186.2	0.9	2.3
Cumberland	320.3	320.3	5.9	22.5
Van Buren	145.0	135.4	2.3	9.5
White	129.4	129.4	4.9	23.3
Total	**780.9**	**771.3**	**14.0**	**57.6**

Table 4-11. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0513010802.

CROPS	TONS/ACRE/YEAR
Legume/Grass (Hayland)	0.88
Legume (Pastureland)	0.15
Legume (Hayland)	0.51
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.92
Non Agricultural Land Use	0.00
Corn (Row Crops)	9.29
Soybeans (Row Crops)	5.23
Tobacco (Row Crops)	6.11
All Other Row Crops	4.45
Wheat (Close Grown Cropland)	2.93
All Other Close Grown Cropoland	0.67
Grass (Hayland)	0.79
Fruit (Horticulture)	6.11
Grass (Pastureland)	0.70
Grass, Forbs, Legumes (Mixed Pasture)	0.48
Conservation Reserve Program Lands	0.97
Other Land in Farms (Other Farmland)	0.25
All Other Crops not Planted	2.26
Other Vegetable and Truck Crops	14.05
Other (Horticulture)	3.72

Table 4-12. Annual Estimated Total Soil Loss in Subwatershed 0513010802.

4.2.C. 0513010803.

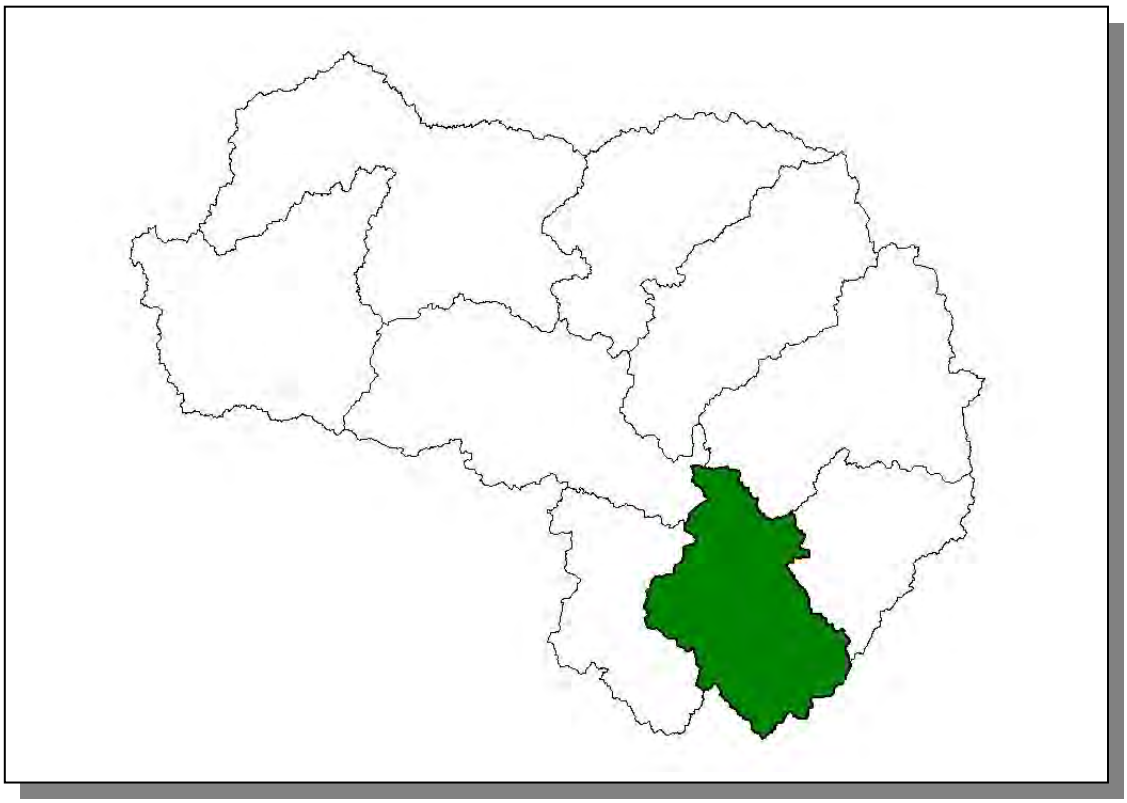


Figure 4-20. Location of Subwatershed 0513010803. *All Caney Fork HUC-10 subwatershed boundaries are shown for reference.*

4.2.C.i. General Description.

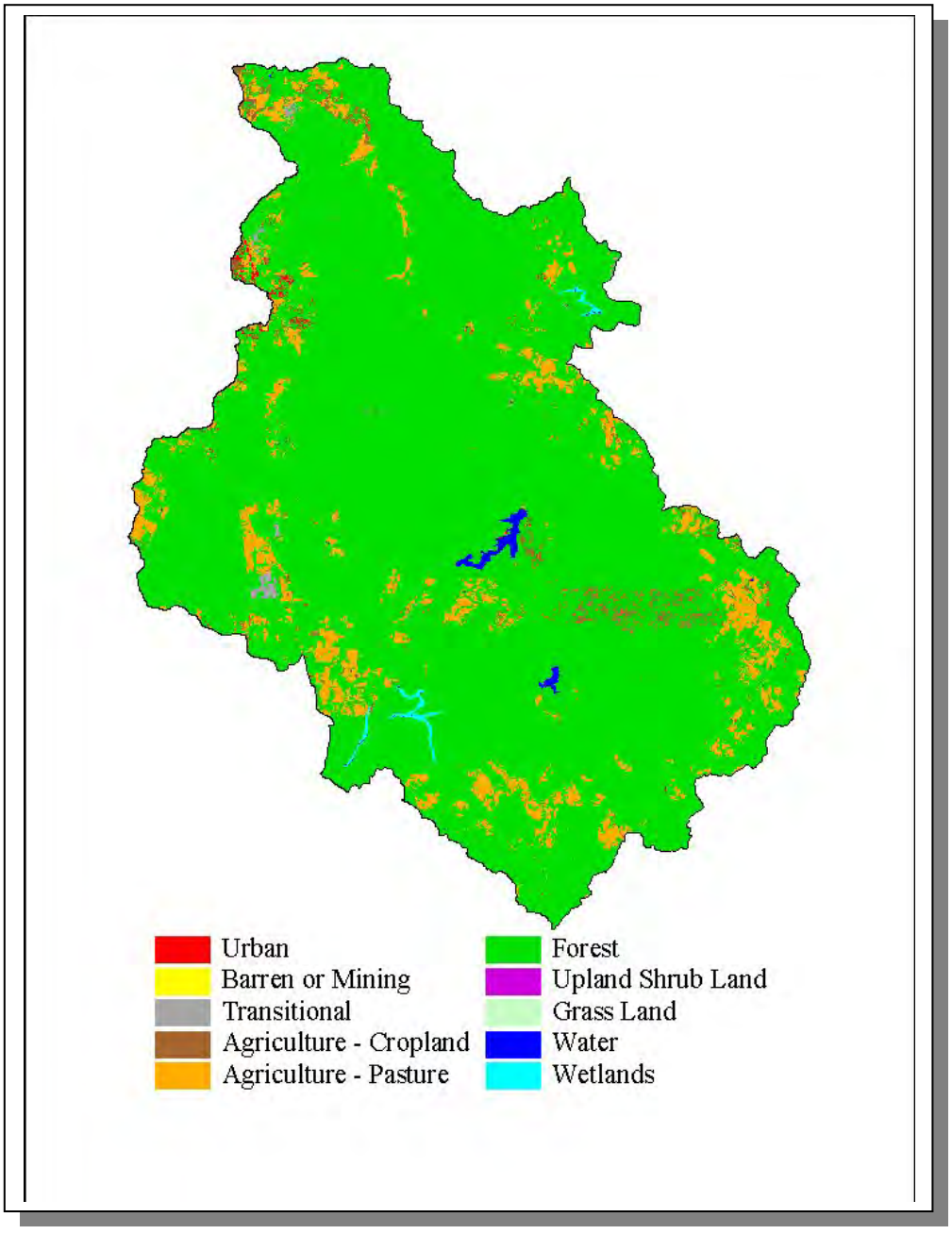


Figure 4-21. Illustration of Land Use Distribution in Subwatershed 0513010803.

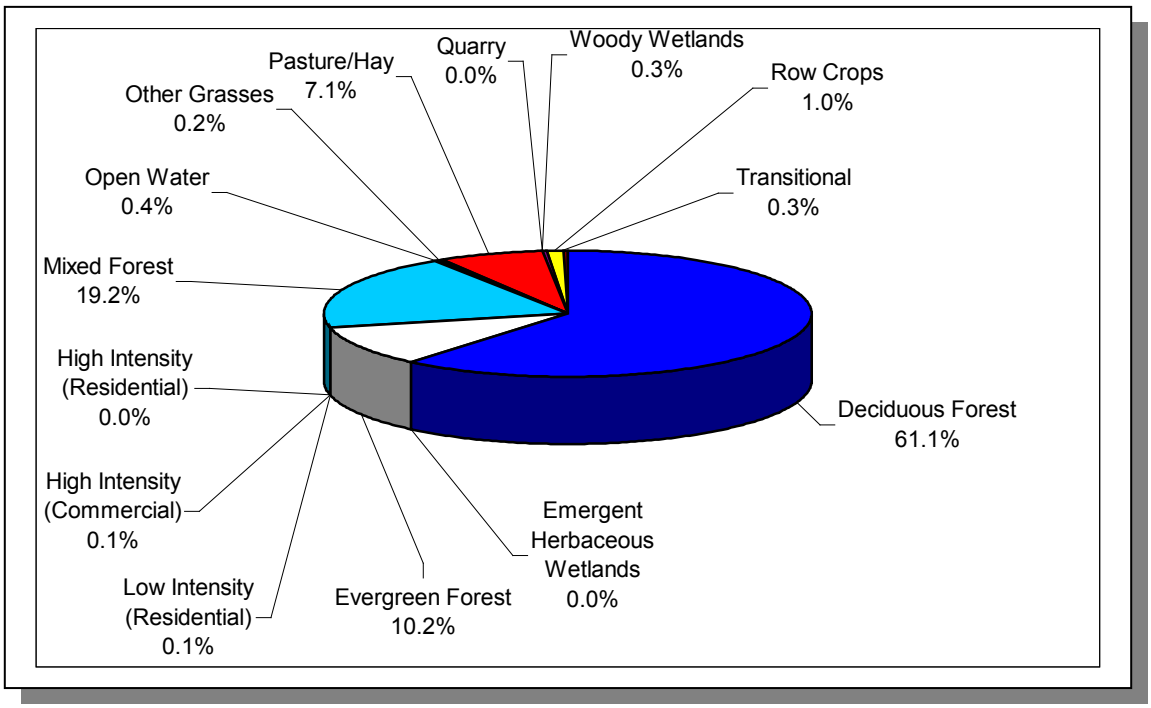


Figure 4-22. Land Use Distribution in Subwatershed 0513010803. *More information is provided in Caney Fork-Appendix IV.*

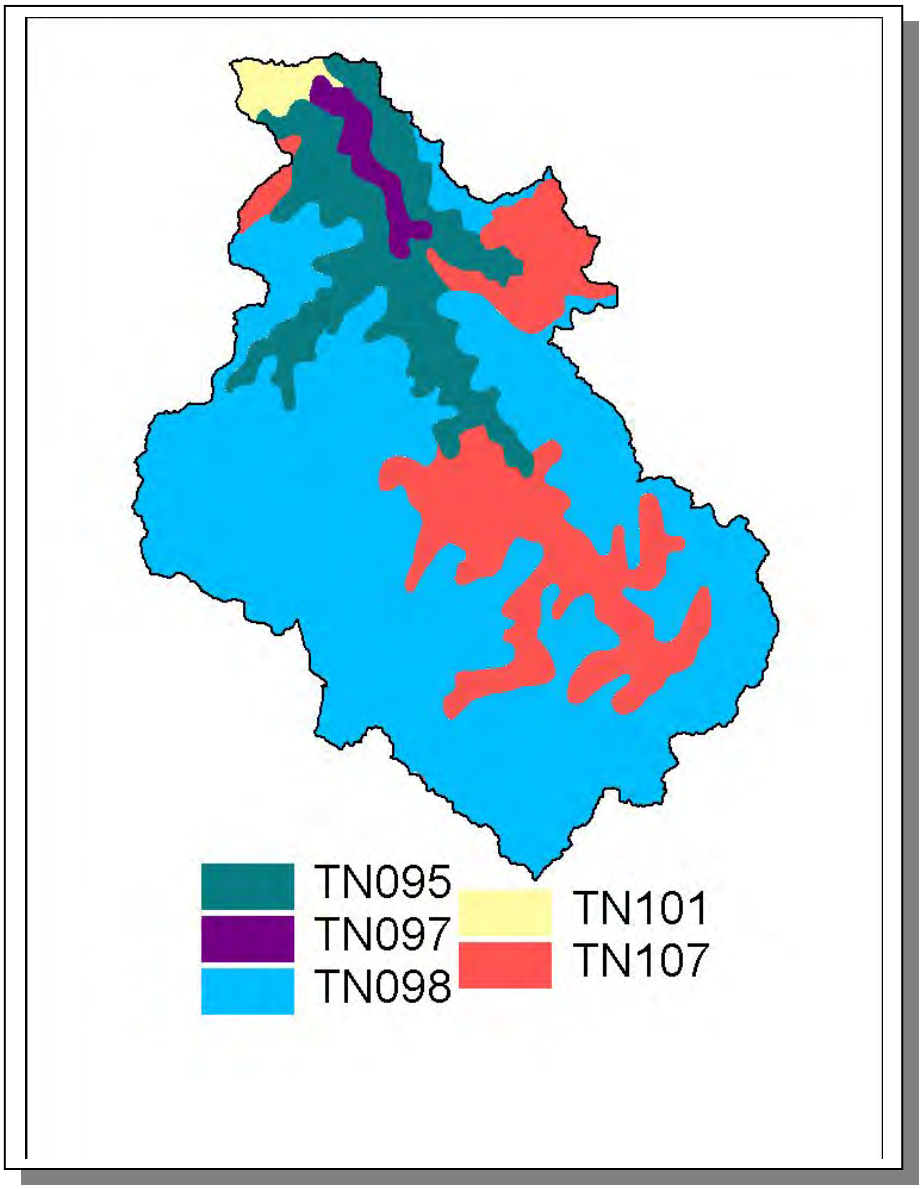


Figure 4-23. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010803.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN095	0.00	B	2.35	5.12	Loam	0.31
TN097	0.00	B	1.62	5.55	Loam	0.32
TN098	1.00	C	3.98	4.82	Loam	0.32
TN101	0.00	B	1.71	5.39	Loam	0.35
TN107	1.00	C	6.34	4.84	Loam	0.28

Table 4-13. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010803. *More information is provided in Caney Fork-Appendix IV.*

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Bledsoe	9,669	10,650	13.26	1,283	1,413	10.1
Van Buren	4,836	5,060	43.66	2,116	2,209	4.4
Total	**14,505**	**15,710**		**3,399**	**3,622**	**6.6**

Table 4-14. Population Estimates in Subwatershed 0513010803.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Spencer	Van Buren	1,125	466	23	436	7

Table 4-15. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0613010803.

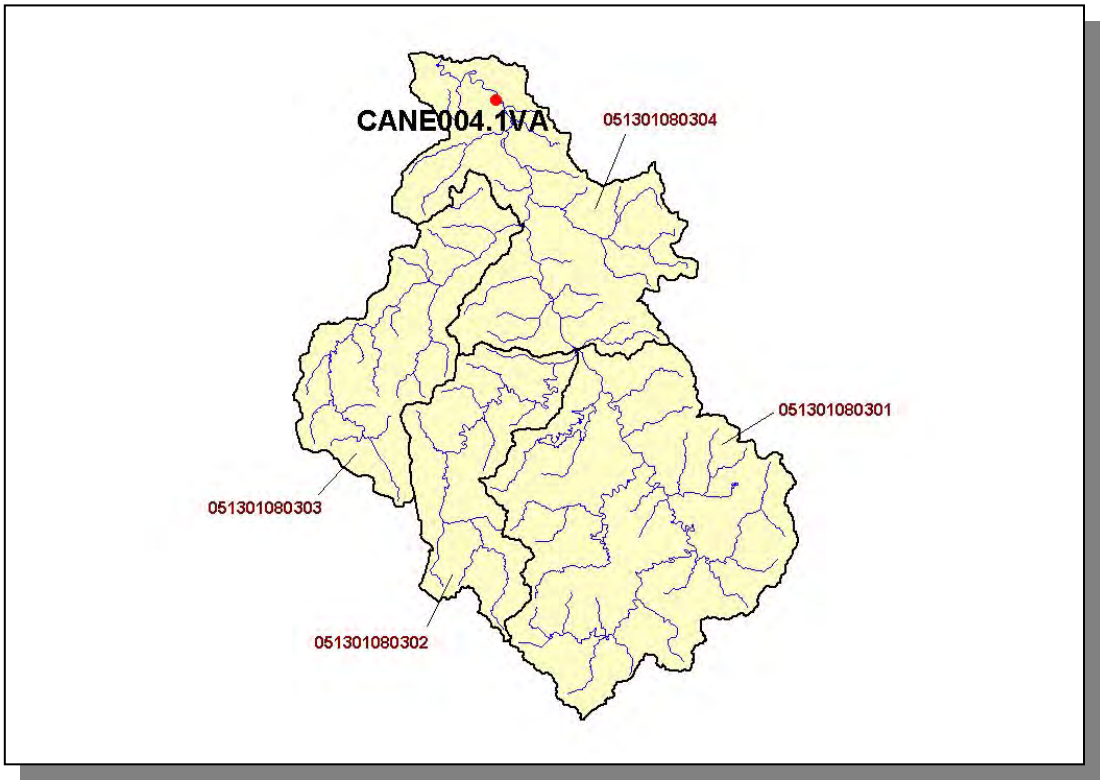


Figure 4-24. Location of Storet Monitoring Sites in Subwatershed 0513010803. *Subwatershed 051301080301, 051301080302, 051301080303, and 051301080304 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

4.2.C.ii. Point Source Contributions.

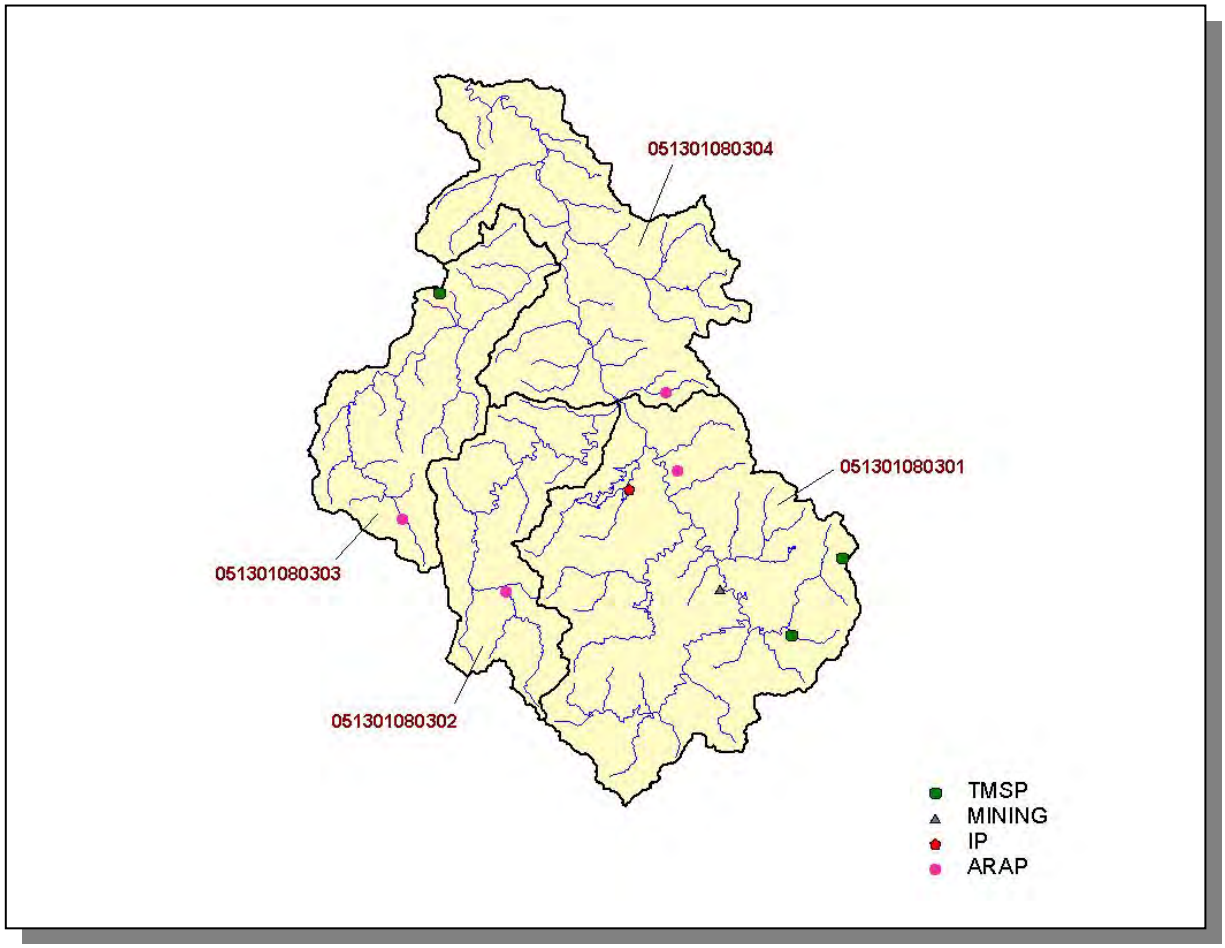


Figure 4-25. Location of Active Point Source Facilities in Subwatershed 0513010803. *Subwatershed 051301080301, 051301080302, 051301080303, and 051301080304 boundaries are shown for reference. More information is provided in the following figures.*

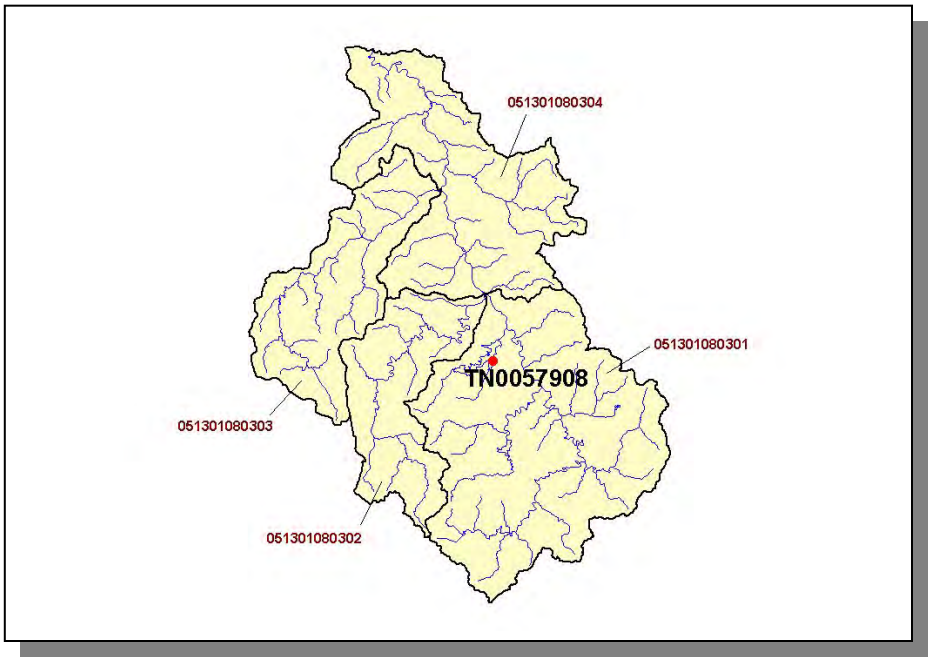


Figure 4-26. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0513010803. *Subwatershed 051301080301, 051301080302, 051301080303, and 051301080304 boundaries are shown for reference. More information, including the names of facilities, is provided in Caney Fork-Appendix IV.*

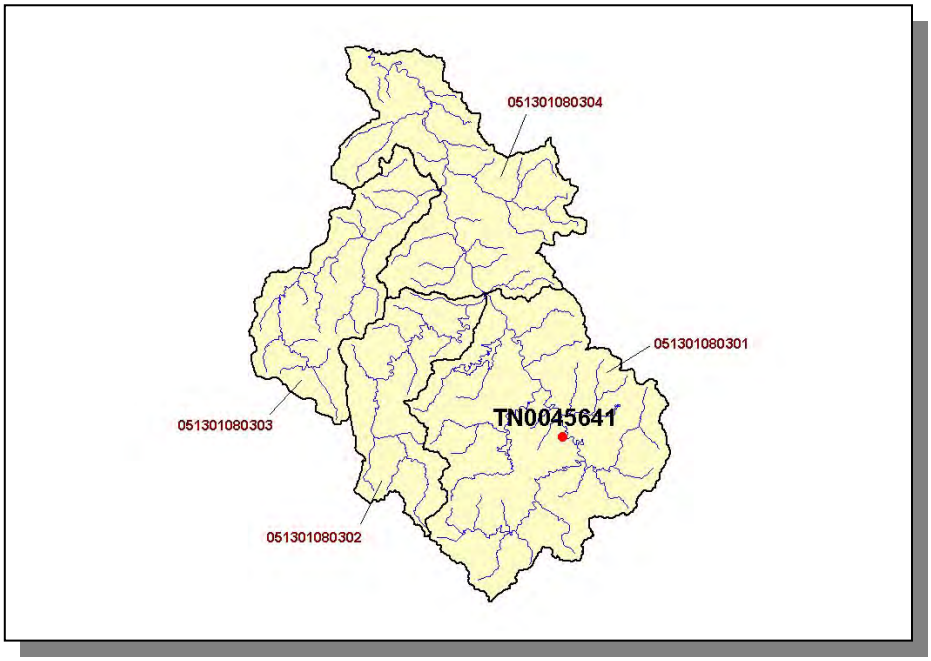


Figure 4-27. Location of Active Mining Sites in Subwatershed 0513010803. *Subwatershed 051301080301, 051301080302, 051301080303, and 051301080304 boundaries are shown for reference. More information, including the names of facilities, is provided in Caney Fork-Appendix IV.*

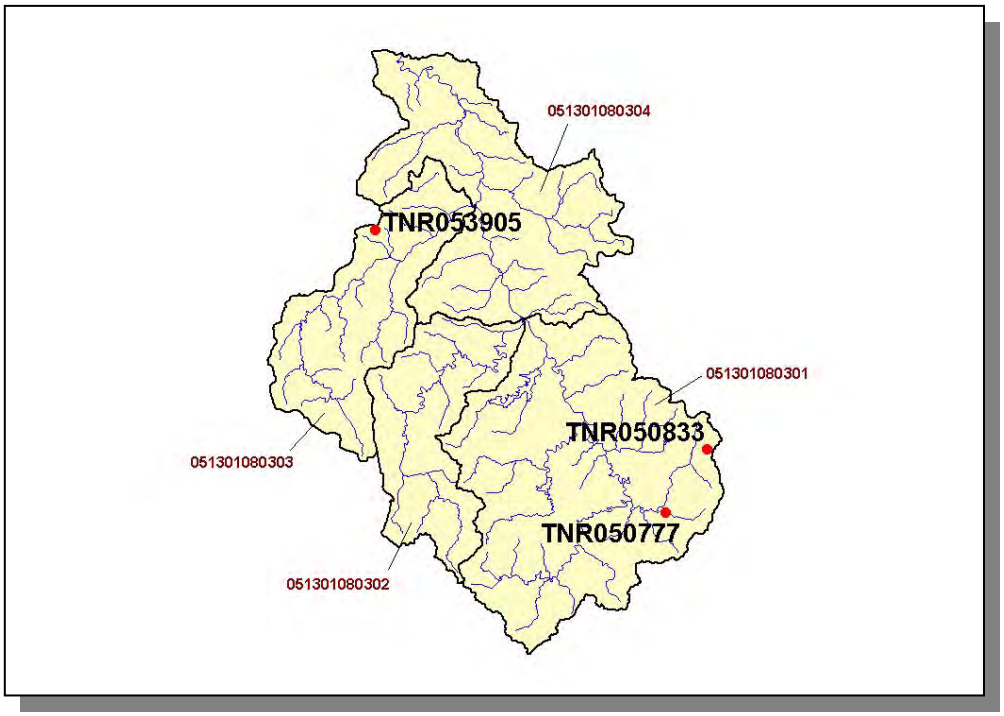


Figure 4-28. Location of TMSP Facilities in Subwatershed 0513010803. *Subwatershed 051301080301, 051301080302, 051301080303, and 051301080304 boundaries are shown for reference. More information, including the names of facilities, is provided in Caney Fork-Appendix IV.*

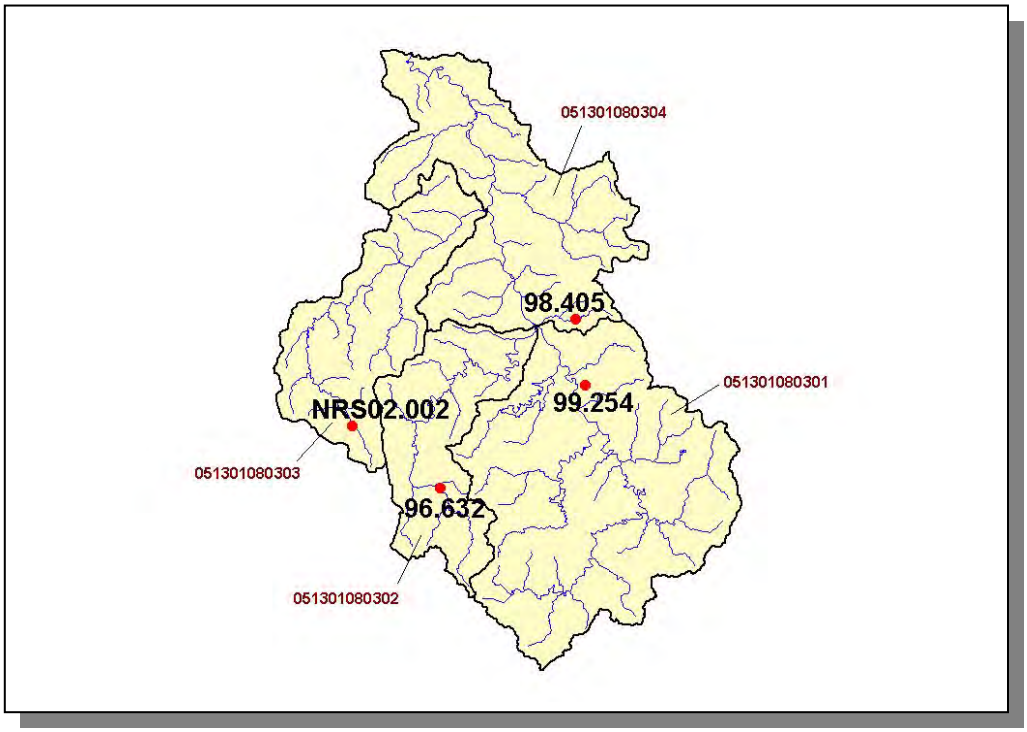


Figure 4-29. Location of ARAP Sites (Individual Permits) in Subwatershed 0513010803. *Subwatershed 051301080301, 051301080302, 051301080303, and 051301080304 boundaries are shown for reference. More information, including the names of facilities, is provided in Caney Fork-Appendix IV.*

4.2.C.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
2,291	4,918	270	<5	0	21	12

Table 4-16. Summary of Livestock Count Estimates in Subwatershed 0513010803. *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		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Bledsoe	186.2	186.2	0.9	2.3
Van Buren	145.0	135.4	2.3	9.5
White	129.4	129.4	4.9	23.3
Totals	**460.6**	**451.0**	**8.1**	**35.1**

Table 4-17. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0513010803.

CROPS	TONS/ACRE/YEAR
Nonagricultural Land Use	0.00
Legume (Hayland)	0.51
Grass (Hayland)	0.18
Legume/Grass (Hayland)	1.16
Grass (Pastureland)	1.00
Grass, Forbs, Legumes (Mixed Pasture)	0.57
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.99
Soybeans (Row Crops)	4.85
Corn (Row Crops)	11.22
All Other Row Crops	4.45
Tobacco (Row Crops)	6.11
Wheat (Close Grown Cropland)	2.81
All Other Close Grown Cropland	0.67
Conservation Reserve Program Land	1.00
Fruit (Horticulture)	0.08
Other (Horticulture)	3.72
Other Land in Farms	0.25
Other Cropland not Planted	2.26

Table 4-18. Annual Estimated Total Soil Loss in Subwatershed 0513010803.

4.2.D. 0513010804.

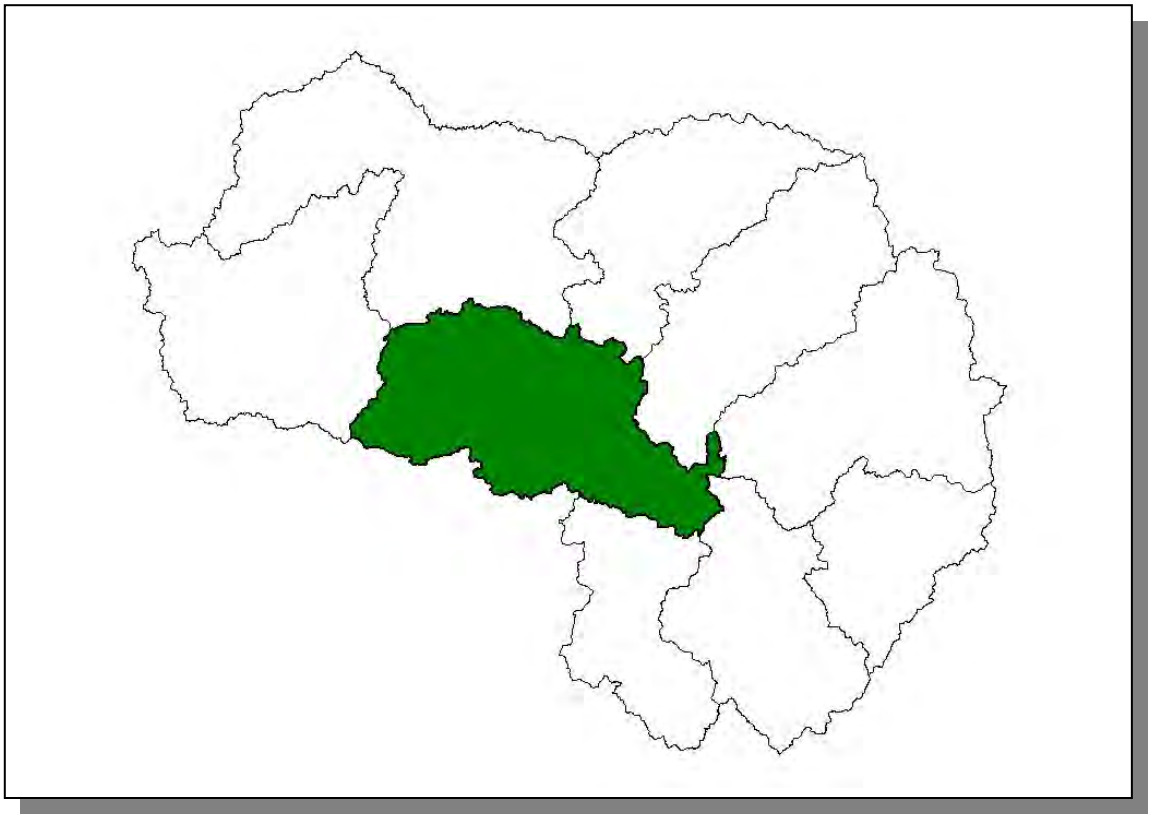


Figure 4-30. Location of Subwatershed 0513010804. *All Caney Fork HUC-10 subwatershed boundaries are shown for reference.*

4.2.D.i. General Description.

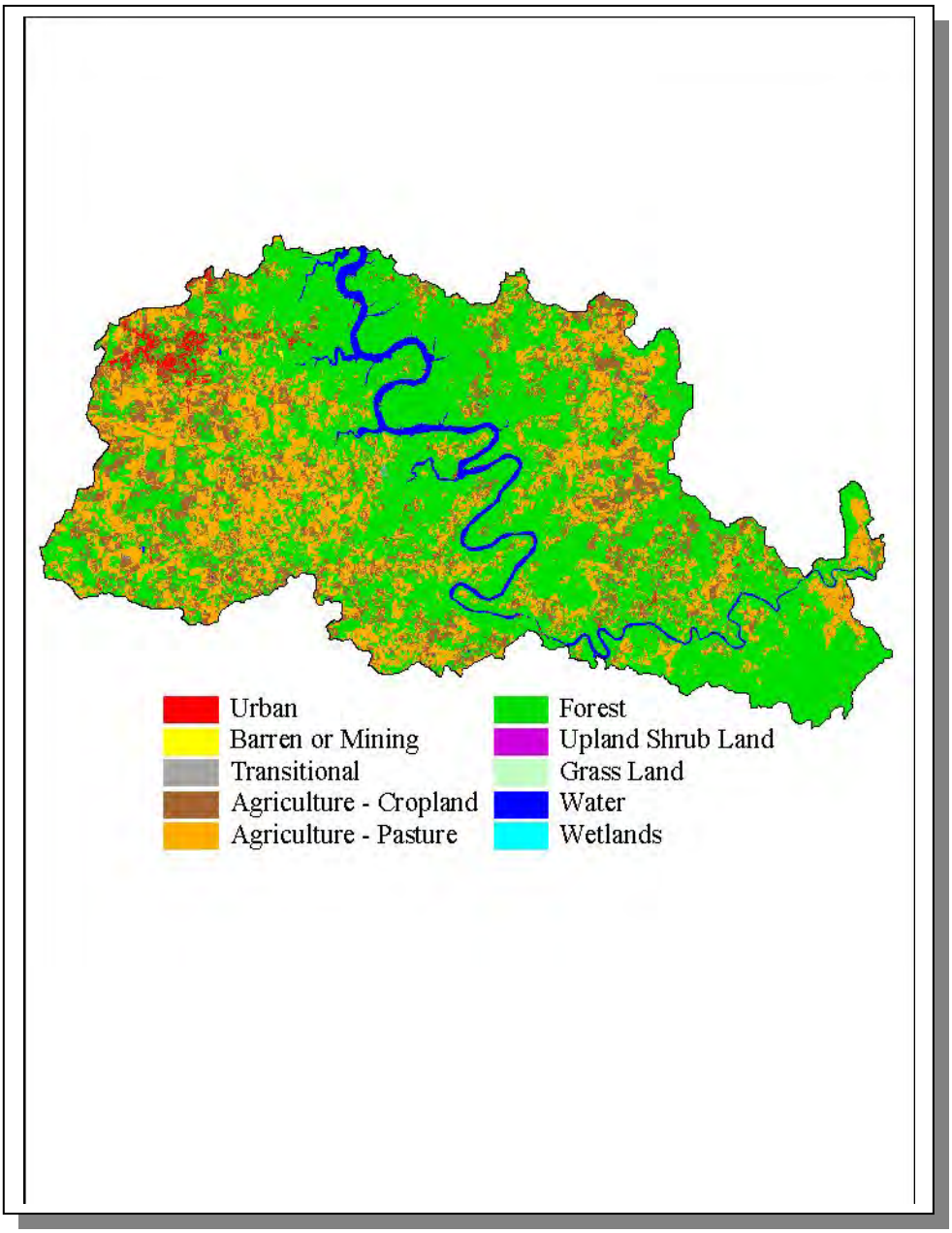


Figure 4-31. Illustration of Land Use Distribution in Subwatershed 0513010804.

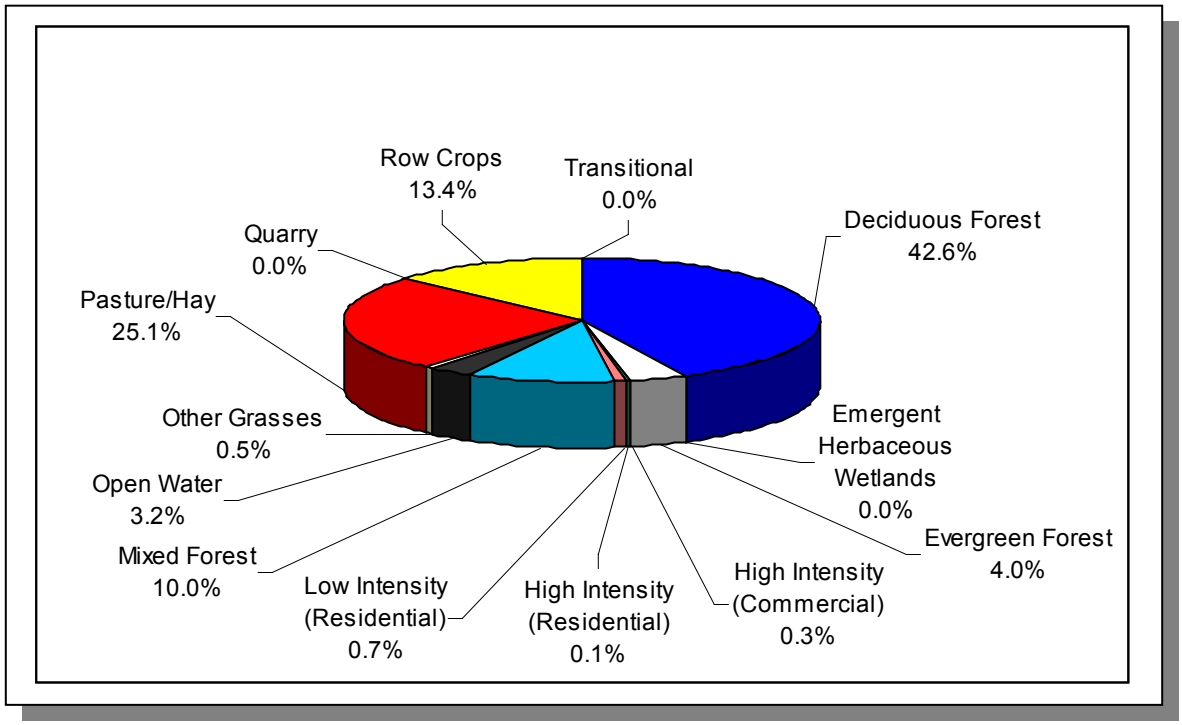


Figure 4-32. Land Use Distribution in Subwatershed 0513010804. *More information is provided in Caney Fork-Appendix IV.*

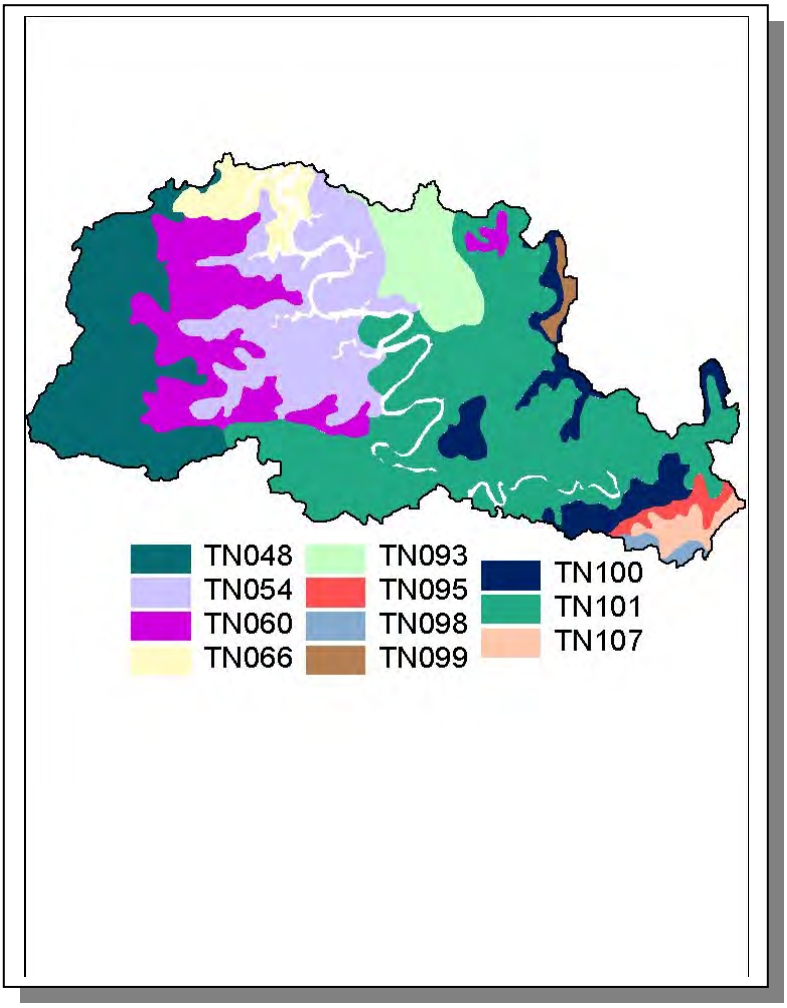


Figure 4-33. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010804.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN048	8.00	C	1.38	5.06	Silty Loam	0.42
TN054	0.00	C	3.04	4.84	Loam	0.32
TN060	5.00	B	1.30	5.32	Silty Loam	0.39
TN066	0.00	B	2.62	4.75	Loam	0.28
TN093	0.00	B	2.43	4.95	Loam	0.36
TN095	0.00	B	2.35	5.12	Loam	0.31
TN098	1.00	C	3.98	4.82	Loam	0.32
TN099	1.00	B	1.65	4.98	Silty Loam	0.33
TN100	0.00	B	1.14	3.35	Silty Loam	0.21
TN101	0.00	B	1.71	5.39	Loam	0.35
TN107	1.00	C	6.34	4.84	Loam	0.28

Table 4-19. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010804. *More information is provided in Caney Fork-Appendix IV.*

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Cannon	10,467	12,011	0.61	64	73	14.1
DeKalb	14,360	15,743	35.97	5,165	5,663	9.6
Van Buren	4,846	5,060	9.66	468	489	4.5
Warren	32,992	35,777	5.95	1,964	2,130	8.5
White	20,090	22,201	19.38	3,894	4,303	10.5
Total	**82,755**	**90,792**		**11,555**	**12,658**	**9.5**

Table 4-20. Population Estimates in Subwatershed 0513010804.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Doyle	White	359	150	10	129	11
Spencer	Van Buren	1,125	466	23	436	7
Smithville	De Kalb	3,791	1,693	1,560	122	11
Total		**5,275**	**2,309**	**1,593**	**687**	**29**

Table 4-21. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0513010804.

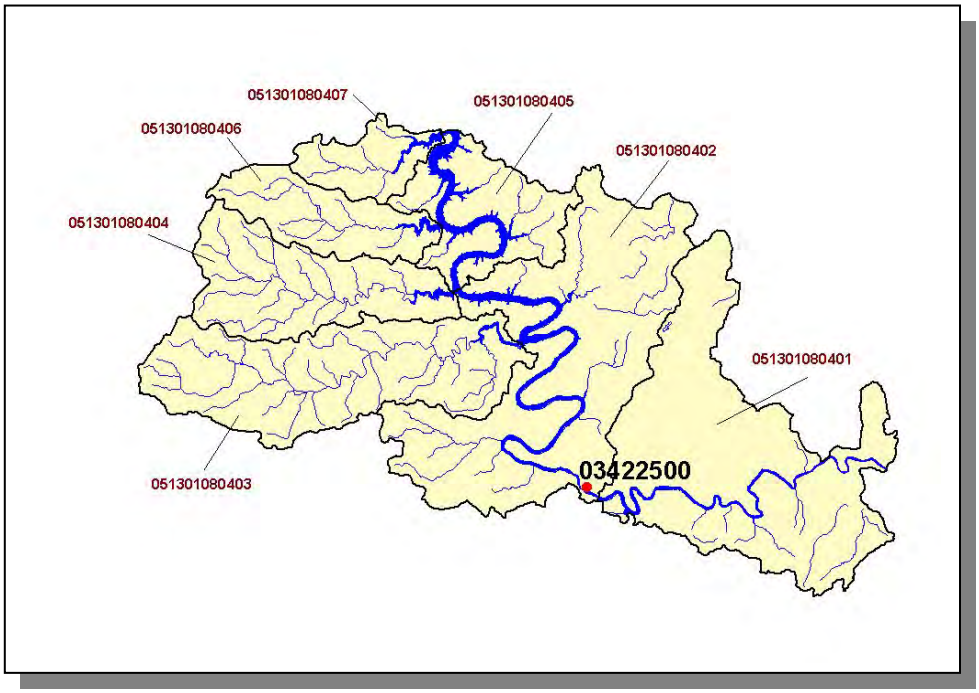


Figure 4-34. Location of Historical Streamflow Data Collection Sites in Subwatershed 0513010804. *Subwatershed 051301080401, 051301080402, 051301080403, 051301080404, 051301080405, 051301080406, and 051301080407 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

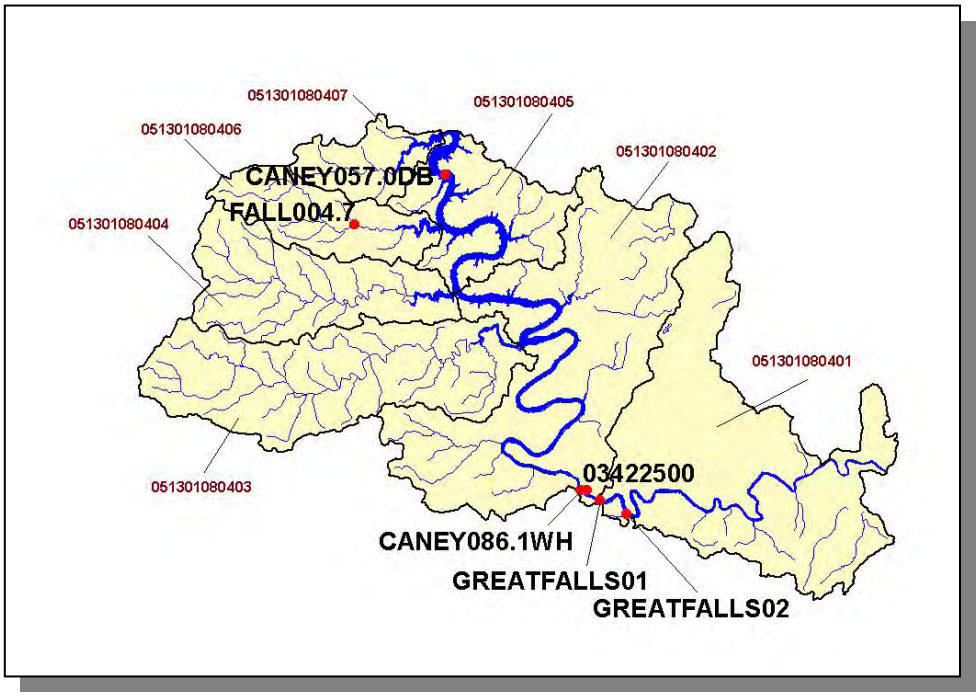


Figure 4-35. Location of STORET Monitoring Sites in Subwatershed 0513010804. *Subwatershed 051301080401, 051301080402, 051301080403, 051301080404, 051301080405, 051301080406, and 051301080407 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

4.2.D.ii. Point Source Contributions.

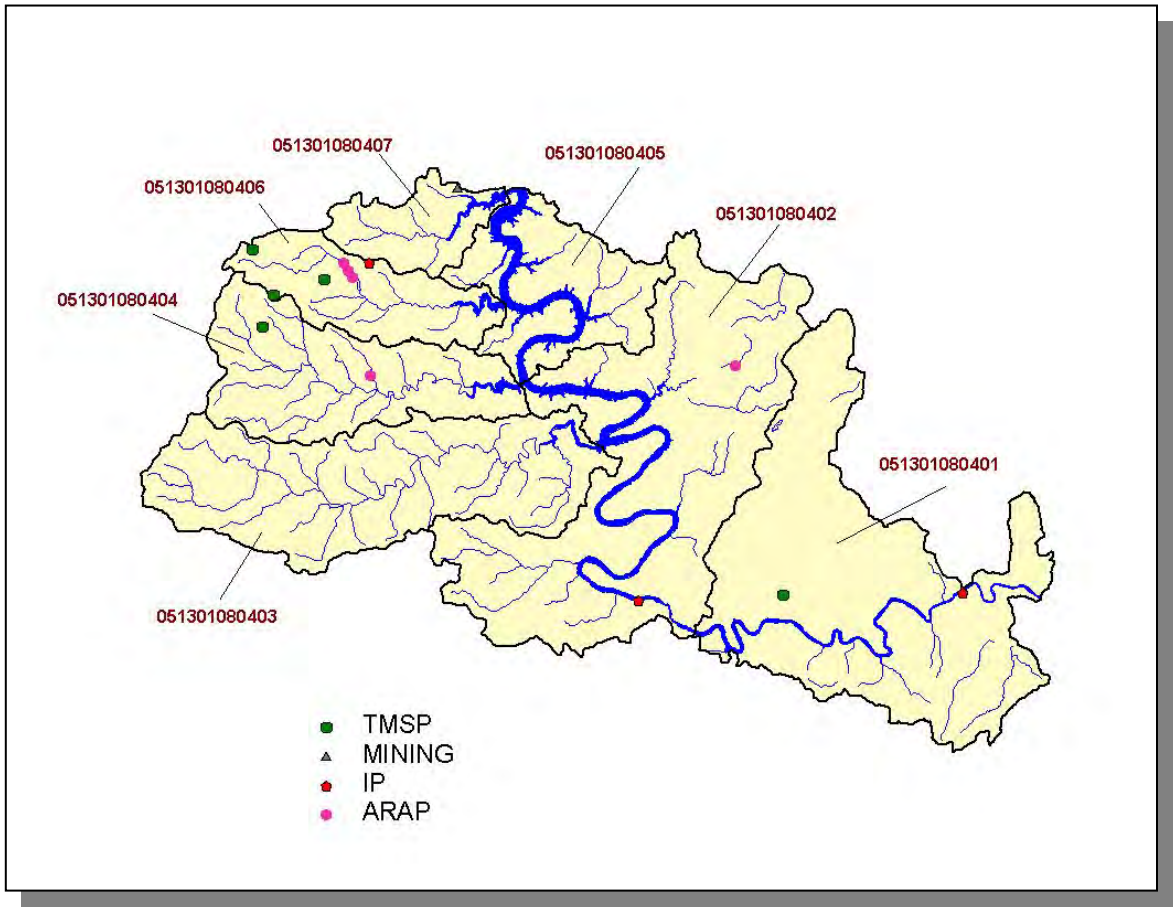


Figure 4-36. Location of Active Point Source Facilities in Subwatershed 0513010804. *Subwatershed 051301080401, 051301080402, 051301080403, 051301080404, 051301080405, 051301080406, and 051301080407 boundaries are shown for reference. More information is provided in the following figures.*

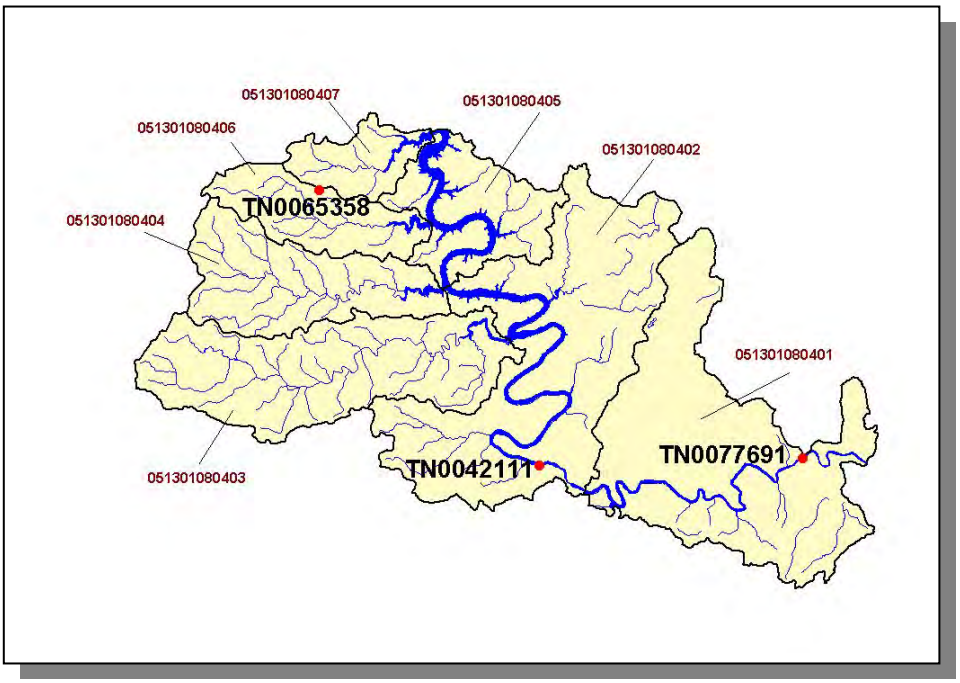


Figure 4-37. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0513010804. *Subwatershed 051301080401, 051301080402, 051301080403, 051301080404, 051301080405, 051301080406, and 051301080407 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

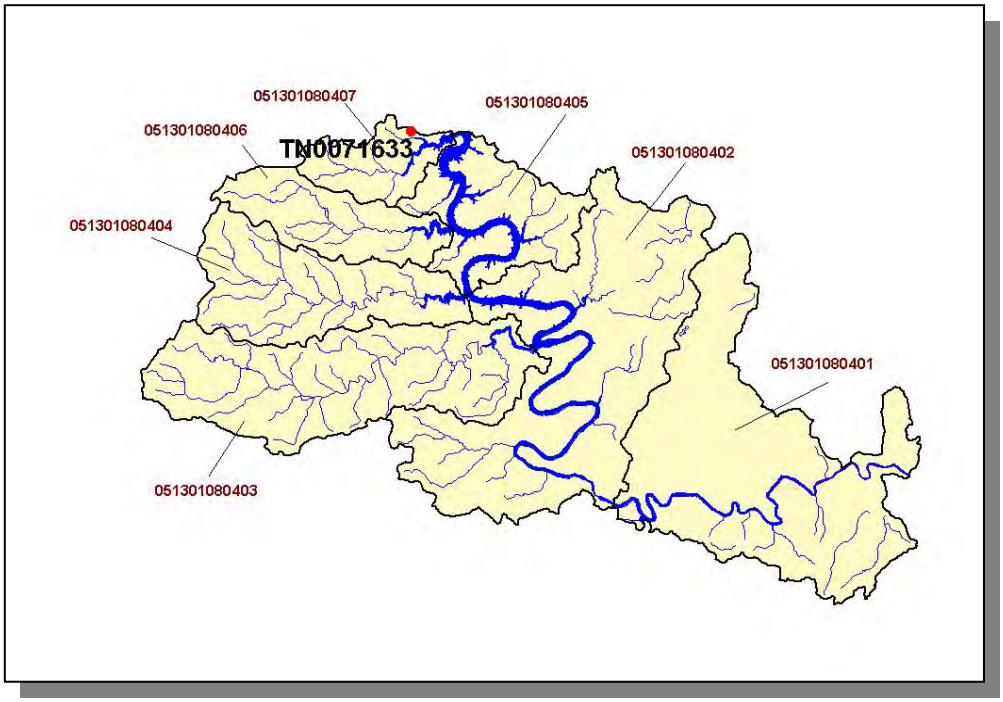


Figure 4-38. Location of Active Mining Sites in Subwatershed 0513010804. *Subwatershed 051301080401, 051301080402, 051301080403, 051301080404, 051301080405, 051301080406, and 051301080407 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

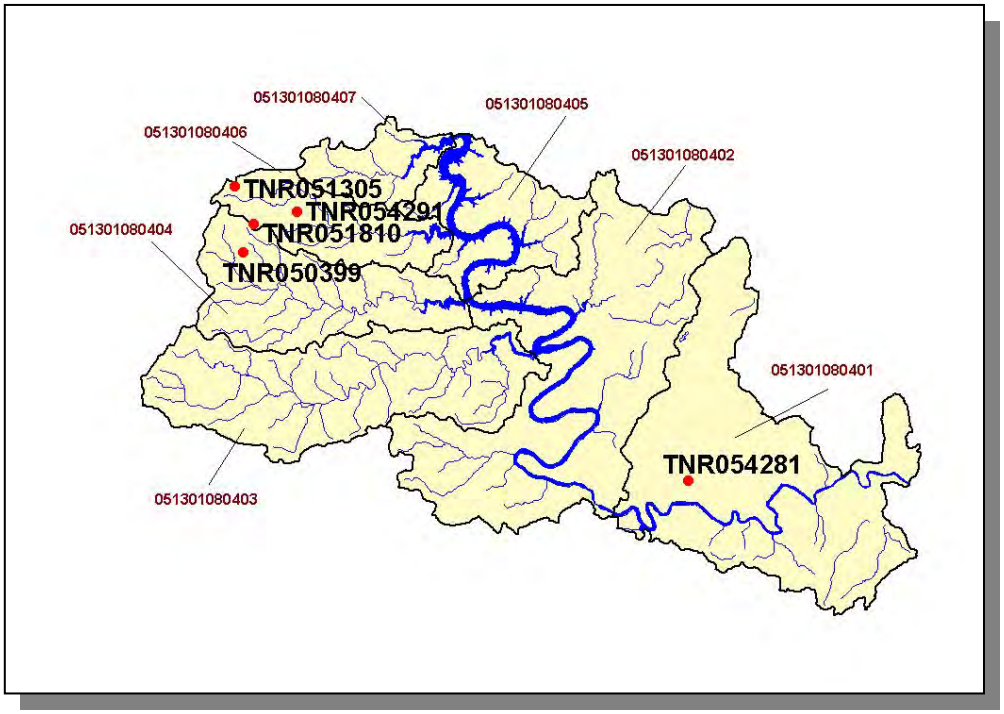


Figure 4-39. Location of TMSP Facilities in Subwatershed 0513010804. *Subwatershed 051301080401, 051301080402, 051301080403, 051301080404, 051301080405, 051301080406, and 051301080407 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

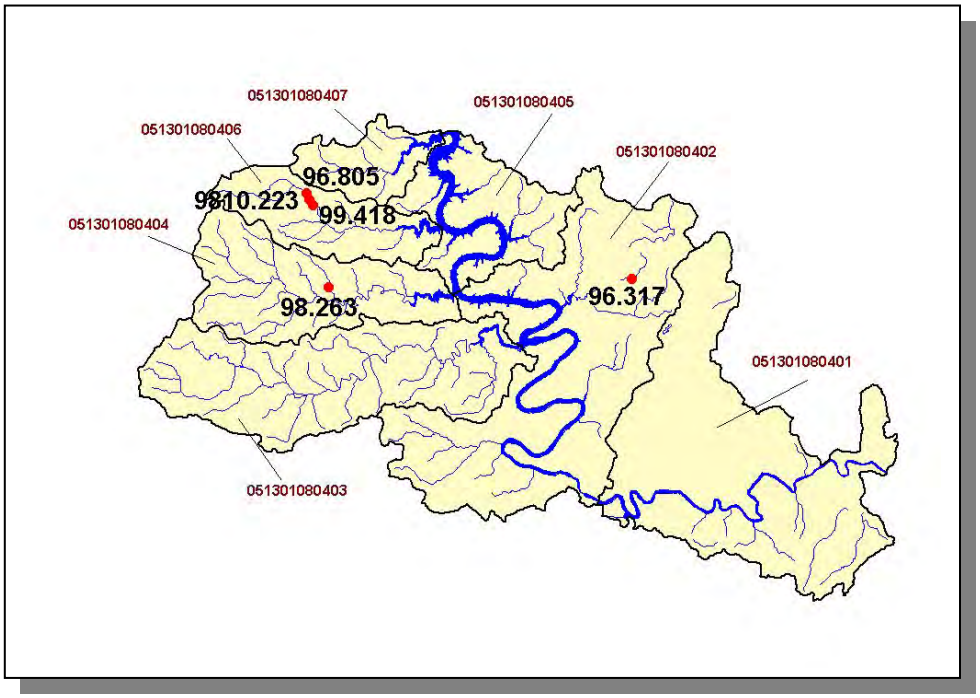


Figure 4-40. Location of ARAP Sites (Individual Permits) in Subwatershed 0513010804. *Subwatershed 051301080401, 051301080402, 051301080403, 051301080404, 051301080405, 051301080406, and 051301080407 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

4.2.D.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Milk Cow	Cattle	Chickens	Chickens Sold	Hogs	Sheep
12,892	1,240	25,078	21	0	532	81

Table 4-23. Summary of Livestock Count Estimates in Subwatershed 0513010804*. 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		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Cannon	88.5	88.5	1.7	7.1
Van Buren	145.0	135.4	2.3	9.5
Warren	93.6	93.6	2.4	10.1
White	129.4	129.4	4.9	23.3
Total	**456.5**	**446.9**	**11.3**	**50.0**

Table 4-24. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0513010804.

CROPS	TONS/ACRE/YEAR
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Farmsteads and Ranch Headquarters	0.24
Non Agricultural Land Use	0.00
Corn (Row Crops)	6.15
Soybeans (Row Crops)	3.97
Tobacco (Row Crops)	7.88
Wheat (Close Grown Cropland)	6.42
All Other Close Grown Cropland	0.67
Grass (Hayland)	0.56
Legume (Hayland)	0.47
Legume/Grass (Hayland)	0.98
Other Cropland not Planted	2.01
Grass (Pastureland)	0.90
Grass, Forbs, Legumes (Mixed Pasture)	0.60
Other Land in Farms	0.25
Conservation Reserve Program Land	0.20
Legume (Pastureland)	0.37
Fruit (Horticulture)	0.08
Other (Horticulture)	3.50

Table 4-25. Annual Soil Loss in Subwatershed 0513010804.

4.2.E. 0513010805.

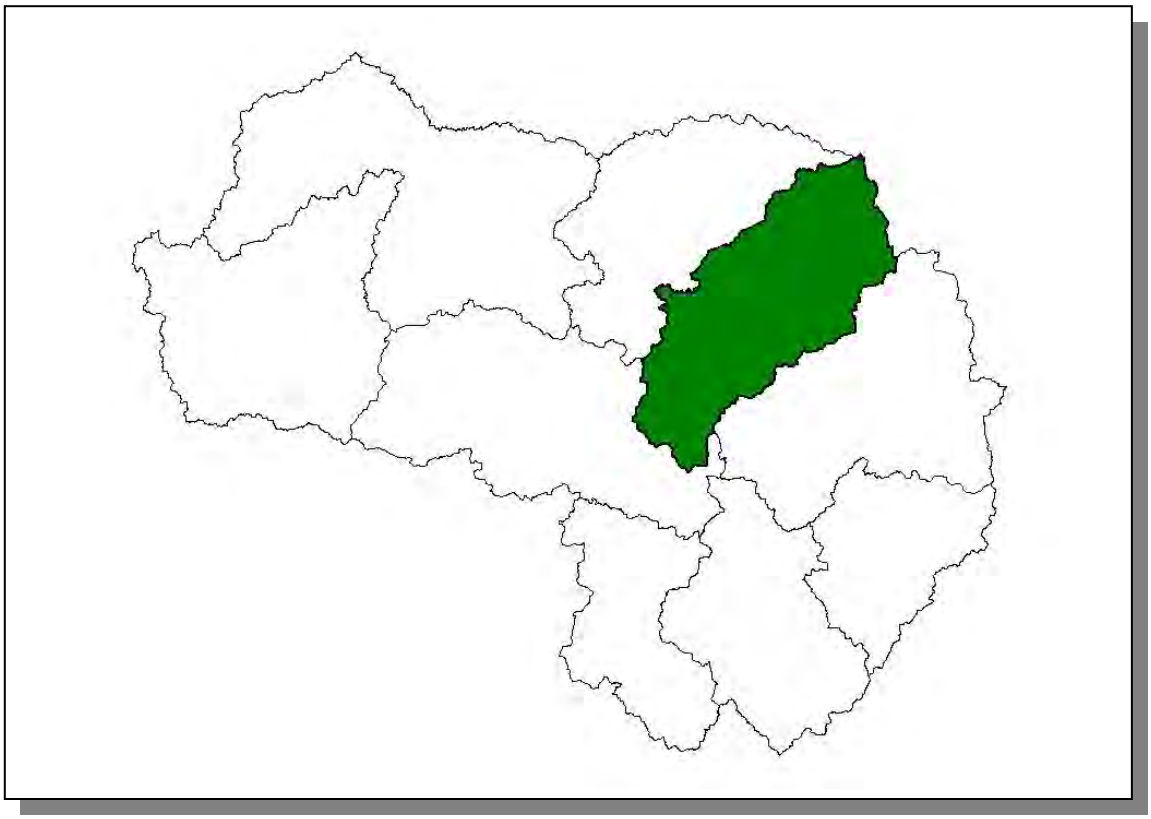


Figure 4-41. Location of Subwatershed 0513010805. *All Caney Fork HUC-10 subwatershed boundaries are shown for reference.*

4.2.E.i. General Description.

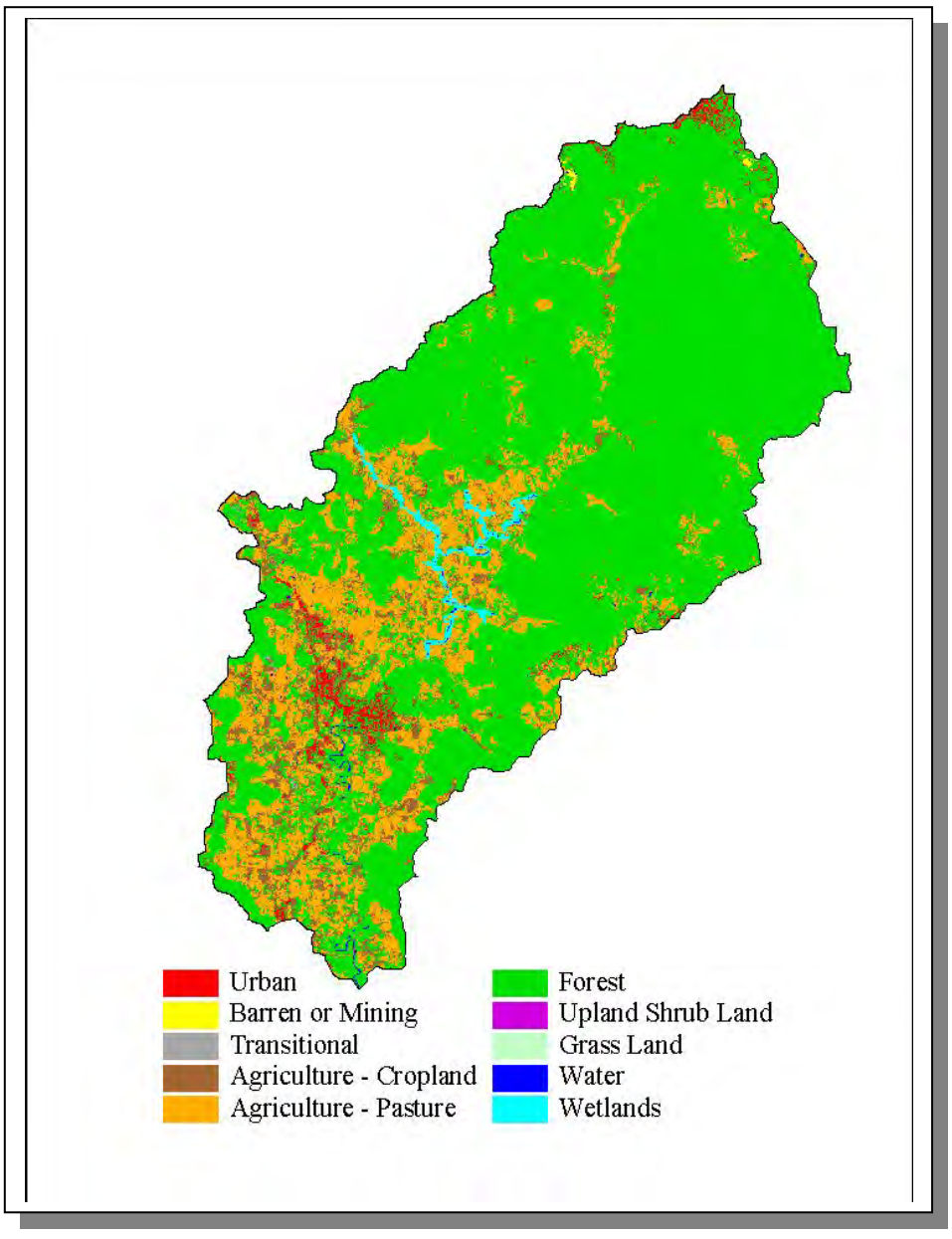


Figure 4-42. Illustration of Land Use Distribution in Subwatershed 0513010805.

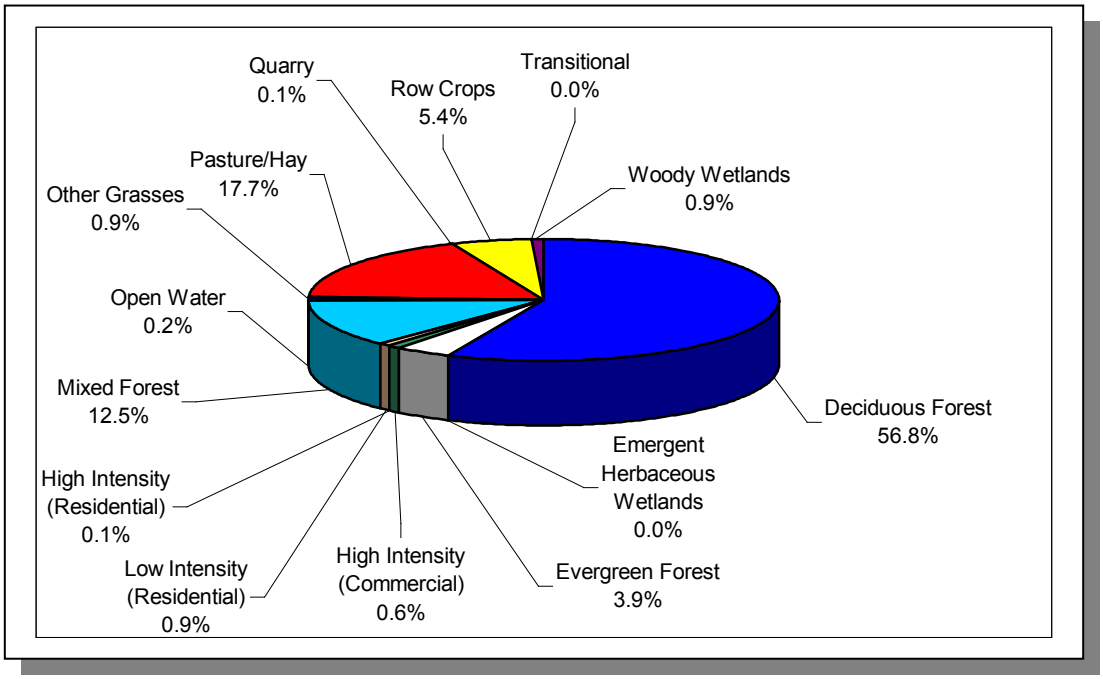


Figure 4-43. Land Use Distribution in Subwatershed 0513010805. *More information is provided in Caney Fork-Appendix IV.*

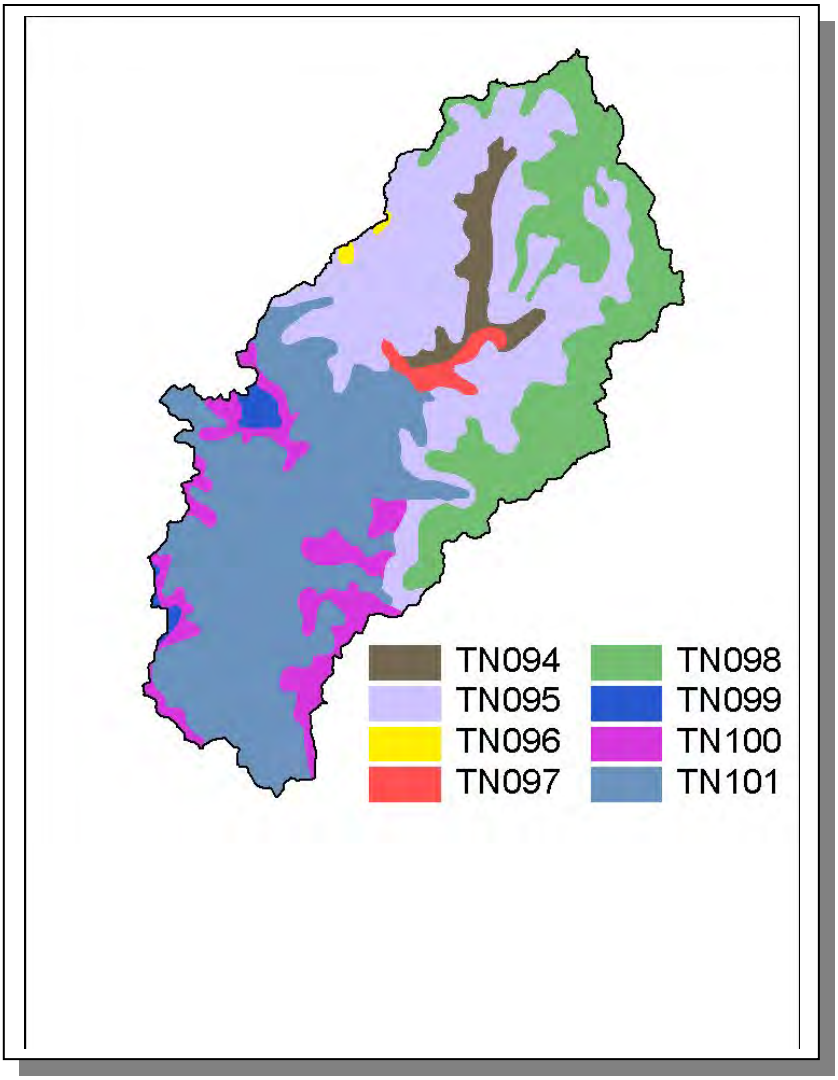


Figure 4-44. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010805.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hr)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN094	0.00	B	1.73	4.70	Loam	0.24
TN095	0.00	B	2.35	5.12	Loam	0.31
TN096	1.00	C	1.22	5.16	Silty Loam	0.38
TN097	0.00	B	1.62	5.55	Loam	0.32
TN098	1.00	C	3.98	4.82	Loam	0.32
TN099	1.00	B	1.65	4.98	Silty Loam	0.33
TN100	0.00	B	1.14	3.35	Silty Loam	0.21
TN101	0.00	B	1.71	5.39	Loam	0.35

Table 4-26. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010805. *More information is provided in Caney Fork-Appendix IV.*

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Cumberland	34,736	43,217	0.99	343	426	24.2
Putnam	51,373	58,326	14.24	7,315	8,305	13.5
White	20,090	22,201	36.71	7,396	8,151	10.5
Total	**106,199**	**123,744**		**15,034**	**16,882**	**12.3**

Table 4-27. Population Estimates in Subwatershed 0513010805.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Doyle	White	359	150	10	129	11
Sparta	White	4,681	2,034	1,760	267	7
Monterey	Putnam	2,559	1,113	875	228	10
Totals		**3,506**	**3,297**	**2,645**	**624**	**28**

Table 4-28. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0513010805.

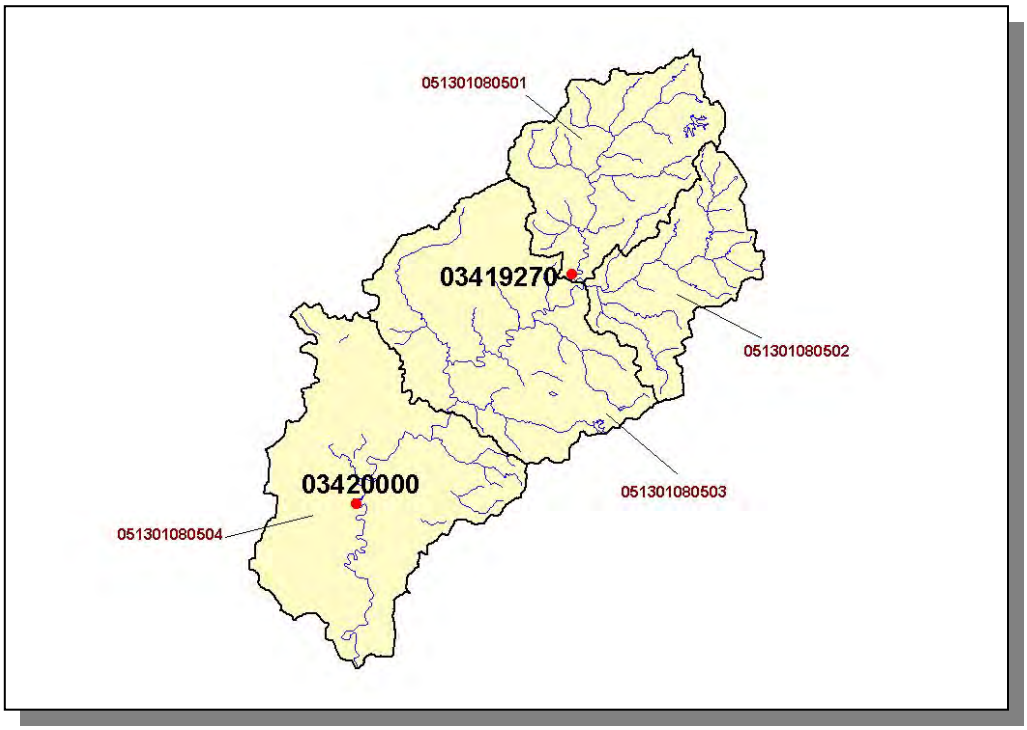


Figure 4-45. Location of Historical Streamflow Data Collection Sites in Subwatershed 0513010805. *Subwatershed 051301080501, 051301080502, 051301080503, and 051301080504 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

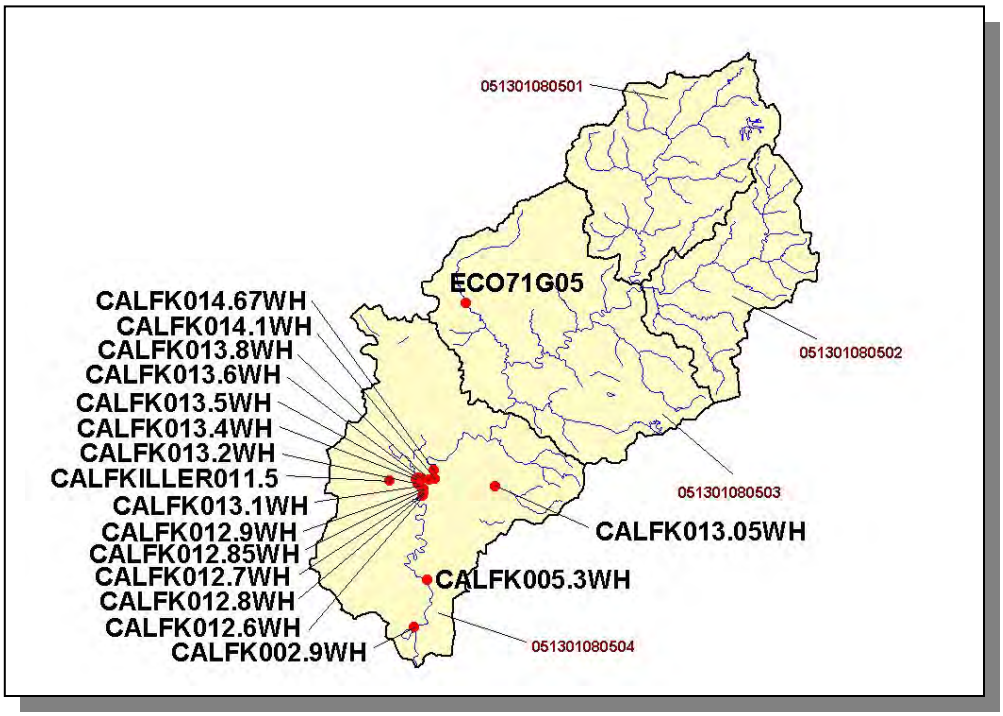


Figure 4-46. Location of STORET Monitoring Sites in Subwatershed 0513010805. *Subwatershed 051301080501, 051301080502, 051301080503, and 051301080504 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

4.2.E.ii. Point Source Contributions.

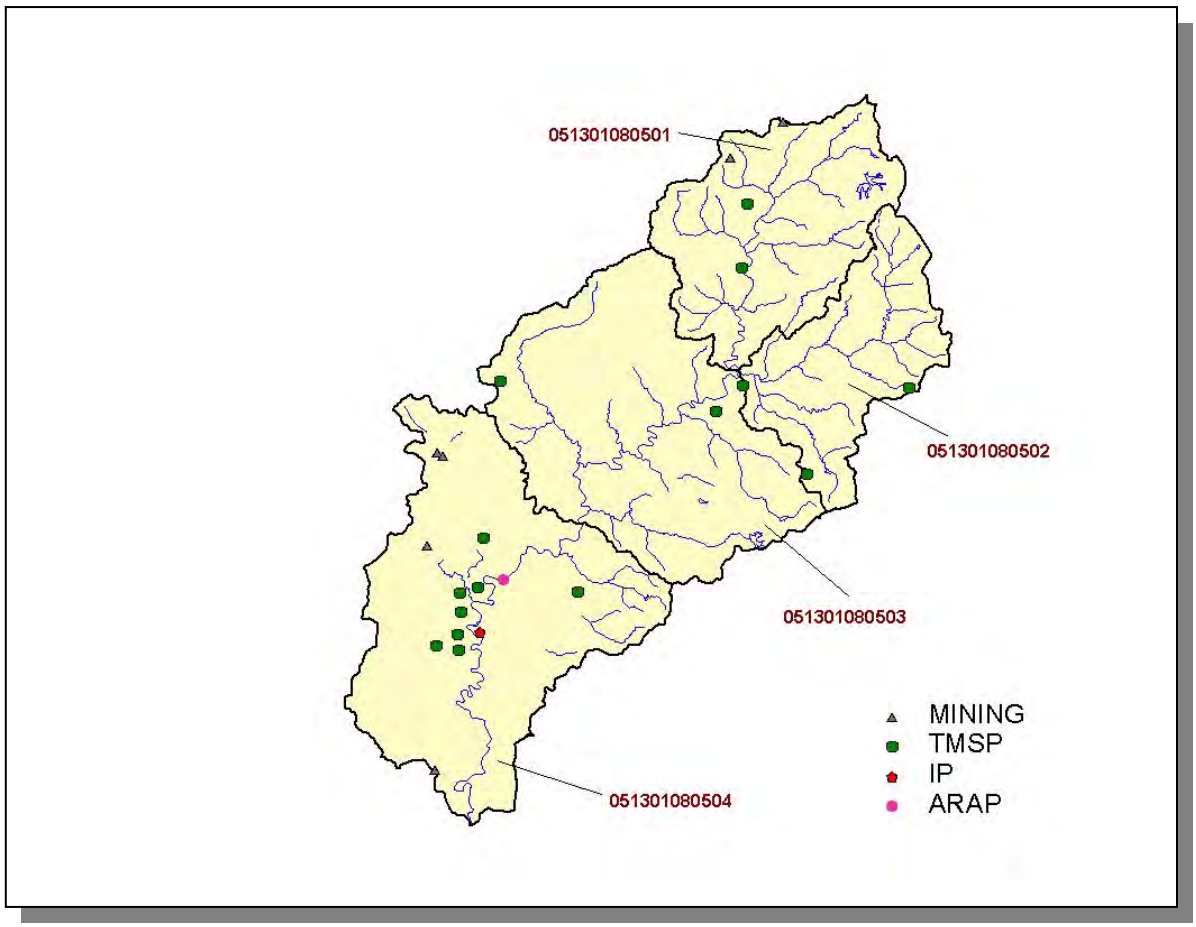


Figure 4-47. Location of Active Point Source Facilities in Subwatershed 0513010805. *Subwatershed 051301080501, 051301080502, 051301080503, and 051301080504 boundaries are shown for reference. More information is provided in the following figures.*

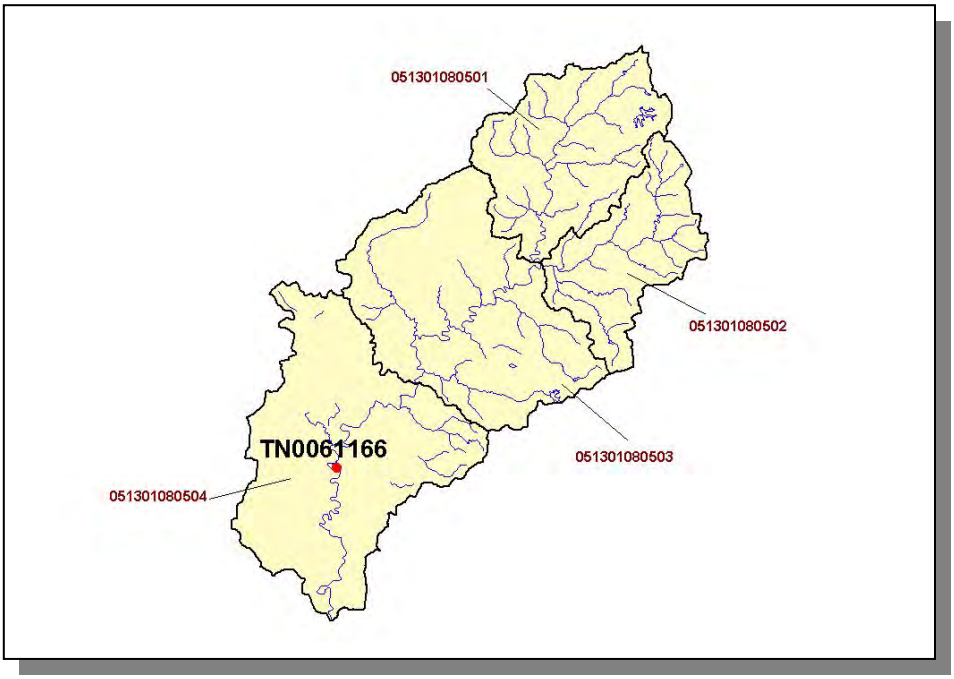


Figure 4-48. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0513010805. *Subwatershed 051301080501, 051301080502, 051301080503, and 051301080504 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

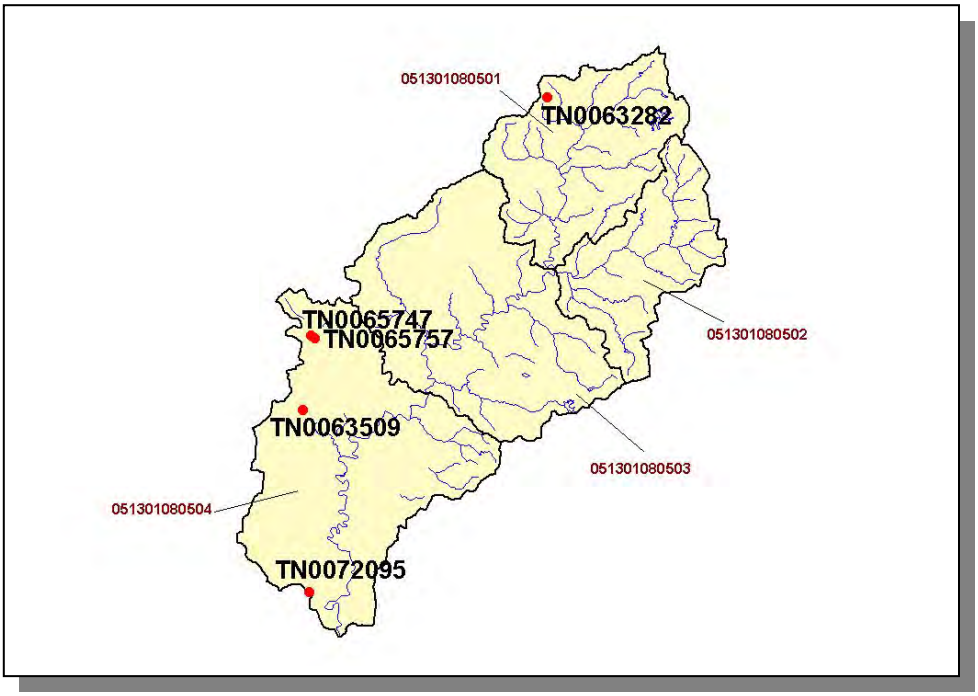


Figure 4-49. Location of Active Mining Sites in Subwatershed 0513010805. *Subwatershed 051301080501, 051301080502, 051301080503, and 051301080504 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

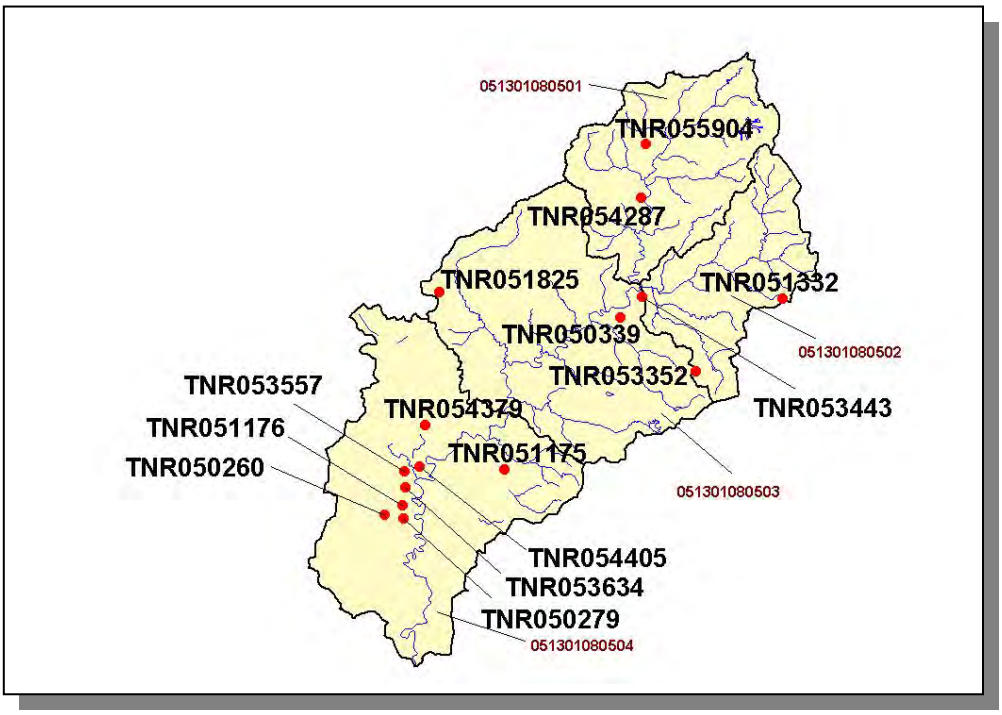


Figure 4-50. Location of TMSP Facilities in Subwatershed 0513010805. *Subwatershed 051301080501, 051301080502, 051301080503, and 051301080504 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

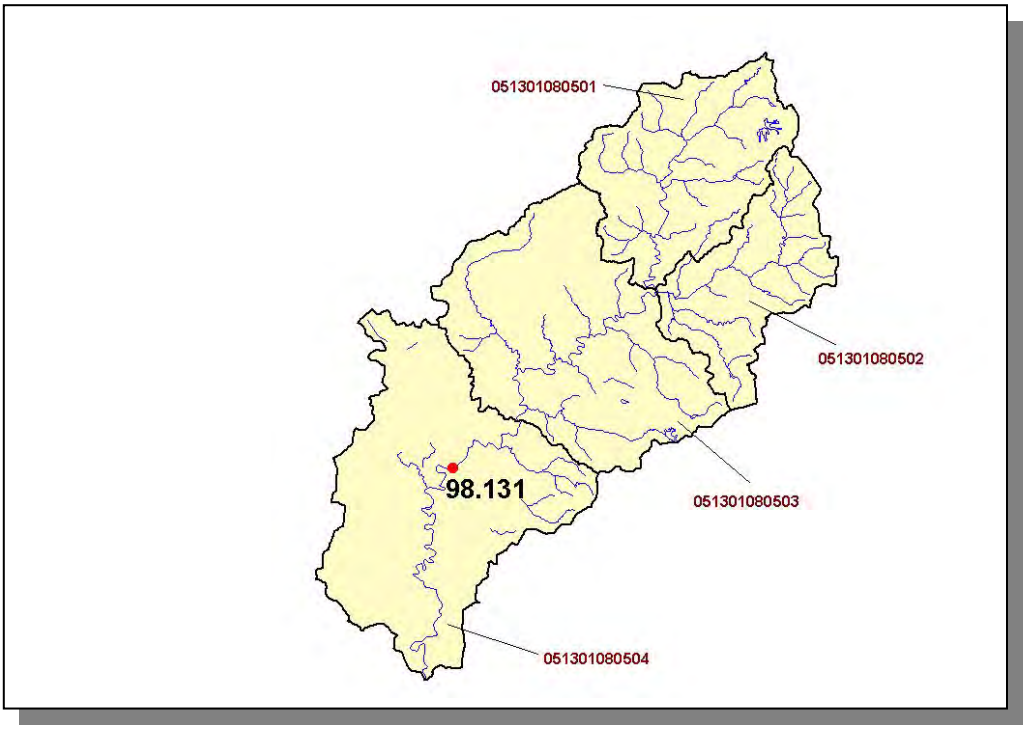


Figure 4-51. Location of ARAP Sites (Individual Permits) in Subwatershed 0513010805. *Subwatershed 051301080501, 051301080502, 051301080503, and 051301080504 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

4.2.E.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Milk Cow	Cattle	Chickens	Chickens Sold	Hogs	Sheep
7,872	1,301	16,565	13	0	670	40

Table 4-29. Summary of Livestock Count Estimates in Subwatershed 0513010805. *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		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Cumberland	320.3	320.3	5.9	22.5
Putnam	152.5	152.3	3.6	16.4
Van Buren	145.0	135.4	2.3	9.5
White	129.4	129.4	4.9	23.3
Totals	**747.2**	**737.4**	**16.7**	**71.7**

Table 4-30. Forest Acreage and Annual Removal Rates (1987-1994) in Subwatershed 0513010805.

CROPS	TONS/ACRE/YEAR
Grass (Pastureland)	0.82
Legume (Pastureland)	0.15
Grass, Forbs, Legumes (Mixed Pasture)	0.54
Legume (Hayland)	0.43
Grass (Hayland)	0.66
Legume/Grass (Hayland)	0.36
Grass, Forbs, Legumes (Mixed Pasture)	0.54
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Soybeans (Row Crops)	6.26
Corn (Row Crops)	11.52
Tobacco (Row Crops)	7.94
Wheat (Close Grown Cropland)	6.10
All Other Close Grown Cropland	0.67
Conservation Reserve Program Land	0.13
Other Vegetable and Truck Crops	14.54
Fruit (Horticulture)	0.08
Other (Horticulture)	3.72
Farmsteads and Ranch Headquarters	0.36
Other Cropland not Planted	2.26
Non Agricultural Land Use	0.00
Other Land in Farms	0.25

Table 4-31. Annual Estimated Soil Loss in Subwatershed 0513010805.

4.2.F. 0513010806

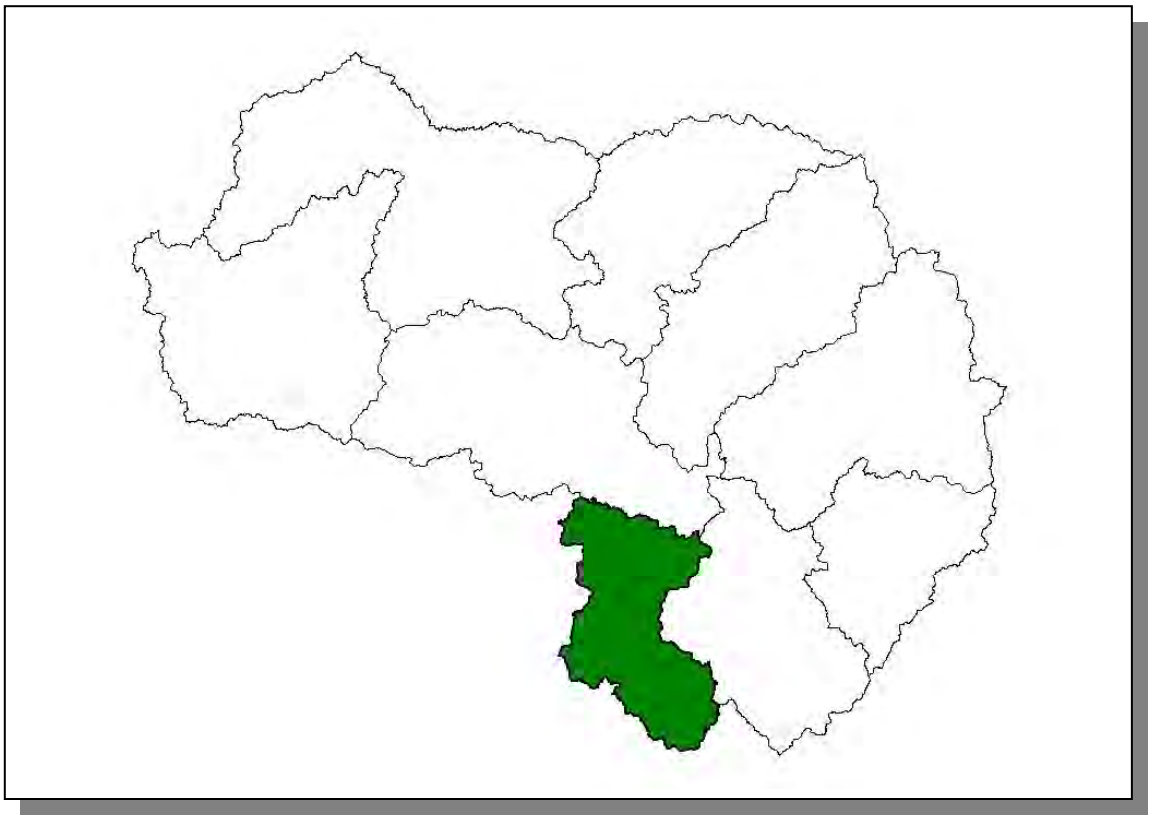


Figure 4-52. Location of Subwatershed 0513010806. *All Caney Fork HUC-10 subwatershed boundaries are shown for reference.*

4.2.F.i. General Description.

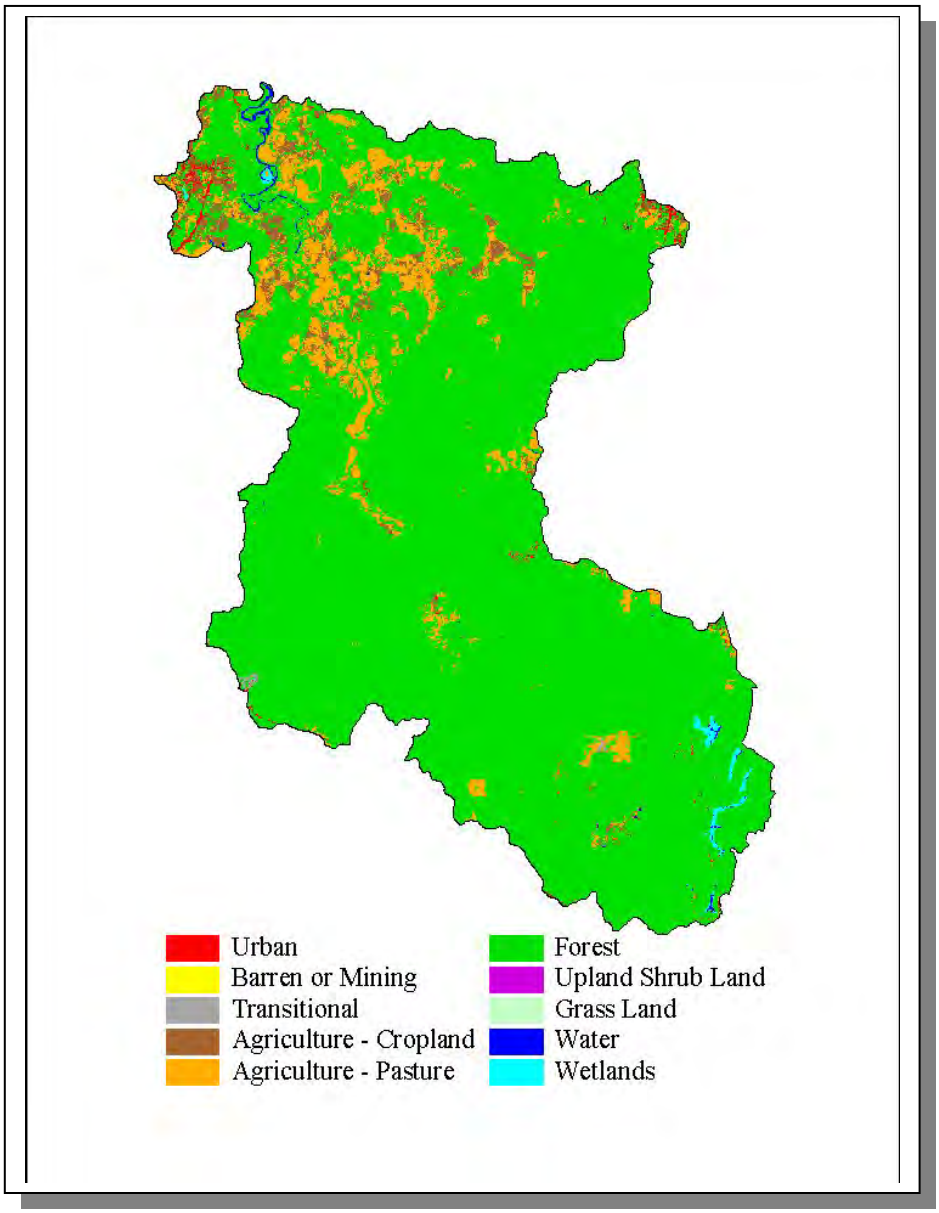


Figure 4-53. Illustration of Land Use Distribution in Subwatershed 0513010806.

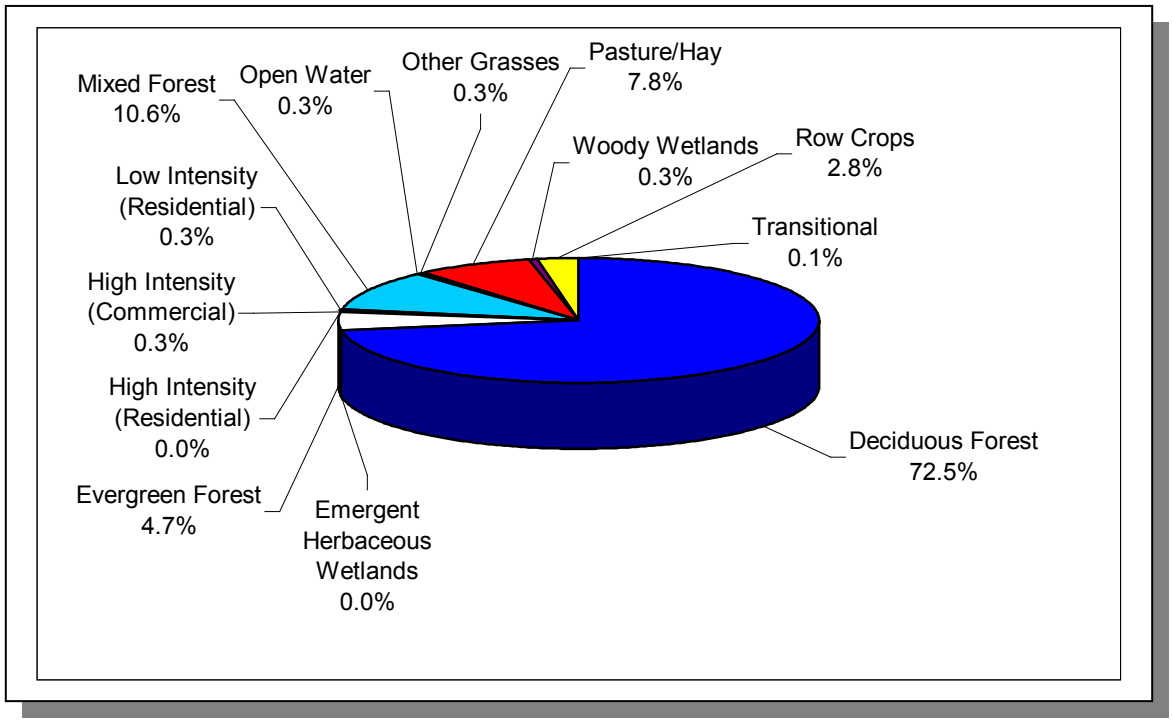


Figure 4-54. Land Use Distribution in Subwatershed 0513010806. *More information is provided in Hiwassee-Appendix IV.*

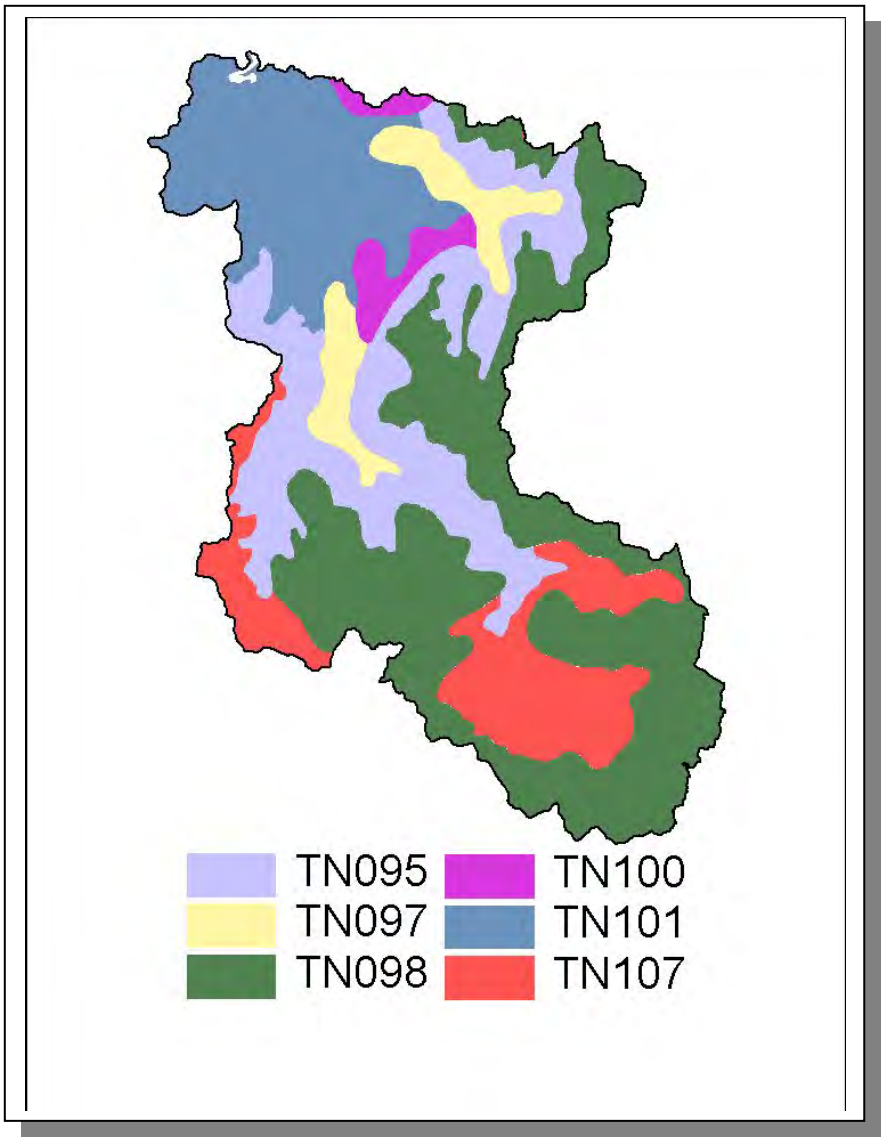


Figure 4-55. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010806.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hr)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN095	0.00	B	2.35	5.12	Loam	0.31
TN097	0.00	B	1.62	5.55	Loam	0.32
TN098	1.00	C	3.98	4.82	Loam	0.32
TN100	0.00	B	1.14	3.35	Silty Loam	0.21
TN101	0.00	B	1.71	5.39	Loam	0.35
TN107	1.00	C	6.34	4.84	Loam	0.28

Table 4-32. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010806. *More information is provided in Caney Fork-Appendix IV.*

	TOTAL COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		PERCENT CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Sequatchie	8,863	10,119	2.37	210	239	13.8
Van Buren	4,846	5,060	31.68	1,535	1,603	4.4
Warren	32,992	35,777	8.3	2,739	2,971	8.5
Totals	**46,701**	**50,956**		**4,484**	**4,813**	**7.3**

Table 4-33. Population Estimates in Subwatershed 0513010806.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Spencer	Van Buren	1,125	466	23	436	7

Table 4-34. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0513010806.

Figure 4-56. Location of STORET Monitoring Sites in Subwatershed 0513010806. *Subwatershed 051301080601 and 051301080602 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

4.2.F.ii. Point Source Contributions.

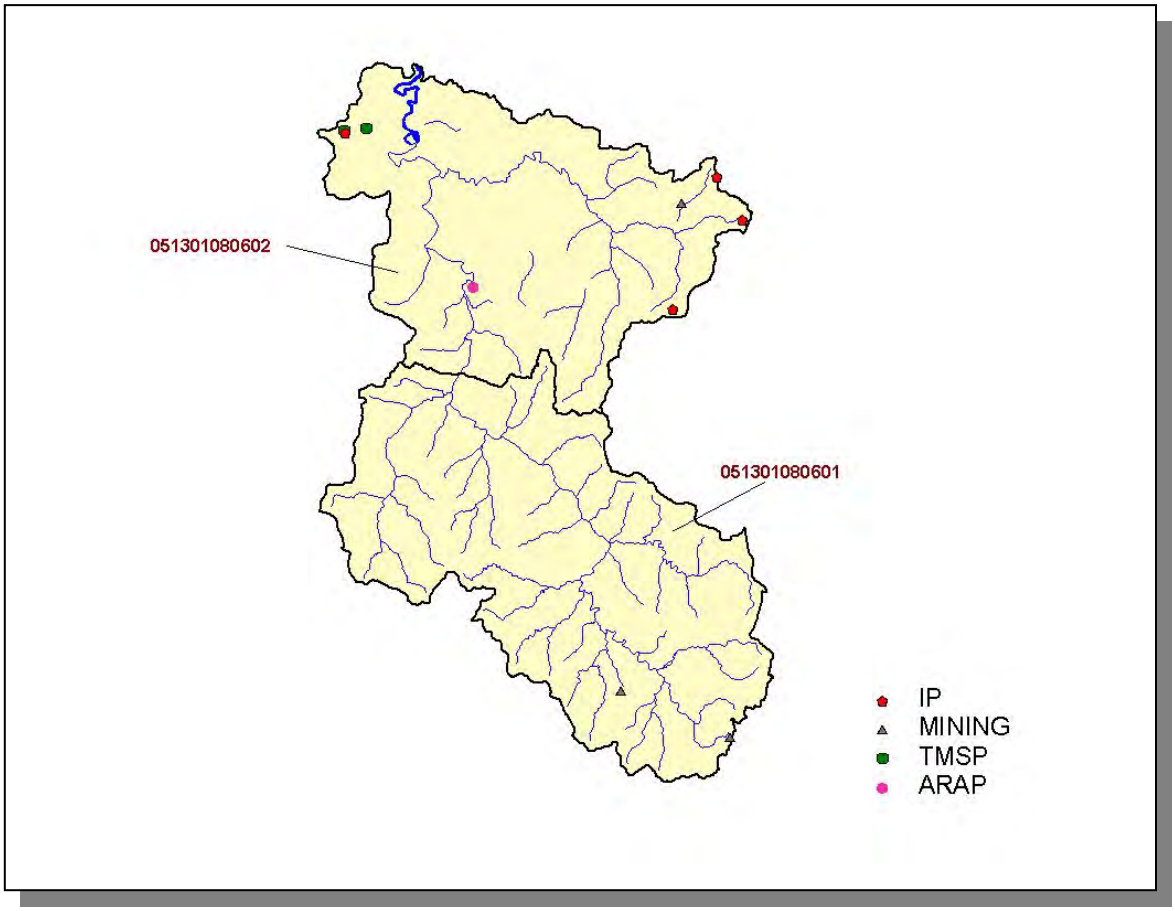


Figure 4-57. Location of Active Point Source Facilities in Subwatershed 0513010806. *Subwatershed 051301080601 and 051301080602 boundaries are shown for reference. More information is provided in the following figures.*

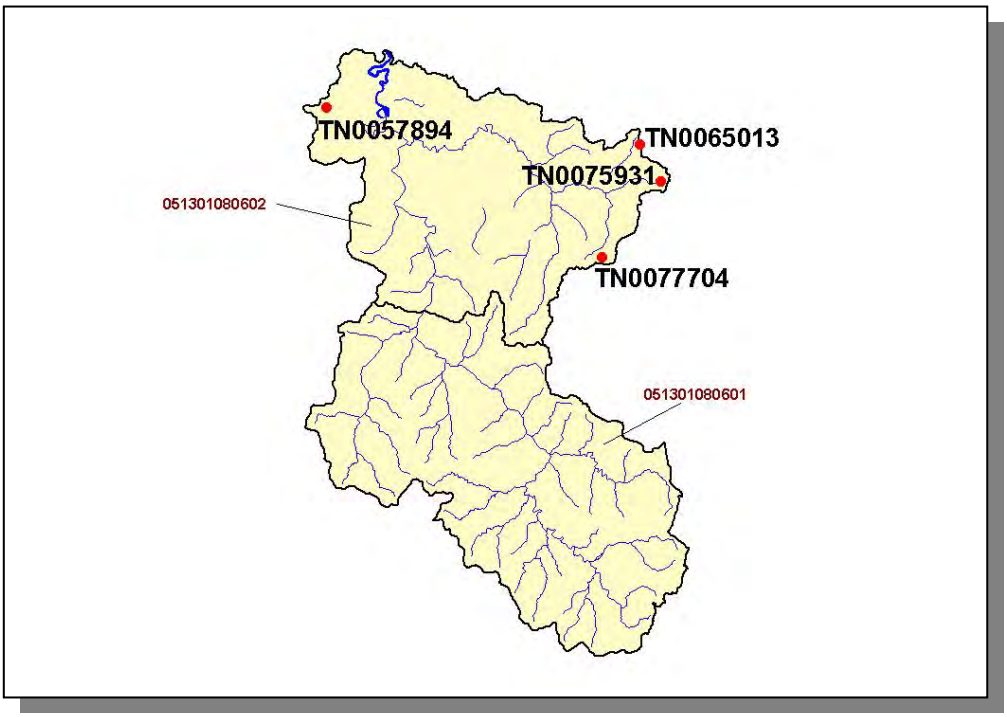


Figure 4-58. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0513010706. *Subwatershed 051301080601 and 051301080602 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

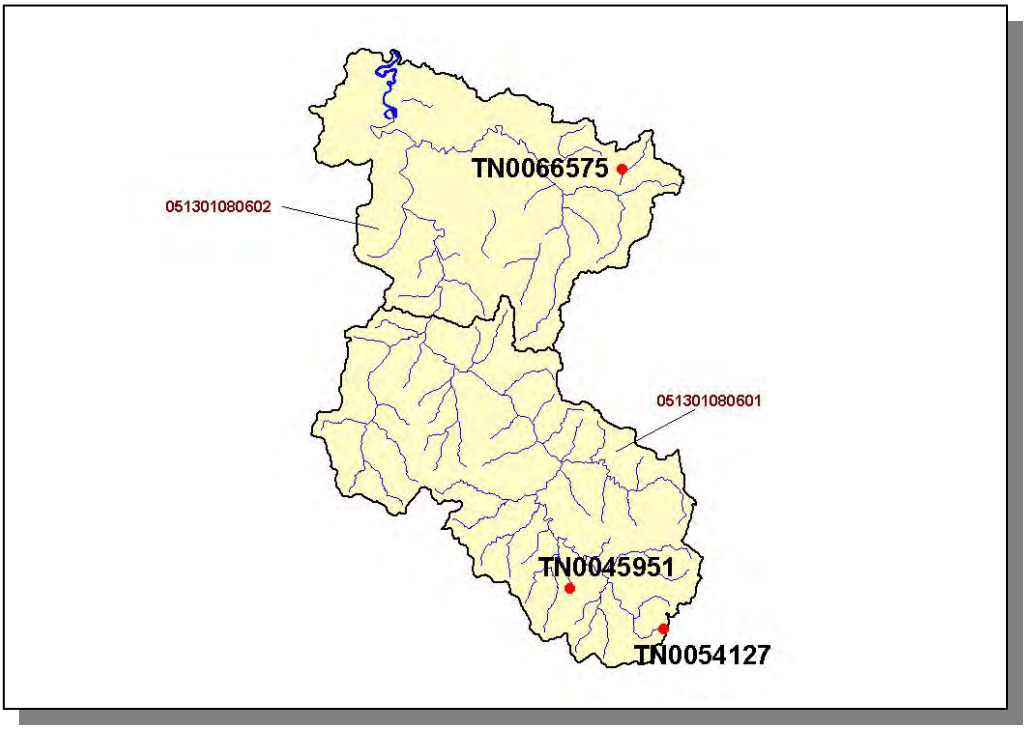


Figure 4-59. Location of Active Mining Sites in Subwatershed 0513010806. *Subwatershed 051301080601 and 051301080602 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

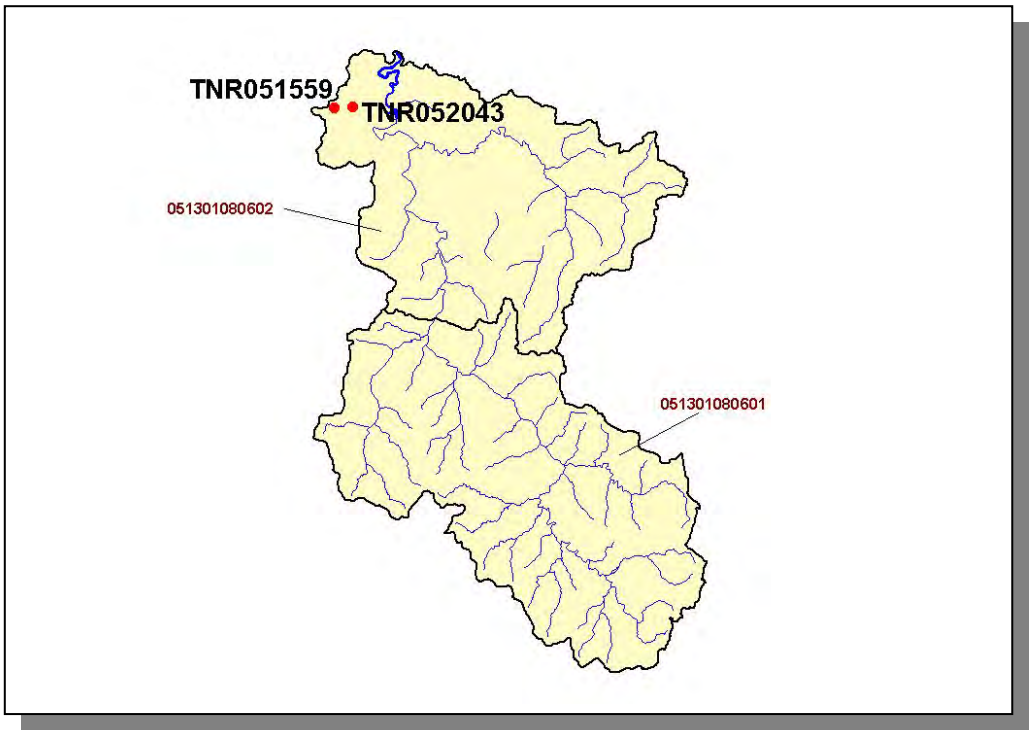


Figure 4-60. Location of TMSP Facilities in Subwatershed 0513010806. *Subwatershed 051301080601 and 051301080602 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

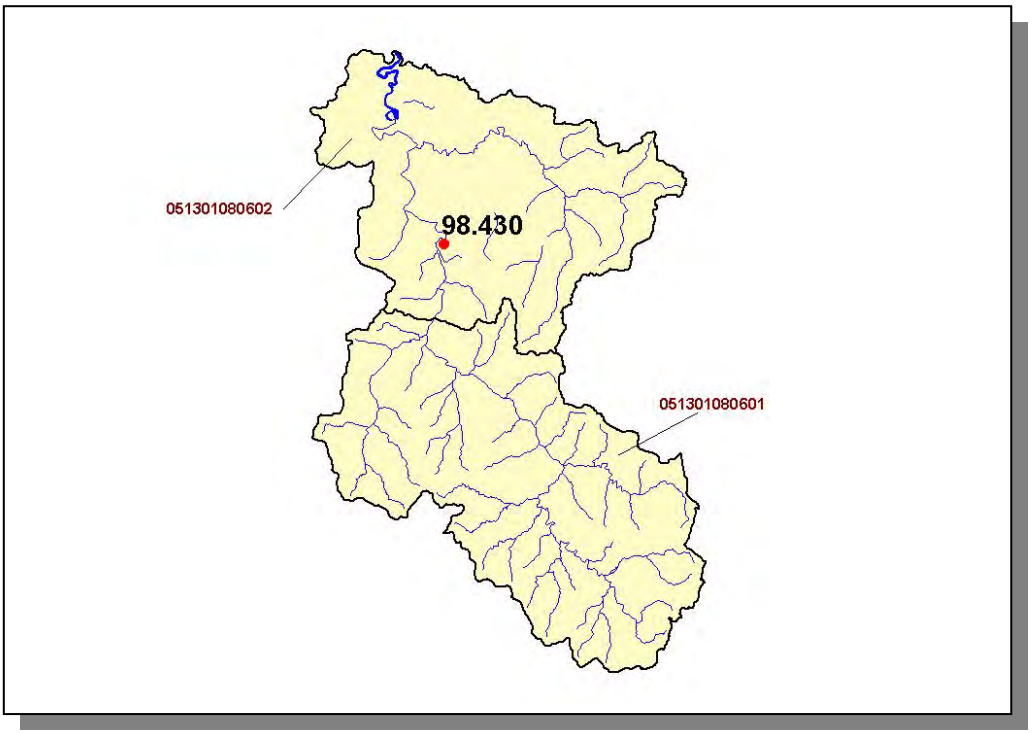


Figure 4-61. Location of ARAP Sites (Individual Permits) in Subwatershed 0513010806. *Subwatershed 051301080601 and 051301080602 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

4.2.F.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Milk Cow	Cattle	Chickens	Chickens Sold	Hogs	Sheep
1,788	200	3,789	3	26,340	61	3

Table 4-35. Summary of Livestock Count Estimates in Subwatershed 0513010806. *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		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Sequatchie	137.3	137.3	0.6	1.2
Van Buren	145.0	135.4	2.3	9.5
Warren	93.6	93.6	2.4	10.1
Total	**375.9**	**366.3**	**5.3**	**20.8**

Table 4-36. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0513010806.

CROPS	TONS/ACRE/YEAR
Non Agricultural Land Use	0.00
Grass (Hayland)	0.43
Legume (Hayland)	0.10
Legume/Grass (Hayland)	4.08
Grass (Pastureland)	0.90
Grass, Forbs, Legumes (Mixed (Pasture)	0.61
Wheat (Close Grown Cropland)	10.12
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Corn (Row Crops)	7.94
Soybeans (Row Crops)	17.74
Conservation Reserve Program Land	0.33
Other (Horticultural)	0.67
Farmsteads and Ranch Headquarters	0.63

Table 4-37. Annual Estimated Total Soil Loss in Subwatershed 0513010806.

4.2.G. 0513010807.

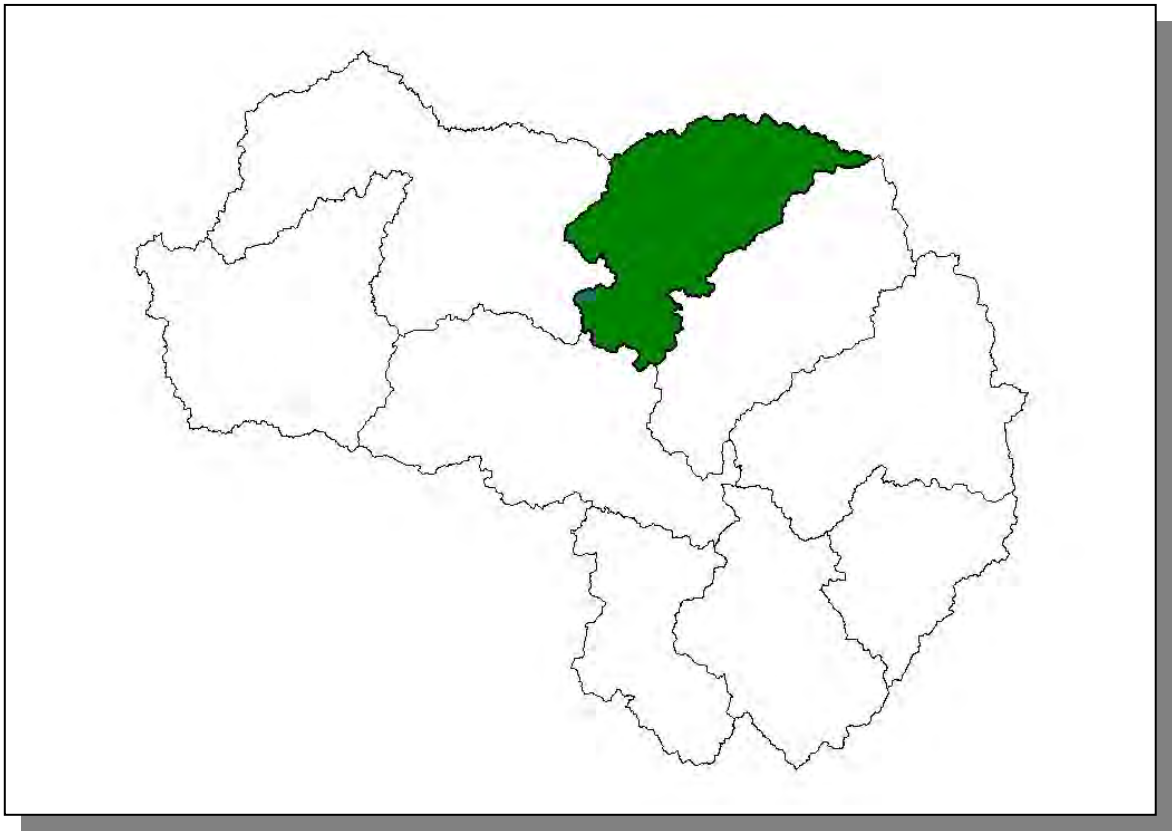


Figure 4-62. Location of Subwatershed 0513010807. *All Caney Fork HUC-10 subwatershed boundaries are shown for reference.*

4.2.G.i. General Description.

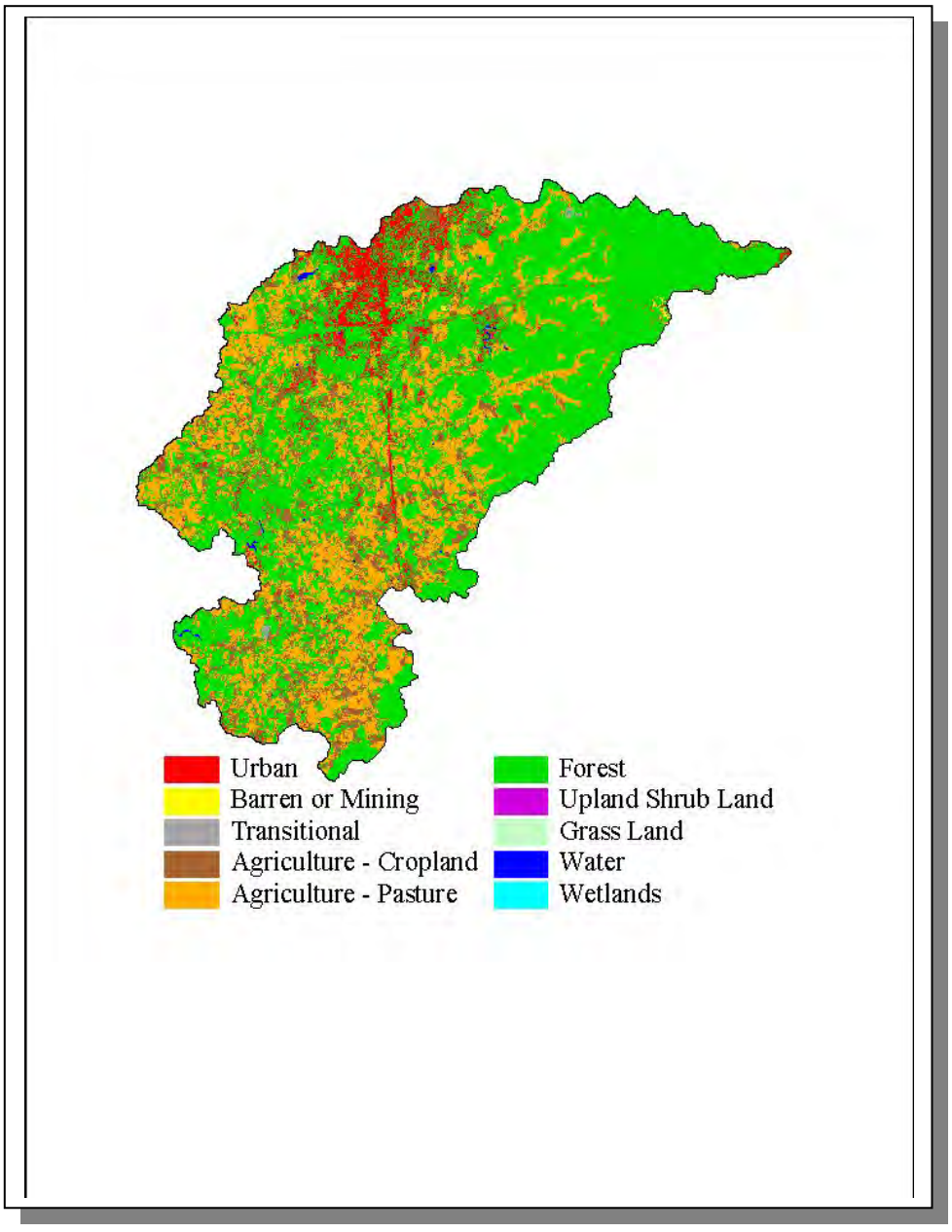


Figure 4-63. Illustration of Land Use Distribution in Subwatershed 0513010807.

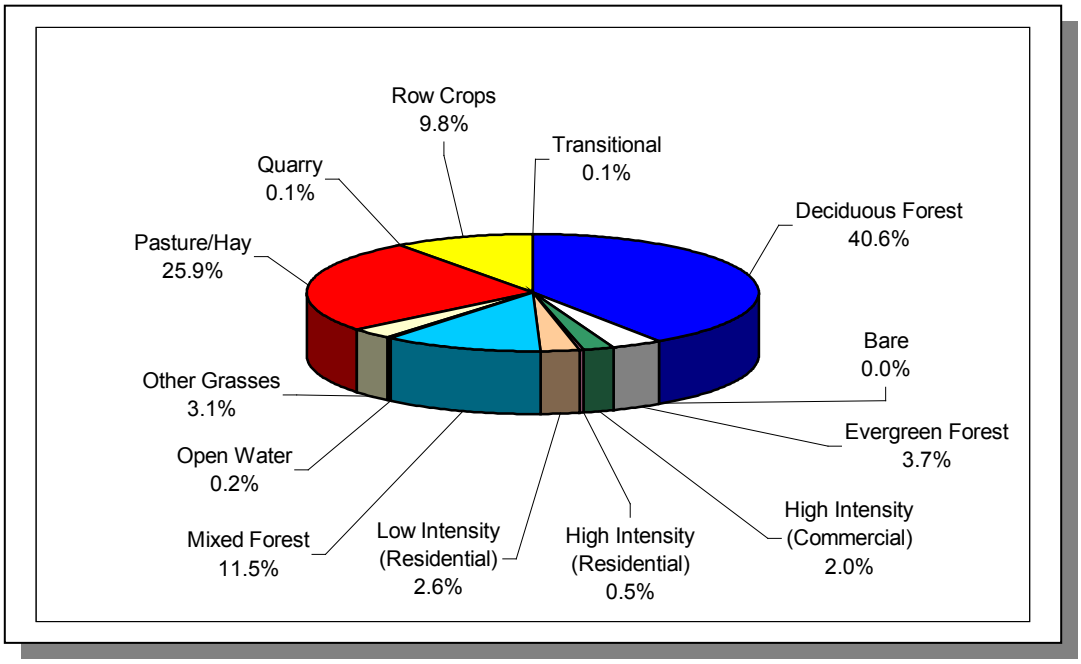


Figure 4-64. Land Use Distribution in Subwatershed 0513010807. *More information is provided in Caney Fork-Appendix IV.*

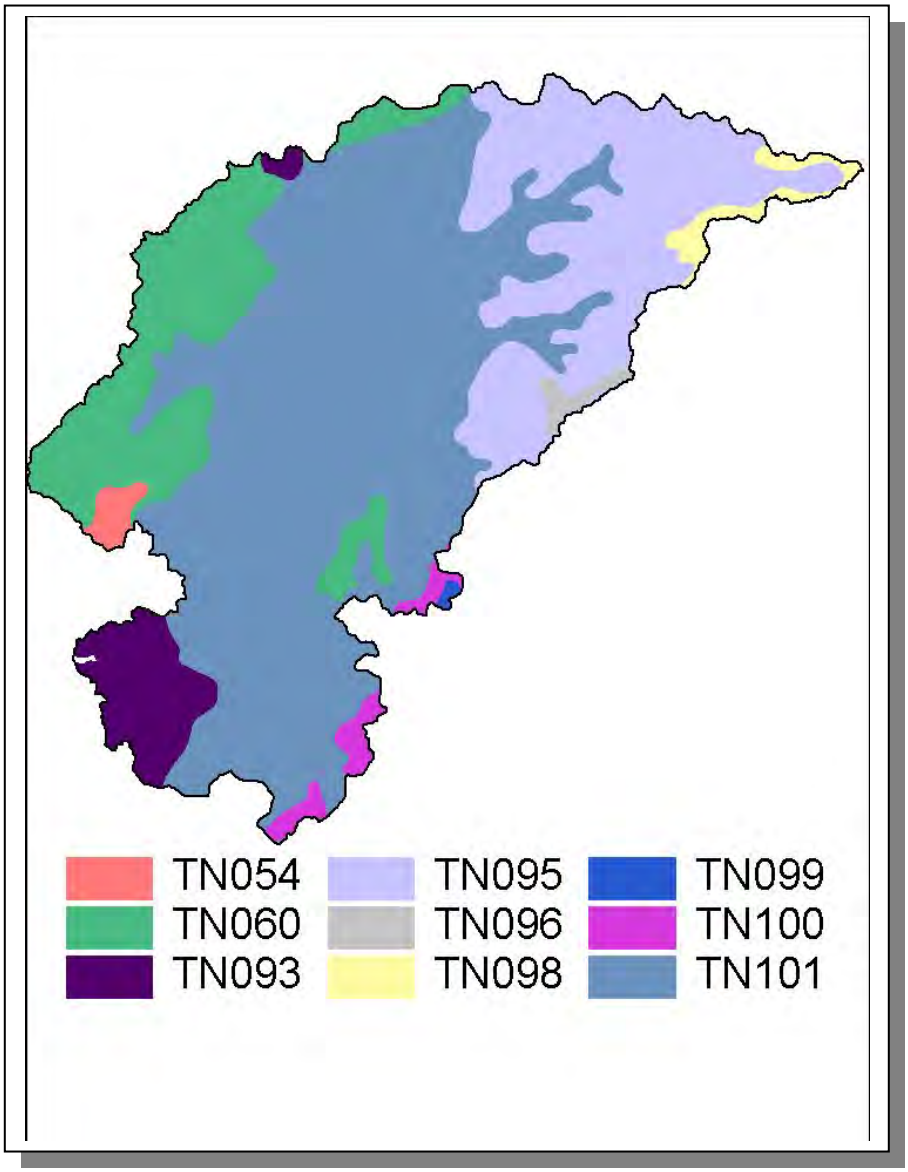


Figure 4-65. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010807.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hr)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN054	0.00	C	3.04	4.84	Loam	0.32
TN060	5.00	B	1.30	5.32	Silty Loam	0.39
TN093	0.00	B	2.43	4.95	Loam	0.36
TN095	0.00	B	2.35	5.12	Loam	0.31
TN096	1.00	C	1.22	5.16	Silty Loam	0.38
TN098	1.00	C	3.98	4.82	Loam	0.32
TN099	1.00	B	1.65	4.98	Silty Loam	0.33
TN100	0.00	B	1.14	3.35	Silty Loam	0.21
TN101	0.00	B	1.71	5.39	Loam	0.35

Table 4-38. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010807. *More information is provided in Caney Fork-Appendix IV.*

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
DeKalb	14,360	15,743	0.11	15	17	13.3
Putnam	51,373	58,376	27.81	14,289	16,223	13.5
White	20,090	22,201	17.17	3,450	3,812	10.5
Totals	**85,823**	**96,270**		**17,754**	**20,052**	**12.9**

Table 4-39. Population Estimates in Subwatershed 0513010807.

NUMBER OF HOUSING UNITS						
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Algood	Putnam	2,399	1,016	706	308	2
Cookeville	Putnam	21,744	9,284	8,131	1,135	18
Monterey	Putnam	2,559	1,113	875	228	10
Total		**26,702**	**11,413**	**9,712**	**1,671**	**30**

Table 4-40. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0513010807.

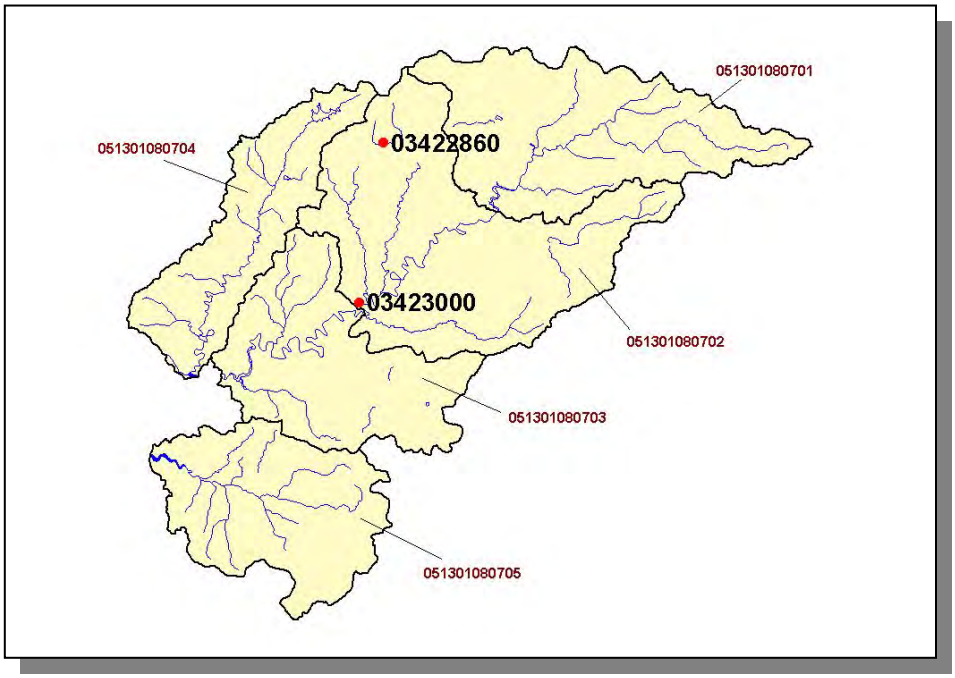


Figure 4-66. Location of Historical Streamflow Data Collection Sites in Subwatershed 0513010807. *Subwatershed 051301080701, 051301080702, 051301080703, 051301080704, and 051301080705 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

Figure 4-67. Location of STORET Monitoring Sites in Subwatershed 0513010807. *Subwatershed 051301080701, 051301080702, 051301080703, 051301080704, and 051301080705 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

4.2.G.ii. Point Source Contributions.

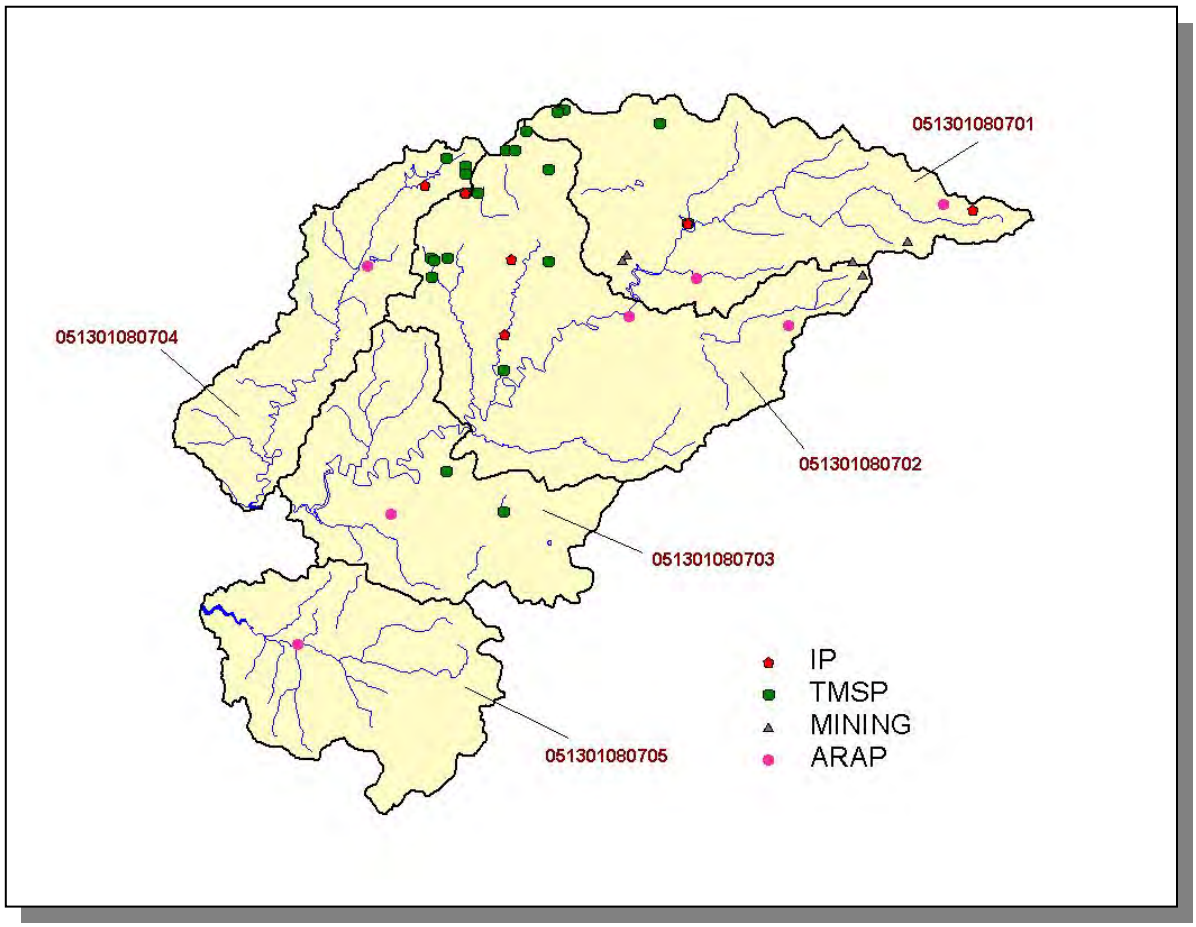


Figure 4-68. Location of Active Point Source Facilities in Subwatershed 0513010807. *Subwatershed 051301080701, 051301080702, 051301080703, 051301080704, and 051301080705 boundaries are shown for reference. More information is provided in the following figures.*

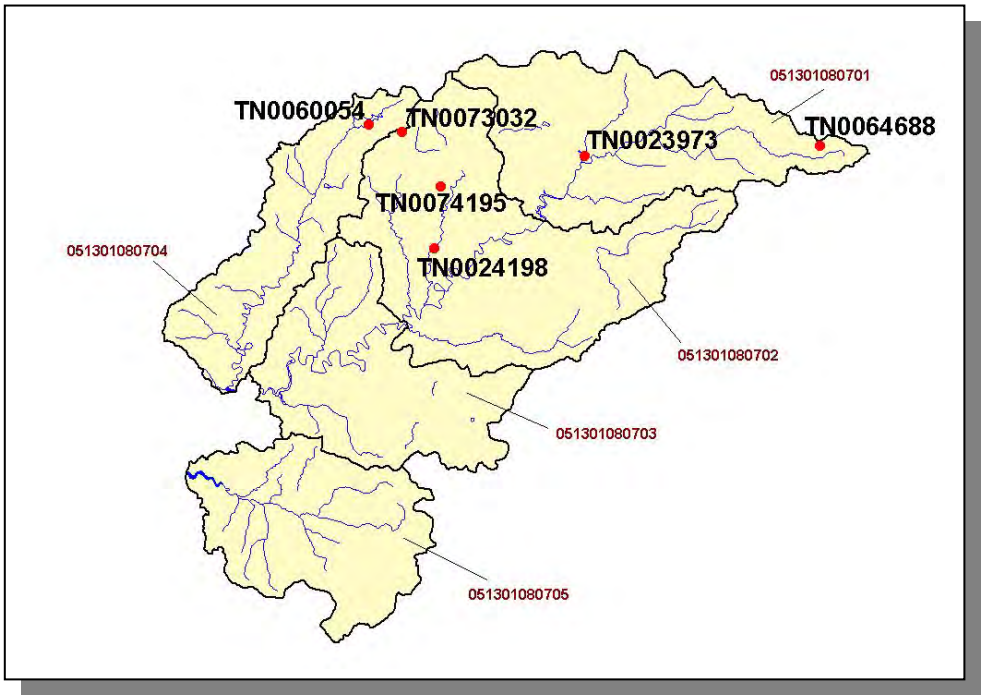


Figure 4-69. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0513010807. *Subwatershed 051301080701, 051301080702, 051301080703, 051301080704, and 051301080705 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

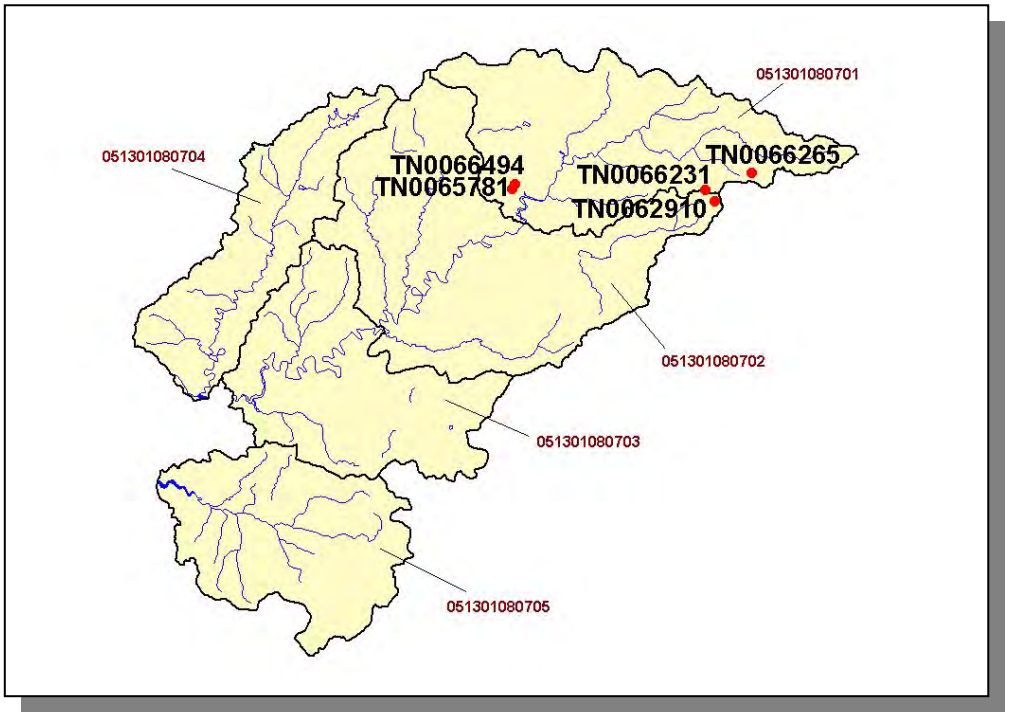


Figure 4-70. Location of Active Mining Sites in Subwatershed 0513010807. *Subwatershed 051301080701, 051301080702, 051301080703, 051301080704, and 051301080705 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

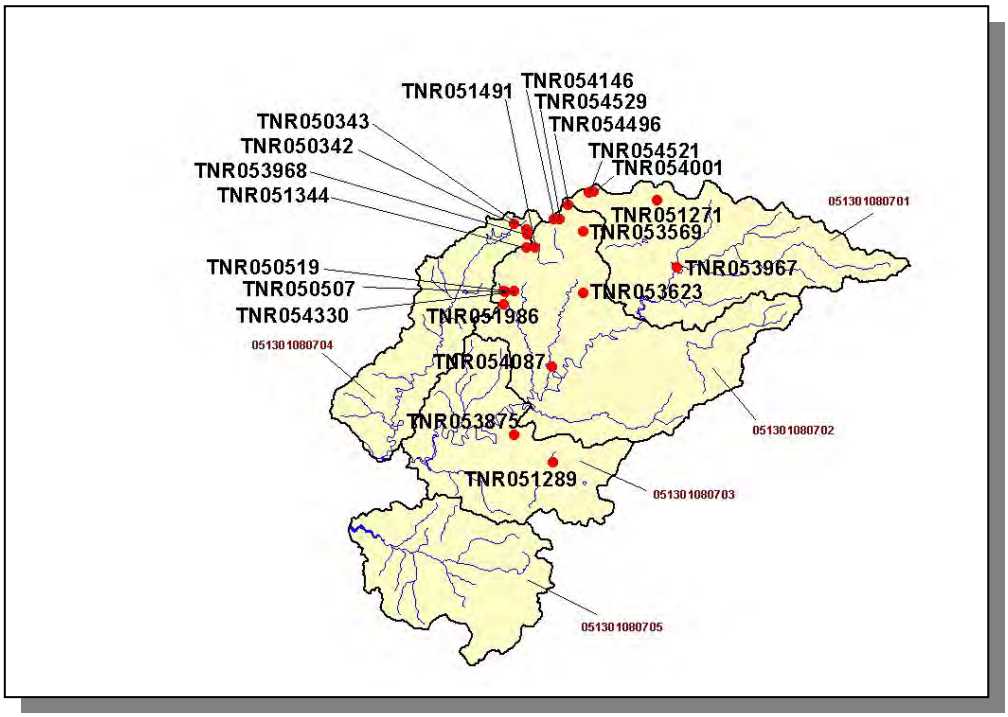


Figure 4-71. Location of TMSP Facilities in Subwatershed 0513010807. *Subwatershed 051301080701, 051301080702, 051301080703, 051301080704, and 051301080705 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

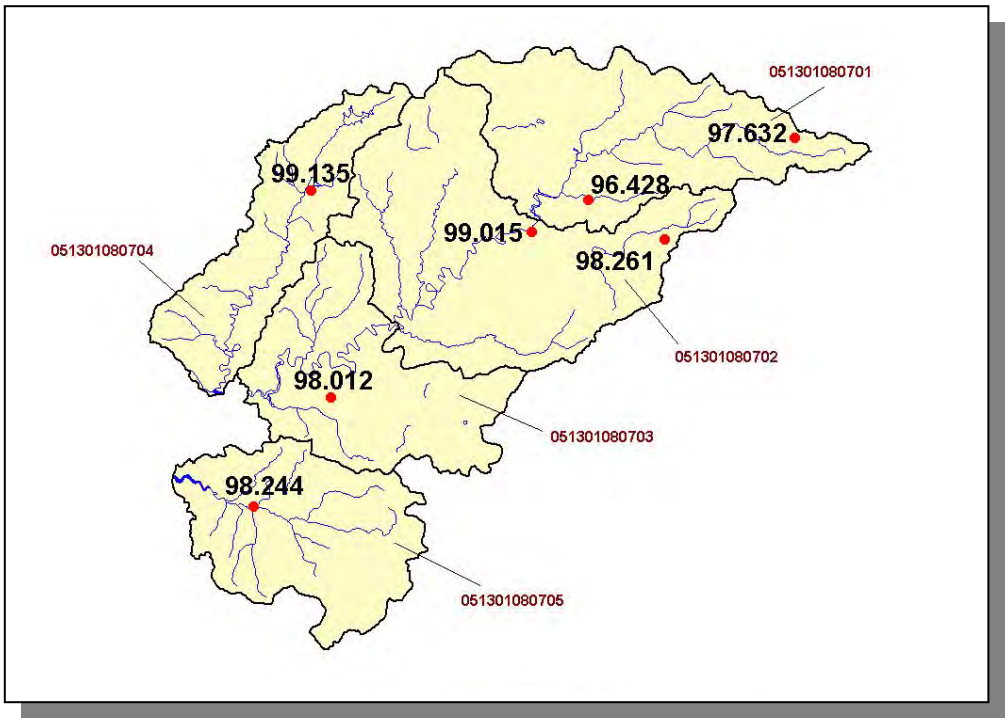


Figure 4-72. Location of ARAP Sites (Individual Permits) in Subwatershed 0513010807. *Subwatershed 051301080701, 051301080702, 051301080703, 051301080704, and 051301080705 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV*

4.2.G.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 0513010807:

- TN0024198 (Cookeville STP) discharges to Pigeon Roost Creek @ RM 2.3
- TN0073032 (Union Tools) discharges to a wet weather conveyance to Cane Creek @ RM 14.1
- TN0074195 (TDOT-Putnam County) discharges to an unnamed trib to Pigeon Roost Creek

Figure 4-73. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 0513010807. *Subwatershed 051301080701, 051301080702, 051301080703, 051301080704, and 051301080705 boundaries are shown for reference. The names of facilities are provided in Caney Fork-Appendix IV.*

PERMIT #	1Q10	3Q10	7Q10	3Q20	QDESIGN
TN0024198	0.66	0.70	0.79	0.60	14.00000
TN0073032				0.32	0.14400
TN0021112				0.00	0.00432

Table 4-41. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0513010807. *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.*

PERMIT #	P
TN0024198	X

Table 4-42. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0513010807.

PERMIT #	WET	$CBOD_5$	FECAL	NH_3	Pb	Hg	TRC	TSS	SETTLEABLE SOLIDS	CN	DO	pH
TN0024198	X	X	X	X		X	X	X	X	X	X	X
TN0073032								X				X
TN0074195	X				X			X				

Table 4-43a. Inorganic Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0513010807. *Wet, Whole Effluent Toxicity; $CBOD_5$, Carbonaceous Biochemical Oxygen demand (5-Day); TRC, Total Residual Chlorine; TSS, Total Suspended Solids.*

PERMIT #	OIL and GREASE	ETHYLBENZENE	BENZENE	TOLUENE	XYLENE
TN0074195	X	X	X	X	X

Table 4-43b. Organic Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0513010807.

4.2.G.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
9,185	18,798	1,210	21	0	769	46

Table 4-44. Summary of Livestock Count Estimates in Subwatershed 0513010807. *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		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Putnam	152.5	152.3	3.6	16.4
White	129.4	129.4	4.9	23.3
Totals	**281.9**	**281.7**	**8.5**	**39.7**

Table 4-45. Forest Acreage and Average Removal Rates (1987-1994) in Subwatershed 0513010807.

CROPS	TONS/ACRE/YEAR
Legume (Hayland)	0.33
Legume/Grass (Hayland)	0.49
Grass (Pastureland)	1.35
Grass, Forbs, Legumes (Mixed Pasture)	0.75
Forest Land (Grazed)	0.00
Corn (Row Crops)	11.84
Soy Beans (Row Crops)	0.93
Conservation Reserve Program Land	0.13
Wheat (Close Grown Cropland)	6.10
All Other Close Grown Cropland	0.67
Other Land in Farms	0.25
Fruit (Horticulture)	0.08
Other (Horticulture)	1.13
Other Vegetable and Truck Crop	14.6
Other Cropland not Planted	2.26

Table 4-46. Annual Estimated Total Soil Loss in Subwatershed 0513010807.

4.2.H. 0513010808.

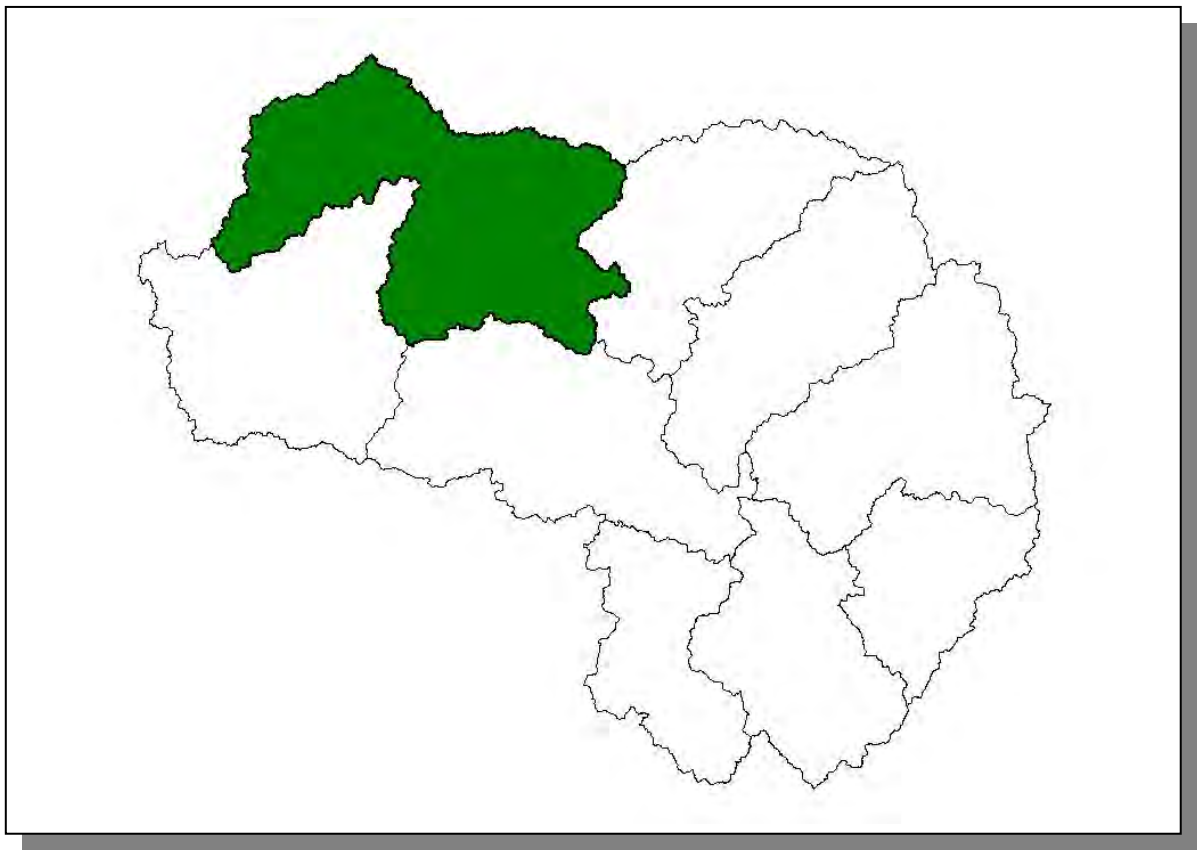


Figure 4-74. Location of Subwatershed 0513010808. *All Caney Fork HUC-10 subwatershed boundaries are shown for reference.*

4.2.H.i. General Description.

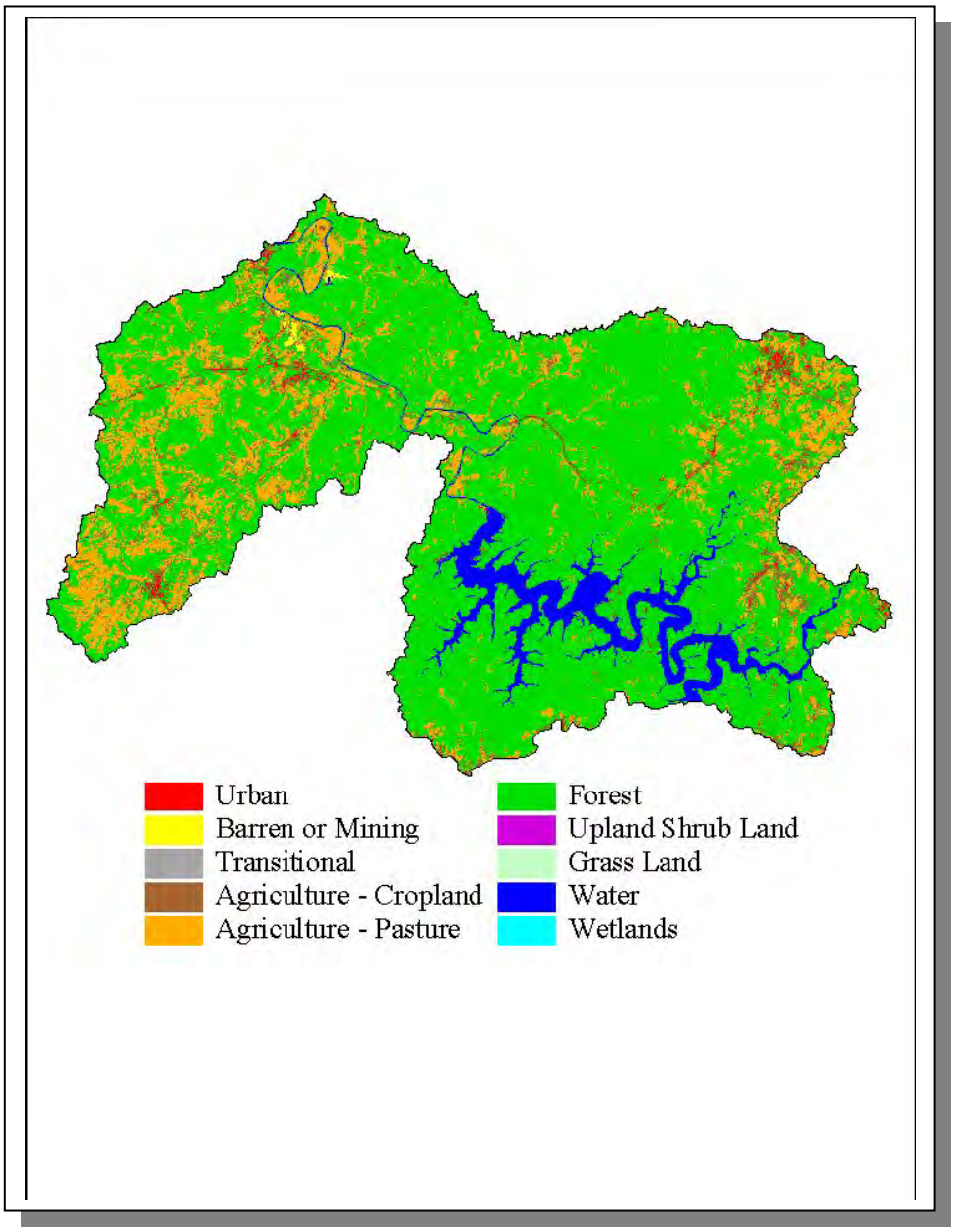


Figure 4-75. Illustration of Land Use Distribution in Subwatershed 0513010808.

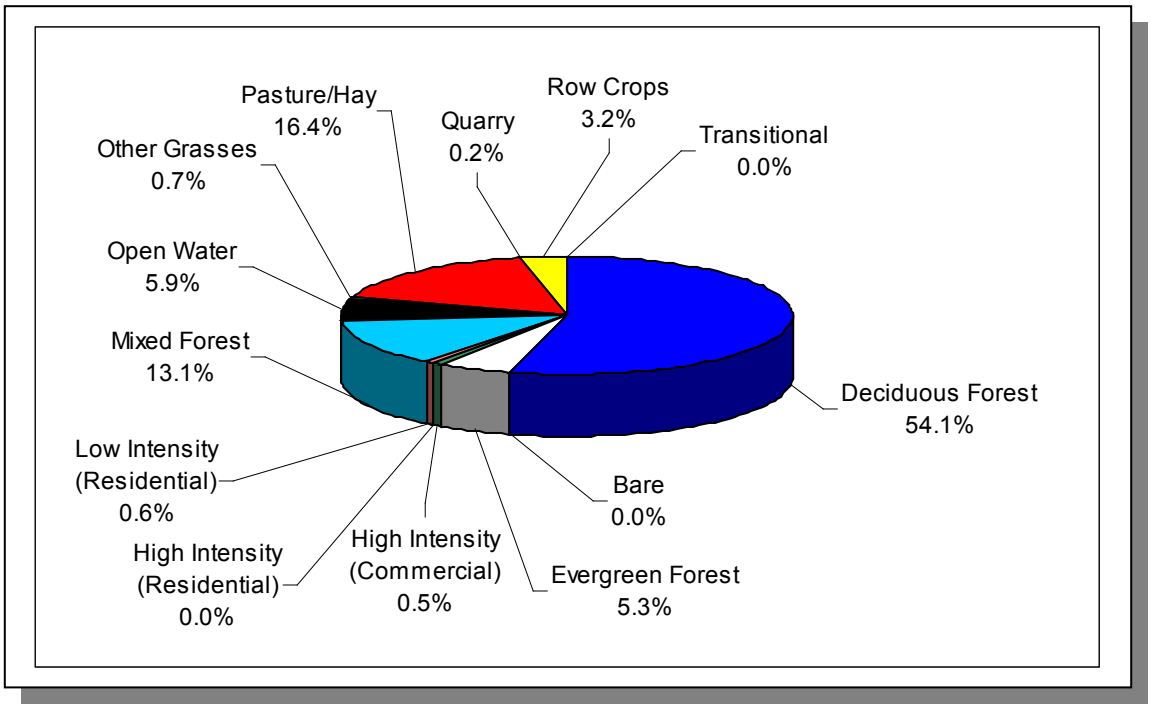


Figure 4-76. Land Use Distribution in Subwatershed 0513010808. *More information is provided in Caney Fork-Appendix IV.*

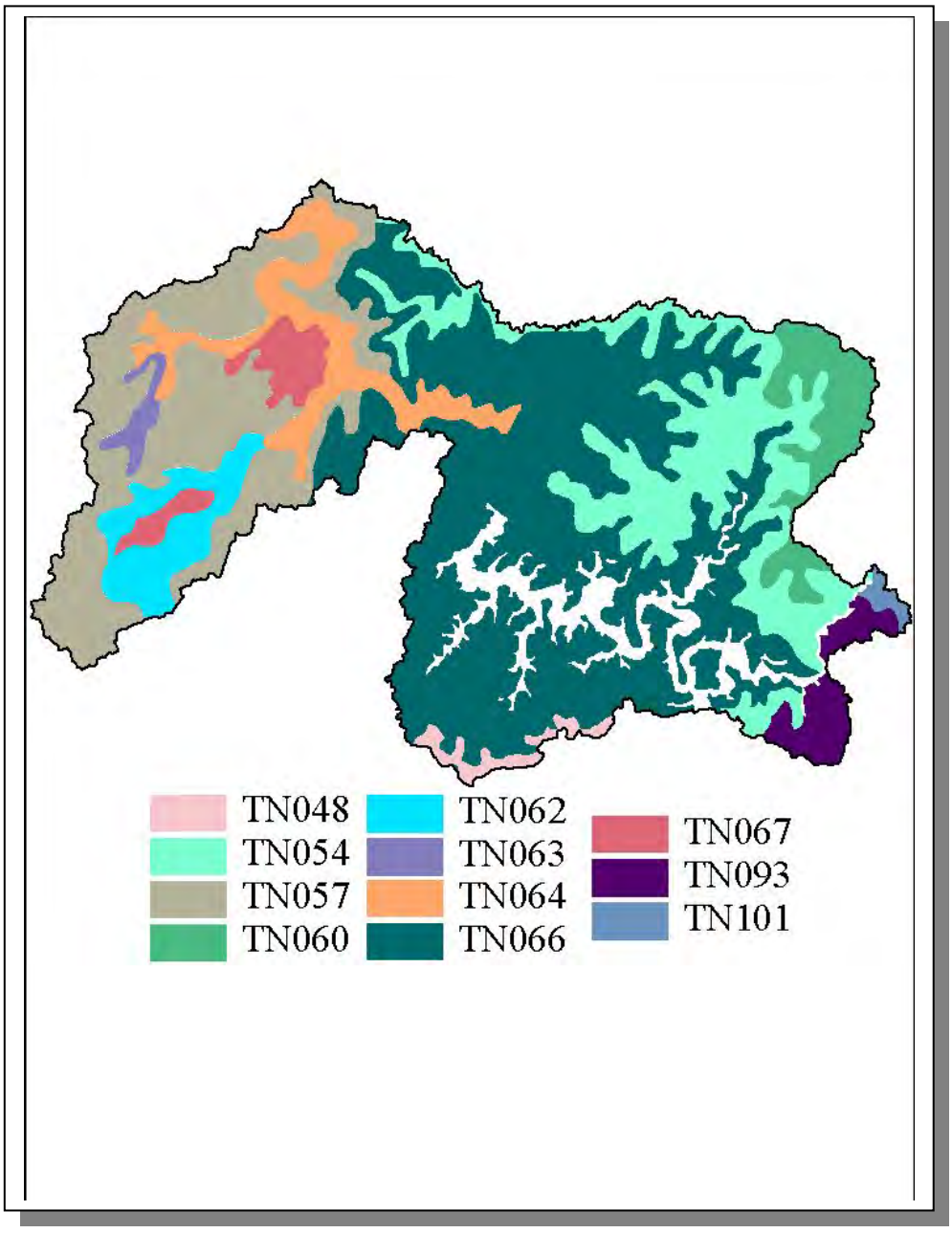


Figure 4-77. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010808.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hr)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN048	8.00	C	1.38	5.06	Silty Loam	0.42
TN054	0.00	C	3.04	4.84	Loam	0.32
TN057	0.00	C	1.14	5.01	Clayey Loam	0.33
TN060	5.00	B	1.30	5.32	Silty Loam	0.39
TN062	0.00	C	0.98	4.40	Clayey Loam	0.26
TN063	0.00	C	1.19	5.72	Clayey Loam	0.32
TN064	7.00	C	1.19	5.82	Silty Loam	0.37
TN066	0.00	B	2.62	4.75	Loam	0.28
TN067	2.00	C	2.69	5.51	Silty Loam	0.35
TN093	0.00	B	2.43	4.95	Loam	0.36
TN101	0.00	B	1.71	5.39	Loam	0.35

Table 4-47. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010808. *More information is provided in Caney Fork-Appendix IV.*

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
DeKalb	14,360	15,743	33.1	4,754	5,212	9.6
Putnam	51,373	58,326	18.96	9,740	11,058	13.5
Smith	14,143	16,047	34.36	4,860	5,514	13.5
White	20,090	22,201	1.03	208	230	10.6
Wilson	67,675	81,327	1.75	1,181	1,420	20.2
Totals	**167,641**	**193,644**		**20,743**	**23,434**	**13.0**

Table 4-48. Population Estimates in Subwatershed 0513010808.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Gordonsville	Smith	891	372	14	356	2
South Carthage	Smith	851	376	295	81	0
Baxter	Putnam	1,289	579	424	153	2
Alexandria	DeKalb	740	346	325	20	1
Smithville	Dekalb	3,791	1,693	1,560	122	11
Total		**7,562**	**3,366**	**2,618**	**732**	**16**

Table 4-49. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0513010808.

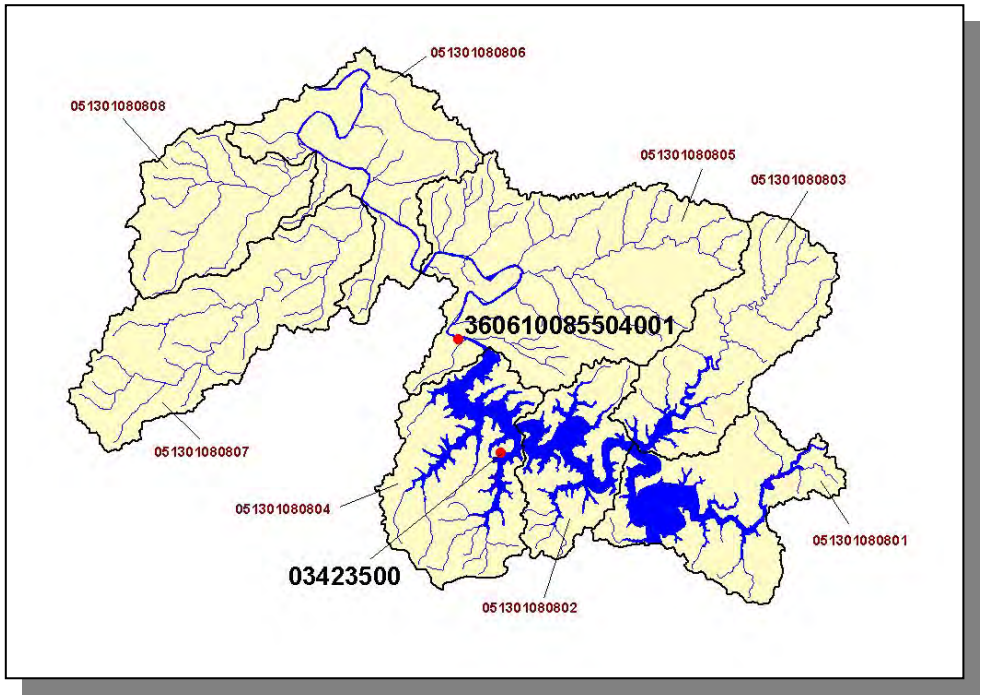


Figure 4-78. Location of Historical Streamflow Data Collection Sites in Subwatershed 0513010808. *Subwatershed 051301080801, 051301080802, 051301080803, 051301080804. 051301080805, 051301080806, 051301080807, and 051301080808 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

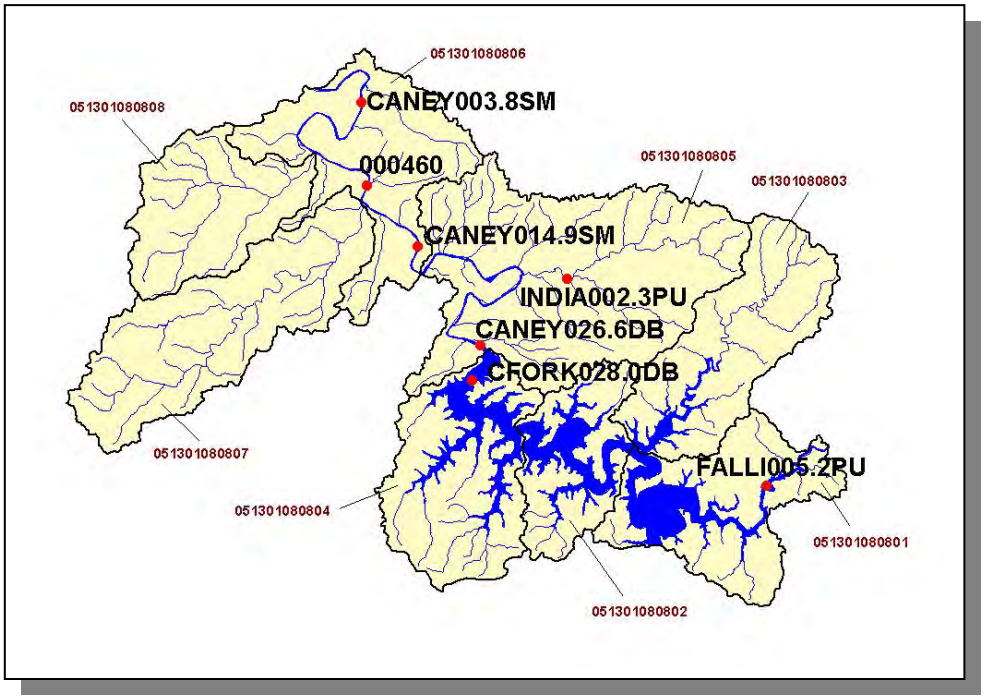


Figure 4-79. Location of STORET Monitoring Sites in Subwatershed 0513010808. *Subwatershed 051301080801, 051301080802, 051301080803, 051301080804. 051301080805, 051301080806, 051301080807, and 051301080808 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

4.2.H.ii. Point Source Contributions.

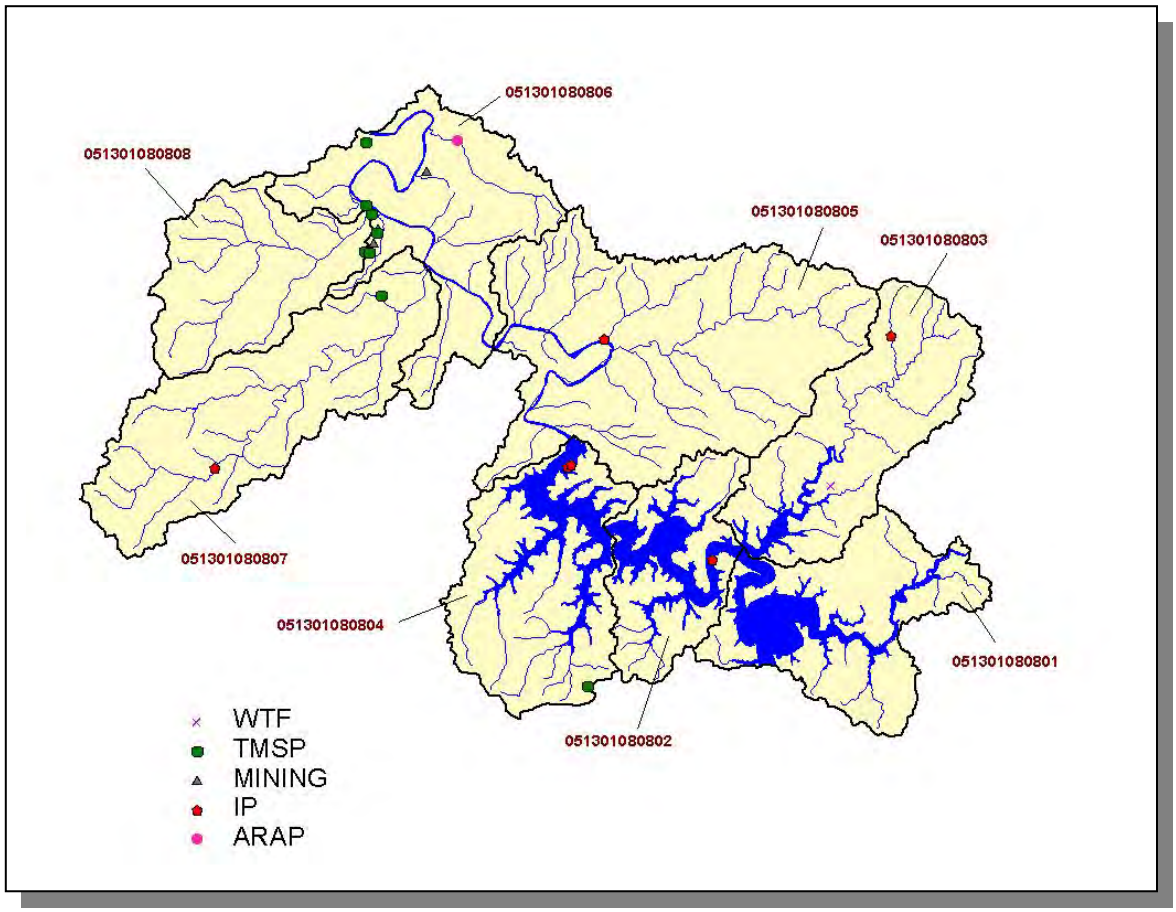


Figure 4-80. Location of Active Point Source Facilities in Subwatershed 0513010808. *Subwatershed 051301080801, 051301080802, 051301080803, 051301080804. 051301080805, 051301080806, 051301080807, and 051301080808 boundaries are shown for reference. Tennessee. More information is provided in the following figures.*

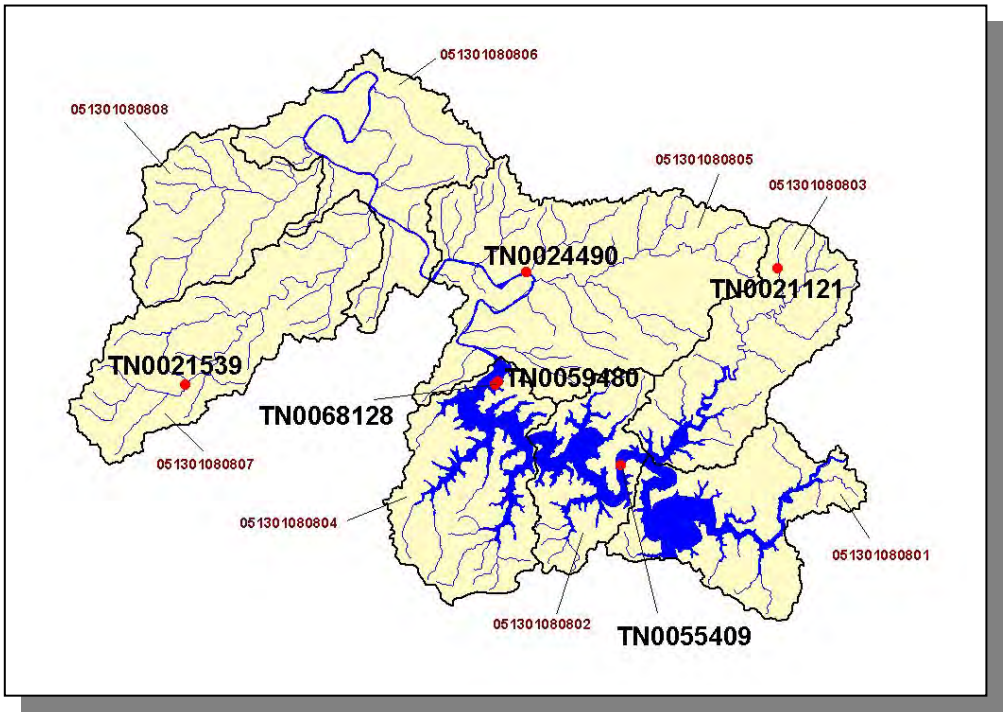


Figure 4-81. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0513010808. *Subwatershed 051301080801, 051301080802, 051301080803, 051301080804. 051301080805, 051301080806, 051301080807, and 051301080808 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

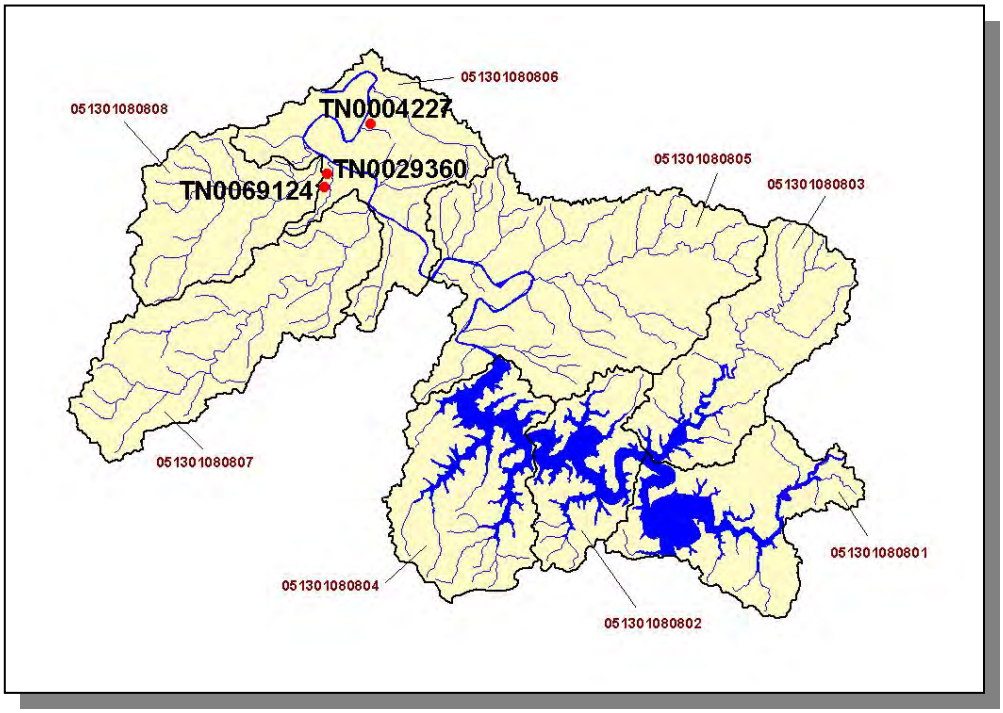


Figure 4-82. Location of Active Mining Sites in Subwatershed 0513010807. *Subwatershed 051301080801, 051301080802, 051301080803, 051301080804. 051301080805, 051301080806, 051301080807, and 051301080808 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

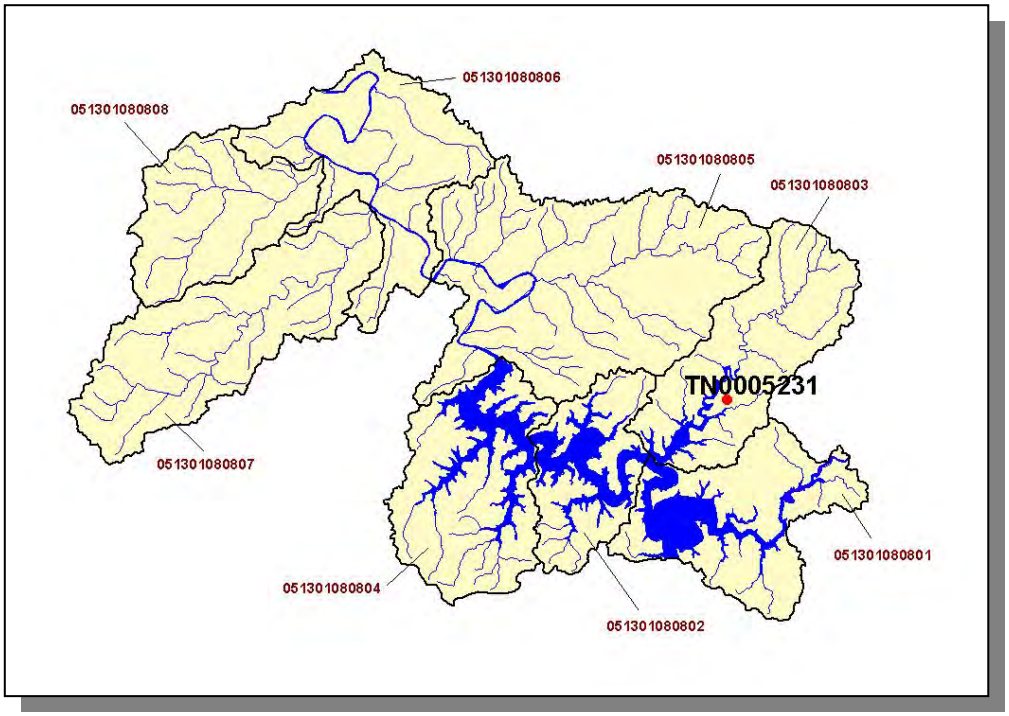


Figure 4-83. Location of Water Treatment Plant Sites in Subwatershed 0513010808. *Subwatershed 051301080801, 051301080802, 051301080803, 051301080804. 051301080805, 051301080806, 051301080807, and 051301080808 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

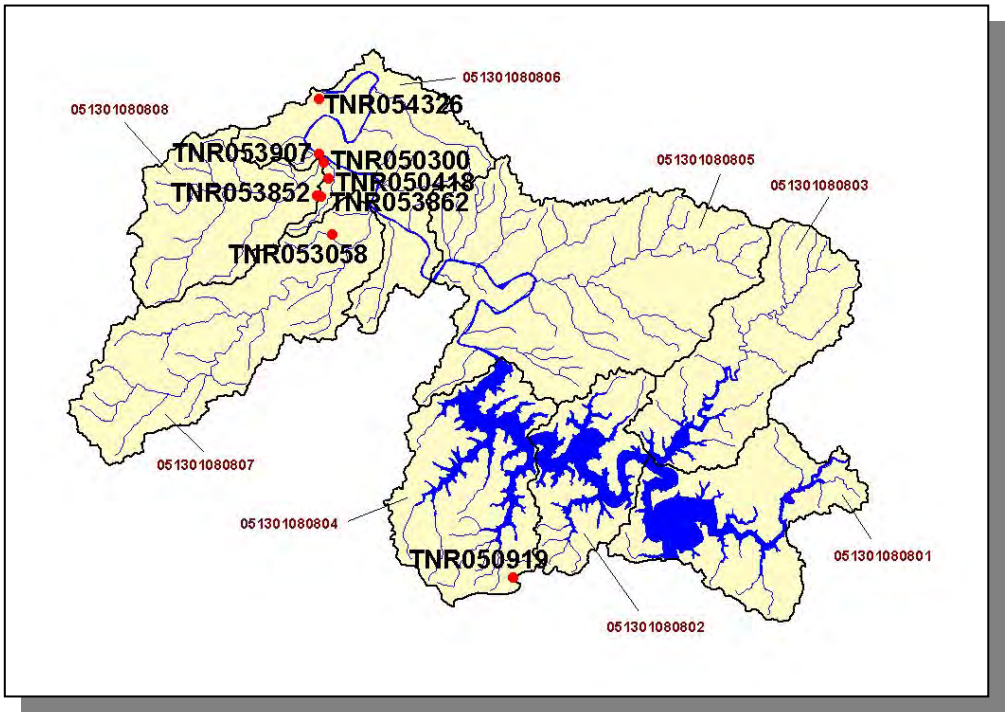


Figure 4-84. Location of TMSP Facilities in Subwatershed 0513010808. *Subwatershed 051301080801, 051301080802, 051301080803, 051301080804. 051301080805, 051301080806, 051301080807, and 051301080808 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

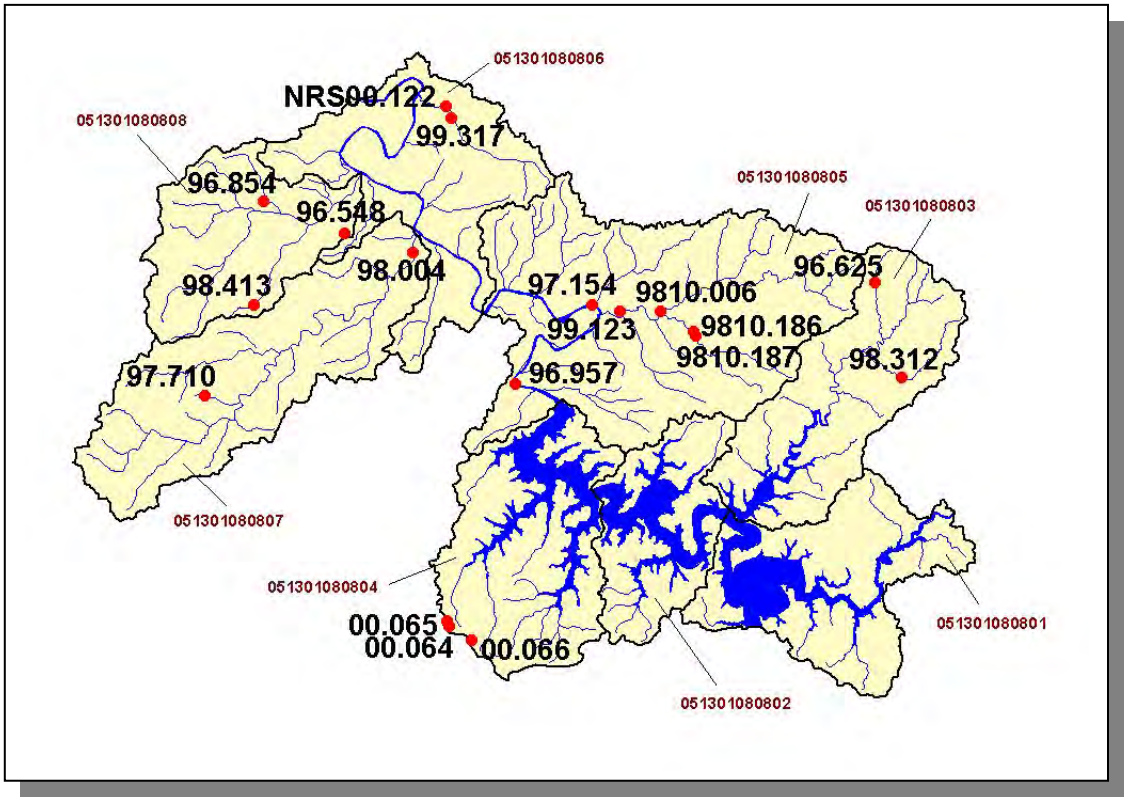


Figure 4-85. Location of ARAP Sites (Individual Permits) in Subwatershed 0513010808. *Subwatershed 051301080801, 051301080802, 051301080803, 051301080804. 051301080805, 051301080806, 051301080807, and 051301080808 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

4.2.H.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 0513010808:

- TN0021121 (Baxter STP) discharges to mine Lick Creek at RM 15.4

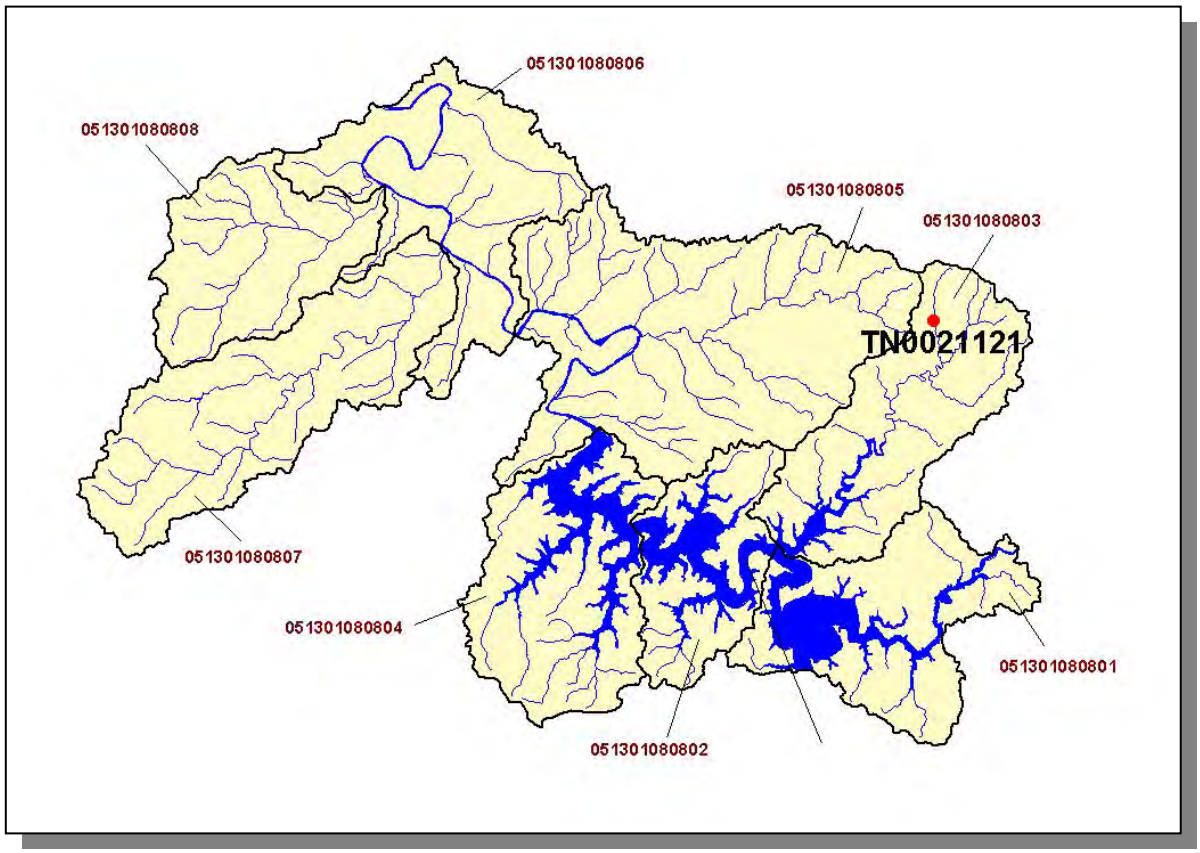


Figure 4-86. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 0513010808. *Subwatershed 051301080801, 051301080802, 051301080803, 051301080804. 051301080805, 051301080806, 051301080807, and 051301080808 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

PERMIT #	1Q10	3Q10	7Q10	3Q20	QDESIGN
TN0021121			0.00		0.50000

Table 4-50. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0513010808. *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.*

PERMIT #	P
TN0021121	X

Table 4-51. Monitoring Requirements for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0513010808.

PERMIT #	WET	$CBOD_5$	FECAL	NH_3	TRC	TSS	SETTLEABLE SOLIDS	DO	pH
TN0021121	X	X	X	X	X	X	X	X	X

Table 4-52. Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0513010808. WET, Whole Effluent Toxicity; $CBOD_5$, Carbonaceous Biochemical Oxygen Demand (5-Day); TRC, Total Residual Chlorine; TSS, Total Suspended Solids.

4.2.H.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
13,256	23,932	756	32	0	1,143	200

Table 4-53. Summary of Livestock Count Estimates in Subwatershed 0513010808. *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		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Putnam	152.5	152.3	3.6	16.4
Smith	81.0	81.0	1.1	2.6
White	129.4	129.4	4.9	23.3
Wilson	98.1	97.0	1.7	6.8
Totals	**461.0**	**459.7**	**11.3**	**49.1**

Table 4-54. Forest Acreage and Average Removal Rates (1987-1994) in Subwatershed 0513010808.

CROPS	TONS/ACRE/YEAR
Legume (Hayland)	0.40
Grass (Hayland)	0.75
Legume/Grass (Hayland)	0.42
Grass (Pastureland)	1.46
Grass, Forbs, Legumes (Mixed Pasture)	0.77
Forest Land (Grazed)	0.00
Forest (Not Grazed)	0.00
Corn (Row Crops)	2.32
Soy Beans (Row Crops)	3.76
Tobacco (Row Crops)	9.40
Conservation Reserve Program Land	0.21
Wheat (Close Grown Cropland)	5.53
All Other Close Grown Cropland	1.97
Fruit (Horticulture)	0.08
Other (Horticulture)	1.13
Other Vegetable and Truck Crop	14.60
Other Land in Farms	0.25
Other Cropland not Planted	1.87
Farmsteads and Ranch Headquarters	0.22
Nonagricultural Land Use	0.00

Table 4-55. Annual Estimated Total Soil Loss in Subwatershed 0513010808.

4.2.I. 0513010809.

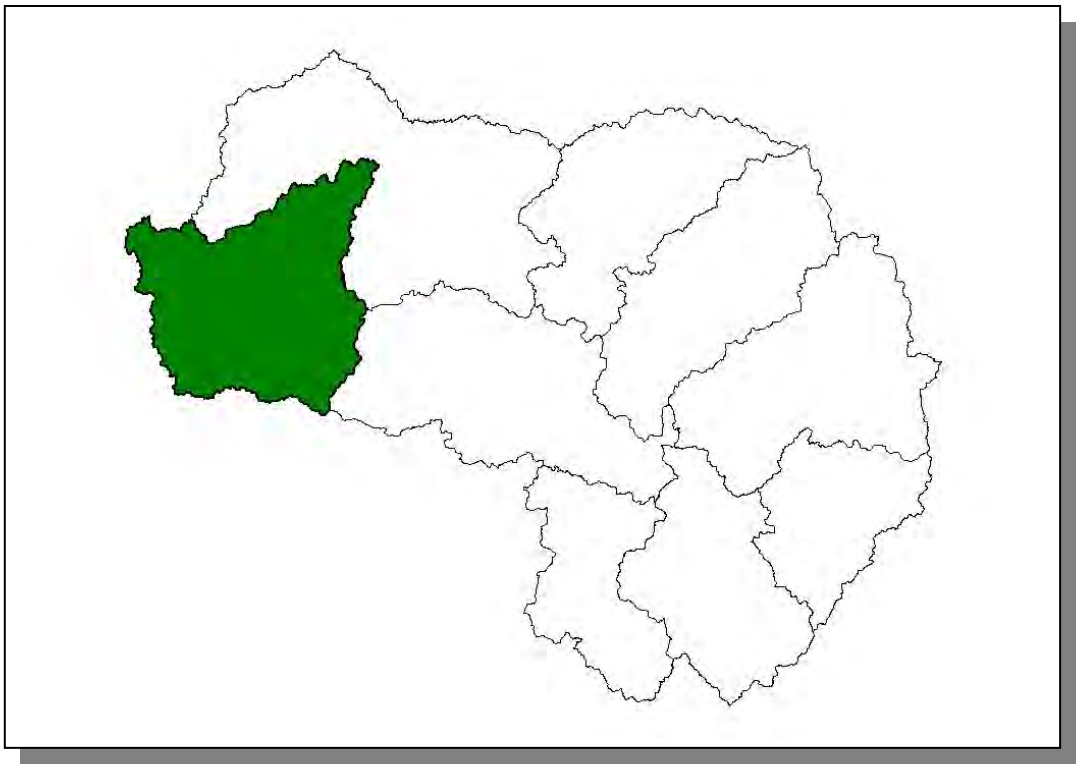


Figure 4-87. Location of Subwatershed 0513010809. *All Caney Fork HUC-10 subwatershed boundaries are shown for reference.*

4.2.I.i. General Description.

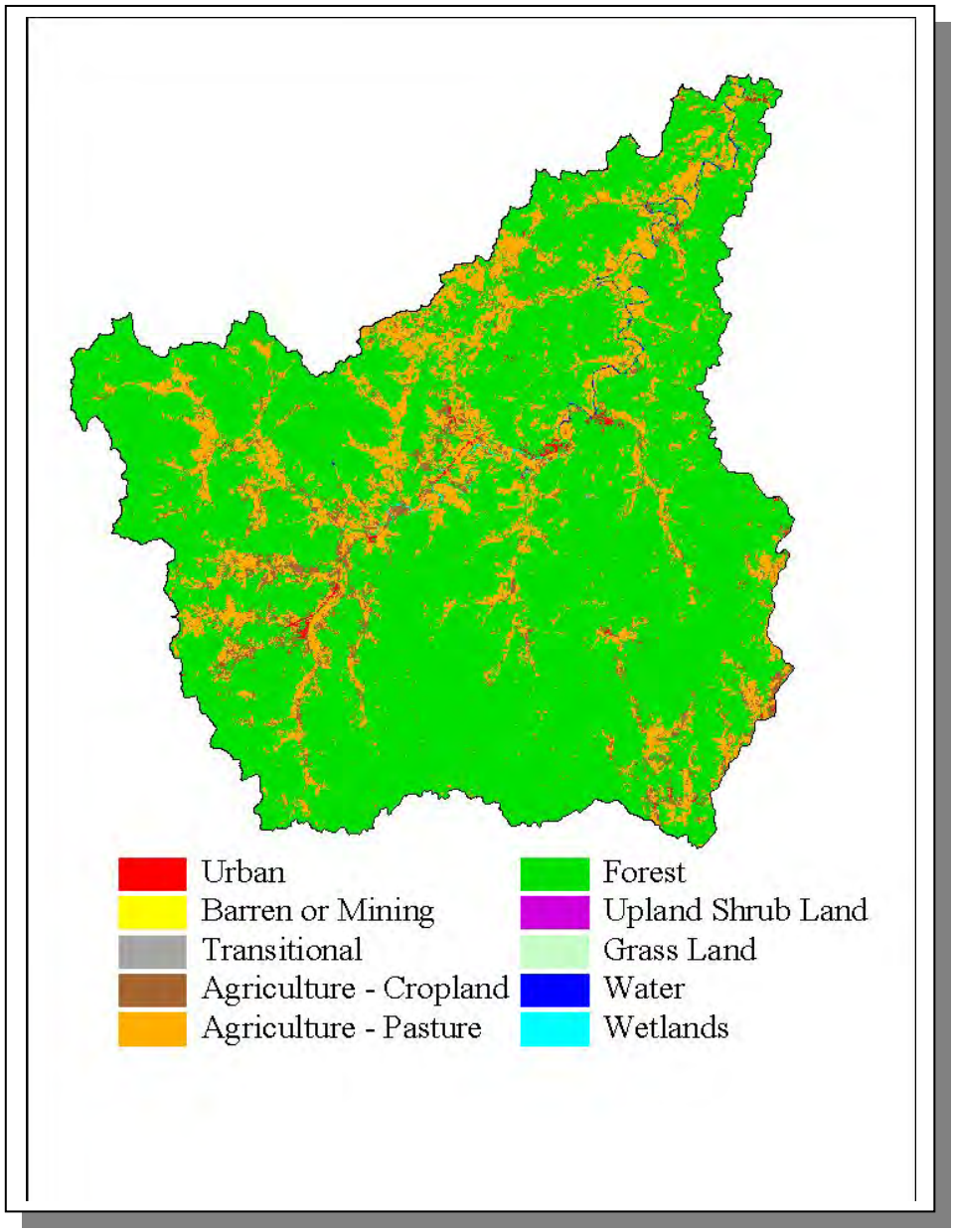


Figure 4-88. Illustration of Land Use Distribution in Subwatershed 0513010809.

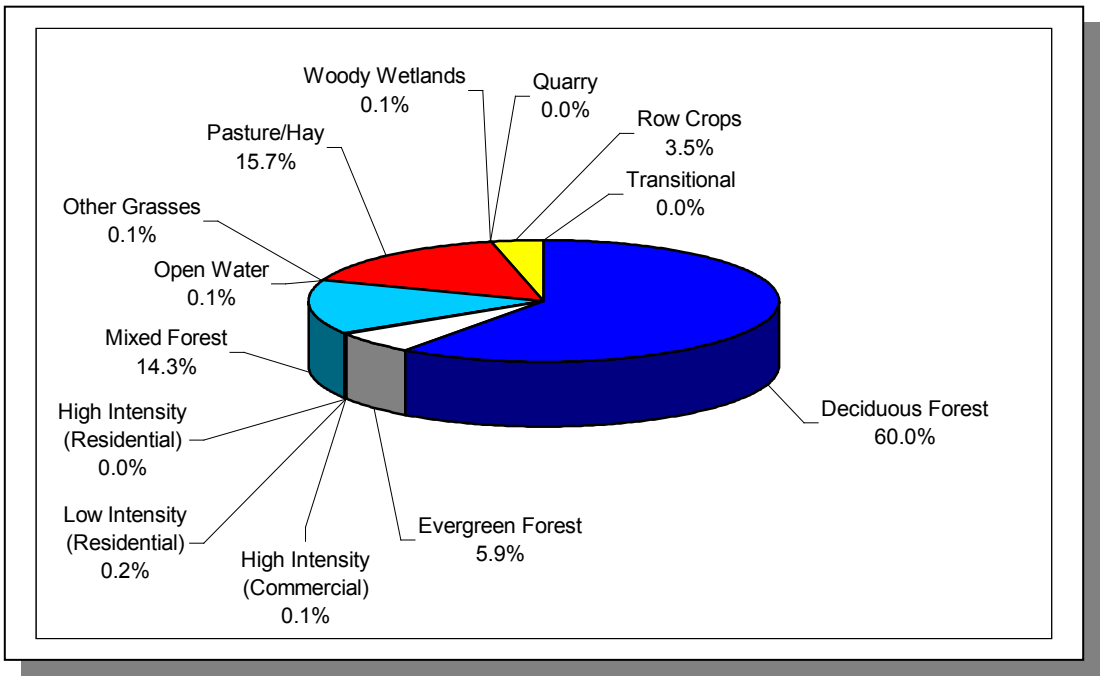


Figure 4-89. Land Use Distribution in Subwatershed 0513010809. *More information is provided in Caney Fork-Appendix IV.*

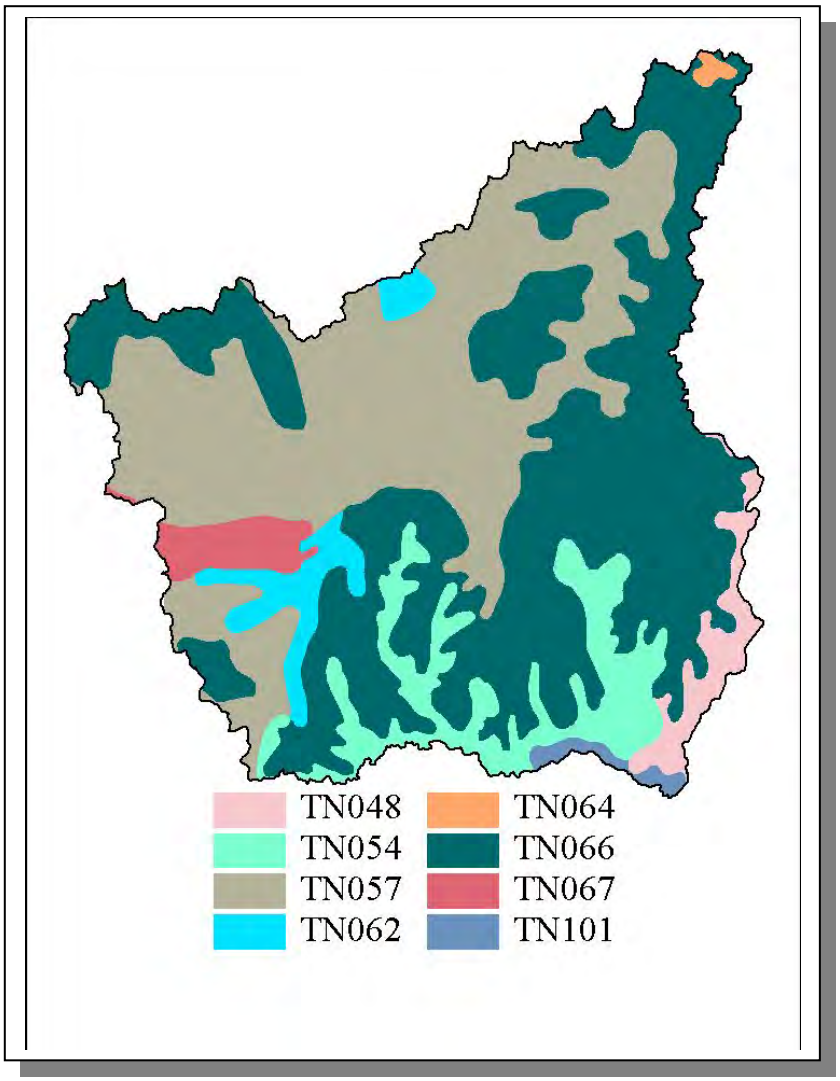


Figure 4-90. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010809.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hr)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN048	8.00	C	1.38	5.06	Silty Loam	0.42
TN054	0.00	C	3.04	4.84	Loam	0.32
TN057	0.00	C	1.14	5.01	Clayey Loam	0.33
TN062	0.00	C	0.98	4.40	Clayey Loam	0.26
TN064	7.00	C	1.19	5.82	Silty Loam	0.37
TN066	0.00	B	2.62	4.75	Loam	0.28
TN067	2.00	C	2.69	5.51	Silty Loam	0.35
TN101	0.00	B	1.71	5.39	Loam	0.35

Table 4-56. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0513010809. *More information is provided in Caney Fork-Appendix IV.*

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Cannon	10,467	12,011	26.31	2,754	3,160	14.7
DeKalb	14,360	15,743	30.82	4,426	4,852	9.6
Rutherford	118,570	159,987	0.17	201	272	35.3
Smith	14,143	16,047	1.75	247	280	13.4
Wilson	67,675	81,327	9.63	6,518	7,833	20.2
Totals	**225,215**	**285,115**		**14,146**	**16,397**	**15.9**

Table 4-57. Population Estimates in Subwatershed 0513010808.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Gordonsville	Smith	891	372	14	356	2
South Carthage	Smith	851	376	295	81	0
Baxter	Putnam	1,289	579	424	153	2
Alexandria	DeKalb	740	346	325	20	1
Smithville	Dekalb	3,791	1,693	1,560	122	11
Total		**7,562**	**3,366**	**2,618**	**732**	**16**

Table 4-58. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0513010809

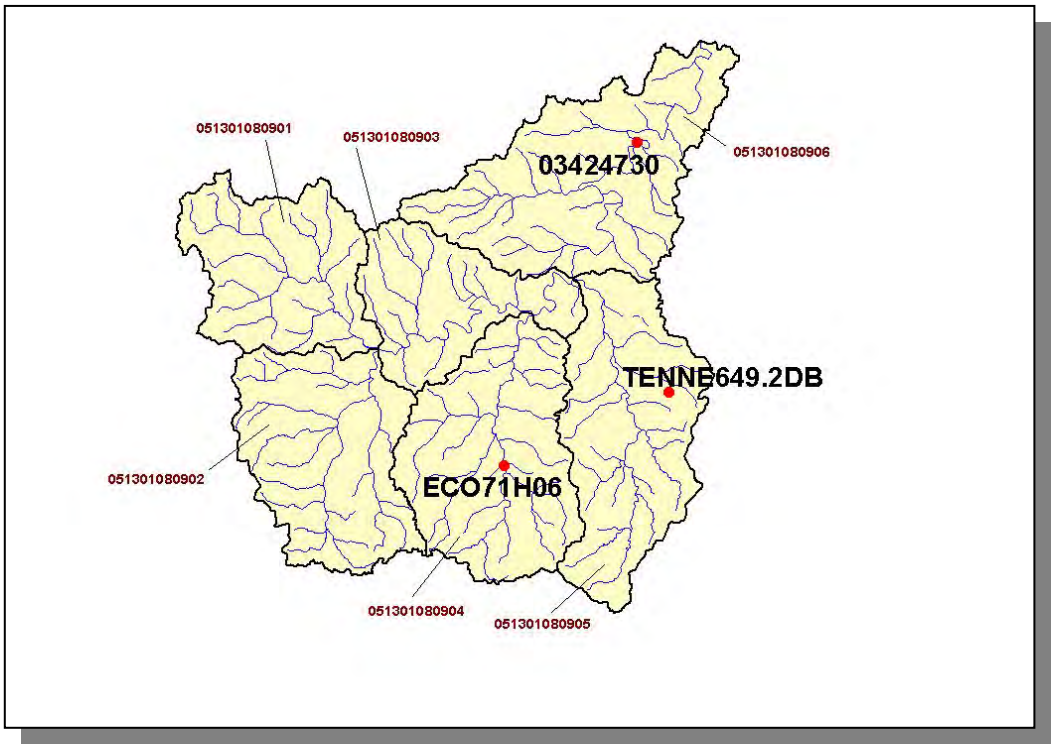


Figure 4-91. Location of STORET Monitoring Sites in Subwatershed 0513010809. *Subwatershed 051301080901, 051301080902, 051301080903, 051301080904, 051301080905, and 051301080906 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

4.2.I.ii. Point Source Contributions.

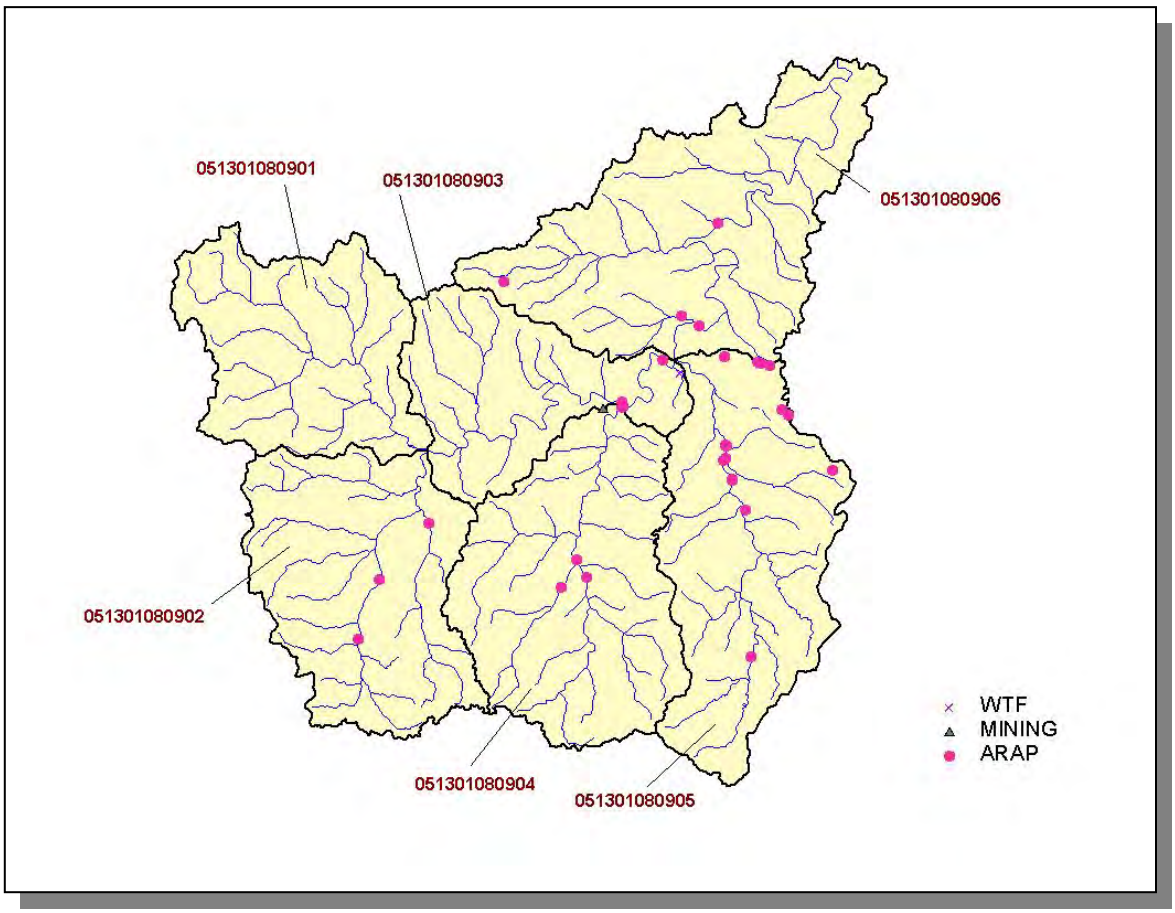


Figure 4-92. Location of Active Point Source Facilities in Subwatershed 0513010809. *Subwatershed 051301080901, 051301080902, 051301080903, 051301080904, 051301080905, and 051301080906 boundaries are shown for reference. More information is provided in the following figures.*

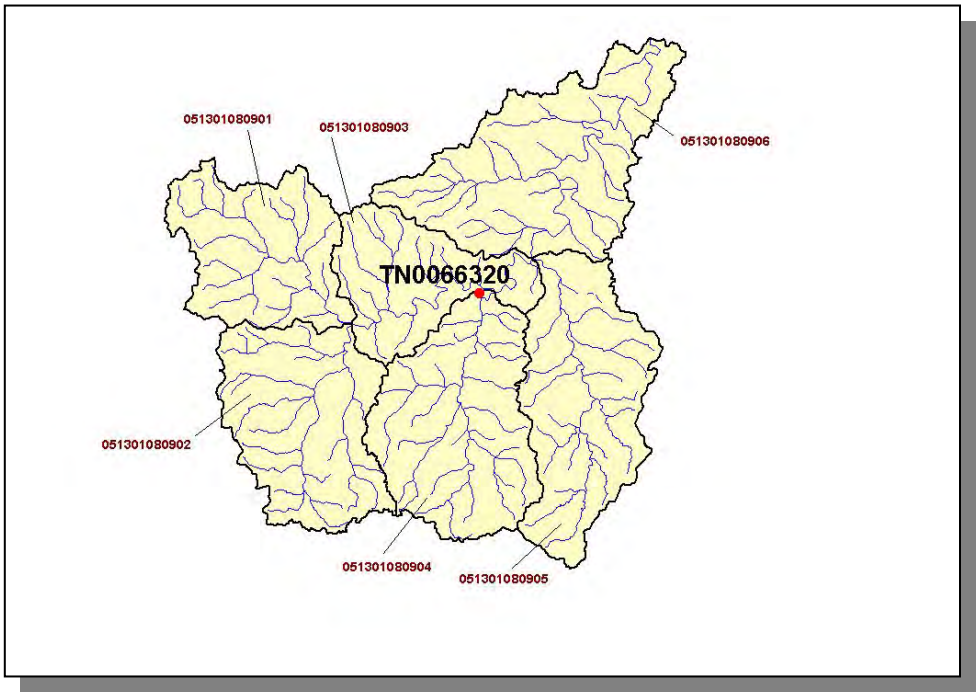


Figure 4-93. Location of Active Mining Sites in Subwatershed 0513010809. *Subwatershed 051301080901, 051301080902, 051301080903, 051301080904, 051301080905, and 051301080906 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

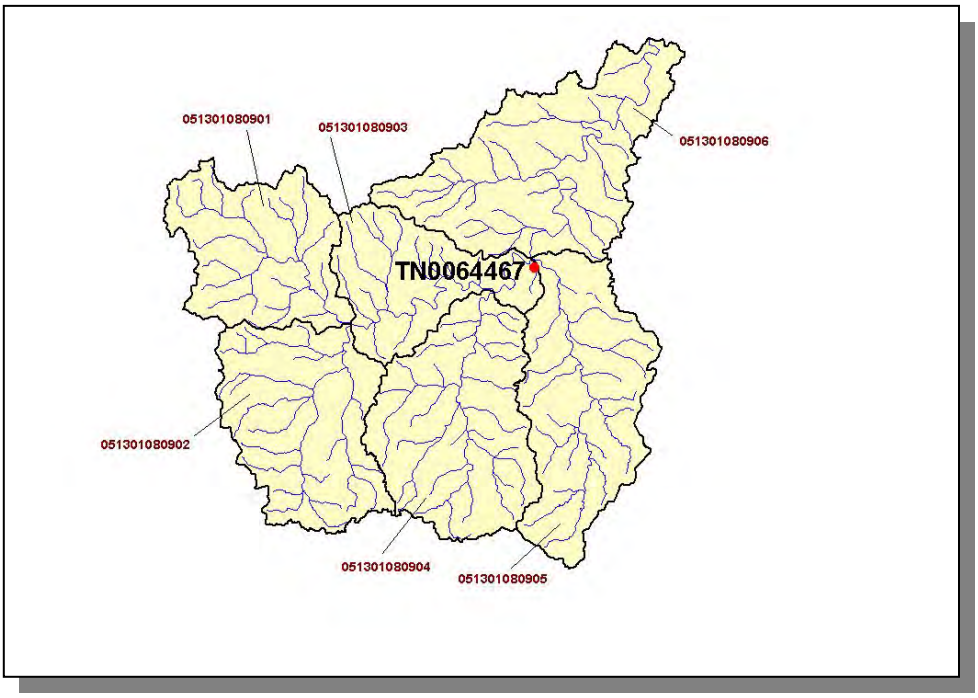


Figure 4-94. Location of Water Treatment Plant Sites in Subwatershed 0513010809. *Subwatershed 051301080901, 051301080902, 051301080903, 051301080904, 051301080905, and 051301080906 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

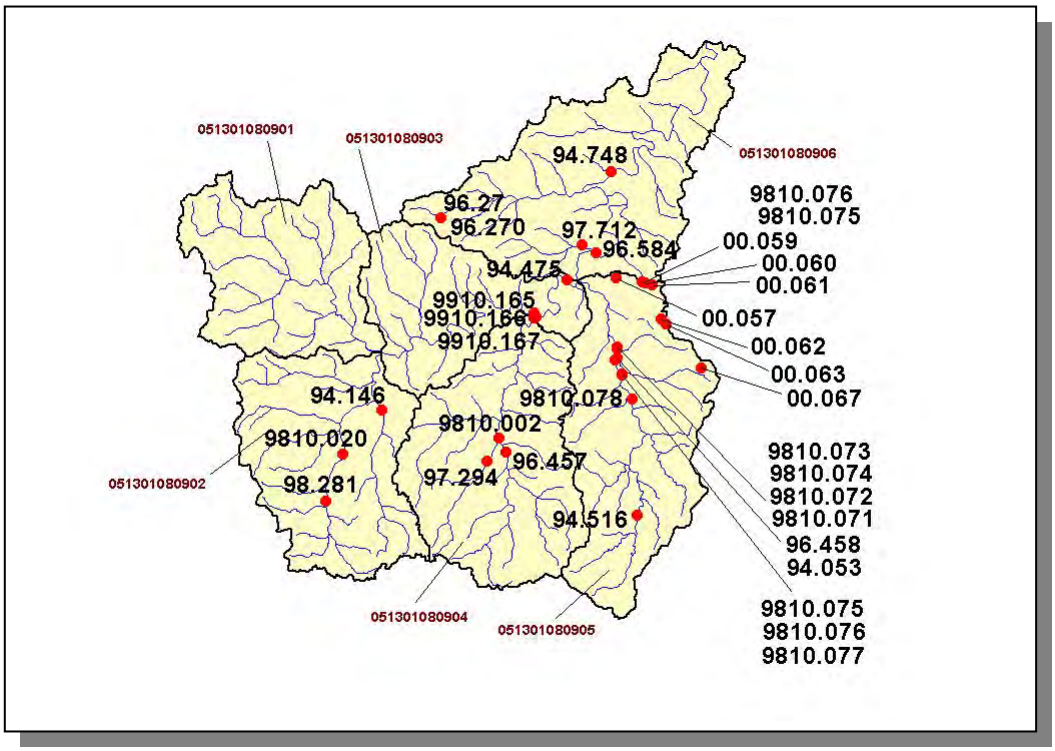


Figure 4-95. Location of ARAP Sites (Individual Permits) in Subwatershed 0513010809. *Subwatershed 051301080901, 051301080902, 051301080903, 051301080904, 051301080905, and 051301080906 boundaries are shown for reference. More information is provided in Caney Fork-Appendix IV.*

4.2.I.iii. Nonpoint Source Contributions.

LIVESTOCK (COUNTS)						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
9,712	18,337	582	25	0	849	127

Table 4-59. Summary of Livestock Count Estimates in Subwatershed 0513010809. *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		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Cannon	88.5	88.5	1.7	7.1
Rutherford	155.7	155.7	0.4	0.9
Smith	81.0	81.0	1.1	2.6
Wilson	98.1	97.0	1.7	6.8
Totals	**423.3**	**422.2**	**4.9**	**17.4**

Table 4-60. Forest Acreage and Average Removal Rates (1987-1994) in Subwatershed 0513010809.

CROPS	TONS/ACRE/YEAR
Legume (Hayland)	0.52
Grass (Hayland)	0.63
Legume/Grass (Hayland)	0.49
Grass (Pastureland)	0.81
Legume (Pastureland)	0.37
Grass, Forbs, Legumes (Mixed Pasture)	0.80
Forest Land (Grazed)	0.00
Forest (Not Grazed)	0.00
Corn (Row Crops)	3.75
Soy Beans (Row Crops)	3.07
Tobacco (Row Crops)	12.36
Cotton (Row Crops)	4.79
Conservation Reserve Program Land	0.21
Wheat (Close Grown Cropland)	4.11
All Other Close Grown Cropland	2.49
Berry (Horticulture)	0.47
Other (Horticulture)	1.13
Other Cropland not Planted	1.86
Farmsteads and Ranch Headquarters	0.40
Nonagricultural Land Use	0.00

Table 4-61. Annual Estimated Total Soil Loss in Subwatershed 0513010809.

CHAPTER 5

WATER QUALITY PARTNERSHIPS IN THE CANEY FORK RIVER WATERSHED

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 Caney Fork 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.

CONSERVATION PRACTICE	TOTAL
Comprehensive Nutrient Management Plans (Number)	2
Conservation Buffers (Acres)	142
Erosion Reduction (Tons/Year)	39,626
Inventory and Evaluations (Number)	18
Irrigation Management (Acres)	1
Nutrient Management (Acres)	6,814
Pest Management (Acres)	6,274
Prescribed Grazing (Acres)	2,884
Residue Management (Acres)	375
Tree and Shrub Practices (Acres)	77
Waste Management (Number)	0
Wetlands Created, Restored, or Enhanced (Acres)	**5**
Wildlife Habitat (Acres)	**1,413**

Table 5-1. Landowner Conservation Practices in Partnership with NRCS in Caney Fork River Watershed. *Data are from PRMS for October 1, 2001 through September 30, 2002 reporting period. More information is provided in Caney Fork-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 dfflohr@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 Caney Fork 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 fourteen projects in the Barren Fork River, Hickory Creek, Witty Creek, Pocahautus Creek, and Duke Creek watersheds that included livestock exclusion fencing around springs and along streambanks, alternate water sources, hardened feeding areas and travel corridors, tree planting, and hardened stream crossings. 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. United States Army Corps of Engineers-Nashville District. The geographic boundaries of the Nashville District Corps of Engineers consist of the Cumberland and Tennessee river basins, a combined area of approximately 59,000 square miles. This includes portions of seven states: Tennessee, Kentucky, Alabama, Virginia, Mississippi, Georgia, and North Carolina.

Within the Cumberland River Basin, overall responsibilities for the Nashville District include operation and maintenance of 10 reservoir projects. Each of these is operated for some or all of the following purposes: hydropower production, flood control, navigation, water supply, water quality, fish and wildlife, and recreation.

WATER QUALITY ACTIONS IN THE CANEY FORK RIVER WATERSHED

Water Quality Restoration Initiative for Center Hill Lake and Tailwater. Center Hill Dam is located at Caney Fork River Mile 26.6 in DeKalb County, Tennessee. The impoundment formed by Center Hill Dam extends upstream approximately 64 river miles. The lake's surface area is 18,220 acres at elevation 648.0, which is the top of the power pool. At elevation 648.0, Center Hill Lake averages 73 feet in depth. The project stores potentially damaging floodwaters that can be released gradually once the danger of downstream flooding has passed. The lake is fed mainly by discharges from TVA's Great Falls Dam on the Caney Fork River and by the smaller Falling Water River, as well as numerous minor tributaries. The dam and lake are an integral part of the mature system of Corps of Engineers dams that regulate water within the Cumberland River Basin.

The water quality of Center Hill Lake is affected by several factors. Typical for a deep, southern, storage impoundment, Center Hill Lake develops strong, thermal stratification during the growing season that causes gradual depletion of dissolved oxygen in waters below the surface layer. Dissolved oxygen depletion is exacerbated by oxygen demanding pollutants that enter the lake from the watershed. The watershed has seen increased growth and development within recent years. Nutrient rich inputs cause excessive algal growth in some locations. This can negatively affect lake aesthetics, and when the algae die and decay, dissolved oxygen is consumed, worsening the

normal depletion that occurs with thermal stratification. A trend toward decreasing water quality has been observed by the Corps over the last several years. Improving conditions in the watershed is viewed as essential for reversing this deterioration of water quality.

The lower portion of the Caney Fork River is profoundly affected by water releases from Center Hill Dam. Tailwater conditions are radically different from preimpoundment, natural stream conditions. The tailwater normally experiences daily water level fluctuations, mainly the result of hydropower releases. These fluctuations cause alternate flooding and drying of habitat. The result is reduced quality of habitat for the already limited aquatic biota that can survive in a cold, tailwater environment. The tailwater is considered a coldwater fishery and is routinely stocked with rainbow and brown trout. No continuous minimum flow is provided by the dam. However, unregulated leakage around the dam provides a modest base flow. Occasionally, unfavorable conditions develop in portions of the tailwater when insufficient generation causes water temperatures to rise above 20^0C. This temperature is considered the upper limit for favorable trout growth. In addition to the physical impacts, depressed oxygen levels in the hydropower releases negatively affects the tailwater. Depressed oxygen concentrations in hydropower releases cause frequent violations of the state's 6.0 mg/l standard for coldwater fisheries.

Restoration Initiatives. The Nashville District is performing a Feasibility Study for an aquatic ecosystem restoration project at Burgess Falls State Natural Area (SNA) on Falling Water River. The SNA is located immediately upstream from the backwaters of Center Hill Lake. Falling Water River drains the rapidly developing Cookeville-Putnam County area. Anticipated project features include stabilization of the existing Burgess Falls Dam to extend its function as a sediment control point. The dam has trapped extensive sediment deposits over time, so that the lake has been much reduced in volume and depth. Portions of the lake are developing wetland plant communities. The Corps is investigating a range of alternatives in the lake to promote additional development of desirable wetland plants and improve nutrient and sediment trapping efficiency of the lake. The in-lake alternatives are intended to improve aquatic habitat within and downstream from the lake and are linked to being able to cost-effectively stabilize the existing dam.

Efforts have been completed and other measures are being studied or planned to improve water quality conditions and physical habitat in the Caney Fork River downstream from Center Hill Dam. Turbine venting was evaluated at Center Hill as a means to ameliorate low dissolved oxygen conditions in the discharge. Turbine venting involves a combination of providing supplemental air supplies and installation of hub baffles. Beginning in 1998, one unit was modified and after an appropriate period of time an evaluation was made of the experiment. The evaluation revealed turbine venting to be successful, at least as an interim measure to improve oxygen levels in hydropower releases. The remaining two units at Center Hill have now been modified in a similar fashion.

The long-term solution to dissolved oxygen restoration at Center Hill Dam is replacement of the 50 plus year old units with auto-venting turbines. A study is underway to document the effects of the proposed rehabilitation. Auto-venting turbines have the advantage of greatly improving dissolved oxygen conditions during times when augmentation is needed, without the loss of hydropower generating efficiency caused by

hub baffles. Once the study is completed, funding will be sought to carry out replacement of the units.

In order to improve physical habitat conditions downstream from Center Hill Dam, the rehab study will also evaluate means to provide continuous minimum flow. Modeling is being performed to examine the impact of various plans to provide continuous minimum flow. One option to provide such flow is rehabilitation and operation of the small, house generator unit at the dam.

Pulsing of turbines to increase the tailwater area that remains wetted, and thus improve benthic habitat, has undergone some field testing and analysis. A pulsing study was conducted during November 2002 using volunteers from local fishing clubs. This study brought forth valuable information and improved the working relationships between the Corps and fishermen who use the tailwater.

Other Actions. Discharges from TVA's Great Falls Dam are the largest source of water flowing into Center Hill Lake. During 2002, the Nashville District Corps of Engineers began routine collection of water quality data from major inflows (Caney Fork River, Collins River, etc.) to Great Falls Lake. Definition of inflow water characteristics to Great Falls Lake is important to understanding processes that occur in that impoundment and ultimately provides a better understanding of processes in Center Hill Lake.

Cooperation with the Tennessee Department of Environment and Conservation, Division of Water Pollution Control

The Nashville District Corps of Engineers collects a significant volume of physical, chemical, and biological water quality data every year. These data are collected at representative points both within the lake, on various major inflow streams, and in the tailwater. The data are used to help determine watershed water quality trends and to provide for better management of the lake and tailwater. These data are provided to the TDEC, Division of Water Pollution Control to assist the watershed management program. The water quality data provided by the Corps helps fill in gaps in the water quality record for area water bodies. Often Corps water quality data is the only information available that is collected on a systematic basis for the Corps Cumberland River Basin lakes and reservoirs.

Environmental Education. Environmental education opportunities are provided to area school age children by the Nashville District Corps of Engineers. Water Quality personnel have participated in environmental awareness programs for the past several years at Center Hill Lake. These programs are organized by the Resource Management staff and involve various area schools. The programs provided allow students to have a "hands on" experience in water quality surveillance techniques. Typically the programs include an interactive discussion of overall water quality issues. This is supplemented with demonstrations of sophisticated water quality instrumentation, collection and analysis of biological specimens from local aquatic environments, and viewing of reference materials and preserved specimens. The value of such environmental education is enormous, because it reaches young people early in their lives and exposes them to a scientific learning experience that is impossible to duplicate in a formal classroom. This experience hopefully contributes to a greater lifelong awareness by the individual of the importance of conserving and improving water quality and wise use of water resources.

Additional information concerning projects, programs, and activities of the Nashville District Corps of Engineers can be obtained on the World Wide Web at http://www.lrn.usace.army.mil/

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.

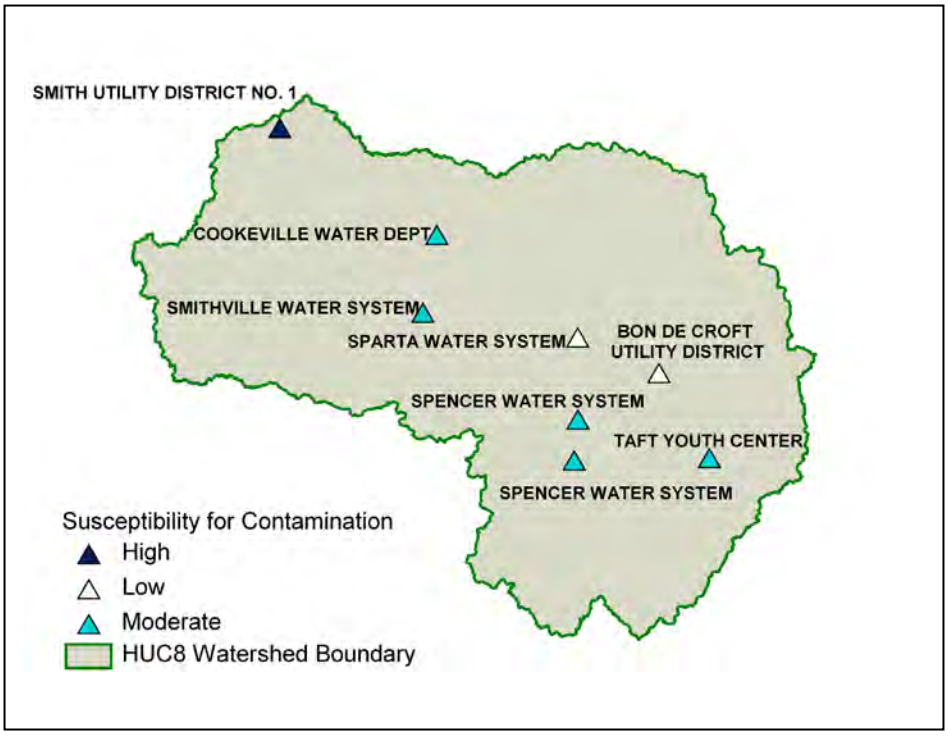


Figure 5-1. Susceptibility for Contamination in the Caney Fork River Watershed.

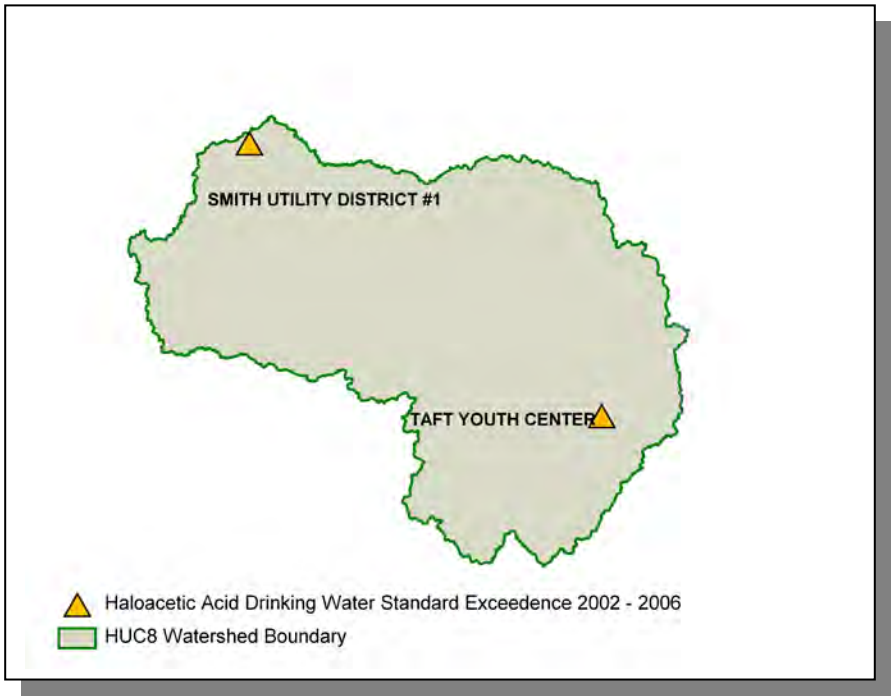


Figure 5-2. Exceedences of the Haloacetic Acid Drinking Water Standard in the Caney Fork River Watershed.

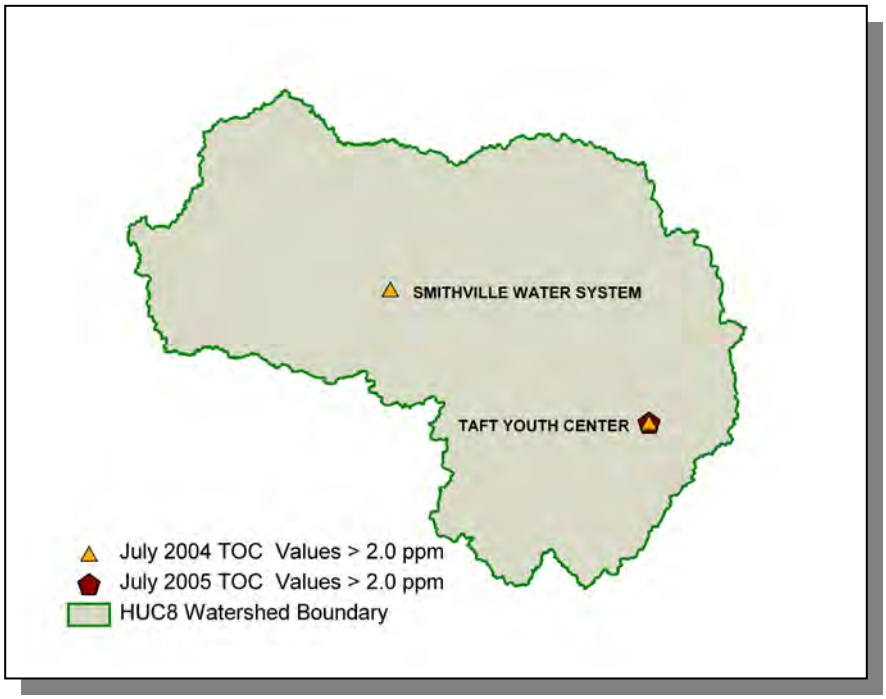


Figure 5-3. July 2004 and 2005 Raw Water Total Organic Carbon (TOC) Analysis in the Caney Fork River Watershed.

For further discussion on ground water issues in Tennessee, the reader is referred to the Ground Water Section of the 305(b) Water Quality Report at http://www.tdec.net/water.shtml.

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.

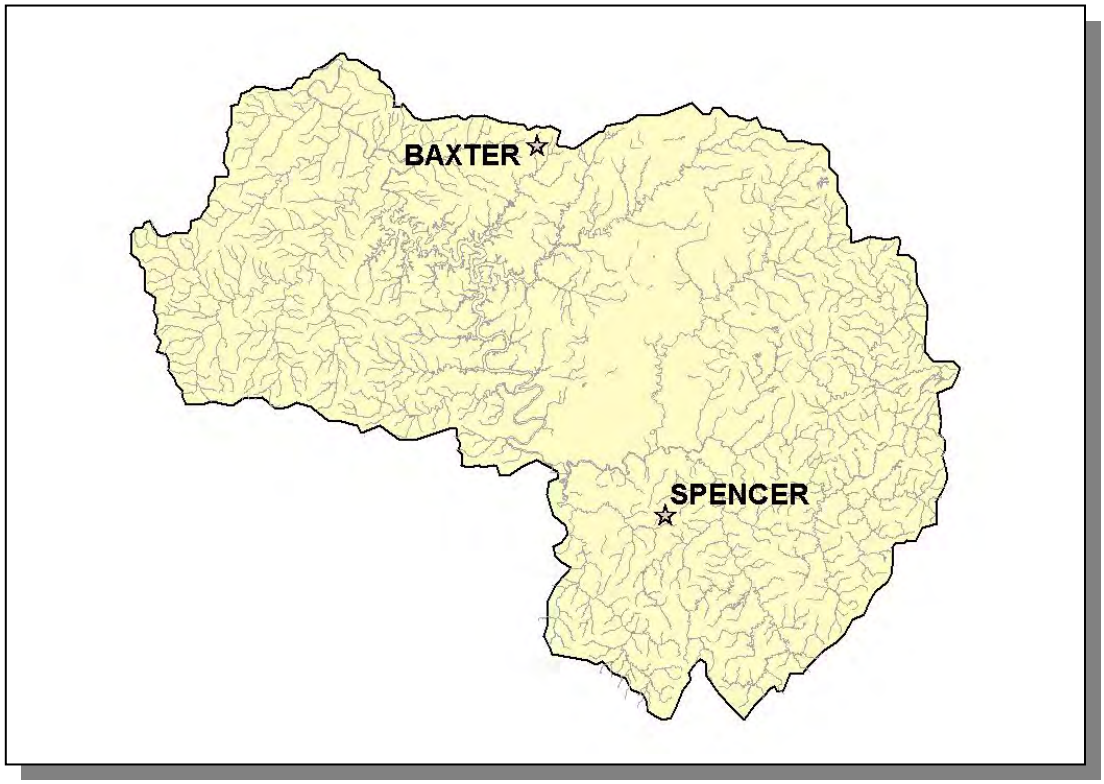


Figure 5-4. Location of Communities Receiving SRF Loans or Grants in the Caney Fork River Watershed. *More information is provided in Caney Fork-Appendix V.*

5.3.C. 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:

- 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 Caney Fork 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

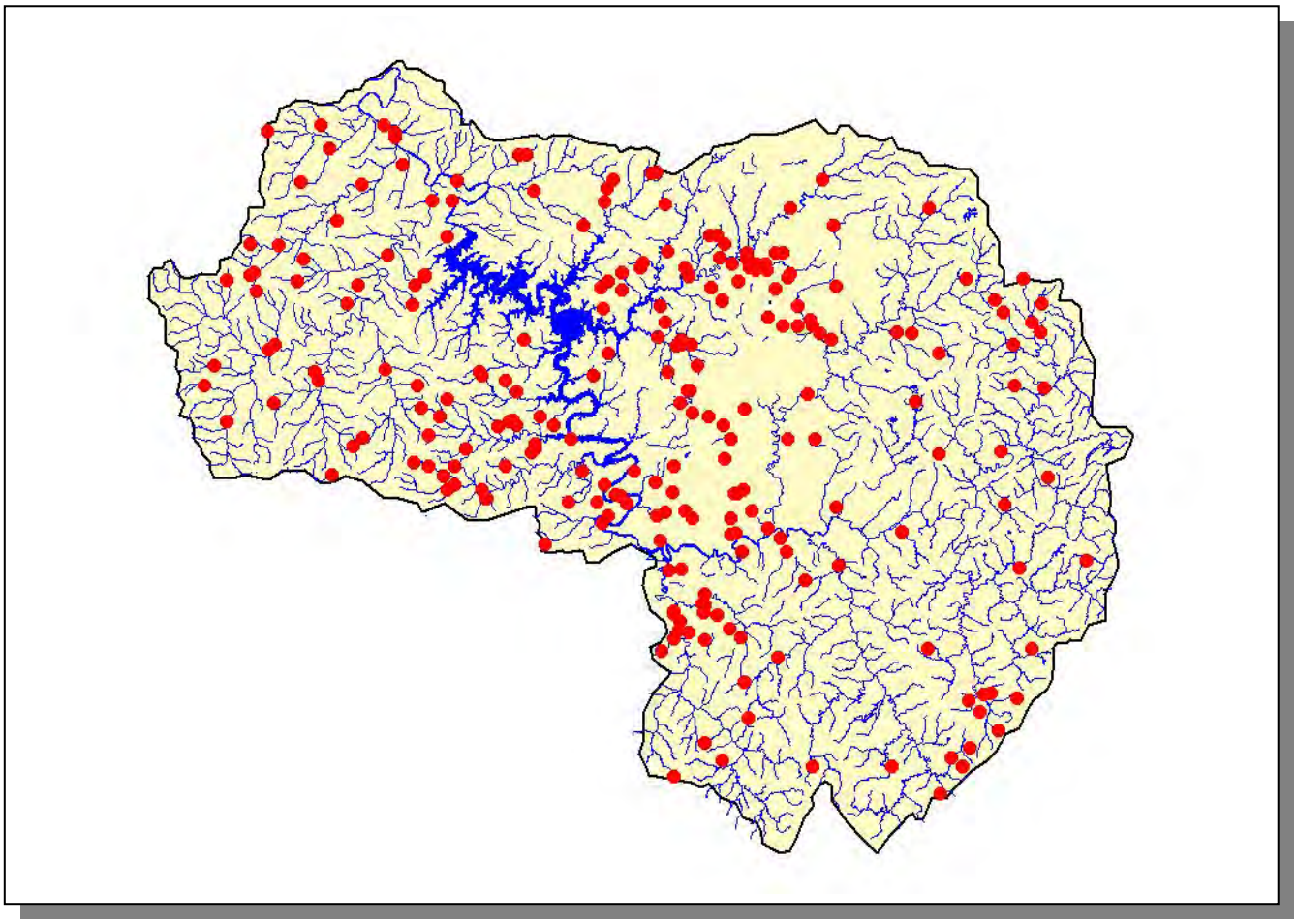


Figure 5-5. Location of BMPs installed from 1999 through 2002 in the Caney Fork River Watershed with Financial Assistance from the Tennessee Department of Agriculture's Nonpoint Source and Agricultural Resources Conservation Fund Grant Programs.

5.4. LOCAL INITIATIVES.

5.4.A. Cumberland River Compact. The Cumberland River Compact is a not-for-profit educational organization with a mission to*: enhance the water quality of the Cumberland River and its tributaries through education and by promoting cooperation among citizens, businesses, and agencies in Kentucky and Tennesse*e.

The Cumberland River, 696 miles long, with a watershed that encompasses almost 18,000 square miles and a stakeholder population of nearly two million, has provided the challenge of setting specific goals and utilizing an organized approach to have an effect on the river. With grants from TDEC and the Tennessee Department of Agriculture 319 program, the Compact started reaching out to the 14 separate watersheds that make up the Cumberland Basin – one at a time in conjunction with Tennessee's five-year watershed management cycle. A series of stakeholder meetings have been completed in the Harpeth River and the Red River Watersheds. Stakeholders in both watersheds formed their own organization and continue to work with the Compact and on their own on neighborhood workshops, river clean-ups, water quality testing, and visual assessments, and have gotten involved with local planning and zoning. They also send a member to the Compact Board meetings and Water Quality Advisory Committees to insure ongoing communication and partnering. The Compact is currently working in the third watershed, the Middle Cumberland (a.k.a. Lower Cumberland), and these stakeholder meetings will continue until spring of 2003. Similar stakeholder meetings in the Caney Fork River and Collins River watersheds will occur in the next few years.

With the goal to educate and promote cooperation among citizens, businesses and agencies the following programs have been established:

Splash Bash Teacher Training and Festival. This is a combination teaching and celebration program for the river. The Compact brings professionals who work in the field of water quality to teach teachers, and therefore their students, how to perform simple chemical testing, macro-invertebrate identification and learn watershed mapping. Each class adopts a local creek for the purpose of analyzing its health. After each classroom collects their data they come together for a day of exhibiting their data and having fun.

Marina Education Program. This program targets marina owners and boarders to get them involved personally in the river's health. The first project completed was a series of signs reading: "You are in the Cumberland River Watershed – Don't Pollute the Boot." Each of the member marinas proudly display their signs at their pump docks and offices. Currently, this program is heading up the "Catfish Out of Water City Art Festival." Partnering with Greenways for Nashville and the Parthenon Patrons, the Compact hopes to raise awareness-through public art- about the value of the Cumberland River to our quality of life and the land management tools, such as greenways, which can protect and enhance this natural resource. Recognizing the value of the educational possibilities with Catfish Out of Water, a number of partners (Austin Peay State University, Metro Greenways, Metro Water, Middle Tennessee State University, the Parthenon and Warner Parks) have joined together to 1) work with Metro Water and water departments of surrounding communities to bring a storm drain labeling program to the watershed, 2) create and distribute "A Catfish Lives Here" booklet for grades 4-8 to teach children

about non-point source pollution and the effect it has on catfish, 3) expand the Warner Parks Junior Naturalist Program throughout local school systems featuring the Catfish Out of Water patch, and 4) provide activities about water quality through interactive placemats in local restaurants. Funding is made possible through a grant from the Department of Agriculture's Nonpoint Source Program.

Land Education Program. Educating "strange bedfellows" through annual programs, the first workshop put on by the Land Committee was a *Conservation Easement Conferenc*e. The Compact brought Stephen Small, the Boston attorney who wrote most of the IRS Codes on the subject of conservation easements, to speak with attorneys, CPA's, appraisers, as well as local landowners on the subject of protecting land through these means. The second conference in 2002 was *Conservation and Common Sense Development – A Workshop for Building Better Communitie*s, co-hosted by the Tennessee River Eastbank Group, The Tennessee Homebuilders, The Tennessee Farm Bureau, the Compact, and others. This conference started the conversation between developers, the government agencies who permit them, and the citizens who live in their communities on better site design approaches to show "the bottom line of green is black." The third conference is in the early planning stages; however, the topic will focus on new technologies to building ecologically-friendly homes, buildings, and neighborhoods.

Water Quality Advisory Committee. This committee is responsible for seeing that our technical information is beyond reproach. The committee has members who represent: the Kentucky Division of Water, the Natural Resource Conservation Service, Greater Nashville Regional Council, the Tennessee Department of Agriculture's Nonpoint Source Program, CTE Engineers, TDEC Division of Water Pollution Control, U.S. Army Corps Of Engineers, Nashville Public Works, Nashville Metropolitan Water Services, the United States Geologic Survey, and the Tennessee Wildlife Resource Agency. The two most outstanding products to come out of this Committee to date are the award-winning *Harpeth River Watershed Brochure* (a simple brochure/map of that watershed which answers two questions through the use of government data – Where can I swim? Where can I fish?) and the *Harpeth River Sediment Study Pla*n. The Sediment Study Plan follows the Splash Bash Teacher Training in our outreach to each watershed. This project uses local volunteers to measure the sediment being carried through the streams of a particular watershed. Since silt is one of the leading pollutants to all southeastern rivers but is seldom tested by government agencies, this work is important not only to local citizens, businesses, and wildlife but also to our governmental partners who have given this project their stamp of approval. The Cumberland River Compact was chosen by the Southeast Watershed Forum as *The Tennessee Success Story for the Year* – for the production of the *Harpeth River Watershed Map – An Overview of Our Water Quality*. A Red River Watershed Map is now in progress.

For additional information, contact:
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Nashville, TN 37204
(615)837-1151 or email: screendoor@bigfoot.com
http://www.cumberlandrivercompact.org

CHAPTER 6

FUTURE DIRECTIONS IN THE CANEY FORK RIVER WATERSHED

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 Caney Fork 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.

6.2.A. Year 1 Public Meeting. The first Caney Fork River Watershed public meeting was held April 17, 1997 in Smithville. 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.

Major Concerns/Comments

- Wasteload allocations and their use in running models
- Lake management
- Communication with citizen groups
- The effect of naming the Caney Fork River an Outstanding National Resource Water (ONRW)
- Fish postings

6.2.B. Year 3 Public Meeting. The second Caney Fork River Watershed public meeting was held July 13, 1999 at the Smithville 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.

Major Concerns/Comments

- Cows in the creek adding to Nonpoint source pollution
- Increased discharges to 303(d)-listed streams from a planned industrial development
- Development by the City of Cookeville around Mine Lick Creek
- Inadequate protection of sinkholes

6.2.C. Special Meeting Held at Citizens' Request. An additional meeting was held on August 26, 1999 at Putnam County Library (Cookeville) at the request of the Upper Cumberland Sierra Club and Save our Cumberland Mountains (SOCM).

Major Concerns/Comments

- Concern About Tennessee's nonpoint program located in Department of Agriculture
- Lack of knowledge of 319 program by Tennessee landowners
- Lack of monitoring of springs
- 303(d) List and 305(b) Report should be on TDEC web site

6.2.D. Year 5 Public Meeting. The third scheduled Caney Fork River Watershed public meeting was held October 14, 2003 at the Sparta Civic Center in cooperation with the Cumberland River Compact. 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
- Citizen Group Display (Cumberland River Compact)
- University display (Tennessee Technological University)

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.

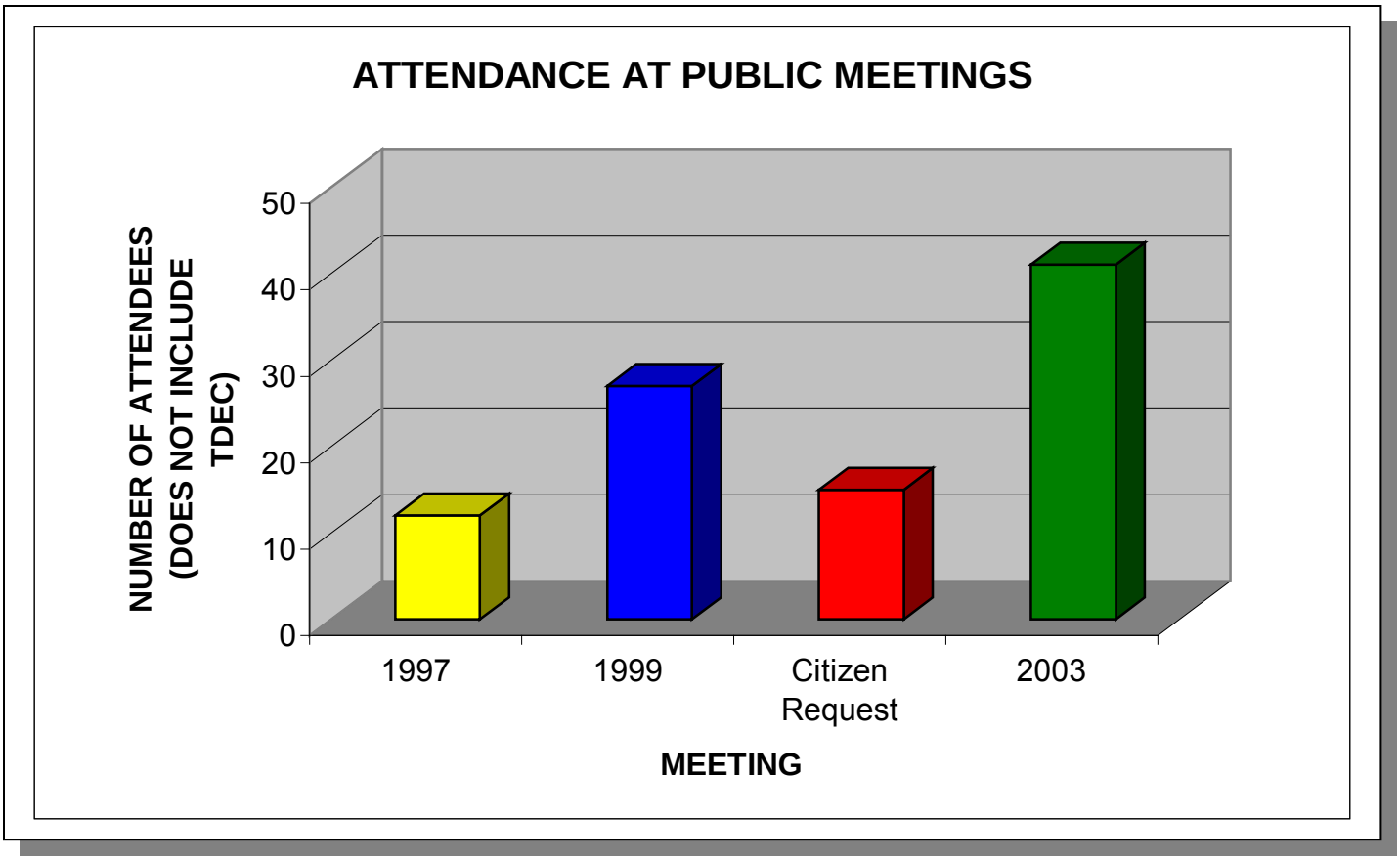

Figure 6-1. Attendance at Public Meetings in the Caney Fork River Watershed. *The 1997 and 1999 watershed meeting numbers represent Caney Fork River and Collins River Watersheds joint meetings. The 2003 Caney Fork River Watershed meeting was held in cooperation with the Cumberland River Compact.*

Figure 6-2. Environmental Specialist Jimmy Smith helps students learn about the relationship between aquatic insects and water quality at the Caney Fork River Watershed public meeting (photo courtesy of Karen Smith/Cumberland River Compact).

Figure 6-3. The SmartBoard™ is an effective interactive tool to teach citizens about the power of GIS (photo courtesy of Karen Smith/Cumberland River Compact).

Figure 6-4. Watershed meetings are an effective way to communicate Water Pollution Control's activities to elected officials, like Mayor Womack of Cookeville and White County Executive Sullivan (photo courtesy of Karen Smith/Cumberland River Compact).

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/. Discharge monitoring data submitted by NPDES-permitted facilities may be viewed at 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

TMDLs are prioritized for development based on many factors.

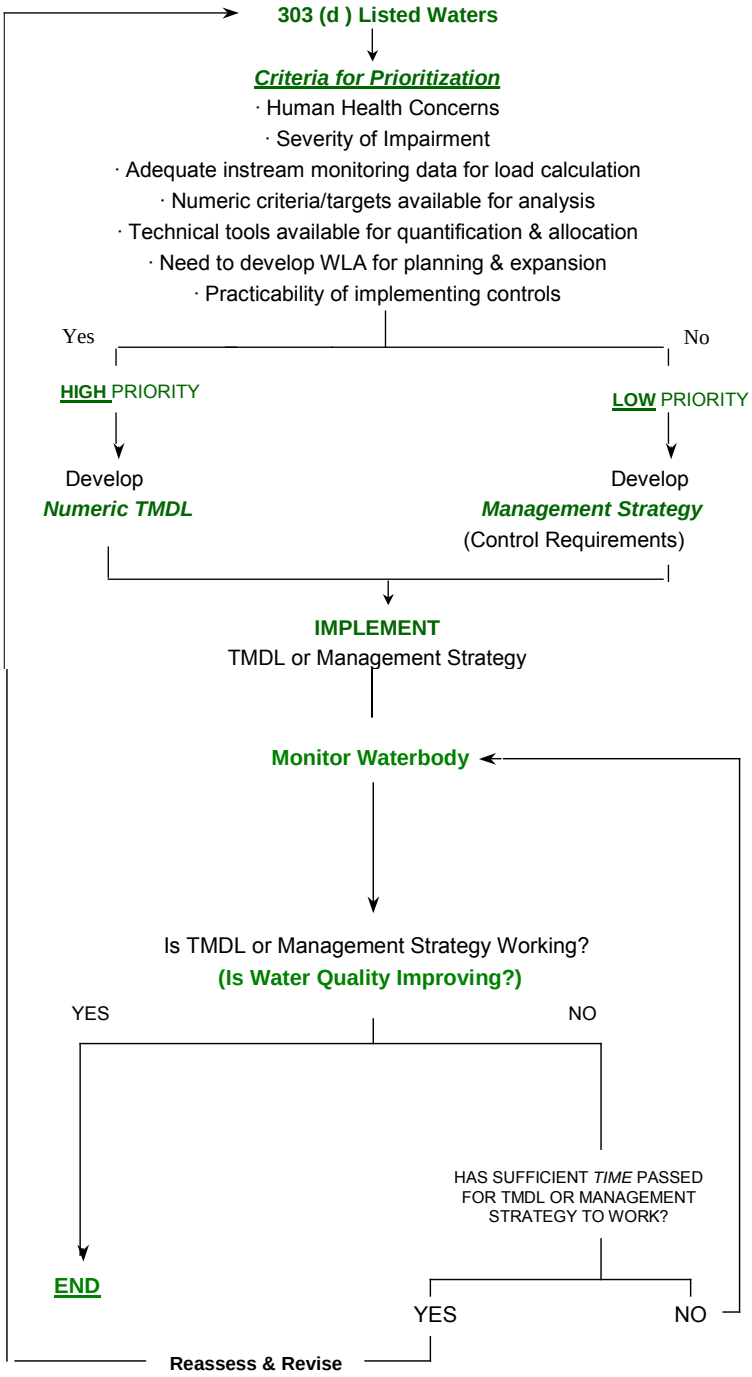

Figure 6-5. Prioritization scheme for TMDL Development.

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 Caney Fork River Watershed. Some 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 sufficient 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. Examples in the Caney Fork River Watershed include the Rocky River and Hudgens Creek. 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 Caney Fork River Watershed, due to its sparsely populated nature. However, in recent years, there has been an increase in both population and construction activities in the area.

6.3.B.i.b. From Channel and/or Bank Erosion. Many streams within the Caney Fork Watershed suffer from varying degrees of streambank erosion. When steam channels are altered, or large tracts of land are cleared, leading to increased stream runoff, banks can become unstable and highly erodable. Heavy livestock traffic can also severely disturb banks. Destabilized banks contribute sediment load and lose riparian vegetation. This cycle is especially problematic in certain areas of the Caney Fork River Watershed where the very sandy plateau soils and shallow rooted trees are especially vulnerable. Most of the land and channel alterations center around agricultural practices or mining operations.

Several agencies such as the NRCS and 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, like Smith Fork, could benefit from these types of projects. Other methods or controls that might be necessary to address common problems are:

Voluntary activities

- Re-establishment of bank vegetation (examples: Reestablishment of bank vegetation (examples: Post Oak Creek, and upper portions of Falling Water River).
- Establish buffer zones along streams running through crop fields or nurseries (example: Bee Creek).
- Establish off channel watering areas for cattle by moving watering troughs and feeders back from stream banks (examples: Blue Springs Branch and Snow Creek).
- Limit cattle access to streams and bank vegetation (examples: Beaverdam and Little Beaverdam Creeks).

Additional strategies

- Better community planning for the impacts of development on small streams, especially development in growing areas (example: small streams in and around Cookeville, Smithville, and Sparta).
- Restrictions requiring post construction run-off rates to be no greater than pre-construction rates in order to avoid in-channel erosion, (example: Hudgens Creek).
- Additional restrictions on logging in streamside management zones.
- Prohibition on clearing of stream and ditch banks (example: Hickman Creek). *Note: Permits may be required for 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.i.c. From Agriculture and Silviculture. Even though there is an exemption in the Water Quality Control Act which states that normal agricultural and silvicultural practices which 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. Currently, Mill Branch is the only stream in the watershed to have Department of Correctionumented impacts from logging operations. Large tracts of land in the upper portion of the Caney Fork River Watershed remain forested, so the potential for future impacts may be high and need to be carefully monitored.

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. Of special concern in the Caney Fork River Watershed is the expanding nursery industry around Smithville.

Many sediment problems traceable to agricultural practices also involve riparian loss due to close row cropping or pasture clearing for grazing. Agriculturally impacted streams which could benefit from the establishment of riparian buffer zones include Bee Creek, Rock Spring Branch, Hickory Valley Branch, Smith Fork, Bates Branch, Saint Mary's Branch, Bradden Creek, and Post Oak Creek.

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 Cookeville 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 Caney Fork River Watershed are known to have excessive pathogen contamination. These are Fall Creek (Smithville), Pigeon Roost Creek (Cookeville), and Mine Lick Creek (Baxter). All three are centered around urban areas, with varying contributions of bacterial contamination coming from stormwater runoff, failing septic systems, sewage collection system leaks, and treatment plant operation leaks.

Other measures that may be necessary to control pathogens are:

Voluntary activities

- Limiting livestock access to streams, including use of off-channel watering of livestock (see previous examples).
- Proper management of animal waste from feeding operations.

- Better maintenance of subsurface 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 Caney Fork 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.
- 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 faulty sewage disposal processes.

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 (examples of streams that could benefit are Wolf Creek and Ferguson Branch). Streamside vegetation can filter out many nutrients and other pollutants before they reach the stream. These riparian buffers are also vital along livestock pastures. Beaverdam Creek, Bradden Creek, and Smith Fork could benefit from buffer zones to grazing areas.
- 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 some

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. Fall Creek (below Smithville) has suffered from an impoundment. *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 Hickman Creek, Falling water River, Pigeon Roost Creek, and Fall Creek).
- Timely and appropriate enforcement for noncomplying sewage treatment plants, large and small, and their collection system.
- 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 waters of the state from a point source, much of these materials are washed in during rainfalls from an upland location, or via improper waste disposal that contaminates groundwater. In the Caney Fork River Watershed, a relatively small number of streams are damaged by stormwater runoff from industrial facilities or urban areas. More stringent inspection and regulation of permitted industrial facilities, and local stormwater quality initiatives and regulations, could help reduce the amount of contaminated runoff reaching state waters. Examples of streams that could benefit from these measures include the many small, urbanized tributaries feeding Pigeon Roost Creek, Falling Water River, Hickman Creek and Mine Lick Creek.

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 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 (like in the Rocky River), 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 (Hickman and Indian Creek have suffered from such activities).
- 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. Streams such as Fall Creek (in Fall Creek Falls State Park) and Fall Creek near Smithville are two examples of the impact impoundments can have, especially in the iron-rich soils of the Cumberland Plateau.
- Require mitigation for impacts to streams and wetlands when modifications are allowed. As an example, Center Hill Dam, like most large dams, has chronically caused serious impacts to the Caney Fork River in the downstream tailwater from low oxygen levels and unnatural thermal and flow alterations.

Additional Enforcement

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

6.3.B.v. Acid Mine Runoff.

The Cumberland Plateau has had a long history of coal mining, much of which was done prior to any type of environmental regulation. Unfortunately, the legacy of many of these old mining sites is severe impacts to the streams that drain them in the form of pollution from metals and low pH from sulfuric acid.

Streams that would benefit from remediation projects include the portions of the Rocky River, Gardner Creek, Piney Creek, Dry Fork Creek, Clifty Creek, Milsea Branch, and Puncheon camp Creek.

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 Caney Fork 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 Caney Fork River Watershed.*

6.4.A. Municipal Permits.

TN0021539 Alexandria Sewage Treatment Plant

Discharger rating: Minor
City: Alexandria
County: DeKalb
EFO Name: Cookeville
Issuance Date: 1/1/03
Expiration Date: 9/30/07
Receiving Stream(s): Hickman Creek at mile 13.1
HUC-12: 051301080807
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Sequencing batch reactor with post equalization and UV disinfection. Sludge is aerobically digested and dewatered for landfilling.

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
Ammonia as N (Total)	Summer	2.2	DMax Conc	mg/L	Weekly	Composite	Effluent
Ammonia as N (Total)	Summer	1.1	WAvg Conc	mg/L	Weekly	Composite	Effluent
Ammonia as N (Total)	Summer	1.7	MAvg Conc	mg/L	Weekly	Composite	Effluent
Ammonia as N (Total)	Summer	4.2	DMax Load	lb/day	Weekly	Composite	Effluent
Ammonia as N (Total)	Summer	2.8	MAvg Load	lb/day	Weekly	Composite	Effluent
Ammonia as N (Total)	Winter	7.4	DMax Conc	mg/L	Weekly	Composite	Effluent
Ammonia as N (Total)	Winter	3.7	WAvg Conc	mg/L	Weekly	Composite	Effluent
Ammonia as N (Total)	Winter	5.6	MAvg Conc	mg/L	Weekly	Composite	Effluent
Ammonia as N (Total)	Winter	14	DMax Load	lb/day	Weekly	Composite	Effluent
Ammonia as N (Total)	Winter	9.3	MAvg Load	lb/day	Weekly	Composite	Effluent
Bypass of Treatment (occurrences)	All Year		MAvg Load	Occurences/Month	Continuous	Visual	Wet Weather
CBOD % Removal	All Year	40	DMin % Removal	Percent	Weekly	Calculated	Percent Removal
CBOD % Removal	All Year	85	MAvg % Removal	Percent	Weekly	Calculated	Percent Removal
CBOD5	Summer	20	DMax Conc	mg/L	Weekly	Composite	Effluent
CBOD5	Summer	15	MAvg Conc	mg/L	Weekly	Composite	Effluent
CBOD5	Summer	10	DMin Conc	mg/L	Weekly	Composite	Effluent
CBOD5	Summer	37.5	DMax Load	lb/day	Weekly	Composite	Effluent
CBOD5	Summer	25	MAvg Load	lb/day	Weekly	Composite	Effluent
CBOD5	Winter	30	DMax Conc	mg/L	Weekly	Composite	Effluent
CBOD5	Winter	20	DMin Conc	mg/L	Weekly	Composite	Effluent
CBOD5	Winter	25	MAvg Conc	mg/L	Weekly	Composite	Effluent
CBOD5	Winter	62.6	DMax Load	lb/day	Weekly	Composite	Effluent
CBOD5	Winter	50	MAvg Load	lb/day	Weekly	Composite	Effluent
D.O.	All Year	6	DMin Conc	mg/L	Weekdays	Grab	Effluent
E. coli	All Year	126	MAvg Geo Mean	#/100mL	3/Week	Grab	Effluent
Fecal Coliform	All Year	1000	DMax Conc	#/100mL	Weekly	Grab	Effluent
Fecal Coliform	All Year	200	MAvg Geo Mean	#/100mL	Weekly	Grab	Effluent
Overflow Use Occurences	All Year		MAvg Load	Occurences/Month	Continuous	Visual	Wet Weather
Overflow Use Occurences	All Year		MAvg Load	Occurences/Month	Continuous	Visual	Non Wet Weather

Table 6-1a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Settleable Solids	All Year	1	DMax Conc	mL/L	Weekly	Composite	Effluent
TRC	All Year	0.02	DMax Conc	mg/L	Weekdays	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	Weekly	Composite	Effluent
TSS	All Year	40	MAvg Conc	mg/L	Weekly	Composite	Effluent
TSS	All Year	30	WAvg Conc	mg/L	Weekly	Composite	Effluent
TSS	All Year	100	DMax Load	lb/day	Weekly	Composite	Effluent
TSS	All Year	75	MAvg Load	lb/day	Weekly	Composite	Effluent
TSS % Removal	All Year	40	DMin % Removal	Percent	Weekly	Calculated	Percent Removal
TSS % Removal	All Year	85	MAvg % Removal	Percent	Weekly	Calculated	Percent Removal
pH	All Year	8.5	DMax Conc	SU	Weekdays	Grab	Effluent
pH	All Year	6.5	DMin Conc	SU	Weekdays	Grab	Effluent

Table 6-1b.

Tables 6-1a-b. Permit Limits for Alexandria Sewage Treatment Plant.

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

- 6 Dissolved Oxygen
- 6 TSS
- 4 pH
- 11 Ammonia
- 8 Fecal coliform
- 5 Chlorine
- 9 CBOD
- 9 COD
- 8 Suspended Solid % Removal
- 4 Overflows
- 5 Bypasses

Enforcement:
Commissioner's Order #02-0252
Database Notes:
NPDES Parameter Violations. Commissioner's Order drafted for non-compliance with Director's Order #00-019D.
12/9/02 Plant complete.
6/9/03 NOV sent for failure to comply with items 4 and 5 of order.
7/2/03 Meeting at Central office. They will send us a letter by end of July to propose amendment to order that addresses issues with collection system that are realistic for the city.
7/28/03 Proposed amendments to Order received.
8/13/03 Letter to Alexandria noting deficiencies in their proposal of 7/28/03.
11/6/03 Letter received informing division that Respondents are retaining HKA as engineering consultants.
Recieved phone call from City Attorney notifying WPC that the town had hired an individual to be trained as back-up operator.
01/22/04 Received letter with Study Proposal Addressing the Collection System Upgrade.

Submitted Sewer Collection System Rehabilitation Study (SCSRS) on 5/25/04.
Plans and specs for cleaning and televising 8,850' (first phase of CAP) received on 5/25/05.

EFO Comments:
The system is relatively new. The operator complains that his equalization basin causes the plant to lose effluent quality. Inflow and Infiltration (I/I) problems do exist.

TN0024490 Tennessee Department of Tourism I-40 Rest Area

Discharger rating: Minor
City: Buffalo Valley
County: Smith
EFO Name: Cookeville
Issuance Date: 6/28/02
Expiration Date: 8/30/07
Receiving Stream(s): Caney Fork River at mile 20.5
HUC-12: 051301080805
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Recirculating Sand Filter with ultraviolet disinfection

Segment	TN05130108012_1000
Name	Caney Fork River
Size	6.4
Unit	Miles
First Year on 303(d) List	1990
Designated Uses	Domestic Water Supply (Supporting), Industrial Water Supply (Supporting), Fish and Aquatic Life (Non-Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Low flow alterations, Temperature, water, Oxygen, Dissolved
Sources	Upstream Impoundments (e.g., PI-566 NRCS Structures)

Table 6-2. Stream Segment Information for Tennessee Department of Tourism I-40 Rest Area.

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
CBOD5	All Year	40	DMax Conc	mg/L	2/Month	Grab	Effluent
CBOD5	All Year	25	MAvg Conc	mg/L	2/Month	Grab	Effluent
D.O.	All Year	1	DMin Conc	mg/L	Weekdays	Grab	Effluent
Fecal Coliform	All Year	1000	DMax Conc	#/100mL	2/Month	Grab	Effluent
Fecal Coliform	All Year	200	MAvg Geo Mean	#/100mL	2/Month	Grab	Effluent
Settleable Solids	All Year	1	DMax Conc	mL/L	2/Week	Grab	Effluent
TRC	All Year	2	DMax Conc	mg/L	Weekdays	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	2/Month	Grab	Effluent
TSS	All Year	30	MAvg Conc	mg/L	2/Month	Grab	Effluent
pH	All Year	9	DMax Conc	SU	2/Week	Grab	Effluent
pH	All Year	6	DMin Conc	SU	2/Week	Grab	Effluent

Table 6-3. Permit Limits for Tennessee Department of Tourism I-40 Rest Area.

EFO Comments:

TDOT Property, the Rest Area /Welcome Center is operated by the Department of Tourism. The receiving stream is the Caney Fork, several miles down stream of the Center Hill Dam. The facility has problems with loading and high ammonia. A new "no discharge" facility is in the planning stages. This section of the river is known as a stocked trout fishery and is scenic. Traffic and visitors are increasing yearly. The high ammonia releases are of concern.

TN0021121 Baxter Sewage Treatment Plant

Discharger rating: Minor
City: Baxter
County: Putnam
EFO Name: Cookeville
Issuance Date: 4/28/06
Expiration Date: 4/30/07
Receiving Stream(s): Caney Fork River at mile 20.5
HUC-12: 051301080803
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: WAS to aerobic digesters to land application sites

Segment	TN05130108097_2000
Name	Mine Lick Creek
Size	4.23
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Irrigation (Supporting), Recreation (Non-Supporting), Fish and Aquatic Life (Non-Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Nitrates, Escherichia coli
Sources	Sanitary Sewer Overflows (Collection System Failures)

Table 6-4. Stream Segment Information for Baxter Sewage Treatment Plant.

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
Ammonia as N (Total)	Summer	2	DMax Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	1	MAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	1.5	WAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	6	WAvg Load	lb/day	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	4	MAvg Load	lb/day	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	4	DMax Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	2	MAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	3	WAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	13	WAvg Load	lb/day	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	8	MAvg Load	lb/day	3/Week	Composite	Effluent
Bypass of Treatment (occurrences)	All Year		MAvg Load		Continuous	Visual	Effluent
CBOD % Removal	All Year	40	DMin % Removal	Percent	3/Week	Calculated	% Removal
CBOD % Removal	All Year	85	MAvg % Removal	Percent	3/Week	Calculated	% Removal
CBOD5	All Year	35	DMax Conc	mg/L	3/Week	Composite	Effluent
CBOD5	All Year	30	WAvg Conc	mg/L	3/Week	Composite	Effluent
CBOD5	All Year	20	MAvg Conc	mg/L	3/Week	Composite	Effluent
CBOD5	All Year	125	WAvg Load	lb/day	3/Week	Composite	Effluent
CBOD5	All Year	83	MAvg Load	lb/day	3/Week	Composite	Effluent
D.O.	All Year	6	DMin Conc	mg/L	Weekdays	Grab	Effluent
E. coli	All Year	126	MAvg Geo Mean	#/100mL	3/Week	Grab	Effluent
E. coli	All Year	941	DMax Conc	#/100mL	3/Week	Grab	Effluent
Overflow Use Occurences	All Year		MAvg Load		Continuous	Visual	Wet Weather

Table 6-5a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Overflow Use Occurences	All Year		MAvg Load		Continuous	Visual	Non Wet Weather
Overflow Use Occurences	All Year		MAvg Conc				Effluent
Settleable Solids	All Year	1	DMax Conc	mL/L	3/Week	Composite	Effluent
TRC	All Year	0.02	DMax Conc	mg/L	Weekdays	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year	40	WAvg Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year	30	MAvg Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year	167	WAvg Load	lb/day	3/Week	Composite	Effluent
TSS	All Year	125	MAvg Load	lb/day	3/Week	Composite	Effluent
TSS % Removal	All Year	40	DMin % Removal	Percent	3/Week	Calculated	% Removal
TSS % Removal	All Year	85	MAvg % Removal	Percent	3/Week	Calculated	% Removal
pH	All Year	9	DMax Conc	SU	Weekdays	Grab	Effluent
pH	All Year	6.5	DMin Conc	SU	Weekdays	Grab	Effluent

Table 6-5b.

Tables 6-5a-b. Permit limits for Baxter Sewage Treatment Plant.

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

- 3 Chlorine
- 1 pH
- 1 Ammonia
- 2 CBOD
- 3 bypasses

EFO Comments:
The system is currently on a “self imposed moratorium”. Receiving stream - Mine Lick Branch is 303(d) listed for sewerage due to collection system failures. The City of Baxter is currently working on the collection system issues. The Waste Water Treatment Plant is in good condition.

TN0064688 Monterey Waste Water Treatment Plant

Discharger rating: Major
City: Monterey
County: Putnam
EFO Name: Cookeville
Issuance Date: 10/31/05
Expiration Date: 12/31/07
Receiving Stream(s): Unnamed ditch at mile 0.4 to Falling Water River at mile 46.1
HUC-12: 051301080701
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Treated municipal wastewater; treated sludge is land appl.

Segment	TN05130108045_3000
Name	Falling Water River
Size	11.2
Unit	Miles
First Year on 303(d) List	1990
Designated Uses	Fish and Aquatic Life (Non-Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Nutrient/Eutrophication Biological Indicators, Oxygen, Dissolved
Sources	Municipal Point Source Discharges

Table 6-6. Stream Segment Information for Monterey Waste Water Treatment Plant.

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
Ammonia as N (Total)	Summer	1.4	DMax Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	0.7	MAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	1	WAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	8	WAvg Load	lb/day	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	6	MAvg Load	lb/day	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	2.4	DMax Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	1.2	MAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	1.8	WAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	15	WAvg Load	lb/day	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	10	MAvg Load	lb/day	3/Week	Composite	Effluent
CBOD % Removal	All Year	40	DMin % Removal	Percent	3/Week	Calculated	Percent Removal
CBOD % Removal	All Year	85	MAvg % Removal	Percent	3/Week	Calculated	Percent Removal
CBOD5	All Year	40	DMax Conc	mg/L	3/Week	Composite	Effluent
CBOD5	All Year	35	WAvg Conc	mg/L	3/Week	Composite	Effluent
CBOD5	All Year	25	MAvg Conc	mg/L	3/Week	Composite	Effluent
CBOD5	All Year	292	WAvg Load	lb/day	3/Week	Composite	Effluent
CBOD5	All Year	209	MAvg Load	lb/day	3/Week	Composite	Effluent
D.O.	All Year	6	DMin Conc	mg/L	Weekdays	Grab	Effluent
E. coli	All Year	941	DMax Conc	#/100mL	3/Week	Grab	Effluent
E. coli	All Year	126	MAvg Geo Mean	#/100mL	3/Week	Grab	Effluent

Table 6-7a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
IC25 7day Ceriodaphnia Dubia	All Year	100	DMin Conc	Percent	Quarterly	Composite	Effluent
IC25 7day Fathead Minnows	All Year	100	DMin Conc	Percent	Quarterly	Composite	Effluent
Settleable Solids	All Year	1	DMax Conc	mL/L	3/Week	Composite	Effluent
TKN - Total Kjeldahl Nitrogen	All Year	10	MAvg Conc	mg/L	2/Month	Composite	Effluent
TKN - Total Kjeldahl Nitrogen	All Year	83	MAvg Load	lb/day	2/Month	Composite	Effluent
TRC	All Year	0.02	DMax Conc	mg/L	Weekdays	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year	40	WAvg Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year	30	MAvg Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year	334	WAvg Load	lb/day	3/Week	Composite	Effluent
TSS	All Year	250	MAvg Load	lb/day	3/Week	Composite	Effluent
TSS % Removal	All Year	40	DMin % Removal	Percent	3/Week	Calculated	Percent Removal
TSS % Removal	All Year	85	MAvg % Removal	Percent	3/Week	Calculated	Percent Removal
pH	All Year	8.5	DMax Conc	SU	Weekdays	Grab	Effluent
pH	All Year	6.5	DMin Conc	SU	Weekdays	Grab	Effluent

Table 6-7b.

Tables 6-7a-b. Permit Limits for Monterey Waste Water Treatment Plant.

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

- 10 Ammonia
- 2 Chlorine
- 1 TSS
- 18 Nitrate
- 155 Overflows
- 122 Bypasses

Enforcement:
Agreed Order #02-0154
Database Notes: Order addresses several years of permit violations including overflows. Moratorium is imposed.
Spoke with Cookeville EFO on 10/26/05 - Said that Monterey will conduct I&I flow study in Spring of 2006. They will remain under moratorium until then. However, Purdue is expanding and planning on hooking up soon - will need to schedule meeting with Purdue and Monterey.
9/21/06 Municipal Facilities Section wrote the city a letter allowing the moratorium relief of 35,000 gallons.
NOV issued for overflow discharge on 09/19/06.

EFO Comments:
City of Monterey has operated under an Agreed Order #02-0154 since 2004. The compliance schedule was followed and periodical compliance review meetings with all

parties have been conducted. Engineering plans and reports detailing the I/I removal and collection system rehabilitation work have been reviewed. Semiannual progress reports have been reviewed and discussed. Compliance with the moratorium has been tracked and enforced. Compliance Biomonitoring Inspection was competed in February 2006 (no toxic effects). Ammonia violations experienced at the Monterey Waste Water Treatment Plant are function of local limit violations by Purdue Farms Inc. Tim Hedgecough is now grade 4 certified operator. The NPDES permit has been modified to reflect the current Water Quality Criteria and remove the Fecal coliform monitoring requirement. Sludge is anaerobically digested and land applied as liquid. New sludge application site has been evaluated and approved. Chronic overflows continue at Johnson Avenue pump station and at the Old plant pump station. The overflows at the Old Plant are metered. Engineering study is underway to evaluate the dynamics of pump station interaction and effects under surcharged conditions. Monterey is evaluating the nitrate limit and nitrate removal in the wastewater plant as it relates to synergistic effects of biological treatment in Purdue Farms Inc.

Monterey Pretreatment Program

Pretreatment in Monterey takes considerable involvement, as Purdue Farms constitutes large portion of the dry weather flow to the Sewage Treatment Plant. Given the scale and loading, compliance issues with Purdue involve complex treatment decisions, operation unit evaluations, and frequent oversight. Significant improvements were made in the past two years. Purdue Farms completed installation of additional treatment units, changed flow configuration, installed continuous monitoring and improved QA/QC program. Several engineering studies were completed to achieve compliance and allow for flexibility in treatment operation. The most recent challenge is hydraulic loading to Purdue pump station. Three overflows have been recently reported. Cumberland Container installed additional storage and dosing tank to address IU permit violations. Cooperation of the pretreatment coordinator allowed for close involvement in the pretreatment issues in Monterey.

TN0061166 Sparta Sewage Treatment Plant

Discharger rating: Major
City: Sparta
County: White
EFO Name: Cookeville
Issuance Date: 6/30/06
Expiration Date: 7/31/07
Receiving Stream(s): Calfkiller River Mile 11.5
HUC-12: 051301080504
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: WAS to holding tank to landfill

Segment	TN05130108043_1000
Name	Calfkiller River
Size	18.7
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Fish and Aquatic Life (Supporting), Livestock Watering and Wildlife (Supporting), Industrial Water Supply (Supporting), Irrigation (Supporting), Recreation (Supporting)
Causes	N/A
Sources	N/A

Table 6-8. Stream Segment Information for Sparta Sewage Treatment Plant.

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
Ammonia as N (Total)	Summer	6	DMax Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	3	WAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	4	MAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	59	DMax Load	lb/day	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	39	MAvg Load	lb/day	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	18	DMax Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	12	MAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	9	WAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	158	DMax Load	lb/day	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	118	MAvg Load	lb/day	3/Week	Composite	Effluent
Bypass of Treatment (occurrences)	All Year		MAvg Load	Occurences/Month	Continuous	Visual	Wet Weather
CBOD % Removal	All Year	40	DMin % Removal	Percent	3/Week	Calculated	Percent Removal
CBOD % Removal	All Year	85	MAvg % Removal	Percent	3/Week	Calculated	Percent Removal
CBOD5	All Year	30	DMax Conc	mg/L	3/Week	Composite	Effluent
CBOD5	All Year	21	MAvg Conc	mg/L	3/Week	Composite	Effluent
CBOD5	All Year		MAvg Conc	mg/L	3/Week	Composite	Influent (Raw Sewage)
CBOD5	All Year	15	DMin Conc	mg/L	3/Week	Composite	Effluent
CBOD5	All Year		DMax Conc	mg/L	3/Week	Composite	Influent (Raw Sewage)
CBOD5	All Year	276	DMax Load	lb/day	3/Week	Composite	Effluent
CBOD5	All Year	197	MAvg Load	lb/day	3/Week	Composite	Effluent

Table 6-9a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Cyanide, Total (CN-)	All Year	0.015	MAvg Conc	mg/L	Semi-annually	Grab	Effluent
D.O.	All Year	3	DMin Conc	mg/L	Weekdays	Grab	Effluent
E. coli	All Year	126	MAvg Geo Mean	#/100mL	3/Week	Grab	Effluent
E. coli	All Year	487	DMax Conc	#/100mL	3/Week	Grab	Effluent
Flow	All Year		DMax Load	MGD	Daily	Continuous	Effluent
Flow	All Year		DMax Load	MGD	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MAvg Load	MGD	Daily	Continuous	Effluent
Flow	All Year		MAvg Load	MGD	Daily	Continuous	Influent (Raw Sewage)
IC25 7day Ceriodaphnia Dubia	All Year	18.4	DMin Conc	Percent	Continuous	Composite	Effluent
IC25 7day Fathead Minnows	All Year	18.4	DMin Conc	Percent	Continuous	Composite	Effluent
Overflow Use Occurences	All Year		MAvg Load	Occurences/Month	Continuous	Visual	Wet Weather
Overflow Use Occurences	All Year		MAvg Load	Occurences/Month	Continuous	Visual	Non Wet Weather
Settleable Solids	All Year	1	DMax Conc	mL/L	3/Week	Composite	Effluent
TRC	All Year	0.1	DMax Conc	mg/L	Weekdays	Grab	Effluent
TSS	All Year	27	DMax Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year	18	WAvg Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year		DMax Conc	mg/L	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year	24	MAvg Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year		MAvg Conc	mg/L	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year	315	DMax Load	lb/day	3/Week	Composite	Effluent
TSS	All Year	236	MAvg Load	lb/day	3/Week	Composite	Effluent
TSS % Removal	All Year	40	DMin % Removal	Percent	3/Week	Calculated	Percent Removal
TSS % Removal	All Year	85	MAvg % Removal	Percent	3/Week	Calculated	Percent Removal
pH	All Year	9	DMax Conc	SU	Weekdays	Grab	Effluent
pH	All Year	6	DMin Conc	SU	Weekdays	Grab	Effluent

Table 6-9b.

Tables 6-9a-b. Permit Limits for Sparta Sewage Treatment Plant.

Compliance History:

The following numbers of exceedences were noted in PCS:

- 3 CBOD
- 5 Escherichia coli
- 4 TSS
- 2 CBOD % Removal
- 1 Ammonia
- 1 Settleable Solids
- 196 Overflows
- 36 Bypasses

Enforcement:
Consent Order # 06-0022
City of Sparta requested Order for grant funding reasons. The main concern is 125 overflows from March 2004 - Sept 2005. City of Sparta requested to connect Hampton's Crossroad area to sewer system.

EFO Comments:
Sparta continues to have problems with inflow and infiltration in the collection system. Chronic overflows at the Mayberry pump station and periodic headworks overload at the plant follow rain events. The City has agreed in a Consent Commissioner's Order to address the collection system problems. Flow metering was adjusted to record the maximum flows through the plant. The plant has to modify operation during high wet weather flows to compensate for the flow restriction at the influent screen and the effluent UV chamber. Grit is currently handled by a vacuum truck, as the original mechanical grit removal unit no longer functions. Comprehensive preventive maintenance schedule has been developed along with a database for maintenance record keeping. Hauled septage is introduced to the plant at the headworks; however, it is not included in the influent sample and flow measurements. The NPDES permit has been modified to reflect the current Water Quality Criteria and remove the Fecal coliform monitoring requirement. Sludge is dewatered in a belt press and hauled to a County landfill.

Sparta Pretreatment Program
Sparta pretreatment program regulates three significant users. Big Bend Technology (now Rhythm North America) expanded and upgraded their wastewater treatment system to increase capacity, reliability and efficiency of treatment. Additional tanks were installed and continuous electronic monitoring and chemical feed was incorporated in the new system. Classification of some of the users has been changed. Monthly limits for the metal finisher had to be calculated and approved.

TN0077704 Spencer Sewage Treatment Plant - Caney Fork

Discharger rating: Major
City: Spencer
County: Van Buren
EFO Name: Cookeville
Issuance Date: 7/31/06
Expiration Date: 7/31/07
Receiving Stream(s): Headwaters of Lick Branch
HUC-12: 0513010800401
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: activated sludge process w/ ultraviolet disinfection

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
Ammonia as N (Total)	Summer	2.4	DMax Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	1.8	WAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	1.2	MAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	1.9	WAvg Load	lb/day	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	1.3	MAvg Load	lb/day	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	4.2	DMax Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	2.1	MAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	3.2	WAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	3.3	WAvg Load	lb/day	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	2.2	MAvg Load	lb/day	3/Week	Composite	Effluent
Bypass of Treatment (occurrences)	All Year		MAvg Load	Occurences/Month	Continuous	Visual	Wet Weather
CBOD % Removal	All Year	40	DMin % Removal	Percent	3/Week	Calculated	Percent Removal
CBOD % Removal	All Year	85	MAvg % Removal	Percent	3/Week	Calculated	Percent Removal
CBOD5	All Year	20	DMax Conc	mg/L	3/Week	Composite	Effluent
CBOD5	All Year	15	WAvg Conc	mg/L	3/Week	Composite	Effluent
CBOD5	All Year		MAvg Conc	mg/L	3/Week	Composite	Influent (Raw Sewage)
CBOD5	All Year	10	MAvg Conc	mg/L	3/Week	Composite	Effluent
CBOD5	All Year		DMax Conc	mg/L	3/Week	Composite	Influent (Raw Sewage)
CBOD5	All Year	16	WAvg Load	lb/day	3/Week	Composite	Effluent
CBOD5	All Year	10	MAvg Load	lb/day	3/Week	Composite	Effluent
D.O.	All Year	6	DMin Conc	mg/L	Weekdays	Grab	Effluent
E. coli	All Year	941	DMax Conc	#/100mL	3/Week	Grab	Effluent
E. coli	All Year	126	MAvg Geo Mean	#/100mL	3/Week	Grab	Effluent
Flow	All Year		DMax Load	MGD	Daily	Continuous	Effluent
Flow	All Year		MAvg Load	MGD	Daily	Continuous	Effluent
Flow	All Year		DMax Load	MGD	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MAvg Load	MGD	Daily	Continuous	Influent (Raw Sewage)
Nitrite + Nitrate Total (as N)	All Year	10	DMax Conc	mg/L	3/Week	Composite	Effluent
Nitrite + Nitrate Total (as N)	All Year	6	MAvg Conc	mg/L	3/Week	Composite	Effluent
Nitrite + Nitrate Total (as N)	All Year	7.5	WAvg Conc	mg/L	3/Week	Composite	Effluent
Nitrite + Nitrate Total (as N)	All Year	8	WAvg Load	lb/day	3/Week	Composite	Effluent

Table 6-10a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Nitrite + Nitrate Total (as N)	All Year	6	MAvg Load	lb/day	3/Week	Composite	Effluent
Overflow Use Occurences	All Year		MAvg Load	Occurences/Month	Continuous	Visual	Wet Weather
Overflow Use Occurences	All Year		MAvg Load	Occurences/Month	Continuous	Visual	Non Wet Weather
Settleable Solids	All Year	1	DMax Conc	mL/L	Weekdays	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year	40	WAvg Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year		DMax Conc	mg/L	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year	30	MAvg Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year		MAvg Conc	mg/L	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year	42	WAvg Load	lb/day	3/Week	Composite	Effluent
TSS	All Year	31	MAvg Load	lb/day	3/Week	Composite	Effluent
TSS % Removal	All Year	40	DMin % Removal	Percent	3/Week	Calculated	Percent Removal
TSS % Removal	All Year	85	MAvg % Removal	Percent	3/Week	Calculated	Percent Removal
pH	All Year	9	DMax Conc	SU	Weekdays	Grab	Effluent

Table 6-10b.

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

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

- 2 TSS
- 3 Nitrate
- 5 Ammonia
- 81 Overflows
- 3 Bypasses

Enforcement:
Agreed Order #04-0253 – remains under appeal.
Order for effluent violations, in-plant bypasses, and collection system overflows. 12/29/06 - Case placed on suspension by Office of General Counsel. Reason: Negotiations on related cases in the Attorney General's office.

EFO Comments:
Discharge to Lick Branch, the system is performing well. The receiving stream is small. Currently, other discharge points are being sought. Other NPDES permits have been issued but have not been used.

TN0027456: TVA Great Falls Hydro Electric Power Plant

Discharger rating: Minor
City: Rock Island
County: Warren
EFO Name: Cookeville
Issuance Date: 4/30/02
Expiration Date: 4/30/07
Receiving Stream(s): Caney Fork River
HUC-12: 05130108 (Caney Fork)
Effluent Summary: Cooling water from Outfall 001
Treatment system: N/A

EFO Comments:
A very small source, which is well maintained. Spills of lubricants onto floor surfaces, if not cleaned immediately may be their biggest issue.

TN0027618 Pleasant Hill Housing Authority Waste Water Treatment Plant

Discharger rating: Minor
City: Pleasant Hill
County: Cumberland
EFO Name: Cookeville
Issuance Date: 4/30/02
Expiration Date: 4/30/07
Receiving Stream(s): Unnamed tributary at mile 0.4 to White Oak Creek at mile 3.0
HUC-12: 051301080101
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Activated Sludge

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
Ammonia as N (Total)	Summer	4	DMax Conc	mg/L	Monthly	Grab	Effluent
Ammonia as N (Total)	Winter	10	DMax Conc	mg/L	Monthly	Grab	Effluent
CBOD5	All Year	20	DMax Conc	mg/L	Monthly	Grab	Effluent
D.O.	All Year	3	DMin Conc	mg/L	Weekdays	Grab	Effluent
Fecal Coliform	All Year	1000	DMax Conc	#/100mL	Monthly	Grab	Effluent
Settleable Solids	All Year	1	DMax Conc	mL/L	2/Week	Grab	Effluent
TRC	All Year	0.5	DMax Conc	mg/L	2/Week	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	Monthly	Grab	Effluent
pH	All Year	8.5	DMax Conc	SU	2/Week	Grab	Effluent
pH	All Year	6.5	DMin Conc	SU	2/Week	Grab	Effluent

Table 6-11. Permit Limits for Pleasant Hill Housing Authority Waste Water Treatment Plant.

EFO Comments:
Small, aging System. Increased loading is not expected. An increase in permit monitoring should be considered.

TN0042111 Rock Island State Park Waste Water Treatment Plant

Discharger rating: Minor
City: Rock Island
County: Warren
EFO Name: Cookeville
Issuance Date: 6/28/02
Expiration Date: 5/30/07
Receiving Stream(s): Caney Fork River (Center Hill Lake) at mile 89.0
HUC-12: 051301080402
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Activated Sludge

Segment	TN05130108090_0999
Name	Misc Tribs to Center Hill
Size	78.8
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Recreation (Not Assessed), Irrigation (Not Assessed), Fish and Aquatic Life (Not Assessed), Livestock Watering and Wildlife (Not Assessed)
Causes	N/A
Sources	N/A

Table 6-12. Stream Segment Information for Rock Island State Park WWTP.

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
Ammonia as N (Total)	All Year	10	DMax Conc	mg/L	2/Month	Grab	Effluent
Ammonia as N (Total)	All Year	5	MAvg Conc	mg/L	2/Month	Grab	Effluent
BOD5	All Year	20	DMax Conc	mg/L	2/Month	Grab	Effluent
BOD5	All Year	10	MAvg Conc	mg/L	2/Month	Grab	Effluent
D.O.	All Year	5	DMin Conc	mg/L	Weekdays	Grab	Effluent
Fecal Coliform	All Year	1000	DMax Conc	#/100mL	2/Month	Grab	Effluent
Fecal Coliform	All Year	200	MAvg Geo Mean	#/100mL	2/Month	Grab	Effluent
Settleable Solids	All Year	1	DMax Conc	mL/L	2/Week	Grab	Effluent
TRC	All Year	2	DMax Conc	mg/L	Weekdays	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	2/Month	Grab	Effluent
TSS	All Year	30	MAvg Conc	mg/L	2/Month	Grab	Effluent
pH	All Year	9	DMax Conc	SU	2/Week	Grab	Effluent
pH	All Year	6	DMin Conc	SU	2/Week	Grab	Effluent

Table 6-13. Permit Limits for Rock Island State Park WWTP.

EFO Comments:
The Plant is aging (steel in-ground package plant). Currently a new “no discharge” plant is in the planning stages. As with all Waste Water Treatment Plants, the Collection Systems require constant preventative maintenance.

TN0055409 Appalachian Center for Crafts Waste Water Treatment Plant

Discharger rating: Minor
City: Smithville
County: DeKalb
EFO Name: Cookeville
Issuance Date: 6/28/02
Expiration Date: 6/30/07
Receiving Stream(s): Caney Fork River at mile 42.3
HUC-12: 051301080802
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Extended aeration

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
BOD5	All Year	45	DMax Conc	mg/L	2/Month	Grab	Effluent
BOD5	All Year	30	MAvg Conc	mg/L	2/Month	Grab	Effluent
D.O.	All Year	1	DMin Conc	mg/L	Weekdays	Grab	Effluent
Fecal Coliform	All Year	1000	DMax Conc	#/100mL	2/Month	Grab	Effluent
Fecal Coliform	All Year	200	MAvg Geo Mean	#/100mL	2/Month	Grab	Effluent
Settleable Solids	All Year	1	DMax Conc	mL/L	2/Week	Grab	Effluent
TRC	All Year	2	DMax Conc	mg/L	Weekdays	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	2/Month	Grab	Effluent
TSS	All Year	30	MAvg Conc	mg/L	2/Month	Grab	Effluent
pH	All Year	9	DMax Conc	SU	2/Week	Grab	Effluent
pH	All Year	6	DMin Conc	SU	2/Week	Grab	Effluent

Table 6-14. Permit Limits for Appalachian Center for Crafts WWTP.

EFO Comments:

Aging Waste Water Treatment Plant, Steel shell in ground package plant. The school is careful not to overload or miss-treat the system. The school will need to set aside money for future repairs.

TN0055531 Uplands Retirement Community Waste Water Treatment Plant

Discharger rating: Minor
City: Pleasant Hill
County: Cumberland
EFO Name: Cookeville
Issuance Date: 6/28/02
Expiration Date: 1/31/07
Receiving Stream(s): Frey Branch at mile 0.4
HUC-12: 051301080101
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Activated Sludge

Segment	TN05130108036_0500
Name	Wilkerson Creek
Size	19.1
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting), Fish and Aquatic Life (Supporting)
Causes	N/A
Sources	N/A

Table 6-15. Stream Segment Information for Uplands Retirement Community WWTP.

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
Ammonia as N (Total)	All Year	10	DMax Conc	mg/L	2/Month	Grab	Effluent
Ammonia as N (Total)	All Year	5	MAvg Conc	mg/L	2/Month	Grab	Effluent
CBOD5	All Year	40	DMax Conc	mg/L	2/Month	Grab	Effluent
CBOD5	All Year	25	MAvg Conc	mg/L	2/Month	Grab	Effluent
D.O.	All Year	6	DMin Conc	mg/L	Weekdays	Grab	Effluent
Fecal Coliform	All Year	1000	DMax Conc	#/100mL	2/Month	Grab	Effluent
Fecal Coliform	All Year	200	MAvg Geo Mean	#/100mL	2/Month	Grab	Effluent
Settleable Solids	All Year	1	DMax Conc	mL/L	2/Week	Grab	Effluent
TRC	All Year	0.5	DMax Conc	mg/L	Weekdays	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	2/Month	Grab	Effluent
TSS	All Year	30	MAvg Conc	mg/L	2/Month	Grab	Effluent
pH	All Year	8.5	DMax Conc	SU	2/Week	Grab	Effluent
pH	All Year	6	DMin Conc	SU	2/Week	Grab	Effluent

Table 6-16. Permit Limits for Uplands Retirement Community WWTP.

EFO Comments:
The system is aging and in need of an upgrade. The management has been encouraged to find the funds to improve the Waste Water Treatment Plant. Loading has been increased on the Waste Water Treatment Plant facility. This facility is held in private ownership. Further oversight is needed.
Copy of the application to field office on 8/8/06

TN0024198 Cookeville Sewage Treatment Plant

Discharger rating: Major
City: Cookeville
County: Putnam
EFO Name: Cookeville
Issuance Date: 4/28/02
Expiration Date: 12/30/07
Receiving Stream(s): Pigeon Roost Creek at mile 2.3
HUC-12: 051301080702
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Oxidation ditch activated sludge with ultraviolet disinfecting of both treated effluent and storm flow that bypasses the ditch into a standby clarifier.

Segment	TN05130108045_0400
Name	Pigeon Roost Creek
Size	2.4
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Fish and Aquatic Life (Non-Supporting), Recreation (Non-Supporting), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Escherichia coli, Nitrates, Phosphate, Physical substrate habitat alterations
Sources	Discharges from Municipal Separate Storm Sewer Systems (MS4), Municipal Point Source Discharges, Channelization

Table 6-17. Stream Segment Information for Cookeville Sewage Treatment Plant.

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
48hr LC50: Ceriodaphnia Dubia	All Year	2.6	DMin Conc	Percent	Annually	Composite	Effluent
48hr LC50: Fathead Minnows	All Year	2.6	DMin Conc	Percent	Annually	Composite	Effluent
Al (T)	All Year	36.26	DMax Conc	mg/L	Weekly	Composite	Effluent
Al (T)	All Year	18.69	MAvg Conc	mg/L	Weekly	Composite	Effluent
Cr (T)	All Year	2.31	DMax Conc	mg/L	Monthly	Composite	Effluent
Cr (T)	All Year	0.95	MAvg Conc	mg/L	Monthly	Composite	Effluent
Cyanide, Total (CN-)	All Year	1.82	DMax Conc	mg/L	Monthly	Grab	Effluent
Cyanide, Total (CN-)	All Year	0.31	MAvg Conc	mg/L	Monthly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	30	DMax Conc	mg/L	Weekly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	15	MAvg Conc	mg/L	Weekly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	381	DMax Load	lb/day	Weekly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	253	MAvg Load	lb/day	Weekly	Grab	Effluent
TSS	All Year	70	DMax Conc	mg/L	Weekly	Grab	Effluent
TSS	All Year	50	MAvg Conc	mg/L	Weekly	Grab	Effluent
TSS	All Year	756	DMax Load	lb/day	Weekly	Grab	Effluent
TSS	All Year	360	MAvg Load	lb/day	Weekly	Grab	Effluent
Zn (T)	All Year	7.71	DMax Conc	mg/L	Monthly	Composite	Effluent
Zn (T)	All Year	3.41	MAvg Conc	mg/L	Monthly	Composite	Effluent
pH	All Year	9	DMax Conc	SU	Weekly	Grab	Effluent
pH	All Year	6	DMin Conc	SU	Weekly	Grab	Effluent

Table 6-18. Permit Limits for Cookeville Sewage Treatment Plant.

Appeal Date	26-MAY-06
Acknow. Letter	
Appeal Summary	Parts: 1.1 (E. coli), 1.2 (TN, TP monitoring/limiting; wet weather flow and bypass of treatment), 1.4.4 (DMR submittal by the 15th), 2.3.3 (self-imposed moratorium), 2.3.4.b (cause of upset), 2.3.6 (bypassing restrictions), 3.3 (sludge language).
Referred to OGC	05-JUN-06
WQCB Disposition	OGC Case # 06-0321; computer tracking # 06-14923; contact Patrick Parker

Table 6-19. Permit Appeal information for Cookeville Sewage Treatment Plant.

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

- 2 Mercury
- 2 Suspended Solids % Removal
- 2 Escherichia coli
- 141 Bypasses

EFO Comments:
A new permit was re-issued on April 28, 2006, with expiration date of December 31, 2007. Some provisions have been appealed. The plant has an excellent performance and no effluent violations have been reported in recent years. Operation and Maintenance is incorporated in a formal electronic schedule/database. Most of the pump stations are equipped with a telemetry warning system. The City now owns three mobile generators. All pump stations are equipped with transfer switches and connectors. TTU pump station has been a chronic overflow point. NOV was issued in 2005. NOV was issued in 2005. Rehabilitation in this area has been a priority for Cookeville for the last two years. The City committed $300,000 for diagnostics and repair and applied the last two years for CDBG funds. To address the overflows at Tech pump station, the wet well has been cleaned out and large amount of sediment was removed. Rehabilitation work in the Tech Pump station basin has been completed this summer. Sludge is processed into class A biosolids through heat and lime treatment.

Cookeville Pretreatment Program
New pretreatment coordinator took over the program last year. The last pretreatment compliance inspection identified some concerns with accurate classification of the categorical industries. Some permit language changes were recommended to reflect the 40 CFR 403 requirements. Details on Total Toxic Organic monitoring and reporting were discussed and the city pretreatment coordinator is in progress of implementing the changes. Combined waste formula had to be applied to some of the industrial users to account for the dilution in the categorical waste streams. Currently local limits for the city are under a review and recalculations due to new pass through limits issued by the Division. Grease control plan has been developed and its implementation is underway.

TN0068128 USACOE Center Hill Hydro Electric Plant

Discharger rating: Major
City: Lancaster
County: DeKalb
EFO Name: Cookeville
Issuance Date: 9/30/02
Expiration Date: 9/29/07
Receiving Stream(s): Caney Fork River
HUC-12: 051301080804
Effluent Summary: Noncontact cooling water from Outfalls 001, 002 and 003. Station sump discharge from Outfall 004. Discharge from unit unwatering sump from Outfall 005, and from the dam sump at Outfall 006.
Treatment system: -

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
Settleable Solids	All Year	0.5	DMax Conc	mL/L	Annually	Grab	Effluent

Table 6-20. Permit Limits for USACOE Center Hill Hydro Electric Plant.

EFO Comments:
The operators are proactive. This is a very minor source. Due to concrete expansion, cutting of the Dam has been partially performed this year. A discharge has not been observed.

TN0065013 Van Buren County High School

The system retains their permit but is off line. It is expected to remain permanently offline.

TN0065358 Smithville Sewage Treatment Plant

Discharger rating: Major
City: Smithville
County: DeKalb
EFO Name: Cookeville
Issuance Date: 4/30/06
Expiration Date: 10/30/07
Receiving Stream(s): Fall Creek at mile 4.7
HUC-12: 051301080406
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Activated sludge, chlorination, flow equalization and dechlorination

Segment	TN05130108684_1000
Name	Fall Creek
Size	9.8
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Irrigation (Supporting), Livestock Watering and Wildlife (Supporting), Recreation (Non-Supporting), Fish and Aquatic Life (Non-Supporting)
Causes	Escherichia coli, Nutrient/Eutrophication Biological Indicators, Oxygen, Dissolved, Sedimentation/Siltation, Other anthropogenic substrate alterations
Sources	Upstream Impoundments (e.g., PI-566 NRCS Structures), Municipal Point Source Discharges

Table 6-21. Stream Segment Information for Smithville Sewage Treatment Plant.

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
Ammonia as N (Total)	Summer	4	DMax Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	1.6	WAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	3	MAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	54	DMax Load	lb/day	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	29	MAvg Load	lb/day	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	5	DMax Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	3	WAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	4	MAvg Conc	mg/L	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	72	DMax Load	lb/day	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	54	MAvg Load	lb/day	3/Week	Composite	Effluent
Bypass of Treatment (occurrences)	All Year		MAvg Load	Occurences/Month	Continuous	Visual	Wet Weather
CBOD % Removal	All Year	40	DMin % Removal	Percent	3/Week	Calculated	% Removal
CBOD % Removal	All Year	85	MAvg % Removal	Percent	3/Week	Calculated	% Removal
CBOD5	Summer	20	DMax Conc	mg/L	3/Week	Composite	Effluent
CBOD5	Summer	15	MAvg Conc	mg/L	3/Week	Composite	Effluent
CBOD5	Summer	10	DMin Conc	mg/L	3/Week	Composite	Effluent
CBOD5	Summer	270	DMax Load	lb/day	3/Week	Composite	Effluent
CBOD5	Summer	180	MAvg Load	lb/day	3/Week	Composite	Effluent

Table 6-22a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
CBOD5	Winter	40	DMax Conc	mg/L	3/Week	Composite	Effluent
CBOD5	Winter	30	MAvg Conc	mg/L	3/Week	Composite	Effluent
CBOD5	Winter	25	DMin Conc	mg/L	3/Week	Composite	Effluent
CBOD5	Winter	540	DMax Load	lb/day	3/Week	Composite	Effluent
CBOD5	Winter	450	MAvg Load	lb/day	3/Week	Composite	Effluent
D.O.	All Year	1	DMin Conc	mg/L	Weekdays	Grab	Effluent
E. coli	All Year	126	MAvg Geo Mean	#/100mL	3/Week	Grab	Effluent
IC25 7day Ceriodaphnia Dubia	All Year	100	DMin Conc	Percent	Quarterly	Composite	Effluent
IC25 7day Fathead Minnows	All Year	100	DMin Conc	Percent	Quarterly	Composite	Effluent
Overflow Use Occurences	All Year		MAvg Load	Occurences/Month	Continuous	Visual	Non Wet Weather
Overflow Use Occurences	All Year		MAvg Load	Occurences/Month	Continuous	Visual	Wet Weather
Settleable Solids	All Year	1	DMax Conc	mL/L	3/Week	Composite	Effluent
TRC	All Year	0.03	DMax Conc	mg/L	Weekdays	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year	40	MAvg Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year	30	WAvg Conc	mg/L	3/Week	Composite	Effluent
TSS	All Year	720	DMax Load	lb/day	3/Week	Composite	Effluent
TSS	All Year	540	MAvg Load	lb/day	3/Week	Composite	Effluent
TSS % Removal	All Year	40	DMin % Removal	Percent	3/Week	Calculated	%Removal
TSS % Removal	All Year	85	MAvg % Removal	Percent	3/Week	Calculated	%Removal
pH	All Year	9	DMax Conc	SU	Weekdays	Grab	Effluent
pH	All Year	6	DMin Conc	SU	Weekdays	Grab	Effluent

Table 6-22b.

Tables 6-22a-b. Permit Limits for Smithville Sewage Treatment Plant.

Compliance History:

The following numbers of exceedences were noted in PCS:

- 3 Chlorine
- 1 overflow
- 12 Bypasses

EFO Comments:

Smithville Sewage Treatment Plant operates a Sequence Batch Reactor plant with some equalization in the chlorine contact chamber. The facility collects time proportional samples. Influent is measured using a stilling well with a Parshall flume. An offset calibration of the influent meter was observed and confirmed in field. The effluent flow measurement is done by daily volume balancing of decant cycles. Stream monitoring is conducted two years during the life of the permit. Capacity evaluation of the sewer interceptor was requested to determine conditions of potential overflows from manholes submerged in Fall Creek. The NPDES permit has been modified to reflect the current Water Quality Criteria and remove the Fecal coliform monitoring requirement. Sludge is aerobically digested and land applied as liquid. Collection system rehabilitation efforts have been reviewed. Smithville took over the ownership and maintenance of line extension to Chapel Hills Development.

Smithville Pretreatment Program

Additional sampling location for process water discharge of AAA coatings has been established to monitor compliance with categorical limits and avoid dilution with domestic wastewater.

TN0057908 Fall Creek Falls State Park

Discharger rating: Minor
City: Pikeville
County: Van Buren
EFO Name: Cookeville
Issuance Date: 12/31/02
Expiration Date: 12/31/07
Receiving Stream(s): Fall Creek at mile 1.5
HUC-12: 051301080301
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Aerated lagoon and constructed wetlands

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
Ammonia as N (Total)	All Year	20	DMax Conc	mg/L	Weekly	Grab	Effluent
Ammonia as N (Total)	All Year	10	WAvg Conc	mg/L	Weekly	Grab	Effluent
Ammonia as N (Total)	All Year	15	MAvg Conc	mg/L	Weekly	Grab	Effluent
Ammonia as N (Total)	All Year	25	DMax Load	lb/day	Weekly	Grab	Effluent
Ammonia as N (Total)	All Year	12	MAvg Load	lb/day	Weekly	Grab	Effluent
Ammonia as N (Total)	All Year	19	DMax Load	lb/day	Weekly	Composite	Effluent
CBOD % Removal	All Year	85	MAvg % Removal	Percent	Weekly	Calculated	% Removal
CBOD5	All Year	40	DMax Conc	mg/L	Weekly	Composite	Effluent
CBOD5	All Year	35	MAvg Conc	mg/L	Weekly	Composite	Effluent
CBOD5	All Year	25	DMin Conc	mg/L	Weekly	Composite	Effluent
CBOD5	All Year	50	DMax Load	lb/day	Weekly	Composite	Effluent
CBOD5	All Year	31	MAvg Load	lb/day	Weekly	Composite	Effluent
CBOD5	All Year	44	DMax Load	lb/day	Weekly	Composite	Effluent
D.O.	All Year	5	DMin Conc	mg/L	Weekdays	Grab	Effluent
E. coli	All Year	126	MAvg Geo Mean	#/100mL	Weekly	Grab	Effluent
Fecal Coliform	All Year	1000	DMax Conc	#/100mL	Weekly	Grab	Effluent
Fecal Coliform	All Year	200	MAvg Geo Mean	#/100mL	Weekly	Grab	Effluent
Settleable Solids	All Year	1	DMax Conc	mL/L	Weekdays	Composite	Effluent
TRC	All Year	2	DMax Conc	mg/L	Weekdays	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	Weekly	Composite	Effluent
TSS	All Year	40	MAvg Conc	mg/L	Weekly	Composite	Effluent
TSS	All Year	30	WAvg Conc	mg/L	Weekly	Composite	Effluent
TSS	All Year	56	DMax Load	lb/day	Weekly	Composite	Effluent
TSS	All Year	37	MAvg Load	lb/day	Weekly	Composite	Effluent
TSS	All Year	50	DMax Load	lb/day	Weekly	Composite	Effluent
TSS % Removal	All Year	85	MAvg % Removal	Percent	Weekly	Calculated	% Removal
pH	All Year	9	DMax Conc	SU	Weekdays	Grab	Effluent
pH	All Year	6	DMin Conc	SU	Weekdays	Grab	Effluent

Table 6-23. Permit Limits for Fall Creek Falls State Park.

EFO Comments:

Aeration with constructed wetland then UV disinfection. Facility generally runs well. Further collection system work is needed. Violations have occurred with respect to ammonia removal. RVs may dump into the park system. Unknown sources could create

some toxic issues as with any State of Tennessee park with this type of RV service facility.

TN0059480 Edgar Evins State Park Waste Water Treatment Plant

Discharger rating: Minor
City: Silver Point
County: Van Buren
EFO Name: Cookeville
Issuance Date: 7/31/02
Expiration Date: 5/31/07
Receiving Stream(s): Discharge 001 enters unnamed tributary at mile 0.5 to Caney Fork River at mile 30.5 and discharge 002 enters Caney Fork River at mile 27.4
HUC-12: 051301080804
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: 001 - Extended aeration & 002 - Septic tank with sand filter

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
BOD5	All Year	45	DMax Conc	mg/L	2/Month	Grab	Effluent
BOD5	All Year	30	MAvg Conc	mg/L	2/Month	Grab	Effluent
D.O.	All Year	1	DMin Conc	mg/L	Weekdays	Grab	Effluent
Fecal Coliform	All Year	1000	DMax Conc	#/100mL	2/Month	Grab	Effluent
Settleable Solids	All Year	1	DMax Conc	mL/L	2/Week	Grab	Effluent
TRC	All Year	2	DMax Conc	mg/L	Weekdays	Grab	Effluent
TSS	All Year	45	DMax Conc	mg/L	2/Month	Grab	Effluent
TSS	All Year	30	MAvg Conc	mg/L	2/Month	Grab	Effluent
pH	All Year	9	DMax Conc	SU	2/Week	Grab	Effluent
pH	All Year	6	DMin Conc	SU	2/Week	Grab	Effluent

Table 6-24. Permit Limits for Edgar Evins State Park Waste Water Treatment Plant.

EFO Comments:
In ground activated sludge and second location (Sand Filter). Collection system maintenance and money for upkeep is needed. Additional certified personnel are needed for back-up purposes.

TN0060054 Cane Creek Lake and Park

Discharger rating: Minor
City: Cookeville
County: Putnam
EFO Name: Cookeville
Issuance Date: 2/28/02
Expiration Date: 2/28/07
Receiving Stream(s): Discharge 001 and 002 enters Cane Creek Embayment at miles 15.6 and 15.9
HUC-12: 051301080704
Effluent Summary: Treated domestic wastewater from Outfalls 001 and 002
Treatment system: Septic tank with sand filter system

Segment	TN05130108045_0150
Name	Cane Creek
Size	12
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Livestock Watering and Wildlife (Supporting), Fish and Aquatic Life (Non-Supporting), Recreation (Not Assessed), Irrigation (Supporting)
Causes	Sedimentation/Siltation, Alteration in stream-side or littoral vegetative covers
Sources	Discharges from Municipal Separate Storm Sewer Systems (MS4), Grazing in Riparian or Shoreline Zones, Unrestricted Cattle Access

Table 6-25. Stream Segment Information for Cane Creek Lake and Park.

Permit Limits:
No Limits in Permstat.

EFO Comments:
The two systems are small. Typically there is no flow. The systems are in good condition. The systems are closed in the winter.

TN0056626 TN Department of Correction SE Regional Facility

Discharger rating: Minor
City: Pikeville
County: Bledsoe
EFO Name: Chattanooga
Issuance Date: 8/29/02
Expiration Date: 8/30/07
Receiving Stream(s): Mill Creek at mile 1.0 to Glade Creek at mile 3.8
HUC-12: 051301080202
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Extended aeration

Segment	TN05130108033_0300
Name	Glade Creek
Size	18
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Fish and Aquatic Life (Supporting), Recreation (Supporting), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	N/A
Sources	N/A

Table 6-26. Stream Segment Information for TN DOC SE Regional Facility

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
Ammonia as N (Total)	Summer	2.9	mg/L	DMax Conc	Weekly	Composite	Effluent
Ammonia as N (Total)	Summer	4.4	lb/day	DMax Load	Weekly	Composite	Effluent
Ammonia as N (Total)	Summer	1.45	mg/L	WAvg Conc	Weekly	Composite	Effluent
Ammonia as N (Total)	Summer	3.3	lb/day	DMax Load	Weekly	Composite	Effluent
Ammonia as N (Total)	Summer	2.2	lb/day	MAvg Load	Weekly	Composite	Effluent
Ammonia as N (Total)	Summer	2.2	mg/L	MAvg Conc	Weekly	Composite	Effluent
Ammonia as N (Total)	Winter	4.28	mg/L	DMax Conc	Weekly	Composite	Effluent
Ammonia as N (Total)	Winter	3.2	lb/day	MAvg Load	Weekly	Composite	Effluent
Ammonia as N (Total)	Winter	3.2	mg/L	MAvg Conc	Weekly	Composite	Effluent
Ammonia as N (Total)	Winter	6.4	lb/day	DMax Load	Weekly	Composite	Effluent
Ammonia as N (Total)	Winter	4.8	lb/day	DMax Load	Weekly	Composite	Effluent
Ammonia as N (Total)	Winter	2.14	mg/L	WAvg Conc	Weekly	Composite	Effluent
CBOD5	All Year	30	mg/L	DMax Conc	Weekly	Composite	Effluent
CBOD5	All Year	20	mg/L	DMin Conc	Weekly	Composite	Effluent
CBOD5	All Year	30	lb/day	MAvg Load	Weekly	Composite	Effluent
CBOD5	All Year	25	mg/L	MAvg Conc	Weekly	Composite	Effluent
CBOD5	All Year	38	lb/day	DMax Load	Weekly	Composite	Effluent
CBOD5	All Year	45	lb/day	DMax Load	Weekly	Composite	Effluent
D.O.	All Year	6	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	Weekly	Grab	Effluent
Fecal Coliform	All Year	1000	#/100mL	DMax Conc	Weekly	Grab	Effluent

Table 6-2.a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Fecal Coliform	All Year	200	#/100mL	MAvg Geo Mean	Weekly	Grab	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Effluent
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Effluent
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MGD	DMax Load	Daily	Continuous	Influent (Raw Sewage)
Settleable Solids	All Year	1	mL/L	DMax Conc	Weekdays	Composite	Effluent
TRC	All Year	0.02	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	Weekly	Composite	Effluent
TSS	All Year	68	lb/day	DMax Load	Weekly	Composite	Effluent
TSS	All Year	60	lb/day	DMax Load	Weekly	Composite	Effluent
TSS	All Year	40	mg/L	MAvg Conc	Weekly	Composite	Effluent
TSS	All Year	46	lb/day	MAvg Load	Weekly	Composite	Effluent
TSS	All Year	30	mg/L	WAvg Conc	Weekly	Composite	Effluent
pH	All Year	9	SU	DMax Conc	Weekdays	Grab	Effluent
pH	All Year	6.5	SU	DMin Conc	Weekdays	Grab	Effluent

Table 6-27b.

Tables 6-27a-b. Permit Limits for TN DOC SE Regional Facility.

EFO Comments:

Bee Creek, Mile 6.5 to 7.5, rated Tier II as of July 2005. Threatened and endangered species live downstream of discharge in Mill Creek.

This facility has had numerous and continuous oil and grease issues including unauthorized land application of grease. Originally, the EFO was considering enforcement on this facility, but plans were in the works for a new prison and subsequent new WWTP. These plans have apparently been stalled for now and enforcement may be requested.

TN0040568 TN Department of Correction, Taft Youth Development Center Sewage Treatment Plant

Discharger rating: Minor
City: Pikeville
County: Bledsoe
EFO Name: Chattanooga
Issuance Date: 10/31/02
Expiration Date: 9/29/07
Receiving Stream(s): Wet weather conveyance to Bee Creek at mile 7.3
HUC-12: 051301080201
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Extended aeration

Parameter Limits:
No limits in Permstat?

EFO Comments:
This facility is on the same grounds as TN Department of Correction SE Regional Facility but is administered by the Department of Children's Services. It discharges to Bee Creek, which is designated as High Quality Waters. A Notice of Violation was issued after the last inspection in 2006.

6.4.B. Industrial Permits

TN0002593 Bon L Manufacturing Company

Discharger rating: Minor
City: Carthage
County: Smith
EFO Name: Cookeville
Issuance Date: 3/1/02
Expiration Date: 2/28/07
Receiving Stream(s): Caney Fork River at mile 8.6
HUC-12: 051301080806
Effluent Summary: Industrial process wastewater through Outfall 001
Treatment system: -

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
48hr LC50: Ceriodaphnia Dubia	All Year	2.6	DMin Conc	Percent	Annually	Composite	Effluent
48hr LC50: Fathead Minnows	All Year	2.6	DMin Conc	Percent	Annually	Composite	Effluent
Al (T)	All Year	36.26	DMax Conc	mg/L	Weekly	Composite	Effluent
Al (T)	All Year	18.69	MAvg Conc	mg/L	Weekly	Composite	Effluent
Cr (T)	All Year	2.31	DMax Conc	mg/L	Monthly	Composite	Effluent
Cr (T)	All Year	0.95	MAvg Conc	mg/L	Monthly	Composite	Effluent
Cyanide, Total (CN-)	All Year	1.82	DMax Conc	mg/L	Monthly	Grab	Effluent
Cyanide, Total (CN-)	All Year	0.31	MAvg Conc	mg/L	Monthly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	30	DMax Conc	mg/L	Weekly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	15	MAvg Conc	mg/L	Weekly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	381	DMax Load	lb/day	Weekly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	253	MAvg Load	lb/day	Weekly	Grab	Effluent
TSS	All Year	70	DMax Conc	mg/L	Weekly	Grab	Effluent
TSS	All Year	50	MAvg Conc	mg/L	Weekly	Grab	Effluent
TSS	All Year	756	DMax Load	lb/day	Weekly	Grab	Effluent
TSS	All Year	360	MAvg Load	lb/day	Weekly	Grab	Effluent
Zn (T)	All Year	7.71	DMax Conc	mg/L	Monthly	Composite	Effluent
Zn (T)	All Year	3.41	MAvg Conc	mg/L	Monthly	Composite	Effluent
pH	All Year	9	DMax Conc	SU	Weekly	Grab	Effluent
pH	All Year	6	DMin Conc	SU	Weekly	Grab	Effluent

Table 6-28. Permit Limits for Bon L Manufacturing Company.

EFO Comments:
Aluminum extrusion plant. Casts aluminum logs that are used in the extrusion process. Some are painted, anodized or fabricated.

The treatment system consists of two treatment lines with effluents combined prior to sampling and discharge. Paint line pretreatment undergoes chromium reduction, clarification and filtration. All other industrial wastewater goes through batch chemical treatment in complete mix flocculation tanks and a clarifier. De-foamer is blended in prior to discharge. Domestic wastewater is discharged to the Gordonsville Sewage Treatment Plant. Composite samples are collected flow proportional. Bon L uses a commercial lab to analyze for all permit parameters except pH and flow.

TN0075931 Van Buren County Industrial Park

Discharger rating: Minor
City: Spencer
County: Van Buren
EFO Name: Cookeville
Issuance Date: 2/28/02
Expiration Date: 2/28/07
Receiving Stream(s): Molloy Hollow Creek
HUC-12: 051301080602
Effluent Summary: Treated municipal wastewater
Treatment system: -

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
Ammonia as N (Total)	Summer	1.8	DMax Conc	mg/L	2/Month	Grab	Effluent
Ammonia as N (Total)	Summer	1.28	MAvg Conc	mg/L	2/Month	Grab	Effluent
Ammonia as N (Total)	Winter	3.2	DMax Conc	mg/L	2/Month	Grab	Effluent
Ammonia as N (Total)	Winter	2.11	MAvg Conc	mg/L	2/Month	Grab	Effluent
CBOD5	All Year	25	DMax Conc	mg/L	2/Month	Grab	Effluent
CBOD5	All Year	20	MAvg Conc	mg/L	2/Month	Grab	Effluent
D.O.	All Year	5	DMin Conc	mg/L	Weekdays	Grab	Effluent
Fecal Coliform	All Year	1000	DMax Conc	#/100mL	2/Month	Grab	Effluent
Fecal Coliform	All Year	200	MAvg Geo Mean	#/100mL	2/Month	Grab	Effluent
Settleable Solids	All Year	1	DMax Conc	mL/L	2/Week	Grab	Effluent
TRC	All Year	0.02	DMax Conc	mg/L	Weekdays	Grab	Effluent
TSS	All Year	40	DMax Conc	mg/L	2/Month	Grab	Effluent
TSS	All Year	30	MAvg Conc	mg/L	2/Month	Grab	Effluent
pH	All Year	8.5	DMax Conc	SU	2/Week	Grab	Effluent
pH	All Year	6.5	DMin Conc	SU	2/Week	Grab	Effluent

Table 6-29. Permit Limits for Van Buren County Industrial Park

EFO Comments:
None

TN0057894 Duromatic Products – Campaign

Discharger rating: Minor
City: Campaign
County: Warren
EFO Name: Cookeville
Issuance Date: 7/31/02
Expiration Date: 7/31/07
Receiving Stream(s): Wet weather conveyance to an unnamed tributary to a sinkhole
HUC-12: 051301080602
Effluent Summary: Treated industrial wastewater from electroplating operations from Outfall 002
Treatment system: -

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ag (T)	All Year	0.43	mg/L	DMax Conc	Semi-annually	Composite	Effluent
Ag (T)	All Year	0.24	mg/L	MAvg Conc	Semi-annually	Composite	Effluent
Cd (T)	All Year	0.69	mg/L	DMax Conc	Monthly	Composite	Effluent
Cd (T)	All Year	0.26	mg/L	MAvg Conc	Monthly	Composite	Effluent
Cr (T)	All Year	2.77	mg/L	DMax Conc	Weekly	Composite	Effluent
Cr (T)	All Year	1.71	mg/L	MAvg Conc	Weekly	Composite	Effluent
Cu (T)	All Year	3.38	mg/L	DMax Conc	Monthly	Composite	Effluent
Cu (T)	All Year	2.07	mg/L	MAvg Conc	Monthly	Composite	Effluent
Cyanide, Total (CN-)	All Year	1.2	mg/L	DMax Conc	Semi-annually	Grab	Effluent
Cyanide, Total (CN-)	All Year	0.65	mg/L	MAvg Conc	Semi-annually	Grab	Effluent
Flow	All Year		MGD	DMax Load	Continuous	Recorder	Effluent
Flow	All Year		MGD	MAvg Load	Continuous	Recorder	Effluent
Ni (T)	All Year	3.98	mg/L	DMax Conc	Monthly	Composite	Effluent
Ni (T)	All Year	2.38	mg/L	MAvg Conc	Monthly	Composite	Effluent
Oil and Grease (Freon EM)	All Year	52	mg/L	DMax Conc	Monthly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	26	mg/L	MAvg Conc	Monthly	Grab	Effluent
Pb (T)	All Year	0.69	mg/L	DMax Conc	Weekly	Composite	Effluent
Pb (T)	All Year	0.43	mg/L	MAvg Conc	Weekly	Composite	Effluent
TSS	All Year	60	mg/L	DMax Conc	Monthly	Composite	Effluent
TSS	All Year	31	mg/L	MAvg Conc	Monthly	Composite	Effluent
Total Toxic Organics (TTO) (40CFR433)	All Year	2.13	mg/L	DMax Conc	Annually	Grab	Effluent
Zn (T)	All Year	2.61	mg/L	DMax Conc	Monthly	Composite	Effluent
Zn (T)	All Year	1.48	mg/L	MAvg Conc	Monthly	Composite	Effluent
pH	All Year	9	SU	DMax Conc	Weekly	Grab	Effluent
pH	All Year	6.5	SU	DMin Conc	Weekly	Grab	Effluent

Table 6-30. Permit Limits for Duromatic Products – Campaign.

Compliance:

The following numbers of exceedences were noted in PCS:

- 5 Zinc
- 1 Silver
- 5 Total Chromium
- 7 Chromium Hexavalent

- 5 Total Nitrogen1 Oil and Grease

Enforcement:
Duromatic Products is currently under enforcement. Office of Attorney General is handling the case. NOV was issued in January 2004 for:

- permit limits violation for hexavalent chromium, total chromium, total zinc and pH
- Inadequate flow monitoring
- Not conducting required biomonitoring
- Inadequate reporting

The conditions continued and no improvement was observed as of January 2006.

Comments:
Electroplating, Plating, Polishing, Anodizing, and Coloring.

6.4.C. Water Treatment Permits

TN0005231 Cookeville Water Treatment Plant

City: Cookeville
County: Putnam
EFO Name: Cookeville
Issuance Date: 1/31/03
Expiration Date: 1/31/08
Receiving Stream: Alum Lick Branch at mile 1.0 to Mine Lick Creek at mile 4.2
HUC-12: 051301080803
Effluent Summary: Filter backwash from Outfall 001
Treatment system: Sedimentation lagoon

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
Fe (T)	All Year	5	DMax Conc	mg/L	Monthly	Composite	Effluent
Settleable Solids	All Year	0.5	DMax Conc	mL/L	Monthly	Grab	Effluent
TRC	All Year	1	DMax Conc	mg/L	Monthly	Grab	Effluent
TSS	All Year	40	DMax Conc	mg/L	Monthly	Grab	Effluent
pH	All Year	9	DMax Conc	SU	Monthly	Grab	Effluent
pH	All Year	6	DMin Conc	SU	Monthly	Grab	Effluent

Table 6-31. Permit Limits for Cookeville Water Treatment Plant.

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

- 2 pH
- 6 Settleable Solids
- 9 Iron
- 1 TSS

EFO Comments:
The Water Plant recently underwent an upgrade. Previously, chronic discharges from the sediment basin created Ferric Chloride releases to Alum Lick Branch, (Center Hill Lake). Notices of Violation were issued. Cookeville Water Plant completed construction of two large lagoons to handle the clarifier sludge and filter backwash water. The discharge is through the existing outfall. The existing intermediate filter backwash lagoon has been refurbished and lined with concrete. All discharges are captured and treated in the two lagoons.

TN0077968 Bon de Croft Utility District

City: Sparta
County: White
EFO Name: Cookeville
Issuance Date: 9/24/04
Expiration Date: 9/27/09
Receiving Stream: Unnamed tributary to Lost Creek
HUC-12: 051301080104
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Aluminum, Lime and Chlorine

Segment	TN05130108025_0500
Name	Lost Creek
Size	23.3
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Fish and Aquatic Life (Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	N/A
Sources	N/A

Table6-32. Stream Segment Information for Bon de Croft Utility District.

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

Table 6-33. Permit Limits for Bon de Croft Utility District.

EFO Comments:
A “Backwash Filter Treatment permit”. The system is small. Removal of backwash solids is difficult at this Water Treatment Plant.

TN0078182 Spencer Water Treatment Plant

City: Spencer
County: Van Buren
EFO Name: Cookeville
Issuance Date: 9/24/04
Expiration Date: 9/27/09
Receiving Stream: Unnamed tributary to Dry Creek to Laurel Creek
HUC-12: 051301080401
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment: KMnO4, alum, caustic soda, fluoride, sodium polyphosphate

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

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

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

- 14 Chlorine
- 2 Aluminum

EFO Comments:
None.

TN0064467 Dowelltown-Liberty Water Treatment Plant

City: Dowelltown
County: DeKalb
EFO Name: Cookeville
Issuance Date: 9/24/04
Expiration Date: 9/27/09
Receiving Stream: Dry Creek to Smith Fork Creek
HUC-12: 051301080903
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Aluminum sulfate

Segment	TN05130108004_1000
Name	Smith Fork Creek
Size	39.04
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Fish and Aquatic Life (Supporting), Recreation (Supporting), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	N/A
Sources	N/A

Table 6-35. Stream Segment Information for Dowelltown-Liberty WTP.

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

Table 6-36. Permit Limits for Dowelltown-Liberty Water Treatment Plant

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

- 1 Settleable Solids
- 3 Aluminum

EFO Comments:
A small source. Difficulty in removing solids from the sediment basins is a maintenance issue. Operators have been working on a method to effectively remove the solids.

TN0061131 Smith Utility District Water Treatment Plant

City: Carthage
County: Smith
EFO Name: Cookeville
Issuance Date: 9/24/04
Expiration Date: 9/27/09
Receiving Stream: Caney Fork River at mile 7.5
HUC-12: 051301080806
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Chlorine (Clart-Ion® A502.7P Liquid Coagulant alum blend), lime

Segment	TN05130108001_1000
Name	Caney Fork River
Size	20.5
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Industrial Water Supply (Supporting), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting), Fish and Aquatic Life (Supporting), Domestic Water Supply (Supporting), Recreation (Supporting)
Causes	N/A
Sources	N/A

Table 6-37. Stream Segment Information for Smith Utility District WTP.

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

Table 6-38. Permit Limits for Smith Utility District Water Treatment Plant.

EFO Comments:
A Backwash Filter Discharge to the Caney Fork River. It is downstream of the William L. Bonnell facility, which is an industrial source. The Water Treatment Plant is a small source and no major problems have been noted.

TN0077909 City of Crossville - Meadow Park Water Treatment Plant

City: Crossville
County: Cumberland
EFO Name: Cookeville
Issuance Date: 9/24/04
Expiration Date: 9/27/09
Receiving Stream: Meadow Creek
HUC-12: 051301080102
Effluent Summary: Filter backwash from Outfall 001
Treatment system: Iron, manganese, and turbidity removal. Add: thermodyne polymer, caustic soda, mixed oxidant disinfectant, floride, phosphate, and sodium bisulfate

Segment	TN05130108036_0700
Name	Hughes Creek
Size	24.93
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Recreation (Not Assessed), Irrigation (Supporting), Fish and Aquatic Life (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	N/A
Sources	N/A

Table 6-39. Stream Segment Information for City of Crossville – Meadow Park WTP.

PARAMETER	*SEASON*	*LIMIT*	*UNITS*	*SAMPLE DESIGNATOR*	*MONITORING FREQUENCY*	*SAMPLE TYPE*	*MONITORING LOCATION*
Fe (T)	All Year	2	DMax Conc	mg/L	Monthly	Grab	Effluent
Flow	All Year		DMax Load	MGD	Monthly	Instantaneous	Effluent
Settleable Solids	All Year	0.5	DMax Conc	mL/L	Monthly	Grab	Effluent
TRC	All Year	0.019	DMax Conc	mg/L	Monthly	Grab	Effluent
TSS	All Year	40	DMax Conc	mg/L	Monthly	Grab	Effluent
pH	All Year	9	DMax Conc	SU	Monthly	Grab	Effluent
pH	All Year	6.5	DMin Conc	SU	Monthly	Grab	Effluent

Table 6-40. Permit Limits for City of Crossville – Meadow Park Water Treatment Plant.

EFO Comments:
None.

TN0078263 Taft Youth Development Center Water Treatment Plant

City: Pikeville
County: Bledsoe
EFO Name: Chattanooga
Issuance Date: 9/29/04
Expiration Date: 9/27/09
Receiving Stream: Bee Creek at mile 9.5 to Caney Creek
HUC-12: 051301080201
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Settling, filtration; alum, chlorine, sodium silicofluoride

Segment	TN05130108033_2000
Name	Bee Creek
Size	16.67
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Domestic Water Supply (Supporting), Fish and Aquatic Life (Non-Supporting), Recreation (Supporting), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Alteration in stream-side or littoral vegetative covers, Sedimentation/Siltation
Sources	Grazing in Riparian or Shoreline Zones

Table 6-41. Permit Limits for Taft Youth Development Center WTP.

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

Table 6-42. Permit Limits for Taft Youth Development Center WTP.

EFO Comments:
Facility issued 2nd NOV on 11/28/05 for sediment flowing into Bee Creek due to backwash sedimentation basin overflow. This facility is on the same grounds as TN Department of Correction SE Regional Facility but is administered by the Department of Children's Services. It discharges to Bee Creek, which is designated as High Quality Waters. New Operator at this WTP.

TN0079103 Smithville Water Treatment Plant

City: Smithville
County: Dekalb
EFO Name: Cookeville
Issuance Date: 7/13/06
Expiration Date: 9/29/09
Receiving Stream: Unnamed tributary (Short Creek) to Center Hill Reservoir
HUC-12: 051301080201
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: Pax-XL 9 and aluminum for coagulant, caustic 50% for pH and alkalinity, and sodium fluorosilicate

Segment	TN05130108090_0999
Name	Misc Tribs to Center Hill
Size	78.8
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Recreation (Not Assessed), Irrigation (Not Assessed), Fish and Aquatic Life (Not Assessed), Livestock Watering and Wildlife (Not Assessed)
Causes	N/A
Sources	N/A

Table 6-43. Stream Segment Information for Smithville Water Treatment Plant.

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

Table 6-44. Permit Limits for Smithville Water Treatment Plant.

EFO Comments:
Iron, manganese and turbidity, removal gravity filter plant

TN0079006 Sparta Water Treatment Plant

City: Sparta
County: White
EFO Name: Cookeville
Issuance Date: 10/02/06
Expiration Date: 9/27/09
Receiving Stream: Calfkiller River at approximate mile 15
HUC-12: 051301080201
Effluent Summary: Filter backwash and/or sedimentation basin washdown from Outfall 001
Treatment system: -

Segment	TN05130108043_1000
Name	Calfkiller River
Size	18.7
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Fish and Aquatic Life (Supporting), Livestock Watering and Wildlife (Supporting), Industrial Water Supply (Supporting), Irrigation (Supporting), Recreation (Supporting)
Causes	N/A
Sources	N/A

Table 6-45. Stream Segment Information for Sparta Water Treatment Plant.

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

Table 6-46. Permit Limits for Sparta Water Treatment Plant.

EFO Comments:
None.

February 28, 2007 Newspaper Article:
http://www.spartaexpositor.com/newsdetail.asp?ArticleID=1662
Is water capacity threatened? (Expositor)
Rumors had begun to circulate the community about City of Sparta's water supply after public works director Ross Fann announced several feet of sludge would need to be removed from the bottoms of the vats that hold approximately 4 million gallons. Fann made the announcement during a recent meeting of Sparta Board of Mayor and Aldermen about the problem at the water plant, as well as explaining the procedure he would be using to remove the accumulated sludge. During a Thursday interview with Sparta Mayor Tommy Pedigo, he said he wanted to assure the community the quality of

the water has not been compromised. However, he elaborated about the sludge and what actually led to the buildup. Pedigo said water enters the plant from the river and specialized equipment separates the water from the silt. The water sits in the 12 "vats" and allows the silt to settle to the bottom. Then, paddles at the bottom of the vat move the silt into a trough. Specially designed slats, which slide back and forth, then move the silt out into a drying area. "Apparently those things broke," said Pedigo. "The only problem is you just can't leave it alone. It's eventually going to fill up." Pedigo was asked if the problem would endanger the quantity of the water supply, such as in the case of a structure fire. He said "yes" there was a capacity problem, but "no" there was not a problem with the amount of the water. That issue was more thoroughly answered with a tour of the water plant where Fann explained the process. A tour of the 30-year-old water plant showed half the vats were empty. Fann said the water quantity is not affected by the empty vats. The water processing must simply run more hours per day than usual to fill the tanks. Boards run lengthwise across the bottom of the vats. These boards are connected to a large chain and pulley. As the chain mechanism turns, the boards pull the silt backward into a valve that sends it into a washbasin. However, Fann said he discovered the chains were broken when city workers began to lower the water level to remove the sludge. Fann hopes to have the sludge completely removed this week from the side that is now empty. In addition, the chains must be repaired before the water can flow back into the vat. Then, the other half will be emptied, the sludge removed and any necessary repairs will be made. "One of the problems we found that we had was nobody was in charge," said Pedigo, as he talked about the problems Fann has discovered just since being appointed as public works director three months ago. "Nobody was really taking responsibility as far as on-the-site responsibility." Former utilities manager Wayne Rogers retired approximately two months ago. Rogers supervised the electric, water and sewer departments. Now, Fann has been named to the newly created position of public works director and oversees the water, sewer and street departments. L.R. West was recently hired as the electric system director "If you go into a water plant, you should see something that looks like a nuclear plant," said Pedigo. "It should be spotless. Something you're going to see when you go down there is something that's been ignored. When I talk to employees about this, they say, 'We told our superiors about this years ago, and they ignored it.'" Pedigo said Tennessee Department of Environment and Conservation's Nashville office was contacted about the sludge removal. He said city officials were told the sludge could be land-applied. "Because it's set in water so long it looks like real thin concrete – it's a white color," said Pedigo. "All it ends up being is basically sand and water." According to Pedigo, state officials said the sludge could be put on an open field where it would become part of the land again. City officials then began dumping the sludge at the industrial park. Pedigo said an unidentified person called the state and told officials the city was dumping sewer at the industrial park. Then, representatives from TDEC's Cookeville office came to Sparta to investigate the complaint and found the city was only dumping the sludge. The TDEC representatives agreed the city could land-apply the sludge, but said they could not "just open up the valve and run it directly off onto the ground." The sludge had to be "spread" across the ground. State officials then told city officials to stop the dumping process. State officials then went to the water plant to talk with personnel about the matter and, according to Pedigo, "found all these things that needed to be corrected." Pedigo said TDEC sent him a letter stating five problems had been found that needed to be remedied or the city "would be" in violation. The state's deadline is April 13. However, Pedigo said he gave water plant officials his personal deadline of April 1. "Nowhere have we ever been cited for the quality of our water," said Pedigo. Fann said the water plant is manned 16 hours a day. The lab will be renovated as part of the upgrades.

Pedigo specifically pointed out the “look” of the lab, which he said is in much worse condition that the lab at the sewer plant. However, he again emphasized the safety aspect. “No one’s water has been jeopardized in any way from the standpoint of the quality of water,” said Pedigo. The mayor stressed the water plant crew is making the needed changes, but he said something seems to keep “popping up” every few days. “When you turn over a rock thinking you’re going to find worms to fish, you turn over a rock and find a rattlesnake,” said Pedigo.
http://www.spartaexpositor.com/newsdetail.asp?ArticleID=1662

APPENDIX II

ID	NAME	HAZARD		ID	NAME	HAZARD
47001	Pine Lake	3		717004	Monterey Lake #2	3
47003	Meadow Creek	S		717007	Burgess Falls	2
47011	Clayborne	3		717008	Cane Creek #1	1
47012	Beecher Smith	L		717009	City Lake	2
47014	Brickerstaff Lake	Q		717011	Wright Dam	L
187001	Meadow Park Lake	2		777005	Studer	3
187005	Lake Alice	2		887001	Falls Creek Falls	1
187007	Laura	2		887002	Spencer Water Supply Dam	2
187016	Cherokee	3		897002	Boyd Brothers Lake	3
187017	Indian Rock	3		937001	Payne	L
187019	Smith	3		937002	Arrowhead Lake	3
187026	Davy Crockett	3		937003	Billy Branch	1
187028	Wyatt	3		937004	Wonder	3
187034	Dogwood #1	3		937005	Spain Lake	3
187035	Dogwood #2	3		937006	Key Acres	3
187036	Gross Lake	3		937007	Doe Creek	2
187037	Spring	2		937008	Knowles (Wheats Curve)	3
187038	Twin Lake	3		937009	Calfkiller River	3
187045	Taft Youth Center	1		937010	Austin	O
187053	Hale	L		937011	Metcalf	O
187054	Duncan Creek	S		937012	Firestone Co #2	3
217001	Colverts Lk	L		937013	Firestone Co #1	3
717002	Green Valley Farm Lake	3		937014	Davis #1	3
717003	Monterey Lake #1	3		937015	Davis #2	3
				947015	Whitworth	L

Table A2-1. Inventoried Dams in the Caney Fork 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.*

LAND COVER/LAND USE	ACRES	% OF WATERSHED
Open Water	18,670	1.6
Other Grasses	7,815	0.7
Pasture/Hay	185,210	16.1
Row Crops	57,298	5.0
Woody Wetlands	2,794	0.2
Emergent Herbaceous Wetlands	42	0.0
Deciduous Forest	619,226	53.9
Mixed Forest	150,929	13.1
Evergreen Forest	88,226	7.7
High Intensity: Commercial/Industrial	5,204	0.5
High Intensity: Residential	1,078	0.1
Low Intensity: Residential	7,645	0.7
Quarries/Strip Mines/Gravel Pits	719	0.1
Bare Rock/Sand/Clay	6	0.0
Transitional	4,737	0.4
Total	**1,149,600**	**100.1**

Table A2-2. Land Use Distribution in Caney Fork 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.*

ECOREGION	REFERENCE STREAM	WATERSHED (HUC)	
Cumberland Plateau (68a)	Rock Creek	South Fork Cumberland	05130104
	Laurel Creek	South Fork Cumberland	05130104
	Clear Creek	Emory River	06010208
	Piney Creek	Watts Bar/Fort Loudoun Lake	06010201
	Mullens Creek	Tennessee River	06020001
	Daddys Creek	Emory River	06010208
	Island Creek	Emory River	06010208
	Rock Creek	Emory River	06010208
Plateau Escarpment (68c)	Ellis Gap Branch	Tennessee River	06020001
	Mud Creek	Upper Elk River	06030003
	Crow Creek	Guntersville Lake	06030001
	Crow Creek	Guntersville Lake	06030001
Eastern Highland Rim (71g)	Flat Creek	Cordell Hull Lake	05130106
	Spring Creek	Cordell Hull lake	05130106
	Hurricane Creek	Upper Elk River	06030003
Outer Nashville Basin (71h)	Flynn Creek	Cordell Hull Lake	05130106
	Clear Fork	Caney Fork River	05130108
	Carson Fork	Stones River	05130203

Table A2-3. Ecoregion Monitoring Sites in Ecoregions 68a, 68c, 71g, and 71h.

CODE	NAME	AGENCY	AGENCY ID
12	TWRA HAMPTON CROSSROADS SWAMP SITE	TDEC/DNH	S.USTNHP 68
46	TDEC/DNH COOKEVILLE HIGH SCHOOL LOW WOODS SITE	TDEC/DNH	S.USTNHP 1446
47	TDEC/DNH BOOGER SWAMP STATE NATURAL AREA SITE	TDEC/DNH	M.USTNHP 1580
50	TDEC/DNH CENTER HILL MARSH SITE	TDEC/DNH	S.USTNHP 73
51	TDEC/DNH ANDERSON POND SITE	TDEC/DNH	S.USTNHP 101
82	TDEC/DNH GLADE CREEK SWAMP SITE	TDEC/DNH	
85	TDEC/DNH CURTISTOWN SEEP FOREST SITE	TDEC/DNH	S.USTNHP 341
114	TDEC/DNH DRY CREEK SINK SITE	TDEC/DNH	S.USTNHP 3
127	TDEC/DNH HICKORY VALLEY WETLANDS SITE	TDEC/DNH	S.USTNHP 17
135	TDEC/DNH SAMPLES FORK SITE	TDEC/DNH	
172	TDEC/DNH CUL-CAR-MAC GORGE SITE	TDEC/DNH	PATRICK
173	TDEC/DNH MEADOW CREEK ROAD SWAMP SITE	TDEC/DNH	
174	TDEC/DNH WHEELER BRANCH MEADOW SITE	TDEC/DNH	PATRICK
177	TDEC/DNH TURNER BRANCH LOW WOODS SITE	TDEC/DNH	PATRICK
181	TDEC/DNH BORDERLINE LOW WOODS SITE	TDEC/DNH	PATRICK
183	TDEC/DNH OVERCUP OAK SWAMP SITE	TDEC/DNH	PATRICK
184	TDEC/DNH BURTONS BRANCH SWAMP SITE	TDEC/DNH	PATRICK
187	TDEC/DNH ROCKY RIVER SITE	TDEC/DNH	
188	TDEC/DNH GREEN SEA BRANCH SITE	TDEC/DNH	
210	USACOE-NASHVILLE CLIENT SITE	USACOE-N	
223	USACOE-NASHVILLE CLIENT SITE	USACOE-N	
251	USACOE-NASHVILLE CLIENT SITE	USACOE-N	
257	USACOE-NASHVILLE CLIENT SITE	USACOE-N	
310	TDOT SR 26 MITIGATION SITE	TDOT	
317	TDOT SR 1 MITIGATION/PERMIT SITE	TDOT	
376	TDOT SR 290 MITIGATION SITE	TDOT	
383	TDOT SR 26 PERMIT SITE	TDOT	
443	TDEC/WPC CANE CREEK WPC PERMIT/MITIGATION SITE	TDEC/WPC	
478	TDEC/WPC INTERSTATE DRIVE WPC PERMIT SITE	TDEC/WPC	
480	TDEC/WPC NEAL STREET WEST EXTENSION PERMIT SITE	TDEC/WPC	
528	TDOT SR 136 MITIGATION SITE	TDOT	
529	TDOT SR 136 PERMIT SITE	TDOT	
879	USFWS BIBBY ERVIN WETLAND DETERMINATION SITE	USFWS	
930	TDEC/DNH REPORT: BLEDSOE COUNTY SITE 10	TDEC/DNH	F88JON01TNUS
944	TDEC/DNH REPORT: FENTRESS COUNTY SITE 29	TDEC/DNH	F88JON01TNUS
945	TDEC/DNH REPORT: WHITE COUNTY SITE 30	TDEC/DNH	F88JON01TNUS
946	TDEC/DNH REPORT: WHITE COUNTY SITE 35	TDEC/DNH	F88JON01TNUS
947	TDEC/DNH REPORT: VAN BUREN CO SITE 36	TDEC/DNH	F88JON01TNUS
948	TDEC/DNH REPORT: VAN BUREN CO SITE 37A	TDEC/DNH	F88JON01TNUS
951	TDEC/DNH REPORT: VAN BUREN/WARREN CO 40A	TDEC/DNH	F88JON01TNUS
952	TDEC/DNH RO REPORT: VAN BUREN/WARREN CO 40B	TDEC/DNH	F88JON01TNUS
953	TDEC/DNH REPORT: BLEDSOE CO SITE 41	TDEC/DNH	F88JON01TNUS
1911	TWRA ANDERSON POND SITE	TWRA	
1912	TWRA ANDERSON POND SITE	TWRA	
1913	TWRA ANDERSON POND SITE	TWRA	

1914	TWRA ANDERSON POND SITE	TWRA	
1915	TWRA ANDERSON POND SITE	TWRA	
1943	TWRA ANDERSON POND SITE	TWRA	
2039	TWRA PEA RIDGE SITE	TWRA	
2039	TWRA PEA RIDGE SITE	TWRA	
2040	TWRA PEA RIDGE SITE	TWRA	
2277	TWRA HAMPTON CROSSROADS SITE	TWRA	
2278	TWRA HAMPTON CROSSROADS SITE	TWRA	
2280	TWRA HAMPTON CROSSROADS SITE	TWRA	
2281	TWRA HAMPTON CROSSROADS SITE	TWRA	
2282	TWRA HAMPTON CROSSROADS SITE	TWRA	
2283	TWRA HAMPTON CROSSROADS SITE	TWRA	
2284	TWRA HAMPTON CROSSROADS SITE	TWRA	
2581	TWRA SITE	TWRA	
2696	NRCS SITE	NRCS	
2697	NRCS SITE	NRCS	
2749	TVA POND 10	TDEC/DNH	
2753	TVA POND 15	TDEC/DNH	
2758	TVA POND 20	TDEC/DNH	
2759	TVA POND 21	TDEC/DNH	
2780	TDEC/DNH BANKS MARSH SITE	TDEC/DNH	

Table A2-4. Wetland Sites in Caney Fork 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

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Barton Creek	TN05130108090_0300	11.2
Beaverdam Creek	TN05130108033_0200	28.2
Bob Creek	TN05130108027_0410	1.1
Bouldin Branch	TN05130108027_0720	2.5
Bridge Creek	TN05130108043_0100	45.8
Brush Creek	TN05130108002_0200	7.2
Buffalo Branch	TN05130108048_0100	6.1
Calfkiller River	TN05130108043_1000	27.1
Calfkiller River	TN05130108043_2000	25.1
Cane Creek	TN05130108027_1000	9
Cane Creek	TN05130108027_2000	14.7
Cane Creek	TN05130108027_3000	12.8
Cane Creek	TN05130108045_0100	19.1
Caney Fork River	TN05130108001_1000	20.5
Caney Fork River	TN05130108025_2000	68.2
Caney Fork River	TN05130108036_1000	24.1
Caney Fork River	TN05130108036_2000	46.5
Cedar Creek	TN05130108025_0100	6.2
Cherry Creek	TN05130108043_0500	11.7
Clear Fork Creek	TN05130108004_0200	65.3
Cliff Creek	TN05130108025_0200	4.7
Dry Creek	TN05130108004_0100	55.2
Dry Fork	TN05130108027_0800	23.7
Falling Water River	TN05130108045_2000	21.3
Glade Creek	TN05130108033_0300	18
Helton Creek	TN05130108004_0400	18.8
Hughes Creek	TN05130108036_0600	25
Laurel Creek	TN05130108024_0100	31.2
Laurel Creek	TN05130108036_0800	52.4
Little Cane Creek	TN05130108033_0100	13.4
Lost Creek	TN05130108025_0500	23.3
Meadow Creek	TN05130108036_0700	13.4
Mine Lick Creek	TN05130108097_1000	19.4
Mullherrin Creek	TN05130108001_0500	33
Newbell Branch	TN05130108002_0100	6.6
Pine Creek	TN05130108019_1000	39.5
Pokepatch Creek	TN05130108036_0300	5.1
Rocky River	TN05130108024_2000	8.2
Saunders Fork	TN05130108004_0300	55.9
Sink Creek	TN05130108021_1000	64.4
Smith Fork Creek	TN05130108004_1000	137.5
Spring Creek	TN05130108033_0400	9.8
Taylor Creek	TN05130108053_1000	31.8
Town Creek	TN05130108045_0200	10.3
Unnamed Trib to Piney Creek	TN05130108027_0710	3.8
Upper Fall Creek	TN05130108027_0610	4.6
West Fork Creek	TN05130108036_0200	10

Whiteoak Branch	TN05130108036_0400	5.4
Wildcat Creek	TN05130108043_0400	8.1
Wilkerson Creek	TN05130108036_0500	19.1

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

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Bee Creek	TN05130108033_1000	17.5
Blue Spring Creek	TN05130108043_0300	10.1
Cane Creek	TN05130108045_0110	10
Caney Fork River	TN05130108012_1000	6.4
Caney Fork River	TN05130108025_1000	1.4
Fall Creek	TN05130108684_2000	6.7
Falling Water River	TN05130108045_1000	8.8
Falling Water River	TN05130108045_3000	23.4
Ferguson Branch	TN05130108001_0200	5.8
Flyn Creek	TN05130108036_0810	2.8
Gardner Creek	TN05130108027_0300	3.1
Hickman Creek	TN05130108002_2000	22.2
Hickory Valley Branch	TN05130108025_0400	8.2
Hudgens Creek	TN05130108045_0300	6.7
Indian Creek	TN05130108048_1000	31
Lower Fall Creek	TN05130108027_0600	0.5
Piney Creek	TN05130108027_0700	28.8
Post Oak Creek	TN05130108045_0500	8.3
Puncheoncamp Creek	TN05130108036_0900	12.8
Rock Springs Branch	TN05130108001_0400	8.1
Rocky River	TN05130108024_1000	8.7
Snow Creek	TN05130108001_0100	7.6
Unnamed trib to Caney Fork River	TN05130108036_3000	3.5

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

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Bradden Creek	TN05130108033_0320	10.7
Clifty Creek	TN05130108036_0100	21.4
Dry Fork	TN05130108027_0810	16.7
Fall Creek	TN05130108684_1000	9.8
Lower Rocky River	TN05130108024_4000	17
Mine Lick Creek	TN05130108097_2000	3.4
Pigeon Roost Creek	TN05130108045_0400	10.6

Table A3-1c. Streams Not Supporting Designated Uses in Caney Fork River Watershed. *Data are based on Year 2000 Water Quality Assessment.*

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Bee Creek	TN05130108033_2000	50.6
Calfkiller River	TN05130108043_3000	47.7
Camps Gulf Branch	TN05130108027_0100	15.8
Doe Creek	TN05130108043_0200	10.4
Dyer Gulch Creek	TN05130108024_0300	17
Fox Thicket Creek	TN05130108027_0400	7.2
Glade Creek	TN05130108033_0310	29.4
Glade Creek	TN05130108045_0600	5.3
Great Falls Reservoir Minor Tribs.	TN0513010802217.6T_0999	10.7
Hickman Creek	TN05130108002_1000	17
Meadow Creek	TN05130108027_0500	15.2
Millstone Branch	TN05130108027_0900	6.6
Misc tribs to Rocky River	TN05130108024_1999	4.4
Misc tribs to Rocky River	TN05130108024_2999	27.5
Misc. tribs to Cane Creek	TN05130108027_0999	57.5
Misc. Tribs to Caney Fork	TN05130108012_0999	15.1
Misc. tribs. To Center Hill	TN05130108090_0999	78.8
Misc. Tributaries	TN05130108001_0999	28.7
Polebridge Creek	TN05130108027_0200	7.7
Rocky River	TN05130108024_3000	9.8
Samples Branch	TN05130108024_0200	11.8
St. Marys Branch	TN05130108001_0300	7.2

Table A3-1d. Streams Not Assessed in Caney Fork River Watershed. *Data are based on Year 2000 Water Quality Assessment.*

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (ACRES)
Center Hill Reservoir	TN05130108013_1000	23051
Fall Creek Falls Lake	TN05130108FCFLAKE_1000	351
Great Falls Reservoir	TN0513010802217.6_1000	2109
Spencer City Lake	TN05130108SPENCERCYLK_1000	16

Table A3-1e. Lakes Fully Supporting Designated Uses in Caney Fork River Watershed. *Data are based on Year 2000 Water Quality Assessment.*

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)	SUPPORT DESCRIPTION
Bee Creek	TN05130108033_1000	17.5	Partial
Bradden Creek	TN05130108033_0320	10.7	Not supporting
Cane Creek	TN05130108045_0110	10	Partial
Dry Fork	TN05130108027_0810	16.7	Not supporting
Fall Creek	TN05130108684_2000	6.7	Partial
Fall Creek	TN05130108684_1000	9.8	Not supporting
Ferguson Branch	TN05130108001_0200	5.8	Partial
Hickman Creek	TN05130108002_2000	22.2	Partial
Hickory Valley Branch	TN05130108025_0400	8.2	Partial
Hudgens Creek	TN05130108045_0300	6.7	Partial
Indian Creek	TN05130108048_1000	31	Partial
Lower Fall Creek	TN05130108027_0600	0.5	Partial
Pigeon Roost Creek	TN05130108045_0400	10.6	Not supporting
Piney Creek	TN05130108027_0700	28.8	Partial
Post Oak Creek	TN05130108045_0500	8.3	Partial
Rock Springs Branch	TN05130108001_0400	8.1	Partial
Snow Creek	TN05130108001_0100	7.6	Partial
Unnamed trib to Caney Fork River	TN05130108036_3000	3.5	Partial

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

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)	SUPPORT DESCRIPTION
Bradden Creek	TN05130108033_0320	10.7	Not supporting
Caney Fork River	TN05130108012_1000	6.4	Partial
Fall Creek	TN05130108684_1000	9.8	Not supporting
Falling Water River	TN05130108045_3000	23.4	Partial
Hickman Creek	TN05130108002_2000	22.2	Partial
Hickory Valley Branch	TN05130108025_0400	8.2	Partial
Mine Lick Creek	TN05130108097_2000	3.4	Not supporting
Pigeon Roost Creek	TN05130108045_0400	10.6	Not supporting

Table A3-2b. Stream Impairment due to Organic Enrichment/Low Dissolved Oxygen in Caney Fork River Watershed. *Data are based on Year 2000 Water Quality Assessment.*

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)	SUPPORT DESCRIPTION
Bee Creek	TN05130108033_1000	17.5	Partial
Blue Spring Creek	TN05130108043_0300	10.1	Partial
Fall Creek	TN05130108684_1000	9.8	Not supporting
Falling Water River	TN05130108045_1000	8.8	Partial
Ferguson Branch	TN05130108001_0200	5.8	Partial
Flyn Creek	TN05130108036_0810	2.8	Partial
Indian Creek	TN05130108048_1000	31	Partial
Post Oak Creek	TN05130108045_0500	8.3	Partial
Rock Springs Branch	TN05130108001_0400	8.1	Partial
Rocky River	TN05130108024_1000	8.7	Partial
Snow Creek	TN05130108001_0100	7.6	Partial

Table A3-2c. Stream Impairment Due to Siltation in Caney Fork River Watershed. *Data are based on Year 2000 Water Quality Assessment.*

SEGMENT NAME	WATERBODY SEGMENT ID	SIZE (MILES)	SUPPORT DESCRIPTION
Fall Creek	TN05130108684_1000	9.8	Not supporting
Mine Lick Creek	TN05130108097_2000	3.4	Not supporting

Table A3-2d. Stream Impairment due to Pathogens in Caney Fork River Watershed. *Data are based on Year 2000 Water Quality Assessment.*

APPENDIX IV

LAND USE/LAND COVER	AREAS IN HUC-10 SUBWATERSHEDS (ACRES)				
	01	02	03	04	05
Deciduous Forest	76,756	39,100	64,267	66,918	74,012
Emergent Herbaceous Wetlands		8	8		8
Evergreen Forest	29,683	9,452	10,701	6,272	5,154
High Intensity: Commercial/Industrial/Transportation	82	71	123	524	802
High Intensity: Residential	2	8	8	206	158
Low Intensity: Residential	227	101	130	1,072	1,111
Mixed Forest	18,689	11,537	20,167	15,738	16,308
Open Water	491	119	404	5,054	257
Other Grasses: Urban/Recreational	151	46	197	851	1,191
Pasture/Hay	13,592	10,750	7,445	39,434	23,089
Row Crops	1,609	1,803	1,091	21,040	7,064
Transitional	3,323	730	289	68	52
Woody Wetlands	105	860	266		1,212
Quarries/Strip Mines			7	31	104
Total	**144,709**	**74,585**	**105,103**	**157,209**	**130,522**

LAND USE/LAND COVER	AREAS IN HUC-10 SUBWATERSHEDS (ACRES)			
	06	07	08	09
Deciduous Forest	57,008	46,205	107,030	88,415
Emergent Herbaceous Wetlands	19			
Evergreen Forest	3,725	4,222	10,434	8,679
High Intensity: Commercial/Industrial/Transportation	205	2,295	931	177
High Intensity: Residential	24	518	73	25
Low Intensity: Residential	226	3,015	1,168	311
Mixed Forest	8,387	13,052	25,914	21,079
Open Water	245	242	11,640	211
Other Grasses: Urban/Recreational	234	3,497	1,412	196
Pasture/Hay	6,134	29,478	32,367	23,117
Row Crops	2,212	11,212	6,243	5,224
Transitional	83	121	47	29
Woody Wetlands	261			102
Bare Rock/Sand/Clay		4	3	
Quarries/Strip Mines		73	315	
Total	**78,763**	**113,932**	**197,578**	**147,567**

Table A4-1. Land Use Distribution in Caney Fork 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.*

HYDROLOGIC SOIL GROUPS
GROUP A SOILS have low runoff potential and high infiltration rates even when wet. They consist chiefly of sand and gravel and are well to excessively drained.
GROUP B SOILS 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.
GROUP C SOILS 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.
GROUP D SOILS have high runoff potential, very low infiltration rates, and consist chiefly of clay soils.

Table A4-2. Hydrologic Soil Groups in Tennessee as Described in WCS.

STATION	HUC-10	AGENCY	NAME	AREA (SQ MILES)	LOW FLOW (CFS)		
					1Q10	7Q10	3Q20
03418500	0513010801	USGS	Caney Fork River	111.0	0	0.08	0
03419110	0513010801	USGS	Caney Fork River	297.0			0
03418900	0513010802	USGS	Raccoon Creek				
03422500	0513010804	USGS	Caney Fork River	1,678.0	30.4	50.2	30.6
03419270	0513010805	USGS	Calfkiller River	37.7	3.0	3.2	2.6
03420000	0513010805	USGS	Calfkiller River	175.0	15.4	17.2	14.2
03422860	0513010807	USGS	Trib to Short Creek				
03423000	0513010807	USGS	Falling water River	67.0	2.14	2.76	2.09
36061008550401	0513010808	USACOE	Caney Fork River				
03423500	0513010808	USGS	Caney Fork River				

Table A4-3. Historical Streamflow Data Summary Based on Mean Daily Flows in Caney Fork River Watershed*. USGS, United States Geological Survey; USACOE, United States Army Corps of Engineers.*

PARAMETER	SUBWATERSHED						
	01	04	05	06	07	08	09
E. coli			J	$, α, β	%, ?, ♠	Λ	¥
Fecal Coliform		I	J	$, α, β	%, ?, ♠	Λ	¥
Enterococcus			J	α, β	%, ?, ♠	Λ	¥
Total Coliform				$	?	Λ	
Acidity				δ			
Alkalinity (Total)				δ			¥
BOD_5		I	#	α, β	%, £, ♠		
Color (Apparent)							¥
Color (True)							¥
Conductivity (Field)		I	J, #	$, α, β, δ	%, ?, £, ♠	Λ	¥
COD (Low)				$	?	Λ	
Depth		I					
DO		I	J, #	$, α, β, δ	%, ?, £, ♠	Λ	¥
Flow				δ			¥
Hardness (Total)		I	J, #	$, α, β, δ	?, £	Λ	¥
pH (Field)		I	J, #	$, α, β, δ	%, ?, ♠	Λ	¥
pH (Lab)					£		
Residue (Dissolved)				$, α	?	Λ	¥
Residue (Settlable)				δ	%, ♠		
Residue (Suspended)		I	#	$, α, β, δ	%, ?, £, ♠	Λ	¥
Temperature		I	J, #	$, α, β, δ	%, ?, £, ♠		¥
Turbidity							¥
Biorecon		I		α			
RBP III							¥
Ag		I	#	£			¥
Al				δ			
Ammonia N		I	J, #	$, α, β	%, ?, £, ♠	Λ	¥
As			J	$, α, β, δ	?	Λ	¥
Ca							
Cd		I	J, #	$, α, β, δ	?, £	Λ	¥
Cl^-							¥
CN^-							¥
Cr (Hexavalent)				$			
Cr (Total)		I	J, #	$, α, β, δ	?, £	Λ	
Cu		I	J, #	$, β, δ	?, £	Λ	¥
Fe			J	$, α, β, δ	?		¥
Hg		I	#	$	?, £	Λ	¥
Mn			J	$, α, β, δ	?	Λ	¥
N (Total Kjeldahl)			J	$, α	?	Λ	¥
Ni		I	J, #	$, α, β, δ	?, £	Λ	¥
NO_2+NO_3			J	$, α, β	%, ?, ♠	Λ	¥
P (Total)			J	$, α, β	%, ?, ♠	Λ	¥
Pb		I	J, #	$, α, β, δ	?, £	Λ	¥

SO_4			J	α, δ	%, ♠		¥
TOC							¥
Zn		I	J, #	$, α, β, δ	?, £	Λ	¥

Table A4-4a. Water Quality Parameters Monitored in the Caney Fork River Watershed. Codes are described in Table A4-4b.

CODE	STATION	ALIAS	AGENCY	LOCATION
A	CANEY028.4WH	CANEYFK14	TDEC	Caney Fork River @RM28.4
B	CANEY109.6WH	CANEYFK13	TDEC	Caney Fork River @ RM 109.6
C	CANE004.1VA	CANEYFK12	TDEC	Cane Creek @ RM 4.1
D	CANEY057.0DB	CANEYFK06	TDEC	Caney Fork River @ RM 57.0
E	CANEY086.1WH	CANEYFK07	TDEC	Caney Fork River @ RM 86.1
F	GREATFALLS01		TDEC	Great Falls Reservoir
G	GREATFALLS02		TDEC	Great Falls Reservoir
H	03422500		USGS	Caney Fork River @ RM 17.01
I	FALL004.7		TDEC	
J	CALFK002.9WH		TDEC	Calfkiller River @ RM 2.9
K	CALFK005.3WH	CANEYFK11	TDEC	Calfkiller River @ RM 5.3
L	CALFK012.6WH	CALFKILLERRIS15	TDEC	Calfkiller River @ RM 12.6
M	CALFK012.7WH	CALFKILLERRIS14	TDEC	Calfkiller River @ RM 12.77
N	CALFK012.85WH	CALFKILLERRIS12	TDEC	Calfkiller River @ RM 12.85
O	CALFK012.8WH	CALFKILLERRIS13	TDEC	Calfkiller River @ RM 12.8
P	CALFK012.9WH	CALFKILLERRIS11	TDEC	Calfkiller River @ RM 12.9
Q	CALFK013.05WH	CALFKILLERRIS10	TDEC	Calfkiller River @ RM 13.05
R	CALFK013.1WH	CALFKILLERRIS09	TDEC	Calfkiller River @ RM 13.1
S	CALFK013.2WH	CALFKILLERRIS08	TDEC	Calfkiller River @ RM 13.2
T	CALFK013.4WH	CALFKILLERRIS07	TDEC	Calfkiller River @ RM 13.4
U	CALFK013.5WH	CALFKILLERRIS06	TDEC	Calfkiller River @ RM 13.5
V	CALFK013.6WH	CALFKILLERRIS05	TDEC	Calfkiller River @ RM 13.6
W	CALFK013.8WH	CALFKILLERRIS04	TDEC	Calfkiller River @ RM 13.8
X	CALFK014.1WH	CALFKILLERRIS02	TDEC	Calfkiller River @ RM 14.1
Y	CALFK014.67WH	CALFKILLERRIS01	TDEC	Calfkiller River @ RM 14.67
Z	ECO71G05		TDEC	Cherry Creek @ RM 3.8
#	CALFKILLER011.5		TDEC	Calfkiller River @ RM 11.5
$	COLLI1T1.0WA		TDEC	Unnamed Trib to Collins River @ RM 1.0
α	ROCKY009.2VA		TDEC	Rocky River @ RM 9.2
β	ROCKY012.9VA		TDEC	Rocky River @ RM 12.9
γ	ROCKY010.9VA	CANEYFK10	TDEC	Rocky River @ RM 10.9
δ	ROCKY030.0VA	ROCKY030.0	TDEC	Rocky River @ RM 30.0
&	FALLI008.7PU	CANEYFK05	TDEC	Falling Water River @ RM 8.7
%	PROOS001.3PU	PIGEONROOST01.3	TDEC	Pigeon Roost Creek @ RM 1.3
@	03423400		USGS	Taylor Creek near Cassville
?	FWATE010.5PU	001295	TDEC	Falling Water River
£	FALLINGWATR46.1		TDEC	Falling Water River @ RM 46.1
♠	PROOS002.3PU	PIGEONROOST02.3	TDEC	Pigeon Roost Creek @ RM 2.3
♣	CANEY003.8SM	CANEYFK01	TDEC	Caney Fork River @ RM 3.8
♥	CANEY014.9SM	CANEYFK02	TDEC	Caney Fork River @ RM 14.9
♦	CANEY026.6DB	CANEYFK03	TDEC	Caney Fork River @ RM 26.6
♪	CFORK028.0DB	TISSUE47	TDEC	Caney Fork River @ RM 28.0
■	FALLI005.2PU	CANEYFK04	TDEC	Falling water River @ RM 5.2
▲	INDIA002.3PU	EC071H04	TDEC	Indian Creek @ RM 2.3
Λ	000460		TDEC	Caney Fork River @ RM 11.25
¶	TENNE649.2DB		TDEC	Tennessee River @ RM 649.2
Ø	03424730		USGS	Smith Fork @ Temperance Hall
¥	ECO71H06		TDEC	Clear Fork @ RM 6.8

Table A4-4b. Water Quality Monitoring Stations in the Caney Fork River Watershed*. TDEC, Tennessee Department of Environment and Conservation; USGS, United States Geologic Survey; TVA, Tennessee Valley Authority; NPS, National Park Service.*

FACILITY NUMBER	FACILITY NAME	SIC	SIC NAME	MADI	WATERBODY	HUC-10
TN0027618	Pleasant Hill Housing Project	4952	Sewerage Systems	Minor	Unnamed Trib to White Oak Creek @ RM 3.0	0513010801
TN0056626	TN DOC Southeast Regional Facility	4952	Sewerage Systems	Minor	Mill Creek @ RM 1.0	0513010802
TN0040568	TN-DOC Taft Youth Development Center STP	4952	Sewerage Systems	Minor	Drainageway to Bee Creek @ RM 7.3	0513010802
TN0040568	TN-DOC Taft Youth Development Center STP	4952	Sewerage Systems	Minor	Drainageway to Bee Creek @ RM 7.3	0513010802
TN0057908	Fall Creek Falls State Park	4952	Sewerage Systems	Minor	Fall Creek @ RM 1.5	0513010803
TN0042111	Rock Island State Park	4952	Sewerage Systems	Minor	Center Hill Lake	0513010804
TN0065358	Smithville STP	4952	Sewerage Systems	Major	Fall Creek @ RM 4.7	0513010804
TN0077691	Spencer STP - Caney Fork	4952	Sewerage Systems	Minor	Caney Fork River @ RM 100 or RM 104.6	0513010804
TN0061166	Sparta STP	4952	Sewerage Systems	Major	Calfkiller River @ RM 11.5	0513010805
TN0075931	Van Buren County Industrial Park	4952	Sewerage Systems	Minor	Molloy Hollow Creek @ RM 2.0	0513010806
TN0065013	Van Buren County High School	4952	Sewerage Systems	Minor	UT @ RM 1.2 to Laurel Creek @ RM 8.7	0513010806
TN0077704	Spencer STP	4952	Sewerage Systems	Minor	Headwaters of Lick Branch	0513010806
TN0024198	Cookeville STP	4952	Sewerage Systems	Major	Pigeon Roost Creek @ RM 2.3	0513010807
TN0064688	Monterey WWTP	4952	Sewerage Systems	Major	Unnamed Ditch @ mile 0.4 to Falling Water River @ RM 46.1	0513010807
TN0060054	Cane Creek Lake and Park	4952	Sewerage Systems	Minor	Cane Creek Embayment @ RM 15.6 and 15.9	0513010807
TN0021121	Baxter STP	4952	Sewerage Systems	Minor	Mine Lick Creek @ RM 15.4	0513010808
TN0021539	Alexandria STP	4952	Sewerage Systems	Minor	Hickman Creek @ RM 13.1	0513010808
TN0024490	I-40 Smith County Welcome Center	4952	Sewerage Systems	Minor	Caney Fork River @ RM 20.5	0513010808
TN0055409	Appalachian Center for Crafts	4952	Sewerage Systems	Minor	Caney Fork River @ RM 42.3	0513010808
TN0068128	Center Hill Hydro Plant	4911	Electric Power Distribution	Minor	Caney Fork River @ RM 26.0	0513010808
TN0059480	Edgar Evans State Park	4952	Sewerage Systems	Minor	UT @ RM 0.5 to Caney Fork River @ RM 30.5	0513010808

Table A4-5. Active Permitted Point Source Facilities in the Caney Fork River Watershed.
SIC, Standard Industrial Classification; MADI, Major Discharge Indicator.

FACILITY NUMBER	PERMITEE	SIC	SIC NAME	WATERBODY	HUC-10
TN0045641	Eastern Minerals Intl.	1222	Bituminous Coal Underground Mining	Cane Creek	0513010803
TN0071633	Cumberland Coal Co.	1221	Bituminous Coal and Lignite Surface Mining	Drainways to Island Creek and Rogers Creek	0513010804
TN0063282	Highways, Inc.	1442	Const. Sand and Gravel	Jake Hollow Branch Dry Valley Creek	0513010805
TN0072095	Middle TN Limestone, Inc.	1422	Crushed and Broken Limestone	Spring to Karst	0513010805
TN0066249	American Sand Supply	1442	Construction Sand and Gravel	Tayes Hollow	0513010805
TN0063509	Rogers Group	1422	Crushed and Broken Limestone	Sinkholes	0513010805
TN0065747	Rogers Group	1422	Crushed and Broken Limestone	Drainage to Calfkiller River	0513010805
TN0065757	**White County Highway Department**	1422	Crushed and Broken Limestone	Karst	0513010805
TN0054127	Skyline Coal Company	1221	Bituminous Coal and Lignite Surface Mining	Glady Fork, Spring Br, Rocky River	0513010806
TN0045951	Sequatchie Valley Coal Corp.	1221	Bituminous Coal and Lignite Surface Mining	Baltimore Branch	0513010806
TN0066575	Van Buren County Highway Department	1422	Crushed and Broken Limestone	Lost Cove Creek	0513010806
TN0062910	American Sand Supply	1442	Construction Sand and Gravel	Unnamed Trib to Dry Valley	0513010807
TN0066231	American Sand Supply	1442	Construction Sand and Gravel	Falling Water River	0513010807
TN0066265	American Sand Supply	1442	Construction Sand and Gravel	Falling Water River	0513010807
TN0066494	Vulcan Construction Materials	1422	Crushed and Broken Limestone	Coveyance to Falling Water River	0513010807
TN0065781	Putnam County Highway Department	1422	Crushed and Broken Limestone	Pigeon Roost Creek	0513010807
TN0029360	Pasminco Zinc, Inc.	1031	Lead and Zinc Ores	Unnamed Trib to Caney Fork River	0513010808
TN0004227	Pasminco Zinc, Inc	1031	Lead and Zinc Ores	Caney Fork River	0513010808
TN0069124	Rogers Group	1422	Crushed and Broken Limestone	Unnamed Trib to Caney Fork River	0513010808
TN0066320	Rogers Group	1422	Crushed and Broken Limestone	Smith Fork Unnamed Trib to Caney Fork River	0513010809

Table A4-6. Active Permitted Mining Sites in the Caney Fork River Watershed. *SIC, Standard Industrial Classification.*

FACILITY NUMBER	FACILITY NAME	SECTOR	RECEIVING STREAM	AREA*	HUC-10
TNR053977	Claysville Quarry	J	Bean Creek	24.0	0513010801
TNR054575	Manchester Tank	AA	Little Obed River	8.0	0513010801
TNR053905	Townsend Engineering	AA	Dry Fork Branch Benton Branch	14.8	0513010803
TNR050399	Federal-Mogul	AB	Eagle Creek	30.0	0513010804
TNR051305	SW Manufacturing, Inc.	AB	Smithville MS4	92.0	0513010804
TNR051810	AAA Coatings	AA	Ditch to Fall Creek	2.0	0513010804
TNR054281	Savage Lumber Co.	A	Caney Fork River	14.0	0513010804
TNR054291	Kitchen Craft and Design	W	Fall Creek	8.0	0513010804
TNR050260	White County Lumber	A		35.0	0513010805
TNR050279	Sparta Spoke Factory	A	Unknown	10.0	0513010805
TNR050339	Dixie-Imperial Plating	AA	Unnamed Trib to Hudgens Creek	2.8	0513010805
TNR051175	Mountainside Auto Parts	M	Unnamed Trib to Calfkiller River	10.0	0513010805
TNR051176	Scepter Hardwoods, Inc.	A	Calfkiller River	12.0	0513010805
TNR053557	United Parcel Service	P	Town Creek	1.25	0513010805
TNR053634	Honeywell International	C	Calfkiller River	4.42	0513010805
TNR054287	Bennett Industries	AB, AA	Sinkhole	1.72	0513010805
TNR054379	Big Bend Technology	AB	Unnamed Trib to Sinkhole to Calfkiller River	13.0	0513010805
TNR054405	Dunn and Bybee Tool Co.	AB	Town Creek	3.2	0513010805
TNR055904	Federal Express	S	Hudgens Creek	1.95	0513010805
TNR051559	Duromatic Products	AA	Unnamed Waterway	19.68	0513010806
TNR052043	TLT, Inc.	AD, W	Rocky River	5.9	0513010806
TNR050342	Bob's Auto Salvage	M	Unnamed Trib to Cane Ck	27.0	0513010807
TNR050343	Bob's Body Shop	M, K	Unnamed Trib to Cane Ck	15.0	0513010807
TNR050507	Tutco, Inc.	AB, AC	Unnamed Stream to Sinkhole	27.0	0513010807
TNR050519	Norwalk Furniture Corp.	W, A	Hudgens Creek	42.0	0513010807
TNR051289	Mid-Tenn Salvage	M	WWC to Unnamed Trib to Post Creek	10.8	0513010807
TNR051344	Union Tools, Inc.	A	Cain Creek	4.0	0513010807
TNR051491	PSC Metals, Inc.	N	Short Creek	4.0	0513010807
TNR051986	Highways, Inc.	AD, P	Hudgens Creek	10.0	0513010807
TNR053569	Foamex	Y	Pigeon Roost Creek	3.8	0513010807
TNR053623	Fleetguard, Inc.	AB	Unnamed Trib to Falling Water River	62.2	0513010807
TNR053875	Upper Cumberland Regional Airport	S	Sinkholes	0.99	0513010807
TNR53968	Cookeville Plating Co.	AA	Cookeville Stormwater to Unnamed Trib to Cane Ck	1.0	0513010807
TNR54001	Eastern Foam Products	Y	Burtons Branch	9.78	0513010807
TNR54087	Con-Way Southern Express	P	Pigeon Roost Creek	2.0	0513010807
TNR54146	TTU Boiler Plant	AD	Unnamed Trib to Short Ck	1.0	0513010807
TNR54330	Fibercel Corporation	B	Unknown	2.2	0513010807
TNR54496	Leonard Machine	AA	Metro Storm Sewer	5.35	0513010807
TNR54521	G & L Manufacturing	AA	Burton Branch	19.0	0513010807

TNR54529	H.H. Compro, Inc	AC	Pigeon Roost Creek	0.3	0513010807
TNR50300	Dana Corporation	AB	Mulherrin Creek	25.0	0513010808
TNR50418	Indiana Hardwood	A, P	Mulherrin Creek	110.81	0513010808
TNR50919	Kingston	AC	Fall Creek	1.62	0513010808
TNR53058	Packaging Corporation	N	Cumberland River	2.0	0513010808
TNR53852	Meritor Light Vehicle Systems	AB	Mulherrin Creek	11.24	0513010808
TNR53862	Arvin Meritor	AB	Mulherrin Creek	4.0	0513010808
TNR53907	William L. Bonell Company	AA, F, L	Caney Fork	36.5	0513010808
TNR54326	Overstreet-Hughes Co.	AA	Caney Fork	10.98	0513010808

Table A4-7. Active Permitted TMSP Facilities in the Caney Fork River Watershed. *Area, acres of property associated with industrial activity; WWC, Wet Weather Conveyance. Sector details may be found in Table A4-8.*

SECTOR	TMSP SECTOR NAME
A	Timber Products Facilities
AA	Facilities That Manufacture Metal Products including Jewelry, Silverware and Plated Ware
AB	Facilities That Manufacture Transportation Equipment, Industrial or Commercial Machinery
AC	Facilities That Manufacture Electronic and Electrical Equipment and Components, Photographic and Optical Goods
AD	Facilities That Are Not Covered Under Sectors A Thru AC (Monitoring Required)
AE	Facilities That Are Not Covered Under Sectors A Thru AC (Monitoring Not Required)
B	Paper and Allied Products Manufacturing Facilities
C	Chemical and Allied Products Manufacturing Facilities
D	Asphalt Paving, Roofing Materials, and Lubricant Manufacturing Facilities
E	Glass, Clay, Cement, Concrete, and Gypsum Product Manufacturing Facilities
F	Primary Metals Facilities
G	Metal Mines (Ore Mining and Dressing) (RESERVED)
H	Inactive Coal Mines and Inactive Coal Mining-Related Facilities
I	Oil or Gas Extraction Facilities
J	Construction Sand and Gravel Mining and Processing and Dimension Stone Mining and Quarrying Facilities
K	Hazardous Waste Treatment Storage or Disposal Facilities
L	Landfills and Land Application Sites
M	Automobile Salvage Yards
N	Scrap Recycling and Waste and Recycling Facilities
O	Steam Electric Power Generating Facilities
P	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
Q	Vehicle Maintenance Areas and Equipment Cleaning Areas of Water Transportation Facilities
R	Ship or Boat Building and Repair Yards
S	Vehicle Maintenance Areas, Equipment Cleaning Areas or From Airport Deicing Operations located at Air Transportation Facilities
T	Wastewater Treatment Works
U	Food and Kindred Products Facilities
V	Textile Mills, Apparel and other Fabric Product Manufacturing Facilities
W	Furniture and Fixture Manufacturing Facilities
X	Printing and Platemaking Facilities
Y	Rubber and Miscellaneous Plastic Product Manufacturing Facilities
Z	Leather Tanning and Finishing Facilities

Table A4-8. TMSP Sectors and Descriptions.

LOG NUMBER	COUNTY	DESCRIPTION	WATERBODY	HUC-10
99.005	Van Buren	Pond Creation	Unnamed Trib to Spring Creek	0513010802
NRS02.002	Van Buren	Channel Relocation	Dry Fork Creek	0513010803
96.632	Van Buren	Box Culvert	Piney Creek	0513010803
98.405	Van Buren	Road Crossing	Gulf Branch	0513010803
99.254	Van Buren	Box Culvert	Rockhouse Creek	0513010803
96.317	White	Bridge Replacement	Unnamed Tributary	0513010804
96.805	DeKalb	Natural Gas Pipeline	Fall Creek	0513010804
98.263	DeKalb	Bridge Replacement	Unnamed Tributary	0513010804
9810.223	DeKalb	Gravel Dredging	Fall Creek	0513010804
99.418	DeKalb	Debris Removal	Fall Creek	0513010804
98.131	White	Launching Ramp	Calfkiller River	0513010805
98.430	Van Buren	Dam/Impoundment	Unnamed Trib to Rocky River	0513010806
96.428	Putnam	Bridge Construction	Cleghorn Creek	0513010807
97.632	Putnam	Stream Widening	Unnamed Trib to Short Creek	0513010807
98.012	DeKalb	Bridge Construction	Smith Fork Creek	0513010807
98.244	White	Bridge replacement	Taylor Creek	0513010807
98.261	Putnam	Impoundment	Falling Water River	0513010807
99.015	Putnam	Bridge Replacement	WWC to Trib to Caney Fork River	0513010807
99.135	Smith	Culvert	Unnamed Trib to Dry Fork Creek	0513010807
NRS000.122	Van Buren	Impoundment	Unnamed Trib to Dry Fork Creek	0513010808
NRS01.224	Van Buren	Impoundment	Unnamed Trib to Dry Fork Creek	0513010808
96.548	Smith	Sewer Line Crossing	Unnamed Trib to Mulherrin Creek	0513010808
96.625	Putnam	Railroad Crossing	Mine Lick Creek	0513010808
96.854	Smith	Bank Stabilization	Dennys Branch Mulherrin Creek	0513010808
96.957	DeKalb	Reregulation Weir	Caney Fork	0513010808
97.154	Smith, DeKalb	Habitat Restoration	Caney Fork	0513010808
97.710	Smith	Rip-Rap	Hickman Creek	0513010808
98.004	Smith	RR Trestle Replacement	Hickman Creek	0513010808
98.312	Putnam	Bridge Replacement	Unnamed Trib to Mine Lick Creek	0513010808
98.413	Smith	Bridge Replacement	Dry Fork Creek	0513010808
9810.006	Putnam	Gravel Dredging	Indian Creek	0513010808
9810.186	Putnam	Stream restoration	Little Indian Creek	0513010808
9810.187	Putnam	Bank Stabilization	Little Indian Creek	0513010808
99.123	Putnam	Bridge Widening	Indian Creek	0513010808
99.317	Smith	Gravel Dredging	Snow Creek	0513010808
00.064	DeKalb	Box Culvert Extension	Indian Creek	0513010808
00.065	DeKalb	Box Culvert Extension	Indian Creek	0513010808
00.066	DeKalb	Box Culvert Extension	Camp Branch	0513010808
94.053	DeKalb	Gravel Dredging	Possum Branch Dry Creek	0513010809
94.146	Cannon	Gravel Dredging	Hurricane Creek	0513010809
94.475	DeKalb	Gravel Dredging	Smith Fork Creek	0513010809
94.516	DeKalb	Gravel Dredging	Dry Creek	0513010809
94.748	DeKalb	Gravel Dredging	Smith Fork Creek	0513010809

96.270	DeKalb	Construction of WWC	Helton Creek	0513010809
96.457	Cannon	Gravel Dredging	Clear Fork Creek	0513010809
96.458	DeKalb	Gravel Dredging	Dry Creek	0513010809
96.584	DeKalb	Gravel Dredging	Smith Fork Creek	0513010809
97.294	Cannon	Debris Removal	Connell Creek	0513010809
97.712	DeKalb	Bank Stabilization	Dismal Creek	0513010809
98.281	Cannon	Rip-Rap	Saunders Fork Creek	0513010809
9810.002	Cannon	Gravel Dredging	Clear Fork Creek	0513010809
9810.020	Cannon	Gravel Dredging	Sanders Fork Creek	0513010809
9810.071	DeKalb	Gravel Dredging	Dry Creek	0513010809
9810.072	DeKalb	Gravel Dredging	Dry Creek	0513010809
9810.073	DeKalb	Gravel Dredging	Dry Creek	0513010809
9810.074	DeKalb	Gravel Dredging	Dry Creek	0513010809
9810.075	DeKalb	Gravel Dredging	Dry Creek	0513010809
9810.076	DeKalb	Gravel Dredging	Dry Creek	0513010809
9810.077	DeKalb	Gravel Dredging	Dry Creek	0513010809
9810.078	DeKalb	Gravel Dredging	Dry Creek	0513010809
9910.165	DeKalb	Gravel Dredging	Smith Fork Creek	0513010809
9910.166	DeKalb	Gravel Dredging	Clear Fork Creek	0513010809
9910.167	DeKalb	Gravel Dredging	Clear Fork Creek	0513010809
00.057	DeKalb	Box Culvert Extension	Driver Branch	0513010809
00.059	DeKalb	Gravel Dredging	Driver Branch	0513010809
00.060	DeKalb	Gravel Dredging	Driver Branch	0513010809
00.061	DeKalb	Gravel Dredging	Driver Branch	0513010809
00.062	DeKalb	Gravel Dredging	Driver Branch	0513010809
00.063	DeKalb	Gravel Dredging	Driver Branch	0513010809
00.067	DeKalb	Gravel Dredging	Driver Branch	0513010809

Table A4-9. Individual ARAP Permits Issued January 1994 Through June 2001 in Caney Fork River Watershed.

FACILITY NUMBER	PERMITEE	SIC	SIC NAME	MADI	WATERBODY	HUC-10
TN0044968	Bon de Croft Utility District	4941	Water Supply	Minor	UT to Lost Creek Source of raw water Billys Branch Lake (Sky Lake)	0513010801
TN0005231	Cookeville WTP	4941	Water Supply	Minor	Alum Lick Branch @ RM 1.0 to Mine Lick Creek @ RM 4.2	0513010808
TN0064467	Dowelltown-Liberty WTP	4941	Water Supply	Minor	UT to Gray's Creek	0513010809

Table Active Permitted Water Treatment Plants in the Caney Fork River Watershed. *SIC, Standard Industrial Classification; MADI, Major Discharge Indicator.*

APPENDIX V

CONSERVATION PRACTICE	UNITS	AMOUNT
Alley Cropping	Acres	0
Contour Buffer Strips	Acres	21
Crosswind Trap Strips	Acres	0
Field Borders	Feet	3,450
Filter Strips	Acres	4
Grassed Waterways	Acres	1
Riparian Forest Buffers	Acres	112
Streambank and Shoreline Protection	Feet	7456
Windbreaks and Shelterbelts	Feet	0
Hedgerow Plantings	Feet	0
Herbaceous Wind Barriers	Feet	0
Total Conservation Buffers	Acres	142

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

PARAMETER	TOTAL
Erosion Reduction Applied (Acres)	4,644
Highly Erodible Land With Erosion Control Practices (Acres)	3,785
Estimated Annual Soil Saved By Erosion Control Measures (Tons/Year)	38,671
Total Estimated Soil Saved (Tons/Year)	39,626

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

PARAMETER	TOTAL
Acres of AFO Nutrient Management Applied	326
Acres of Non-AFO Nutrient Management Applied	6,488
Total Acres Applied	6,814

Table A5-1c. Nutrient Management Conservation Practices in Partnership with NRCS in Caney Fork River Watershed. *Data are from PRMS for October 1, 2001 through September 30, 2002 reporting period.*

PARAMETER	TOTAL
Acres of Pest Management Systems Applied	6,274

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

CONSERVATION PRACTICE	ACRES
Acres Prepared for Revegetation of Forestland	0
Acres Improved Through Forest Stand Improvement	1,676
Acres of Tree and Shrub Establishment	77

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

CONSERVATION PRACTICE	ACRES
Acres of Wetlands Created or Restored	5
Acres of Wetlands Enhanced	0
Total Acres Created, Restored, or Enhanced	5

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

CONSERVATION PRACTICE	ACRES
Acres of Upland Habitat Management	1,413
Acres of Wetland Habitat Management	0
Total Acres Wildlife Habitat Management	1,413

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

COMMUNITY	PROJECT DESCRIPTION	AWARD DATE	AWARD AMOUNT
Baxter	Wastewater Collection System	03/02/92	$201,014
Spencer	Wastewater Treatment Plant and Collection	01/05/00	$235,818

Table A5-2. Communities in Caney Fork River Watershed Receiving SRF Grants or Loans.

NRCS CODE	PRACTICE	NUMBER OF BMPs
312	Waste Management System	4
342	Critical Area Treatment	16
378	Pond	27
382	Fencing	36
382d	Cross Fencing	1
391	Riparian Zone	1
410	Grade Stabilization	6
412	Waterway	1
447	Tail Water Recovery System	1
472	Livestock Exclusion	11
512	Pasture or Hayland Renovation	89
512a	Cropland Conversion	4
516	Pipeline	14
528	Prescribed Grazing	8
528a	Sinkhole Protection	2
561	Heavy Use Area	56
574	Spring development	4
576	Stream Crossing	7
580	Streambank Stabilization	2
590	Nutrient Management	1
614	Tank or Trough	48
634	Manure Transfer	1
638	Sediment Control Basin	2

Table A5-3. Best Management Practices Installed by Tennessee Department of Agriculture and Partners in Caney Fork River Watershed.