

# **Annual Capacity Development Report**



**Report Submitted to the  
Environmental Protection Agency  
Prepared by the  
Tennessee Department of Environment and Conservation  
Division of Water Resources  
Requirement of Section 1420, Federal Safe Drinking Water Act**

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## **Executive Summary**

The Federal Safe Drinking Water Act (SDWA), Section 1420 requires that a State with a capacity development strategy submit an Annual State Capacity Development Program Implementation Report. This report is an evaluative assessment of Tennessee's strategy and progress made toward improving the technical, managerial, and financial capacity of public water systems in the state. This report is intended to fulfill the requirement of Section 1420(b)(2). This is the first year that the report is being prepared under the Division of Water Resources division title. Historically, the Division of Water Supply has maintained the drinking water program but that Division has now merged with the Tennessee Department of Environment and Conservation's (TDEC) other "water programs" of Water Pollution Control (stream protection and wastewater discharge) and Ground Water Protection (subsurface sewage disposal). This merger has been in an effort for increased coordination, cross training and economies of scale.

In response to Federal requirements Tennessee's Drinking Water Rules were amended to require all new public water systems to demonstrate technical, managerial and financial capacity or in other words show that they are "viable" when they begin serving water to the public. All new water systems are required to develop a "capacity development plan" including a business plan that demonstrates the system can be in compliance with the Safe Drinking Water Act on the day they begin serving water. Water system capacity is the ability to achieve and maintain compliance with all applicable drinking water standards. Systems that cannot demonstrate capacity are not approved.

To address the viability of existing water systems, Tennessee has adopted a Capacity Development Strategy, which focuses on issues of viability for all existing water systems. Tennessee's Capacity Development Strategy requires all existing public water systems in "significant non-compliance" (as defined by the Environmental Protection Agency) to develop plans showing that sufficient revenue is available and that the water system has adequate management and technical capability to operate in compliance with the SDWA. Requiring water systems to demonstrate capacity has prevented marginally funded water systems from starting operation, accelerated the compliance of existing systems in significant non-compliance (SNC) and has encouraged potentially significant non-compliers to make extra efforts to achieve a satisfactory compliance status. EPA has transitioned from the significant non-compliance method of determining violations to the enforcement tracking tool (ETT) which more holistically considers a system's operational issues. The SNC list only scored within specific rules (e.g., 3 major violations of the Long Term 2 Surface Water Treatment Rule) whereas ETT comes up with a hybrid score across rules (a score of concern could be a combined total from the Disinfection Byproduct Rule and the Long Term 2 Surface Water Treatment Rule).

Appendix 1 has the most recent list of water systems with violations scoring 5 or above with their Enforcement Targeting Tool (ETT) scores and enforcement status. Those scoring 11 or higher are required by EPA to be targeted for enforcement.

The capacity development strategy has encouraged regional approaches to supply water to potential customers and encourages system operators to better network among themselves; take advantage of economies of scale where possible; focus on serving larger numbers of customers and finally, make multiple kinds of training, education and technical assistance available to operators, water system managers, board members, and other water system personnel.

This document provides an evaluative assessment on the success and effectiveness of the state's continuing efforts to ensure capacity development of public water systems in Tennessee and the State's Capacity Development Strategy.

### **The Need for a Capacity Development Strategy**

The 1974 Federal Safe Drinking Water Act requires that all states ensure that providers of drinking water meet minimum national standards. Initially, it was envisioned by the EPA that public notification requirements, coupled with citizen pressure and potential litigation would make enforcement of the provisions of the act "largely unnecessary." In the years that followed the initial act, the EPA has come to recognize that states must assume primary enforcement responsibility for compliance with the Act. Further, the EPA and the states have come to realize that full compliance can only be achieved through capacity development, that is, the improved financial, technical and managerial ability of a water system to comply with ever-changing and increasingly complex public water system regulations.

To address the capacity development needs of public water systems, the Federal Safe Drinking Water Act Amendments of 1996 mandate that states ensure that all new community water systems (CWSs) and all new non-transient, non-community water systems (NTNCWS) demonstrate capacity to implement each drinking water regulation in effect. Section 1420(a) of the Federal Safe Drinking Water Act requires that a State obtain the legal authority or other means to ensure that all new community water systems and new non-transient, non-community water systems commencing operation after October 1, 1999 demonstrate technical, managerial and financial capacity, or lose a portion (20%) of the monies allotted for the State's drinking water revolving loan fund (DWSRF). The intent behind the amendment is that a community water system and certain non-community systems not be created or allowed to operate if they do not have the ability or "capacity" to comply with Safe Drinking Water regulations.

In addition, the 1996 amendments require states to prepare a "capacity development strategy" to identify and prioritize water systems lacking capacity to comply consistently

with drinking water regulations. Although states may have undertaken efforts prior to 1996 to improve the viability of public water systems to comply with Safe Drinking Water Act provisions, states must now focus on the broad issue of system capacity and formally develop plans with initiatives designed to improve the overall compliance of water systems under their purview. A Capacity Development Strategy is an important state perspective, not taken by all states until passage of the amendments. It is an oversight responsibility whereby states are compelled to make a systematic review of water system capacities and undertake strategic and proactive initiatives in building system capacities.

To determine the effectiveness of Tennessee's Capacity Development Strategy, the Division of Water Resources has compared the list of public water systems with a history of significant non-compliance from 1997 to 2007 (Appendix 2: 92 systems have historically been on the SNC list) to those systems with a current history of violations (See Appendix 1, Enforcement Targeting Tool Systems List). There are six water systems that have a score of 11 or higher on the Enforcement Targeting Tool as of October 30, 2012. In 2011, there were 13 systems scoring 11 or above. The results from prior years reflect an improved capacity of many water systems to comply with established SDWA requirements, as most non-compliance violations are the result of more recently adopted rules, documenting in effect their implementation (e.g. Disinfection By-Products Rule and the Interim Enhanced Surface Water Treatment Rule, Ground Water Rule). The majority of the violations listed for the October 2012 ETT list are for monitoring/reporting violations of the Total Coliform Rule (TCR), the Long Term 1 Enhanced Surface Water Treatment Rule and the Long Term 2 Surface Water Treatment Rule. There are a very small number of MCL violations for the TCR and treatment technique violations for turbidity. The low number of systems on the ETT list and the predominant nature of the violations shows that Tennessee systems are overwhelmingly doing a good job at maintaining managerial, technical and financial capacity. Improved sanitary survey scores and increases in the number and technical classification of certified operators also indicate improved capacity. Tennessee has been strongly encouraging systems serving over 10,000 in population with surface water sources to have operators certified to that level in attendance at all times the water plant is in operation. There are considerations being made of making this mandatory through a rule change in the rules under the Environmental Health Act that regulate operator certification.

The sections that follow summarize Tennessee's Capacity Development Strategy, implementation of the strategy, and an evaluation of the strategy, including an identification of the barriers that hamper the strategy's effectiveness.

## **State Objectives and Strategy**

In order to identify the technical, managerial, and financial factors in Tennessee which contribute to federal drinking water program non-compliance, the former Division of Water Supply engaged in a dialogue with stakeholders, generally referred to as the Capacity Development Committee, composed of technical assistance providers, public water systems, consulting engineers, certified water treatment operators, and environmental groups. In addition, meetings were also held with the Tennessee Association of Utility Districts (TAUD), the University of Tennessee Municipal Technical Advisory Service (MTAS) and the Small Community Outreach and Education Committee. Citizens and water customers were encouraged to comment via telephone, e-mail and letter. With their insights and suggestions, the Division of Water Supply developed a strategy. A major objective to emerge from the meetings was that the strategy recognize the many technical capacity development assistance activities already in place, e.g. operator certification, plans approval, system sanitary survey assessments, technical and managerial assistance from the Tennessee Association of Utility Districts and the American Water Works Association (AWWA), which contribute to the capacity of a water system. The strategy itself compels regulators to take a holistic view of the drinking water industry and its partnership in Tennessee. With that mind, it is the task of the strategy to look for ways to identify areas for improved coordination, which integrates Tennessee's capacity developing elements.

Tennessee's Capacity Development Strategy process made a comprehensive assessment of available capacity developing resources, bringing together and looking at the sum of seemingly disparate programs intended to help water systems become healthy, viable systems and finding ways to improve each program's effectiveness and then focusing attention and resources on those systems in order to achieve the goal of viable water systems. The benefit of the Capacity Development Strategy is that the State is able to review the broad range of efforts (programs and activities) currently offered and undertaken to maintain or develop or improve capacity and in a comprehensive way identify any gaps and areas of weakness available to various types of systems. The Capacity Development Committee, recognizing Tennessee's previous efforts and its strengths, determined that the driving mechanism to an effective state strategy overarching an array of resources is the State's enforcement capability. The State is served well by the consistent, even-handed application of enforcement with respect to the development of capacity by public water systems when other avenues such as education, training and technical assistance do not achieve compliance with the Safe Drinking Water Act.

Over the years, operator training was targeted for water systems lacking qualified technical personnel; grants and loans were made available to systems needing infrastructure improvements; procedures were developed creating enforcement programs, and TDEC's Fleming Training Center as well as third party operator training programs were offered by the Tennessee Association of Utility Districts, the University of Tennessee Municipal Technical Advisory Service, and others. Other technical and financial controls were developed, including design standards, on-site inspections and on-site technical assistance. The Utility Management Review Board (UMRB), the Water and Wastewater Financing

Board (WWFB) and the Division of Municipal Audit, all conduct financial reviews of water systems and are within the State Comptroller of the Treasury's Department. Water systems with a negative change in net assets are considered by law to be under "financial distress" after 2 years and subject to board action (WWFB or UMRB, depending on whether it is a municipality or utility). Systems are also subject to board action for excessive water loss. The Division of Water Resources supplies the Commissioner's designee for the two boards (WWFB and UMRB) and this designee has been supplied by the former Division of Water Supply since March of 2009. Division of Water Resources now includes the former Divisions of Water Pollution Control (stream protection and wastewater), Ground Water Protection (subsurface sewage disposal) and Water Supply (public water supply/drinking water program). The designee has been able to very successfully provide close technical assistance, input and communication from the Division to the two boards.

These and other mechanisms have been applied to improve or develop water system capacity and have been in place in Tennessee for many years. More recently however, financial and managerial resources have been developed and applied in order to improve capacity. These resources include management training for commissioners and/or system managers lacking operational water system management knowledge and/or experience. In 2009, the state legislature added the requirement that the Utilities Management Review Board must approve any new utility district being formed (T.C.A. 7-82-202(a)). In 2010, the legislature again modified the law to give the UMRB the authority to remove commissioners of utility districts for just cause (T.C.A. 7-82-307(b)(3)) and added a requirement for continuing education for utility commissioners (T.C.A. 7-82-308(h)). In the 2009 legislative session the Water Wastewater Finance Board and the Utilities Management Review Board were also given the responsibility of setting acceptable water loss rates and addressing those systems with exorbitantly high losses (T.C.A. 68-221-1009(a)(8) and T.C.A. 7-82-401(h), respectively). High water loss tends to go hand in hand with systems being in financial distress. In 2011 the legislature modified the way in which utility commissioners are appointed, removing the option of a self-appointing board of commissioners and placing the authority to appoint commissioners with the county mayor (county executive) or by plurality of vote of the customers (T.C.A. 7-82-307(a)). For those utilities that serve multiple counties, all the county mayors in the service area must be involved in the utility commissioner selection process. The change to the law for utilities covering multiple counties was not made until 2012.

**Underlying these separate approaches is the State's regulatory foundation.** It is a power not available to agencies that offer technical, managerial and financial assistance alone or outside of government. The point is enforcement is a viable and legitimate tool in helping public water systems acquire, maintain, or improve their capacity and become viable water systems. Compliance reports are the indicator and guiding mechanism to Tennessee's state capacity development strategy. Compliance reports provide a continuous means by which capacity development issues are identified and addressed. As water

systems incur violations, Tennessee is able to focus on the specific issues of the system and open the door to a world of assistance possibilities and corrective actions. While Tennessee has an on-going program of loans, boards to review rates and a variety of agencies providing technical assistance and training to promote compliance, not all water systems take advantage of the resources and the opportunities.

Existing water systems were identified as “significant non-compliers” (or SNCs) are targeted and directed to further develop and improve their technical, managerial and financial abilities to operate a public water system. Tennessee has now transitioned to the Enforcement Targeting Tool (ETT) and is using the ETT scores to target systems in need of enforcement. Systems with scores above 11 are mandated for enforcement by EPA. Through the enforcement process, Tennessee has been able to bring considerable attention to systems needing to address and correct violations. This intense attention typically includes technical assistance, if appropriate, and directives that require a corresponding action to address the system’s specific capacity development needs. The enforcement process compels noncompliant systems to address capacity issues or face continuing and escalating enforcement action and financial disincentives in the form of fines.

Specifically, to this end Tennessee’s regulatory program compliments the marketplace of resources and capacity development activities by issuing Notices of Violations (NOVs), court actions, scheduling Compliance Review Meetings, issuing Commissioner’s Orders and Director’s Orders to target systems needing technical, managerial, and/or financial capacity. Initial enforcement efforts simply make systems aware of specific compliance needs and state requirements with rules. If compliance is not obtained and systems fail to acquire technical, managerial and/or financial capacity they face penalties and possibly additional enforcement action. The approach is outlined in detail in its State Capacity Development Strategy as submitted to the EPA.

As part of capacity development, the Division of Water Resources can require existing water systems that have an ETT score of 11 or above and those with high potential for scoring above 11 can be required to submit a capacity development plan identifying specific actions leading to the development of capacity. The plan must document and/or address all compliance issues faced by the system, including issues pertaining to organizational structure, emergency operations plan, microbiological sampling plan, source water protection or wellhead protection plan, cross connection policy and program, business plan, a record keeping plan, and certified operator. The Division uses the Capacity Development Plan Guidance Document (Appendix 3) and the Capacity Development - Business Plan, Financial Self-Assessment Manual (Appendix 4) to insure that public water systems develop capacity.

As mentioned earlier, many capacity development tools were already in place prior to the development of Tennessee’s strategy. The Division’s Sanitary Survey Manual (revised October 2008), plan document reviews, the Utility Management Review Board and Water

and Wastewater Finance Board (reviewing the financial capability of systems) and Fleming Training Center (providing operator training workshops) have been in existence and have been very effective for many years. The new sanitary survey manual prescribes automatic enforcement for redundant violations (violations incurring over more than one sanitary survey). Similarly, other mechanisms have been identified and resources have been created within the past several years. These include the board and commission member training programs established by the Tennessee Association of Utility Districts (TAUD) and the University of Tennessee's Municipal Technical Advisory Service (MTAS). Within the past four years, TAUD began a new National Rural Water Association (NRWA) Training program focusing on technical assistance and managerial training to increase "capacity," beyond just compliance with the Safe Drinking Water Act.

Starting in late 2012, the Division of Water Resources has been coordinating with TAUD, the University of North Carolina Financial Environmental Center and the Texas A&M Engineering Extension Service (TEEX) are all providing training for small community water systems serving less than 10,000 in population and non-transient noncommunity systems using EPA small system assistance funding. Capacity development is frequently a more critical issue with small systems. TAUD will be performing site visits based on ETT scores and Division recommendations, TEEX will be performing customized in class training focusing on Division recommendations and UNCFEC will be working with systems with financial and managerial issues based on Division recommendations and input from the Comptroller's Office. It is believed the coordination among State agencies and partnerships with stakeholders prove to be very beneficial in assisting systems achieve and sustain capacity requirements in the future.

In summary, Tennessee's capacity development strategy targets community and non-community systems in non-compliance with whatever appropriate tool is needed to obtain compliance. All public water systems receive technical, financial and managerial assistance where appropriate along with whatever level of enforcement that is necessary.

### **Implementation of the Strategy – New Systems**

The Tennessee Division of Water Resources's legal authority remains unchanged since the Attorney General and Reporter for the State certified on July 15, 1999 that the laws of Tennessee provide adequate authority to carry out the capacity development requirements of the Federal Safe Drinking Water Act Section 1420(a), 42 U.S.C. § 300g-9(a).

The Tennessee Department of Environment and Conservation (TDEC) has for more than 50 years reviewed construction projects to ensure that new water systems have the technical capacity to comply with State drinking water requirements. Division of Water Resources Regulation 0400-45-01-.05 outlines the procedures that an applicant must follow for obtaining approval to construct a water system. Regulation 0400-45-01-.05(3) refers to minimum design standards for the construction of groundwater and surface water



sources, treatment facilities, storage facilities, and distribution facilities (sources, treatment, storage and piping) to comply with the water quality standards and treatment technique standards specified in Regulations.

Section 68-221-704(2)(E) grants the Water Quality Control Board the authority to adopt rules to ensure that all new community water systems and non-transient, non-community water systems commencing operation after October 1, 1999 demonstrate technical, managerial, and financial capacity to comply with the requirements of the Safe Drinking Water Act.

On June 15, 1999, State Drinking Water Regulations were amended to require the applicant for a new public water system to demonstrate to the satisfaction of the Department that the new system will be a viable water system. Those rules became effective on August 29, 1999. Rule 040045-01-.17(37) of the Drinking Water Regulations outlines the required information that must be submitted with the engineering documentation for approval to construct a new system. The regulations were amended to also include a “Business Plan” and “Capacity Development Plan.” The definition of each of these plans can be found in Rule 0400-45-01-.04.

TCA 68-221-701 et seq. and the associated regulations 0400-45-01-.01 grants the Division of Water Resources the authority to consider whether a new system will be a “viable water system.” If the Department determines that a new public water system will not be a “viable water system,” the approval to proceed is denied. This authority remains in effect and is being implemented as part of the Department’s approval program for new water systems. In addition, the Utilities Management Review Board must approve the startup of new utility districts under T.C.A. 7-82-202(a). The Department of Environment and Conservation closely coordinates with both the Water Wastewater Finance Board and Utilities Management Review Board. The Department of Environment and Conservation Commissioner’s designee for both boards is from within the Division of Water Resources.

**Control Points.** Tennessee’s control points remain the same. The Tennessee Department of Environment and Conservation (TDEC) has two control points in ensuring that new community and new non-transient, non-community water systems demonstrate the technical, managerial and financial capacity to comply with the Safe Drinking Water Act (SDWA).

- 1.) The first control point is the submission of engineering documents for approval to construct a new water system. TDEC’s engineering staff reviews the engineering documents for compliance with the procedures outlined in the regulation and the design standards. A staff accountant with the Division’s State Revolving Fund (SRF) Loan program assists engineers, as needed, in reviewing the financial capacity of a proposed system. The proposal must demonstrate that the system will have the technical, managerial and financial capacity to meet the requirements of

the Safe Drinking Water Act. If the information contained in the engineering report is satisfactory to the Department, it is approved and the system can proceed with development plans and specifications. Before final approval is granted to begin construction of a new water system, it must develop and submit a Capacity Development Plan to document to the State that the system is a “viable water system.” If at any time during this process the State determines the system is not a “viable water system,” approval to proceed can be withheld and the project denied.

- 2.) The second control point is final construction approval. Rule 1200-5-1-.17(19) of the State Drinking Water Regulations requires that once construction has been completed, arrangements must be made for an inspection and approval before operations can begin. All new public water systems are required to submit an engineering report summarizing the need for a new system, a summary of alternative solutions, and recommendations regarding sources of water, proposed treatment processes, project sites, distribution system, financing (rates, debt, etc.) and management. State regulations require water systems to obtain written approval from the Tennessee Department of Environment and Conservation to begin operation after construction is completed.

### **New System Compliance**

In 2012, only one new community system was established – Greasie’s Trailer Park in Monroe County. There were no non-transient noncommunity systems established in 2012 and ten transient noncommunity systems established within 2012.

In 2010 and 2011 there were five systems created (although the one county public utility has four separate distribution systems and PWSID numbers). The Clinch K-12 School in Hawkins County is a new Nontransient Noncommunity System and the Wayne County Board of Public Utilities (WCBPU) has four separate distribution systems with individual PWSID numbers. Clinch School is a county school that is actually a replacement for an older school approximately ½ mile away. The closed school was open from 1977 – 2010 and was a water system as well. The new system is not expected to have a problem in that it is a new location and well but effectively the same management for the system. Wayne County Board of Public Utilities was established by the County and is in the process of creating four separate distribution systems. Three are having water provided by the City of Waynesboro and the fourth will have water provided by the City of Clifton. WCBPU is financing the water lines with grants and loans to supply unserved areas in the county but the two cities will do the billing, operations and maintenance for the distribution systems. As these “satellite” systems are effectively being operated by two existing municipalities, it is not expected there will be much of an issue in regard to capacity development. Since WCBPU applied for SRF loans, they were reviewed by the program and had to provide financial assurances that they would be able to pay back the loan. The Division of Water Resources is currently financing a regional water supply study in Wayne County in

cooperation with the Army Corps of Engineers to look at the most expeditious way to supply water in the county.

From 2007 to 2010, 6 Community and Non-Transient Non-Community Water Systems were created in Tennessee. Of this number, there were 3 community water systems. Of the 3 community water systems, Ridgewood Park MHP has been in existence since 1991. Also, the recently added Johnson Bible College (activated in December 2008 as PWSID No. 0008274) has been in existence for 75 years, and was discovered through a school accreditation audit. They are primarily served by a community water system, but also rely on a well to serve a portion of their campus. One community water system is “new” as defined by EPA. It is the Flat Creek Co Op #2 (PWSID No. 0008272). Flat Creek Co-Op #2 has submitted a Capacity Development Plan to the DWR.

The four (4) non-transient non-community water systems from 2007 - 2010, East Tennessee Zinc Company (ETZC) – Immel (PWSID No. 0004674, Knox County), Franklin Industrial Minerals (PWSID No. 0005124, Franklin County) and Tennessee Technology Park - Department of Energy (PWSID No. 0005137, Roan County) were activated during the period from 2007 - 2010. ETZC – Immel was previously an active system, deactivating in November 1990. Franklin Industrial Minerals has been in operation for many years, and because of its increasing number of employees only now requires regulatory oversight. The system also maintains other facilities in Tennessee and is a large, well established company, with an environmental staff. In addition, East Tennessee Technology Park – Department of Energy (ETTP – DOE) was activated in June 2008. ETTP was actually created in 1977 but was deactivated and was then reactivated in 2008. It has since been transferred to the City of Oak Ridge. Because it existed prior to capacity development and is now operated by an on-going community water system, a Capacity Development Plan for it was not required. *None of the community or noncommunity systems created from 2007 – 2011 are present on the Enforcement Targeting Tool list (Appendix 1).*

Many new community water systems (CWSs) and non-transient, non-community water systems (NTNCWSs) have not been created because of the requirement to demonstrate capacity prior to operational start-up. This single requirement has enabled division staff to discuss public water system responsibilities and helped avoid the creation of many new, regulated systems. Instead, many potential new systems elected to construct lines to existing water systems to serve the businesses and residents where there was a need for water. Staff also discourages transient noncommunity systems from being created where public water is available.

### **Implementation of the Strategy – Existing Systems Strategy**

As discussed earlier, Tennessee has many programs and tools available to help public water systems acquire technical, managerial and financial capacity. These include training offered by the Division of Water Resources’ Fleming Training Center (FTC), third party

operator and board member management training offered by the Tennessee Association of Utility Districts, the UT Municipal Technical Advisory Service, and others; Division on-site inspections and on-site technical assistance; assessments made by financial review boards, including the Comptroller of the Treasury's Utility Management Review Board, Water and Wastewater Financing Board and Division of Municipal Audit. A financial self-assessment tool is also offered by the Division of Water Resources. Managerial training is offered by Tennessee Association of Utility Districts (TAUD) and the Municipal Technical Advisory Service (MTAS). Consulting engineers and design standards also provide direction. Finally, enforcement of state rules provides definitive guidance relative to "capacity" needs.

More specifically, programs and tools used to help water systems acquire capacity are offered in various formats and venues. These include:

- ❑ Rule workshop updates provided to operators and system management by Fleming, Division of Water Resources staff and TAUD
- ❑ TAUD's CUPPS training for small systems to develop asset management plans
- ❑ Operator Training at the Division's Fleming Training Center (FTC)
- ❑ Rulemaking Hearings open to the public and staff of PWSs conducted by Division of Water Resources staff
- ❑ Continuing Education Sessions for certified operators provided at American Water Works Association Conferences
- ❑ On-site and off-site technical assistance given to system operators and water system staff by Division of Water Resources Environmental Field Office (EFO) staff and Fleming Training Center
- ❑ On-site and off-site technical assistance given to system operators and water system staff by TAUD's "circuit riders"
- ❑ Financial Reviews of Municipal and Utility Districts by the Water Wastewater Finance Board, Utilities Management Review Board (both now in the Comptroller's Office) and the Division of Municipal Audit (also in the Comptroller's Office).
- ❑ Elected Officials Training by MTAS (Municipal Technical Advisory Service)
- ❑ Commissioner and Board Member Training by TAUD
- ❑ Division of Water Resources's Financial Self-Assessment Manual
- ❑ Small Water System Operator Guide
- ❑ The Division of Water Resources's Sanitary Survey Manual for Community Water Systems (CWSs) and Non-transient Non-community Water Systems (NTNCWSs), Revised October 2008 (<http://www.state.tn.us/environment/dws/pdf/SSManual.pdf>)
- ❑ Published Safe Drinking Water Rules
- ❑ Standard Operating Procedures (SOP) Requirements and Guidance
- ❑ TDEC Website Resources (Forms, Manuals, Videos, Lists and Links)
- ❑ Certified Laboratory Lists (available from the Division of Water Resources and the State's Website) & Lab Certification

- ❑ Certified Operator Lists (available from the Division of Water Resources and the Fleming Training Center)
- ❑ Sanitary Surveys providing comprehensive assessments of all public water systems
- ❑ State Revolving Loan Funds and staff technical assistance to eligible systems
- ❑ Emergency Operations Plan (EOP) Guidance (a/k/a Vulnerability and Security Plans) for all community water systems (Drought management plans are being required for the most at risk systems)
- ❑ Significant Non-Complier (SNC) List/Enforcement Targeting Tool (ETT)
- ❑ Enforcement Actions and Proceedings against all public water systems in non-compliance (Notices of Violation, Notices of Non-compliance, Show Cause Meetings, Compliance Review Meetings, Commissioner's Orders, Directors Orders, Civil Penalty Assessments, and Contingent Civil Penalty Assessments)

The list is by no means definitive and several of the above listed programs and tools deserve additional attention.

Standard Operating Procedures (SOPs) – The Division of Water Resources has required public water systems to develop and adopt SOPs for operations, maintenance, and troubleshooting for at risk systems. Systems with a history of non-compliance are required to develop and adopt SOPs and systems whose certified operator(s) cannot be on-site while the system is producing water must have SOPs in-place for use by those individuals designated to operate for the certified operator in direct charge. These documents establish procedures, which if followed ensure the health and safety of those consuming the water. Drinking Water rules require all public water systems meeting the definition of a public water system under the State's Water Environmental Health Act to be operated by a certified operator in direct control. This is perhaps the single most important rule pertaining to water systems and their compliance with state drinking water rules. The Division of Water Resources has been strongly encouraging systems with surface water treatment plants serving greater than 10,000 persons to have appropriate level certified operators in attendance whenever the plant is in operation and is exploring a rule change to make this mandatory.

Complimenting Tennessee's certified operator requirement are Tennessee's continuing education requirements and the Division's Operator Training Center (Fleming Training Center or FTC). The FTC offers fundamental and advanced training in water treatment, water distribution systems, laboratory operation, security, wastewater treatment, and wastewater collection systems, as well as seminars designed to assist operators in obtaining their required continuing education. The Operator Certification Board plays a major role in the certification of qualified operators under the State's Water Environmental Health Act. The Division of Water Resources supplies the Department of Environment and Conservation Commissioner's designee for the Board. The Commissioner of Department

Environment and Conservation has also given the Director of the Division of Water Resources the authority to revoke operator certification for just cause.

Public water systems with knowledgeable operators are essential to having viable water systems. Additional information regarding the Fleming Training Center and the Operator Certification Program in Tennessee is available on Tennessee Department of Environment and Conservation's website (<http://tn.gov/environment/fleming/>). Other operator resources available on the State's website include training clips, revised manuals and forms, links to resources, annual violations lists, certified lab lists, construction design criteria, and the current sanitary survey manual:

([http://www.state.tn.us/environment/dws/drinking\\_water\\_program.shtml#videos](http://www.state.tn.us/environment/dws/drinking_water_program.shtml#videos)).

It should be mentioned that State requirements for systems to have certified operators to comply with increasingly complex and expensive rules has led to fewer public water systems being created. This is due in part to creating a climate which encourages systems to consolidate or merge. New complex rules have also led to the development of partnerships between public water systems, sometimes involving the State, to understand the impact of a particular rule and the means to achieve compliance. Partnerships have emerged with respect to developing effective cross connection control programs, mutual aid, and compliance with the disinfection/disinfection by-products rule. Tennessee statutes, regulations, and policies do not require capital improvements planning or regionalization studies, but many systems share certified operators. Several regional and statewide "management" groups have emerged in Tennessee, which offer their services to water systems that by themselves are not capable of retaining certified operators, nor is it feasible for them to interconnect. The environment for the creation of smaller, stand-alone water districts is unfavorable. They must now consider all of their alternatives. These sometimes demand a reliance on "management" services, sometimes closure, or where funding can be obtained, the extension of lines and service areas from existing water systems. Where medium to small systems are seen with infrastructure needs as a result of a sanitary survey, the US Department of Agriculture Rural Development Service is notified to follow-up with funding information. Tennessee Rules (Rule 0400-45-01-.05 (9)) "require" systems to consider interconnection (regionalization, in a sense) insofar as feasible. Where disincentives exist for regionalization of systems or even the extension of lines, the Division of Water Resources will continue to support policies that try to address these issues."

Finally, the state's Emergency Operations Plan (EOP) requirement has added a source water assessment and protection plan element that helps systems develop capacity. This requirement allows systems to proactively examine themselves holistically, including a consideration of source. In the case of Huntsville Utility District, the system is attempting to control development around its new lake, an abandoned old strip mine. Many public water systems in Tennessee are now diligently working to protect vital drinking water sources from potential sources of contamination.

Tennessee's drought of 2007 – 2008 also impacted many water systems resulting in the implementation of EOPs. There was also a near miss of a major drought in 2012 that fortunately abated before the situation became severe. Many water systems have had to revise and many are revising the drought management portion of their EOP. The Division of Water Resources completed its "Drought Management Planning Guide" in February 2011 and made it available on the Department's website. One hundred eighteen "Water Systems of Concern" were targeted to adopt drought management plans using the guidelines by December 1, 2010. These plans require "trigger points" and plans of action regarding water conservation and alternate sources of water. A number of water systems obtained extensions to the deadline through June 30, 2011 if they met certain criteria. Generally the criteria involves the water system going beyond certain minimal activities in developing its plan. These include developing a plan with either the "parent" or consecutive system, hydraulic modeling of the system, and public workshops involving affected customers.

In early May 2010, Middle Tennessee experienced a rare 1000 year flood event. Over 50 community water systems were impacted. Impacts included flooded and washed out raw water intake structures, filter beds under waters, mudslides and extensive erosion washing out distribution lines, loss of power to water treatment facilities and distribution pumping facilities, flooded clearwells, and water treatment issues due to poor water quality. In July the Division of Water Resources held an "After the Flood" Summit to allow water system personnel to recount their problems and identify actions that were helpful to restoring facilities in a timely manner. The experience and knowledge gained from this event has improved the capacity of many water systems. In late April and early May of 2011, a 500 year flood event hit parts of West Tennessee and tornados ripped through East Tennessee causing some water outages for a short period of time. This too has been a learning experience both for water systems and division staff. Fortunately the 2011 events did not impact water systems as severely as the 2010 flood event.

While there was admirable cooperation among water systems during the catastrophic events of the past few years, the Division of Water Resources has renewed its effort to get the Tennessee Water/Wastewater Agency Response Network (TNWARN) into a viable assistance tool for water systems to rely upon in times of disaster.

### **Identifying Systems in Need of Capacity**

Tennessee continues to identify systems in need of capacity by monitoring water system compliance with rules. The Division identifies the "at risk systems" in need of assistance or closer oversight as a part of its annual program plan. Of course water systems which incur violations are systems that "lack capacity." When those systems reach an ETT score of 11 or are on the verge of reaching that score (5 or above) as resources allow, they become

Tennessee's Capacity Development "target audience." There were 6 water systems that scored 11 or higher (13 in the previous year). Much of this enforcement is automatic, based on the sanitary survey manual and violation redundancies (same violation in more than one sanitary survey). Systems within the target audience face a strategy of programs, actions and enforcement designed to develop system capacity and attain compliance. The strategy has not changed since it was adopted. The programs and activities used to reach that target audience remain the same and the way Tennessee has assisted systems has remained the same. Tennessee continues to use construction approvals, continuing education for operators, Drinking Water State Revolving Fund (DWSRF) loan applications, municipal financial audit reports, reviews by the Water and Wastewater Financing Board and Utility Management Review Board, rule workshops, operator and board member training, sanitary survey assessments, compliance data (ETT list), and enforcement activities (Notice of Violations, Letters of Agreement, Compliance Review Meetings, Commissioner's Orders, Director's Orders, Agreed Orders, etc.) to reach systems lacking capacity. The Division of Water Resources also gives high priority to DWSRF applicants who must meet technical managerial and financial capacity requirements in order to obtain funding. It appears to staff to be an effective strategy in targeting systems for capacity development assistance.

### **Statewide Capacity Needs, Concerns and Trends**

Challenges to carrying out an effective Capacity Development Strategy involve the compliance of very small water systems. Certain categories of small water systems are difficult to regulate and thereby obtain full compliance. Many of the systems are rural churches, open to the public only one-day a week that do not have a certified operator. Maintaining a water system is not their primary purpose, nor are church members knowledgeable about drinking water rules or trained in sampling techniques. Often, financial resources to obtain these services are extremely limited.

The majority of the systems with an ETT score of 5 or above this year had violations based on monitoring and reporting, not actual water quality violations. Ideally the Division would have the resources to remind water systems of water sampling deadlines and follow up on them but such is not the case. The Division does remind systems where possible – typically as a part of the sanitary survey letter.

Another challenge is assisting small community water systems in addressing identified security issues. Although smaller systems are not at the same level of risk for a terrorist event, they are at risk for disruption by disgruntled employees and local vandals. Improved security against potential terrorism and the more likely threat of sabotage must be addressed if normal operations are to be maintained. Improving the security and resiliency of water systems better ensures the consistent and uniform provision of services across the state. Limited funding complicates addressing many security issues adequately.



Perhaps the greatest challenge to the development of capacity is the 1996 Amendments to the State Drinking Water Act. The amendments resulted in a proliferation of new regulations. The department has adopted 10 new federal regulations in the past 10 years in order to maintain primacy. The accelerated and continuing promulgation of these new rules has affected the state's ability to provide the needed training to public water supplies. In addition, the science relating to drinking water is evolving and new problems are continually being discovered that previously have not been investigated; resulting in resources being diverted to address whatever new problems demand the public's attention. These lead to the adoption and implementation of new, complex rules. Looming on the horizon in January of 2013 is the Revised Total Coliform Rule. Systems have been using the Total Coliform Rule for decades and this will require considerable adjustment and training. EPA did very little to address state concerns regarding whether this impending new rule was actually less stringent than the existing rule. EPA has effectively placed a gag order on its staff regarding discussions of the new rule which makes it extremely difficult for the states to prepare for the new rule.

The following new Federal Safe Drinking Water Act rules and now being implemented by the Division:

<b>RULE</b>	<b>State Effective Date</b>
Filter Backwash Rule	June 26, 2002
Radionuclide Rule	June 26, 2002
Arsenic Rule	Sept. 29, 2002
Long Term 1 Enhanced Surface Water Treatment Rule	March 15, 2003
Revised Arsenic Rule	July 3, 2004
Revised Long Term 1 Enhanced Surface Water Treatment Rule	July 3, 2004
Stage 2 Disinfection By-Products Rule	October 14, 2006
Long Term 2 Enhanced Surface Water Treatment Rule	October 14, 2006
Ground Water Rule	August 26, 2008
Revised Lead and Copper Rule	June 6, 2009

Tennessee is completing the final steps on the Ground Water Rule and Revised Lead and Copper Rule to achieve full primacy and has been operating under interim primacy up to this point.

The following Rules are anticipated to be adopted by the US Environmental Protection Agency and/or the DWR in the future:

- Revised Total Coliform Rule (January 2013)
- Radon Rule

- CCL (Contaminant Candidate List)
- MTBE (Methyl-t-butyl ether) Rule
- CROMMERRR (Cross-media Electronic Reporting and Record-Keeping Rule)
- Aeromonas
- Sulfate
- PPCP (Pharmaceutical and Personal Care Products)

It is expected for violations to increase dramatically in the full implementation of Stage 2 Disinfection Byproduct Rule (DBPR) where locational running annual averages take effect and systems that had had one violation for the running annual average across the distribution system have the potential of multiple violations due to standards violations at multiple individual monitoring locations.

Division resources are a significant concern in that the Drinking Water Program has lost 5 staff this calendar year and none have been replaced. In addition to those positions, frozen positions that had been vacant for more than one year were abolished earlier this year.

The Division of Water Resources which now houses the Drinking Water Program is a merger the former Divisions of Water Pollution Control (stream protection and wastewater), Ground Water Protection (subsurface sewage discharge) and Water Supply (public water supply/drinking water program). The new organization of the Division of Water Resources is based on functionality (a separate division-wide engineering/plans review unit, information management unit, federal reporting unit, enforcement unit, etc.). It will take some time for the reorganization activities and staffing arrangements to be completed and full integration to occur (organization chart is attached as Appendix 5).

To address the challenge of new rules, the Division of Water Resources staff will continue to provide on-site visits and technical assistance to systems that appear to be struggling or have in the past struggled to implement them. In addition, the Division of Water Resources makes available web training clips, revised manuals and forms, links to resources, annual violations lists, certified lab lists, construction design criteria, and sanitary survey manuals.

### **Review of Capacity Development Strategy**

The Division of Water Resources has not undertaken a formal review or issued a report (other than this review and report) of its Capacity Development Strategy as it appears to Division staff to be an effective strategy in targeting systems for assistance.

### **Modifications to Existing Strategy**

Tennessee's strategy remains essentially the same since it was developed and adopted. With the re-organization of the separate Divisions of Water Supply, Water Pollution

Control (Surface Water Protection/Wastewater Discharge) and Ground Water Protection (Subsurface Sewage Disposal) into the Division of Water Resources, there remain some finer detail organization structures to be worked out. Additional resources have been identified and some have been modified, but Tennessee continues to follow its capacity development plan, initially assisting systems to develop capacity, and when systems resist orchestrate capacity development through more direct means, escalating to enforcement. Thus, no significant changes to the strategy are anticipated. It should be emphasized that limited resources and hiring freezes at the state level make any additional effort feasible at this time.

Water systems receiving a Drinking Water State Revolving Fund (DWSRF) loan are required to demonstrate that they have or will have the financial, managerial, and technical capacity to comply with Safe Drinking Water requirements as a result of the loan or before final approval of the loan application. This commonly requires a review and change in fee structure to be able to pay back the loan. Appendix 9 gives the community water systems that have received loans from the Tennessee Drinking Water State Revolving Loan program through the years. Appendix 10 is the priority ranking list for the 2012 DWSRF. Twelve of the systems ranked from 1 to 16 listed in Appendix 10 (DWSRF Loans in Tennessee – Priority Ranking List 2012) were sent SRF solicitation letters based on their ability to pay index (ATPI) being under 50% and their population being less than 10,000. Of the top 16, Bloomingdale, Franklin, Ocoee and Dayton did not receive solicitation letters due to not meeting the ATPI or population criteria. Those four systems are shaded in the list in the Appendix.

The Utilities Management Review Board (utilities – Appendix 6) and Water Wastewater Finance Board (municipalities – Appendix 7) have those systems that have operated with a negative change in net assets for more than 2 years placed under them to bring those systems back into financial stability. These boards also have systems with greater than 35% water loss brought under their jurisdiction as well (WL in the tables in Appendix 6 and 7). See further discussion of the changing water loss requirements below.

At a joint meeting of the Water and Wastewater Financing Board and the Utility Management Review Board on June 6, 2012, the Boards decided to reaffirm the October 7, 2010, decision to adopt the American Water Works Association (AWWA) water loss methodology for inclusion in any audited financial statements received by the Comptroller of the Treasury on or after January 1, 2013. The water loss methodology can be obtained from [www.AWWA.org](http://www.AWWA.org)

At the June 6, 2012, meeting the following was adopted by the Boards:

- I. Require that the AWWA Excel Spreadsheet (in the specific format created by utilizing the AWWA Free Water Audit Software) be submitted electronically in an Excel format. It is the intention of the Boards that the AWWA Excel spreadsheet be filed by the contracted auditor in Excel

format at the same time the annual audited financial statements are filed. The Excel spreadsheet is not considered audited information, but only submitted simultaneously. This requirement should not be confused with and does not replace the supplemental schedule (i.e., the single “Reporting Worksheet”) included as part of the annual audited financial statements as required by *Tennessee Code Annotated*.

- II. In accordance with TCA 68-221-1010(d)(1) and TCA 7-82-401(h)(1), failure to include the required schedule constitutes excessive water loss and...referral to the appropriate board. *THEREFORE, failure to include the AWWA schedule in audited financial statements received by the Comptroller of the Treasury on or after January 1, 2013, will result in the System being referred to the appropriate Board.*
- III. Further, utilities will be referred to the Boards based on:
  - A. Incomplete AWWA water audit submitted anytime on or after January 1, 2013;
  - B. For audits received by the Comptroller of the Treasury from 1/1/2013 to 12/31/2014 -Validity score of 65 or less or non-revenue water as a percent by cost of operation system of 30% or greater;
  - C. For audits received by the Comptroller of the Treasury from 1/1/2015 to 12/31/2016 -Validity score of 70 or less or non-revenue water as a percent by cost of operation system of 25% or greater;
  - D. For audits received by the Comptroller of the Treasury from 1/1/2017 to 12/31/2018 - Validity score of 75 or less or non-revenue water as a percent by cost of operation system of 20% or greater;
  - E. For audits received by the Comptroller of the Treasury from 1/1/2019 to 12/31/2020 Validity score of 80 or less or non-revenue water as a percent by cost of operation system of 20% or greater.

As of 2010, the UMRB has been given the authority to remove commissioners of utility district boards and a requirement was also added for continuing education for utility commissioners (T.C.A. 7-82-308(h)). In 2011, the legislature modified the way in which utility commissioners are appointed, removing the option of a self-appointing board of commissioners and placing the authority to appoint commissioners with the county mayor (county executive) or by plurality of vote of the customers (T.C.A. 7-82-307(a)). The Act was again amended in 2012 to require the appointment of commissioners for multi-county utility districts to be made jointly by the county mayors within the service area. The two proceedings now underway to remove commissioners are both for gas utility districts. There have been none pursued for water system utilities to date. Since March of 2009, the Deputy Director in the Division of Water Resources has served on the two boards as the TDEC Commissioner’s designee.

Finally, the state's Capacity Development Strategy, through emphasizing capacity and viability has effectively prevented the creation of many nonviable public water systems.

### **Evaluation of the State's Capacity Development Strategy**

In order to identify water system needs as well as potentially effective compliance mechanisms, the state has established a water system baseline as required by Section 1420(c)(2)(D) the Federal Safe Drinking Water Act to measure improvements in system capacity. The baseline uses the initial list of community water systems and non-transient, non-community water systems with a history of non-compliance, which was sent to EPA on August 1, 1997.

Appendix 2, "Tennessee PWSs with a History of Violations, Compliance Status (1997-June 30, 2007)" shows many of the public water systems that have been identified as Significant Non-Compliers (SNCs) between 1997 and June 30, 2006. This cumulative list provides an effective measure of capacity development by public water systems with a history of non-compliance and is used to guide any changes in the state's capacity development strategy. In addition, it also provides information as to the means (Administrative Order, Letter of Agreement, Technical Assistance, etc.) whereby compliance was achieved for those systems on the list of public water systems in significant non-compliance. It clearly shows that enforcement through the issuance of an administrative order (Commissioner's Orders and Director's Orders) has been effective. Forty-four (44) of the 92 systems were either involved in a court action or issued one of forty-six (46) administrative orders (Director's Orders and Commissioner's Orders). In eleven (11) instances, enforcement resulted in the system connecting to another system or closing down and thereby becoming deactivated. In many cases, enforcement resulted in giving the system sufficient time to obtain an engineer, obtain funding, construct and ultimately comply with a newly adopted rule. In no less than two (2) cases, the Division of Water Resources Drinking Water Program and State Revolving Fund Program (SRF) provided technical assistance, and compliance was obtained.

Seventeen (17) public water systems have a current history of significant non-compliance (Appendix 8, "Tennessee PWSs with a More Recent History of Violations, July 1, 2007 – June 30, 2010"). Fifteen (15) of these systems have had trihalomethanes (TTHM) and/or haloacetic acids (HAA5) violations. One (1) water system incurred an Interim Enhanced Surface Water Treatment Rule (IESWR) violation. Three (3) systems have had Total Coliform Rule violations. The 2012 Enforcement Targeting Tool list is given as Appendix 1 with the water system scores and actions being taken to bring them back into compliance. There are 6 water systems that have a score of 11 or higher on the Enforcement Targeting Tool and this low number is a good indication of the success of Tennessee's Capacity Development approach. There were 13 systems in 2011. The issues are pretty much the

same as the 2007 – 2010 time-frame, with Total Coliform Rule and Disinfection Byproduct Rule violations at the forefront again.

Enforcement actions have directed noncompliant water systems to make needed facility improvements, acquire and retain certified operators, and improve financial positions. With some situations, the enforcement action was initiated by the Division of Water Resources (DWR); in other situations compliance with a financial, managerial or technical capacity requirement involved an action by another agency or board of the state.

For community water systems, the Division of Municipal Audit (DMA) in the Office of the Comptroller of the Treasury, examines annually the financial statements of all municipally owned and utility district owned public community water systems. Local government water systems and utility districts found to be “financially distressed” (operating with negative assets for two years) are referred to one of two regulatory boards, depending upon the type of system. Financially distressed municipal (governmental) systems are referred to the Water and Wastewater Financing Board; utility districts are referred to the Utility Management Review Board. Both boards were administratively attached to the State’s Comptroller’s Office (Comptroller of the Treasury) in May 2007. A staff member of the Division of Water Resources sits on these two boards as the TDEC Commissioner’s designee and provides technical assistance as needed to the boards.

In the General Assembly’s 2009 session, legislation was enacted that strengthened provisions ensuring that water systems will have a strong financial basis for operating. The act (Public Chapter 320, House Bill 876 by Representative Haynes) requires all petitions for the incorporation of a utility district be approved reviewed by the Utility Management Review Board (UMRB). In addition, it requires all proposals for merger, consolidation or transfer to be reviewed by the UMRB as to be “economically sound and feasible and in the public interest.” In 2010, the UMRB was given the authority to remove commissioners from utility districts for just cause (T.C.A. 7-82-307(b)(3)) and an education requirement for commissioners was added (T.C.A. 7-82-308(h)). Both the UMRB and WWFB were given the authority to address excessive water loss for water systems in 2009 as well (UMRB: T.C.A. 7-82-401(h); WWFB: T.C.A. 68-221-1009(a)(8)). In 2011, the option of self appointing utility boards was removed, leaving the appointments of single county utilities in the hands of the county mayor or by plurality vote of customers (T.C.A 7-82-307(a)). In 2012 the Act was again amended to address the appointment of commissioners for multi-county utility districts via joint actions of the county mayors within the service area.

The Utility Management Review Board advises and assists financially distressed utility districts in the area of utility management, and it has the authority to prescribe a user rate structure that will allow the utility to be self-sufficient. In addition, the board must review the creation of a utility district, and the board may undertake a study leading to the consolidation and regionalization of a utility district with another to achieve compliance.

Similarly, the Water and Wastewater Financing Board reviews user rates necessary for water systems to be self-sufficient in their operation. Such reviews may also consider the consolidation of systems. There are two appendices to this report that provide a list of systems benefiting from state managerial-financial oversight. These are the “Water and Wastewater Systems Currently under Review by the Water and Wastewater Financing Board, November 2012” (Appendix 7) and “Utility Districts Currently under the Jurisdiction of the Utility Management Review Board, February 2013” (Appendix 6).

Appendix 7 shows a dramatic increase in the number of systems under the direction of the Water Wastewater Finance Board (WWFB). This notable increase is the result of several factors, one in particular is a change in the law that eliminated a number of exemptions under the WWFB. In addition, systems are no longer allowed to put off depreciation as well. As mentioned earlier, it defines systems with a negative change in net assets as being under “financial distress” after 2 years instead of 3 years. Finally, the economy has also played a part, with many industries cutting production or shutting down, leaving systems with unused capacity and reduced revenue.

The Utility Management Review Board and the Water and Wastewater Financing Board have reviewed many water systems, and it is believed many of these systems have avoided becoming Enforcement Targeting Tool (ETT) candidates because of this review.

Unlike community water systems, the financial condition of non-community water systems is not addressed by these review boards. To address the financial situation of non-community water systems, the former Division of Water Supply with assistance from the SRF program developed a “Capacity Development – Business Plan, Financial Self-Assessment Manual” (Appendix 4). The purpose of the manual is to help non-community water systems understand the financial obligations of operating a viable water system. To comply with the financial requirements of the state’s Capacity Development Strategy, a non-community water system must show revenues sufficient to cover anticipated and realistic water system costs.

Another benefit to Tennessee’s capacity development program has been the state’s source water assessment and protection plan requirement. This requirement allows systems to proactively examine themselves holistically, including a consideration of source, thereby reducing potential adverse impacts to the provision of drinking water by public water systems.

A less dramatic approach to developing capacity (in terms of immediate and noticeable results) include: continuing education training for utility commissioners (now required by law). Tennessee Association of Utility Districts (TAUD) has offered a variety of training classes specifically designed for utility board members and commissioners. State law, utility commissioners (gas and water) are required to attend classes and obtain continuing education credits from either TAUD or the Gas Association. Over the past four years,

TAUD has sponsored the TAUD Utility Leadership Conference. Conference attendance leads to a “Leadership Basics” certification. The Leadership Basics curriculum includes such topics as: Basic Board Duties and Responsibilities; Board Meetings-Conducting the Public's Business; The Art of Writing Policies; Setting Fees for Services; Budgeting for Growth; and Short-term and Long-range Planning. In addition, TAUD has held another conference, The Business of Running a Utility, which has sessions specifically designed for utility boards and commissioners. Sessions cover: Financial Reporting Requirements; Budgeting; Common Audit Findings; Fee and Rate Setting; A Job Description for Board Members; Board and Staff Relations; Commissioners, Rates and Budgets. Within the past five years, TAUD began a new National Rural Water Association (NRWA) Training program focusing on technical assistance and managerial training to increase “capacity,” beyond just compliance with the Safe Drinking Water Act.

TAUD has also conducted on-site board training over the past several years. The following topics were covered at these on-site training workshops: The Basics of Taking Office; Policy Creation; and Budgeting and Rate Setting. These on-site training workshops included attendees from numerous utilities. These efforts reflect a long-term proactive approach, which over time have shown utilities receiving fewer complaints and fewer customers and/or elected officials complaining about utilities that conduct business inconsistently. Most of Tennessee's utilities have implemented policies and procedures that provide consistent service for all of the utilities' customers. Although we have seen an improvement with the overall operations of Tennessee's utilities, there is still more work to be done.

Similarly, The University of Tennessee’s Municipal Technical Advisory Service (MTAS) has developed a Training Manual for Water and Wastewater System Board Members, *Water and Wastewater Management: A Training Manual for Board Members* available at: <http://www.mtas.tennessee.edu/public/web.nsf/Web/Read+pubs>.

MTAS also offers classroom training to elected officials called Elected Official Academy. The Level I classes cover the essentials of municipal government in Tennessee. Average attendance is 100 per year. The topics covered are:

- Foundation and Structure of Municipal Government
- Charter and Codes and Open Records
- Economic Development
- Finance for the Elected Official
- Ethics and Open Meetings

Level II Elected Official Academy includes specific utility training. At a minimum three sections are offered each year. The topics covered are:

- Water and Wastewater Responsibilities for Elected Officials



- Water System Capacity Development
- Directing and leading Utility Operations

Municipal Administrative Program classes are offered throughout the year in six locations to train municipal staff and officials in the soft skills of administering and managing municipal operations including utilities.

Specialty Classes for utility managers and operators are held in various locations throughout the state covering several topics in the technical areas.

In addition to the classroom training, MTAS will provide on-site technical training/assistance for water and sewer system staff per the request of a utility.

MTAS provides water and sewer rate reviews for municipal departments. These reviews are at the request from the city either due to being placed on the Water and Wastewater Financing Board's (WWFB) control or some internal financial trigger.

### **Foreseeable Challenges and Barriers**

Although there are many needs, concerns and challenges to the progress of developing viable water systems, perhaps the greatest challenge to an effective capacity development strategy is the state's ability to carry out its program responsibilities effectively. This issue can be highlighted by the past introduction of legislation having the potential to change state laws that could interfere in the regulation of public water systems as defined by federal law and incorporated by EPA in rule.

Another challenge to the State's program of capacity development is the retention of trained and knowledgeable Division staff. The loss of experienced staff has been dramatic in recent years. This year, 5 drinking water staff have retired or left state government. None of these positions have been filled. Earlier this year, positions that had been frozen were abolished where they had been vacant for more than one year. The integrations of the programs within the Division of Water Resources will also take some time to fully implement.

Over the past few years, extremely limited state general revenues have restricted the availability of state general funds that must be provided as the state's matching share to obtain available federal funds. Although the state's drinking water program is primarily funded by facility maintenance fees (State EPF) and EPA monies, the loss of the relatively small amount of state general funds used to match fees paid by the regulated community and EPA funds, in effect, could reduce the effectiveness of the drinking water program. For every dollar cut in state general funds, 2 dollars are removed out of the budget from the fee funds. The continuing loss of staff positions in the drinking water program and the tremendous increase in new federal regulations have hampered the division's ability to

provide essential technical support to assist public water systems in complying with new federal rules. Salaries for technical staff have failed to improve in recent years and remain less than the average salary of technical staff of surrounding states.

With the transfer of lab certification to the Division, there has been an increase in the amount of data to be maintained by the division and further squeezed already limited space for files. With the consolidation of office space into government office buildings in Nashville as a part of the Governor's Densification Project, file storage space, plans review space and even space for reference books and guidance manuals becomes a critical issue. Other elements of the drinking water program continue to require space for records and other documents, in part due to new drinking water rules. Conversion of documents and record to electronic forms is ongoing but at a slow pace. The issue of record keeping due to new rule requirements is also encountered by public water systems and Division of Water Resources staff reviews of that data. Keeping hard copies of required documentation/records with the volumes of data to be maintained is becoming an increasing concern. The State is looking at ways to reduce the storage of archived records which could eventually be a primacy concern.

## **Conclusion**

Despite the challenges facing the water systems and Tennessee's Drinking Water Program, the success of the State's Capacity Development Strategy is encouraging. In fact, the drought and the 2010 thousand year flood event as well as some of the other challenges in recent years has encouraged systems to merge efforts, take regional approaches to water supply issues and collaborate on compliance issues and new rules. At the heart of these activities is State oversight and assistance. Undoubtedly, these represent opportunities for enhancing the capacity of systems to comply with the Safe Drinking Water Act.

## **Appendices:**

- 1 – ETT Systems List and Enforcement Status October 2012
- 2 – Systems with Significant Noncompliance in 1997 – 2007
- 3 – Capacity Development Plan Guidance Document
- 4 – Capacity Development Business Plan, Financial Self Assessment Manual
- 5 – Division of Water Resources Organization Charts
- 6 – Utilities Management Review Board – Utilities under Jurisdiction; February 2013
- 7 – Water Wastewater Finance Board – Municipalities under Jurisdiction; November 2012
- 8 – Tennessee Public Water Systems with more Current History of Violations; July 1, 2007 – June 30, 2009
- 9 – DWSRF Loans in Tennessee
- 10 – DWSRF FY2012 Priority Ranking List

## **Glossary:**

Community water systems (CWSs) are public water systems which serve at least fifteen (15) service connections used by year-round residents or regularly serve at least twenty-five (25) round-round residents.

Environmental Protection Fund (EPF) Act authorizes the department to assess fees (facility maintenance fees) for services provided.

Non-community water systems (NCWSs) are public water systems that are not community water systems.

Non-transient, non-community water systems (NTNCWs) are non-community water systems that regularly serve at least twenty-five (25) of the same persons over six (6) months per year.

Transient, non-community water systems (TNCWSs) are non-community water systems that serve transient populations such as hotels, restaurants, camps, service stations, and churches.

**Appendix 1**  
**Enforcement Tracking Tool**  
**October 2012**  
**Scores 5 or more**

Enforcement Targeting Tool (ETT) Scores (TN Calculations) - Scores > 5

Period Ending: 10/31/2012

Violations in Previous 5 Years				RTC'd	(Sum of S + Max Years) - Value of	Unaddr	Addressed	= ETT Score	Admin Order
<b>CHATTANOOGA</b>									
TN0000656	SPRING CITY WATER SYSTEM				( 17 + 3 )	- 8	= 12		
* 10/1/2012	MR	LT1_ESWTR	0300		1	0	0		
9/1/2012	MR	TCR	3100		1	0	0		
7/1/2012	MR	ST1_DBP	0999		1	0	0		
1/2/2012	TT	LT2_ESWTR	0800		5	0	0		
2/1/2011	MR	TCR	3100	T	1	1	1		
1/1/2011	MR	ST1_DBP	0999	T	1	1	1		
12/1/2010	MR	SWTR	0200	T	1	2	1		
12/1/2010	MR	TCR	3100	T	1	2	1		
11/1/2010	MR	TCR	3100	T	1	2	1		
10/1/2010	MR	ST1_DBP	2920	T	1	2	1		
4/1/2009	MR	ST1_DBP	2920	T	1	3	1		
4/1/2009	2 MR	ST2_DBP	2456, 2950	T	1	3	1		
2/1/2009	MR	LT2_ESWTR	3014		1	3	0		
TN0004313	RESOLUTE FOREST PRODUCTS				( 12 + 0 )	- 5	= 7		
8/1/2012	MR	LT1_ESWTR	0300	T	1	0	1		
8/1/2012	MR	SWTR	0200	T	1	0	1		
7/1/2012	MR	ST1_DBP	2920		1	0	0		
4/1/2012	MR	ST1_DBP	2920		1	0	0		
1/1/2012	TT	LT2_ESWTR	0800		5	0	0		
6/1/2010	MR	LT2_ESWTR	3015	T	1	2	1		
3/1/2010	MR	LT2_ESWTR	3015	T	1	2	1		
3/1/2009	MR	LT2_ESWTR	3014	T	1	3	1		
TN0000551	PIKEVILLE WATER SYSTEM				( 16 + 3 )	- 13	= 6		
* 10/1/2012	MR	ST1_DBP	0999		1	0	0		
* 10/1/2012	MR	TCR	3100		1	0	0		
2/1/2011	MR	TCR	3100	T	1	1	1		
7/1/2009	MR	LT2_ESWTR	3014		1	3	0		

\* Indicates new violation.

Enforcement Targeting Tool (ETT) Scores (TN Calculations) - Scores > 5

Period Ending: 10/31/2012

Violations in Previous 5 Years				RTC'd	(Sum of S + Max Years) - Value of = ETT Score			Admin Order
					Unaddr	Addressed		
7/1/2009	2	MR	ST2_DBP	2456, 2950	T	1	3	1
1/1/2009	2	MR	ST2_DBP	2456, 2950	T	1	3	1
12/1/2008		TT	LT1_ESWTR	0300	T	10	4	10

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\* Indicates new violation.

Enforcement Targeting Tool (ETT) Scores (TN Calculations) - Scores > 5

Period Ending: 10/31/2012

Violations in Previous 5 Years				RTC'd	(Sum of S + Max Years) - Value of	Unaddr	Addressed	ETT Score	Admin Order
<b>COLUMBIA</b>									
TN0004720	TENNESSEE FITNESS SPA					( 12 + 1 )	- 0	= 13	
2/1/2012	MR	LT2_ESWTR	3015		1	0	0		
1/1/2012	MR	LT2_ESWTR	3015		1	0	0		
12/1/2011	MR	LT2_ESWTR	3015		1	1	0		
11/1/2011	MR	LT2_ESWTR	3015		1	1	0		
10/1/2011	MR	LT2_ESWTR	3015		1	1	0		
9/1/2011	MR	LT2_ESWTR	3015		1	1	0		
8/1/2011	MR	LT2_ESWTR	3015		1	1	0		
7/1/2011	MR	LT2_ESWTR	3015		1	1	0		
6/1/2011	MR	LT2_ESWTR	3015		1	1	0		
5/1/2011	MR	LT2_ESWTR	3015		1	1	0		
4/1/2011	MR	LT2_ESWTR	3015		1	1	0		
3/1/2011	MR	LT2_ESWTR	3015		1	1	0		
TN0000119	CLIFTON WATER DEPT					( 5 + 4 )	- 3	= 6	
7/1/2011	2 MR	ST1_DBP	2456, 2950	T	1	1	1		
3/1/2011	MR	TCR	3100	T	1	1	1		
1/1/2011	MR	ST1_DBP	0999	T	1	1	1		
6/1/2009	Other	LT1_ESWTR	0300		1	3	0		
12/1/2008	Other	LT1_ESWTR	0300		1	4	0		

\* Indicates new violation.

Enforcement Targeting Tool (ETT) Scores (TN Calculations) - Scores > 5

Period Ending: 10/31/2012

Violations in Previous 5 Years				RTC'd	(Sum of S + Max Years) - Value of	=	ETT Score	Admin Order
					Unaddr	Addressed		
<b>COOKEVILLE</b>								
TN0000373	LAFAYETTE WATER SYSTEM				( 15 + 3 )	- 10	=	8
12/1/2010	MR	TCR	3100	T	1	2	1	
10/2/2010	TT	LT2_ESWTR	0800	T	5	2	5	
10/1/2010	MR	ST1_DBP	0999	T	1	2	1	
3/1/2010	MR	LT2_ESWTR	3015		1	2	0	
2/1/2010	MR	LT2_ESWTR	3015		1	2	0	
1/1/2010	MR	LT2_ESWTR	3015		1	2	0	
8/1/2009	MR	LT2_ESWTR	3015		1	3	0	
3/1/2009	MR	LT2_ESWTR	3015		1	3	0	
7/1/2008	Other	CCR	7000	T	1	4	1	
2/1/2008	MR	TCR	3100	T	1	4	1	
1/1/2008	MR	ST1_DBP	0999	T	1	4	1	
TN0003320	SHORT MOUNTAIN BIBLE CAMP				( 7 + 4 )	- 4	=	7
* 10/1/2012	MR	ST1_DBP	0999		1	0	0	
* 10/1/2012	MR	TCR	3100		1	0	0	
7/1/2011	MR	ST1_DBP	0999	T	1	1	1	
7/1/2011	MR	TCR	3100	T	1	1	1	
11/1/2010	MR	TCR	3100	T	1	2	1	
10/1/2010	MR	ST1_DBP	0999	T	1	2	1	
7/1/2008	MR	LT2_ESWTR	0800		1	4	0	

\* Indicates new violation.



Enforcement Targeting Tool (ETT) Scores (TN Calculations) - Scores > 5

Period Ending: 10/31/2012

Violations in Previous 5 Years				RTC'd	(Sum of S + Max Years) - Value of Unaddr	=	Value of Addressed	=	ETT Score	Admin Order
<b>JACKSON</b>										
TN0000211	DYERSBURG WATER DEPT				( 13 + 0 )	-	6	=	7	
*	10/1/2012	MR	ST1_DBP	0999		1	0	0		
*	10/1/2012	MR	TCR	3100		1	0	0		
*	10/1/2012	MCL	TCR	3100		5	0	0		
	7/1/2012	Other	CCR	7000	T	1	0	1		
	12/1/2007	MR	TCR	3100	T	5	5	5		
TN0000263	GIBSON WATER DEPT				( 9 + 0 )	-	3	=	6	
*	10/1/2012	MR	ST1_DBP	0999		1	0	0		
*	10/1/2012	MR	TCR	3100		5	0	0		
	10/1/2010	MR	ST1_DBP	0999	T	1	2	1		
	10/1/2010	MR	TCR	3100	T	1	2	1		
	7/1/2008	Other	CCR	7000	T	1	4	1		
TN0004695	NEW BETHEL BAPTIST CHURCH				( 7 + 0 )	-	1	=	6	
*	10/1/2012	MR	GWR	3014		1	0	0		
*	10/1/2012	MCL	TCR	3100		5	0	0		
	10/1/2008	MR	TCR	3100	T	1	4	1		

\* Indicates new violation.

Enforcement Targeting Tool (ETT) Scores (TN Calculations) - Scores > 5

Period Ending: 10/31/2012

Violations in Previous 5 Years				RTC'd	(Sum of S + Max Years) - Value of	Unaddr	Addressed	= ETT Score	Admin Order
<b>JOHNSON CITY</b>									
TN0000640	SNEEDVILLE U D				( 28 + 3 ) - 20 = 11				<u>Y</u>
12/1/2009	MR	LT2_ESWTR	3014		1	3	0		
11/1/2009	MR	LT2_ESWTR	3014		1	3	0		
10/1/2009	MR	LT2_ESWTR	3014		1	3	0		
9/1/2009	MR	LT2_ESWTR	3014		1	3	0		
8/1/2009	MR	LT2_ESWTR	3014		1	3	0		
7/1/2009	MR	LT2_ESWTR	3014		1	3	0		
2/1/2009	MR	LT2_ESWTR	3014		1	3	0		
1/1/2009	MR	LT2_ESWTR	3014		1	3	0		
10/1/2008	MR	ST1_DBP	0999	T	1	4	1		
10/1/2008	MR	TCR	3100	T	1	4	1		
8/1/2008	MR	TCR	3100	T	1	4	1		
7/1/2008	MR	LT2_ESWTR	0800	T	1	4	1		
7/1/2008	3 MR	ST1_DBP	0999, 2456, 2950	T	1	4	1		
4/1/2008	MCL	ST1_DBP	2950	T	5	4	5		
1/1/2008	TT	LT1_ESWTR	0300	T	10	4	10		
TN0000644	SOUTH BRISTOL-WEAVER PIKE U D				( 32 + 0 ) - 21 = 11				<u>Y</u>
* 10/1/2012	MCL	TCR	3100		10	0	0		
7/1/2012	Other	CCR	7000		1	0	0		
6/1/2011	MCL	TCR	3100	T	5	1	5		
7/1/2010	2 MR	ST1_DBP	2456, 2950	T	1	2	1		
7/1/2010	MCL	TCR	3100	T	5	2	5		
8/1/2009	MR	TCR	3100	T	5	3	5		
7/1/2009	MR	ST1_DBP	0999	T	1	3	1		
10/1/2008	2 MR	ST1_DBP	2456, 2950	T	1	4	1		
10/1/2008	2 MR	ST2_DBP	2456, 2950	T	1	4	1		
7/1/2008	Other	CCR	7000	T	1	4	1		
4/1/2008	2 MR	ST1_DBP	2456, 2950	T	1	4	1		

\* Indicates new violation.

Enforcement Targeting Tool (ETT) Scores (TN Calculations) - Scores > 5

Period Ending: 10/31/2012

Violations in Previous 5 Years				RTC'd	(Sum of S + Max Years) - Value of = ETT Score			Admin Order
					Unaddr	Addressed		
TN0000078	JACOBS CREEK JOB CORPS CENTER				( 107 + 4 ) - 104 = 7			
7/1/2012	Other	CCR	7000	T	1	0	1	
1/1/2012	MR	ST1_DBP	0999	T	1	0	1	
1/1/2012	MR	TCR	3100	T	1	0	1	
9/1/2010	TT	LT1_ESWTR	0300	T	10	2	10	
7/1/2010	TT	LT1_ESWTR	0300	T	10	2	10	
5/1/2010	TT	LT1_ESWTR	0300	T	10	2	10	
9/1/2009	TT	LT1_ESWTR	0300	T	10	3	10	
8/1/2009	MR	LT1_ESWTR	0300	T	1	3	1	
7/1/2009	Other	CCR	7000	T	1	3	1	
7/1/2009	2 MR	ST1_DBP	2456, 2950	T	1	3	1	
4/1/2009	MR	LT2_ESWTR	3014		1	3	0	
11/1/2008	TT	LT1_ESWTR	0300	T	10	4	10	
10/1/2008	TT	LT1_ESWTR	0300	T	10	4	10	
10/1/2008	MR	ST1_DBP	0999	T	1	4	1	
10/1/2008	MR	TCR	3100	T	1	4	1	
9/1/2008	TT	LT1_ESWTR	0300	T	10	4	10	
9/1/2008	MR	TCR	3100	T	5	4	5	
8/1/2008	TT	LT1_ESWTR	0300	T	10	4	10	
8/1/2008	MR	LT2_ESWTR	3014		1	4	0	
7/1/2008	TT	LT1_ESWTR	0300	T	10	4	10	
7/1/2008	MR	LT2_ESWTR	3014		1	4	0	
7/1/2008	MR	ST1_DBP	0999	T	1	4	1	
TN0000282	HAMPTON UTILITY DISTRICT				( 9 + 4 ) - 7 = 6			
1/1/2012	2 MR	ST1_DBP	2456, 2950		1	0	0	
9/1/2010	MR	TCR	3100	T	5	2	5	
7/1/2010	MR	ST1_DBP	0999	T	1	2	1	
7/1/2008	Other	CCR	7000	T	1	4	1	
7/1/2008	MR	LT2_ESWTR	0800		1	4	0	

\* Indicates new violation.

Enforcement Targeting Tool (ETT) Scores (TN Calculations) - Scores > 5

Period Ending: 10/31/2012

Violations in Previous 5 Years				RTC'd	(Sum of S + Max Years) - Value of	Unaddr	Addressed	= ETT Score	Admin Order
<b>KNOXVILLE</b>									
TN0000426	HIWASSEE COLLEGE WATER SYSTEM				( 80 + 2 ) - 64 = 18				<u>Y</u>
*	10/1/2012	MR	LT1_ESWTR	0300		1	0	0	
	9/1/2012	MR	TCR	3100		1	0	0	
	7/1/2012	MR	ST1_DBP	0999		1	0	0	
	1/1/2012	2 MR	ST1_DBP	2456, 2950		1	0	0	
	3/1/2011	MR	LT2_ESWTR	3015		1	1	0	
	3/1/2011	TT	SWTR	0200	T	10	1	10	
	2/1/2011	MR	LT2_ESWTR	3015		1	1	0	
	2/1/2011	TT	SWTR	0200	T	10	1	10	
	1/1/2011	MR	LT2_ESWTR	3015		1	1	0	
	12/1/2010	MR	LT2_ESWTR	3015		1	2	0	
	12/1/2010	TT	SWTR	0200	T	10	2	10	
	11/1/2010	MR	LT2_ESWTR	3015		1	2	0	
	11/1/2010	TT	SWTR	0200	T	10	2	10	
	10/1/2010	MR	LT2_ESWTR	3015		1	2	0	
	9/1/2010	MR	LT2_ESWTR	3015		1	2	0	
	8/1/2010	MR	LT2_ESWTR	3015		1	2	0	
	7/1/2010	MR	LT2_ESWTR	3015		1	2	0	
	6/1/2010	MR	LT2_ESWTR	3015		1	2	0	
	5/1/2010	MR	LT2_ESWTR	3015		1	2	0	
	4/1/2010	MR	LT2_ESWTR	3015		1	2	0	
	1/1/2010	2 MR	ST1_DBP	2456, 2950	T	1	2	1	
	10/1/2009	TT	LT1_ESWTR	0300	T	10	3	10	
	4/1/2009	TT	LT1_ESWTR	0300	T	10	3	10	
	7/1/2008	MR	LT2_ESWTR	0800	T	1	4	1	
	5/1/2008	MR	TCR	3100	T	1	4	1	
	4/1/2008	MR	ST1_DBP	0999	T	1	4	1	
TN0000366	KNOXVILLE UTILITIES BOARD-KUB				( 11 + 0 ) - 1 = 10				
	9/1/2012	MCL	TCR	3100		10	0	0	

\* Indicates new violation.

Enforcement Targeting Tool (ETT) Scores (TN Calculations) - Scores > 5

Period Ending: 10/31/2012

Violations in Previous 5 Years				RTC'd	(Sum of S + Max Years) - Value of = ETT Score			Admin Order
					Unaddr	Addressed		
7/1/2008	Other	CCR	7000	T	1	4	1	
TN0000360 KINGSTON WATER SYSTEM					( 7 + 2 ) - 0 = 9			
11/1/2011	MR	Chem_Rads	0700		1	1	0	
8/1/2011	MR	Chem_Rads	0700		1	1	0	
7/1/2011	MR	Chem_Rads	0700		1	1	0	
3/1/2011	MR	Chem_Rads	0700		1	1	0	
12/1/2010	Other	LT1_ESWTR	0300		1	2	0	
10/1/2010	MR	Chem_Rads	0700		1	2	0	
9/1/2010	MR	Chem_Rads	0700		1	2	0	
TN0005158 TENT CAMPLING USA, INC.					( 5 + 1 ) - 0 = 6			
9/1/2011	Other	GWR	0400		5	1	0	

\* Indicates new violation.

Enforcement Targeting Tool (ETT) Scores (TN Calculations) - Scores > 5

Period Ending: 10/31/2012

Violations in Previous 5 Years				RTC'd	(Sum of S + Max Years) - Value of	=	ETT Score	Admin Order
					Unaddr	Addressed		
<b>NASHVILLE</b>								
TN0004773	FAT DADDY'S MARINA				( 11 + 4 )	- 3	= 12	
9/1/2009	MR	LT2_ESWTR	3014		1	3	0	
8/1/2009	MR	LT2_ESWTR	3014		1	3	0	
7/1/2009	MR	LT2_ESWTR	3014		1	3	0	
6/1/2009	MR	LT2_ESWTR	3014		1	3	0	
5/1/2009	MR	LT2_ESWTR	3014		1	3	0	
5/1/2009	MR	TCR	3100	T	1	3	1	
4/1/2009	MR	LT2_ESWTR	3014		1	3	0	
4/1/2009	MR	ST1_DBP	0999	T	1	3	1	
11/1/2008	MR	LT2_ESWTR	3014		1	4	0	
10/1/2008	MR	LT2_ESWTR	3014		1	4	0	
7/1/2008	MR	ST1_DBP	0999	T	1	4	1	
TN0003701	CAMP MARYMOUNT				( 21 + 3 )	- 15	= 9	Y
8/1/2012	MR	TCR	3100	T	5	0	5	
7/1/2012	MR	ST1_DBP	0999		1	0	0	
5/1/2012	MR	LT1_ESWTR	0300	T	1	0	1	
5/1/2012	MR	SWTR	0200	T	1	0	1	
5/1/2012	MR	TCR	3100	T	1	0	1	
4/1/2012	MR	ST1_DBP	0999		1	0	0	
7/1/2010	MR	LT1_ESWTR	0300	T	1	2	1	
7/1/2010	MR	SWTR	0200	T	1	2	1	
8/1/2009	MR	LT2_ESWTR	3014		1	3	0	
7/1/2009	MR	LT2_ESWTR	3014		1	3	0	
6/1/2009	MR	LT2_ESWTR	3014		1	3	0	
5/1/2009	MR	LT2_ESWTR	3014		1	3	0	
7/1/2008	MR	LT2_ESWTR	0800	T	1	4	1	
7/1/2008	MR	ST1_DBP	0999	T	1	4	1	
7/1/2008	MR	TCR	3100	T	1	4	1	
6/1/2008	MR	SWTR	0200	T	1	4	1	

\* Indicates new violation.

Enforcement Targeting Tool (ETT) Scores (TN Calculations) - Scores > 5

Period Ending: 10/31/2012

Violations in Previous 5 Years				RTC'd	(Sum of S + Max Years) - Value of	=	ETT Score	Admin
					Unaddr	Addressed		Order
5/1/2008	MR	TCR	3100	T	1	4	1	
TN0000494 NASHVILLE WATER DEPT #1								
					( 16 + 0 )	- 10	= 6	
* 10/1/2012	MR	ST1_DBP	0999		1	0	0	
* 10/1/2012	MR	TCR	3100		5	0	0	
2/1/2012	TT	SWTR	0200	T	10	0	10	

\* Indicates new violation.

**Appendix 2**  
**Systems with Significant Noncompliance**  
**Compliance Status (1997- June 30, 2007)**

<b>PWSID</b>	<b>SYSTEM NAME</b>	<b>COMMENTS</b>
0000023	ASHLAND CITY WATER DEPT	HAA5 & TTHM violations. (Cumberland River Source) RTC Aug 05
0000044	BELL BUCKLE WS	TTHM and HAA5 Jul 02-Jun03 RTC Jul 03. DWS-03017 issued Nov 03
0000046	BELVIDERE RURAL UD	CO 94-0378 issued Sep 94, RTC Dec 94
0000061	BLUFF CITY WATER DEPT	Construct filter for Underwood Spring source, RTC 18 Feb 96 Disinfection Mon Violation Apr-Jun 06 Bact Mon Violation Apr 06
0000062	CHINQUAPIN GROVE UD	CO 96-0080 issued May 96, RTC 9 Jul 1997, Deactivated Jun 05
0000078	JACOBS CREEK JOB CORPS - USFS	Technical Assistance ca Aug 96
0000083	LOON BAY PROP. OWNERS ASSOC	System gave PN for Nitrate Mon violation (Dec 97), RTC 16 Dec 96
0000085	CARDERVIEW UD	SWTR Jun-sep 99, RTC Oct 99Pb and Cu Jul 98-Jun 99, RTC Oct 99
0000094*	FIRST UD OF CARTER CO	(6) IESWTR Tx Tech & M/R Nov-Nov 06
0000099*	CELINA WATER SYSTEM	(6) IESWTR M/R 06-Nov 06
0000101	CENTER GROVE-WINCHESTER SPGS	CO 94-0373 issued Nov 94, RTC Dec 95
0000103	CENTERVILLE WATER SYSTEM	SWTR Tx Tech, Nov 03 – July 05, NONC 2/9/06
0000104	CHAPEL HILL WS	CO 96-0105 issued Jul 96, RTC 17 Jun 98 IESWTR Record Keeping Violation Nov 05 SWTR Treatment Technique Violation Dec 05
0000115	CLARKSBURG UD	DWS-0038 issued Nov 00, RTC Oct 00
0000119*	CLIFTON WATER DEPT	(14) IESWTR M/R May 05-Feb 07; order Apr 07
0000127	COLLINWOOD WATER DEPT	CO 96-02010 issued Sep 96 and DO DWS-0032 Jan 01, RTC Jun 001 SWTR Treatment Technique Violation Apr 06



0000138	CHEROKEE HILLS UTILITY DIST	SWTR, Tx Tech, Oct 96 – May 98, Order 4/17/97
0000149*	CROSS ANCHOR UD	(6) D/DBP MCL and M/R Jan 04-Dec 06; LOA Mar 07
0000180	OAK SHADOWS MHP	CO 96-0333 issued Nov 96 and deactivated Jan 97
0000183	DECATUR WATER DEPT	CO 96-0181 issued Sep 96, RTC 31 Aug 97
0000187	DECHERD WATER DEPT	CO 91-3216 issued Oct 91, RTC 1 Feb 95
0000221	ELIZABETHTON WATER DEPT	Technical Assistance ca Feb 96
0000223	NORTH ELIZABETHTON WATER CO-OP	TCR Mon, Aug 97 – April 2005, Order 8/3/99
0000230	ERIN WTP	CO 96-0119 issued Jun 96, inactivated source
0000231	ERWIN UTILITIES	CO 96-0453 issued Mar 97, RTC 20 Dec 96 BACT MCL Feb 06
0000232	ESTILL SPRINGS WATER DEPT	Failure to Filter Jul 1996 through May 00, RTC June 00
0000246*	FRANKLIN WATER DEPT	(7) IESWTR M/R Aug 03-Dec 05; TCR M/R Jul 97-Jun 05; Order Jun 09
0000274	NORTH GREENE UD	TTHM MCL violations (Lick Creek Source) RTC May 05
0000291	HARTSVILLE WATER DEPT	(6) D/DBP MCL Jul 04-Sep 05; NONC Jan 07
0000294	HENDERSONVILLE UD	(14) IESWTR Mon & Tx Tech Jan 022-Nov 06; Order Apr 04
0000317	HUNTLAND WS	CO 96-0058 issued Apr 96, RTC 9 Jul 97
0000324*	JAMESTOWN WATER DEPT	(11) D/DBP MCL Jul 02-Sep 06; Order Oct 08
0000389	NORTHEAST LAWRENCE UD	HAA5 & TTHM MCL violations (Lawrenceburg Source) RTC Aug 05
0000391	NEW PROSPECT UD	HAA5 & TTHM MCL violations, (Lawrenceburg Source) RTC Aug 05
0000392	LAWRENCEBURG WATER SYSTEM	IESWTR Mon, Dec 03 – July 05, Order 7/09
0000396	LENOIR CITY UTILITY BOARD	IESWTR Mon, Jan 02-Jan 03,
0000402*	LEXINGTON WS	(6) D/DBP M/R Oct 02-Jun 05; NONC Aug 08
0000405	LIVINGSTON WATER DEPT	HAA5 MCL Oct 02 through Jun 03, RTC Jul 03
0000410	PINEY UTILITY DIST	CO 95-0122 issued Jul 95, RTC 20 Apr 96, deactivated Nov 99
0000426	HIWASSEE COLLEGE WS	(26) SWTR/IESWTR Apr 98-Nov 06; (6) TCR May 06-Nov 06; Order Jul 06
0000455	MIDDLETON WATER DEPT	DWS-0037 issued Nov 00. RTC Jan 01

0000472	MOORESBURG UD	Construct new filter plant (in-service Jan 97)
0000479	MOUNTAIN CITY WATER DEPT.	CO 96-0116 issued Aug 96, RTC 31 May 99
0000485	COLD SPRINGS UD	CO 96-0182 issued Aug 96, RTC 1 Feb 98
0000517	BEDFORD COUNTY UD	HAA5 Violations, (Duck River Source) RTC Sep 05
0000520	BRUSHY MTN PRISON	IESWTR monitoring violations, RTC Jul 06
0000525	OCOEE UTILITY DIST	CO 96-0195 issued Sep 96, RTC 16 Sep 98
0000559	PORTLAND WATER SYSTEM	IESWTR Records and Exceedances Feb through Sep 02, RTC Oct 02
0000572	RED BOILING SPRINGS WS	CO 93-0587 issued Dec 93, DWS-0005 issued Feb 00, RTC 1 Nov 96
0000607	SAMBURG UTILITY DIST	7 TCR Mon, Dec 96 – July 04, Order 8/01
0000616	SEQUATCHIE WATER WORKS	Deactivated Aug 96
0000640	SNEEDVILLE UD	CO 96-0319 issued Nov 96, GUDI inactivated Bact Mon Violations Dec 05 and Jan 06
0000652*	SPARTA WS	(7) IESWTR Mon&TxTech Nov 06-Feb 07; Order Apr 08
0000656	SPRING CITY WATER SYSTEM	CO 94-0374 issued Nov 94, GUDI inactivated
0000678	THE FARM WATER SYSTEM	Lead & Copper, Jan 98 – Jun 00,
0000706	TRACY CITY WATER SYSTEM	Addressed in CO 84-0222 issued Aug 84, sources abandoned 1 Nov 96
0000724	VANLEER WATER DEPT	Chem SNC, RTC Jul 99
0000738	WESTMORELAND WS	HAA5 and TTHM MCL violations (Gallatin Source) RTC Aug 05
0000743	WEST WILSON UD	IESWTR monitoring and exceedances, Jan through Aug 02, RTC Sep 02
0000745	WHITE HOUSE UD	Equip repaired, RTC 1 Mar 99. No SWTR violations, RTC Oct 00
0000749	WHITWELL WATER DEPT	SWTR and IESWTR violations (RTC Jan 06)
0000754	WINCHESTER WS	THM MCL Oct 02-Dec 02 RTC Jan 03; Apr 03-Sep 03 RTC Dec 03
0000768	ANDERSON COUNTY UB	TOC Mon Jan-Mar 02 and HAA5 Mon Jan-Mar 02, RTC Apr 02
0000790	WILSON CO WATER & WASTEWATER	HAA5 MCL violations (Lebanon Source) RTC Apr 05
0000848	CUMBERLAND MTN RETREAT	DWS-9931 issued Dec 99, RTC Mar 99. Nitrate viol FY00, RTC May 01
0000888	MIDWAY TRAILER COURT	Mon and Pn for PB and CU – Nov 96, RTC 11 May 96, Deactivated Jan 06
0000899	HICKORY STAR MARINA	CO 96-0072 issued May 96, system to achieve compliance 1 Sep 01

0000916	LEATHERWOOD WATER DIST, INC	CO 97-0107 issued Aug 97, RTC 19 Sep 96
0000921	NATCHEZ TRACE YOUTH ACADEMY (formerly Seven Hawks Wilderness Program)	CO 96-0151 issued Jul 96, RTC 28 Feb 95 Bact Mon Violations Nov and Dec 05
0000923	HARBERT HILLS ACADEMY N.H.	10 TCR Mon, Dec 97 – May 2005,
0000952	HERITAGE ACADEMY	6 Rad MCL, July 00 – Mar 03, RTC 8/03
0000954*	COLONIAL HARBOR WS	(9) TCR Feb 00-Sep 05, Pb 7 Cu Jul 04-Dec 06; NONC Mar 06
0000958	BLUEBIRD HILLS MOBILE HOME formerly Wildwood MHP)	DWS-9702 issued Jul 97 and DWS-9906 issued Apr 99
0000961	ACORN VILLAGE MHP (formerly Gabbard's MHP)	Court Injunction (Case 96-0471) and deactivated Mar 01
0000962	DOALNARA RESTORATION SOC USA (formerly Elijah Gospel Mission)	DWS-9901 issued 27 Jan 99, RTC 8 Feb 99 Bact Mon Violation Apr 06
0002024	CLINCH SCHOOL	8 TCR Mon, Apr 99 – Oct 07,
0002109	KELLOGG'S CONVENIENCE FOODS	6 TCR Mon MCL, Oct 99 – Dec 04
0002645	KYLES FORD SCHOOL Deactivated May 01	DWS-9802 in Feb 98 and DWS-0006 in Feb 00, RTC 9 Jan 95,
0002997	SPINKS CLAY CO.	6 TCR Mon, Jan 08 – Oct 01
0003779	E.I. DUPONT, NEW JOHNSONVILLE	11 SWTR/IESWTR Mon, Aug 97 – Feb 05
0004300*	E.I. DUPONT, OLD HICKORY	(7) D/DBP Jan 04-Sep 06
0004441	H & H WHOLESALE, PRO-LINE	CO 96-0148 issued Nov 96, deactivated Aug 96
0004725	LITTLE TYKE'S DAYCARE	Deactivated Oct 00
0004726	COLLINWOOD HEAD START	Deactivated Aug 95
0004737	ANN AND ANDY'S DAY CARE CENTER	8 TCR Mon, Apr 98 – Sep 03
0004800	LITTLE PEOPLE UNIVERSITY	CO 97-0116 issued Jul 97, deactivated Aug 97
0004910	ACCURATE ENERGETIC SYSTEMS	6 TCR Mon, Jan 01 – July 03

0005063	NORTHWEST HEADSTART OF HUMBOLT	3 Lead & Copper, July 02 – Dec 03
0008033	COLD SPRINGS II WS	DWS-0003 issued Jan 01, deactivated Jun 00
0008130	LEWIS TRAILER PARK	7 TCR Mon, Oct 99 – Feb 05
0008233*	WARREN COUNTY UD #2	(6) D/DBP MCL Jan 07-Jun 07; Order May 09
0009940	BEECHVIEW CORPORATION	System Deactivated Mar 06

\* Denotes system added for this reporting period.

Total: 92 Public Water Systems

- CO – Commissioner’s Order
- DWS-### – Director’s Order
- DWS – Division of Water Resources
- GUDI – Ground Water Under Direct Influence of Surface Water
- Mon – Monitoring
- PN – Public Notification
- PWS – Public Water System
- RTC – Return to Compliance
- SS – Sanitary Survey
- TA – Technical Assistance

## **Appendix 3**

### **Capacity Development Plan Guidance Document**

Pursuant to Tennessee Code Annotated Sections 68-221-706 and 68-221-707 the Department shall exercise general supervision over the construction, operation and maintenance of public water systems throughout the State of Tennessee. As one aspect of such general supervision, all new community public water systems shall submit a **Capacity Development Plan** for review and approval by the Department. Components of the Capacity Development Plan include an **Operation and Maintenance Plan**, an **Emergency Operations Plan**, a **Bacteriological Site Sampling Plan**, a **Business Plan**, etc. Together, these plans when followed assure continuous satisfactory operation of a water system. The submittal should be submitted to the Department's Division of Water Resources (DWS) and shall include, at minimum, the following information:

- Name, address and telephone number of the owner(s) or ultimate responsible party of the facility or public water system. Leaseholders or business owners may be responsible for managing and operating the facility on a day-to-day basis and included in list to obtain correspondence, but they are not the ultimate responsible party. The ultimate responsible party is (are) the **property owners**.
- Agreement to retain the services of a properly certified operator.
- Proof of retention of certified operator (copy of signed Operator Agreement).
- Name, address and telephone number of the **certified operator** in direct charge of the public water system. The certified operator also may be held responsible for violations incurred as a result of his/her oversight.
- An **Operation and Maintenance Plan** must be developed. The plan shall include information on staffing and organizational structure, accountability; and the system's fiscal management and controls. The plan shall identify Environmental Assistance Center (EAC) contacts, certified labs and lab contacts, the location of all operational component plans and the names and phone numbers of those responsible for implementing those plans, data management systems used, routine activity and facility maintenance schedules, training programs, and safety procedures and guidelines in effect.

- Agreement and statement of understanding indicating that **Plans and Specifications** shall be prepared and submitted for approval for any change, alteration or construction regarding the public water system. These include changes in process that affect water quality, hydraulic conditions, or the function of a process. These must be submitted and approved by the DWS. Projects that are being funded with Drinking Water State Revolving Funds (DWSRF) are submitted to the State Revolving Fund Loan Program (formerly the Division of Community Assistance or DCA). Such approval shall be obtained prior to initiation of the proposed project. “As-Builts” shall be submitted on completion of a project. A long-range system plan, including capital improvements plan is not required by the DWS, but may be desirable to the system.
- A **Source Water Assessment and Protection Plan** and/or **Wellhead Protection Plan** must be developed and submitted to the DWS for approval.
- Prepare and submit for review and approval a **Monitoring Plan** to the Division of Water Resources based on rules, and guidelines provided by the Division. Such plan will identify all parameters to be monitored (including Benzo(a)pyrene and asbestos) and a schedule for conducting that monitoring. Such plan will include all bacteriological contaminants and chemical parameters required by and in accordance with Division rules. One component of the Monitoring Plan will be a **Bacteriological Site Sampling Plan** (Information and guidance material is available upon request. The plan should address the number and location of follow-up sampling, public notification, etc. The Monitoring Plan should include (or execute) a **consolidation agreement** with parent water systems (where applicable) for the monitoring of lead and copper tap water. The Monitoring Plan should also note any parameters waived and when a parameter waiver expires.
- Establish and submit an **Emergency Operations Plan** (and Drought Management Plan if appropriate) for review and approval by the Division. The system may enter into an agreement indicating the intent to cooperate with the parent water system in the event of an emergency that interrupts water service and conveying its willingness to supply alternative potable water during a state of emergency if needed. (information and guidance material available upon request). An Emergency Operations Plan will outline system options, responses, conservation plans and other provisions in case of flooding, power outage, major fire, contamination, major line break, source contamination, drought, chemical release, etc.
- Develop a **Customer Complaint File** regarding water related issues to be maintained on site. Customer complaints with CWSs which relate to financial and/or managerial issues should have a UMRB or **SRF** number assigned. The

file must contain customer name and address, date of complaint, nature of complaint, and action(s) taken to resolve the complaint. A Customer Relations plan is not required by the DWS, but may be desirable to the system.

- Agreement and statement of understanding indicating that **Monthly Operation Reports** (MORs) shall be submitted to the Division no later than ten (10) days following the end of the month being reported. The MOR shall accurately reveal the operation and performance of the water system during the reporting period.
- A **Cross Connection Control Program Plan** for the detection and elimination of cross connections must be submitted and approved by the Division of Water Resources (Information and guidance material is available upon request).
- A **Record Keeping Plan** shall be developed and maintained. Records kept shall include storage tank inspection and maintenance reports, Individual facility maintenance records, flushing records with beginning and ending chlorine residuals, chlorine residuals at new taps, facility security records (including vandalism, break-in, theft, and trespass), equipment maintenance and repair records (maintenance, calibrations, dates out-of-service, and repairs of pumps, meters, feeders and alarms), line breaks - maintenance and repair, distribution maps. Other records that must be kept include: bacteriological sample analyses, cross connection plans and inspection records, chemical analysis, sanitary surveys, actions to correct violations, turbidity records, daily worksheets and shift logs used to produce MORs, lead and copper related records, and public notices.
- A **Public Notifications and Public Education File** should be maintained. Efforts to inform customers of violations, Boil Water Advisories, and community education should be kept in a file. Further, Community Water Systems (CWSs) must prepare and submit a Consumer Confidence Report (CCR) annually.
- Agreement to remit annual **Facility Maintenance Fees** to the Division plus any penalties and interest charges which have accrued due to late or non-payment of the annual facility maintenance fee. Public water systems must also submit a **Business Plan**. The plan shall identify source(s) of income or revenue sufficient to meet expenses over a three (3) year period. The business plan will identify costs related to retaining a certified operator, estimated annual infrastructure repair cost, depreciation, facility maintenance fees, estimated annual monitoring costs, estimated costs of providing public notices, estimated administrative costs, and any other operational, treatment, and related costs (e.g. chemicals and other supplies used to treat water, etc.). The business plan must include the re-payment of borrowed and amortized funds.

- Agreement to comply with any and all laws, rules and/or regulations which are necessary or applicable to the public water system.



## Appendix 4

### Capacity Development - Business Plan (Financial Self-Assessment Manual)

The purpose of a business plan for a water system is to show that the proposed or continued operation of a water system will be viable from a financial standpoint. Business Plans can be/are a means of determining/assuring the viability of water systems from a financial standpoint. Operating a water system is like operating any business, and for any business to be successful, it needs to have a "business plan." The attached worksheet (or Financial Self-Assessment Manual) provides a framework to summarize and evaluate your business. Three columns are provided in order to show anticipated income and expenses over the next three years. "Year One" should cover the system's current business year. Columns are provided for listing "Income" and "Expenses" for the second and third years, if different, otherwise the figures shown in "Year One" will be assumed as intended. The "Total" or bottom line of the plan should combine "Total of all Expenses" and the "Total of all Income." If "Expenses" exceeds "Income" then rates, fees and/or other income must be increased or expenses must decrease in order for the system to be viable. If the cost of operating the water system is unacceptable, the water system may want to consider what alternatives are available. If drinking water, which meets Safe Drinking Water Act requirements is available or can be made available from another public water system at a reasonable cost it may be possible to deactivate the water system. Other options may exist if the water system is extremely small and water use is minimal. Your Environmental Assistance Center (EAC) must be consulted in this event (1-888-891-8332).

In addition, operating a water system requires two additional plans: a facility and specifications plan (technical), **and** an operation and maintenance plan (technical and managerial capacity), in addition to a business (financial) plan. In summary, a viable water system is "a public water system which has the commitment and the financial, managerial and technical capacity to consistently comply with the Tennessee Safe Drinking Water Act and these regulations." A water system is determined to be "non-viable" if it cannot meet state requirements.

#### Definitions:

**Sales of Water (Conn x Rate x Min Mo Water Use)** – The amount of income derived from water revenues. Such revenue typically is based on the number of connections, the rate or cost of water, and the minimum amount an account is allowed to be charged.

**Tap Fees, Reconnect Fees and Bad Check Fees** – Fees derived from setting new taps; fees collected after service is discontinued and there is a reconnection; and fees related to checks returned due to insufficient funds, etc.

**Interest Earned** – Revenue derived from interest accrued from system bank accounts, etc.

**Other** – Monies earned from rental or sale of equipment, services provided to other agencies or businesses, etc.

**Cost of Water** – If purchased from a PWS (Public Water System), royalties due to water rights holders, etc.

**O&M** – Expenses related to Operations and Maintenance. These would include the cost of chemicals (chlorine, lime, etc.), power, fuel (gas, gasoline and diesel fuel), transportation and communication expenses (vehicles and vehicle maintenance, repair equipment, mobile phones, etc.), monitoring costs (sample collection and lab costs), materials and supplies, normal repairs to lines and filters, and salaries and benefits of employees.

**Administrative Costs** – Insurance, office supplies, postage, legal, accounting, telephone, salaries and benefits for managers, and clerical workers.

**Facility Maintenance Fee** – Fee payable to the Division of Water Resources (DWS), Tennessee Department of Environment and Conservation (TDEC) on or about October 1 of each year.

**A/E & Professional Services, Fees (including Billing Services)** – Architectural and Engineering Fees, Professional Service Fees, including the cost of contracted billing services, etc.

**Contracts** – Backflow Prevention Testing, Certified Operators (on contract), etc.

**Taxes or Payments in Lieu of Taxes** – Payments of local, state and/or the federal government.

**Debt Repayment** – Loan Debt Service

**Capital Improvements** – The cost of physical improvements made to the facility. Capital improvements specifically related to a water system include the addition of filtration equipment, pumps to improve flows, the extension of the piping system.

**Other Expenses** - Public Notification (PN), public relations costs, employee training, civil penalties, etc.

**Operating Cash Reserves** – Funds available to meet expenses from a cash flow standpoint. Invariably there will be times when expenses will exceed anticipated revenues, whose obligations must be met prior to receiving additional income.

**Emergency Reserves** – Funds which are available to replace, repair, or meet unexpected new additional requirements, etc. which are unexpected due to a variety of causes, including theft, fire, flood, vandalism, etc.

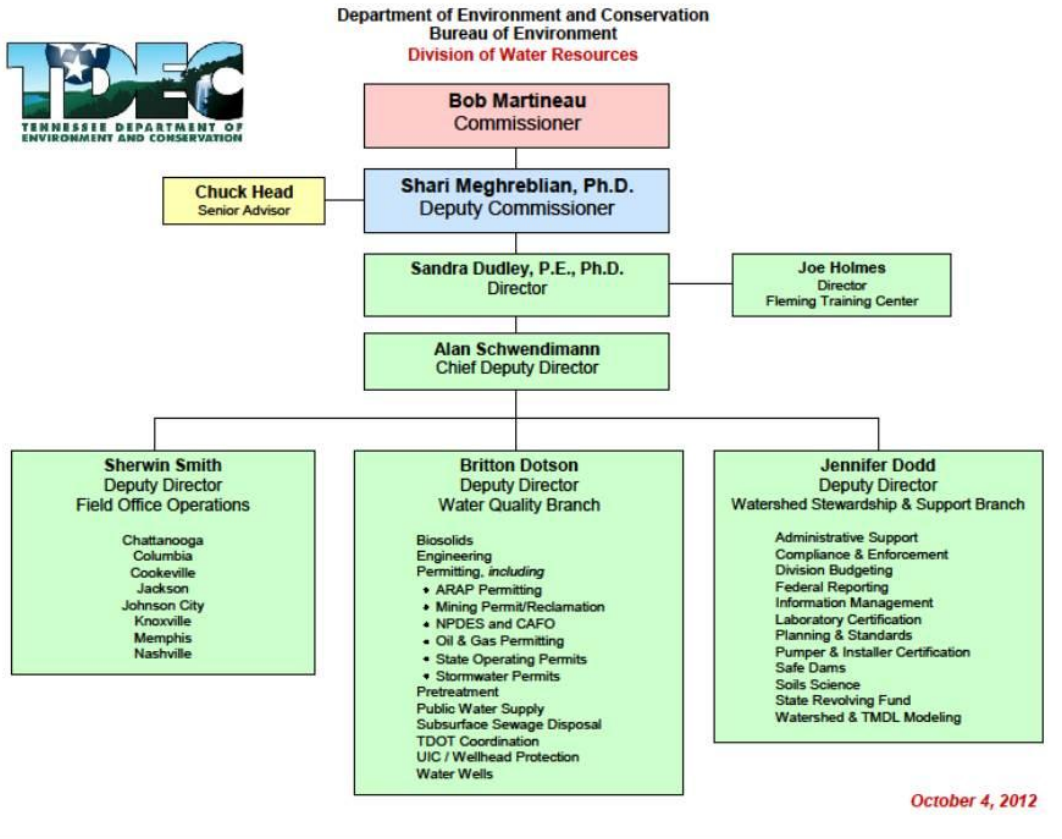
Business Plan Worksheet

Category	Specific Budget Items	Amount	Amount	Amount
		Year One	Year Two	Year Three
<b>INCOME</b>				
	Sales of Water (Conn X Rate X Min Mo Water Use)			
	Fees – Tap Fees			
	Fees – Reconnect Fees			
	Fees – Bad Check Fees			
	Interest Earned			
	Other (specify)			
Sub-Total	(Total Of All Income)			
<b>EXPENSES</b>				
	Cost of Water (if purchased from another PWS)			
	Operating and Maintenance Expenses			
	O&M – Chemicals			
	O&M – Electrical Power and other Fuel			
	O&M – Transp and Comm (Vehicle expense)			
	O&M – Monitoring			
	O&M – Materials, Supplies and Parts			
	O&M – Operator Salaries and Benefits			
	Administrative			
	Adm – Insurance			
	Adm – Ofc Supplies, Equipment and Postage			
	Adm – Legal and Accounting			
	Adm – Telephone			
	Adm – Salaries/Benefits - Managerial/Clerical			
	TDEC Facility Maintenance Fee			
	A/E & Prof Services/Fees (incl Billing Service)			
	Contracts (incl Backflow Prevention Testing, etc.)			
	Taxes or Payments in Lieu of Taxes			
	Debt Repayment (Bond/Loan Debt Service) Expense			
	Capital Improvements			
	Depreciation Expense			
	Other Expenses (PN, PR, Employee Training, etc.)			
	Operating Cash Reserves			
	Emergency Reserves			
Sub-Total	(Total Of All Expenses)			
<b>TOTAL <sup>1</sup></b>	Net Income (or Loss)			

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

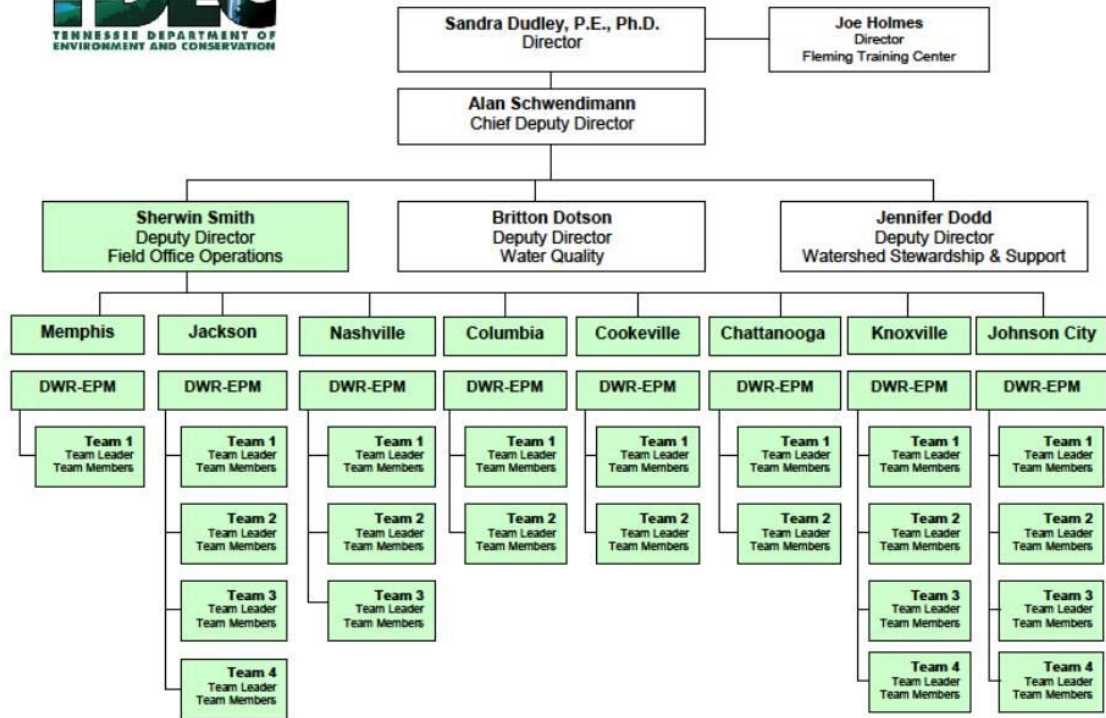
<sup>1</sup> Note: Subtract "Total of All Expenses" from "Total of All Income." If "Expenses" exceeds "Income" then Rates and Fees must increase and/or Expenses must decrease. If no "Expenses" and "Income" are shown for the second and third years, figures are the same as shown in "Year One."

## Appendix 5 Division of Water Resources Organization Charts





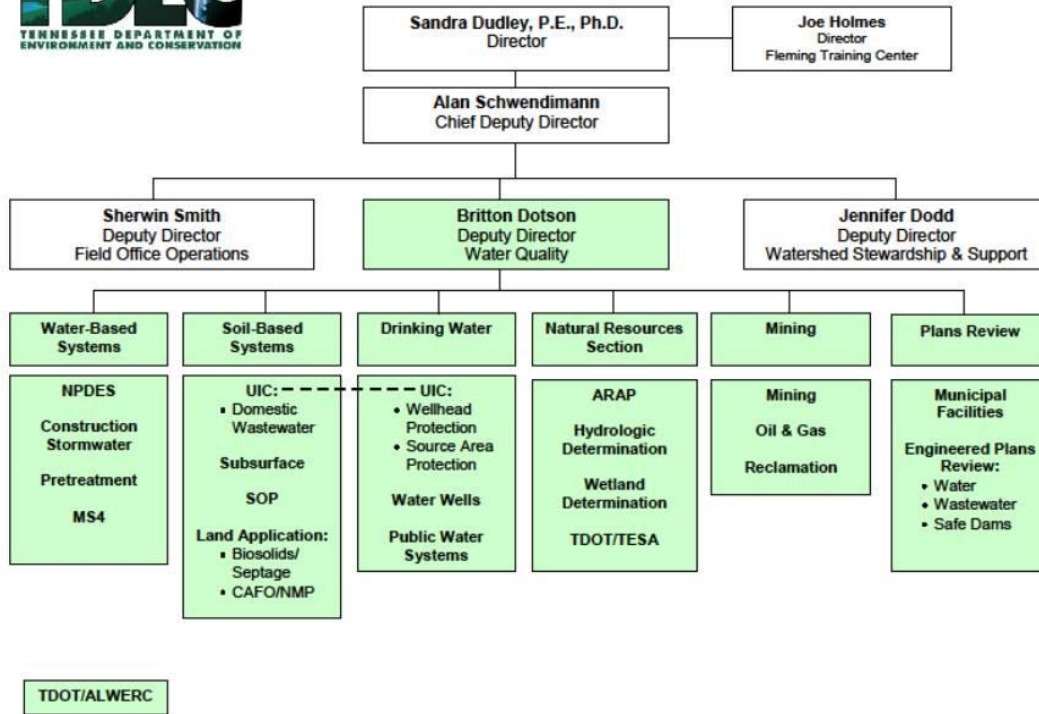
Department of Environment and Conservation  
 Bureau of Environment  
 Division of Water Resources  
 Field Office Operations Branch



November 30, 2012



Department of Environment and Conservation  
 Bureau of Environment  
 Division of Water Resources  
 Water Quality Branch

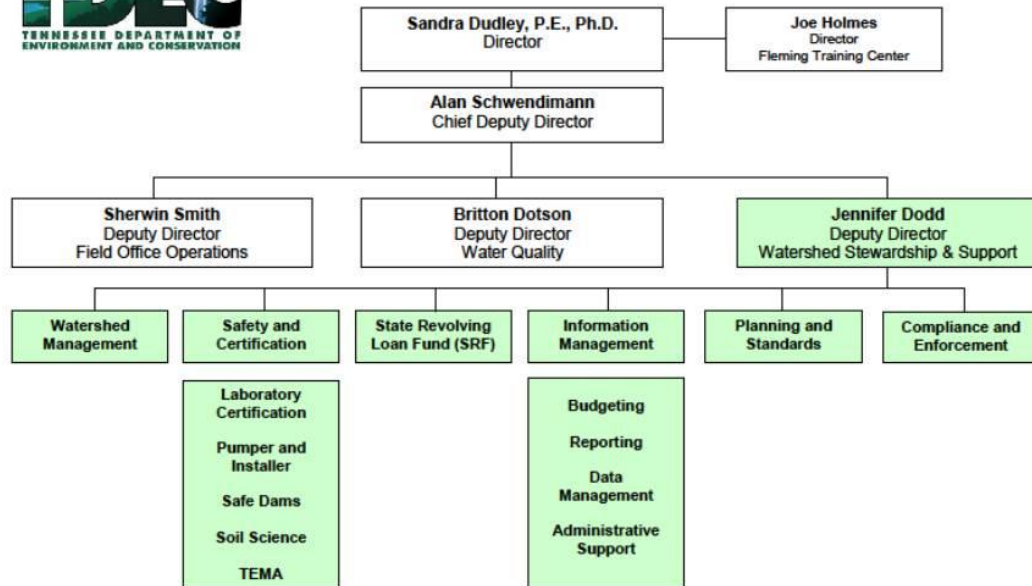


TDOT/ALWERC

November 30, 2012



Department of Environment and Conservation  
 Bureau of Environment  
 Division of Water Resources  
 Watershed Stewardship and Support Branch



November 30, 2012



## Appendix 6

<b>JURISDICTION LIST FOR THE UTILITY MANAGEMENT REVIEW</b>				
<b>BOARD FEBRUARY 2013</b>				
<b><u>DISTRICT</u></b>	<b><u>COUNTY</u></b>	<b><u>LAST</u></b>	<b><u>LAST</u></b>	<b><u>BD</u></b>
		<b><u>AUD</u></b>	<b><u>APPEA</u></b>	
		<b><u>IT</u></b>	<b><u>RANCE</u></b>	
Bloomington WL	UD Sullivan	June-11	October-12	
Bon de Croft UD	White	June-12	February-13	
Bristol-Bluff City UD	Sullivan	July-11	October-10	
Carderview UD	Johnson	June-11	October-12	
Cedar Grove WL	UD Carroll	June-11	October-11	
Cherokee Hills WL	UD Polk	December-11	October-12	
Chuckey WL	UD Greene	June-11	October-11	
Claiborne County UD	Claiborne	July-11	August-12	
Clarksburg UD	Carroll	December-11	October-12	
Clay Gas UD	Clay	August-11	February-10	
Cookeville Boat Dock Road WL	Putnam	December-10	February-12	
Cross Anchor WL	UD Greene	June-11	October-11	
DeWhite WL	UD White	December-11	October-11	
Double Springs WL	UD Putnam	April-12	February-12	
East Sevier WL	UD Sevier	June-11	October-11	
Fall River Road UD	Lawrence	December-11	October-12	
First UD of Hardin County	Hardin	March-12	February-12	
Gibson County Municipal District WL	Gibson	November-11	October-12	
Hampton WL	UD Carter	November-11	August-12	
Intermont UD	Sullivan	December-	October-11	

			11	
Iron City UD		Lawrence	December-11	February-12
Jackson County UD WL		Jackson	December-10	October-12
Leoma UD		Lawrence	December-10	February-12
Lone Oak UD		Sequatchie	December-11	April-10
Minor Hill UD WL		Giles	December-11	October-11
Mooreburg UD		Hawkins	December-09	August-08
Mowbray UD WL		Hamilton	June-12	August-12
Natural Gas UD of Hawkins Co		Hawkins	March-12	December-12
Northeast Henry County UD WL		Henry	June-10	October-11
Quebeck-Walling WL		White	December-11	February-12
Sale Creek UD WL		Hamilton	June-12	October-11
Samburg Utility District		Obion	January-11	October-08
Shady Grove UD WL		Jefferson	September-11	October-11
Siam UD WL		Carter	January-11	August-12
Sneedville UD		Hancock	March-11	
SoddyDaisy-Falling Water UD WL		Hamilton	August-11	October-11
South Elizabethton UD WL		Carter	February-12	October-11
South Giles UD WL		Giles	December-10	October-12
South Side UD		Smith	December-11	February-12
Tuckaleechee UD		Blount	June-11	August-12
Unicoi Water UD		Unicoi	September-11	August-12
Webb Creek UD		Sevier	December-11	October-11

West Cumberland UD	Cumberland	June-11	August-12
West Point UD WL	Lawrence	December-11	October-12
Woodlawn UD WL	Montgomery	December-11	October-12

WL: Under the Board for Water Loss considerations

## Appendix 7

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### JURISDICTION LIST - WATER & WASTEWATER FINANCING BOARD JANUARY 2013

<b>SYSTEM</b>	<b>COUNTY</b>	<b>LAST AUDIT</b>	<b>LAST BD APPEARANCE</b>
Town of Alamo	Crockett	2011	Nov-12
Town of Alexandria	DeKalb	2011	Nov-12
City of Allardt	Fentress	2011	Nov-10
Town of Atwood	Carroll	2011	Mar-12
City of Bartlett	Shelby	2011	Jul-11
Town of Baxter WL	Putnam	2011	Nov-11
City of Bells	Crockett	2011	Nov-12
Town of Big Sandy	Benton	2011	Jul-12
Town of Carthage	Smith	2011	Jul-11
City of Collinwood WL	Wayne	2009	Jan-13
City of Copperhill WL	Polk	2010	Nov-11
Town of Cumberland Gap WL	Claiborne	2011	Jul-12
Town of Decaturville WL	Decatur	2011	Jul-12
City of Decherd WL	Franklin	2011	Mar-12
Town of Dover	Stewart	2011	Jul-12
Town of Dresden WL	Weakley	2011	Nov-11
Town of Eastview	McNairy	2011	Jul-12
City of Elizabethton	Carter	2011	Jul-11
City of Erin WL	Houston	2011	Jul-12
City of Etowah	McMinn	2011	Nov-11
City of Friendship	Crockett	2011	Nov-09
City of Friendsville WL	Blount	2011	Jul-11
City of Grand Junction	Fayette	2011	Jul-12
Town of Greeneville	Greene	2011	Mar-12
Town of Greenfield	Weakley	2011	Nov-12
City of Harriman WL	Morgan	2011	Nov-11
Town of Henning	Lauderdale	2011	Nov-12
City of Henry	Henry	2011	Mar-13
City of Hohenwald WL	Lewis	2011	Nov-11
Town of Hornbeak	Obion	2011	Mar-13
Town of Jasper	Marion	2011	Jul-11
City of Jellico WL	Campbell	2011	Nov-11
Town of Jonesborough	Washington	2011	Nov-11

City of Kenton	WL	Gibson/Obion	2011	Nov-12
City of Kingsport	WL	Hawkins/Sullivan	2011	Jul-12
City of Lake City	WL	Anderson/Campbell	2011	Jul-12
City of LaVergne		Rutherford	2011	Jul-11
Lenior City				
WL		Loudon	2011	Nov-12
Lincoln County				
WL		Lincoln	2011	Mar-12
Town of Livingston				
WL		Overton	2011	Jul-12
City of Lobelville				
WL		Perry	2011	Jul-12
City of Madisonville	WL	Monroe	2011	Jul-12
City of McEwen		Humphreys	2011	May-11
City of McKenzie	WL	Carroll	2011	Nov-11
Town of McLemoresville				
WL		Carroll	2011	Jul-10
City of Michie		McNairy	2011	Mar-12
City of Middleton		Hardeman	2011	Jul-12
Town of Moscow		Fayette	2011	Nov-12
Town of Mountain City				
WL		Johnson	2011	Nov-11
City of Mount Pleasant				
WL		Maury	2011	Mar-12
City of Niota		McMinn	2010	May-11
Town of Oliver Springs		Anderson/Morgan/Roane		
WL			2011	Jul-12
Town of Oneida		Scott	2011	Jul-12
City of Pikeville				
WL		Bledsoe	2011	Jul-12
City of Puryear		Henry	2011	Nov-10
City of Ramer		McNairy	2011	May-11
City of Rockwood		Roane	2011	Nov-11
Town of Rossville		Fayette	2011	Nov-12
Town of Sardis		Henderson	2012	Mar-12
City of Savannah		Hardin	2011	Sep-10
Town of Scotts Hill	WL	Henderson	2011	Jul-12
Town of Sharon				
WL		Weakley	2011	Jul-12
City of Spencer	WL	Van Buren	2011	Nov-11
City of Springfield	WL	Robertson	2011	Mar-12
Town of Tellico Plains				
WL		Monroe	2011	Nov-11
Town of Trezevant				
WL		Carroll	2011	Nov-11
Town of Wartrace	WL	Bedford	2011	Nov-11
Watauga River Reg WA				
WL		Carter	2011	Mar-13
City of Watertown	WL	Wilson	2009	Nov-12

City of Waverly		Humphreys	2011	Jul-11
City of Westmoreland	WL	Sumner	2011	Nov-11
Town of Whiteville		Hardeman	2011	Jul-12
City of Whitwell	WL	Marion	2011	Nov-12
Town of Woodbury	WL	Cannon	2011	Nov-11

WL: Under the Board for Water Loss considerations

## Appendix 8

### Tennessee PWSs with a More Recent History of Violations (July 1, 2006 – June 30, 2009)

0000010	ALLARDT WATER WORKS	HAA5 MCL from Apr 05 – Dec 08, <b>Order</b> 9/08, RTC Jan 09
0000013	NORTH OVERTON UTILITY DISTRICT	HAA5 and THM MCL from July 07 – Mar 08, RTC Apr 08, <b>Order</b> 7/08
0000041	BEAN STATION UTILITY DISTRICT	THM MCL from April 08 – Mar 09, <b>Order</b> 6/09, RTC Jun 09
0000074	HOLSTON UTILITY DISTRICT	MRDL M/R Jul-Sep 07, Apr-Dec 08; TCR MCL/MR Jul 07-Nov 08; Aug 09; THM/HAA M/R Apr 08-Dec 08; <b>Order</b> 01/09.
0000078	JACOBS CREEK JOB CORPS – USFS	IESWTR Tx Tech, Jun 07, July-Nov 08, RTC Dec 08
0000079	BRISTOL-BLUFF CITY UTILITY DIS	TCR Monitoring, Aug 06, Sep-Oct 07, Feb-Mar 09, RTC Apr 09
0000274	NORTH GREENE U D	HAA5 MCL, Jul 06 – Dec 08, <b>Order</b> 8/08, RTC Jan 09 TTHM MCL, Jul 06 – Jun 08, <b>Order</b> 8/08, RTC Jul 09
0000278	GRIFFITH CREEK UTILITY DIST	TTHM MCL and Mon, Jul 06 – Dec 08, <b>Order</b> 5/08
0000520	BRUSHY MTN PRISON	THM MCL, Oct 07 – Sep 08, <b>Order</b> 8/08, RTC Oct 08
0000552	FALL CREEK FALLS UTILITY DIST	HAA5 MCL, Jul 06 – Jun 09, <b>Order</b> 9/08
0000593	ROGERSVILLE WATER SYSTEM	HAA5 MCL, Jul 06 – Dec 08, <b>Order</b> 7/08, RTC Jan 09
0000596	LAKEVIEW UTILITY DISTRICT	HAA MCL Apr –Dec 08; Jan-Mar 10; THM M/R Jan 10-Mar 10; <b>Order</b> 02/09.
0000640	SNEEDVILLE UTILITY DISTRICT	HAA MCL Apr-Jun 08; HAA M/R Oct-Dec 07, Jul-Sep 08; THM MCL Apr-Jun 08; THM M/R Oct-Dec 07, Jul-Sep 08; RTC 10/08; <b>Order</b> 8/08.
0000649	SOUTH GILES UTILITY DISTRICT	HAA5 MCL, Jul 07 – Jun 08, <b>Order</b> 6/08, RTC Jul 08
0000651	SOUTH PITTSBURG WATER SYSTEM	HAA5 MCL and Mon, Oct 07, Dec 08, <b>Order</b> 8/08, RTC Jan 09
0000673	STRIGGERSVILLE UTIL DIST	HAA5 MCL, Jul 06 – Jun 08, RTC Jul 08, <b>Order</b> 9/08
0000699	H.B.& T.S. UTILITY DISTRICT	HAA5 MCL, Jul 06 – Mar 08, RTC Apr 08, <b>Order</b> 9/08

**Notes:**

Systems are included if during the period identified, they incurred: 6 or more monthly violations, or 4 or more quarterly violations.

TCR and operational violations may occur over several compliance periods. EPA considers a system as having RTC when a system successfully monitors TC the following period.

TTHM (Total Trihalomethanes) and HAA5 (Haloacetic acids (five))



## **Appendix 9**

### **DWSRF Loans in Tennessee**

(List of CWSs receiving a State Revolving Loan by Fiscal Year)

#### **FY1997-1998**

Jackson UD  
Kingsport  
McMinnville  
McKenzie  
Greenfield

#### **FY1998-1999**

Collinwood  
Elizabethton  
Troy  
Greenfield  
Eastview UD

#### **FY1999-2000**

Bradford  
McMinnville  
Moore County/Lynchburg  
West Overton UD  
Crossville  
Loudon  
Ocoee UD

#### **FY2000-2001**

Gladeville UD  
Laguardo UD  
Oakland  
Mt. Pleasant  
Watts Bar UD  
Lenoir City  
Loudon  
Loudon

#### **FY2001-2002**

Clarksville  
Clarksville  
Crossville  
Cumberland UD  
DeKalb UD  
Gladeville UD (Increase)  
Lebanon  
Loudon (Increase)  
McMinnville (Increase)  
Morristown

#### **Cont (FY2001-2002)**

Union Fork - Bakewell UD  
Union Fork - Bakewell UD

West Warren – Viola UD  
West Warren – Viola UD (Increase)

**FY2002-2003**

Chattanooga  
Mountain City  
Oak Ridge  
Shelbyville  
Sweetwater  
Loudon (Increase)  
Nashville  
Cumberland UD  
McMinnville  
Ocoee UD  
West Overton  
Lafollette  
Loudon (2 Increases on 2 loans)  
Morristown

**FY2003-2004**

Lawrenceburg  
Clarksburg  
Lebanon  
Ripley  
Chattanooga  
West Warren Viola UD  
Benton County  
Decatur County  
Bolivar  
Hendersonville UD  
Sweetwater  
Nashville  
Hallsdale Powell UD  
Livingston

**FY2004-2005**

Hendersonville UD  
Lawrenceburg (Increase)  
Rockwood  
Ocoee UD (2) loans  
Hallsdale Powell UD  
McMinnville  
Mt. Pleasant  
Wartburg  
Shelbyville

**FY2005-2006**

Lebanon  
Hallsdale Powell UD (2)  
Rogersville  
Reelfoot  
Jefferson City  
Livingston  
Maynardville  
Maury County  
Ocoee UD  
West Cumberland UD

**FY2006-2007**

Watauga River Regional Water Authority  
Newport  
Maury County (2)  
Bon-Aqua Lyles U.D. (2)  
Sewanee U. D.  
Lebanon  
Reelfoot U.D.

**FY 2007-2008**

Livingston (loan increase)  
Lebanon  
Lafayette  
Loudon (2 loans)  
Ocoee UD

**FY 2008-2009**

Lebanon  
Bon Aqua-Lyles U.D. (loan increase)  
McMinnville

**FY 2009-2010**

Hallsdale Powell Utility District  
City of Lafayette  
City of McMinnville  
City of Ripley  
Ocoee Utility District  
Smith Utility District  
Bloomingdale Utility District  
City of Jellico  
Madison Suburban Utility District  
City of Morristown  
City of Franklin  
City of Nashville  
Watauga Regional River Water Authority  
Crossville  
City of Maynardville  
Sewanee Utility District

**FY 2010 – 2011**

Old Gainesboro Road Utility District  
City of Sharon  
City of Alexandria  
City of Bell Buckle  
Cross Anchor Utility District  
City of Elizabethton

**Appendix 10  
DRINKING WATER STATE REVOLVING FUND  
FY 2012 Priority Ranking List  
Comprehensive List**

**Total DWSRF \$104,106,850**

**Total Green  
Requested  
\$43,553,000**

\*Includes 5 points for having an approved Growth Plan

Rank	Priority Points	ATPI	Local Government	County	Project Description	Total Project Amount	Running Total of Total Project Amount Requested(\$)	Green Component Amount	Green Component Running Total (\$)
1	85	20	Jellico	Campbell	GREEN - Waterline Extension and New Source Well	750,000\$	79,462,400\$	750,000\$	24,683,000\$
2	85	90	Franklin	Williamson	WTP Upgrade/Improvements	9,134,400\$	58,294,400\$	-\$	14,742,000\$
3	65	0	Big Creek Utility District	Grundy/Sequatchie/Marion	Waterline Replacement (Along State Route 56 to Dogtown Road)	900,000\$	1,300,000\$	-\$	-\$
4	65	40	Bell Buckle	Bedford	Waterline Replacement	400,000\$	400,000\$	-\$	-\$
5	65	50	Bloomingtondale Utility District	Sullivan	GREEN - Water Transmission Line Replacement	2,500,000\$	5,320,000\$	2,500,000\$	2,500,000\$
6	65	50	Camden	Benton	Waterline Relocation (Along Hwy 70)	1,250,000\$	6,570,000\$	-\$	2,500,000\$
7	65	60	Dayton	Rhea/Bledsoe	GREEN - Water Transmission Line - Phase I (West Side of City)	1,920,000\$	22,560,000\$	1,920,000\$	14,042,000\$
8	45	0	Big Creek Utility District	Grundy/Sequatchie/Marion	New 1.0 MG Water Storage Tank	1,520,000\$	2,820,000\$	-\$	-\$
9	45	10	Cumberland	Roane/Morgan	GREEN - Waterline Replacement (Woods Chapel Area and Coalfield Community)	5,500,000\$	20,640,000\$	5,500,000\$	12,122,000\$
10	45	40	Cordell Hull Utility District	Smith	New Water Storage Tank (Turkey Creek Hwy)	500,000\$	15,140,000\$	-\$	6,622,000\$
11	45	40	Minor Hill Utility District	Giles	Waterline Replacement along Bethel Road	600,000\$	81,362,400\$	-\$	25,983,000\$
12	45	40	Minor Hill Utility District	Giles	Waterline Replacement along Minor Hill Hwy	500,000\$	81,862,400\$	-\$	25,983,000\$
13	45	40	Ocoee	Bradley/Polk	Waterline Extension (Welcome Valley Road and Reynolds Bridge Road)	400,000\$	92,662,400\$	-\$	36,383,000\$
14	45	40	Ocoee	Bradley/Polk	Waterline Extension (Sloan Gap Road)	160,000\$	92,822,400\$	-\$	36,383,000\$

15	45	40	Scotts Hill	Henderson/Decatur	WTP Improvements (construction of a backwash lagoon)	212,000\$	96,734,400\$	-\$	37,683,000\$
16	45	50	Chuckey Utility District	Greene/Washington	GREEN - Water Meter Detection Equipment and Waterline Replacement (Old Fort Lane, Stone Dam Road, Silver Leaf Lane, Liberty Hill Road, and Chuckey Pike)	1,800,000\$	10,600,000\$	1,800,000\$	6,425,000\$
17	45	50	Harriman	Roane/Morgan/Cumberland	Water System Improvements (Harriman-Crab Orchard Connection)	11,227,000\$	78,712,400\$	-\$	23,933,000\$
18	45	50	Old Knoxville Highway Water Utility District	Greene	GREEN - Water Meter Replacement and Waterline Replacement	2,500,000\$	96,522,400\$	900,000\$	37,683,000\$
19	45	60	Dayton	Rhea	GREEN - WTP Expansion - Phase II	14,640,000\$	37,200,000\$	700,000\$	14,742,000\$
20	45	60	Dayton	Rhea	Water Transmission Line Extension - Phase III (Transmission line from WTP to 2.0 MG Water Tank)	960,000\$	38,160,000\$	-\$	14,742,000\$
21	45	60	Winchester	Franklin	GREEN - WTP Improvements (Filter membrane facilities, sodium hypochlorite generation facilities, and high service pumps)	5,200,000\$	104,106,850\$	5,200,000\$	43,553,000\$
22	45	70	Cleveland Utilities	Bradley	Water Transmission Main Extension (Approximately 65,000 LF of 20-inch and 24-inch diameter water main from APD-40/20th Street to Tasso Lane and from the Hiwassee WTP to Cleveland Utilities water system)	3,530,000\$	14,130,000\$	-\$	6,425,000\$
23	45	80	Lebanon	Wilson	GREEN - Water Transmission Line Replacement - Phase V	450,000\$	79,912,400\$	450,000\$	25,133,000\$
24	45	80	Lebanon	Wilson	GREEN - Water Transmission Line Replacement (Franklin Road, Holloway Drive, Maple Hill Road, and Carver Lane)	850,000\$	80,762,400\$	850,000\$	25,983,000\$
25	45	90	Franklin	Williamson	GREEN - AMI Transmitter Replacement and Toilet Replacement	2,845,000\$	61,139,400\$	2,845,000\$	17,587,000\$

					Program				
26	25	20	Carderview Utility District	Johnson/Carter	GREEN - Water Meter Replacement and master meter connection to Mt. City	230,000\$	8,800,000\$	125,000\$	4,625,000\$
27	25	30	Cold Springs Utility District	Johnson	GREEN - Water Meter Replacement, leak detection equipment, generator, and WL extension	510,000\$	14,640,000\$	197,000\$	6,622,000\$
28	25	30	Dekalb Utility District	DeKalb/Smith/Cannon/Wilson	New 2.0 MGD WTP, Raw water intake, and Transmission Lines	11,000,000\$	49,160,000\$	-\$	14,742,000\$
29	25	40	Minor Hill Utility District	Giles	GREEN - Water Meter Replacement	400,000\$	82,262,400\$	400,000\$	26,383,000\$
30	25	40	Ocoee	Bradley/Polk	New Water Storage Tank	800,000\$	93,622,400\$	-\$	36,383,000\$
31	25	40	Ocoee	Bradley/Polk	GREEN - Water Meter Replacement	400,000\$	94,022,400\$	400,000\$	36,783,000\$
32	25	40	Surgoinsville Utility District	Hawkins	GREEN - Water Meter Replacements, New 250,000 gallon Water Storage Tank, WTP Improvements (new raw water and finish water pumps) and Waterline Replacement along Longs Bend Road, Surgoinsville Creek Road, and Lone Oak Road	1,100,000\$	98,906,850\$	670,000\$	38,353,000\$
33	25	50	Camden	Benton	GREEN - Water Meter Replacement	2,000,000\$	8,570,000\$	2,000,000\$	4,500,000\$
34	25	60	Murfreesboro	Rutherford	GREEN - Water Meter Replacement	10,000,000\$	92,262,400\$	10,000,000\$	36,383,000\$
35	25	70	South Blount County UD	Blount	New .5MG Water Storage Tank and transmission line	1,072,450\$	97,806,850\$	-\$	37,683,000\$
36	25	90	Franklin	Williamson	GREEN - Water System Improvements	6,346,000\$	67,485,400\$	6,346,000\$	23,933,000\$