

Triennial Capacity Development Report



**Report Submitted to
Governor Bill Haslam
Prepared by the
Tennessee Department of Environment and Conservation
Division of Water Supply
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).

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. Appendix 1 has the list of water systems with violations over the past year 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 preview. 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 Supply has compared the list of public water systems with a history of significant non-compliance in 1997 (Appendix 2) to those systems with a current history of violations (See Appendix 1, Enforcement Targeting Tool Systems List). There are 13 water systems that have a score of 11 or higher on the Enforcement Targeting Tool. There was an additional system that scored higher than 11 that was deactivated. The results 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 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.

The Division of Water Supply (DWS) had been using its Significant Non-Compliers (SNC) list (submitted to EPA in August 1997) as a baseline and according to EPA guidance adjusts the baseline to incorporate systems that become SNCs as new rules are promulgated. Decreases in the number of systems on that historical SNC list provide a measure of the improvement in capacity among public water systems in Tennessee. Improved sanitary survey scores and increases in the number and technical classification of certified operators also indicate improved capacity. Tennessee is transitioning this year to the Enforcement Targeting Tool (ETT) list per EPA requirements. 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).

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 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 third party operator training programs were offered by the Tennessee Association of Utility Districts, the University of Tennessee Municipal Technical Advisory Service, TDEC's Fleming Training Center 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). The Commissioner of the Department of Environment and Conservation's designee on the two boards (WWFB and UMRB) has been the Deputy Director of the Division of Water Supply since March of 2009. This has successfully provided an opportunity for close technical assistance and communication from the Division to the 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. Finally, in 2009 the 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)). Currently the county mayor appointing method only applies to single county utility districts. How commissioners will be appointed for multi-county utility districts is still the subject of debate.

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 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 is now transitioning to the Enforcement Targeting Tool (ETT) and will be using the ETT scores to target systems in need of enforcement. 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 Supply requires existing water systems that have become significant non-compliers and those who have the potential for becoming significant non-compliers 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 in cooperation with officials from the Tennessee Association of Utility Districts), 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. 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. This includes training for small water systems using the EPA Check Up Program for Small Systems (CUPPS) which is designed to create a tailored asset management plan. 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. Other resources that have emerged within the past year include several "distance learning" programs for operators and a renewed emphasis on evaluating and updating utility rates.

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 is necessary.

Implementation of the Strategy – New Systems

The Tennessee Division of Water Supply'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 Supply Regulation 1200-5-1-.05 outlines the procedures that an applicant must follow for obtaining approval to construct a water system. Regulation 1200-5-1-.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 1200-5-1-.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 1200-5-1-.04.

TCA 68-221-701 *et seq.* and the associated regulations 1200-5-1-.01 grants the Division of Water Supply 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 the Deputy Director of the Division of Water Supply.

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 2010 and 2011 there have been 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 will be 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.

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 DWS. Gateway Village Development (PWSID No. 0008271) was listed in last year’s capacity development report as a new system within 2007 but is a condominium complex that purchases water and submeters to tenants. It is currently “inactive” in accordance with Tennessee’s apartment and condominium complex submetering policy.

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 that 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. There were approximately three transient noncommunity systems created within 2010 – 2011 and roughly that same number were de-activated.

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 Department’s 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 Supply. 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 TAUD and Division of Water Supply staff
- ❑ TAUD’s CUPPS training for small systems to develop asset management plans
- ❑ Operator Training at TDEC’s Fleming Training Center (FTC)
- ❑ Rulemaking Hearings open to the public and staff of PWSs conducted by Division of Water Supply 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 Supply Environmental Field Office (EFO) staff
- ❑ On-site and off-site technical assistance given to system operators and water system staff by TAUD’s three “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 Supply's Financial Self-Assessment Manual
- ❑ Small Water System Operator Guide
- ❑ The Division of Water Supply'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 Supply and the State's Website)
- ❑ Certified Operator Lists (available from the Division of Water Supply 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
- ❑ 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 Supply has encouraged all public water systems to develop and adopt SOPs for operations, maintenance, and troubleshooting. 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. The Division of Water Supply has been 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.

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.

Complimenting Tennessee's certified operator requirement are Tennessee's continuing education requirements and the State's Operator Training Center (Fleming Training Center or FTC). The FTC offers fundamental and advanced training in water treatment, water distribution systems, 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 Supply 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 Supply the authority to revoke operator certification for just cause.

Continuing Education Seminars have been provided specifically for small water system operators in Knoxville, Jackson, Murfreesboro, and Johnson City. In 2009 the seminars introduced topics such as disinfection, recordkeeping, and sanitary surveys.

In 2010 five small water seminars were scheduled at state parks in Lake City, Paris, Chapel Hill, Kingsport, and Crossville. The focus of the 2010 small water seminars has been on water quality monitoring and compliance. In addition to an emphasis on rule updates and related topics, a representative of the Hach Company has provided 4 hours of hands on training on chlorine colorimetry. The small water seminars focusing on water quality monitoring will be repeated in 2011 in Jackson, Murfreesboro, Knoxville, and Johnson City.

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).

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 1200-5-1-.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 Supply 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 recent drought also impacted many water systems resulting in the implementation of EOPs. Many water systems have had to revise and many are revising the drought management portion of their EOP. The Division of Water Supply completed its “Drought Management Planning Guide” in February 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 Supply 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.

Identifying Systems in Need of Capacity

Tennessee continues to identify systems in need of capacity by monitoring water system compliance with rules. Water systems which incur violations are systems that “lack capacity.” When those systems become EPA SNCs (Significant Non-Compliers) they become Tennessee’s Capacity Development “target audience.” With EPA’s switch to the Enforcement Targeting Tool (ETT), the systems that are targeted score 11 or more points. Tennessee also addresses potential SNC systems/systems scoring less than 11 points. There were 13 water systems that scored 11 or higher. An additional water system that scored higher than 11 was deactivated. 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 (including SNC and Potential Significant Non-Complier lists/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 Supply 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.

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 8 new federal regulations in the past 6 or 7 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. The following new Federal Safe Drinking Water Act rules and now being implemented by the Division:

RULE	State Effective Date
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

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

- Revised Total Coliform Rule
- 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.

To address the challenge of new rules, the Division of Water Supply 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 Supply 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.

Related to the capacity issue is EPA's prescribed laboratory methods used by certified labs to determine compliance of public water systems. The haloacetic acid method is inexact in accurately determining the level of compounds used for compliance purposes. To date, several water systems in Tennessee may be classified as SNCs that are suspected to be caused by questionable analytical methodology and unrelated to capacity. Specifically, some of EPA's currently approved methods allow labs to become certified if they obtain results which are plus or minus 50 percent of the known level. Laboratories are allowed wide margins of error in conducting laboratory analyses while water systems are required to meet exacting standards. In the past compliance cycle, there has been a Middle Tennessee system in violation for a 61 ppb Haloacetic acids quarterly average where 60 ppb is the standard. To comply with disinfection byproducts standards water systems may have to spend tremendous amounts of money when the data is inconsistent and unreliable. Systems with disinfection byproduct MCL violations that purchase water from wholesalers are also at a distinct disadvantage when it comes to returning to compliance.

Water quality issues have also needed to be addressed. In the summer of 2011, unusually hot weather increased water temperatures, dissipating chlorine residuals. Taste and odor complaints were widespread as well.

One initiative that the Tennessee Department of Environment and Conservation (TDEC) has undertaken as a result of the drought has been to focus on regional water supply planning and the development of a process that might facilitate the development of regional water supply plans. The focus of these efforts is to better coordinate the delivery of water supplies among water systems (possibly encourage the merger or consolidation of systems), develop more reliable sources, and become better prepared to handle growth in water use. Currently, TDEC is completing two pilot regional water supply studies to develop a collaborative planning process. The participants in this process include TDEC, Tennessee Advisory Commission for Intergovernmental Relations (TACIR), Tennessee Wildlife Resources Agency (TWRA), US Army Corps of Engineers (USACE), United

States Geological Survey (USGS), Tennessee Nature Conservancy (TNC), Tennessee Tech University (TTU), Tennessee Association of Utility Districts, Tennessee Department of Economic and Community Development (ECD) and others. It is believed these activities will result in stronger, more viable water systems.

Review of Capacity Development Strategy

The Division of Water Supply 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. 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. The Utilities Management Review Board (utilities – Appendix 5) and Water Wastewater Finance Board (municipalities – Appendix 6) 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 5 and 6). 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 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 Supply 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 Supply 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 7, "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 (IESTR) violation. Three (3) systems have had Total Coliform Rule violations. The 2011 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 13 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 was an additional system that scored higher than 11 that was deactivated. 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 Supply (DWS); 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. The Deputy Director of the Division of Water Supply 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)).

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 three appendices to this report that provide a list of systems receiving loans as well as benefiting from state managerial-financial oversight. These are the “DWSRF Loans in Tennessee” {Historical} (Appendix 8), “Water and

Wastewater Systems Currently under Review by the Water and Wastewater Financing Board, November 2011” (Appendix 6) and “Utility Districts Currently under the Jurisdiction of the Utility Management Review Board, October 2011” (Appendix 5). The first seven water systems listed in Appendix 9 (DWRSF Loans in Tennessee – Priority Ranking List 2011) under the priority ranking list are considered to be in the funding “zone” (likely to receive loans). Currently (FY11), water systems obtaining an SRF loan will have 30% principal forgiveness (will not have to pay back 30% of the money borrowed). In FY10 there was 20% principal forgiveness and with American Recovery and Reinvestment Act (2009) funding there was 40% forgiveness. Principal forgiveness has encouraged several water systems to pursue infrastructure improvements that would not have otherwise considered these projects.

Appendix 6 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 significant non-compliers (SNCs)/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 DWS 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 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.

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. Within the past several years the State's Lab Certification Officer retired, his successor has moved out-of-state and five existing DWS employees have been certified. None of these staff are full time lab certification officers. The Nashville Central Office coordinator has since left as well as the backup coordinator. The position of Nashville Central Office coordinator has been filled as of the end of August 2011. The Division has also lost several senior staff members with others potentially leaving within the next 2-5 years. The retirement of senior and middle management staff could have a devastating impact on the program in part because budget restrictions have led to the freezing of vacant positions. On June 30, 2009 the Director of the Division of Water Supply retired with the deputy director serving as acting director until May 1, 2011 when a new director was appointed. On July 31, 2010 the Division's financial administrator retired; on December 31, 2010, the Knoxville field office manager

retired; and on June 30, 2011 the Division's field office/enforcement and special projects coordinator retired.

Coupled with the issue of staff retirement is the state's limited available financial resources to provide cost of living raises, additional training and professional development, other than in-house managerial training. These resources provide crucial career incentives to existing employees to remain.

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. Because of the state's budget crisis the DWS has not hired staff to replace those lost due to buyouts, retirement and attrition.

With the transfer of lab certification to the Division, there has been an increase in the amounts of data to be maintained by the division and further squeezed already limited space for files. 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 has been discussed but to date such conversion is unresolved and unimplemented. The issue of record keeping due to new rule requirements is also encountered by public water systems and Division of Water Supply 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 as well. The Division had a recent scare when offsite storage was flooded during the 2010 flood event and state records were damaged. Fortunately, none of the Division's records were impacted. 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
- 2 – Systems with Significant Noncompliance in 1997 – 2007
- 3 – Capacity Development Plan Guidance Document
- 4 – Capacity Development Business Plan, Financial Self Assessment Manual
- 5 – Utilities Management Review Board – Utilities under Jurisdiction; October 2011
- 6 – Water Wastewater Finance Board – Municipalities under Jurisdiction; November 2011
- 7 – Tennessee Public Water Systems with more Current History of Violations; July 1, 2007
– June 30, 2009
- 8 – DWSRF Loans in Tennessee {Historical}
- 9 – DWSRF Loans in Tennessee – FY2011 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
 ETT Systems List & Enforcement Status – July 2011
 TN Water Systems with ETT Score >6

PWSID	System	July '11 ETT Score	April '11 ETT Score	January ETT Score	October ETT Score	Enforcement Status
TN0000001	ADAMS-CEDAR HILL WATER SYSTEM	9	9	4	2	Multiple minor reporting violations under LT2: RTC in late April 2011.
TN0000046	BELVIDERE RURAL UTILITY DISTRI	8	8	7	6	LT1 monitoring violations for individual turbidimeters, MRD and TOC monitoring violations – both have RTC'd
TN0000056	BLOOMINGDALE UTILITY DISTRICT	8	8	8	9	Director's Order 5/8/2009 Case Under Development 3/31/2011 ** for violations after first DO. (1-CCR, 1-LT2, 1-MRD, 2-ST2 M/R, 3-TCR)
TN0000063	BOLIVAR WATER SYSTEM	12	12	12	11	2 violations: MRDL monitoring, and SWTR Tx Tech (No Cl2 continuous Monitor) Formal Enforcement possible
TN0000085	CARDERVIEW UTILITY DISTRICT	26	26	26	26	Case Under Development 3/31/2011
TN0000097	CASTALIAN SPRINGS-BETHPAGE U D	16	11	6	NL	Case Under Development 3/31/2011**
TN0000099	CELINA WATER SYSTEM	7	7	7	6	Multiple LT1 violations, all have RTC'd
TN0000103	CENTERVILLE WATER SYSTEM	7	7	7	6	2- LT1 and 1- MRDL violation,
TN0000104	CHAPEL HILL WATER SYSTEM	7	7	7	7	2- LT1 monitoring violations,
TN0000246	FRANKLIN WATER DEPARTMENT	11	6	6	6	HAA MCL
TN0000274	NORTH GREENE UTILITIES, INCORP	12	4	2	1	Director's Order 8/1/08 , 23 Violations after Order (8-LT2, 3-MRD, 1-TOC, 5-ST2, 1-SWTR, 5-TCR) Need to get Order Prepared.
TN0000287	HARRIMAN UTILITY BOARD	7	7	7	6	Single CCR violation

TN0000290	LINCOLN MEMORIAL UNIVERSITY	22	9	NL	NL	Multiple LT2 violations: Case Under Development 3/31/2011 **
TN0000291	HARTSVILLE WATER DEPT	8	8	8	6	Multiple LT1 and LT2 violations, all have RTC'd
TN0000426	HIWASSEE COLLEGE WATER SYSTEM	32	22	2	NL	Director's Order 7/28/2006 Case Under Development 3/31/2011**
TN0000497	NEW JOHNSONVILLE WATER DEPT	7	7	7	7	Multiple M/R violations, Director's Order 5/25/2007
TN0000524	OBION WATER DEPT	7	7	7	7	Single MRDL violation
TN0000551	PIKEVILLE WATER SYSTEM	7	6	6	6	
TN0000552	FALL CREEK FALLS UTILITY DIST	21	16	11	NL	Director's Order 9/15/2008 Case Under Development 3/31/2011**
TN0000553	TAFT YOUTH CENTER	24	19	15	3	Case Under Development 3/31/2011**
TN0000613	SAVANNAH VALLEY U. D.	11	11	6	6	1 violation – BIN class Report
TN0000640	SNEEDVILLE U D	7	7	7	7	Director's Order 8/12/2008 Multiple LT2 violations, Formal Enforcement possible.
TN0000678	THE FARM WATER SYSTEM	9	9	9	9	Multiple TCR/DBP violations: Letter of Agreement 10/19/2010
TN0000754	WINCHESTER WATER SYSTEM	10	10	8	8	3 LT1SWTR Monitoring Violations
TN0000818	WARREN COUNTY UTILITY DISTRICT	9	9	5	3	2 - LT2 violations: Failure to Submit Plan, Failure to Submit Bin Class
TN0000848	CUMBERLAND MTN RETREAT	7	7	9	6	Multiple TCR, MRD and single CCR violation Formal Enforcement possible
TN0000883	NORTH UD OF DECATUR/BENTON CO.	11	6	NL	NL	2 Quarters THM MCL
TN0000912	DEERFIELD RESORT WATER SYSTEM	8	8	7	5	Multiple Chemical (2007), TCR and CCR violations:
TN0000958	BLUEBIRD HILLS SMALL COMMUNITY	7	7	7	7	Multiple TCR, and CCR violations, All have RTC'd
TN0001263	CADES COVE CAMPGROUND	11	11	11	11	1 TCR monitoring violation
TN0001450	SHILOH BAPTIST CHURCH	7	7	7	6	Nitrate violation in 2009,

TN0001452	ZION HILL BAPTIST CHURCH	8	8	8	7	Single Nitrate violation in 2008
TN0001689	JACK'S CK APOSTOLIC CH AND SCH	10	10	10	10	2 DBP and 1 TCR violation: RTC 9/30/2007
TN0001919	FUTURE'S GOLF CLUB	NL	8	NL	NL	Case Under Development 3/31/2011 **
TN0002400	LITTLE MILLIGAN SCHOOL	8	8	8	8	Single PN violation in 2006
TN0004300	E.I. DUPONT, OLD HICKORY	16	11	6	68	Director's Order 8/26/2010 Case Under Development 3/31/2011** for violations after order.
TN0004719	WHITEWAY GRILL	9	9	9	8	Nitrate Violation in 2007,
TN0004777	TINY'S MOBILE HOME PARK	9	9	8	NL	TCR and GWR violations: Case Under Development 3/31/2011 **
TN0004904	HUTCHINSON'S GENERAL STORE	9	9	10	9	Inactive
TN0008157	RENEGADE MOUNTAIN WATER SYSTEM	10	9	3	NL	Case Under Development 3/31/2011 **

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

PWSID	SYSTEM NAME	COMMENTS
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,	CO 97-0107 issued Aug 97, RTC 19 Sep 96

	INC	
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 Supply
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 Supply (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 Supply 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 Supply (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 Supply (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 causes, including thief, fire, flood, vandalism, etc.

Business Plan Worksheet

Category	Specific Budget Items	Amount	Amount	Amount
		Year One	Year Two	Year Three
INCOME				
	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)			
EXPENSES				
	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)			
TOTAL ¹	Net Income (or Loss)			

Signature: _____ Date: _____

¹ 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

JURISDICTION LIST FOR THE UTILITY MANAGEMENT REVIEW BOARD OCTOBER 2011

<u>DISTRICT</u>		<u>COUNTY</u>	<u>LAST AUDIT</u>	<u>LAST BD APPEARANCE</u>
Arthur Shawanee UD	WL	Claiborne	June-10	October-11
Bedford County UD		Bedford	June-10	April-10
Bloomington UD	WL	Sullivan	June-10	October-11
Blountville UD	WL	Sullivan	June-10	October-11
Bristol-Bluff City UD		Sullivan	July-10	October-10
Calhoun-Charleston UD	WL	McMinn	September-10	October-11
Cedar Grove UD	WL	Carroll	June-10	October-11
Chuckey UD	WL	Greene	June-10	October-11
Cross Anchor UD	WL	Greene	June-10	October-11
Cumberland Heights UD		Montgomery	July-10	April-11
Cunningham UD		Montgomery	December-10	April-11
DeWhite UD	WL	White	December-10	October-11
East Sevier UD	WL	Sevier	June-10	October-11
Fall River Road UD		Lawrence	December-10	October-11
First UD of Carter County		Carter	October-10	February-10
First UD of Hardin County		Hardin	March-11	October-11
Gibson County Municipal District	WL	Gibson	November-10	October-11
Grandview UD		Rhea	December-10	December-10
Harbor UD	WL	Benton	June-10	October-11
Holston UD		Carter	February-11	February-10
Intermont UD		Sullivan	December-10	October-11
Iron City UD		Lawrence	December-09	February-10
Lakeview UD		Hawkins	December-09	February-08
Lone Oak UD		Sequatchie	December-09	April-10
Minor Hill UD	WL	Giles	December-10	October-11
Mooresburg UD		Hawkins	December-08	August-08
Mowbray UD	WL	Hamilton	June-10	October-11
Northeast Henry County UD	WL	Henry	June-10	October-11
Old Hickory UD		Davidson	October-10	October-11
Perryville UD	WL	Decatur	December-10	October-11
Reelfoot Lake Regional Utility/Planning Dist		Obion	January-10	December-10
Roan Mountain UD		Carter	March-11	October-11
Sale Creek UD	WL	Hamilton	August-10	October-11
Saltillo UD	WL	Hardin	October-10	October-11
Samburg Utility District		Obion	January-10	October-08
Shady Grove UD	WL	Jefferson	September-10	October-11
Sneedville UD		Hancock	March-09	December-10
SoddyDaisy-Falling Water UD	WL	Hamilton	June-10	October-11
South Elizabethton UD	WL	Carter	February-10	October-11

Tuckaleechee UD	Blount	June-10	April-10
Webb Creek UD	Sevier	December-10	February-08
West Overton UD	WL Overton	December-10	October-11
West Point UD	Lawrence	December-10	February-10

WL: Under the Board for Water Loss considerations

Appendix 6
JURISDICTION LIST - WATER & WASTEWATER FINANCING BOARD NOVEMBER 2011

<u>SYSTEM</u>		<u>COUNTY</u>	<u>LAST AUDIT</u>	<u>LAST BD APPEARANCE</u>
Town of Alexandria	WL	DeKalb	2010	Nov-11
City of Allardt		Fentress	2010	Nov-10
Town of Baileyton		Greene	2010	Nov-11
City of Bartlett		Shelby	2010	Jul-11
Town of Baxter	WL	Putnam	2010	Nov-11
Town of Bethel Springs	WL	McNairy	2010	Nov-11
City of Bluff City		Sullivan	2010	Nov-10
Town of Bruceston		Carroll	2010	Jul-11
Town of Bulls Gap		Greene	2009	Sep-09
Town of Byrdstown	WL	Pickett	2010	Nov-11
City of Camden	WL	Benton	2010	Nov-11
Town of Carthage		Smith	2010	Jul-11
City of Charlotte		Dickson	2010	Jul-10
City of Clifton		Wayne	2010	Jul-11
City of Copperhill	WL	Polk	2009	Jul-11
Town of Cumberland Gap	WL	Claiborne	2010	Nov-11
Town of Decaturville		Decatur	2009	Nov-09
City of Decherd	WL	Franklin	2010	Jul-11
Town of Dresden	WL	Weakley	2010	Nov-11
City of Dyer		Gibson	2010	Sep-10
City of Elizabethton		Carter	2010	Jul-11
City of Erin	WL	Houston	2010	Nov-11
City of Etowah		McMinn	2010	Nov-11
City of Friendship		Crockett	2008	Nov-09
City of Friendsville	WL	Blount	2010	Jul-11
Town of Gainesboro		Jackson	2010	Jul-11
City of Gallaway		Fayette	2009	Nov-11
City of Gatlinburg		Sevier	2010	May-10
Town of Gibson		Gibson	2010	Sep-09
City of Grand Junction		Fayette	2010	May-11
Town of Graysville		Rhea	2010	Nov-11
Town of Greeneville		Greene	2010	Jul-11
Town of Halls		Lauderdale	2010	Jul-11
City of Harriman	WL	Morgan	2010	Nov-11
Town of Henning	WL	Lauderdale	2010	May-11
City of Hohenwald		Lewis	2010	Nov-11
Town of Huntland		Franklin	2010	May-10
City of Jamestown		Fentress	2010	Jul-11
Town of Jasper		Marion	2010	Jul-11
City of Jellico	WL	Campbell	2010	Nov-11
City of Johnson City	WL	Carter	2010	Nov-11
Town of Jonesborough		Washington	2010	Nov-11
Town of LaGrange		Fayette	2010	Jul-11
City of Lake City	WL	Anderson/Campbell	2010	Nov-11

City of Lakeland		Shelby	2010	May-10
City of LaVergne		Rutherford	2010	Jul-11
Town of Linden	WL	Perry	2010	Jul-11
City of Luttrell		Union	2010	Jul-11
Town of Lynnville	WL	Giles	2010	Nov-11
Town of Mason		Tipton	2006	May-10
Town of Maynardville	WL	Union	2010	Nov-11
City of McEwen		Humphreys	2009	Sep-10
City of McKenzie	WL	Carroll	2010	Nov-11
Town of McLemoresville		Carroll	2010	Jul-10
City of Memphis		Shelby	2010	Sep-10
City of Michie		McNairy	2010	Mar-12
City of Millington		Shelby	2010	Sep-09
City of Morristown		Hamblen	2010	Jul-11
Town of Mosheim		Greene	2010	Sep-10
Town of Mountain City	WL	Johnson	2010	Nov-11
City of Mount Pleasant	WL	Maury	2010	Jul-11
City of Niota		McMinn	2010	Nov-11
Town of Oneida		Scott	2010	Nov-11
City of Pigeon Forge		Sevier	2010	Jul-11
City of Pikeville		Bledsoe	2010	Nov-11
City of Piperton		Fayette	2010	Mar-12
City of Puryear		Henry	2010	Nov-10
City of Ramer		McNairy	2009	May-11
Town of Ridgely		Lake	2010	Jul-11
City of Rives		Obion	2010	Nov-10
City of Rockwood		Roane	2010	Nov-11
Town of Rutherford		Gibson	2010	Sep-10
City of Savannah		Hardin	2010	Sep-10
City of Spencer	WL	Van Buren	2010	Nov-11
City of Springfield		Robertson	2010	Nov-11
Town of Stanton		Haywood	2010	Jul-10
Town of Tellico Plains	WL	Monroe	2010	Nov-11
Town of Tiptonville		Lake	2010	Nov-11
Town of Trezevant	WL	Carroll	2007	Nov-11
Town of Trimble		Dyer/Obion	2010	Jul-10
Town of Troy		Obion	2010	Nov-10
Town of Vonore		Blount/Monroe	2010	May-10
Town of Wartrace	WL	Bedford	2010	Nov-11
City of Waverly		Humphreys	2010	Jul-11
City of Westmoreland	WL	Sumner	2010	May-11
City of Whitwell		Marion	2008	Mar-10
City of Winchester		Franklin	2009	Jul-11
Town of Woodbury	WL	Cannon	2010	Nov-11

WL: Under the Board for Water Loss considerations

Appendix 7

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, Order 9/08, RTC Jan 09
0000013	NORTH OVERTON UTILITY DISTRICT	HAA5 and THM MCL from July 07 – Mar 08, RTC Apr 08, Order 7/08
0000041	BEAN STATION UTILITY DISTRICT	THM MCL from April 08 – Mar 09, Order 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; Order 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, Order 8/08, RTC Jan 09 TTHM MCL, Jul 06 – Jun 08, Order 8/08, RTC Jul 09
0000278	GRIFFITH CREEK UTILITY DIST	TTHM MCL and Mon, Jul 06 – Dec 08, Order 5/08
0000520	BRUSHY MTN PRISON	THM MCL, Oct 07 – Sep 08, Order 8/08, RTC Oct 08
0000552	FALL CREEK FALLS UTILITY DIST	HAA5 MCL, Jul 06 – Jun 09, Order 9/08
0000593	ROGERSVILLE WATER SYSTEM	HAA5 MCL, Jul 06 – Dec 08, Order 7/08, RTC Jan 09
0000596	LAKEVIEW UTILITY DISTRICT	HAA MCL Apr –Dec 08; Jan-Mar 10; THM M/R Jan 10-Mar 10; Order 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; Order 8/08.
0000649	SOUTH GILES UTILITY DISTRICT	HAA5 MCL, Jul 07 – Jun 08, Order 6/08, RTC Jul 08
0000651	SOUTH PITTSBURG WATER SYSTEM	HAA5 MCL and Mon, Oct 07, Dec 08, Order 8/08, RTC Jan 09
0000673	STRIGGERSVILLE UTIL DIST	HAA5 MCL, Jul 06 – Jun 08, RTC Jul 08, Order 9/08
0000699	H.B.& T.S. UTILITY DISTRICT	HAA5 MCL, Jul 06 – Mar 08, RTC Apr 08, Order 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 8

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 9
DWSRF FY2011 Priority Ranking List
 Total DWSRF \$103,438,795

*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 (\$)	PW SID # TN000...	FY of Priority Ranking List	Const. Start	Const. Completion
Row left blank intentionally													
1	85	10%	OLD GAINESBORO ROAD UTILITY DISTRICT	JACKSON/PUTNAM	WATER STORAGE TANK	\$ 1,000,000.00	\$ 1,000,000.00	\$ -	\$ -	0135	FY2011	Sep-11	Aug-12
2	65	20%	SHARON	WEAKEY	GREEN ELEVATED STORAGE TANK - Green Business Case Required	\$ 658,300.00	\$ 1,658,300.00	\$ 658,300.00	\$ 658,300.00	0627	FY2011	Sep-12	Sep-13
3	65	30%	ALEXANDRIA	DEKALB	2011 WATER LINE REHAB-UPSIZE AND WATER LOSS PREVENTION	\$ 1,000,000.00	\$ 2,658,300.00	\$ -	\$ 658,300.00	0008	FY2011	Oct-11	Feb-12
4	65	30%	ALEXANDRIA	DEKALB	BRUSH CREEK PUMP STATION REPLACEMENT, WL REPLACEMENT/UPSIZE	\$ 300,000.00	\$ 2,958,300.00	\$ -	\$ 658,300.00	0008	FY2011	Mar-12	Aug-12

5	65	40%	BELL BUCKLE	BEDFORD	WARTRACE ROAD WATER LINE REHABILITATION	\$ 400,000.00	\$ 3,358,300.00	\$ -	\$ 658,300.00	0044	FY2011	Aug-11	Nov-11
6	65	50%	CROSS ANCHOR UTILITY DISTRICT	GREENE	GREEN-LEAK DETECTION METERS, WL REPLACEMENT TO PREVENT WATER LOSS - Green Business Case Required	\$ 2,850,000.00	\$ 6,208,300.00	\$ 2,850,000.00	\$ 3,508,300.00	0149	FY2011	Jan-12	Oct-12
7	65	50%	ELIZABETHTON	CARTER	GREEN WATER LOSS REDUCTION PROGRAM INCLUDING LEAK DETECTION PROGRAM, WL REPLACEMENT, AUTO-READ METERS, METER CALIBRATION & REPAIR - Green Business Case Required	\$ 2,800,000.00	\$ 9,008,300.00	\$ 600,000.00	\$ 4,108,300.00	0221	FY2011	Jun-11	Jun-12
8	65	50%	JEFFERSON CITY	JEFFERSON	GREEN JARNIGAN WELL RW PS EXPANSION, NEW WELL, WL UPGRADE, WTP UPGRADE W EMERGENCY GENERATOR, WL REPLACEMENT, PS REPLACEMENT, WATER LOSS CORRECTION - Green Business Case Required	\$ 4,000,000.00	\$ 13,008,300.00	\$ 500,000.00	\$ 4,608,300.00	0328	FY2011	Jan-12	Jun-13

9	65	80%	CROSSVILLE	CUMBERLAND	MAIN ST WL REPLACEMENT	\$ 1,530,000.00	\$ 14,538,300.00	\$ -	\$ 4,608,300.00	0150	FY2011	Dec-11	Dec-12
10	65	80%	LEBANON	WILSON	GREEN WTP ADDITIONS AND MODS FOR DISINFECTION BY-PROD RULES - Green Business Case Required	\$ 10,000,000.00	\$ 24,538,300.00	\$ 10,000,000.00	\$ 14,608,300.00	0393	FY2011	Jul-12	Dec-13
11	65	80%	LEBANON	WILSON	GREEN-CLEARWELL AT WTP - Green Business Case Required	\$ 2,500,000.00	\$ 27,038,300.00	\$ 2,500,000.00	\$ 17,108,300.00	0393	FY2011	Oct-11	Sep-12
12	45	0%	WEST-WARREN VIOLA UTILITY DISTRICT	GRUNDY/COFFEE/CANON/WARR EN	FLAT MTN 1.0 MG WATER STORAGE TANK & TRANSMISSION MAIN	\$ 3,900,000.00	\$ 30,938,300.00	\$ -	\$ 17,108,300.00	0742	FY2011	Jun-12	Oct-13
13	45	10%	CUMBERLAND UTILITY DISTRICT	Morgan/Roane	GREEN WATER LOSS CORRECTION PROJECT-WL REPLACEMENT - Green Business Case Required	\$ 5,500,000.00	\$ 36,438,300.00	\$ 5,500,000.00	\$ 22,608,300.00	0531	FY2011	Dec-11	Aug-12
14	45	40%	ARTHUR-SHAWANEE UTILITY DISTRICT	CLAIBORNE	GREEN-WL REPLACEMENTS, WATER LOSS CORRECTION - Green Business Case Required	\$ 838,149.00	\$ 37,276,449.00	\$ 150,000.00	\$ 22,758,300.00	0022	FY2011	Jun-12	Mar-13
15	45	40%	FIRST UTILITY DISTRICT OF HAWKINS COUNTY	HAWKINS	GREEN PHASE II-HORD CREEK BOOSTER STATION; WL EXTENSION, NEW PS, DECOM OF EXISTING HORD CR WTP - Green Business Case Required	\$ 700,000.00	\$ 37,976,449.00	\$ 255,000.00	\$ 23,013,300.00	0109	FY2011	Jul-11	Dec-11

16	45	40%	MINOR HILL UTILITY DISTRICT	GILES	BETHEL RD WL REHAB	\$ 580,000.00	\$ 38,556,449.00	\$ -	\$ 23,013,300.00	0469	FY2011	Oct-11	Feb-12
17	45	40%	MINOR HILL UTILITY DISTRICT	GILES	MINOR HILL HWY WL REHAB	\$ 450,000.00	\$ 39,006,449.00	\$ -	\$ 23,013,300.00	0469	FY2011	Oct-11	Feb-12
18	45	40%	OCOEE UTILITY DISTRICT	POLK BRADLEY	2010 WATER SYSTEM IMPROVEMENTS-WL REPLACEMENT, VARIOUS AREAS, WATER LOSS CORRECTION	\$ 870,000.00	\$ 39,876,449.00	\$ -	\$ 23,013,300.00	0525	FY2011	Oct-11	Apr-12
19	45	40%	OCOEE UTILITY DISTRICT	POLK BRADLEY	SLOAN GAP WL EXTENSION	\$ 160,000.00	\$ 40,036,449.00	\$ -	\$ 23,013,300.00	0525	FY2011	Apr-11	Oct-12
20	45	40%	OCOEE UTILITY DISTRICT	POLK BRADLEY	WELCOME VALLEY WL EXTENSION	\$ 300,000.00	\$ 40,336,449.00	\$ -	\$ 23,013,300.00	0525	FY2011	May-11	Oct-12
21	45	40%	OCOEE UTILITY DISTRICT	POLK BRADLEY	WILDWOOD WTP WELL DEVELOPMENT	\$ 100,000.00	\$ 40,436,449.00	\$ -	\$ 23,013,300.00	0525	FY2011	Aug-11	Oct-11
22	45	40%	WAVERLY	HYMPHREYS	2011 WL REHAB-DOWNTOWN	\$ 500,000.00	\$ 40,936,449.00	\$ -	\$ 23,013,300.00	0733	FY2011	Oct-11	Feb-12
23	45	40%	WAVERLY	HYMPHREYS	DUCK RIVER WL CROSSING	\$ 200,000.00	\$ 41,136,449.00	\$ -	\$ 23,013,300.00	0733	FY2011	Aug-11	Oct-11
24	45	40%	WAVERLY	HYMPHREYS	DUCK RIVER WTP BACKWASH LAGOONS	\$ 300,000.00	\$ 41,436,449.00	\$ -	\$ 23,013,300.00	0733	FY2011	Jul-11	Dec-11
25	45	50%	CHUCKEY UTILITY DISTRICT	GREEN/WASHINGTON	GREEN LEAK DETECTION METERS, WL REPLACEMENT, WATER LOSS CORRECTION - Green Business Case Required	\$ 1,550,000.00	\$ 42,986,449.00	\$ 1,550,000.00	\$ 24,563,300.00	0108	FY2011	Jan-12	Oct-12

26	45	60%	DAYTON	RHEA	GREEN WTP UPGRADES AND EXPANSION INCLUDING NEW FINISHED WATER TRANSMISSION LINES - Green Business Case Required	\$ 15,950,000.00	\$ 58,936,449.00	\$ 700,000.00	\$ 25,263,300.00	0174	FY2011	Jun-12	Jul-14
27	45	60%	LAFAYETTE	MACON	WTP EXPANSION	\$ 2,950,000.00	\$ 61,886,449.00	\$ -	\$ 25,263,300.00	0373	FY2011	Dec-11	Sep-12
28	45	60%	LAVERGNE	RUTHERFORD	GREEN WTP UPGRADE - Green Business Case Required	\$ 1,270,000.00	\$ 63,156,449.00	\$ 800,000.00	\$ 26,063,300.00	0386	FY2011	Jul-11	Jun-12
29	45	70%	CLEVELAND	BRADLEY	PHASE I, WATER DISTRIBUTION MAIN IN SOUTH CLEVELAND-HWY 64/74 WATER MAIN	\$ 2,730,000.00	\$ 65,886,449.00	\$ -	\$ 26,063,300.00	0117	FY2011	Sep-11	May-12
30	45	70%	COOKEVILLE	PUTNAM	PHASE 2-WTP UPGRADE AND EXPANSION	\$ 6,000,000.00	\$ 71,886,449.00	\$ -	\$ 26,063,300.00	0133	FY2011	Sep-11	Oct-12
31	45	70%	OAK RIDGE	ANDERSON	GREEN RAW WATER BOOSTER PUMPS/ELECTRICAL UPGRADES - Green Business Case Required	\$ 2,000,000.00	\$ 73,886,449.00	\$ 2,000,000.00	\$ 28,063,300.00	0522	FY2011	Nov-11	Nov-14
32	45	70%	TUCKALEECHEE UTILITY DISTRICT	BLOUNT	GREEN NORTH SECTOR WL EXTENSION AND REPLACEMENT, WATER LOSS CORRECTION - Green Business Case Required	\$ 1,596,592.00	\$ 75,483,041.00	\$ 432,760.00	\$ 28,496,060.00	0714	FY2011	Mar-13	Dec-13

33	45	80%	CROSSVILLE	CUMBERLAND	CHESTNUT HILL INDUSTRIAL PARK WL EXTENSION	\$ 650,000.00	\$ 76,133,041.00	\$ -	\$ 28,496,060.00	0150	FY2011	Dec-11	Dec-12
34	45	80%	CROSSVILLE	CUMBERLAND	GREEN WATER FILTRATION IMPROVEMENTS AT HOLIDAY HILL WTP AND MEADOW PARK LAKE WTP - Green Business Case Required	\$ 1,700,000.00	\$ 77,833,041.00	\$ 50,000.00	\$ 28,546,060.00	0150	FY2011	Jul-11	Jul-12
35	45	80%	CROSSVILLE	CUMBERLAND	WL REPLACEMENT-LANTANA RD, US127 WL REHAB	\$ 2,310,000.00	\$ 80,143,041.00	\$ -	\$ 28,546,060.00	0150	FY2011	Dec-11	Dec-12
36	45	80%	GREENEVILLE	GREENE	GREEN WTP PUMP UPGRADES - Green Business Case Required	\$ 640,520.00	\$ 80,783,561.00	\$ 640,520.00	\$ 29,186,580.00	0273	FY2011	Sep-11	Mar-12
37	45	80%	GREENEVILLE	GREENE	WL EXTENSION/IMPROVEMENTS-EAST SIDE WATER MAIN UPGRADE	\$ 3,145,234.00	\$ 83,928,795.00	\$ -	\$ 29,186,580.00	0273	FY2011	Nov-11	Nov-12
38	45	80%	LEBANON	WILSON	GREEN FRANKLIN RD/HOLLOWAY DR & CARVER LN WATER TRANSMISSION MAIN CONNECTORS - Green Business Case Required	\$ 850,000.00	\$ 84,778,795.00	\$ 850,000.00	\$ 30,036,580.00	0393	FY2011	Nov-11	Apr-12
39	45	80%	LEBANON	WILSON	GREEN PHASE IV WATER MAIN REHAB/REPLACE - Green Business Case Required	\$ 400,000.00	\$ 85,178,795.00	\$ 400,000.00	\$ 30,436,580.00	0393	FY2011	May-12	Nov-12

40	45	80%	LEBANON	WILSON	GREEN PHASE V WATER MAIN REHAB/REPLACE - Green Business Case Required	\$ 420,000.00	\$ 85,598,795.00	\$ 420,000.00	\$ 30,856,580.00	0393	FY2011	May-12	Nov-12
41	25	10%	OLD GAINESBORO ROAD UTILITY DISTRICT	JACKSON/PUTNAM	GREEN-AUTOMATED METER READING SYSTEM - Categorically Green	\$ 400,000.00	\$ 85,998,795.00	\$ 400,000.00	\$ 31,256,580.00				
42	25	20%	CARDER VIEW UTILITY DISTRICT	CARTER/JOHNSON	GREEN METERS, NEW WATER TANK, PS UPGRADE, WL EXTENSIONS, BLDG - Green Business Case Required	\$ 520,000.00	\$ 86,518,795.00	\$ 205,000.00	\$ 31,461,580.00	0085	FY2011	Jan-12	Oct-12
43	25	30%	ALEXANDRIA	DEKALB	GREEN METERS-AMRs - Categorically Green	\$ 200,000.00	\$ 86,718,795.00	\$ 200,000.00	\$ 31,661,580.00	0008	FY2011	Jul-11	Dec-11
44	25	30%	ALEXANDRIA	DEKALB	WATER SOURCE DEVELOPMENT AND TRANSMISSION LINE, NEW WATER TREATMENT FACILITY	\$ 4,000,000.00	\$ 90,718,795.00	\$ -	\$ 31,661,580.00	0008	FY2011	Oct-11	Mar-11
45	25	30%	COLD SPRINGS UTILITY DISTRICT	JOHNSON	GREEN RADIO READ METERS, BACKUP GENERATOR AT THE WTP, WATERLINE UPSIZE, LEAK DETECTION EQUIPMENT, REPAIR SPRING BOX' CONCRETE TOP, ADD NEW VALVES ON BLOW-OFFS SYSTEMWIDE	\$ 510,000.00	\$ 91,228,795.00	\$ 197,000.00	\$ 31,858,580.00	0485	FY2011	Apr-12	Oct-12

					- Categorically Green								
46	25	30%	NIOTA	MCMINN	GREEN AUTO-READ METER SYSTEM - Categorically Green	\$ 760,000.00	\$ 91,988,795.00	\$ 760,000.00	\$ 32,618,580.00	0510	FY2011	Feb-12	Jan-13
47	25	30%	NIOTA	MCMINN	WATER TANK	\$ 650,000.00	\$ 92,638,795.00	\$ -	\$ 32,618,580.00	0510	FY2011	Feb-12	Jan-13
48	25	40%	MINOR HILL UTILITY DISTRICT	GILES	GREEN WATER METER REPLACEMENT-AUTO READ METERS - Categorically Green	\$ 400,000.00	\$ 93,038,795.00	\$ 400,000.00	\$ 33,018,580.00	0469	FY2011	Jul-11	Dec-11
49	25	40%	OCOEE UTILITY DISTRICT	POLK BRADLEY	CONASAUGA WATER STORAGE TANK	\$ 700,000.00	\$ 93,738,795.00	\$ -	\$ 33,018,580.00	0525	FY2011	Apr-11	Oct-12
50	25	40%	OCOEE UTILITY DISTRICT	POLK BRADLEY	GREEN WATER METER REPLACEMENT-AUTO READ METERS - Categorically Green	\$ 900,000.00	\$ 94,638,795.00	\$ 900,000.00	\$ 33,918,580.00	0525	FY2011	Jul-11	Dec-11
51	25	40%	WAVERLY	HYMPHREYS	DUCK RIVER WTP BACKUP POWER GENERATOR	\$ 250,000.00	\$ 94,888,795.00	\$ -	\$ 33,918,580.00	0733	FY2011	Oct-11	Dec-11
52	25	40%	WAVERLY	HYMPHREYS	GREEN METERS-AMRs - Categorically Green	\$ 525,000.00	\$ 95,413,795.00	\$ 525,000.00	\$ 34,443,580.00	0733	FY2011	Jul-11	Dec-11

53	25	40%	WAVERLY	HYMPHREYS	TOWN HILL WATER TANK	\$ 700,000.00	\$ 96,113,795.00	\$ -	\$ 34,443,580.00	0733	FY2011	Oct-11	Jun-12
54	25	50%	OLD KNOXVILLE HWY WATER UTILITY DISTRICT	GREENE	GREEN WATER LOSS CORRECTION-RADIO READ METERS, PRESSURE REDUCING VALVES, METERING EQUIPMENT, LEAK DETECTION SERVICES AND EQUIPMENT - Categorically Green	\$ 950,000.00	\$ 97,063,795.00	\$ 950,000.00	\$ 35,393,580.00	0530	FY2011	Oct-11	Oct-12
55	25	50%	TELLICO AREA SERVICES SYSTEM	MONROE/LONDON	WATER TANK-GREENBACK	\$ 1,000,000.00	\$ 98,063,795.00	\$ -	\$ 35,393,580.00	0726	FY2011	Oct-11	Jun-12
56	25	50%	WHITE HOUSE UTILITY DISTRICT	ROBERTSON/SUMNER	GREEN REAL TIME LEAK DETECTION SYSTEM - Categorically Green	\$ 700,000.00	\$ 98,763,795.00	\$ 700,000.00	\$ 36,093,580.00	0745	FY2011	Aug-11	Aug-12
57	25	70%	TUCKALEECHEE UTILITY DISTRICT	BLOUNT	GREEN WATER LOSS CORRECTION-RADIO READ METERS - Categorically Green	\$ 750,000.00	\$ 99,513,795.00	\$ 750,000.00	\$ 36,843,580.00	0714	FY2011	Jul-11	Jan-12
58	25	80%	CROSSVILLE	CUMBERLAND	NEW WATER TANK-PLATEAU RD.	\$ 825,000.00	\$ 100,338,795.00	\$ -	\$ 36,843,580.00	0150	FY2011	Jul-11	Feb-12
59	25	80%	LENOIR CITY	LOUDON	GREEN AUTO-READ METER SYSTEM - Categorically Green	\$ 1,900,000.00	\$ 102,238,795.00	\$ 1,900,000.00	\$ 38,743,580.00	0396	FY2011	Aug-11	Dec-11
60	25	80%	MADISON SUBURBAN UTILITY DISTRICT	DAVIDSON	GREEN AUTO-READ METER SYSTEM - Categorically Green	\$ 1,200,000.00	\$ 103,438,795.00	\$ 1,200,000.00	\$ 39,943,580.00	0424	FY2011	Mar-12	Mar-17