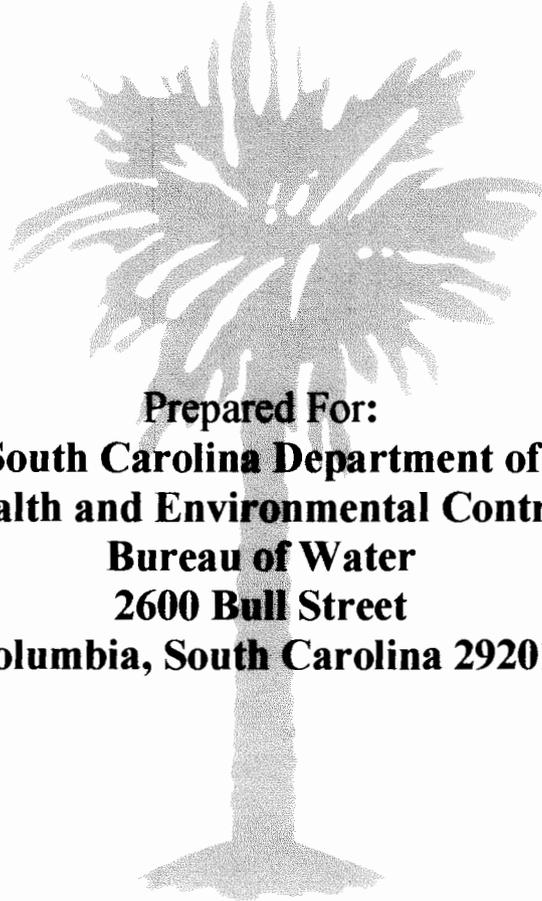


**CAPACITY DEVELOPMENT  
TECHNICAL ASSISTANCE PROGRAM  
FINAL REPORT  
APRIL 2005**



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Health and Environmental Control  
Bureau of Water  
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*May 2, 2005*

*Mr. Mark Noble  
Bureau of Water  
South Carolina Department of  
Health and Environmental Control  
2600 Bull Street  
Columbia, South Carolina 29201-1708*

*RE: Technical Assistance Final Report*

*Dear Mr. Noble:*

Attached is the final report for the South Carolina Department of Health and Environmental Control Capacity Development Technical Assistance Program. The program was created by the SCDHEC Bureau of Water through funding from the USEPA Safe Drinking Water Act State Revolving Fund to provide technical assistance to small water systems with development of a business plan.

The report generally consists of a discussion of the goals of the program, the viability concept, legal requirements for a business plan, and the project team that implemented the program. Background information is provided that discusses the overall classifications, various governance, and general compliance data of the participating water systems. Specific information is provided regarding the development of the program throughout the contract period relating to marketing, levels of technical assistance, final report templates, and follow-up assistance.

A discussion of the program results is provided to illustrate the compliance, technical, managerial, and financial aspects of the various types of systems. Several conclusions are drawn that discuss the costs and benefits of viable water systems, a summary of each system by S.C. County and SCDHEC District, and various mergers and consolidations. Observations are made and recommendations are delivered that deal with the various Capacity Development strategy initiatives. The ultimate goal of this program was to enhance water systems by providing them with engineering, operational, financial, and managerial assistance from an independent team of professionals through the preparation of a business plan.

Thank you very much for your assistance throughout this contract. If you have any questions or require additional information, please do not hesitate to contact me at 803-359-3200.

*Sincerely,*  
***FORCE & ASSOCIATES, INC.***

  
*Greg Force*

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# Executive Summary

## 1. Purpose of the Technical Assistance Program

The main purpose of the South Carolina Department of Health of Environmental Control (SCDHEC) Capacity Development Program is to help public water systems remain viable and compliant with all State and Federal regulations. The Technical Assistance Program is one of the initiatives of the State's Capacity Development Strategy.

The ultimate goal of the Technical Assistance program was to develop business plans for public water systems. An independent team of professionals provided engineering, operational, financial, and managerial assistance to develop these business plans.

The business plan development process consisted of completing an initial assessment questionnaire and asset sheet; providing three levels of technical assistance; assembling a business plan template and analyzing alternative procedures.

According to the State Primary Drinking Water Regulations (R.61.58), a "Viable Water System" is defined as "*a water system which is self-sustaining and has the commitment and financial, managerial and technical capability to consistently comply with the State Safe Drinking Water Act (44-55-10 et.seq) and these regulations.*" A Business Plan, if followed, should ensure the long term viability of a water system.

A Business Plan is required if a system possesses an operating permit and receives an "Unsatisfactory" rating on a sanitary survey or if the system has an "Unsatisfactory" rating on a sanitary survey and then receives an Operating Permit. A Business Plan may also be required in a Consent Order or Administrative Order issued by the SCDHEC Bureau of Water Enforcement Division.

The Department uses the Sanitary Survey Program, the issuing of Operating Permits, and the development of Business Plans as an effective strategy to ensure public water systems remain compliant and viable.

## 2. Contract

To assist in the implementation of these provisions, the SCDHEC Bureau of Water utilized a portion of its allocated funds from the USEPA Safe Drinking Water Act State Revolving Fund to fund a technical assistance program. A Request for Proposal (RFP) was issued by the SCDHEC in February 2000 to "Provide technical assistance services for South Carolina's small public water systems." On May 9, 2000 Force & Associates, Inc. was awarded a five-year contract by the SCDHEC Bureau of Water Capacity Development Program to provide free technical assistance to existing small federally defined water systems with populations less than 10,000. The contract ended on April 30, 2005.

### **3. Participating Systems**

During the contract period, 115 public water systems obtained technical assistance (TA). Of these 115 systems, 21 chose not to receive all levels of assistance.

### **4. System Feedback**

A customer service survey was sent to each of the water systems that received assistance during each phase of the program. Each survey contained a pre-addressed, stamped envelope for direct submittal to the Bureau of Water. Positive comments were received from almost all of the participating systems. Examples of these comments included: "Excellent Program" and "The assistance facilitated the development of a thorough business plan for our water department. The plan should prove to be very useful especially as we plan for needs to be covered in future budgets".

### **5. Program Results**

During the development of a Business Plan, the system's technical, managerial, and financial capacity was evaluated. During development of the technical plans, it was noted that the majority of systems in the program utilized groundwater as a main source of potable water. Approximately 38% of the "Community" systems may be impacted by the future Ground Water Rule. It was found that 25 to 33 percent of the systems required tank maintenance. Approximately 22% of the systems had source capacity issues. Nearly half of the systems lacked adequate Operation and Maintenance (O&M) manuals and Standard Operating Procedures (SOPs).

While developing the managerial plans, it was observed that the majority of the systems in the program were privately owned followed by municipalities. It was apparent that most small water systems lacked the expertise to adequately plan and implement long range strategic and capital plans.

While compiling the financial plans it was noted that just over one-half of the "Community" systems possessed an operating budget and almost none of the systems had an adequate rate structure or an asset management plan.

### **6. Conclusions and Recommendations**

#### **a. Technical assistance for Financial Management**

Fiscal management is one of the weakest areas among South Carolina's public water systems. Lack of technical assistance will continue to limit the fiscal viability of the state's water systems. It is recommended that another source of funds be developed; this could be funded in the same way as this Technical Assistance Program was funded.

### ***b. Technical Assistance for small sewer systems***

Technical assistance for small sewer systems should be considered. Most of the small towns that operate a public water system also operate a sewer system. Every small water system in this program that operates a sewer system wanted the same technical assistance for their sewer system.

### ***c. Merger and Consolidation Funding***

Currently the State Revolving Fund charges 1% interest on loans for consolidating a non-viable system with a viable system. Unfortunately, loans are not enough to get cash poor systems interested in consolidations or mergers. Grant funds should be provided for consolidations and mergers.

At least 28 (24%) water systems have chosen to pursue an alternative method of operations. Of these 28, eight have or are pursuing an interconnection with another system, three are pursuing a different source of potable water, eight have dissolved or are in the process of pursuing the dissolution alternative, eight have or are in the process of pursuing a regionalization option, and one is pursuing a merger option. Based on these statistics, it appears that the technical assistance program has been successful in meeting the Capacity Development strategy initiatives.

### ***d. Sanitary Survey Ratings***

Participation in the Technical Assistance Program and the development and implementation of their Business Plan has assisted systems to receive improved individual and overall ratings on their Sanitary Survey and resolve various compliance issues. During the course of the program 67% of the systems improved their sanitary survey rating.

### ***e. General Program Observations***

The majority of states rely on federally funding programs such as Rural Water Associations (RWA) and the Rural Community Assistance Project (RCAP). South Carolina, in addition to these same types of ongoing services, initiated this additional technical assistance program. It is apparent that South Carolina is leading the southeast and perhaps the nation in providing innovative and effective technical assistance to small water systems

# Introduction

## 1. Goal of Capacity Development Program

On August 6, 1996, the Safe Drinking Water Act Amendments of 1996 were signed into law. The Amendments included "Capacity Development" provisions. Capacity Development, as defined by the United States Environmental Protection Agency (USEPA), "*is a State effort to help drinking water systems improve their finances, management, infrastructure, and operations so they can provide safe drinking water consistently, reliably, and cost-effectively. More specifically, the capacity development provisions provide an exceptionally flexible framework within which States and water systems can work together to ensure that systems acquire and maintain the technical, financial, and managerial capacity to consistently achieve the health objectives of the 1996 Safe Drinking Water Act*".

According to section 1420(c) of the 1996 Amendments to the Safe Drinking Water Act, "*the State must develop and implement a strategy to assist public water systems in acquiring and maintaining technical, managerial, and financial capacity.*" According to section 1452(a)(3) of the 1996 Amendments to the Safe Drinking Water Act, "*the use of such assistance will ensure compliance; and the system has agreed to make the necessary changes in operation to ensure that it has the technical, managerial, and financial capacity to comply over the long term.*"

In the South Carolina Department of Health and Environmental Control (SCDHEC) Capacity Development Strategy for Existing Public Water Systems dated February 2000 there are several strategic initiatives the Department planned to implement or to continue.

These initiatives were as follows:

- Construction Permitting Program and Design Standards
- Sanitary Survey Program
- Water Quality Monitoring and Annual Fee Program
- Business Plans
- Operating Permit Program
- Developing Benchmarks from Annual Financial Statements from Existing Water Systems to Help Determine the Adequacy of Business Plans
- Encourage and Facilitate the Consolidation and Regionalization of Public Water Systems
- Encourage and Facilitate the Local Planning Process and Coordination Between State and Local Governments
- Public Education Initiative

Working in the technical assistance program for the Department provided an opportunity to evaluate the effectiveness of three key initiatives: the Sanitary Survey Program, the issuing of Operating Permits and the development of Business Plans.

The genesis of the Department's effort to promote and enforce compliance with regulations is the viability definition and concept. Beginning in 1993, the State Safe Drinking Water Act (SDWA) was amended to use the term "viability" as a criterion for making permitting decisions. Section 44-55-120(D) of the State Safe Drinking Water Act states:

*"The Department may deny a construction permit to any new system which is unable to demonstrate viability to comply with the Safe Drinking Water Act or where connection to an existing, viable water system is feasible. The Department also may revoke or deny renewal of an operating permit to any existing water system which is unable to demonstrate its ability to continue compliance with this Act."*

In 1998, the State Primary Drinking Water Regulations (SPDWR) was revised to include provisions to allow the Department to issue operating permits to all public water systems. Within these regulations is a provision that should a water system receive an "Unsatisfactory" on its sanitary survey, the system must develop a Business Plan to provide the Department with a detailed plan for how the system will become and remain compliant as well as viable.

To assist in the implementation of these provisions, the SCDHEC Bureau of Water utilized a portion of its allocated funds from the USEPA Safe Drinking Water Act State Revolving Fund to fund a technical assistance program.

The ultimate goal of this program was to enhance water systems by improving their regulatory compliance and viability by providing engineering, operational, financial, and managerial assistance from an independent team of professionals.

### **a. Viability Concept**

According to the State Primary Drinking Water Regulations (R.61.58), a "Viable Water System" is defined as "*a water system which is self-sustaining and has the commitment and financial, managerial and technical capability to consistently comply with the State Safe Drinking Water Act (44-55-10 et.seq) and these regulations.*" A Business Plan, if followed, should ensure the long term viability of a water system.

### **b. Legal Requirements for a Business Plan**

According to the State Primary Drinking Water Regulations (R.61.58), "*a Business Plan means a document consisting of three sub-plans, a "Facilities Plan", a "Management Plan", and a "Financing Plan" which is intended to show how a water system will be self-sustaining and have the commitment and the financial, managerial and technical capability to consistently comply with the State Safe Drinking Water Act and these Regulations.*"

A Business Plan is required if a system possesses an operating permit and receives an "Unsatisfactory" rating on a sanitary survey or if the system has an "Unsatisfactory" rating on a sanitary survey and then receives an Operating Permit. A Business Plan may also be required in a Consent Order or Administrative Order issued by the SCDHEC Bureau of Water Enforcement Division.

Generally, a system is required to submit a Business Plan to the SCDHEC within six months from the effective date of an Operating Permit or execution date of a Consent Order.

Business Plans are also required for any new public water systems prior to approval by the Department.

### ***c. Technical Assistance Concept***

The development of a business plan is useful in enhancing the operations of existing systems and in identifying areas of concern before they become problems. Under this program three levels of technical assistance were provided during the development of the business plan. Level I entailed a preliminary system assessment, Level II involved a detailed system evaluation, and Level III consisted of developing a business plan implementation schedule.

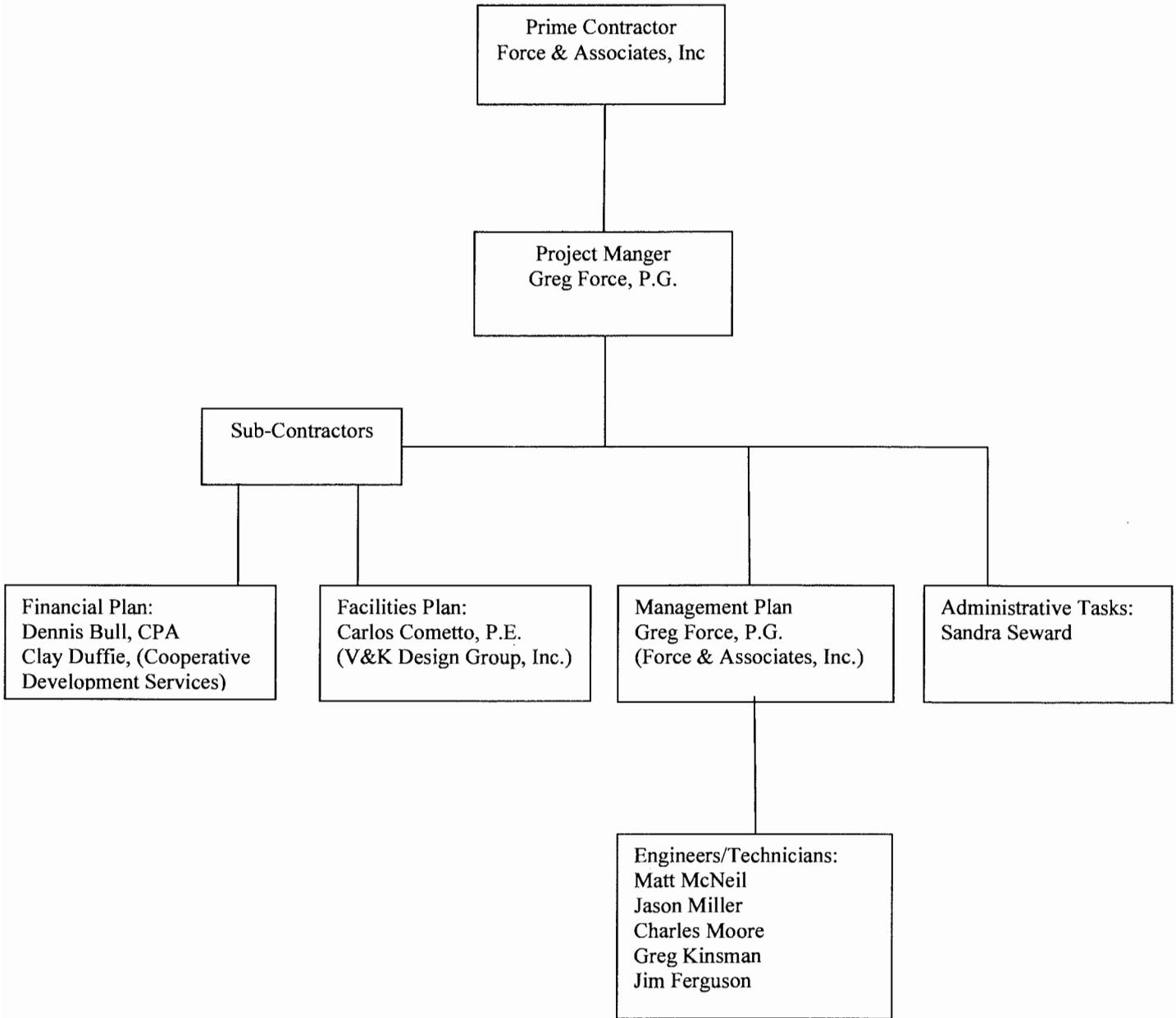
## **2. Project Team**

Force & Associates, Inc., an environmental and hydrogeological consulting firm, assembled a sub-contract network of qualified professionals who are experts in their diverse backgrounds within the water supply industry to provide technical assistance to South Carolina's small public water systems. The professional team had a wide variety of skills and extensive experience in the water supply industry including regulatory oversight, design engineering, water supply development, system evaluations, water system operations, financial management, capacity projections and aquifer studies.

The project team consisted of a professional engineer, a professional geologist, a water system manager, a certified public accountant, a South Carolina licensed water and wastewater system operator, and a South Carolina licensed well driller. The team's diverse experience provided a unique ability to analyze an individual water system and assist with the development and implementing a business plan.

Since the majority of the team members were centrally located within the State of South Carolina, one-on-one technical assistance was efficiently provided because most utilities were located within a two hour commute or less. A communications network through the Internet also allowed close coordination of the technical assistance. Since the team members were personally acquainted with most of the water systems in South Carolina, one-on-one assistance was easily facilitated with the water system management for greater success. The following organizational chart documents how the contract was staffed and coordinated.

**Figure 1: Organizational Chart**



# Background Information

## 1. Types of Water Systems

The State Primary Drinking Water Regulations (R.61-58) establishes requirements for all public water systems to ensure safe drinking water throughout the State. These requirements can differ depending on the type of system. South Carolina categorizes its water systems as follows:

**Community Water Systems:** a public water system, which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents. This may include, but not be limited to, subdivisions, municipalities, mobile home parks, apartments, etc.

**Non-Transient Non-Community Water Systems:** a public water system that is *not* a “Community” water system and that regularly serves at least 25 of the same persons over six months per year (i.e., schools and day care centers).

**Transient Non-Community Water Systems:** a non-community water system that *does not* regularly serve at least 25 of the same persons over six-months per year.

**State Water System:** any water system that serves less than 15 service connections or regularly serves an average of less than 25 individuals daily. This type of system was not eligible for the program.

During fiscal year 2003, the SCDHEC regulated approximately 2,915 public water systems. This breaks down as follow:

- a) 682 Community Water Systems
- b) 210 Non-Transient Non-Community Water Systems
- c) 670 Transient Non-Community Water Systems
- d) 1,353 State Water Systems

Among the 892 Community and Non-Transient Non-Community Water Systems, approximately 136 purchase water from another public water system.

Drinking water is provided to the citizens and visitors of South Carolina from either one of approximately 218 systems that receive their water from surface water sources or 2,697 systems that receive their water from groundwater sources. Approximately 80% of the population in South Carolina receives their water from a Community Water System. The remaining 20% of the population of South Carolina is served by private individual wells.

## 2. General Compliance

Of the 682 “Community” water systems in existence in 2000, 645 of these systems served less than 10,000 residents. Of these 645 systems, 76 or 11.8% had an overall “Unsatisfactory” sanitary survey rating.

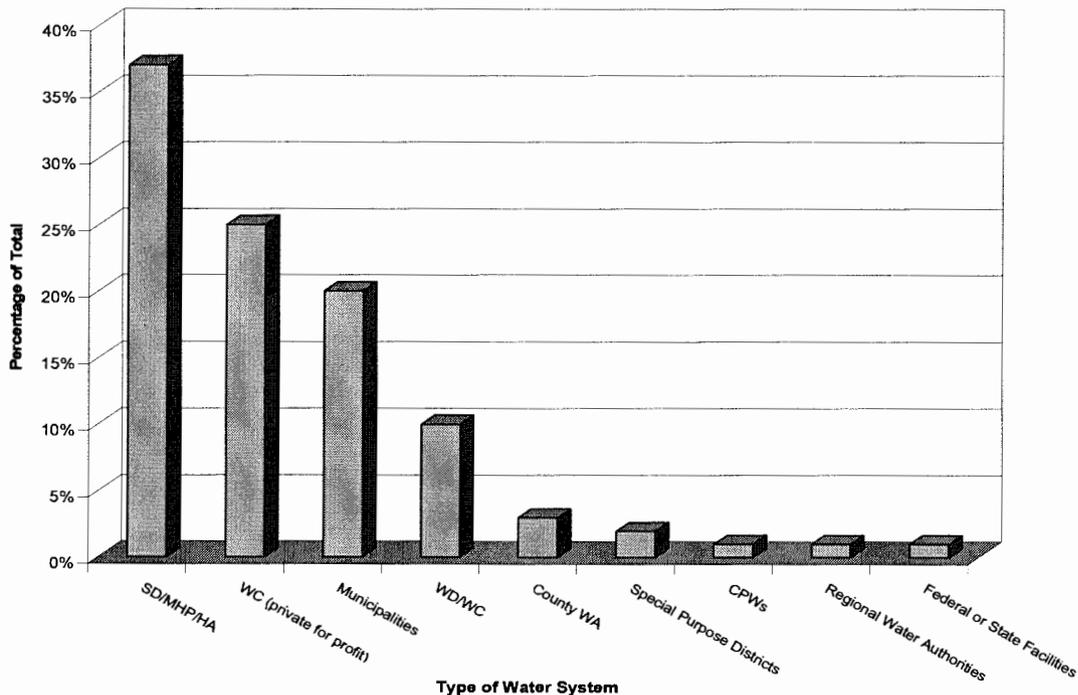
In 2005 there were 657 “Community” water systems in existence and 588 of these systems served less than 10,000 residents. Of these 588, 59 or 10% had an “Unsatisfactory” sanitary survey rating.

## 3. Governance of Public Water Systems

Public water systems are governed by a variety of governance models. Of the 645 small public water systems serving systems less than 10,000 people in 2000, there were:

- a) Subdivisions/Mobile Home Parks/Homeowner Associations: 37%
- b) Water Companies or businesses (private for profit): 25%
- c) Municipalities: 20%
- d) Water Districts/Non-Profit Water Companies: 10%
- e) County Water Authorities: 3%
- f) Special Purpose Districts: 2%
- g) Commissioners of Public Works: 1%
- h) Federal or State Facilities: 1%
- i) Regional Water Authorities: 1%

**Figure 2: Governance of Water Systems under Population 10,000**



# **Program Development**

## **1. Program Development**

During the contract, Force & Associates, Inc. and the SCDHEC personnel developed and refined the business plan development process. Program development consisted of preparing a brochure; questionnaire and asset sheet; providing three levels of technical assistance; assembling a business plan template; analyzing alternative procedures; performing operational/maintenance manual and business plan implementation follow-up; and testing pump performance.

## **2. Brochure Development**

An introductory brochure was developed and mailed annually to approximately 1,500 small public water systems throughout the state. The brochure described the technical assistance available to assist with the preparation of a business plan to meet the regulatory guidelines. The mailing list was compiled by the SCDHEC program manager and reviewed by program personnel to eliminate duplicates, systems already in the program, “State” defined systems, and systems with a population greater than 10,000 persons.

## **3. Questionnaire & Asset Sheet Development**

A comprehensive self-assessment questionnaire and asset sheet were developed to facilitate the assessments and report preparation. The questionnaire was expanded throughout the contract period to allow for the inclusion of new regulations and additional viability assessment issues. Ultimately, the questionnaire was comprised of a project checklist, and four general areas consisting of general information, technical, managerial, and financial assessments, and five attachments.

The project checklist assisted with data acquisition and project management. This checklist consisted of various item descriptions, the date accomplished, and comments (e.g. initial contact, final level I report, review with the system, etc.). The checklist also included all of the items requested from the water system throughout the questionnaire (e.g. O&M manuals, personnel manual, budgets, etc.).

The general information section consisted of five sections including system information, compliance information, sanitary survey information, SCDHEC comments, and Council of Governments information. Overall, the general information section was comprised of 23 questions.

The technical assessment consisted of 18 sections comprised of approximately 167 questions. The managerial assessment consisted of 18 sections comprised of approximately 142 questions. The financial assessment consisted of 17 sections comprised of approximately 161 questions. The sections for each assessment are illustrated in the following table.

**Table 1 – Business Processes for a Water System**

<b>Technical</b>	<b>Managerial</b>	<b>Financial</b>
1. Background and general information.	1. Governance	1. Budgeting
2. Groundwater source	2. Staff and organization	2. Management and reporting
3. Surface water source	3. Human resources	3. Procedures
4. Purchased water source	4. Continuous improvement	4. Reserve
5. Groundwater treatment	5. Authority and decision making	5. Accountability
6. Surface water treatment	6. Safety program	6. Forecasting
7. Purchased water treatment	7. Emergency planning	7. Accounts management
8. Storage	8. Strategic plan	8. Revenue
9. Distribution	9. Purchasing	9. Expenses
10. Emergency capability	10. Plant and property management	10. Debt management
11. Compliance	11. Capital improvements plan	11. Insurance
12. Cross connection	12. Information systems management	12. Rate of return
13. Primary drinking water standards	13. Engineering	13. Meters
14. Secondary drinking water standards	14. Customer service and response	14. Water audits
15. Future drinking water standards	15. Record keeping	15. Rates
16. System capacity	16. Drought management	16. Connection
17. Manuals, procedures, distribution system operation	17. Capacity development	17. Capacity charges, capital recovery charges, and impact fees
18. Operator technical knowledge and capability	18. Relations	

The attachments included biographical information for the governing body members and staff, operator requirements for the particular system, and the current rate structure and organizational chart.

The questionnaire was compiled into a Microsoft Word® format. To facilitate the completion by the participating system, each question provided a “Yes/No” answer area, multiple choice answer selections, and/or blanks and spaces to explain answers. The questionnaire was also compiled into a Microsoft Access® database where the answers to the questionnaire were uploaded to create a draft Level I and Level III Business Plan Implementation Schedule (BPIS) reports.

An asset sheet was also developed and expanded throughout the contract period. The asset sheet was utilized to identify the various components within a facility’s infrastructure, the quantities, cost, the date added, and condition. The facility components identified consisted of the source, distribution, appurtenances, storage, pumping, support, emergency, and office equipment. This data was used to develop an asset management plan, Capital Improvement Plan (CIP), financial forecasts, funding strategies, rate structures, annual budgets, and staffing and organizational requirements. The asset sheet was compiled into a Microsoft Word® format to facilitate the completion by the participating system.

Both the questionnaire and asset sheet were mailed to the system for completion prior to initiating the preliminary Level I assessment.

## **4. Levels of Technical Assistance**

The need for technical assistance varied greatly from system to system. In an effort to be frugal with the program funds, the team developed a phased approach in the development of the business plans.

### **a. Level I**

Level I involved a detailed description of the water system's technical, managerial, and financial capacities. This was accomplished by an initial review of SCDHEC documents, such as the sanitary survey and water quality sampling results; interviews with SCDHEC District personnel; evaluation of compliance schedules, operating budgets, and rates. Level I tasks also included the completion of a self-assessment questionnaire and asset sheet by the system's management and a site visit by technicians to gather data and photographs. The deliverable product was a preliminary assessment of the viability of the system including observations and recommendations.

### **b. Level II**

Level II involved a detailed system evaluation of the management, facilities, and financial plans to assess the ability of the water system to remain viable. This involved an introduction of alternative analysis and fiscal planning; an identification and justification of various operational alternatives and water supply needs; an asset management plan including an estimate of the capital cost of construction for each alternative available and an analysis of the replacement cost of existing facilities; a rate analysis based on the capital and operation/maintenance costs of each alternative available; an analysis of current and proposed regulations and associated costs; and the development of operational template procedures and manuals based on the current regulatory requirements.

Level II tasks also included site visits and/or contacts with the system staff and development of alternative operating procedures to maintain or come into compliance. The deliverable product was a technical report outlining the basic alternatives for maintaining compliance, fiscal plans consisting of an asset management plan, funding strategies, recommendations on organizational management and finance, and an assessment of rate adequacy and structure, an analysis of the current and proposed regulations, and the development of operational template procedures and manuals.

#### **1. Viability Analysis**

When evaluating the available options that a system could implement to improve operations and ensure future viability, only a few options are feasible. These include:

**Self Sustaining:** This alternative evaluates the pros and cons if the system continues to remain self sustaining. This evaluation includes assessing the governing body's will and staff's ability to meet the future demands of the system and determining if the

system is capable of obtaining the funds required to remain compliant as well as affordable.

**Consolidated Systems:** This alternative evaluates the pros and cons of sharing common management and operational staff or contract operators with other systems located in close proximity. Implementation of this alternative would not require transfer of assets but would require a governing body to be willing to explore different concepts. This alternative is more often better suited for private systems.

**Mergers:** This alternative evaluates the pros and cons of merging systems that are located in close proximity to one another to form a larger system. Implementation of this alternative involves the merging of assets and operations. Mergers can result in stronger bonding capacity as the creation of the larger customer base usually means more stable rates in the future.

**Regional Water Authorities:** This alternative evaluates the pros and cons of participating in a regional water authority where the local area is or could be served by a regional water supply. The regional supply is usually a wholesale source that provides water to several water systems which will continue to operate independently. Regional systems can also mean merging all assets and forming one more efficient system.

**Dissolve the Existing System:** This alternative evaluates the pros and cons of dissolving the existing system. Systems that are currently struggling to remain viable and must comply with the proposed future regulations may be advised to dissolve the existing system and connect to a larger system as retail customers.

## **2. Fiscal Planning**

### **Fiscal Planning and Management**

One of the most deficient areas of small water system management is fiscal planning and administration. While most systems have an annual operating budget, many of them do not track revenues or expenses well. Often the water and sewer budgets are combined thus preventing true cost accounting for each service. Furthermore many systems do not treat depreciation as an expense. Failure to recognize depreciation as an annual expense is the biggest problem in water system fiscal management.

Capital budgets are mostly non-existent in small systems. They generally do not have the managerial nor financial expertise to perform the budgeting and fiscal management required for capital budgeting. Furthermore, they lack the financial resources to implement a viable or meaningful Capital Improvements Plan (CIP).

Capital funding is a significant problem for small systems. Typical capital funding for small systems is state and federal loans or grants. Often these loans are for terms longer than the useful life of the assets being financed. This phenomenon further compounds the negative effect of the lack of renewal and replacement funding. Impact fees are sparsely used. While South Carolina has an impact fee law that

allows public water systems to develop and charge impact fees, most do not, the main reason is that the law requires a CIP, which most systems have not developed. Connection fees are also usually not sufficient to recover the true cost of providing a connection to the system. Because of their small size, revenue bonds are rarely used as a source of capital funding.

### **Depreciation**

Often water systems include depreciation in the audit report but not as part of their fiscal plan. A water system's assets depreciate each year. Annual depreciation without renewal and replacement will eventually render the water system useless. Straight-line annual depreciation is usually calculated by dividing an asset's original cost by its useful life. However, if funds equal to the annual depreciation are set aside until the asset is replaced there may not be enough money to cover the expense of replacement. Therefore, systems are encouraged to estimate the replacement cost and set aside the annual depreciation estimated based on true replacement cost instead of original cost.

### **Asset Management**

Development of an Asset Management Program involves preparing and evaluating a water system asset register, establishing a depreciation schedule, and predicting the renewal and replacement funding needs over a minimum five-year period. This allows a system to predict the cost of renewal and replacement expenses and budget accordingly. Asset management is also a means to determine system condition. Condition assessment includes predicting future maintenance, which an asset management program can use to determine the true useful life of an asset. Knowing the useful life helps predict the real need for renewal and replacement funding. Asset management is a new concept in the water utility management and was not being used by any of the small systems in this program. Implementation of Asset Management is an area that needs significant improvement in South Carolina.

### **Operations and Management Personnel**

Water system operations and management practices are becoming more and more complex. Small water systems struggle to employ qualified operators and maintenance staff mainly due to the low salaries provided. Small customer bases limit resources for salaries and benefits. Furthermore, the smaller systems require their limited staffs to perform a broader range of duties due to the small staff size. Requiring a wider skill range with limited salaries further compounds the problem of employing qualified personnel. The same situation applies to management personnel as well.

### **Rates and Charges**

Most public water systems do not charge sufficient rates to recover the full cost of providing service. They do not fund depreciation and they neglect to perform routine maintenance. This means systems must replace assets that fail before their useful life is fulfilled. This waste of resources strains already limited resources. In most every case, water systems in South Carolina charge rates that are significantly below the affordability index. When rates are calculated to meet all of the renewal and

replacement obligations and the additional cost to comply with the new complex regulations, governing bodies must make tough decisions. As most elected officials or governing bodies believe their job is to keep the customers' bill as low as possible, rate increases are difficult and often postponed.

### **c. Level III**

Level III involved the preparation of a Business Plan Implementation Schedule (BPIS) that, if followed, ensured the viability of the water system. The BPIS was developed using strategic item numbers, which referred to sections within the Level I report. It also contained the recommendation; activity type and description; cost/benefit; deadline; the personnel assigned to complete the task; the measure of effectiveness; goal; status; and notes.

Level III also included site visits and/or contacts with the members of the governing body, management, and/or system staff to customize the BPIS to achieve viability and meet regulatory compliance schedules. The deliverable product was a spreadsheet report outlining the recommendations to maintain viability, as required by regulation and good business practice, and an implementation schedule for completion that received governing body review and approval.

With the final Business Plan, a compact disk (CD) or floppy disk was provided to the system with their O&M template manuals and BPIS. This enabled the system to update their procedures and/or BPIS more efficiently and to provide a digital copy of the information to governing body members and/or staff more effectively. It further provides for future use in updating, monitoring and documenting accomplishments.

## **5. Business Plan Template Development**

Once all three levels of technical assistance were completed, a final business plan was compiled containing a facility, managerial, and financial plan.

The facilities plan involved a detailed evaluation and assessment of the water supply needs; a detailed description of the water system, source, treatment, distribution and storage facilities; a projection of the replacement date of main system components; a projection for upgrade of facilities needed to meet additional source, treatment, distribution or storage demands; an evaluation of the system's ability to comply with current and future regulatory requirements; and identification of necessary upgrades to comply with current and future regulatory requirements. This evaluation involved contacting the local planning authority to determine the feasibility of a consolidation, merger, or regionalization with other systems in the area. An estimate of the capital cost for meeting water supply needs was included by analyzing the replacement cost of existing facilities; identifying the capital costs of new facilities, operation and maintenance costs of each alternative available; and identifying and justifying the selection of the alternative for meeting water supply needs.

The management plan was provided by evaluating the system's management structure. Organizational charts were prepared to illustrate the management structure and identify the chain-of-command within the system. An evaluation of the current and future projected staffing requirements was performed. During this analysis, the appropriate certifications were determined. An evaluation was also performed to identify what type of services or procedures are used by the water system for general and emergency repairs and maintenance of the system. This evaluation included an examination of the systems written standard operating procedures to assure that they were up to date and complete. Each water system is required to maintain an operating manual by regulation. A template for a standard operating procedures manual was developed and provided to systems that needed the assistance. The manual met the requirements by providing a generic standard operating procedure the system can use and customize as needed.

The financial plan utilized the cost estimates obtained from the assessments for the facilities and management plans to itemize the anticipated financial requirements that were projected to be incurred over a minimum period of five-years including funds for capital improvements and asset replacements. In calculating the anticipated expenses, factors such as inflation, historical operations, maintenance costs, and annual depreciation costs were used, and justification of how the projected financial requirements were derived was presented. An analysis was performed to identify the projected revenue that was anticipated on an annual basis during a period of five-years. The projected revenue analysis was based on current operating conditions, and justification of how the revenue projections were calculated was provided. During the financial assessment, copies of the past audited financial statements were obtained, if available. A copy of the current budget report was also reviewed to compare and document the actual revenues and expenses against the projected amounts. With this financial data, the fiscal analyst recommended steps that the utility could take to insure viability and, if necessary, assist in establishing future annual budgetary projections, as well as any bonding or letters of credit needed.

## **6. *Additional Alternative Analysis Assistance***

During the developmental phase of a business plan, viable alternatives for the operation of a water system were identified and evaluated. There are five common alternatives that may be available to a water system: remain self-sustaining; consolidate operations or services with a neighboring system; merge with an adjacent system; obtain services from a regional system; or, dissolve the system to enable the customers to obtain water from a more viable source. During the course of developing the business plan, it was determined that the original scope of work does not allow for an adequate in-depth evaluation to determine if the potential alternative would be a more viable option to pursue. Therefore in 2003, additional technical assistance was provided to perform a more detailed alternative analysis for systems located in areas where consolidations, mergers or regionalization have been identified as potential viable options. This assistance was provided for 17 systems.

## **7. *Operations and Maintenance Manual Follow-up Development***

Follow-up visits were performed for 20 systems to provide additional assistance with completion of the O&M manual templates that were provided. This additional form of technical assistance should help to ensure compliance when future sanitary surveys are performed.

## **8. *Business Plan Implementation Follow-up Development***

Periodic assistance after the business plan was finalized was completed to ensure that the necessary managerial and financial capacity was developed to comply with the regulatory requirements and an adequate financial plan is established to remain viable for future operations. This assistance was conducted for eight systems and was provided in the form of follow-up telephone conversations to discuss the BPIS and meetings to review upcoming implementations.

## **9. *Pump Performance Testing Development***

In 2003, the Department authorized pump performance testing under the Technical Assistance contract. Pump performance testing was completed for three systems to provide them with accurate data regarding pump yield and capacity information.

# Marketing

During the contract, Force & Associates, Inc. utilized several marketing strategies to identify and prioritize candidate systems for the program and to introduce the program to other entities that work with the water systems. These marketing strategies consisted of an annual informational brochure mailing; referrals; and association conferences and seminars. Each water system that was referred to or contacted Force & Associates, Inc. directly was contacted by telephone and/or in writing within two weeks to answer any questions pertaining to the program. This provided an opportunity to identify the specific level of technical assistance required.

## 1. Brochure Marketing

An informational brochure was mailed to approximately 1,500 small water systems throughout the state. The brochure described the technical assistance program that was available to assist systems with the preparation of a business plan. Each system that returned a brochure was mailed a letter or contacted by telephone to discuss their system’s needs and to prioritize them in the program. The following tables illustrate the number of brochures mailed each year, the response from each system classification, and the number of each type of system that entered the program.

**Table 2 – Brochure Marketing Efforts and Results**

Year	Number of Brochures mailed	Number of responses from the brochure mailing	Number of “Community” systems that responded to a brochure	Number of “Non-Transient Non-Community” systems that responded to a brochure	Number of “Transient Non-Community” systems that responded to a brochure	Number of “State” systems that responded to a brochure
2000 – 2001	~ 1,500	49	34	5	9	1
2001 – 2002	~ 1,200	34	25	4	4	1
2002 – 2003	~ 1,200	45	26	9	9	1
2003 – 2004	~1,200	15	9	1	5	0
2004 – 2005	~ 1, 000	12	6	4	2	0
Totals	~ 6,100	155	100	23	29	3

**Table 3 – System response and categorization**

Year	Number of "Community" systems that responded to a brochure and entered the program	Number of responses from "Non-Transient Non-Community" systems that responded to a brochure and entered the program	Number of responses from "Transient Non-Community" systems that responded to a brochure and entered the program	Totals
2000 – 2001	8	1	4	13
2001 – 2002	7	0	1	8
2002 – 2003	6	0	2	8
2003 – 2004	9	0	0	9
2004 – 2005	0	0	1	1
Totals	30	1	8	39

## **2. Association Conference Marketing**

Conferences that are attended by utility personnel and management provided a means to market the program. These conferences included the South Carolina Rural Water Association (SCRWA), the South Carolina American Water Works Association (SCAWWA), the South Carolina Municipal Association, the South Carolina Association of Counties, Southeast Rural Community Assistance Project (SERCAP), South Carolina Association of Special Purpose Districts, and the Annual Environmental Protection Agency (EPA) Conference for the technical assistance providers in Regions IV and VI.

During the 2000-2001 program year a total of four conferences were attended. These four included a SCRWA conference, a SCAWWA conference, and two EPA conferences for the technical assistance providers in Regions IV and VI.

During the 2001-2002 program year a total of three conferences were attended. These three included a technical assistance provider conference attended by SCRWA, SERCAP, and the South Carolina State Budget & Control Board (SCSBCB), a SCSBCB conference, and an EPA conference for the technical assistance providers in Regions IV and VI.

During the 2002-2003 program year a total of four conferences were attended. These four included a rate analysis training seminar, a SCRWA conference, a SCAWWA conference, and an EPA conference for the technical assistance providers in Regions IV and VI.

During the 2003-2004 and 2004-2005 program year no association conferences were attended.

The following table illustrates the number of conferences attended and the marketing results.

**Table 4 – Association Conference Marketing Efforts and Results**

Year	Number of Association Conferences attended	Number of responses due to the conference	Number of systems that responded and entered the program
2000 – 2001	4	0	0
2001 – 2002	3	0	0
2002 – 2003	4	2	2
2003 – 2004	0	0	0
2004 – 2005	0	0	0
Totals	11	2	2

### **3. Other Marketing**

Several referrals were made by the SCDHEC as well as the SCRWA and SCPSC. Additional marketing included introductory meetings with system Board/Council members to describe the program prior to obtaining approval to proceed. A total of 92 referrals were received from the SCDHEC main and district offices. All 92 systems were contacted to evaluate their priority and interest in the program. Only 70 of these systems received technical assistance since 22 systems were a low priority or were not interested in the program.

During the 2000-2001 program year a total of 19 systems received assistance through referrals from the SCDHEC. Of these, 17 were “Community” systems, one was a non-transient non-community system, and one was a “Transient Non-Community” system.

During the 2001-2002 program year a total of 22 systems received assistance through referrals from the SCDHEC. Of these, 21 were “Community” systems and one was a “Transient Non-Community” system.

During the 2002-2003 program year a total of 16 systems received assistance through referrals from the SCDHEC. Of these, 14 were “Community” systems and two were “Transient Non-Community” systems.

During the 2003-2004 program year a total of 10 systems received assistance through referrals from the SCDHEC. Of these, eight were “Community” systems and two were “Transient Non-Community” systems. Two referrals for “Community” systems were made by the SCRWA.

During the 2004-2005 program year a total of three “Community” systems received assistance through referrals from the SCDHEC. One referral for a “Community” system was made by a neighboring water system and one was made by the Low Country Council of Governments (LCOG).

The following table illustrates the number of referrals received and the marketing results each year.

**Table 5 – Other Marketing Efforts and Results**

Year	Number of systems from SCDHEC Main office/District referrals	Number of systems from SCRWA referrals	Number of systems from COG referrals	Number of system from other referrals
2000 – 2001	19	0	0	0
2001 – 2002	22	0	0	0
2002 – 2003	16	0	0	0
2003 – 2004	10	2	0	0
2004 – 2005	3	0	1	1
Totals	70	2	1	1

#### **4. Presentations**

From time to time, the Bureau of Water requested that the project team make presentations to various interest groups about the program. This expense of time and travel was billed to the administration budget as needed. The project manager and/or “key personnel” also scheduled time to make professional presentations of the program activities and at the SCDHEC Bureau of Water’s request.

During the 2000-2001 program year, seven presentations were made. The presentations included: one for the SCDHEC Bureau of Water; two for the SCRWA; three for the SCAWWA; and one for a “NewsLeak” article. Two EPA workshops were attended.

During the 2001-2002 program year, five presentations were made. These presentations included: four SCSB&CB technical assistance providers meetings and one for the South Carolina Public Service Commission (SCPSC).

During the 2002-2003 program year, two presentations were made at the SCRWA convention.

During the 2003-2004 program year, one presentation was made for the SCDHEC Enforcement section.

During the 2004-2005 program year, one presentation was made for the SCDHEC District staff.

**Table 6 – Presentations conducted**

Year	Total Number of Presentations
2000 – 2001	7
2001 – 2002	5
2002 – 2003	2
2003 – 2004	1
2004 – 2005	1
Totals	16

## **5. System selection criteria**

All Community, Non-Transient Non-Community, and Transient Non-Community water systems, excluding “State water systems”, serving a population of less than 10,000 persons qualified for assistance. Preference was given to “Community” systems and systems that were responsive to our efforts. We used the following criteria to prioritize the systems that were selected to receive assistance:

- 1) Systems under enforcement compliance schedules
- 2) Systems with an “Unsatisfactory” rating on the last sanitary survey and with an active operating permit
- 3) Systems with an “Unsatisfactory” rating on the last sanitary survey without an active operating permit
- 4) Systems with a “Needs Improvement” rating on the last sanitary survey
- 5) Systems that meet the State Primary Drinking Water Regulatory Standards.

During the contract period, 253 systems responded to a brochure, were referred from the SCDHEC, or responded from other marketing efforts. All of the 253 were prioritized and 115 water systems obtained technical assistance (TA). The remaining 138 were considered low priority systems if they had a population greater than 10,000, if they were unresponsive, or if they had a “Satisfactory” rating on their sanitary survey. Of the 138 systems, 27 were rated as “Needs Improvement” or “Unsatisfactory” on their sanitary survey. All of these systems were contacted for technical assistance; however, they did not participate in the program since they were unresponsive, received a Business Plan from another source, or were not interested in the program.

Of the 115 water systems that did participate in the program, 101 were classified as “Community” systems, three were classified as “Non-Transient Non-Community” systems, and 11 were classified as “Transient Non-Community” systems. Of the 101 “Community” systems, 44 were governed by a private entity, 37 by a municipality, nine as a water district, four by a water company, three by a homeowner association, two were governed by water authority, and two by a CPW. Of the three “Non-Transient Non-Community” systems, two were governed by a private entity and one was governed by the federal government. Of the

11 “Transient Non-Community” systems, ten were governed by a private entity and one was governed by the federal government.

**Table 7 – System selection criteria and results**

Year	Number of systems assisted that were under enforcement schedules	Number of systems assisted that received an “Unsatisfactory” rating on their last sanitary survey & had an active operating permit	Number of systems assisted that received an “Unsatisfactory” rating on their last sanitary survey without an active operating permit	Number of systems assisted that received a “Needs Improvement” rating on their last sanitary survey	Number of systems assisted that received a “Satisfactory” rating on their last sanitary survey	Totals
2000 – 2001	1	6	12	5	8	32
2001 – 2002	4	1	9	3	13	30
2002 – 2003	2	9	4	5	6	26
2003 – 2004	5	1	1	5	9	21
2004 – 2005	0	1	0	0	5	6
Totals	12	18	26	18	41	115

## 6. Schedules and Goals

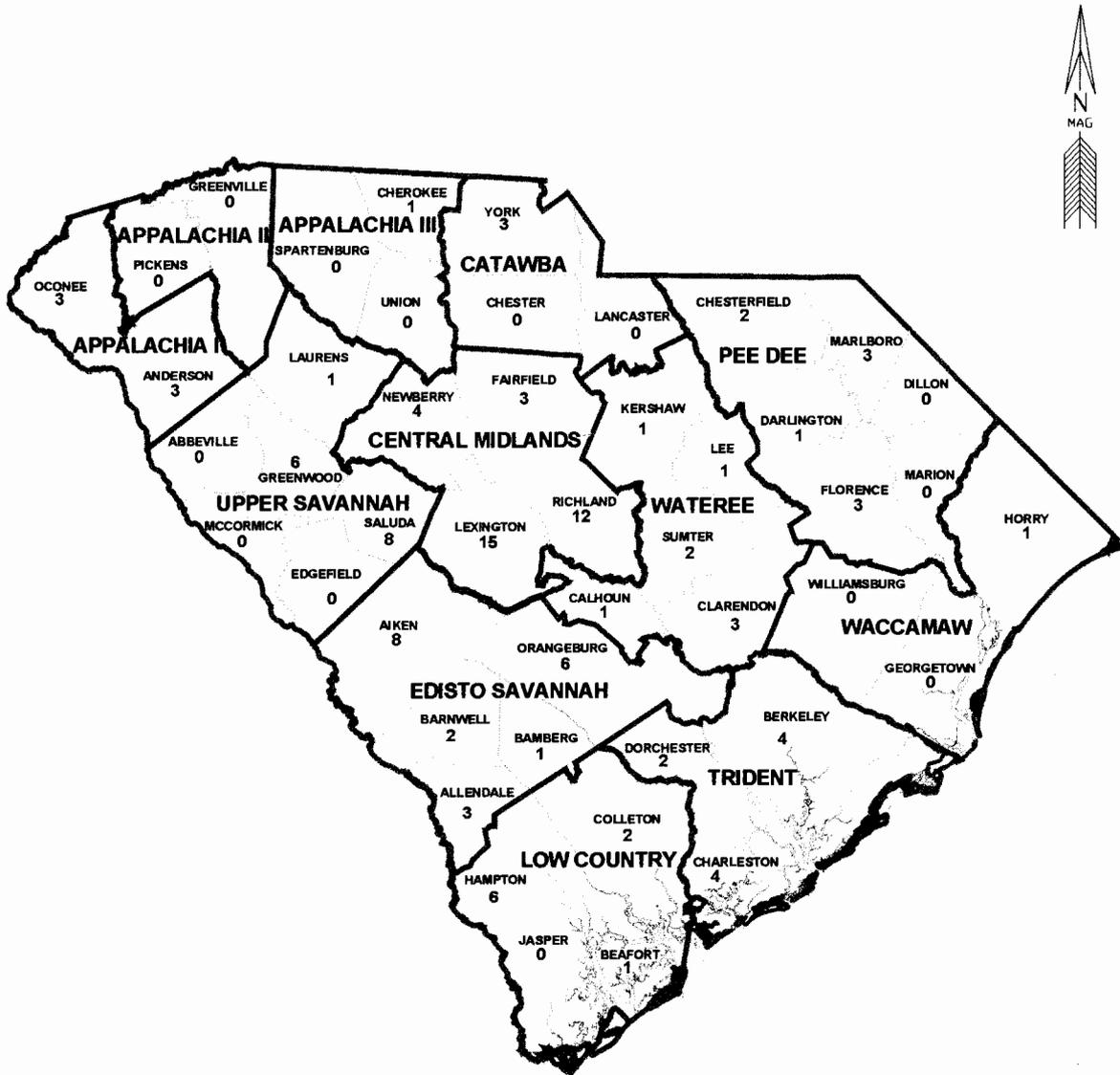
Each year a goal was set to accept new systems into the program for Level I evaluations; continue with the Level II analyses of existing systems; and finalize Level III business plan implementation schedules.

**Table 8 – Evaluations conducted**

Year	Number of Level I evaluations conducted *	Number of Level II evaluations conducted *	Number of Level III evaluations *
2000 – 2001	19	3	4
2001 – 2002	25	22	5
2002 – 2003	57	71	30
2003 – 2004	59	74	35
2004 – 2005	11	11	74
Totals	171	181	148

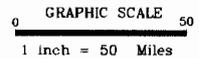
*\* Some systems overlap in individual years due to the amount of work required during each level of assistance and the date when the system entered the program.*

**Figure 3: Water Systems Participating in the Technical Assistance Program**



4 NUMBER OF WATER SYSTEMS THAT PARTICIPATED IN THE PROGRAM

7 APPROXIMATE LOCATION OF COUNTY LINE



Source: GIS Data Server at the University of South Carolina  
Water/Wastewater Systems, Metadata, 1992

**Force & Associates, Inc.**  
Environmental & Hydrogeological Consulting  
147 Vera Rd. Suite F  
Lexington, SC 29072  
Phone: 803-359-3200

SCALE: 1" = 50 miles  
DRAWN BY: JSM  
CHECKED BY: GLF  
DATE: 4/29/05

**Number of Water Systems Participating  
in the Technical Assistance Program  
by County and SCDHEC District**

FIGURE NO.  
1  
CADD NO.  
43105  
PROJECT  
Counties

# Reports, Invoices, and Work Plans

## 1. *Monthly Invoices*

Invoices were submitted to the SCDHEC project manager on a monthly basis with daily activity records attached for documentation. The project manager was responsible for assuring that the specific work tasks were assigned for completion in an efficient manner and that the time spent by each project member was properly documented on an hourly basis with the associated water system and/or project task. Monthly mileage and expense reports were invoiced as necessary with supporting documentation.

## 2. *Quarterly Report*

The project manager periodically met with the Bureau of Water to make any necessary revisions or updates to the annual work plan and identify any priorities that may arise over the course of the year. Quarterly progress reports were prepared for the Bureau of Water, which contained detailed descriptions of tasks completed during the previous 90 days and the current status of each system in the program. An updated working list was also submitted with the quarterly report.

## 3. *Annual Report*

An annual report was prepared and submitted to the Bureau of Water that described how the water systems receiving assistance were progressing with the completion of their business plans.

## 4. *Annual Work Plan*

Each year an annual work plan and budget was prepared to document the major tasks to be performed and the estimated costs that would be incurred. The annual work plan outlined the major tasks scheduled during the contract year. This plan contained a proposed schedule for completing the tasks, a list of personnel who would perform the tasks, an estimate of the time it would take them to complete each scope of work, and a detailed cost estimate for implementing the plan.

The previous year's historical data was used to facilitate the budget estimate. However, since the exact number of systems that participated in the program and the amount of assistance that would be required for each system was unknown, the budget was only an estimate of where the funds were needed. The budget was separated into four categories: brochure and marketing, administration, program development, and technical assistance. The following tables illustrate the proposed budget, actual costs, and percentage spent for each year of the contract and the Capitalization Grant funds and years and the actual amount spent in the program.

Table 9 – Budget and Actual Spent Data

Technical Assistance Task	2000 - 2001		2001 - 2002		2002 - 2003		2003 - 2004		2004 - 2005		Totals	
	Cost	% of Budget	Cost	% of Budget	Cost	% of Budget	Cost	% of Budget	Cost	% of Budget	Cost	% of Total
Brochure and Marketing Budget	\$11,000.00	4%	\$26,000.00	6%	\$10,375.00	2%	\$4,750.00	2%	\$2,000.00	1%	\$54,125.00	100%
Brochure and Marketing Actual	\$15,198.75	5%	\$2,125.00	1%	\$5,987.50	1%	\$2,022.00	1%	\$1,948.75	1%	\$27,282.00	50%
Brochure and Marketing Difference	(\$4,198.75)	-1%	\$23,875.00	6%	\$4,387.50	1%	\$2,728.00	1%	\$51.25	0%	\$26,843.00	50%
Program Development Budget	\$80,000.00	26%	\$22,850.00	6%	\$17,400.00	3%	\$16,675.00	6%	\$1,150.00	1%	\$138,075.00	100%
Program Development Actual	\$32,451.25	10%	\$24,310.00	6%	\$19,995.00	4%	\$7,176.00	2%	\$132.50	0%	\$84,064.75	61%
Program Development Difference	\$47,548.75	15%	(\$1,460.00)	0%	(\$2,595.00)	-1%	\$9,499.00	3%	\$1,017.50	1%	\$54,010.25	39%
Administration Budget	\$45,000.00	14%	\$26,900.00	7%	\$10,250.00	2%	\$8,000.00	3%	\$6,000.00	3%	\$96,150.00	100%
Administration Actual	\$14,793.75	5%	\$9,447.50	2%	\$9,767.25	2%	\$18,340.75	6%	\$14,851.25	7%	\$67,200.50	70%
Administration Difference	\$30,206.25	10%	\$17,452.50	4%	\$482.75	0%	(\$10,340.75)	-3%	(\$8,851.25)	-4%	\$28,949.50	30%
Technical Assistance Budget	\$175,000.00	56%	\$324,400.00	81%	\$470,700.00	93%	\$270,600.00	90%	\$190,850.00	95%	\$1,431,550.00	100%
Technical Assistance Actual	\$61,275.00	20%	\$135,421.25	34%	\$171,646.51	34%	\$196,202.00	65%	\$170,362.50	85%	\$734,907.26	51%
Technical Assistance Difference	\$113,725.00	37%	\$188,978.75	47%	\$299,053.49	59%	\$74,398.00	25%	\$20,487.50	10%	\$696,642.74	49%
Total Budget	\$311,000.00	100%	\$400,150.00	100%	\$508,725.00	100%	\$300,025.00	100%	\$200,000.00	100%	\$1,719,900.00	100%
Total Actual	\$123,718.75	40%	\$171,303.75	43%	\$207,396.26	41%	\$223,740.75	75%	\$187,295.00	94%	\$913,454.51	53%
Total Difference	\$187,281.25	60%	\$228,846.25	57%	\$301,328.74	59%	\$76,284.25	25%	\$12,705.00	6%	\$806,445.49	47%

**Table 10 – Mileage and Other Expense**

Capitalization Grant Year	Mileage Expense	Other Expense
2000 – 2001	\$2,428.52	\$1,980.00
2001 – 2002	\$2,665.75	\$1,643.49
2002 – 2003	\$2,221.66	\$3,282.40
2003 – 2004	\$2,433.89	\$1,522.88
2004 – 2005	\$3,196.32	\$1,800.40
<b>Total</b>	<b>\$12,946.14</b>	<b>\$10,229.17</b>

**Table 11 – Capitalization Grant Funding**

Capitalization Grant Year	Capitalization Grant Amount	TA Program Actual Spent	Difference
1997	\$296,432.00	\$0.00	\$296,432.00
1998	\$153,388.00	\$0.00	\$153,388.00
2000	\$0.00	\$128,127.27	-\$128,127.27
2001	\$167,774.00	\$175,612.99	-\$7,838.99
2002	\$161,050.00	\$212,900.32	-\$51,850.32
2003	\$0.00	\$227,697.52	-\$227,697.52
2004	\$160,776.00	\$192,291.72	-\$31,515.72
<b>Total</b>	<b>\$939,420.00</b>	<b>\$936,629.82</b>	<b>\$2,790.18</b>

## 5. Customer Service Surveys

A customer service survey was sent to each of the water systems that received assistance during each phase of the program. The surveys identified each individual who provided services for the water system and the amount of time that individual spent providing assistance. Each survey contained a pre-addressed, stamped envelope for direct submittal to the Bureau of Water.

**Table 12 – Customer Service Survey Data**

	Number of Customer Service Surveys Mailed	Number of Customer Service Surveys Received	Number of 2 <sup>nd</sup> Notice Customer Service Surveys Mailed	Number of 2 <sup>nd</sup> Notice Customer Service Surveys Received
Totals	136	62	25	10

Several examples of the comments received are as follows:

- “I think this is a good program for small towns”
- “The assistance we have received has been very helpful”
- “Town Council is very please with the presentation presented to them on the new rate schedule”
- “Excellent Program”
- “I feel this is a very worthwhile program”
- “It is a Great Program!”
- “The assistance facilitated the development of a thorough business plan for our water department. The plan should prove to be very useful especially as we plan for needs to be covered in future budgets”
- “I would recommend all small systems to take advantage of this resource. It provides a compilation of information to see where your system stands in operational as well as financially”

# Program Results

## 1. System Overview

During the contract period, 115 water systems obtained technical assistance (TA). Of these 115 water systems, 101 were classified as “Community” systems, three were classified as “Non-Transient Non-Community” systems, and 11 were classified as “Transient Non-Community” systems. Of the 101 “Community” systems, 44 were governed by a private entity, 37 by a municipality, nine as a water district, four by a water company, three by a homeowner association, two were governed by water authority, and two by a CPW. Of the three “Non-Transient Non-Community” systems, two were governed by a private entity and one was governed by the federal government. Of the 11 “Transient Non-Community” systems, ten were governed by a private entity and one was governed by the federal government.

The average number of service connections was 489 with a minimum of one and a maximum of 4,053. The average population was 1,301 with a minimum of 12 and a maximum of 18,600. It should be noted that the system with a population of 18,600 served a wholesale customer and was comprised of a primary population of less than 10,000, which made it eligible for the Technical Assistance Program.

**Table 13 – System Overview**

System Type	# of Private Entities that received TA	# of Municipalities that received TA	# of Water District that received TA	# of Water Companies that received TA	# of Homeowner's Associations that received TA	# of Water Authorities that received TA	# of CPW that received TA	# of Federally owned systems that received TA
Community Systems	44	37	9	4	3	2	2	0
Non-Transient Non-Community Systems	2	0	0	0	0	0	0	1
Transient Non-Community Systems	10	0	0	0	0	0	0	1

**Table 14 – General System Statistics**

System Classification	Average Population	Maximum Population Served	Minimum Population	Average Number of Taps	Maximum Number of Taps	Minimum Number of Taps
Community Systems	1,419	18,600	12	548	4,053	1
Non-Transient Non-Community Systems	438	1,200	25	30	84	2
Transient Non-Community Systems	95	620	21	67	550	1

## 2. Technical Aspects

During the development of a Business Plan, the system's technical capacity was evaluated. The following tables summarize the results from this general evaluation of the systems that participated in the program. Some of the items did not apply to every system.

### a. Groundwater Source

The majority of the systems in the program utilized groundwater as their main source of potable water.

System Classification	% Use	Average # of Wells	% with full aquifer and well construction info.	% with no aquifer and well construction info.
Community Systems	74 16 (GW & PW)	3 2 (GW & PW)	80 98 (GW & PW)	20 2 (GW & PW)
Non-Transient Non-Community Systems	100	2	33	67
Transient Non-Community Systems	100	1	18	82

### b. Surface Water Source and Treatment

Very few systems that used surface water as their source of potable water participated in the program. The main reason is that the majority of the surface water systems have a population greater than 10,000.

System Classification	% Use	Average # of intakes	% with Turbidity Violations	% with an Approved Contact Time (CT) Study
Community Systems	2	2	2	2
Non-Transient Non-Community Systems	0	0	0	0
Transient Non-Community Systems	0	0	0	0

**c. Purchased Water Source and Treatment**

No systems in the program treated their purchased water.

System Classification	% Use	Average # of master meters	% with Purchased Water records	% with Purchased Water Treatment
Community Systems	8	1	63	0
Non-Transient Non-Community Systems	0	0	0	0
Transient Non-Community Systems	0	0	0	0

**d. Groundwater Treatment**

Approximately 38% of the “Community” systems may be impacted by the future Ground Water Rule. None of the systems in the program were funding the estimated cost of future regulations. All systems were provided with the estimated capital cost of the Groundwater Rule. This regulation is expected in 2005.

System Classification	% with Treatment	% with Cl2 gas treatment	% with Sodium Hypochlorite treatment	% with Calcium Hypochlorite treatment	% with pH adjustment treatment	% with corrosion control treatment	% with sequestering treatment	% with daily treatment inspections
Community Systems	62	22	38	1	25	9	5	99
Non-Transient Non-Community Systems	0	0	0	0	0	0	0	NA
Transient Non-Community Systems	0	0	0	0	0	0	0	NA

**e. Storage**

It was found that 25 to 33 percent of the systems required tank maintenance. Very few systems possessed a written maintenance schedule and even less budgeted for routine storage tank maintenance.

System Classification	Average storage quantity	% with only elevated storage	% with only ground storage	% with pressure tank storage	% with a mix of storage strategies	% without storage facilities	% with enough storage capacity	% with tanks painted properly	% with a written maintenance schedule
Community Systems	260,000	32	4	48	14	2	75	53	16
Non-Transient Non-Community Systems	83,000	33	0	33	0	0	73	33	0
Transient Non-Community Systems	2,250	0	10	90	0	0	66	100	0

**f. Distribution System and System Capacity**

Approximately 22% of the systems had source capacity issues. Many of the deficiencies required major capital expenditures to remedy. All of the systems relied on loans and did not have adequate funding to completely replace the deficient assets.

System Classification	% with pressure deficiencies	% with fire flow deficiencies	% that met the minimum demand capacity requirements	% that met the minimum number of source requirements
Community Systems	16	5	87	92
Non-Transient Non-Community Systems	1	0	100	100
Transient Non-Community Systems	0	0	100	100

**g. Compliance with Primary and Secondary Drinking Water Standards**

Approximately 5% of the “Community” systems had groundwater quality problems. The majority of these systems had exceeded the Maximum Contaminant Level (MCL) for Radium 226/228.

System Classification	% Compliance with primary Drinking Water Standards	% with Radium 226/228 MCL Exceedance	% Compliance with secondary Drinking Water Standards	% with Fluoride secondary Standard Exceedance	% with pH secondary Standard Exceedance
Community Systems	94	6	96	1	3
Non-Transient Non-Community Systems	100	0	100	0	0
Transient Non-Community Systems	100	0	100	0	0

**h. Manuals/Procedures and Distribution System Operation**

Operation and Maintenance (O&M) and Standard Operation Procedure (SOP) templates were developed to provide immediate compliance with the regulations.

System Classification	% with a full cross connection program	% with a complete O&M manual	% with a partially completed O&M manual	% without an O&M manual	% with completed SOPs	% with a partially completed SOPs	% without SOPs
Community Systems	49	47	12	41	36	19	45
Non-Transient Non-Community Systems	0	33	0	67	0	0	0
Transient Non-Community Systems	9	9	0	91	9	0	0

**i. Certified Operators Technical Knowledge and Capability**

Approximately 15% of the systems needed to acquire an “operator of record” with the appropriate grade on their staff.

System Classification	% with a certified water operator on staff	% that contracted water operations	% without a certified water operator	% that did not need a certified water operator	% with a certified distribution operator on staff	% that contracted distribution system operations	% without a certified distribution operator	% that did not require a certified distribution system operator
Community Systems	54	18	2	26	67	17	16	0
Non-Transient Non-Community Systems	33	0	0	67	66	0	34	0
Transient Non-Community Systems	9	0	0	91	NA	NA	NA	100

**3. Managerial Aspects**

During the development of a Business Plan, the system’s managerial capacity was evaluated. The following tables summarize the results from this general evaluation of the systems that participated in the program. Some of the items did not apply to every system.

**a. Governance**

The majority of the systems in the program were privately owned with municipalities as a close second.

System Classification	% owned by a municipality	% municipal systems that provided written reports to the governing body	% owned by a water authority	% water authorities that provided written reports to the governing body	% owned by a water company	% water companies that provided written reports to the governing body	% owned by a homeowners association	% homeowners association that provided written reports to the governing body
Community Systems	33	82	2	100	3	100	3	33
Non-Transient Non-Community Systems	0	NA	0	NA	0	NA	0	NA
Transient Non-Community Systems	0	NA	0	NA	0	NA	0	NA

System Classification	% owned by a CPW	% CPW systems that provided written reports to the governing body	% owned by a water district	% water districts that provided written reports to the governing body	% owned by the U.S.	% water districts that provided written reports to the governing body	% privately owned	% private systems that provided written reports to owner
Community Systems	< 1	100	8	100	0	NA	39	35
Non-Transient Non-Community Systems	0	NA	0	NA	< 1	100	9	0
Transient Non-Community Systems	0	NA	0	NA	< 1	100	1	0

**b. Staff and Organization, Human Resources, and Operating Policies**

It is generally not considered acceptable to have a member of the governing body participating in day-to-day operations. The overall Human Resources (HR) administration of the systems appeared to be fair to poor.

System Classification	% with a system manager	% with operators reporting directly to the governing body	% whose governing body member(s) participated in operations	% that provided other services (e.g. sewer)	% with multiple duty operators
Community Systems	74	26	31	94	81
Non-Transient Non-Community Systems	67	33	0	100	66
Transient Non-Community Systems	100	NA	NA	100	NA

System Classification	% with a personnel manual	% with certification incentives	% with performance measures	% with operating Policies
Community Systems	49 (37 NA)	46 (49 NA)	41 (49 NA)	28 (27 NA)
Non-Transient Non-Community Systems	33 (67 NA)	33 (67 NA)	33 (67 NA)	33 (67 NA)
Transient Non-Community Systems	NA	NA	NA	NA

**c. Safety Program, Emergency Planning, and Strategic Planning**

The general lack of management created inadequate formal planning. The templates provided during the program enabled many of the systems to come into compliance.

System Classification	% with a safety plan	% with a completed vulnerability assessment	% with emergency plans	% with a working generator	% with a strategic plan
Community Systems	29	9	68	59	4
Non-Transient Non-Community Systems	33	0	45	9	0
Transient Non-Community Systems	9	0	66	33	0

**d. Purchasing, Fixed Asset Register, CIP, Engineering, and Insurance**

Fixed asset registers and CIPs were either inadequate or non-existent.

System Classification	% with a purchasing policy	% with a fixed asset register	% with a written capital improvements plan	% regularly use an engineer	% that evaluated all insurance needs
Community Systems	59	15	3	76	34
Non-Transient Non-Community Systems	33	0	0	18	33
Transient Non-Community Systems	NA	0	0	67	64

**e. Information Management, Customer Service & Response, and Record Keeping**

Several systems did not possess computer resources or the technical capability to operate the accounting and billing software systems. Some systems were still using hand written bills, invoices, and ledgers.

System Classification	% with a adequate computer software system (billing and accounting)	% written customer service policies	% accessible by phone	% that logged, analyzed, and retained customer complaints	% with a record retention plan
Community Systems	68 (17 NA)	28	98	34 16 (half)	24
Non-Transient Non-Community Systems	NA	0	67	67	67
Transient Non-Community Systems	NA	0	54	0	9

**f. Drought Management and Capacity Development**

The South Carolina Department of Natural Resources (SCDNR) provides a template for the required drought contingency plan. The template is available by mail or on-line.

System Classification	% with a SCDNR drought contingency plan	% participating in regional planning	% considering merging or consolidating
Community Systems	44	55	32
Non-Transient Non-Community Systems	33	0	0
Transient Non-Community Systems	0	9	9

**4. Financial Aspects**

During the Business Plan preparation, the system’s financial capacity was evaluated. The following tables provide a summary of the results from the evaluations of the systems that participated in the program. The full financial capacity of 27 “Community” systems was not evaluated since these systems were classified as mobile home parks, community centers, national parks, labor camps, campgrounds, etc. and did not assess a water bill or maintain financial records separate from the total facility.

**a. Budgeting, Financial Management, and Reporting**

Just over half of the “Community” systems possessed an operating budget. The majority of these did not budget expenses in detail, did not include debt, or did not include transfers to or from reserve accounts.

System Classification	% with an annual operating budget	% with an annual audit	% with water and other depts. combined in the budget and audit	% with a monthly financial report	% that reviewed expenses each month	% with an annual financial report	% with financial forecasts
Community Systems	63	49	39	48	56	60	6
Non-Transient Non-Community Systems	33	NA	NA	33 (67 NA)	33 (67 NA)	33 (67 NA)	33
Transient Non-Community Systems	NA	NA	NA	NA	NA	NA	NA

**b. Financial Procedures and Fidelity Bond Coverage**

Approximately 50% of the systems required general financial procedures. Less than half had adequate separation of duties.

System Classification	% with written financial procedures	% with internal financial controls for the separation of duties among the receipt, deposit and accounting of funds	% with separation of duties for the approval of expenditures and the preparation and signing of checks	% with fidelity bond coverage
Community Systems	18	33	39	49
Non-Transient Non-Community Systems	33	NA	NA	NA
Transient Non-Community Systems	NA	NA	NA	NA

**c. Financial Reserve**

In general, it was found that systems with reserve accounts did not maintain adequate balances.

System Classification	% with a reserve	% with an adequate debt service reserve	% with an adequate depreciation and contingency reserve
Community Systems	61	24	32
Non-Transient Non-Community Systems	NA	NA	NA
Transient Non-Community Systems	NA	NA	NA

**d. Debt Management**

The majority of the systems have debt financing. Some of them have debt terms that exceed the useful life of the facility financed.

System Classification	% with debt financing	Average Debt	Average Debt per tap
Community Systems	79	\$946,000	\$920
Non-Transient Non-Community Systems	NA	NA	NA
Transient Non-Community Systems	NA	NA	NA

**e. Accounts Management**

Very few systems had customer service policies even though their main purpose is to provide service for their customers.

System Classification	% with written customer service policies	% with policy for termination for non-payment	% that strictly followed the termination policy	% with Non-Metered Accounts
Community Systems	28	66	60	32
Non-Transient Non-Community Systems	0	NA	NA	100
Transient Non-Community Systems	0	NA	NA	100

**f. Meters and Water Audit**

Approximately 90% of the systems did not keep a meter inventory and 95% need to implement a meter replacement program.

System Classification	% with a meter inventory	% with a meter replacement program	% with a water audit
Community Systems	11	4	36
Non-Transient Non-Community Systems	NA	NA	33
Transient Non-Community Systems	NA	NA	9

**g. Rates**

Almost none of the systems had an adequate rate structure or revised their rate structure annually. There was a general lack of financial forecasting and planning which lead to inadequate rate structures. Financial information was not available for Non-Community systems; therefore, a complete financial analysis was not completed.

System Classification	% that revised rates each year	% with an adequate rate structure *	% under funded depreciation	% that lost money	% that under funded reserves	% that had a declining usage rate or charged a monthly flat rate	% with a gallon allowance in the base rate	Average gallon allowance
Community Systems	9	5	80	23	18	16	46	2,400

\* Several systems did not have an adequate rate structure due to one or more reasons.

**h. System Connection and Capacity Charges**

Almost none of the systems had a capacity charge, capital recovery charge, or an impact fee. The main reason is that the impact fee law requires a CIP, which most systems do not have.

System Classification	% with an adequate connection charge	% with a standby or availability fee	% with a capacity charge, capital recovery charge, or impact fee
Community Systems	52	6	3

## **5. Business Plan Finalization**

During the preparation of their Business Plan, 86 water systems finalized their Business Plan for submittal to their system and the SCDHEC. The remaining 29 did not submit their Business Plan to the SCDHEC; however, only one system was required to do so in accordance with their operating permit. After completing the Level I and II phases of the program, this system decided to no longer participate in the program and later received an "Unsatisfactory" rating on a sanitary survey which required the submission of a business plan since the system possessed an operating permit. Twelve systems were required to submit a Business Plan per a SCDHEC Bureau of Water Enforcement Consent Order. Nineteen systems were required to submit a Business Plan per a SCDHEC Operating Permit. Eight of the systems in the program had the Business Plan requirement in their Operating Permit waived by the SCDHEC.

## **6. Alternative Method of Operations**

During the preparation of the Level II alternative analysis, five operational methods (self-sustaining, consolidation, merger, regionalization, and dissolution) were analyzed and the most viable alternative was suggested. The self-sustaining alternative was suggested for 64% of the systems; merger was suggested for 17% of the systems; regionalization was suggested for 10% of the systems; dissolution was suggested for 6% of the systems; and consolidation was suggested for 3% of the systems.

At least 28 (24%) water systems have chosen to pursue an alternative method of operations. Of these 28, eight have or are pursuing an interconnection with another system, three are pursuing a different source of potable water, eight have dissolved or are in the process of pursuing the dissolution alternative, eight have or are in the process of pursuing a regionalization option, and one is pursuing a merger option. Based on these statistics, it appears that the technical assistance program has been successful in meeting the Capacity Development strategy initiatives.

## **7. Sanitary Survey Ratings**

Participation in the Technical Assistance Program and development and implementation of their Business Plan has assisted systems to receive improved individual and overall ratings on their Sanitary Survey and resolve various compliance issues. Sixty-seven percent of the systems were able to improve their overall sanitary survey rating. Fourteen percent of the systems decreased their overall sanitary survey rating. Only nine percent of the systems maintained an "Unsatisfactory" sanitary survey rating. Five percent maintained a "Needs Improvement" sanitary survey rating and five percent maintained a "Satisfactory" sanitary survey rating.

The reasons for the systems that decreased their sanitary survey rating or maintained an "Unsatisfactory" rating were due to the lack of proper management, financial forecasting and planning. Almost all of these systems required major capital upgrades or a change in operational method. Almost all of these systems are pursuing grant funds to complete the capital projects. If funded, these systems may not recognize the need to fund the depreciation of the new assets and probably will require yet another grant to maintain their viability. None of these systems were required to fund a depreciation account. On a broader scale, almost none of the systems in the program were required by loan providers to fund a depreciation reserve account. Many of these

governing bodies did not understand the compliance and viability concept or their responsibility to the water system.

**Table 15 – Sanitary Survey Rating Improvement**

System Classification	Number of systems whose overall sanitary survey rating improved from "Unsatisfactory" to "Satisfactory"	Number of systems whose overall sanitary survey rating improved from "Unsatisfactory" to "Needs Improvement"	Number of systems whose overall sanitary survey rating improved from "Needs Improvement" to "Satisfactory"
Community Systems	22	14	21
Non-Transient Non-Community Systems	1	0	1
Transient Non-Community Systems	3	1	2
Totals	26	15	24

**Table 16 – Sanitary Survey Rating Decrease**

System Classification	Number of systems whose overall sanitary survey rating decreased from "Satisfactory" to "Unsatisfactory"	Number of systems whose overall sanitary survey rating decreased from "Satisfactory" to "Needs Improvement"	Number of systems whose overall sanitary survey rating decreased from "Needs Improvement" to "Unsatisfactory"
Community Systems	1	9	4
Non-Transient Non-Community Systems	0	0	0
Transient Non-Community Systems	0	0	1
Totals	1	9	5

**Table 17 – Sanitary Survey Rating Unchanged**

System Classification	Number of systems whose overall sanitary survey rating remained "Unsatisfactory"	Number of systems whose overall sanitary survey rating remained "Needs Improvement"	Number of systems whose overall sanitary survey rating remained "Satisfactory"
Community Systems	11	3	16
Non-Transient Non-Community Systems	0	0	1
Transient Non-Community Systems	0	3	1
Totals	11	6	18

## **8. Compliance Issues**

Thirty of the systems in the program possessed a Consent Order and/or an Operating Permit. Seventeen of these systems resolved their Consent Order or Operating Permit issues. The remaining 13 systems are resolving their compliance issue. Of these 13 systems, 11 systems are in the process of purchasing and/or installing new well(s), tank(s), treatment facilities, meters, or water lines. Due to the major capital cost of the new facilities, and the lack of financial management and capital improvement planning, these systems were not able to resolve their Consent Orders or Operating Permits issues during the program.

# Conclusions

## 1. **Benefits of Viable Systems**

### **a. General Observations**

Currently the State of South Carolina has over 3,000 public water systems. While it has been a goal of the SCDHEC to minimize the creation of new systems, there has been an overall increase in the number of public water systems over the last ten years. To ensure these water systems maintain regulatory compliance the SCDHEC must provide personnel to conduct sanitary surveys, compliance sampling and analysis, permitting, enforcement, communications, emergency assistance and other administrative duties. Each water system consumes resources at the state and federal level. The current cost to provide these services is over \$2,100 per system for a total of about \$6,500,000 per year.

Viable water systems require less attention and therefore do not strain the limited financial resources of the state and federal government.

### **b. Cost to the customer and taxpayer**

Regardless of the management, governance or operating structure a system may have, there are at least 25 core business processes that must be performed to meet all of the various requirements for utility management and operations. Regardless of the size of the system or the number of staff members employed, these processes must be performed. Due to the limited customer base, small systems have a difficult time performing all of the business processes effectively. Often the governing body wishes to keep customer bills as low as possible, to the detriment of the system. In the long term keeping rates low results in poor maintenance, which inevitably raises costs and leads to non-compliance. These costs may or may not be paid by the system customer directly. Often state and federal grants pay for renewal of systems whose useful lives have been shortened by poor maintenance. This practice is costing our state and federal taxpayers who do not directly benefit from these expenditures. Therefore, it can be concluded that non-viable systems cost us all.

## 2. **Average Cost of Systems Participating in the Program**

During the contract period, 115 water systems obtained technical assistance at an average cost of \$6,312 per system. The average length of time for a system to develop a complete business plan is eight to ten-months.

## 3. **Summary of Systems by District**

During the contract period, 115 water systems obtained technical assistance. The following table illustrates the distribution by SCDHEC district. The concentration of systems within the Central Midlands District is partially due to multiple systems managed by two private utility companies.

**Table 18 – Number of Systems by SCDHEC District**

<b>SCDHEC District</b>	<b>Number of Systems in the Technical Assistance Program</b>
Appalachia I	6
Appalachia II	0
Appalachia III	1
Catawba	3
Central Midlands	34
Low Country	8
Edisto Savannah	21
Pee Dee	9
Trident	10
Upper Savannah	15
Waccamaw	1
Wateree	7
<b>Total</b>	<b>115</b>

#### **4. Mergers and Consolidations**

When evaluating the available options that a system could implement to improve operations and ensure future viability, the options identified included: stay self sustaining; consolidate; merge; regionalize; or dissolve. Several consolidations or mergers were identified throughout the state based on geography, political areas, or water requirements. These are listed below and identified on maps attached in Appendix A.

- 1) Hampton-Allendale County merger
- 2) Oconee County merger
- 3) Sumter County merger
- 4) Orangeburg County consolidation
- 5) Fairfield County merger
- 6) Chesterfield County merger
- 7) Marlboro County merger
- 8) Aiken County merger
- 9) Dorchester County consolidation

The initial feasibility of these mergers was discussed with the participating water systems and Local Council of Governments or county officials were contacted to discuss regional planning in each area.

# Recommendations

The following discussion will provide observations and recommendations on ways the Department may improve their major initiatives.

## 1. Sanitary Surveys

The Sanitary Survey is a key evaluation tool used by the Department to identify non-compliant water systems. When properly performed, the sanitary survey will evaluate most of the technical and some of the managerial requirements that must be met to maintain a viable water system. Most of the items evaluated are required in R.61-58. Sanitary surveys are conducted by the SCDHEC staff from 12 district offices around the state. While assembling a Business Plan, sanitary surveys are reviewed in detail.

### Observations:

1. Sanitary surveys are a good initial tool for evaluating if a water system has the ability to remain viable.
2. Sanitary surveys only evaluate technical and some managerial items. There is no financial evaluation.
3. The sanitary survey ratings are sometimes inconsistent. One district may evaluate a system as “Satisfactory” while another system having similar infractions may receive an “Unsatisfactory” rating. For example, the State Primary Drinking Water Regulations require all storage tanks to be maintained and provide various appurtenances. Several of these appurtenances (e.g. hatch locks, vent screens, safety platform) are only accessible for inspection from the top portion of some tanks and usually cannot be viewed from the ground. Interior storage tank maintenance cannot be accomplished from the exterior of any type of tank. Only 16% of the systems we assisted had storage tank maintenance schedules. Discrepancies were noted from district to district as to what is necessary to achieve “Satisfactory” storage facility maintenance.
4. Some regulatory requirements are ignored or overlooked. For example, the well head appurtenances were regulated differently throughout the state. In several instances, the wellhead appurtenances were out of order or did not contain the necessary parts. Approximately 75% of the groundwater systems did not have an hour meter installed with the well’s electrical wiring.
5. There appeared to be a discrepancy between application of the O&M regulations between larger “Community” water systems (i.e. a municipality or water district) and smaller “Community” water systems (i.e. a mobile home park or subdivision). With the exception of the “Guidelines for Small Water Systems” provided by some of the district inspectors, the smaller water systems did not have an O&M or SOP manual in accordance with R.61.58. Even with the provided guidelines, the smaller systems had not completed the required procedures and system specific data. A general lack of operation and maintenance documentation was also observed.
6. There is a wide range of technical experience between the individuals performing the sanitary surveys.

7. Some of the regulatory requirements may not be applicable to the various types of systems.

#### **Recommendations:**

1. The State Primary Drinking Water Regulations must be applied consistently throughout the state and in accordance with its intent.
2. The Department should provide periodic training for the staff performing sanitary surveys.
3. The Department should audit sanitary surveys periodically for consistency.
4. The Department should develop regulations to evaluate the financial aspects of a water system.
5. The Department should continue to provide financial advice and assistance to small water systems through a competent service provider.
6. The main office and district offices should improve their communication especially in enforcement matters. A specific protocol should be followed.
7. The Department should evaluate the regulations to determine if some of the provisions should be eliminated for certain types or size of systems. For example, a reclassification of "Community" systems into two or more categories, based on population size, could enable the regulations to be more evenly applied to smaller water systems.

## **2. Operating Permits**

The use of operating permits had just been implemented when the technical assistance contract was awarded in 2000. Prior to 1998, there were no operating permits for water systems in South Carolina. The Department had to assemble a staff and establish procedures for the issuance of some 3,000 permits.

In 2000, there were 76 small water systems with "Unsatisfactory" sanitary surveys, of which six had operating permits. In the Department's Capacity Development work plan, 600 operating permits were scheduled for issuance by September 2005. As of April 2005, the Department has issued 480 permits with another 12 drafted permits pending for various reasons.

#### **Observations:**

1. The operating permit is the legal document that links the business plan requirement to document future viability and compliance for systems that receive an "Unsatisfactory" sanitary survey. Having an operating permit subject to revocation is a serious consequence for an individual owner or a governing body. Without the operating permit the Department must follow other less effective means of compliance enforcement.
2. The Department does not seem to have enough staff assigned to the issuance of operating permits.

#### **Recommendations:**

1. The Department should provide sufficient staff and resources to issue operating permits.

2. The Department must monitor and follow-up on the progress of systems with “Special Conditions” and compliance schedules listed in the permit to determine if and when the items have been completed.

### **3. Business Plans**

The development of a business plan provides the Department with a broad view of the water system’s capability to properly operate a public water system. These plans can be useful for the system and the Department if they are adhered to and made a part of the water system’s management strategy.

#### **Observations:**

1. Business plans are a new concept to most small water systems.
2. The technical assistance program provided opportunities for water systems to open up to evaluation in a non-threatening way. The system personnel often showed discrepancies and weaknesses in the system that they may not have been comfortable showing the Department staff during a sanitary survey.
3. Most small water systems do not have the internal resources to develop a business plan that meets the regulatory requirements without outside assistance.
4. The business planning process can be a useful tool for educating the governing body on all of the business processes a viable water system must perform.
5. Water system’s resources are limited and business planning is not seen as a priority for funding unless required by a Consent Order or Operating Permit. Systems that participated voluntarily did so because the technical assistance program was provided at no cost to the system.
6. Small water systems want and need assistance with their financial plan development and implementation. The majority of systems have a relationship with a competent consulting engineering firm to provide technical support. Half of the systems had a certified public accountant to perform their annual audits. Not one system in the program had a financial consultant. Financial management is an obvious weakness for most small systems.
7. Only a few systems were funding renewal and replacement projects. No system fully funded renewal and replacement equal to its annual depreciation.
8. There is no trigger mechanism to require a business plan for a public sewer system.
9. Most of the small towns that operate a public water system also operate a sewer system. Every small water system in this program that operates a sewer system asked if the same technical assistance was available for their sewer system. Unfortunately the answer was no. Obviously small public sewer systems could use a similar program for technical assistance.

#### **Recommendations:**

1. The Department should fund outside services to assist small systems with their financial plan development and implementation.

2. The Department should co-sponsor financial management training for small systems with SC Rural Water Association and the SC Section of the American Water Works Association.
3. The Department must monitor and follow-up on the progress of systems that were required to submit a Business Plan, which includes a BPIS with specific deadlines.
4. The Department should evaluate implementing regulations that provide a similar trigger mechanism for public sewer systems.
5. Funding technical assistance for small sewer systems should be considered.

#### **4. Water Quality Monitoring and Annual Fee Program**

In order to assist public water systems with their sampling, testing and reporting requirement of the Safe Drinking Water Act, the Department provides a Water Quality Monitoring Program on a fee basis to participating systems. Systems are not required to use SCDHEC. The Drinking Water Trust Fund supports 59 positions within the Department; 21 – evaluating water systems and conducting sanitary surveys (\$1,451,485), 18 – district personnel that conduct on site inspections (\$1,048,392), and 20 – in the laboratory (\$1,101,280). Additionally \$490,808 is spent in administration and overhead for a total of \$4,020,581. Based on the 2,758 water systems in the fee program, a total of \$4,051,067 was spent, which averages an annual fee of \$1,468 per system in the trust fund.

The total budget for the Bureau of Water for 2005 is \$6,331,573.

##### **Observations:**

1. This program helps keep small water systems in compliance with their monitoring and reporting requirements through an affordable program.

#### **5. Developing Benchmarks from Annual Financial Statements from Existing Water Systems to Help Determine the Adequacy of Business Plans**

##### **Observations:**

1. This initiative has not been effective primarily because there is no regulatory requirement for water system's to submit their annual financial statements or audits to the Department.
2. The Department does not have staff available to review financial statements.
3. There are some Governmental Accounting Standards Board guidelines that are applicable to water systems. The Department could use these guidelines to develop financial standards.
4. The American Water Works Association has a benchmarking initiative that gathers operational, managerial and financial data from water systems across the county.

**Recommendations:**

1. Partner with trade organizations to develop relevant financial benchmarks or standards.
2. Develop minimum financial standards that can be put into regulation.
3. Fund and develop staff that has the technical training to review financial statements and audits.

**6. Encourage and Facilitate the Consolidation and Regionalization of Public Water Systems**

The motive of this initiative is to minimize the number of public water systems in South Carolina and promote efficiencies of the economies of scale generated by larger systems. More water systems place a burden on the Department staff and resources. Most small systems lack the technical, managerial and financial resources to effectively meet all of the regulations they now face. Consolidations combine resources and the larger customer base provides more financial stability.

**Observations:**

1. The Department staff fully supports this concept and works to encourage the consolidation, merger and regionalization of public water systems.
2. The Department has the authority to require a new water system to connect to an existing viable water system when feasible. The Department's regulation R.61-57, Development of Subdivision Water and Sewage Treatment / Disposal Systems conflicts with this concept. These regulations do not consider connection to an existing viable system as "accessible" if annexation is a condition of service.
3. The requirements of the Drinking Water State Revolving Fund support many of the initiatives for requiring viability. There are low interest loans available through the Drinking Water State Revolving Fund to fund consolidation of systems. While there are a number of projects funded to interconnect water systems, few, if any, systems take advantage of these loans to consolidate or merge non-viable systems.
4. There are no regulations to require consolidation or merger of non-viable public water systems.

**Recommendations:**

1. The Drinking Water State Revolving Fund should provide grant funds to assist systems that consolidate, merge or regionalize. These grant funds should be available for pipeline interconnections, capacity or connection fees, and assistance in establishing the consolidated/merged business processes such as billing and financial systems.
2. The Drinking Water State Revolving Fund should refinance loans for systems that consolidate, merge, or regionalize.
3. Consent orders issued to public water system should require a consolidation/merger study.

## **7. Encourage and Facilitate the Local Planning Process and Coordination between State and Local Governments**

This initiative is intended to minimize the proliferation of small public water systems and to obtain some local input in the planning process. The Department has regulations that require a water system to provide proof of coordination with the planning authority.

### **Observations:**

1. There are Regional Wastewater Facility Plans. There is no requirement for regional potable water plans.
2. In the 2004 session of the General Assembly, Representative Ben Hagood introduced House Bill 4354. This Bill would require more local coordination on major infrastructure decisions. This bill failed to pass the General Assembly.

### **Recommendations:**

1. Support legislation that strengthens the requirements for coordination between local and state agencies during the development or expansion of public water systems.
2. Support regulations that require regional water plans.
3. Encourage involvement of the local Councils of Governments.
4. Continue to work closely with the Department of Natural Resources to develop and implement initiatives in the State Water Plan (which advocates the use of surface water).

## **8. Public Education Initiative**

Public education is necessary to raise consumer awareness of all of the requirements necessary to operate a public water system and maintain its technical, managerial and financial capabilities. Customers may then be more supportive of rate increases if they had a better understanding why the increase is necessary.

### **Observations:**

1. The Department is following its plan to work cooperatively with the water trade organizations to develop public education strategies.
2. The Department has a very comprehensive website.
3. The average citizen is not involved or aware of the requirements of its public water system.

### **Recommendations:**

1. The Department should require a public hearing of the business plan as part of the process to adopt the plan.
2. The Department should continue to partner with the water trade organizations.

## **9. Public Service Commission**

All of the private for profit systems that received technical assistance are regulated by the Public Service Commission of South Carolina (PSC). All of these systems had assets that were either fully depreciated or were nearing the end of their estimated useful life. To remain viable, a system must include asset replacement funding (depreciation funding) in its annual budget.

### **Observations:**

1. In 2000, private for profit systems accounted for 25% of the small public water systems serving less than 10,000 people.
2. Currently, the PSC does not allow a water system to establish a rate structure that includes asset replacement funding.
3. To remain in compliance with the SPDWR a system must be prepared to renew and replace its assets (e.g. replace a well to maintain compliance with the secondary groundwater source regulation).
4. To replace an asset a system must first acquire the funds, pay to replace the asset, and then propose a rate increase to the Commission. This does not allow adequate financial forecasting.
5. The loan interest only increases the necessary rate increase. If a system had set aside all, or a portion of the necessary replacement funds, then the rate increase may not be as severe as with a loan.

### **Recommendations:**

1. Support legislation to allow private for profit systems to establish a rate structure that includes asset replacement funding.
2. Support PSC regulation that monitors the amount and use of the funding and penalizes those that misappropriate the funds.

## **10. Overall Observations of the Capacity Development Strategy and Technical Assistance Program.**

Each year a conference was hosted by the EPA for the technical assistance providers and State regulators from Regions 4 and 6 to share information on how each State was implementing their capacity development programs. It was interesting to learn that the technical assistance program in South Carolina was unique when compared to the other neighboring States' programs. All of the other States utilized either the Rural Water Association or RCAP for technical assistance providers and there was a wide range in the amount of assistance provided between the various State programs. The following is a brief description of the technical assistance programs in States from EPA Region 4 and 6 performed in 2002:

Mississippi reported that they perform an annual capacity development evaluation on all of the systems; they then identify 25 systems that are experiencing problems and select the worst ten to help each year. They have also developed a Board Member Training program, which is required

by State Law for all systems that serve populations less than 2,500. Volunteer follow-up training seminars are also offered for water rate development and implementation.

Louisiana re-organized their program the previous year and the State Health Department was accepting all systems that complied or participated with the Rural Water Association program. They use a seven page questionnaire to assess system capacity and provide training to assist with managerial issues such as by-laws and Board member training. They also resolved questions regarding the interpretation of the regulations to meet capacity requirements for the technical assistance providers. They believe that lenders need to be included in the process and have access to the capacity assessment results.

Florida provided 2.5 hours of training for Board members and they were trying to identify the needs of the systems prior to visiting them.

North Carolina uses NC Rural Water Association (NCRWA) to provide Technical Assistance through training seminars and their "Circuit Rider" program for systems that have been ranked as high priority based on a self assessment questionnaire that the systems voluntarily submitted to the State in 1999. North Carolina requires new water systems and systems performing repairs, component replacements and maintenance projects to submit Management Plans with their permit applications. A short two page management plan form is used for existing systems, while new systems are required to complete the form and submit some financial forms.

Georgia uses the Rural Water Association as their Technical Assistance Providers to provide training seminars and "Circuit Riders". Georgia also requires business plans from new systems and some existing systems that are under enforcement proceedings. The Georgia Business Plan is in the form of a questionnaire template that is submitted with the permit application.

New Mexico uses the Rural Water Association and they concentrate their efforts on Native American systems (19 Pueblo and 2 Apache Tribes). They focus on revising rates, reserve accounts, infrastructure needs, source water protection, operator certification, water rights, contract issues, and encouraging the consolidation of services between neighboring systems.

Tennessee uses the Utility Board, which serves the same function as the Rural Water Association. The Utility Board provided assistance to their legislatures who created two new regulatory boards: the Wastewater Finance Board; and the Utility Review Board. They stated that they recognized direct correlation between the financial condition and the environmental quality of the system. Tennessee has a State law that requires depreciation to be funded.

Oklahoma uses the Rural Water Association and they provide a mandatory six-hour Board member training for all rural water districts and non-profit systems.

Texas uses the Rural Water Association, which has been concentrating on encouraging systems to merge, consolidate or regionalize. They have observed that systems are holding out for grants even though they have a great record for the repayment of loans. Texas requires business plans for new systems and non-compliant systems. The business plan is in a questionnaire template format. Texas has been trying to facilitate system consolidations, assist with rates, drought plans

and operation procedures, and provide board member training. Texas had worked with approximately 350 systems.

The Arkansas TA provider was assigned 59 systems and had completed approximately one third of them. They were currently working with five systems with less than 500 taps and five systems with greater than 500 taps. They were providing rate training seminars for decision makers.

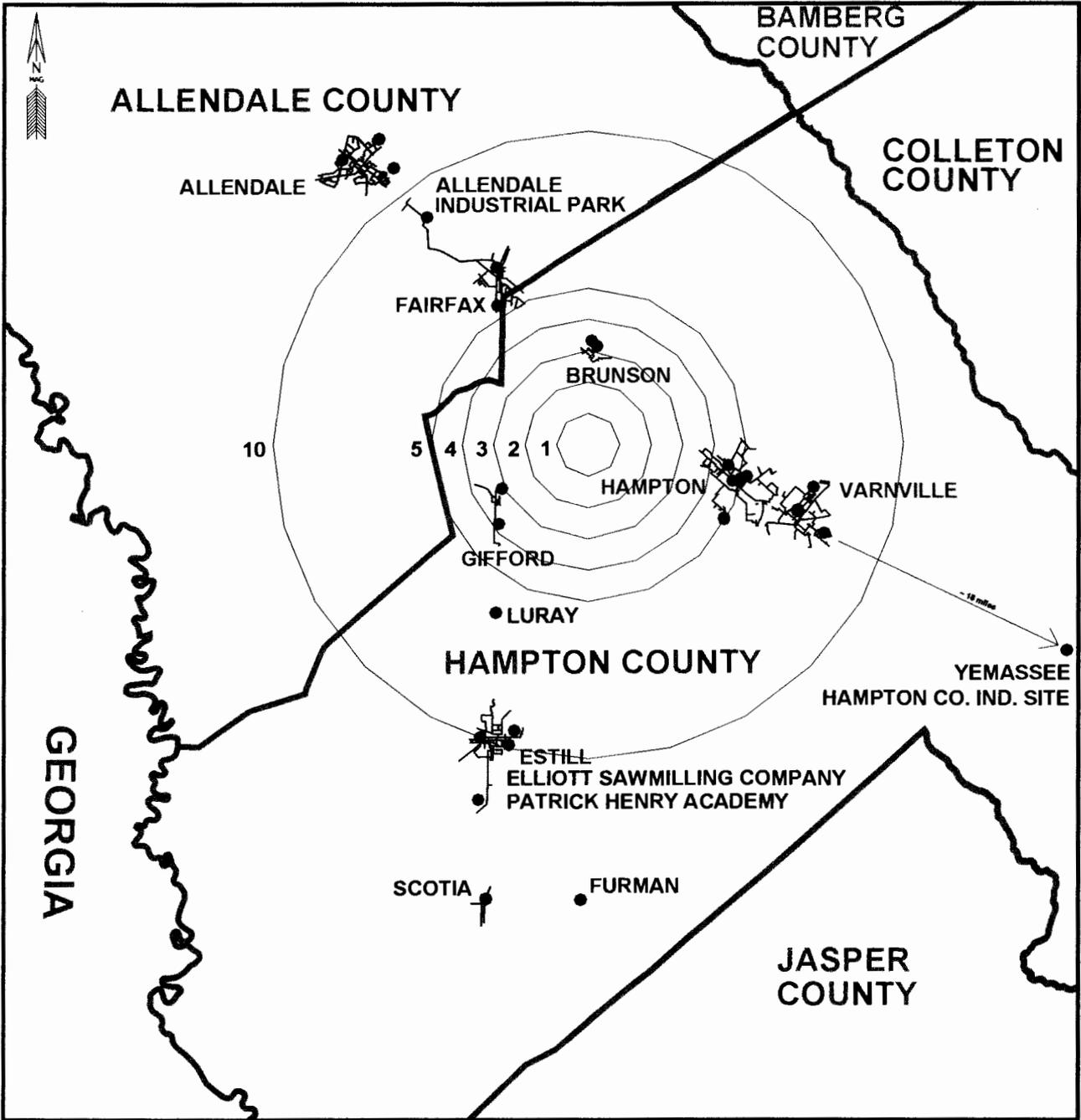
Kentucky uses the Rural Water Association "Circuit Riders" to provide technical Assistance to small systems. Six water system management programs have also been developed and 80 managers had completed the program. An on-line Water Management Associates Degree is provided through the State University. A source water protection program had also been implemented and used to solve a pesticide contaminant problem at a small system.

Alabama used the Rural Water Association to assist 12 systems with technical assistance issues.

West Virginia established a training center at the University of West Virginia. The training center has developed a 10-module management training program for small systems that also includes security issues.

Based on the above observations and having participated first hand in the development and deployment of the South Carolina Capacity Development Strategy for Public Water Systems, it is apparent that South Carolina is leading the southeast and perhaps the nation in providing innovative and effective technical assistance to small water systems.

**APPENDIX A**  
**MERGER AND CONSOLIDATION MAPS**



RADIUS FROM SYSTEM IN ONE MILE INCREMENTS

APPROXIMATE LOCATION OF COUNTY LINES

APPROXIMATE LOCATION OF MAJOR PUBLIC SUPPLY WELL

APPROXIMATE LOCATION OF MAJOR WATERLINES

GRAPHIC SCALE



1 inch = 5 Miles

Source: GIS Data Server at the University of South Carolina, Water/Wastewater Systems, Metadata  
 \* Water systems highlighted red indicate systems participating in the Technical Assistance Program

**Force & Associates, Inc.**

Environmental & Hydrogeological Consulting  
 147 Vera Rd, Suite F  
 Lexington, SC 29072  
 Phone: 803-359-3200

SCALE 1" = 5 Miles

DRAWN BY JSM

CHECKED BY GLF

DATE 02/03/05

**Water Systems in the Vicinity of the Hampton and Allendale Counties South Carolina**

FIGURE NO.

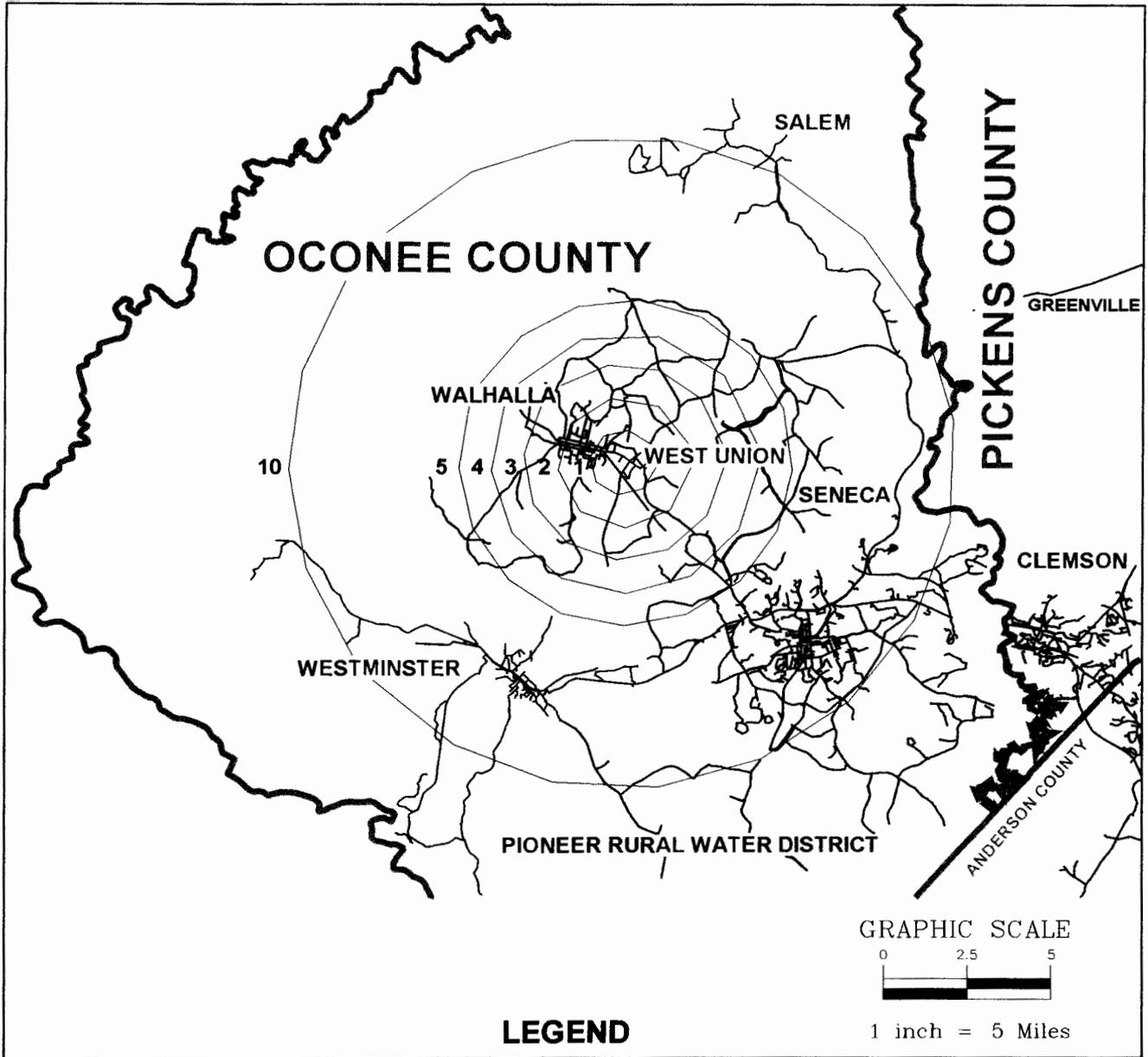
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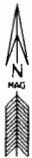
PROJECT

Hmpt & Allndl



**LEGEND**

-  APPROXIMATE LOCATION OF COUNTY LINE
-  RADIUS FROM SYSTEM IN ONE MILE INCREMENTS
-  APPROXIMATE LOCATION OF MAJOR PUBLIC SUPPLY WELL
-  APPROXIMATE LOCATION OF MAJOR WATERLINES



Source: GIS Data Server at the University of South Carolina

Water/Wastewater Systems, Metadata

\* The water systems highlighted in red indicate systems participating in the Technical Assistance Program

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Phone: 803-359-3200

SCALE 1" = 5 Miles

DRAWN BY JSM

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DATE 4/16/05

**Water Systems in the Vicinity of the  
Oconee County  
South Carolina**

FIGURE NO.

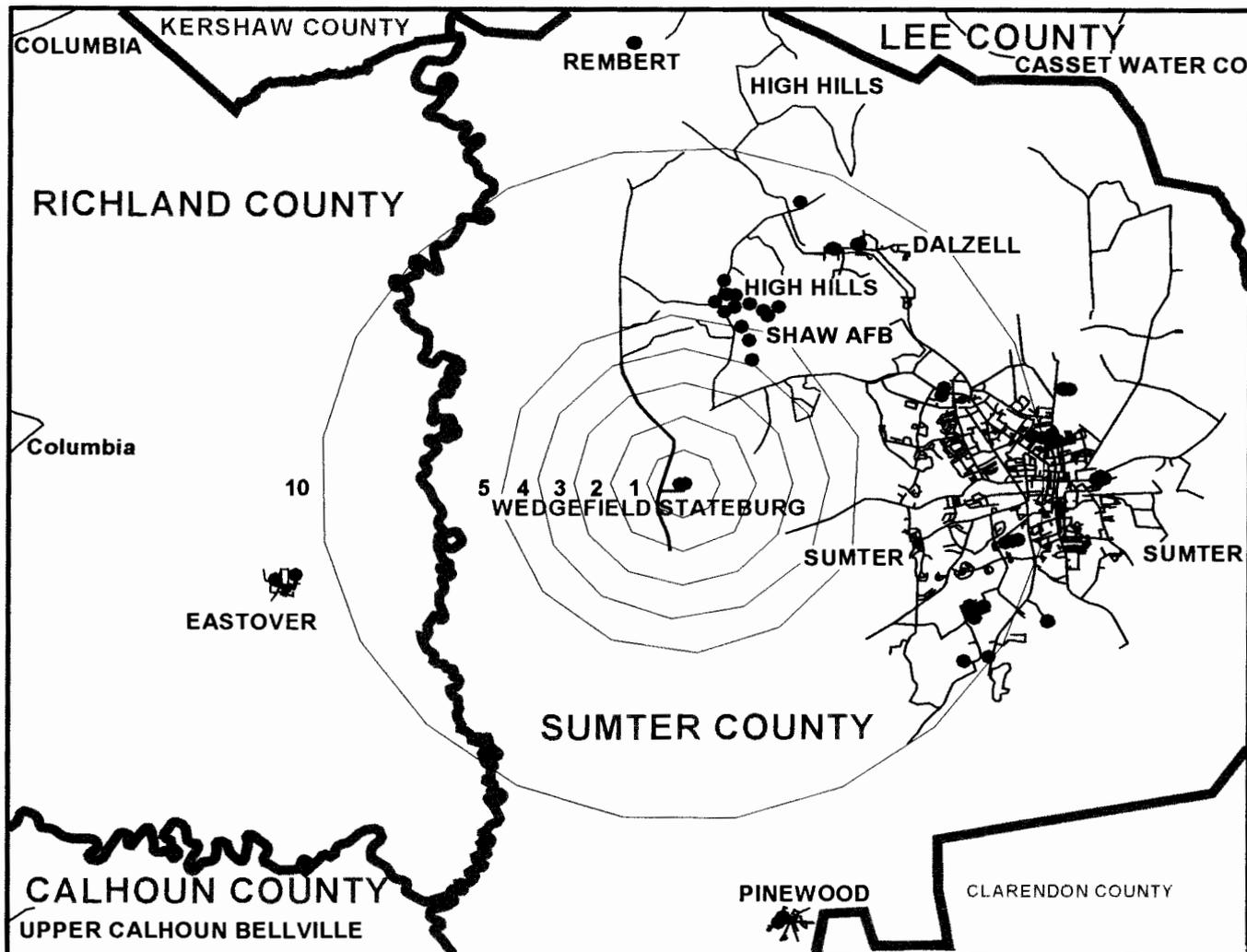
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4292005

PROJECT

OCONEE



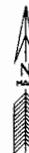
GRAPHIC SCALE



1 inch = 5 Miles

**LEGEND**

-  APPROXIMATE LOCATION OF COUNTY LINES
-  RADIUS FROM SYSTEM IN ONE MILE INCREMENTS
-  APPROXIMATE LOCATION OF MAJOR PUBLIC SUPPLY WELL
-  APPROXIMATE LOCATION OF MAJOR WATERLINES



Source: GIS Data Server at the University of South Carolina  
Water/Wastewater Systems, Metadata, 1992

\* The systems highlighted in red indicate systems participating in the Technical Assistance Program

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Associates, Inc.**

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SCALE 1" = 5 Miles

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DATE 4/16/05

**Water Systems in the Vicinity of the  
Sumter County  
South Carolina**

FIGURE NO.

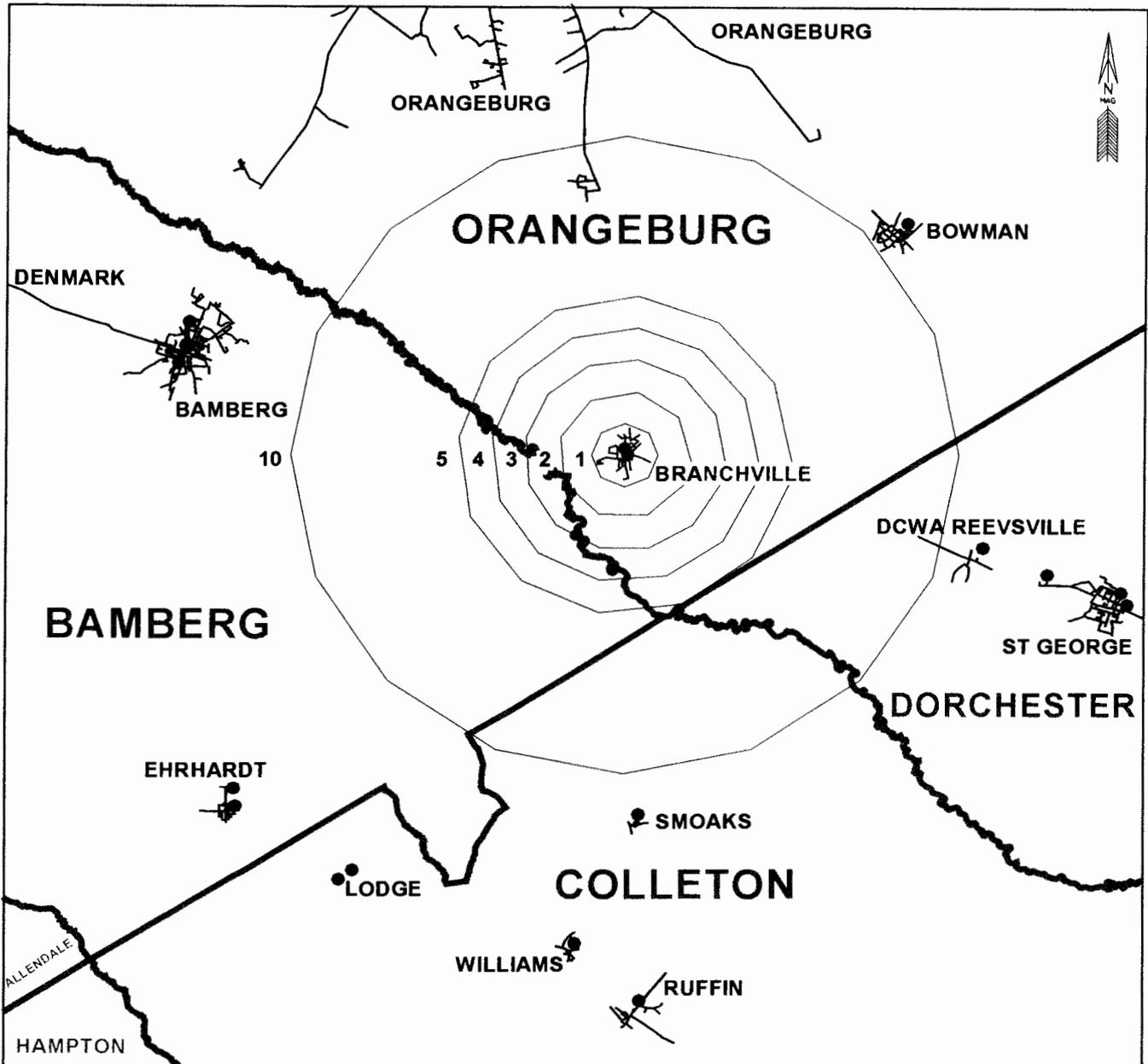
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4162005

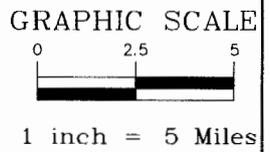
PROJECT

SUMTER



**LEGEND**

- RADIUS FROM SYSTEM IN ONE MILE INCREMENTS
- APPROXIMATE LOCATION OF COUNTY LINES
- APPROXIMATE LOCATION OF MAJOR PUBLIC SUPPLY WELL
- APPROXIMATE LOCATION OF MAJOR WATERLINES



Source: GIS Data Server at the University of South Carolina  
Water/Wastewater Systems, Metadata

\* The system highlighted in red indicates the systems participating in the Technical Assistance Program

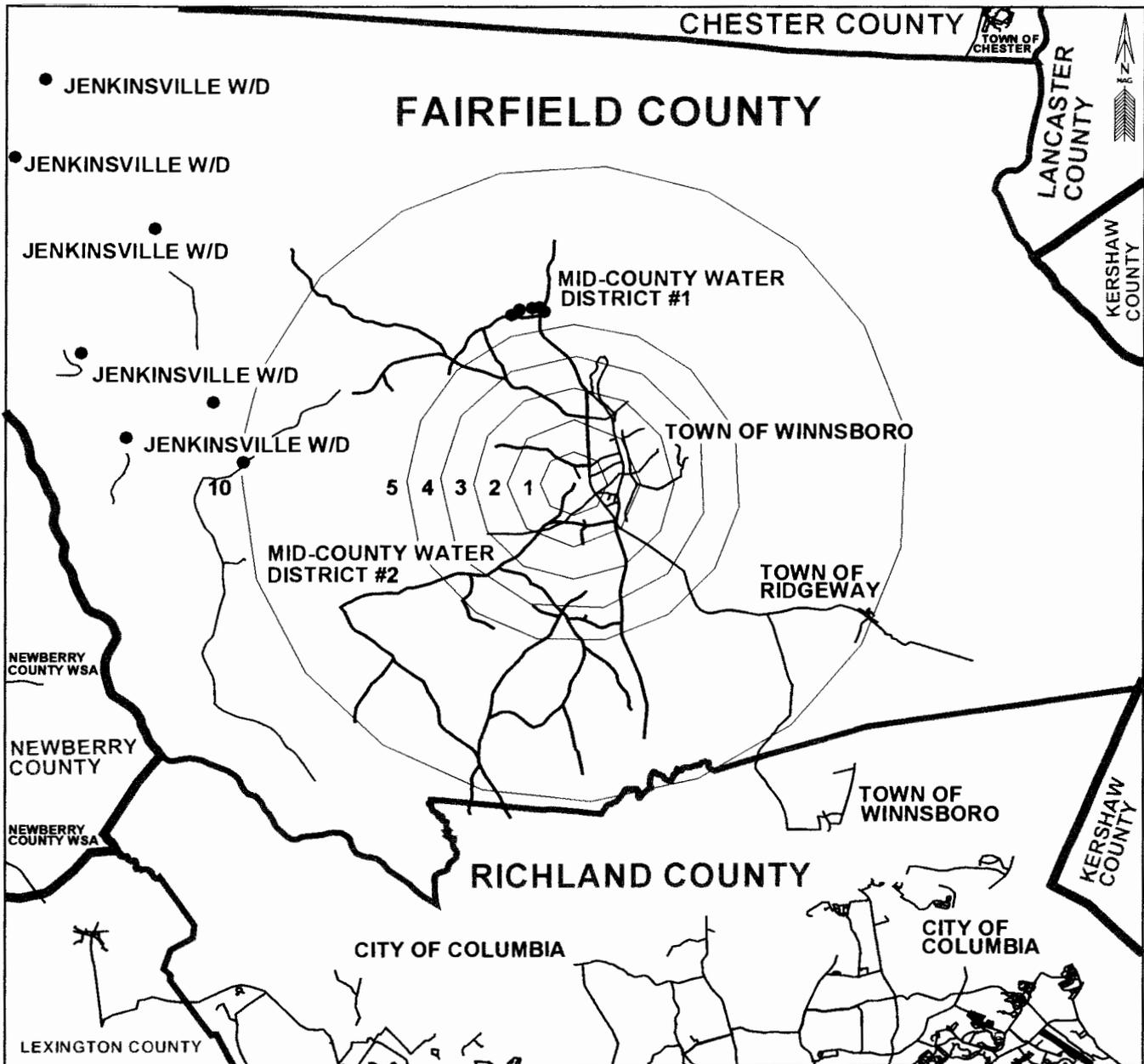
**Force & Associates, Inc.**

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147 Vera Rd. Suite F  
Lexington, SC 29072  
Phone: 803-358-3200

SCALE	1" = 5 Miles
DRAWN BY	JSM
CHECKED BY	GLF
DATE	4/16/05

**Water Systems in the Vicinity of the  
Orangeburg County  
South Carolina**

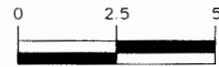
FIGURE NO.	1
CADD NO.	4262005
PROJECT	ORANGEBURG



**LEGEND**

-  **RADIUS FROM SYSTEM IN ONE MILE INCREMENTS**
-  **APPROXIMATE LOCATION OF COUNTY LINES**
-  **APPROXIMATE LOCATION OF MAJOR PUBLIC SUPPLY WELL**
-  **APPROXIMATE LOCATION OF MAJOR WATERLINES**

GRAPHIC SCALE



1 inch = Miles

Source: GIS Data Server at the University of South Carolina  
Water/Wastewater Systems, Metadata, 1992

\* The systems highlighted in red indicate systems participating in the Technical Assistance Program.

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Associates, Inc.**

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Phone: 803-359-3200

SCALE 1" = 5 Miles

DRAWN BY JSM

CHECKED BY GLF

DATE 04/18/05

**Water Systems in the Vicinity of the  
Fairfield County  
South Carolina**

FIGURE NO.

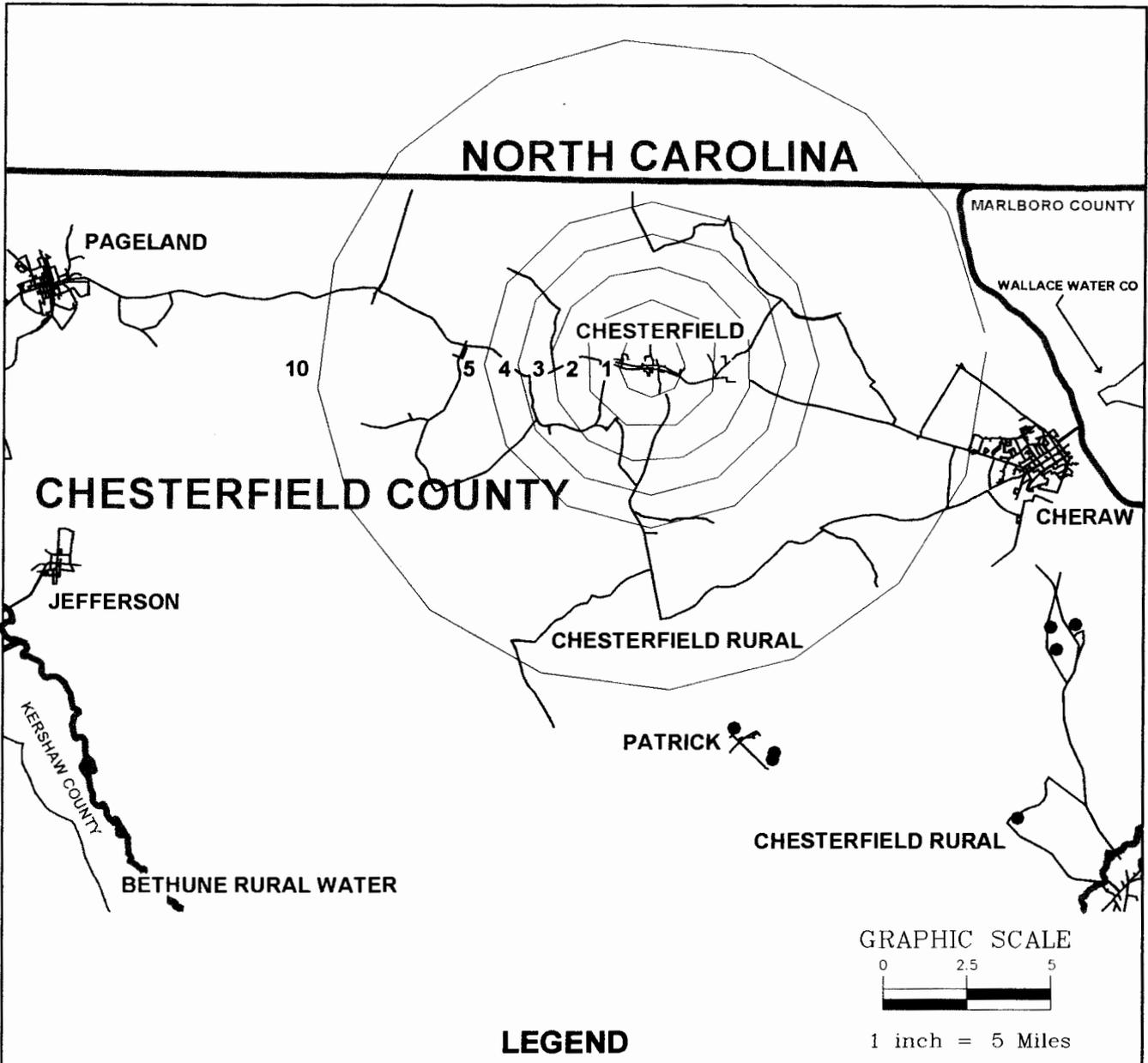
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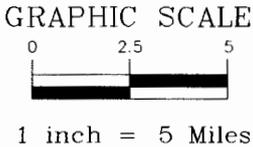
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PROJECT

FAIRFIELD



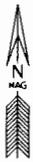
**LEGEND**



-  APPROXIMATE LOCATION OF COUNTY LINE
-  RADIUS FROM SYSTEM IN ONE MILE INCREMENTS
-  APPROXIMATE LOCATION OF MAJOR PUBLIC SUPPLY WELL
-  APPROXIMATE LOCATION OF MAJOR WATERLINES

Source: GIS Data Server at the University of South Carolina  
Water/Wastewater Systems, Metadata

\* The systems highlighted in red indicate systems participating in the Technical Assistance Program

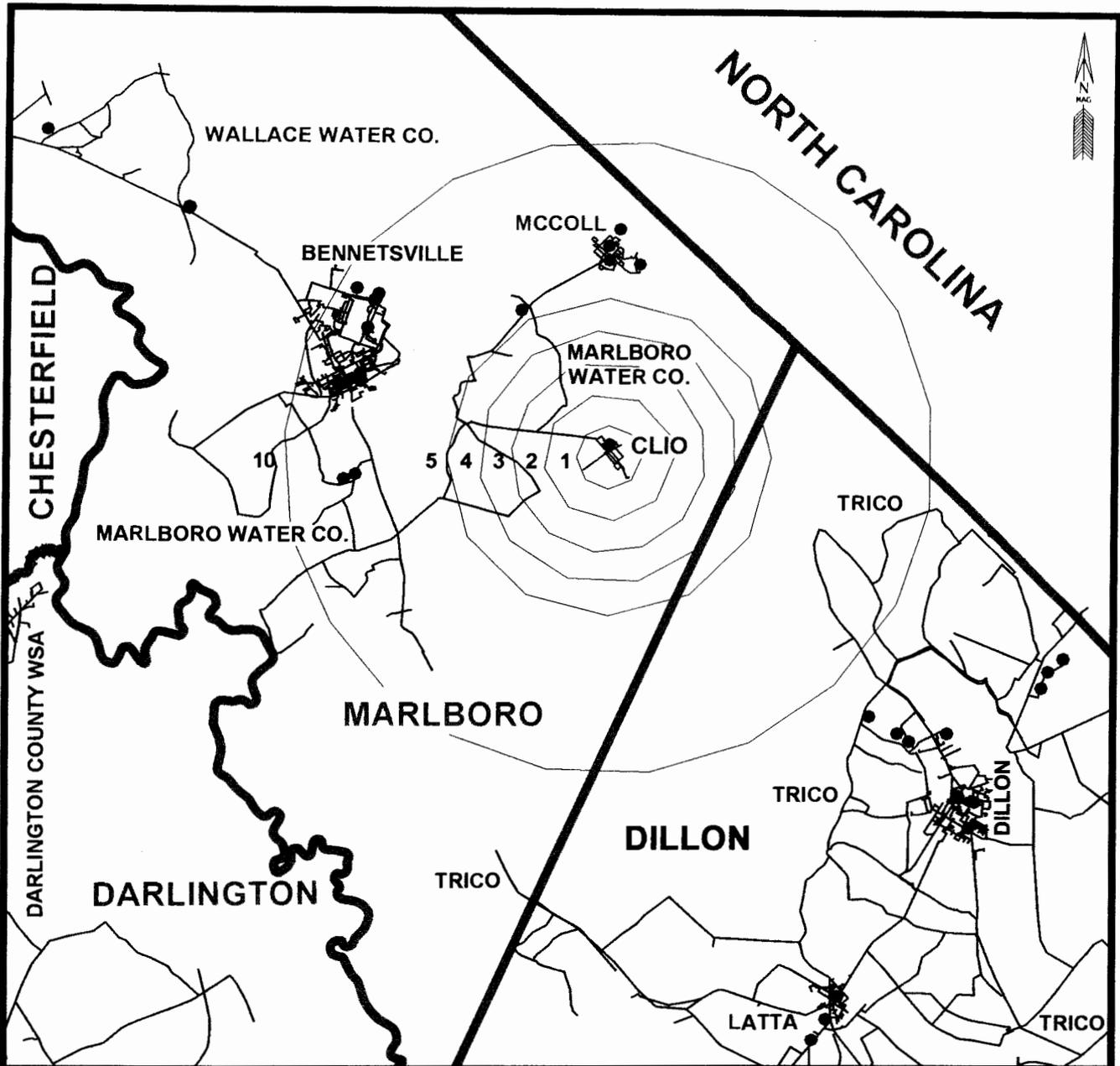


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SCALE	1" = 5 Miles
DRAWN BY	JSM
CHECKED BY	GLF
DATE	4/16/05

**Water Systems in the Vicinity of the Chesterfield County of the South Carolina**

FIGURE NO.	1
CADD NO.	4052005
PROJECT	Chesterfield



**LEGEND**

-  **RADIUS FROM SYSTEM IN ONE MILE INCREMENTS**
-  **APPROXIMATE LOCATION OF COUNTY LINES**
-  **APPROXIMATE LOCATION OF MAJOR PUBLIC SUPPLY WELL**
-  **APPROXIMATE LOCATION OF MAJOR WATERLINES**

GRAPHIC SCALE



1 inch = 5 Miles

Source: GIS Data Server at the University of South Carolina  
Water/Wastewater Systems, Metadata, 1992

\* The systems highlighted in red indicated systems participating in the Technical Assistance Program

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Associates, Inc.**

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Phone: 803-359-3200

SCALE 1" = 5 Miles

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DATE 4/16/06

**Water Systems in the Vicinity of the  
Marlboro County  
South Carolina**

FIGURE NO.

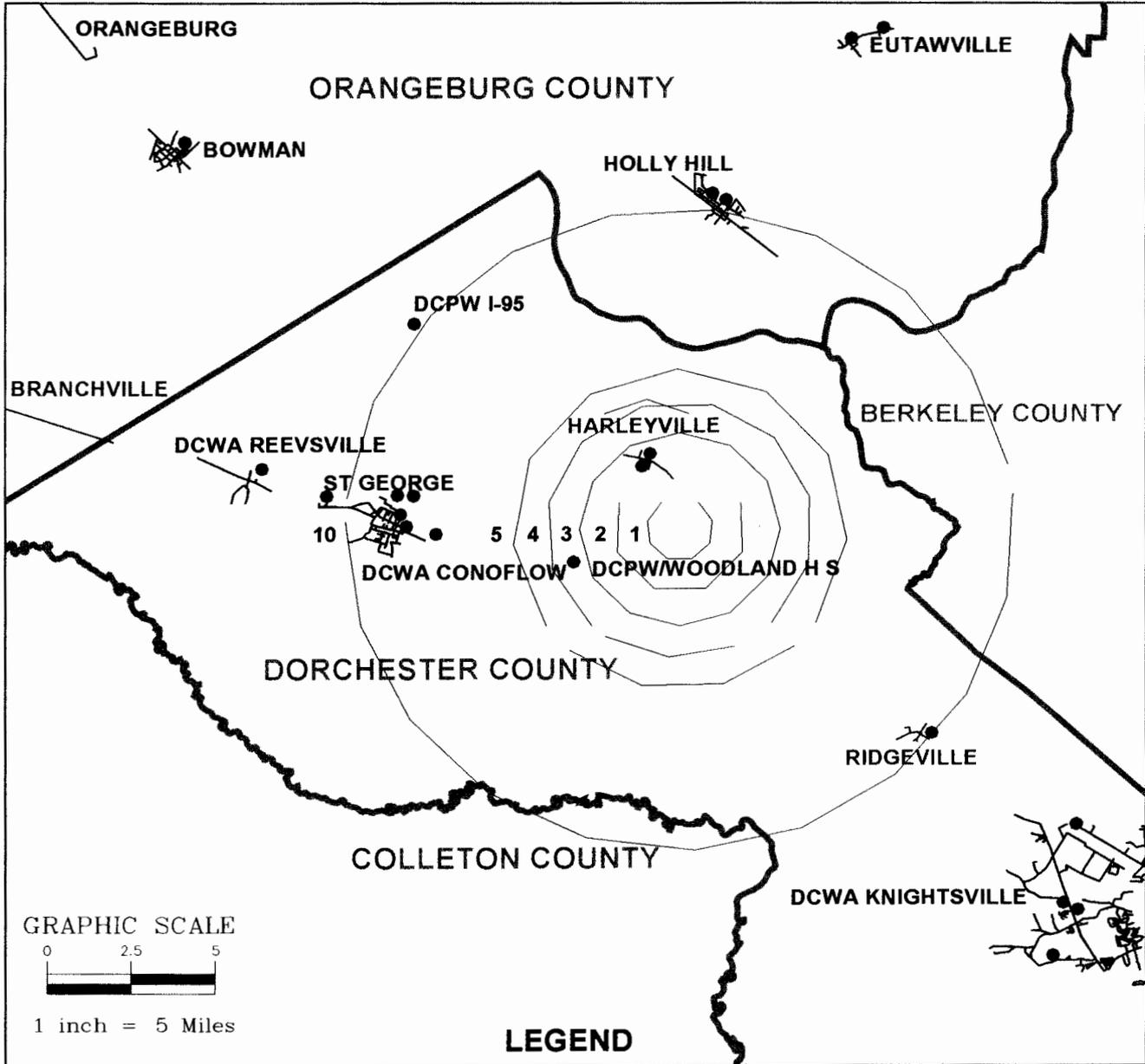
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4162005

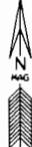
PROJECT

CLIO



**LEGEND**

-  APPROXIMATE LOCATION OF COUNTY LINE
-  RADIUS FROM SYSTEM IN ONE MILE INCREMENTS
-  APPROXIMATE LOCATION OF PUBLIC SUPPLY WELL
-  APPROXIMATE LOCATION OF MAJOR WATERLINES



Source: GIS Data Server at the University of South Carolina  
 Water/Wastewater Systems, Metadata, 1992

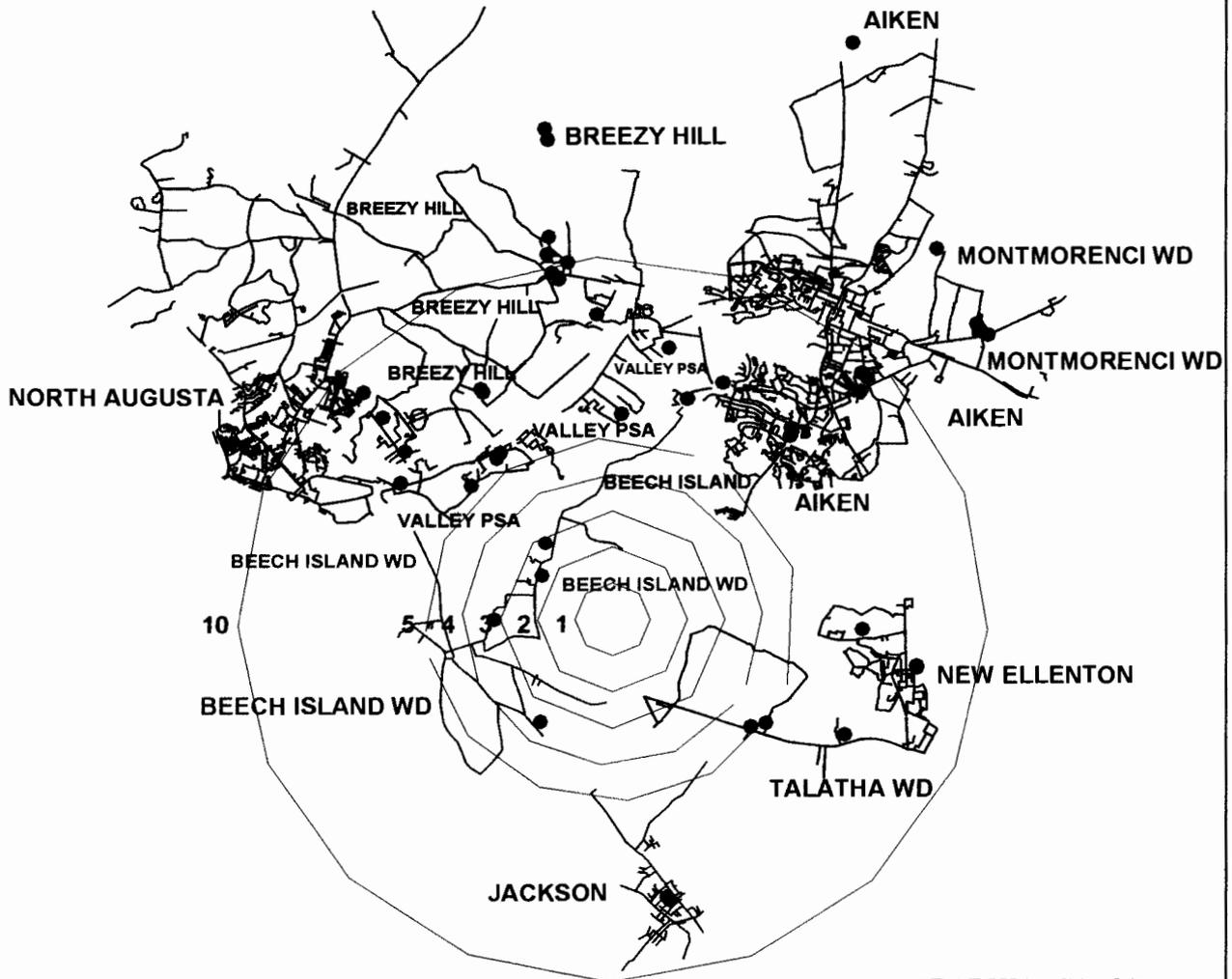
\* The systems highlighted in red indicate systems participating in the Technical Assistance Program

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 Lexington, SC 29072  
 Phone: 803-359-7847

SCALE	1" = 5 Miles
DRAWN BY	JSM
CHECKED BY	GLF
DATE	4/29/05

**Water Systems in the Vicinity of the  
 Dorchester County  
 South Carolina**

FIGURE NO.	1
CADD NO.	4162005
PROJECT	DORCHESTER



GRAPHIC SCALE



1 inch = 5 Miles

**LEGEND**


**RADIUS FROM SYSTEM IN ONE MILE INCREMENTS**  

**APPROXIMATE LOCATION OF MAJOR PUBLIC SUPPLY WELL**  

**APPROXIMATE LOCATION OF MAJOR WATERLINES**  
 Source: GIS Data Server at the University of South Carolina  
 Water/Wastewater Systems, Metadata, 1992  
 \* The systems highlighted in red indicate systems participating in the Technical Assistance Program



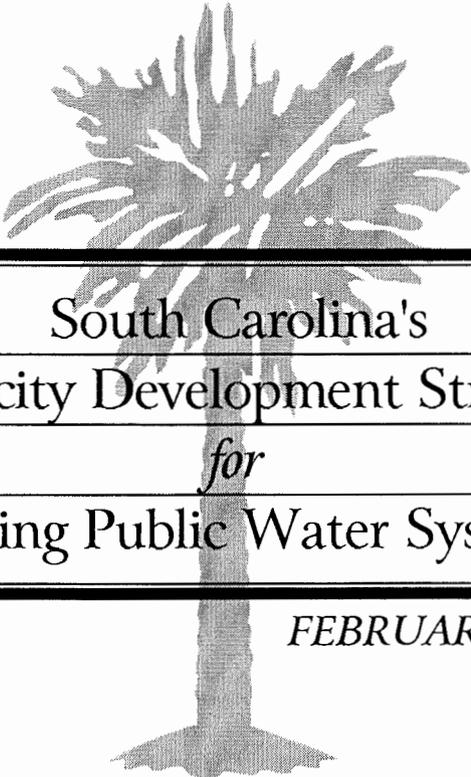
<b>Force &amp; Associates, Inc.</b> Environmental & Hydrogeological Consulting 147 Vera Road, Suite F Lexington, SC 29072 Phone: 803-359-7847	<b>SCALE</b> 1" = 5 Miles	<b>Water Systems in the Vicinity of the          Aiken County          South Carolina</b>	<b>FIGURE NO.</b> 1
	<b>DRAWN BY</b> JSM		<b>CADD NO.</b> 4262005
	<b>CHECKED BY</b> GLF		<b>PROJECT</b> AIKEN
	<b>DATE</b> 04/29/05		

**APPENDIX B**

**SCDHEC CAPACITY DEVELOPMENT STRATEGY**

# CAPACITY DEVELOPMENT

*for financial, technical & managerial viability*



South Carolina's  
Capacity Development Strategy  
*for*  
Existing Public Water Systems

*FEBRUARY 2000*



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APPENDIX A: STATE SAFE DRINKING WATER ACT

APPENDIX B: STATE PRIMARY DRINKING WATER REGULATIONS

APPENDIX C: WATER SUPPLY PERMITTING GUIDE

APPENDIX D: WATER DISTRIBUTION SYSTEM PERMITTING GUIDE

APPENDIX E: SANITARY SURVEY EVALUATION FORMS & GUIDELINES FOR CONDUCTING A GROUNDWATER AND DISTRIBUTION SYSTEM SANITARY SURVEY

APPENDIX F: WATER SYSTEM VIABILITY GUIDANCE: A GUIDE TO EVALUATING SYSTEM VIABILITY FOR PROPOSED PUBLIC WATER SYSTEMS

APPENDIX G: WATER SYSTEM BUSINESS PLAN GUIDANCE: A GUIDE FOR DEVELOPING A BUSINESS PLAN TO DEMONSTRATE THE VIABILITY OF EXISTING PUBLIC WATER SYSTEMS

APPENDIX H: APPLICATION FOR A PERMIT TO CONSTRUCT A SMALL WATER SYSTEM

APPENDIX I: OPERATING PERMITS: FLOW CHARTS FOR THE PERMITTING PROCESS & COORDINATION WITH THE STATE'S SANITARY SURVEY PROGRAM

APPENDIX J: REQUEST FOR PROPOSAL: TECHNICAL ASSISTANCE SERVICES FOR SOUTH

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South Carolina's  
Capacity Development Strategy  
*for*  
Existing Public Water Systems

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FEBRUARY 2000

CAROLINA'S SMALL PUBLIC WATER SYSTEMS

## A. Introduction

In 1996 the Federal Safe Drinking Water Act (SDWA) was amended to include a new provision called "Capacity Development". Section 1420(a) of the federal SDWA requires that a State must develop and implement a strategy to assist public water systems in acquiring and maintaining technical, managerial and financial capacity or lose a portion of the monies (10% in FY 2001, 15% in FY 2002 and 20% each subsequent year) allotted for the State's drinking water revolving loan fund.

In preparing this strategy the Federal SDWA requires that states consider and solicit public comment on, and include as appropriate:

- methods or criteria to identify and prioritize the public water systems most in need of improving technical, managerial and financial capacity;
- institutional, regulatory, financial, tax, or legal factors at the Federal, State, or local level that encourage or impair capacity development;
- how the State will use authorities and resources of the Federal SDWA to:
  - assist public water systems in complying with the National Primary Drinking Water Regulations;
  - encourage the development of partnerships between public water system to enhance the technical, managerial, and financial capacity of the systems; and,
  - assist public water systems in the training and certification of operators.
- how the State will establish a baseline and measure improvements in capacity with respect to national primary drinking water regulations and State drinking water law; and,
- identification of the persons that have an interest in and are involved in the development and implementation of the capacity development strategy.

What does "capacity" mean? Capacity is the ability of a water system to consistently provide safe drinking water for its customers. It does not mean just having enough safe water available for everyone in the community. In order to consistently provide safe drinking water, a system must have the technical, managerial and financial capacity to meet state and federal drinking water regulations.

Technical capacity refers to the physical infrastructure of the water system, including but not limited to the source water adequacy, infrastructure adequacy (including wells(s) and/or other source water intakes, treatment, storage, and distribution), and the ability of system personnel to implement the requisite technical knowledge.

Managerial capacity refers to the management structure of the water system, including but not limited to ownership accountability, staffing and organization, and effective linkages.

Financial capacity refers to the financial resources of the water system, including but not limited to the revenue sufficiency, credit worthiness and fiscal controls.

Prior to the 1996 amendments of the federal SDWA which adopted the term “capacity development”, South Carolina used the term “viability” to describe a system’s ability to consistently provide safe drinking water for its customers. Actually, in 1993 the State’s SDWA was amended to allow the South Carolina Department of Health and Environmental Control (Department) to use “viability” as a criterion when making permitting decisions for new water systems. The Act was also amended to allow the Department to revoke or deny the renewal of an operating permit for any existing system which is unable to demonstrate its ability to continuously comply with the provisions of the Act. In addition to allowing the Department to consider viability as a criterion for the permitting of new systems, the Act was amended to allow the Department the authority to deny a permit for a new system if it is feasible to connect to an existing viable water system. This authority can be found in Section 44-55-120(D) of the State Safe Drinking Water Act (page 8 of Appendix A) which states that:

*“The Department may deny a construction permit to any new system which is unable to demonstrate viability to comply with the Safe Drinking Water Act or where connection to an existing, viable water system is feasible. The Department also may revoke or deny renewal of an operating permit to any existing water system which is unable to demonstrate its ability to continue compliance with this Act.”*

Following the promulgation of the above amendment to the State Safe Drinking Water Act, the State Primary Drinking Water Regulations (SPDWR) were revised to define a “viable water system” (refer to page 18 of Appendix B) and include requirements concerning viability in the permitting process for new water systems. These amendments were included as a part of a major rewrite of the SPDWR which the Department had initiated prior to the 1993 amendments to the State SDWA. These regulations were approved by the State’s General Assembly and became effective on July 28, 1995.

While the above amendments to the SPDWR were being considered by the General Assembly, the Department realized that additional work was needed in the development of criteria for evaluating the viability of new systems, as well as the need to develop a comprehensive strategy to enhance the viability of existing water systems. During the Spring of 1995, the Department organized an Ad Hoc Committee to assist in the development of this criteria and strategy. The following agencies, organizations and governing bodies were represented on this committee:

- South Carolina Department of Health and Environmental Control
- South Carolina Budget and Control Board
- South Carolina Public Service Commission
- South Carolina Section of the Carolina’s Chapter of the National Association of Water Companies
- South Carolina Section of the American Water Works Association
- Strom Thurmond Institute
- South Carolina Special Purpose Districts Association
- Lexington County Mobile Home Park Association
- South Carolina Rural Water Association

- 
- South Carolina Association of Counties
  - South Carolina Municipal Association
  - Council of Governments Association
  - South Carolina Department of Commerce
  - Manufactured Housing Institute of South Carolina, Inc.
  - South Carolina Rural Development Council
  - South Carolina State Reorganization Commission
  - South Carolina Water Pollution Control Association
  - South Carolina Senate
  - South Carolina House of Representatives
  - Advisory Commission on Intergovernmental Relations
  - Home Builders Association of South Carolina
  - United States Department of Agriculture and Rural Development

The full committee met a total of six times between May 1995 and July 1996 to develop a comprehensive strategy to enhance the viability of existing public water systems. The US EPA provided technical assistance to the Department during the first two meetings via a contractor, John Cromwell, of Apogee Research Inc. During the development of the strategy, subcommittees were established to research and propose recommendations concerning certain issues.

The committee recommended that, in addition to historical programs such as permitting of construction projects, monitoring and sanitary surveys, the strategy include the following elements:

- Use business plans as a means of determining the viability of water systems;
- Develop benchmarks from annual financial statements from existing water systems to help determine the adequacy of business plans;
- Use the Department's sanitary survey program as a means of targeting existing systems most in need of improving viability;
- Initiate an Operating Permit Program;
- Encourage and facilitate the consolidation and regionalization of public water systems;
- Encourage and facilitate the local planning process and coordination between state and local governments; and,
- Public education initiatives.

Each of these recommendations is discussed in more detail below. However, before several of these recommendations could be implemented, the SPDWR had to be amended. On June 29, 1996, the Department initiated the process of revising the SPDWR to include requirements to support a comprehensive strategy to enhance the viability of new and existing public water systems in South Carolina. The Ad Hoc Committee met several times during the regulation revision process to develop specific regulatory language and address comments received from the public concerning the proposed revisions. The regulations were eventually amended June 26, 1998 (Appendix B).

South Carolina's strategy to enhance the viability of public water systems in the state consists of several elements, some of which have been in existence for several decades (e.g., construction permitting, sanitary surveys) and

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others which have been developed within the last several years (e.g., Safe Drinking Water Fund, Ad Hoc Committee recommendations). Each element is described in more detail below.

## **B. Construction Permitting Program and Design Standards**

South Carolina has had in place a construction permitting program for several decades. This program helps insure that new, as well as existing, water systems have the technical capacity to provide safe drinking water to their customers.

Section 44-55-40 of the State SDWA requires that before anyone can construct, expand or modify a public water system, an application for a permit to construct must be made to, and permit to construct obtained from, the Department (refer to page 2 of Appendix A). An application must include engineering, chemical, physical, radiological or bacteriological data, along with engineering plans, drawings and specifications which have been prepared by a South Carolina registered professional engineer. Furthermore, this section requires that before any new construction, modification, or extensions can be placed into operation, the applicant must make arrangements for final inspection and approval by the Department.

Section 44-55-30 of the State SDWA requires that the Department establish regulations, procedures or standards as may be necessary to protect the health of the public and ensure the proper operation and function of public water systems. (refer to page 2 of Appendix A)

Section R.61-58.1 of the SPDWR includes procedures for obtaining a permit to construct, and approval from the Department to place such construction into operation (refer to pages 20 through 36 of Appendix B). Please refer to Appendices C and D for guides to the Department's permitting process for water supplies and distribution systems.

Sections R.61-58.2, 3 and 4 of the SPDWR (refer to pages 40 through 135 of Appendix B) specify criteria by which engineers must design any new drinking water facilities, or modify or expand existing facilities. In 1995, these, as well as other sections of the SPDWR which address requirements concerning the operation and maintenance of public water systems, were revised for the first time in almost 15 years. These revisions were needed for several reasons. One major reason was that the regulations presented barriers to approving new and innovative treatment technologies which were often less expensive than traditional treatment technologies. The revised regulations include standards for new treatment technologies which have been developed and refined during the last several years, and outline requirements for conducting pilot studies which can be used in assisting the Department in making permit decisions for new technologies. The revisions were also needed to help make the regulations more user-friendly. For example, design requirements for wells were not limited to one section of the SPDWR, which could result in design errors if the design engineer was not completely aware of all of the requirements.

In revising the regulations, the Department established several committees which were primarily made up of professional engineers and representatives of the regulated community. After the committees developed draft revisions for each section, the Department invited further public participation through placing on public notice the proposed revisions, and eventually through promulgating the revisions in accordance with the State's Administrative Procedures Act.

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## C. Sanitary Survey Program

South Carolina has had in place a sanitary survey program for more than two decades. This program helps insure that existing water systems have both technical and managerial capacity to provide safe drinking water to their customers. This program will also be used to identify and prioritize the public water systems most in need of improving technical, managerial and financial capacity.

The Department conducts periodic sanitary surveys on all public water systems in the state. The Department's goal is to conduct sanitary surveys annually on all community systems and non-transient non-community water systems, and every three years on all other water systems. The purpose of the sanitary survey is to evaluate the operation and maintenance of a public water system, as well as its technical capacity, to determine the system's ability to provide continuously safe drinking water to the consuming public.

The sanitary survey consists of a review of the Department's files and a site visit to inspect a system's facilities and operation and maintenance procedures. Appendix E contains a copy of evaluation forms and a guidance manual used by Department staff when conducting sanitary surveys on groundwater facilities and distribution systems. A similar guidance manual is used when conducting sanitary surveys on surface water facilities. After each of the items on the form have been evaluated, the Department's inspector gives an overall rating for the sanitary survey of "satisfactory", "needs improvement" or "unsatisfactory".

Although the primary purpose of the sanitary survey is to provide an evaluation of the system's current ability to provide safe drinking water to the consuming public, an overall "unsatisfactory" rating is an indication that there is a lack of technical, managerial and/or financial capacity to consistently comply with the State Safe Drinking Water Act and the State Primary Drinking Water Regulations.

With so many public water systems in the state, it is not practical to consider applying a viability assessment or business plan process to all of them. However, the sanitary survey program is an ideal means of identifying those systems which are in most need of improving their technical, managerial and financial capacity. Refer to Section F below for further discussion on how the Department plans to use this program to require the development of business plans by systems which receive an overall "unsatisfactory" on the sanitary survey.

## D. Water Quality Monitoring and Annual Fee Program

For several years during the late 1970's and early 1980's the Department was able to conduct chemical and radionuclide monitoring, as required by federal regulations, using state appropriated funds. However, with the passage of the 1986 amendments to the Federal SDWA, water quality monitoring requirements skyrocketed. With the increasing monitoring requirements, the Department needed a substantial increase in funding to continue its monitoring services for the public water systems of South Carolina. Without such services, most of the small systems in the state would be out of compliance with the federal SDWA because they could not afford the cost of monitoring.

In 1991, the Department invited a number of public water systems, representing all system sizes, to participate in developing a funding strategy for continuing the Department's monitoring program. All agreed that the State

would be best served by requesting that the legislature increase the appropriations sufficiently to fund the monitoring. Unfortunately, the State Legislature was not able to provide such funding. The next choice was to implement a mandatory monitoring fee whereby every service tap in the state would be charged a fee of 50 cents per month. This was well received by the smaller systems because they would only be paying a few hundred dollars a year for thousands of dollars worth of monitoring services. However, this proposal was not very well received by the owners of the large systems because they would be paying hundreds of thousands of dollars for just thousands of dollars worth of monitoring.

After more than two years of discussion a compromise was finally reached by all parties. In 1993 the State Safe Drinking Water Act was amended to establish a Safe Drinking Water Fund and authorize the Department to collect an annual fee from each public water system. The amendments also required that a fee schedule be established annually in the State's general appropriations act.

Although the large water systems would not be required to pay hundreds of thousands of dollars annually to the Safe Drinking Water Fund, the fee schedule established in the general appropriations act still had the larger water systems subsidizing the smaller water systems. Therefore, the SDWA was also amended to allow the Department the authority to minimize the proliferation of small systems by allowing denial of construction permits for new water systems where connection to an existing water system is feasible. The act also allows the Department to deny construction permits for any new water system that cannot show that it will be viable. Refer to Appendix F for a copy of a guidance manual developed by the Department for evaluating the feasibility of connecting to an existing system and evaluating the viability of a new system.

Failure to minimize the number of new small water systems will result in the need to increase the annual fee for all water systems in the future. Such increased fees could adversely impact some existing small water systems, as well as force the larger water systems to further subsidize water systems that would have been their customers.

The Department will continue to request that the General Assembly appropriate funds to operate the monitoring program so that the annual fees can be reduced or eliminated. Also, if additional funds are needed to operate the monitoring program, whether due to increased analytical costs or an increase in monitoring requirements, the Department will request appropriations from the General Assembly before requesting an increase in annual fees.

## **E. Business Plans**

The Ad Hoc committee on public water system viability recommended that business plans be used as a means of determining the viability of water systems. Operating a water system is like operating any business, and for any business to be successful, it needs to have a "plan". The purpose of a business plan for a water system is to show that the proposed water system will be viable. A business plan for a public water system consists of three sub-plans, a "*facilities plan*", a "*management plan*", and a "*financial plan*", which is intended to show how a water system will be operated and maintained as a viable entity. A "*viable water system*" is defined in the SPDWR as a water system that is self-sustaining and has the commitment and the technical, managerial and financial capability to consistently comply with the State Safe SDWA and the SPDWR (refer to R.61-58.(B) of SPDWR in Appendix B).

A facilities plan consists of an assessment of the current and foreseeable water supply needs of a water system's service area; a detailed description of alternatives considered for meeting those needs; detailed cost estimates for the construction, operation and maintenance of the different alternatives; and the rationale for the alternative selected. For existing systems, the description of alternatives would include, but not be limited to: a detailed description of existing facilities (source, treatment and distribution); description of any upgrade necessary to bring the existing facilities into compliance with the SDWA and the SPDWR; an assessment of the ability of the existing facilities, along with any necessary upgrade, to supply the current and foreseeable water supply needs of the area (including the ability to comply with any foreseeable regulatory changes); and a description of any other alternatives considered for meeting the water supply needs (refer to R.61-58.(B) of SPDWR in Appendix B).

A management plan consists of the identification of a water system's owner; a description of the management structure; an organizational chart; staffing requirements and duties; identification of any outside services and a copy of any service agreements; a copy of the system's operation and maintenance procedures required by R.61-58.7(B); and a detailed estimate of costs for the operation and maintenance of the system as they relate to the management plan, unless included in the cost estimate for the facilities plan (refer to R.61-58.(B) of SPDWR in Appendix B).

A financial plan consists of projections that a water system's revenues and cash flow will be sufficient for meeting the cost of construction, operation and maintenance for at least five full years. The financial plan must also include assurances deemed necessary for the system to remain viable. Examples of some assurances are: 1) a projection of rates showing a significant coverage ratio; 2) escrow funds; 3) bonding; and, 4) letter of credit (refer to the definition section R.61-58.(B) of SPDWR in Appendix B).

A business plan is a useful tool to judge the viability of new as well as existing water systems, and should be as complete as possible. Are all components of the proposed or existing facility and management structure included? Are the cost estimates used reasonable? Do projected revenues equal or exceed projected expenses and are assurances included?

If an existing water system has not already developed a business plan, it is encouraged to do so. A business plan can be a useful tool in identifying areas of concern long before they become a problem. Such planning will enable a system to put itself in a better financial position to address the concern and keep it from becoming a noncompliance problem.

The Department has developed two guidance documents for assisting owners of both new and existing water systems in developing a business plan for their system. A copy of each is included in Appendices F and G.

The Department plans to use the technical assistance set-aside in the Drinking Water SRF program to help small water systems develop business plans. This will be accomplished by contracting with a public or private organization with statewide capability to help small community and non-community water systems develop such plans. A copy of a "Request for Proposal" for this service is included in Appendix J.

## F. Operating Permit Program

The Ad Hoc committee on public water system viability recommended that the Department initiate an operating permit program. In order to carry out this recommendation the SPDWR had to be amended. The committee developed proposed amendments to the regulations which were changed slightly as a result of comments received during the public notice process the Department follows when promulgating regulations. The SPDWR were amended on June 26, 1998, to include requirements for public water systems to obtain and maintain an "Operating Permit" (refer to pages 37 through 39 of Appendix B).

Prior to June 26, 1998, the State lacked a formal process for issuing or renewing operating permits for water systems. The lack of such a formal permitting process has caused confusion when other state and federal agencies depend on the existence of an "operating permit" for a particular water system. For example, the Public Service Commission's rules and regulations require that the owner of a private utility company submit a copy of an operating permit issued by the Department when requesting rate approval.

After evaluating the pros and cons of implementing an operating permit program, the Ad Hoc committee believed that such a program would be beneficial in the overall effort to enhance the viability of public water systems. Operating permits can be used to assist the owner of a water system in complying with the Act and Regulations by outlining the regulatory requirements which are applicable to the system. The operating permit can also be used as a means of developing enforceable compliance schedules in lieu of formal enforcement actions.

As discussed in Section C of this document, the sanitary survey program will be used to identify and prioritize the public water systems most in need of improving technical, managerial and financial capacity. Although the primary purpose of the sanitary survey is to provide an evaluation of the system's current ability to provide safe drinking water to the consuming public, an overall "unsatisfactory" rating is an indication that there is a lack of technical, managerial and/or financial capacity to consistently comply with the State SDWA and the SPDWR. If the overall rating of the sanitary survey was "unsatisfactory", the operating permit will require the submission of a business plan which must demonstrate how the system will be managed in the future to ensure its long term viability. The business plan must be submitted to the Department for approval within six months of the effective date of the operating permit. The Department may, on a case-by-case basis, require that the business plan include a schedule for achieving compliance with the State SDWA and the SPDWR. Once the compliance schedule is approved by the Department, it becomes a part of the operating permit. Appendix I includes flow charts for the permitting process and coordination with the state's sanitary survey program.

Once issued, an operating permit is non-transferable, except with prior approval of the Department. The permittee must submit written notification to the Department at least 30 days in advance of the proposed transfer. This notification must include an operating permit application form which has been completed by the proposed new owner of the system. On a case-by-case basis, the Department may request that the proposed new owner of the system submit a business plan which shows how the system will be managed to ensure its long term viability. If the Department approves of the transfer, a new operating permit will be issued. This process will allow the Department to prevent a non-viable entity from taking over a water system.

If the system's sanitary survey rating is satisfactory, the operating permit will include a condition that requires the submission of a business plan to the Department within six months following the issuance of an "unsatisfactory" rating on any future sanitary survey.

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## **G. Develop Benchmarks from Annual Financial Statements from Existing Water Systems to Help Determine the Adequacy of Business Plans**

The fundamental criterion of judging the viability of a water system is whether the business plan is complete. However, what if the cost estimates are complete and projected cash flow is adequate on paper, but doubts remain? How does the Department decide if a new system will be viable for the long term?

The development of benchmarks from annual financial statements from existing water systems can provide an empirical database on which to rely. This approach allows the flexibility to look at several indicators to make a composite assessment. If a business plan is in the bottom of the range across a large number of indicators, the basis for a decision is broader and is analogous to the assessment that the financial markets make in evaluating a new business. Ultimately, some judgement will be required of Department staff in assessing the viability of a new water system. This financial judgement is analogous to the “engineering judgement” applied in the engineering plan review process: there are some standards, but few rigid rules; it is ultimately a matter of engineering judgement.

## **H. Encourage and Facilitate the Consolidation and Regionalization of Public Water Systems**

The Ad Hoc committee on public water system viability recommended that one way to enhance the viability of public water systems is to take advantage of the economies of scale through consolidation or regionalization. Although the Department encourages the consolidation or regionalization of existing water systems, it has no authority to require such. However, the State Safe Drinking Water Act does grant the Department the authority to require new water systems to connect to existing viable water systems where feasible. Refer to Appendix F for guidance on how to evaluate the feasibility of connecting to an existing water system.

The State does use the concept of consolidation and regionalization when developing its comprehensive project priority list for the Drinking Water State Revolving Loan Fund (SRF) Program. SRF Projects which involve the consolidation or regionalization of water systems are ranked higher than similar type (category) projects that do not. This comprehensive project priority list and the ranking systems are placed on public notice annually in the Drinking Water SRF intended use plan.

The committee strongly recommended that the State minimize the proliferation of small water systems.

The Department of Health and Environmental Control has for many years permitted the construction of very small water systems without requiring the involvement of a consulting professional engineer. This has been done because many of these systems have found it difficult, and at times impossible, to find a professional engineer that would design and submit plans and specification for a permit to construct. It is probable that the use of this permitting process has to some extent proliferated the number of very small systems. However, the committee feels that this is a valuable service provided to the public and small business person in rural areas and should continue, with some changes which will minimize the proliferation of small water systems. A copy of the Department’s “Application for a Permit to Construct a Small Water System” is provided in Appendix H.

This permitting process may only be used for projects outlined in item 1 on page 3 of the Application in Appendix H and the applicant must also address the feasibility of connecting to an existing viable water system. Also, if the applicant wishes to use this permitting process, he/she must agree to connect to a publicly owned water system when the water line from such a system becomes contiguous to the applicant's property.

In addition to the above changes, the Department will not allow the small system permitting process to be used for systems and situations outlined under item 1 on page 3 of the Application in Appendix H.

There is a legitimate concern in the private utility sector over the government's focus to encourage the consolidation of multiple water systems under one umbrella of professional ownership. The concern is that if larger water systems are allowed to simply take over a number of systems from a private utility, the cost to the remaining customers (customers too remote for consolidation into a regional system) of the private utility simply increases due to the loss of economies of scale. At some point, the private utility may no longer be a viable economic entity. Therefore, it is recommended that state and local governments be cognizant of this issue when taking steps to consolidate systems. Regionalization may be the best alternative in such cases. Rather than pushing for systems to consolidate, smaller systems should be encouraged to at least connect to larger systems by way of a master meter and then abandon any existing wells or surface water treatment plant. Such arrangements most often result in the customers of the smaller water systems receiving higher quality water, and more reliable service, at a lower cost.

When restructuring of water systems occurs, we often think of positive steps being taken to enhance the viability of a system and the delivery of safe drinking water; however, this is not always the case. Over the past several years a number of small systems have restructured into smaller systems in an attempt to remain viable by avoiding monitoring costs and other regulatory requirements. This type of restructuring occurs when a small water system which has two or more wells, divides its distribution system into two or more separate systems which are small enough not to have to comply with the monitoring requirements of the State Primary Drinking Water Regulations (i.e., each system serves less than 15 taps and 25 people). Although this type of restructuring results in lower operating cost for the owner of the system, it decreases the protection of public health. Therefore, in the interest of public health protection, the committee recommended that this type of restructuring be prohibited or discouraged by regulation. The State Primary Drinking Water Regulations were amended on June 26, 1998, to include the following language (refer to page 29 of Appendix B).

*"If an existing public water system is divided into two or more smaller water systems, each of the smaller water systems shall comply with the water quality monitoring requirements of the water system prior to it being divided."*

## **I. Encourage and Facilitate the Local Planning Process and Coordination Between State and Local Governments**

During the last several years a number of local governments have initiated a planning process for potable water service. However, their efforts have been somewhat hampered by the lack of coordination between state and local governments. To resolve this problem, the committee recommended that the State Primary Drinking Water Regulations be amended by adding the following requirement to R.61-58.1(B)(2) of the SPDWR (refer to page 20 of Appendix B).

*(g) if applicable, a letter from the local government which has potable water planning authority over the area in which the project is located, stating that the proposed project is consistent with the water supply service plan for the area.*

The SPDWR were amended on June 28, 1998, to include this requirement. This requirement will force the design engineer to look into any local water supply planning process during the early stages of a project's development.

Furthermore, the committee recommended that the SPDWR be amended to include a local government notification period. The regulations were amended on June 28, 1998, to include the following requirement (refer to page 22 of Appendix B).

*"A 15-day local government notification period shall lapse prior to the issuance of any construction permit. This notification period shall be waived for any projects permitted under the provisions of a general construction permit and delegated review program. This notification period may be waived by the cognizant local government or by the Department if the construction is necessary in order to maintain a safe and adequate supply of water during an emergency. A letter from the local government having potable water planning authority for the area approving the project constitutes a waiver by the cognizant local government."*

In the past, the Department has only become involved in the rate-setting process of the Public Service Commission (PSC) when requested. However, since the first meeting of the Ad Hoc Committee, the Department staff and PSC staff have worked together closely to help ensure the viability of those systems regulated by the PSC. The PSC has added the Department to its mailing list of persons notified when utilities make application for rate increases.

## **J. Public Education Initiative**

The Department, along with other state agencies and organizations such as the South Carolina Section of the American Water Works Association, South Carolina Rural Water Association and the Water and Pollution Control Association of South Carolina, will work in concert to develop a public education strategy which will include, but not be limited to, training on how to prepare a business plan, distribution of benchmark information developed from annual financial statements of existing systems, and training concerning sanitary surveys.

In carrying out this public education initiative, the hope is that a number of systems will conduct a self-assessment of their own situation and make necessary changes to improve their chances of being viable for the long term.

## **K. Implementation**

With the exception of developing benchmarks from annual financial statements, the Department has implemented all elements of its strategy to enhance the viability of public water systems. The Department plans to implement the benchmark element soon.

The Department considers this strategy to be a work in progress, and will continue to solicit ideas from the public on how to improve it. This will be accomplished by posting the strategy on the Departments web site and periodically featuring articles in the Department's Newsletter, requesting input from the public.

The following is a list of the appendices attached to the South Carolina's Capacity Development Strategy:

- APPENDIX A: STATE SAFE DRINKING WATER ACT
- APPENDIX B: STATE PRIMARY DRINKING WATER REGULATIONS
- APPENDIX C: WATER SUPPLY PERMITTING GUIDE
- APPENDIX D: WATER DISTRIBUTION SYSTEM PERMITTING GUIDE
- APPENDIX E: SANITARY SURVEY EVALUATION FORMS & GUIDELINES FOR CONDUCTING A GROUNDWATER AND DISTRIBUTION SYSTEM SANITARY SURVEY
- APPENDIX F: WATER SYSTEM VIABILITY GUIDANCE: A GUIDE TO EVALUATING SYSTEM VIABILITY FOR PROPOSED PUBLIC WATER SYSTEMS
- APPENDIX G: WATER SYSTEM BUSINESS PLAN GUIDANCE: A GUIDE FOR DEVELOPING A BUSINESS PLAN TO DEMONSTRATE THE VIABILITY OF EXISTING PUBLIC WATER SYSTEMS
- APPENDIX H: APPLICATION FOR A PERMIT TO CONSTRUCT A SMALL WATER SYSTEM
- APPENDIX I: OPERATING PERMITS: FLOW CHARTS FOR THE PERMITTING PROCESS & COORDINATION WITH THE STATE'S SANITARY SURVEY PROGRAM
- APPENDIX J: REQUEST FOR PROPOSAL: TECHNICAL ASSISTANCE SERVICES FOR SOUTH

These appendices are available on the SCDHEC's website ([www.scdhec.gov](http://www.scdhec.gov)).

**APPENDIX C**

**DRINKING WATER SRF INTENDED USE PLAN FOR  
FISCAL YEAR 2005**

*State Revolving Loan Fund*

*Drinking Water*

**SRF**

*South Carolina's  
Intended Use Plan  
for  
Fiscal Year 2005*

**March 2005-Revised  
Final**

## **Preface**

### **Revision-February 20, 2005**

The final draft of this Intended Use Plan (IUP), dated December 2004, estimated South Carolina's allocation from the Federal Omnibus Appropriation Act of 2005 to be \$8,300,000. South Carolina has since been notified by the U.S. Environmental Protection Agency (EPA) that the state's allotment will be \$8,285,500. This IUP has been revised to reflect the actual allotment amount and to include an additional set-aside of \$50,000 for source water protection.

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Attachment List of Selected Projects for Funding

## **I. Introduction**

The federal Safe Drinking Water Act (SDWA) amendments of 1996 authorized a Drinking Water State Revolving Fund (DWSRF) to assist public water systems to finance the cost of infrastructure needed to achieve or maintain compliance with the SDWA. Section 1452 of the SDWA authorizes the Administrator of the US Environmental Protection Agency (EPA) to award capitalization grants to states for the purpose of establishing a low interest loan program and other types of assistance to eligible water systems.

The South Carolina Department of Health and Environmental Control (DHEC) has primary enforcement responsibility (i.e., primacy) for carrying out the provisions of the SDWA. DHEC is the designated state agency to apply for and administer the capitalization grant for the DWSRF. The State Budget and Control Board (BCB), Office of Local Government conducts the financial functions of the DWSRF and makes loans to project sponsors. South Carolina's allotment of the DWSRF funds appropriated by Congress for Fiscal Year 2005 (FY 2005) is expected to be approximately \$8,285,500.

Section 1452(b) of the SDWA requires that an Intended Use Plan (IUP) be developed, reviewed by the public and submitted as part of the state's grant application package to EPA. The main purpose of the IUP is to describe how the state intends to use the funds in the DWSRF for the year and how those uses support the objectives of the SDWA in the protection of public health.

## **II. Goals**

South Carolina has identified several short and long term goals to guide development of the DWSRF program and ensure maximum public health benefits. Effective with this IUP, the State will initiate a related discussion of "environmental outcome" goals and the means to measure them.

### **A. Short Term Goals**

1. Continue attempts to increase participation of small water systems in the SRF loan program.
2. Continue to implement the State's EPA-approved Capacity Development Strategy by issuing at least 200 additional operating permits by June 30, 2005.
3. Continue to conduct source water assessments for new community and non-community public water systems and provide technical assistance to systems desiring to implement a voluntary source water protection program.
4. On an annual basis, increase the number of surface water treatment plants achieving the optimized performance goals of the State's Area-Wide Optimization Program. For more information concerning this program, go to [www.cdwo.org](http://www.cdwo.org).
5. Assist new and existing community and non-community public water systems in developing and implementing wellhead protection programs.

### **B. Long Term Goals**

1. Maintain the fiscal integrity of the DWSRF and preserve the corpus of the fund to ensure continued growth of funding in perpetuity.
2. Enhance the viability of public water systems through continued implementation of the State's capacity development authority.

### **C. Environmental Outcomes and Measures**

In authorizing the Safe Drinking Water Act and its 1996 amendments, Congress found that safe drinking water is essential to the protection of public health. With further direction from EPA, the State will begin to develop a set of specific "outcomes and measures" to enable the DWSRF to accomplish that ultimate goal.

### **III. Eligible Project Sponsors**

An eligible DWSRF project sponsor means a county, municipality, special purpose district, commissioners of public works, or nonprofit corporation established under Title 33, Chapter 36 of the Code of Laws of South Carolina.

### **IV. Project Selection**

The state must develop a *comprehensive priority list* of projects and identify those projects expected to receive funding from the FY 2005 capitalization grant (selected projects). The comprehensive list must include a description of the project, priority assigned to each project, expected terms of financial assistance, and the population served by the system. Only those projects on the comprehensive list of projects may be considered for a loan under the DWSRF program.

#### **A. Priority Ranking System**

Section 1452(b)(3) of the SDWA requires that the IUP, to the maximum extent practicable, give priority for use of the DWSRF to projects that:

- Address the most serious risk to human health;
- Are necessary to ensure compliance with the requirements of the Safe Drinking Water Act; and,
- Assist systems most in need on a per-household basis according to state affordability criteria.

To view or download the Drinking Water SRF Priority Ranking System, visit the SRF web site at [www.scdhec.gov/water/html/srf.html](http://www.scdhec.gov/water/html/srf.html) and follow appropriate prompts.

#### **B. Project Questionnaire**

To be included in the State's *comprehensive priority list* of projects, an eligible project sponsor must complete a *project questionnaire* supplied by DHEC. A project sponsor may submit a completed questionnaire to the SRF Section of DHEC's Bureau of Water at any time. Once the questionnaire is received, DHEC staff will evaluate the project based on the ranking system described above. If eligible, the project will be added to the comprehensive priority list of projects, which is maintained in updated form by DHEC on its website. To view or download the project questionnaire or the comprehensive priority list, go to [www.scdhec.gov/water/html/srf.html](http://www.scdhec.gov/water/html/srf.html) and follow appropriate prompts.

#### **C. Selecting Projects for Funding**

The selection of projects for funding will be based on the projects' ranking and the sponsors' readiness to proceed at the time the IUP is drafted. A project will be considered ready to proceed if the sponsor expects, by April 1, to have received a construction permit from the SRF Section and to have submitted a complete SRF loan application to the BCB. The sponsor of such a project will have until April 1 to submit a complete loan application to insure its funding priority.

After April 1, loan applications will be accepted on a first-come, first-served basis until the available funds are exhausted or until July 31, whichever occurs first. In the event the BCB receives complete applications for two or more projects on the same day, the highest-ranked project(s) will receive priority for funding. For large projects, DHEC and BCB reserve the right to impose a limit on the amount of any given DWSRF loan, regardless of ranking, and to consider a sponsor's ability to obtain financing from other sources.

Included in this Intended Use Plan as the Attachment, *List of Selected Projects for Funding*, are the DWSRF projects selected from the comprehensive priority list for funding during the next year.

## **D. Eligible Projects**

### **1. Compliance and Public Health**

According to Section 1452(a)(2) of the SDWA, the DWSRF may only provide assistance for expenditures (not including monitoring, operation and maintenance expenditures) of a type or category which will facilitate compliance with national primary drinking water regulations applicable to the system under section 1412 or otherwise significantly further the health protection objectives of the Act.

Projects to address SDWA health standards that have been exceeded or to prevent future violations of the rules are eligible for funding. These include projects to maintain compliance with existing regulations for contaminants with acute health effects (i.e., the Surface Water Treatment Rule, the Total Coliform Rule, and nitrate standard) and regulations for contaminants with chronic health effects (i.e., Lead and Copper Rule, Phases I, II, and V rules, total trihalomethanes, etc.)

Projects to replace aging infrastructure are also eligible if they are needed to maintain compliance or further the public health protection goals of the Act. Examples of these include projects to:

- Rehabilitate or develop sources (excluding reservoirs, dams, dam rehabilitation and water rights) to replace contaminated sources;
- Install or upgrade treatment facilities, if the project would improve the quality of drinking water to comply with primary or secondary standards;
- Install or upgrade storage facilities, including finished water reservoirs, to prevent microbiological contaminants from entering the water system; and,
- Install or replace transmission and distribution pipes to prevent contamination caused by leaks or breaks in the pipe, or improve water pressure to safe levels.

Projects to consolidate water supplies—for example, when individual homes or a public water supply is contaminated, or the system is unable to maintain compliance for financial or managerial reasons—are eligible for DWSRF assistance.

### **2. Land acquisition**

Land is eligible only if it is integral to a project that is needed to meet or maintain compliance and further public health protection. In this instance, land that is integral to a project is only the land needed to locate eligible treatment or distribution projects. In addition, the acquisition must be from a willing seller.

**3. Planning and design of a drinking water project**

The DWSRF may provide assistance for the costs of project planning and design (e.g., costs for consulting engineering services) as a component of a loan for construction.

**4. Phasing of a drinking water project**

To make construction and/or funding more manageable, a project may be divided into separately-funded phases or segments, at the option of the sponsor. However, to be DWSRF-eligible, any such phase or segment must be of reasonable size and scope; must feasibly address a water quality, public health or compliance deficiency; and, when constructed, must have the capability of being placed into immediate full operation, i.e., without its full operation being dependent on a subsequent project phase or segment or other outside operation yet to be completed. After a given project phase is funded, subsequent phases must stand separately in competing with other projects for priority list ranking in later fiscal years.

**5. Restructuring of systems that are in noncompliance or that lack the technical, managerial and financial capability to maintain the system**

The DWSRF may provide assistance to an eligible public water system to consolidate/connect with another public water system(s) only if the assistance will ensure that the system returns to and maintains compliance with SDWA requirements (section 1452(a)(3)(B) of the SDWA).

If the system does not have the technical, managerial, and/or financial capability to ensure compliance, or is in significant noncompliance, the system may receive assistance only if (1) the assistance will ensure compliance, or (2) the owner or operator of the system agrees to undertake appropriate changes in operations. These changes include consolidation or management changes that will ensure that the system has the technical, managerial, and financial capability to ensure and maintain compliance with SDWA requirements. DHEC may require the submission of a business plan as part of the preliminary engineering report for a project.

**E. Projects Not Eligible for Funding**

The DWSRF will not provide funding assistance for the following projects and activities:

- Dams, or rehabilitation of dams;
- Reservoirs, except for finished water reservoirs and those reservoirs that are part of the treatment process and are located on the property where the treatment facility is located;
- Laboratory fees for monitoring;
- Operation and maintenance expenses;
- Projects needed mainly for fire protection;
- Projects for systems that lack adequate technical, managerial and financial capability, unless assistance will ensure compliance;
- Projects for systems in significant noncompliance, unless funding will ensure compliance;

- Projects primarily intended to serve future growth;
- Refinancing of existing debt;
- Purchase price of another water system; and,
- Projects that would not result in the consolidation or regionalization of water systems when consolidation or regionalization is the most feasible alternative.

### **1. Lack of technical, managerial and financial capability**

The DWSRF may not provide any type of assistance to a system that lacks the technical, managerial or financial capability to maintain SDWA compliance, unless the owner or operator of the system agrees to undertake feasible and appropriate changes in operation or if the use of the financial assistance from the DWSRF will ensure compliance over the long-term (section 1452(a)(3)(B)(I) of the SDWA).

### **2. Significant noncompliance**

The DWSRF may not provide assistance to any system that is in significant noncompliance with any national drinking water regulation or variance unless the State conducts a review and determines that the project will enable the system to return to compliance and the system will maintain an adequate level of technical, managerial and financial capability to maintain compliance (section 1452(a)(3)(B)(I) of the SDWA).

### **3. Growth**

The DWSRF cannot provide assistance to finance the expansion of any drinking water system solely in anticipation of future population growth (section 1452(g)(3)(C) of the SDWA). However, assistance may be provided to address population growth expected to occur over the useful life of the facility to be funded. In determining whether or not a project is eligible for assistance, DHEC will determine the primary purpose of the project. If the primary purpose is to supply or attract growth, the project is not eligible to receive DWSRF funds. If the primary purpose is to solve a compliance or public health problem, the entire project, including the portion necessary to accommodate a reasonable amount of growth over its useful life, is eligible.

## **F. Loan Applications**

The Budget and Control Board will accept loan applications each fiscal year from October 1 through July 31. The issuance of a DHEC Permit to Construct, as a DWSRF project, is required for a complete loan application.

## **G. Bypass Procedure**

In accordance with Section 1452(a)(2) of the SDWA, at least 15% of DWSRF must be used for assisting small water systems (systems serving <10,000 population). DHEC may bypass projects on the comprehensive priority list in order to comply with this requirement. DHEC may, in cases of an environmental emergency, (e.g., flood, hurricane) or in the case of an imminent hazard to public health (in accordance with section 44-55-60 of the South Carolina Code of Laws, as amended), add a project to the comprehensive priority list during the year without further public notice of the list.

## **H. Public Participation in the Development of the IUP**

A public notice of availability of the IUP was published on Sunday, February 20, 2005 in *The State*, *The Greenville News*, *The Post and Courier*, and the *Sun News* (daily newspapers). The public notice and draft FY 2005 IUP was posted on the Department's Internet web site at

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<http://www.scdhec.gov/water/html/srf.html>. Interested parties were invited to review the documents and submit written comments by March 22, 2005. No comments were received.

## **V. Disadvantaged Community Systems**

Projects will normally be funded at the standard interest rate for a maximum term of 20 years; however, loan applicants which are considered disadvantaged community systems may be offered loans at even more favorable terms. Loan terms and conditions will be determined after DHEC has approved construction plans and specifications and the BCB has completed review of the financial loan application.

Disadvantaged community systems, subdivided into two levels, are public water systems which meet affordability criteria that are based on the 2000 median household income (MHI) of the water system's entire service area and on the level of the current or proposed user charge.

### **A. Level 1 Disadvantaged Community System**

To qualify as a Level 1 Disadvantaged Community System, the MHI for the applicant's service area must be less than \$37,082 (the State MHI). If the applicant meets this criterion, the term of the loan may be extended up to 30 years (not to exceed the project's useful life), and the project would be funded at the standard interest rate.

### **B. Level 2 Disadvantaged Community System**

To qualify as a Level 2 Disadvantaged Community System, the applicant must first meet the above Level 1 criterion. In addition, the project must necessitate a rate increase that would result in a user charge higher than the target user charge. Target user charge is defined as the annual residential user charge for water, based on 6,000 gallons per month, equal to at least 1.20% of the applicant's MHI.

If an applicant qualifies as a Level 2 Disadvantaged Community System, the loan term must first be extended to the project's maximum useful life, up to 30 years. If, after such term extension, user charge rates are still deemed unaffordable, then the interest rate will be reduced incrementally, as needed, to a minimum of 0%. Affordability determinations for establishing the appropriate interest rate for a specific project will be made by the BCB based on an evaluation of user charge rates, income levels, comparable providers and other relevant factors. If a project is still considered unaffordable after the maximum available interest rate subsidy, assistance will be provided in locating other potential funding sources that may be packaged with a loan.

## **VI. Distribution of Funds**

### **A. Amount of Capitalization Grant for FY 2005**

South Carolina's allotment of the DWSRF funds appropriated by Congress for Fiscal Year 2005 is expected to be approximately \$8,285,500.

### **B. State 20% Match Requirement**

One condition of receiving the allotment is that the state must deposit in the DWSRF an amount equal to at least 20% of the total amount of the capitalization grant. South Carolina will deposit \$1,657,100 in the DWSRF.

### **C. Set-Aside for Administration of the DWSRF Program**

The SDWA allows states to set aside a portion of the capitalization grant for the purpose of administering the program and a variety of other non-project activities. DHEC proposes to set

aside 4% (\$331,420) of the grant for use in program management, including hiring staff, paying operational expenses and providing technical assistance to potential loan applicants.

**D. Set-Aside for Technical Assistance for Small Systems**

The SDWA allows states to set aside 2 percent of the capitalization grant for the purpose of providing technical assistance to small water systems serving 10,000 or fewer persons. However, for this capitalization grant, South Carolina will elect to exercise its option to “bank” its technical assistance set-aside authority for use in future grant years.

**E. Set-Aside for Source Water Protection**

Delineation, source inventories, and contaminant susceptibility determinations begun under the FY 1997 capitalization grant set-aside are not yet complete. Therefore, DHEC will set aside \$50,000 from this capitalization grant to continue implementation of the state’s Source Water Protection Program activities. As required, the State will match this set-aside dollar for dollar.

**F. Total Funds Available for Loans for the Next Year**

Balance of funds as of September 30, 2004	\$14,478,185
FY 2005 capitalization grant less set-asides	\$7,904,080
FY 2005 state matching funds	1,657,100
Estimated repayments for FY 2005	2,276,323
Estimated earnings for FY 2005	<u>405,000</u>
<b>Total Funds Available</b>	<b>\$26,720,688</b>

**G. Interest Rates**

Interest rates are established by the Budget & Control Board prior to September 30th of each year. For detailed information on current SRF interest rates, visit the BCB web site at <http://www.state.sc.us/lgovern/interest-rates.htm>, or go to the DHEC SRF web site and click on “New Low Interest Rates”.

**H. Maximum Loan to an Individual Project**

In general, projects will not be subject to a loan maximum. However, in order to meet commitments for funding small systems, DHEC may adjust certain loan amounts to provide for such projects, depending upon which projects are ready to proceed.

**SOUTH CAROLINA DRINKING WATER SRF LIST OF SELECTED PROJECTS**

RANK	SPONSOR	DHEC PROJECT #	GENERAL INFORMATION			RANK	
			TOTAL PROJECT COST ESTIMATE	ESTIMATED SRF LOAN AMOUNT	PROJECT DESCRIPTION	Ready to Proceed	Total Points
1	Westminster CPW Treatment Plant Upgrade	SRF-3710003-01	\$4,100,000	\$2,900,000	Surface Water Treatment Plant Improvements on-site raw water reservoir needed to adequately treat surfact water.	YES	85
2	Pickens, City of Water Treatment Plant Improvements	SRF-3910001-01	\$2,030,965	\$2,030,965	Complete reconstruction of all existing filters. Addition of a more reliable monitoring system using SCADA, construction of a 200,000 clearwell.	Yes	85
3	Seabrook Island 20" Transmission Main	SRF-1010009-01	\$710,000	\$710,000	8000 LF of 20" transmission main to improve connection to St. Johns Water Co.	YES	35
4	Anderson, City of Water System Improvements	SRF-0410012-01	\$8,100,000	\$8,100,000	Installation of 2 500,000 gallon storage tanks, 37,000 LF of transmission lines, 39 miles of distribution lines, and all necessary appurtenances.	YES	30
5	Seneca Light & Water Elevated Tanks & Water line replacement	SRF-3710002-01	\$2,042,601	\$2,042,601	2 .5MG Elevated tanks, replacement of 8000 LF of 12" PVC & 37,000 of existing AC water line	YES	30
6	Easley Combined Utilities Distribution System Improvements	SRF-3910002-02	\$2,500,000	\$2,500,000	Installation of 300 LF of 16", 25600 LF of 12", 6800 LF of 8", 3700 LF of 6" DIP & PVC to enhance distribution system.	YES	30
7	Easley Combined Utilities Additional Ssystem Storage	SRF-3910002-03	\$4,000,000	\$4,000,000	Construction of a 5.0 MG grade level storage tank and a 1.0 MG elevated storage tank.	YES	30
8	Easley Combined Utilities 24 MGD Plant Expansion	SRF-3910002-04	\$13,500,000	\$13,500,000	Expansion of the existing 12 MGD conventional water treatment plant to 24 MGD.	YES	30
9	Greer CPW Phase 1 Water System Improvements	SRF-2310005-03	\$5,400,000	\$5,400,000	39,200 LF of 24" transmission main, 43,400 LF of 12", 8" & 6" distribution lines.	yes	30
10	Anderson Regional Joint Water System Lake Hartwell WTP Improvements	SRF-0420011-01	\$3,825,000	\$3,825,000	Addition of a pump, raw water trans. Main, raw water flow meter & control valve, flocculation/sedimentation, new transfer pump, new chlorine scrubber & standby power generator.	Yes	30
11	Anderson Regional Joint Water System Transmission Improvements	SRF-0420011-02	\$3,051,000	\$3,051,000	Transmission main crossing lake to Clemson pump station, underwater portion of 30" transmission main, transmission main paralleling existing mains from WTP	Yes	30
12	Anderson Regional Joint Water System Transmission Improvements	SRF00420011-03	\$1,784,000	\$1,784,000	Transmission main to Homeland Park area, service line to homeland park meter, transmission main in Broadway area.	Yes	30
13	Anderson Regional Joint Water System Transmission Improvements	SRF00420011-04	\$5,791,000	\$5,791,000	Transmission main thru W. Anderson, new 0.5 MG elevated storage tank, transmission main in Hammond service area, etc.	Yes	30

Total = \$ 55,634,566