

# BUREAU OF WATER

## Water Supply Permitting

A guide to DHEC's permitting process



October 1997



South Carolina Department of Health  
and Environmental Control

# Preface

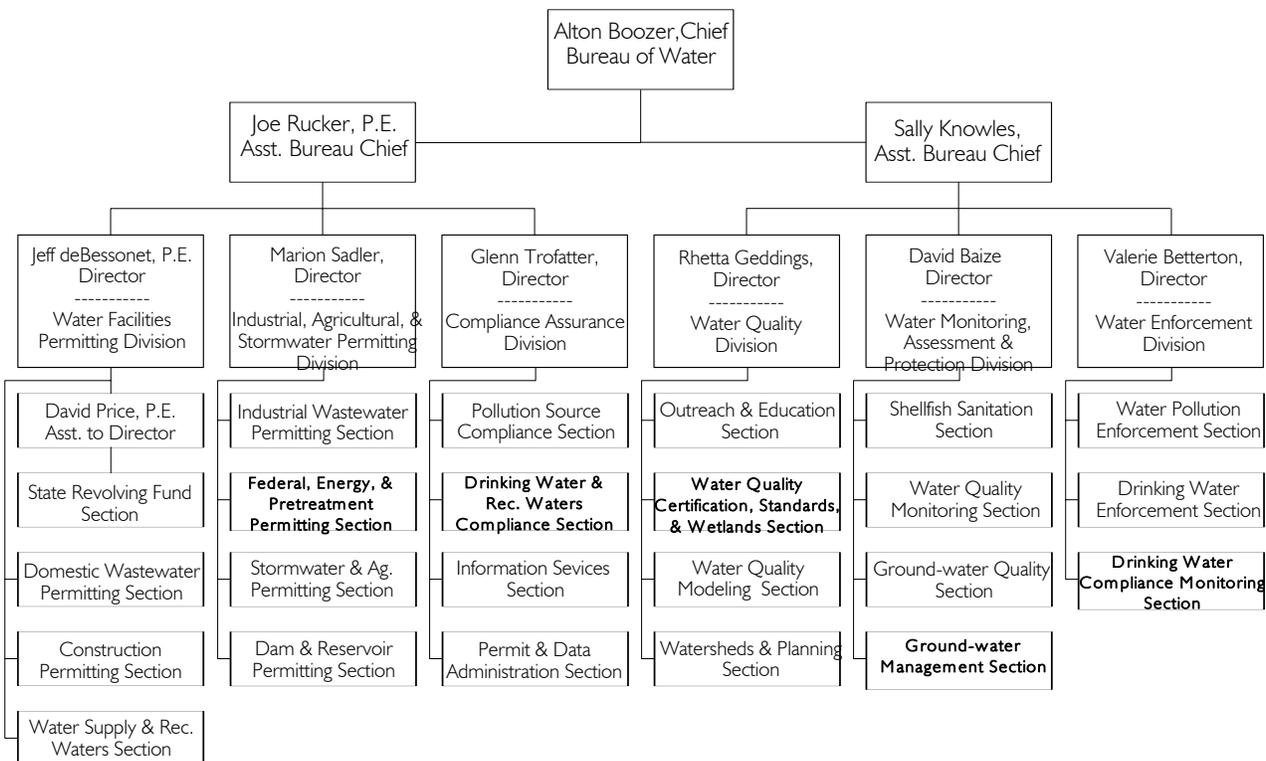
This document has been prepared for use by consulting engineers, developers, industries, and public entities dealing with the Bureau of Water on water supply program issues. It provides:

- R An overview of the Bureau's responsibilities
- R A summary of regulatory requirements
- R Identification of the entities involved in permitting, and
- R Highlights of the review and approval procedures

We hope this document will help everyone have a better understanding of the water supply program. Through this understanding, we feel it will be easier to go through the administrative processes, technical reviews, and approval processes of the Bureau.

This document provides an explanation of the Bureau's decision making processes. Our decisions are made based on the technical, administrative, and legal aspects of a water supply program with the protection of the environment and public health as the major considerations.

The Bureau is committed to providing quality service in a reasonable time in all aspects of the permit programs. To do this, we need the cooperation of all parties who deal with us in recognizing our responsibilities and the manner in which we implement them. Therefore, please take the time to read this document carefully. This document is not a replacement for the regulations on water supply programs. If you have any questions, please let us know. We welcome any comments you may have on this document or suggestions on how we can improve our service to you and the public.





# Why?



*Why is DHEC approval needed for the construction of water supply facilities?*



*It is required by state law/regulations. DHEC's review helps insure quality drinking water for South Carolinians.*

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South Carolina's Safe Drinking Water Act and the State Primary Drinking Water Regulations (R.61-58) provide the legal authority and mandate for DHEC to issue construction permits for proposed drinking water systems. These regulations also address obtaining approval to place the system into operation after construction.

DHEC's construction permitting program helps insure that South Carolina's 2,700 public water systems deliver high quality water. Coupled with DHEC's compliance oversight and monitoring programs, the permitting program focuses on prevention of water quality problems. A proper design will typically lead to safe drinking water for South Carolinians.

This permitting program applies to public water systems – such as surface water and ground water treatment systems – as well as those for bottled water. Whether the project is for a new well for a rural community or a filter upgrade for a large surface water system, the permit process provides DHEC opportunity to critique the technical and administrative aspects of the proposal.

# Where?



*Where do I apply for a permit?*



*DHEC's Bureau of Water is responsible for water supply permitting:  
2600 Bull Street, Columbia, SC 29201*

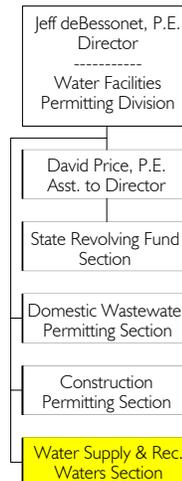
The Bureau of Water (Bureau) is under the Office of Environmental Quality Control (EQC) of the Department of Health and Environmental Control (DHEC). The Bureau is responsible for protecting the quality of the state's surface and ground water and insuring safe drinking water for the public. To meet this responsibility, the Bureau issues permits, approvals, and certifications for a variety of wastewater and drinking water projects. This booklet explains the permitting procedures of the Bureau for water supply programs.

## WATER FACILITIES PERMITTING DIVISION

The Water Facilities Permitting Division handles water supply program approvals. Submittals should be made to the *Water Supply and Recreational Waters Permitting Section* of the Division.

This section issues water supply permits for both domestic and industrial projects. Types of projects permitted are identified in the box below:

- | PROJECT TYPES                            |
|--|
| ý Iron removal systems                   |
| ý New wells and upgrades                 |
| ý Test wells                             |
| ý Chemical feed systems                  |
| ý Water dispensing stations              |
| ý New surface water treatment components |
| ý Addition of clearwell storage          |
| ý Source pumping facilities              |
| ý Small water systems                    |



**Exception for small water systems.** DHEC issues permits for small water systems via its *district offices*. In this case, an application for a small water system permit should be sent directly to the applicable district office (see Appendix 1).

A small water system is one that has its own well, or is served through a metered connection from a publicly-owned water system and has less than 1,000 feet of distribution piping that serves the following:

- R Eight (8) or fewer mobile homes.
- R Four (4) or fewer residential homes.
- R Facilities serving less than 25 people such as:
  - Day care center.
  - Residential care facility.
  - Convenience store.
  - Restaurants and other business establishments.

### ***Others Involved in the Permitting Process***

State agencies, other program areas of DHEC, and organizations may be involved in the water supply permitting program of the Bureau. The Bureau will coordinate with most of these entities by providing basic information on the project to them. If these entities need more information, they will request it from the consulting engineer. The consulting engineer will be notified concerning other entities by the Bureau during the review of a project.

#### ***1. DHEC's Bureau of Ocean and Coastal Resources Management***

The Bureau of Water coordinates with the Bureau of Ocean and Coastal Resources Management (OCRM) on all water supply projects located in a county under OCRM's jurisdiction. These coastal counties are Horry, Georgetown, Berkeley, Charleston, Dorchester, Colleton, Beaufort, and Jasper.

An information form on the project is sent to OCRM. OCRM will decide whether the project is in compliance with the Coastal Zone Management Plan. If OCRM needs any additional information on the project, they will request it directly from the project's consulting engineer. OCRM's review includes a public notice of applications for consistency certification.

Also, OCRM has authority for sediment and erosion control permitting and permitting certain construction activities in the coastal "critical zone."

#### ***2. EQC District Offices***

The Bureau may request comments from the appropriate District Office of EQC based on field investigations of drinking water supply systems. Also, written authorizations for water supply systems to be placed into operation are granted by the District Offices, with the

exception for surface water treatment plant projects (see next section).

As mentioned above, district offices issue construction permits for small water systems as well. Please see Appendix 1 for a list of the District Offices.

### ***3. Compliance Assurance Division***

Within this Division, staff of the *Drinking Water and Recreational Waters Compliance Section* issue approvals to place into operation facilities for surface water treatment plants. Therefore, final inspections and review of certification that the project was completed in accordance with the approved plans will be reviewed by this group.

### ***Other Related Permits***

Construction of water supply systems may also require other DHEC construction permits. If you are unclear, contact our office. Other permitting functions may include:

- R Sediment and erosion control permit.
- R NPDES stormwater permit.
- R NPDES permit for filter backwash.
- R Navigable waterway permit.
- R Interbasin transfer permit.

Regarding NPDES stormwater permitting, most projects can be covered under a general permit issued by DHEC. To streamline permitting, application for the sediment and erosion control permit serves as a notice of intent to get coverage under the NPDES stormwater permit.

If identified during the water supply permitting process, the review for compliance with the navigable waterway program can be performed concurrently with any conditions added to the water supply construction permit.

The interbasin transfer permitting must be tracked separately, but can parallel the water supply construction permitting process. If a water supply project would, by design, transfer enough water to require an interbasin transfer permit, DHEC can issue the water supply construction permit ahead of the interbasin transfer permit. In this case, the permittee could use the water supply system, but not to the extent that the quantity thresholds (e.g., 1 million gallons per day) in the interbasin transfer program would be exceeded.

# How?



*How do I apply for a permit?*



*An application package consists of a completed permit application form, plans/specifications and certain administrative material.*

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Prior to construction of drinking water supply facilities, an applicant must apply for a DHEC permit. The application package allows DHEC staff to review the design of the proposed facilities and to confirm that the proposal fits in with current regulatory directives. There are two broad types of permitting areas that this document will address:

- R Public drinking water facilities
- R Bottled water sources and facilities

All construction of public water systems must follow the requirements outlined in the *State Primary Drinking Water Regulations*, as amended July 28, 1995 (i.e., Regulation 61-58). DHEC review time for approval is generally around 25 days. Note that actual time for review and approval may be shorter or longer depending upon the complexity of the project and the workload when the project is submitted. In accordance with Regulation 61-30, DHEC has a commitment to complete the review within 45 days (total DHEC time to review and permit the project).

## PUBLIC DRINKING WATER FACILITIES

In general, public drinking water facilities are categorized by the source of water they receive:

- R Surface water facilities
- R Ground water facilities

While the permitting requirements are very similar for the two, there are distinct regulatory issues to be addressed. The permitting requirements are summarized for both in the following sections.

*Surface Water Facilities*

**1. NEW SURFACE WATER TREATMENT FACILITY**

A surface water treatment plant is defined in Regulation 61-58 as any facility capable of altering the physical, chemical, radiological or bacteriological quality of surface water to produce water for public consumption in a public water system. Before any construction can be started on a such a facility, both the concept and design must be reviewed and approved by DHEC. Also note that if a new water system is being created in association with the construction then this proposed system must demonstrate, to the satisfaction of DHEC, that they will be a “viable system” as defined in Regulation 61-58(B). This will include the submittal of both a management plan and a multi-year financial plan.

The review process is broken down into two basic phases:

- R *Phase A* - The Preliminary Engineering Report (PER)
- R *Phase B* - The Plans and Specifications.

Both are briefly covered below. For more specific detail you will want to consult Regulation 61-58.

**PHASE A**

*Submittal*

Phase A is considered to be the concept phase of planning. This should come very early in the process and before the actual detailed plans and specifications are developed. Once the initial concept is created (e.g. need for plant, location of plant, cost, size, etc.) then it must be prepared into a PER format in accordance with Regulation 61-58.1(C). In general the report must include the following items:

- R Basic information on the owner, responsible officer and design engineer.
- R General description of the service area, such as land use and customer base.
- R General description of the surface water source (the location, name, nearby discharges, water analysis, low flows, etc.).
- R Information on the intake structure. (location, size, etc.).
- R Water plant information (capacity, type of treatment, location from intake, expected completion date, the handling and disposal of any waste such as backwash water and sludge, etc.).
- R A detailed engineering and economic assessment on feasibility of utilizing alternative water sources.

This report must then be submitted in triplicate to DHEC along with an application (DHEC Form 1936) and three (3) 8.5" by 11" location maps. The submittal package must be sent to the appropriate

Section Manager. Each report must bear the signature and seal of a state of South Carolina certified professional engineer.

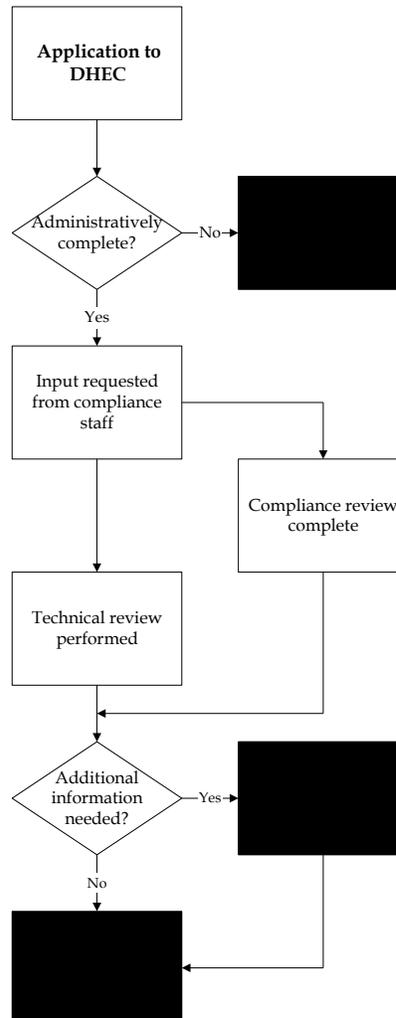
**Processing**

Once DHEC has received the package, it will be given an administrative review. This preliminary review will be done to check package completeness and to log the project into the computer tracking system. A package which is found to be incomplete will be returned as being incomplete or be sent an administrative review letter asking for the appropriate material.

Following the administrative review, the package will be assigned to a project engineer or the backlog file, depending on the current workload of the Section. The project engineer will then review the material in accordance with Regulation 61-58.1(C). Concurrently with his review the appropriate DHEC district office will be submitted a set of the material for review and comments. Also during this period various other branches of DHEC along with other agencies may be contacted for input.

After the review is complete and comments are received, then either a review letter or an approval letter will be sent. If a review letter is sent, then the engineer and planners must address these issues with a follow-up package. Once a final approval is sent on the PER, then the project can move to the next phase.

*Phase B: Application Process*



**PHASE B**

**Submittal**

Phase B of the project is the actual detailed design stage. At this point the permittee will be preparing the actual plans and specifications needed for the construction along with the design calculations. The package must include all applicable information as asked for in Regulation 61-58.1. The plans and specifications package must include four (4) stamped and signed copies of the plans, three (3) sets of specifications and design calculations, an original application (DHEC Form 1936) with two (2) copies and three copies of the location map.

*Processing*

Once the material has been received and had an administrative review conducted, it will be assigned to a project manager. In most cases the project manager will be the same as the PER reviewer. The material will then be reviewed. At this time, other areas of DHEC will likely be asked to comment (e.g. compliance). After the review is complete, it will be determined if either a review letter is needed or if the project can be issued a construction permit. In the case of a review letter the applicant will be required to address all items in the letter before the project review can continue.

Once the project is approved, a construction permit will be issued. Following construction, the project will be given a final inspection, and if found acceptable, be given a permit to operate.

**2. EXISTING SURFACE WATER TREATMENT FACILITIES**

Construction projects for existing surface water treatment facilities are very similar to the construction of a new plant as discussed above in **Section 1**. The process is again broken into two phases: **Phase A** - the PER and **Phase B** - the plans and specifications.

**PHASE A**

Any modification or upgrade to an existing surface water treatment facility will require a PER to be submitted. This report must include any pertinent information that will help describe and evaluate the proposed project in both concept and size. Its submittal should be done the same as described above in *Phase A* under the **Section 1**. Construction of a New Surface Water Treatment Facility."

The PER review done by DHEC will be carried out the same as described above in *Phase A* under the Section "New Surface Water Treatment Facility." Please note that in general the PER for an existing plant project will not need the detail (i.e. background detail, site selection, etc.) as that of constructing a new plant. It should mainly cover the project in concept and general design.

**PHASE B**

Once approval has been given on the PER then the plans, specifications and design calculations must be submitted. The submittal package along with the review process will be the same as above in *Phase B* under the **Section 1** "New Surface Water Treatment Facility."

## *Ground Water Facilities*

Ground water treatment systems are broken into two categories. They are the construction of new wells and the modification of existing wells. Construction for either of these two categories will require a construction permit before the work is started and a permit to operate before being used.

To receive a construction permit, it is required that the plans, specifications and design calculations for the proposed project be submitted to the appropriate Section of DHEC for review and approval. Refer to Regulation 61-58.2 for information on ground water sources and their treatment.

### 1. NEW WELLS

New wells may be permitted by either a *two-step* method or a *one-step* method. Refer to Regulation 61-58.1(B)(8). It should be noted that if the construction is to be done by a new water system, then this new system must demonstrate to the satisfaction of DHEC that they will be a “viable system” as defined in Regulation 61-58(B). This will include the submittal of both a management plan and a multi-year financial plan.

#### *New Wells: Two-Step*

The *two-step* method, which is more common and generally easier, requires that a test well permit be issued first. This allows the applicant to drill the proposed test well and install the minimum material (i.e. well casing, well screen, measuring device and temporary pump) needed for well testing. The test well submittal package must include at least four (4) copies of the site plan layout, three (3) copies of the well profile, three (3) sets of specifications, an original application with two (2) copies and three copies of the location map. This package must be under the seal and signature of a State of SC professional engineer.

When received, it will be given an administrative review and then assigned to a project manager. Once the review is complete and it is considered to be approvable, then a permit to drill the test well will be issued.

After the test well has been drilled, the quality and quantity of well water will be analyzed. If found acceptable, then a follow-up application to the test well should be submitted to DHEC for review and approval of the production well step. Note that if the analysis shows the well is of poor quality then the test well must be properly abandoned. Refer to Regulation 61-58.2(B)(15) for proper well abandonment procedure (this should also be covered in the test well specifications). The follow-up material must contain four (4) copies of the design plans, three (3) copies of the specifications and design

calculations and an original application with two (2) copies. All relevant information to the design of the production well must be included (i.e. wellhead piping, pump test, parameter analysis, etc.).

When review of this material is complete and the package is found acceptable with meeting the requirements of the regulations, then a permit to construct a production well is given. Upon completion of this construction, the project will be inspected and given a permit to operate if found acceptable.

### *New Wells: One-Step*

The second method for permitting a drinking water well is as a *one-step* permit. This type of permit combines both the test well and production well into one. For this to be done all the material for both the test well and production (see two-step above for submittal package contents) well, along with some background data from local wells, must be submitted to DHEC for review and approval. The data from local wells is needed to help aid in determining the ground water quality and quantity in the area.

Once all items have been reviewed and approved, then a construction permit for both the test well and production well is issued as a combined permit. Upon completion of this construction, the project will be inspected, and if found acceptable, given a permit to operate.

## **2. MODIFICATIONS TO EXISTING WELL SYSTEMS**

All projects involved with making any modifications (e.g. chemical feed, filter system, storage tank, etc.) to an existing well system will be required to obtain a construction permit prior to the actual construction.

The proper project material must be submitted to DHEC for review and approval before a construction permit may be issued. The material package must consist of four (4) copies of the plans, three (3) copies of the specifications and design calculations, an original application with two (2) copies and three (3) copies of the location map. This package must be under the seal and signature of a State of SC professional engineer. All pertinent information concerning the project design and construction must be included (e.g., chemical feed calculations, pump curves, filter size and rate, pipe layout, etc.).

Once received, it will be given an administrative review and then assigned to a project manager. When the review is complete and it is considered to be approvable, a permit to construct will be issued. Upon completion of this construction, the project will be inspected, and if found acceptable, given a permit to operate.

## BOTTLED WATER SOURCES & FACILITIES

**Introduction.** In South Carolina, sources and treatment facilities used for the bottling of drinking water are considered public water systems and as such, must comply with the requirements of the State Primary Drinking Water Regulations (SPDWR).

After construction has been completed on the source and treatment facilities, the applicant must obtain approval from DHEC prior to placing the newly constructed facilities into operation. Please refer below for more information concerning the permitting process for source and treatment facilities and the approval process to place such facilities into operation.

The applicant must also obtain a permit to operate the bottling operation of a facility from the Division of Dairy Foods and Soft Drink Protection of DHEC. For more information on how to obtain the necessary permits for the bottling operation, the applicant should contact Mr. Joe Neely with the Division of Dairy Foods and Soft Drink Protection.

Joe C. Neely, R.S.  
Division of Dairy Foods and Soft Drink Protection  
Bureau of Environmental Health  
2600 Bull Street  
Columbia, SC 29201  
Telephone: 803-935-7890 [803-935-7825, fax]

In addition to the above permitting requirements, the applicant must also comply with laws and regulations concerning the labeling of bottle water. For information concerning the requirements for the labeling of bottled water, the applicant should contact Mr. Robert I. Mitchell with the South Carolina Department of Agriculture.

Robert I. Mitchell  
Division of Laboratories  
SC Department of Agriculture  
P.O. Box 11280  
Columbia, SC 29211  
Telephone: 803- 737-9690 [803-737-9703, fax]

**Permitting of the Source.** If the applicant wishes to develop a new source (i.e., well or spring water collection system), an application for the construction of the source must be submitted to the Water Facilities Permitting Division. The application must be accompanied by engineering plans and specifications prepared by a South Carolina registered professional engineer, which shall carry his/her official seal and signature.

If the source is a well, this construction phase of the project will involve the drilling of the well, the development of the well, conducting a pumping test in accordance with Regulation 61-

58.2(B)(12) and testing the water quality in accordance with Regulation 61-58.2(B)(14).

If the source is a spring, DHEC recommends that the applicant first conduct a chemical analysis of the water for all contaminants listed in Regulation 61-58.5 of the SPDWR. Bacteriological analyses are not required since it can be assumed that all open springs are considered to be contaminated with microbes. This chemical analysis is recommended because DHEC has found that some springs receive water from very shallow water table aquifers which have been contaminated through the use of pesticides. If the chemical sampling of the spring indicates the chemical quality of the water is satisfactory, the applicant must retain the services of a professional engineer to design a collection system which will protect the source from surface water runoff.

The engineering plans and specifications for the collection system must be submitted along with a completed application form for a permit to construct to the Water Facilities Permitting Division. Following the issuance of a permit to construct the spring water collection system, the applicant can then construct the facility under the supervision of the professional engineer. Following the construction of the collection facility, bacteriological and microscopic particulate analyses must be conducted on the water to determine if the spring is under the direct influence of surface water. The yield of the spring must also be determined.

If an existing well is proposed to be used as a source of water for the bottling operation, and the well has not been previously approved by DHEC as a source for a public water system, the applicant must submit any known construction information to the Water Facilities Permitting Division for evaluation. If the well cannot be upgraded to meet the requirements of the SPDWR, including grouting requirements, the well may not be used. However, if the well can be upgraded, the application for a permit to construct the pumping, storage and treatment facilities must include plans and specifications for the upgrade along with the results of a pumping test and water quality analyses.

If the bottling operation is to obtain its water from an existing public water system, the applicant will skip this step of the permitting process and submit an application for a permit to construct the treatment facility.

**Permitting of the Pumping, Storage and Treatment Facilities.** The next step in the permitting process involves the permitting of the necessary pumping equipment, treatment and any associated piping and storage facilities. A second application must be made for a permit to construct these facilities. This application must include a completed well record form (if applicable), the necessary plans,

specifications and calculations for the proposed facilities along with the results of the pumping test (well) and water quality analyses.

**Approval to Place Facilities into Operation.** Newly constructed facilities may not be placed into operation until operational approval is obtained from DHEC. To obtain this approval, the professional engineer for the project must submit a letter certifying that the construction is completed and in accordance with the approved plans and specifications, and make arrangements for a final inspection. If the project was not completed in accordance with the approved plans and specifications, the professional engineer must state so and outline any deviations from the permitted project. The engineer must also include with this letter, the applicable information outlined in Regulation 51-58.1K of the SPDWR. The certification letter along with all required information must be submitted prior to any final inspection by DHEC.



**APPENDIX 1**

**Offices for Approval to Place Projects into Operation**

<b><i>Wells/Small &amp; Bottled Water Systems: District Offices</i></b>	
<p><b>Appalachia I</b> 2402 N. Main Street Anderson, SC 29621 864-260-5569 (fax: 260-4855) <i>Anderson and Oconee Counties</i></p>	<p><b>Lower Savannah</b> 218 Beaufort Street, NE Aiken, SC 29801 803-641-7670 (fax: 641-7675) <i>Aiken, Allendale, Bamberg, Barnwell, Callhoun and Orangeburg Counties</i></p>
<p><b>Appalachia II</b> 301 University Ridge, Suite 5800 Greenville, SC 29601 864-241-1090 (fax: 241-1092) <i>Greenville and Pickens Counties</i></p>	<p><b>Pee Dee</b> 145 E. Cheves Street Florence, SC 29506 803-661-4825 (fax: 661-4858) <i>Chesterfield, Darlington, Dillon, Florence, Marion and Marlboro Counties</i></p>
<p><b>Appalachia III</b> 975 N. Church Street Spartanburg, SC 29303 864-596-3800 (fax: 596-2136) <i>Cherokee, Spartanburg and Union Counties</i></p>	<p><b>Trident</b> 1362 McMillan Ave., Suite 300 Charleston, SC 29405 803-740-1590 (fax: 740-1595) <i>Berkeley, Charleston and Dorchester Counties</i></p>
<p><b>Catawba</b> P.O. Box 100 Fort Lawn, SC 29714 803-285-7461 (fax: 285-5594) <i>Chester, Lancaster and York Counties</i></p>	<p><b>Upper Savannah</b> 613 South Main Street Greenwood, SC 29646 864-223-0333 (fax: 223-6935) <i>Abbeville, Edgefield, Greenwood, Laurens, McCormick and Saluda Counties</i></p>
<p><b>Central Midlands</b> P.O. Box 156 State Park, SC 29147 803-935-7015 (fax: 935-6724) <i>Fairfield, Lexington, Newberry and Richland Counties</i></p>	<p><b>Waccamaw</b> 1705 Oak Street Plaze, Suite #2 Myrtle Beach, SC 29577 803-448-1902 (fax: 803946-9390) <i>Georgetown, Horry and Williamsburg Counties</i></p>
<p><b>Low Country</b> 1313 Thirteenth Street Port Royal, SC 29935 803-522-9097 (fax: 522-8463) <i>Beaufort, Colleton, Hampton and Jasper Counties</i></p>	<p><b>Wateree</b> 105 Magnolia Street Sumter, SC 29151 803-778-1531 (fax: 773-6366) <i>Clarendon, Kershaw, Lee and Sumter Counties</i></p>
<b><i>Surface Water Treatment Facilities: Central Office</i></b>	
<p>Drinking Water and Recreational Waters Compliance Section 2600 Bull Street Columbia, SC 29201 803-734-5300 (fax: 734-5216) <i>All Counties</i></p>	

