

## **Chapter 1            North Carolina's Source Water Assessment Program**

### **1.1 Introduction**

Pollution prevention is becoming an increasingly important strategy for protection of the environment. Pollution prevention is also recognized as the most effective approach for ensuring a reliable, long-term, and safe supply of public drinking water at a reasonable cost to consumers. For the protection of public drinking water supplies relying on ground water in North Carolina, the state has an EPA approved, voluntary Wellhead Protection Program administered by the Public Water Supply Section of the Division of Environmental Health. North Carolina also has a Water Supply Watershed Protection program for the protection of public water systems relying on surface water. This program, administered by the Division of Water Quality, is implemented by local governments through zoning ordinances consistent with minimum statewide criteria. Watersheds designated as Water Supply (WS) are subject to comprehensive rules that protect the quality of that source of water. North Carolina's source water protection strategy is to build upon existing programs and activities with a program that is **non-regulatory**, state implemented, and incentives driven.

### **1.2 Safe Drinking Water Act Amendments of 1996**

The Federal Safe Drinking Water Act (SDWA) Amendments of 1996 emphasize pollution prevention to ensure safe drinking water, focusing on the protection of both surface water and ground water sources. This approach relies upon two key elements: a clear state lead in program development and management, and a strong ethic of public participation. These elements are basic to the development of sound source water protection strategies. The amendments do not confer any new regulatory or enforcement requirements for drinking water source protection on the states.

### **1.3 Source Water Assessment Program Requirements**

Section 1453 of the SDWA Amendments requires that all states establish Source Water Assessment Programs (SWAP), and submit a plan to the Environmental Protection Agency (EPA) by February 6, 1999 detailing how they will:

- C delineate source water assessment areas,
- C inventory significant contaminants in these areas, and
- C determine the susceptibility of each public water supply to contamination.

EPA has published the state Source Water Assessment and Protection Programs Guidance to help states develop SWAP submittals. This guidance describes the required content of a SWAP submittal, federal funds available for completion of the assessments, requirements for public participation, and linkages to other federal programs. North Carolina has up to two years after EPA program approval, and is requesting an extension of an additional one and one-half years, to complete the source water assessments.

Source water assessments will allow the state to systematically address issues of potential contamination of public water supplies using existing data from established environmental programs. It is important to recognize that susceptibility determinations for public water supplies are not risk assessments. In this document, the term "risk" is meant as a descriptive term to indicate relative concern or potential for a contaminant to impact a PWS system.

The SWAP plan is intended to act as a "lens" through which the state can assess priorities in other programs while focusing on the protection of drinking water as a primary goal in water quality management.

#### **1.4 North Carolina's Water Supply Watershed Protection Program**

The Environmental Management Commission (EMC) and the Division of Water Quality have administered a Water Supply Protection Program since 1986 for surface water sources of drinking water. Initially, the program was administered voluntarily by counties and municipalities pursuing protective measures for their water supply watersheds. In time, it became apparent that minimum statewide water supply protection measures were necessary. In 1989, the North Carolina General Assembly ratified the Water Supply Watershed Protection Act that mandated the adoption of standards and the classification of all water supply watersheds.

Over 40 informational meetings and workshops were conducted across the state to present the requirements of the legislation and the proposed water supply watershed protection rules. Eight public hearings on the Rules were held across the state in August of 1990 and were attended by over 800 people, with 160 people providing verbal comments. In addition, over 1600 pages of written comments were received. The EMC adopted the Rules in December 1990 and postponed implementation until the watershed classifications were completed.

The state worked with local governments in determining the location of all surface water intakes and existing land use within the water supply watersheds. This information, in conjunction with information on the types and location of wastewater discharges, was used to determine the appropriate classification of the 208 surface water intakes in the state. Twelve public hearings were held on the watershed reclassifications during 1991 to receive public comments. The EMC brought the Water Supply Watershed Protection (WSWP) Rules with proposed modifications back to public hearing. Over 2,400 people attended the public hearings with more than 400 making verbal comments. Over 3,000 written comments were received. The WSWP Rules were adopted in 1992. The state's administrative code section 15A NCAC 2B .0200 Classification and Water Quality Standards Applicable to Surface Water and Wetlands of North Carolina includes the complete WSWP rules. For a copy of these rules contact the Division of Water Quality, Water Quality Section at 919-733-5083.

The 1992 WSWP Rules require that all local governments having land use jurisdiction within water supply watersheds adopt and implement water supply watershed protection ordinances, maps, and a management plan. Over 40 statewide workshops in cooperation with the Division of Community Assistance were conducted. Additionally, in order to assist local governments, a model ordinance was approved by the Environmental Management Commission on July 9, 1992. This document suggests appropriate language for adopting an ordinance under the general

adoption powers; however, the language is useful for local governments adopting their ordinances as zoning overlay districts and also for local governments implementing the Rules by amending their subdivision regulations. All local governments subject to the regulations have submitted ordinances in compliance with the statutory deadlines.

State staff have met individually with local government officials and planners and have conducted numerous public information sessions and workshops across the state. During this information exchange, many local governments expressed the need for more flexibility in the administration of the WSWP Program. The Division of Water Quality responded to these concerns by proposing amendments to the Water Supply Watershed Protection Rules to allow more flexibility in the local government watershed protection regulatory process. The amendments were approved by the EMC and became effective on August 1, 1995.

### **1.5 North Carolina's Wellhead Protection Program**

North Carolinians withdraw more than 88 million gallons of ground water per day from more than 11,000 public water supply wells across the state. Ground water is susceptible to pollution from many sources, and, as this resource becomes contaminated, so can public ground water supplies. Many activities on or below the land surface can pollute ground water. Land disposal of wastes, storage and use of hazardous substances in industrial processes and agriculture, poorly designed septic systems, accidental spills, and under ground storage tanks are all sources of ground water pollution in North Carolina.

In 1986, Congress passed amendments to the Safe Drinking Water Act requiring states to develop wellhead protection programs. Wellhead Protection can be broadly defined as a program that reduces the threat to the quality of ground water used for drinking water by identifying and managing recharge areas to specific wells or wellfields. Wellhead Protection is accomplished in part by defining a Wellhead Protection Area. A Wellhead Protection Area is defined as "the surface and subsurface area surrounding a water well or wellfield, supplying a public water system, through which contaminants are likely to move toward and reach such water well or wellfield." In order to protect the wellhead, one must protect the recharge area which supplies the ground water to the well. This is accomplished by delineating a zone in which ground water contamination sources are regulated.

Establishing rules for ground water supply protection is the responsibility of the state in North Carolina. The state believes that the most appropriate level for Wellhead Protection Program (WHP) implementation is at the County level. This level is preferred because counties are authorized to have jurisdiction over land use activities throughout their area including incorporated as well as unincorporated areas. In addition, local governments can adopt appropriate management strategies to reduce potential risks threatening well sites in their areas. Although the County is the preferred agency to develop WHP programs, the state understands that other agencies may also need the authority to develop WHP programs. Agencies that may establish WHP programs include municipalities, water supply systems, and the state. For those local governments and public water supply systems that choose to establish Wellhead Protection Programs, the Public Water Supply (PWS) Section provides technical assistance in WHP program development and implementation. Assistance includes establishment of WHP

Program criteria and a WHP Program approval process. Assistance also takes the form of guidance and training provided to local governments and public water suppliers. In addition, the Section will review WHP program submittals and issue letters of approval when these submittals meet the requirements of the North Carolina Wellhead Protection Program. Two ground water technician positions with the North Carolina Rural Water Association, and funded by the DWSRF, provide support for wellhead protection activities. Additional information regarding North Carolina's WHP Program may be found in **The North Carolina Wellhead Protection Guidebook** available from the Public Water Supply Section, Division of Environmental Health.

### **Steps Required to Implement the North Carolina Wellhead Protection Program**

#### **Planning for Well head Protection**

A local planning team must be established. It is the responsibility of the planning team to determine how much protection local well systems need. The planning group will usually make recommendations to "owner/operators" of public water supply systems, assist in the development of water supply plans, and propose contingency plans for contamination incidents.

#### **Delineating Wellhead Protection Areas**

An area around the well is set aside that will provide protection of each public water supply well. Several methods are available for determining the size and shape of the area.

#### **Inventory of Potential Contamination Sources**

Once a protection area around the well is determined, a contaminant source inventory must be taken. The inventory catalogues all potential sources of well contamination found within the protection area.

#### **Managing the Wellhead Protection Area**

Potential sources of contamination found within the wellhead protection area must be managed or eliminated. The planning team must decide what methods will be used to protect the Wellhead Protection Area. A broad range of methods, both regulatory and non-regulatory, are available for the management of potential contamination sources.

#### **Administration of the Wellhead Protection Program**

Once a Wellhead Protection Program is in place, continued administration of the program is necessary in order for it to be successful. Administration includes the establishment of Wellhead Protection Areas for new wells, periodic well and well site inspection periodically updating contaminant source inventories, and the review and revision of Wellhead Protection management strategies.

### **1.6 Coordination of Source Water Assessment Program with Existing Regulatory Programs**

SWAPs are not intended to replace existing programs in North Carolina addressing pollution sources. Instead, the assessments will enhance existing programs focusing on safe drinking water

supplies. The integration of SWAP with the wellhead protection program, comprehensive state ground water protection programs and sole source aquifer designations, as well as watershed, nonpoint source, pesticide, waste and other established programs, will help states and localities develop the most effective source water protection plans to avoid costly contamination. In the development of this plan the Public Water Supply Section, as the lead agency for SWAP plan development, established a steering committee with representation from the following regulatory agencies within the Department of Environment and Natural Resources (DENR):

- C Division of Waste Management
- C Division of Pollution Prevention
- C Division of Water Resources
- C Division of Water Quality (Water Quality and Groundwater Sections)
- C Division of Land Resources
- C Division of Soil and Water

During the development of the SWAP plan weekly meetings were held to obtain guidance from a broad perspective. During the implementation of the SWAP the PWS Section will continue to depend on the expertise provided by other agencies within DENR. One specific role of these agencies will be to guide the PWS Section's use of existing DENR databases to characterize potential contaminant sources (PCSs).

### **1.7 Expected Benefits of Source Water Assessment**

One of EPA's reasons for including a significant public participation component in the SWAP development process was providing the interested public with an opportunity to define what they believe to be the potential benefits of source water assessments to consumers. A facilitated discussion of expected benefits of source water assessments took place during the initial Technical and Citizens Advisory Committee meeting. In general, three types of comments were expressed: 1) benefits to the general public, 2) benefits to local government planning efforts, and 3) benefits to the state's environmental regulatory agency (i.e., DENR). Some examples of comments are included below:

- C The SWAP process will increase public awareness of the relationship between human activities and protection of public water supplies. It will help the public understand that they have a role in protecting water supplies.
- C The SWAP will enhance understanding by consumers of why protection and treatment strategies are implemented and how they affect water supply pricing/rates.
- C The assessments will help local governments make good decisions to improve public health.
- C Compiling data into one place can assist DENR and other agencies in improving regulations and programs.
- C The data developed and compiled for source water assessments should be treated as a strategic resource.

A complete summary of the discussion is included in Appendix C of this document.