Chapter 3 Contaminant Inventory And Data Management

3.1 Introduction

In order to determine the susceptibility of public water systems to contamination, EPA's Source Water Assessment Program guidance requires states to identify the origins of regulated contaminants within delineated assessment areas for each water supply intake. The SWAP guidelines allow states to exercise discretion in selecting unregulated contaminants that they have determined may present a threat to public health.

North Carolina must identify the contaminants of concern and the potential sources of contamination that will be considered significant. As a first step in the SWAP plan implementation, North Carolina will conduct a review of relevant, available sources of existing data at federal, state and local levels. An estimated 11,500 intakes are subject to the requirements of the SWAP for which delineation, contaminant inventory, and susceptibility analysis must be done (this averages out to approximately 14 intakes per day over 3-1/2 years). Therefore, in order to meet SWAP deadlines, existing databases that identify potential contaminants sources will be the primary data source. This approach is supported in the EPA's SWAP guidance.

North Carolina will conduct assessments within delineated areas for PWS intakes using a Geographic Information System to locate potential sources of contamination statewide.

3.2 Contaminants of Concern

Contaminants of concern for the SWAP will include those contaminants regulated under North Carolina's Drinking Water Act and the federal Safe Drinking Water Act [those with a Maximum Contaminant Level (MCL) and those regulated by Surface Water Treatment Rules, *Cryptosporidium*]. Chemical contaminant lists included in the SARA Title III and CERCLA (Superfund) regulations will also be considered. Within the constraints of time and resources, North Carolina may also include other contaminants that the state has determined may present a threat to public health.

3.3 Significant Potential Contaminant Sources

Typically, existing databases are not organized by contaminants of concern, but rather by type of facility or contaminant source. Therefore, North Carolina? s contaminant source inventory will focus on gathering statewide information by type of source and thus, indirectly obtain information about potential occurrences of contaminants of concern.

Databases expected to contain comprehensive information on PCSs for several of the contaminants of concern are listed in Appendix F. North Carolina will use these databases to effectively target potential sources of contaminants of concern.

3.4 Geographic Information System Use and Data Acquisition

Organization, manipulation, analysis and interpretation of pertinent data will be accomplished primarily through the use of a Geographic Information System (GIS). A GIS is an information management tool that can be used to manage, process and analyze spatial data and related attribute information. Much of the available information concerning PCSs is in GIS compatible databases. GIS software will be used to create maps showing the locations of PCSs. The GIS will allow PCSs to be linked electronically to a particular PWS intake thus allowing for more efficient revisions and updates to the databases as needed.

As previously stated, North Carolina? s SWAP will focus primarily on available electronic databases. The preferred format will be GIS data layers with geographic location of potential contaminant sources and descriptive information about these locations. Electronic databases convertible to GIS layers will also be used. Where feasible, hard copy data deemed useful may be employed to update or create electronic databases.

In order to complete the susceptibility analyses, information in addition to that contained in PCS databases will be required. This includes geographic information such as county boundaries, rivers and streams, soils, hydrology, geology and planning areas. Much of this data is currently available in electronic form.

Data such as well construction information (i.e., diameter, depth, screened intervals, casing depth) will require conversion to an electronic format from existing paper records maintained by the PWS Section and the Groundwater Section within DENR.

3.4.1 Potential Contaminant Source Inventory

Regulatory Databases

Databases containing information about regulated facilities are maintained by DENR, other state agencies, federal agencies (e.g. EPA), and local governments. Databases pertaining to facilities regulated under RCRA, CERCLA, SARA, CWA, TSCA, (see Appendix G, List of Acronyms) and sites on the Superfund National Priorities List, the North Carolina Inactive Hazardous Waste Sites list and the Toxic Release Inventory are examples of databases that may be used in the inventory. Appendix F lists these and other examples of databases that will be evaluated during the implementation of this SWAP plan. Those databases that are judged to contain useful and reliable PCS data will be used to develop the PCS inventory.

Ideally, each record in a database will contain a minimum of two discrete but complementary types of information. These are location (latitude and longitude, or street address) and information about the contaminant(s) from each source. As an example, the Toxic Release Inventory (TRI) database maintained by EPA contains information on chemical releases and transfers of 350 specific toxic chemicals. Facilities that manufacture or process more than 25,000 pounds of a chemical or use more than 10,000 pounds of the chemical during the year are included in the database. Each record includes the latitude and longitude of the facility, quantity of releases, specific chemical(s) released, whether the release was to air, land or water, and the Standard Industrial Classification (SIC) code for the facility.

Regulatory Agency Files

Several agencies within DENR perform inspections, evaluate regulatory compliance and issue permits for facilities included in the databases. Information from agency files may be reviewed to obtain attribute information on PCSs.

Other Databases

To identify additional PCSs, databases not created specifically for regulatory purposes may be included. The list of PCSs in Appendix B will be used to guide efforts to identify additional information concerning contaminant sources. An example of such a database is a listing of manufacturers within North Carolina that is searchable by SIC code, number of employees, address or zip code. Such listings are available commercially and contain information on individual businesses that may potentially allow a categorization of a particular manufacturing activity into a higher risk, moderate risk or lower risk category with regard to PCSs.

Nonpoint Sources

Currently no statewide geographic databases of non-point source activities that have the potential to impact water quality have been identified. Potential nonpoint sources of contamination such as agricultural operations, urban runoff, construction and mining projects may be included as potential contamination sources by using electronic geographic data such as land use and land cover information. The state recognizes the importance of nonpoint sources of contamination and has addressed this potential for contamination in the inherent vulnerability rating schemes for surface and ground water sources of drinking water as described in Sections 2.7.1 and 2.7.2 of this plan. Within the constraints of time and resources, efforts will be made to identify additional information on non-point sources of contamination occurring within the delineated assessment areas.

3.4.2   Field Acquisition of Data

For the purposes of the SWAP, North Carolina will locate all PWS well intakes using Global Positioning System (GPS) receivers. The data will have an accuracy of two to five meters. In order to quality check the GPS data, selected well intake locations will be compared with the location identifiable on digital images of aerial photographs (scale 1:12,000 with one meter horizontal resolution) produced by the United States Geological Survey.

Maps showing the delineated assessment areas and PCSs within them will be provided to the PWS systems. PWS systems will be asked to review and verify information on PCS locations and characteristics to guide necessary changes in the contaminant source inventory databases. Updated information received from the PWS systems will be used to refine the susceptibility assessments.

3.5   Data Quality - Limitations and Assumptions

Metadata, or information about the data in the database, for all databases used will be collected or generated with the assistance of the agency responsible for maintaining the data. The metadata will contain information concerning both locational and attribute characteristics. This information includes data accuracy, purpose for which data was originally collected, spatial resolution of the data, date the data was generated, and the agency responsible for its collection. The metadata will be made available along with the SWAP assessments.