

METRO ATLANTA SOURCE ASSESSMENT PROJECT

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Abstract. Amendments to the Safe Water Drinking Act resulted in an EPA mandate that every State be required to submit a Source Water Assessment Plan for each of its drinking water supply intakes. The Atlanta Regional Commission is working with the State of Georgia Department of Natural Resources to develop and implement these assessments for 28 Metro Atlanta water supply watersheds.

INTRODUCTION

The 1996 Amendments to the Federal Safe Drinking Water Act (SDWA) brought about new pollution prevention and protection measures to help ensure clean and safe drinking water. As a result, the U. S. Environmental Protection Agency (USEPA) has set a national goal that by 2005, the majority of the population is receiving its drinking water from systems with Source Water Protection Plans in place. The initial step in the development of this Plan is to prepare an inventory and assessment of the each water supply watershed in the state. This step is the Source Water Assessment Project (SWAP).

BACKGROUND

The Georgia Environmental Protection Division (GAEPD) contracted the Atlanta Regional Commission (ARC) to coordinate and facilitate the implementation of the State's Source Water Assessment Plan for 28 Metro Atlanta public drinking water intakes.

METHODS

SWAP Task Force

A Technical Task Force consisting of water suppliers involved in the Metro Atlanta SWAP, GAEPD, and ARC was created to assist with the work on each component of SWAP. The Task Force provides technical direction to the project. The Task Force also

assists with the direct implementation of specific tasks as necessary.

Components of SWAP

The implementation of the state SWAP requires four major components. These components include: delineation of the water supply watershed and determination of assessment areas; inventory and analysis of the potential sources of water supply contamination within the assessment areas; determination of the susceptibility of each intake to potential contaminants; and lastly, development of a communication plan for the public. Each of these will be summarized below.

Delineation of Water Supply Watersheds.

Watershed delineations were prepared in large part with ArcView GIS. First, the water supply intakes were spatially located and digitally rendered using digital aerial photography (DOQQs). Next, the watersheds associated with these intakes were fully delineated and digitized using a variety of data sources including the topographic maps, digital data provided by the Georgia Geological Survey and digital data available internally at ARC.

In accordance with the Georgia Source Water Assessment Implementation Plan, each of the watersheds were divided into management zones or priority assessment areas. The basis of the management zones is distance to intake. The Inner Management Zone (IMZ) or high priority area, is the watershed area within a 7-mile radius of the from the water intake. The Outer Management Zone (OMZ) or the intermediate priority area is the watershed area located outside the IMZ but within a 20-mile radius of the water supply intake. Outside of this area is referred to as the Non-Management Zone (NMZ), the lowest priority assessment area.

Base data were then collected from various sources to create preliminary maps of the watersheds. Table 1 lists the water systems participating in the Metro

Table 1. Metro Atlanta SWAP Water Systems and Drinking Water Sources

Water System	Water Source
City of Atlanta	Chattahoochee River
Atlanta-Fulton Co. WRC.	Chattahoochee River
City of Canton	Etowah River
Cherokee Co. Water & Sewerage Authority	Etowah River
Cobb County-Marietta Water Authority	Chattahoochee River
Cobb County-Marietta Water Authority	Allatoona Lake
Clayton Co. Water Authority	Flint River
Clayton Co. Water Authority	Shoal Creek
Clayton Co. Water Authority	Pates Creek
Clayton Co. Water Authority	Little Cotton Indian Cr
Clayton Co. Water Authority	Cotton Indian Creek
DeKalb Co. Public Works	Chattahoochee River
Douglasville-Douglas Co. WSA	Dog River
Douglasville-Douglas Co. WSA	Bear Creek
City of East Point	Sweetwater Creek
Board of Commissioners of Fayette Co.	Flat Creek
Board of Commissioners of Fayette Co.	Line Creek
Board of Commissioners of Fayette Co.	Whitewater Creek
Fayette Co. Water System	Horton Creek
Fayette Co. Water System	Flint River
City of Fayetteville	Whitewater Creek
Henry Co. Water & Sewer Authority	Indian Creek
Henry Co. Water & Sewer Authority	Long Branch Creek
Henry Co. Water & Sewer Authority	Towaliga River
City of McDonough	Walnut Creek
City of Palmetto	Cedar Creek
City of Roswell	Big Creek
Rockdale County	Big Haynes Creek

Atlanta SWAP. These watersheds include areas of the counties of Bartow, Carroll, Cherokee, Clayton, Cobb, Coweta, Dawson, DeKalb, Douglas, Fannin, Fayette, Forsyth, Fulton, Gilmer, Gwinnett, Hall, Henry, Lumpkin, Paulding, Pickens, Rockdale, Spalding, Union and Walton.

Inventory of Significant Potential Sources of Contamination. The next step in the SWAP is to create an inventory of and map facilities that appear to be potential sources of pollution. The GAEPD criteria for contaminants of concern lists acute and pathogenic materials as highest priority, chronic and chemical contaminants as secondary and taste or odor related contaminants as lowest priority. The initial approach in identifying these contaminants was to first determine if available water monitoring data showed evidence of these contaminants and then relate these contaminants to potential sources.

In order to identify contaminants of concern to the Atlanta region, ARC began by reviewing the GAEPD minimum criteria. ARC then conducted verbal interviews with local water managers, stakeholders, and

other experts in the drinking water field, considered available monitoring data, and performed a general literature review to find other contaminants that had not been previously identified. Once this list of potential contaminants was developed, ARC researched the facility types potentially contributing those contaminants and combined it with an extensive data set developed by the USEPA. These facility types were then added to the GAEPD minimum criteria as potential sources that would be identified in the assessments.

After developing this initial list of potential pollutant sources, ARC reviewed information resources to locate available data listing specific information about those sources. Multiple federal, state and local agencies were contacted to obtain regulatory information. Some of the sources from which data were collected include: the Hazardous Site Inventory (HSI), the Georgia Emergency Response Program, state wastewater enforcement actions, the Georgia Department of Agriculture, the U.S.G.S. Mineral Industry Location System, the GA EPD Air Quality Branch, the GA EPD Underground Storage Tank Program, the GA EPD Solid Waste Management Program, the GA EPD Permitting Compliance and Enforcement Branch, the National Pipeline Mapping System, the National Pollutant Discharge Elimination System (NPDES) Permitting Program, the Resource Conservation and Recovery Act Information System (RCRIS), the Emergency Planning and Community Right-to-Know Act (EPCRA) database, the Permit Compliance System (PCS), and the Toxic Release Inventory (TRI). Data providers included the individual Federal and State agencies responsible for program administration, the Georgia GIS Clearinghouse, and the Atlanta Region Information System (ARIS), as well as information provided by local municipalities, private businesses, online internet search engines, and public input.

Once the data were acquired and mapped, the local water systems and ARC went on site to field verify each facility and find other facilities not already included. All potential pollutant sources located in field and not already mapped were also recorded and added to the database and maps.

Determination of Susceptibility of Public Water Supply(s). The susceptibility component of the SWAP brings together the inventory with other relevant information to provide a determination of the likelihood of each potential pollutant source to impact water quality. ARC has utilized the susceptibility determination methodology described in the GAEPD Source Water Assessment Implementation Plan.

The susceptibility of the intake addresses two issues; the potential for the contaminant to reach surface water and eventually the surface water intake and the risk the contaminant poses to the drinking water supply if the contaminant reaches the surface water intake.

Point source susceptibility rankings will be performed for each site. Release potential for point sources is determined through a combination of the following factors: potential volume of release, duration of release, the distance to surface waters and the ease of transport or travel to surface water. Also considered in the criteria are the uses of on-site structural controls and best management practices (BMPs). Risk potential involves the distance to this water supply intake and the potential toxicity of the contaminants on site. After the point source rankings are completed for each facility, the local water systems and stakeholders will review each rank and if necessary document reasons for change. Drafts of the susceptibility determinations will be made available for public comment and review. Once the final rankings are processed, an overall point source susceptibility ranking will be given to the watershed.

ARC will determine release potential and risk assessment for non-point source analyses using 1999 ARIS land use coverage developed by the ARC through the use of aerial photography. An analysis of the percent of impervious surface area associated with the land use categories will be used in conjunction with the GAEPD ranking criteria to determine an overall non-point source rank. Consideration will be given to systems with watershed protection ordinances already in place. The point and non-point source ranking will be combined to give the water supply watershed susceptibility determination.

Development of a Communication Plan. Under provisions of the SDWA, public awareness and involvement during and after the development of the implementation of the SWAP is required. The communication plan involves the development of an Internet web site, newsletters, utility bill inserts, speakers bureau, public forum meetings and media releases. Upon completion of the SWAP, ARC will develop a stand-alone report that is understandable to the public created for each of the participating water system's drinking water intakes. ARC will also develop a summary of the SWAP which the water systems can provide to customers in their annual Consumer Confidence Reports (CCRs).

CONCLUSION

The Atlanta Regional Commission, along with the Technical Task Force, is currently in the process of implementing the SWAP, which is a task that has not previously been accomplished at the scale and density of the Metro Atlanta area. This project has created a coordination of various Federal, State and local programs and compiled many data sets and information sources into a comprehensive database. These data will be used in future steps of the project to evaluate the likelihood of each potential pollutant source to impact water quality. The Metro Atlanta Source Assessment Project will ultimately lead to drinking water protection measures and will provide the basis for public communication and awareness.

LITERATURE CITED

Georgia Department of Natural Resources,
Environmental Protection Division, 2000. *Source
Water Assessment and Protection Implementation
Plan.*