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SOURCE WATER ASSESSMENT PLAN FOR MONROE UTILITIES NETWORK WSID 2970001

This source water assessment is for the Monroe Utilities Network Alcovy River intake, prepared in accordance with Georgia's Source Water Assessment and Protection Implementation Plan for Public Drinking Water Sources, effective May 1, 2000. This report is part of a larger Watershed Assessment and Protection Plan for the Alcovy River from its headwaters to Jackson Lake. The overall source water susceptibility score for Monroe is low. The assessment concluded that the primary threat to source water quality is runoff from urban areas and the threat that major roadways and railways present in terms of the potential for the release of spills from transport vehicles. Sewered areas and oil pipelines also fell in the high priority contaminant category.

BACKGROUND INFORMATION

This section presents background information on the watershed, the public involvement activities, and relevant regulatory requirements related to source water assessments.

Water Supply Watershed Description

The drinking water intake for Monroe Utilities Network (MUN) is located approximately thirty miles east of Atlanta and just west of the City of Monroe on the Alcovy River in Walton County, Georgia. The Alcovy River is a 292 square mile (~187,000 ac) watershed situated within the Upper Ocmulgee Basin (Figure 1.1). The water supply watershed for Monroe Utilities Network is approximately 99 square miles (~64,600 ac) in size and includes parts of two counties (Gwinnett and Walton) and four cities (Grayson, Lawrenceville, Dacula, and Between) in the Upper Alcovy watershed. It is a source of drinking water to approximately 50,000 customers in the cities of Monroe, Loganville and Social Circle. Water is currently withdrawn at a peak rate of 6.2 MGD from the river and is treated at the Monroe Water Works. From there, it is distributed to the customers in the city of Monroe and a portion is sold wholesale to Walton County Water and Sewer Authority. The Authority in turn sells the treated water both wholesale and retail to the cities of Loganville and Social Circle (Table 1.1). The Briscoe Reservoir, located upstream of the intake on Beaverdam Creek (Figure 1.2), currently supplements the water supplies in the river by releasing flow downstream.



Table 1.1 Water Withdrawal Summary for Monroe Utilities Network (MUN).

Source	Current, MGD			Comment
	Permit Number	Permitted Withdrawal	Use (Year)	
Alcovy River (@ Hwy 78 Bridge)	147-0410-02 Through 9/1/2010	6.4 Max 24 hour 5.5 Monthly Average	peak 6.2 (2000)	Treated by MUN. Serves Monroe. Sold wholesale to WCWSA*. WCWSA sells retail and wholesale to Loganville and Social Circle.
Briscoe Reservoir	-	-	-	Currently releases flow to Alcovy River upstream of intake (no direct withdrawal). Jacks Creek (neighboring watershed to east) can also be used on emergency basis.

* WCWSA = Walton County Water and Sewer Authority



BROWN AND CALDWELL

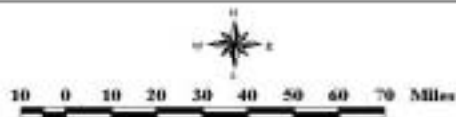
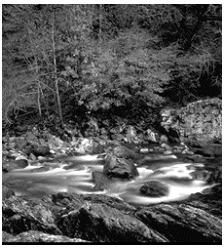


Figure L.1
Location of the City
of Monroe Water
Supply Watershed



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The source water assessment for Monroe Utilities was performed by Brown and Caldwell as part of the Alcovy River Watershed Protection Project, an 18-month comprehensive watershed assessment spanning 4 counties and 11 municipalities. The assessment was designed to address water quality issues related to source water protection, the need for future wastewater discharges in the watershed, and impaired waterbodies. The project included water quality monitoring, watershed modeling, and policy and land use recommendations for water supply and watershed protection. For more information, see the documents:

- *The Alcovy River Watershed Assessment*, and
- *The Alcovy River Watershed Protection Plan*.

Prior to the Alcovy study, Gwinnett County conducted their own countywide watershed assessment. Details of this assessment may be found in the following documents:

- *Ocmulgee/Oconee Basins Impacts Assessment*, Gwinnett County (January 2000), and
- *Gwinnett County Watershed Protection Plan*, Gwinnett County (June 2000).

Public Involvement

The goal of the public involvement process was to educate residents in the assessment area about impacts to source water quality and to provide opportunities for meaningful input into the recommendations being considered for inclusion in the protection plan. The objectives of the process were to reach out to residents and key stakeholders during the Alcovy River Watershed Assessment study through public meetings, community meetings and one-on-one contact. This public communication and education about the watershed study served to increase the knowledge level among local residents regarding watershed protection efforts, to seek input on proposed policy tools and implementation options, and to generate opportunities for on-going partnerships between community groups in the assessment area and participating government agencies and utilities. Input was received from many stakeholders in the Monroe source water assessment area throughout the Alcovy River Watershed Assessment study.

In general, homeowners, business leaders, developers, farmers and others interested in the project expressed concern for the long-term protection of the Alcovy River watershed to maintain a safe drinking water supply for the future. How this protection should be ensured, however, raised several divergent issues, including private property rights, undue burden on the development community, lax enforcement of existing regulations, and equitable assessment of water quality impacts among all contributors (agriculture, cattle, development, residential, etc.). However, no single key issue emerged as significantly sensitive topic among stakeholder groups. The main opportunities for public input were provided through direct interaction at public meetings and various community meetings.

Brown and Caldwell reached out to individual communities by speaking at various community meetings. In addition to these community meetings, three public meetings were held. The first public meeting was conducted shortly after project startup to provide an overview of the study and address any initial



concerns from the public. The second was held at the mid-project point to provide more in-depth findings from the study, and solicit specific responses to proposed policy tools such as conservation subdivisions, increased enforcement, etc. The third was conducted near the conclusion of the study after sampling and data results had been analyzed, requesting comments and additional feedback. All three meetings were reasonably well attended, and residents took advantage of the opportunity to provide their specific concerns and issues, as well as ask questions related to their particular interests. Summaries of these meetings, including questions and comments from local residents, can be found in the Tables 1.2 and 1.3.

In summary, the following comments were received:

- Interest in protecting the Alcovy River as a drinking water supply,
- Concern about development impacts, especially upstream,
- Concern about impacts on current activities, such as agricultural practices,
- Support of policy tools to ensure watershed protection, yet concern about responsibility of implementation,
- Concern about maintaining private property rights,
- Desire to lobby for implementation for policy tools, and
- Concern about emergency response plan for drinking water supply should there be a catastrophic event (spill).

In addition to the comments mentioned above considered during the Monroe source water assessment, recommendations from the Technical Advisory Committee (TAC) aided in the development of the Monroe SWAPP. TAC members provided technical guidance in developing the susceptibility analyses for the Monroe Utilities drinking water intake. The development of the source water susceptibility analysis proved to be an iterative process, as ranking potential pollution sources was influenced by insightful comments received from the TAC.

The SWAPP for the Monroe Utilities Network will be made available to the public at the Atlanta EPD office and from the Monroe Utilities office. There are also plans to post the SWAPP report for Monroe Utilities Network on the web at <http://www.dnr.state.ga.us/enviro/>. Furthermore, a summary of the SWAPP report for the Monroe Utilities Network, including the overall susceptibility determination, will be made available in the publication of the Consumer Confidence Report.



Table 1.2 Public Input Received from Community Meetings in Monroe Water Supply Watershed.

Group/Contact Person	Date	Estimated Meeting Attendance	Input Received From Group
Monroe Business Association/ Cheryl Williamson	11/99	23	Questions raised by this group focused on concerns about the water quality in the Alcovy, about requirements for fencing of livestock out of streams, and enforcement of the recommended guidelines. When asked, the group stated that industrial-based growth would be most beneficial to their businesses, and that in 20 years they believe the community will be a healthy mix of residential and business developments. They indicated that the quality of life in Walton County would best be impacted by a healthy environment, a planned environment and thoughtful placement of growth.
Greater Walton Builders Association/ Anita Smith	2/17/00	100	This group raised no significant concerns, although they expressed interest in remaining informed of the project.
Monroe Kiwanis Club/ Don Shedd	5/22/00	15	These were Walton County residents. At least one member of this group expressed concern about impact fees, and the fact that developers may be asked to bear much of the burden with many of the implementation tools. A written survey of the group found that the majority supported all of the policy tools, with three of the members expressing concerns about several of the options, including transferable development rights (TDRs), revision of site design standards, improved stormwater ordinance, riparian buffer ordinance, impervious surface limit, and the land acquisition program.
Gwinnett Sierra Club/ Lisa Journey	10/25/00	20	This was a very enthusiastic group, and supportive of all of the policy tools which were presented. Group members were generally unfamiliar with the Alcovy River, although most had heard about the recent spills. Information was given to them about the Gwinnett Open Land Trust. This group requested a copy of the final report, so that they could lobby for implementation of the policy tools.



Table 1.2 (continued) Public Input Received from Community Meetings in Monroe Water Supply Watershed.

Group/Contact Person	Date	Estimated Meeting Attendance	Input Received From Group
Walton County Cattleman's Association William Carlan	10/17/00	45	This group of Walton County cattlemen were interested in learning about the components of the Alcovy River Watershed Assessment and subsequent Protection and Implementation Plan development. They expressed concern about development occurring in Gwinnett County and the lack of effective sediment and erosion control practices. The group indicated they would like to see the water quality model developed as part of this project accurately represent the sediment loadings from Gwinnett to assess the impact on the Alcovy River watershed. One audience member requested that the Protection Plan include guidance on what Walton County should do in terms of safe water supply if a tragedy, such as a major chemical spill, were to occur. Another audience member commented that erosion and sedimentation has long been occurring in the Alcovy River watershed and that the developed model should account for such "natural" processes. It was explained to this gentleman that the model does account for natural in-stream sediment re-suspension processes. Some interest in Transferable Development Right's (TDR) was expressed by one individual. Another group member took the position that storm water controls required on developments was already doing all that could be done, that erosion is a natural phenomenon (the Grand Canyon was cited as an example), and that sediment or stream bank erosion should not be a concern.



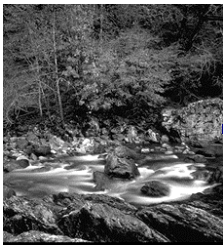
Table 1.3 Public Input Received from Public Meetings.

Public Meeting Date/Location	Estimated Meeting Attendance	Meeting Format	Input Received From Group
January 20, 2000 Monroe Municipal Auditorium	40	The first hour of the meeting featured an Open House format with five different information stations for the public to visit: 1) "What is Team Alcovy," 2) "Why is Team Alcovy Necessary?" 3) "Data Collection and Sampling," 4) "Modeling," 5) "Alcovy Challenges and Opportunities." In addition, Elaine Oakes of Walton County Clean and Beautiful provided an educational booth. Following the Open House, a group question/answer/comment session was held.	During the group Q&A session, residents asked questions about the sampling program and what would be sampled, what type of data would be available on the website, if any recreational facilities were being considered as part of the project, if a baseline watershed is being used for comparison purposes, how the final outcomes of the project will be used, what the study team expects to find, how is the data being shared with the public, what type of coordination is being done on TMDLs with the State.
May 4, 2000 Newton County Judicial Center	25	The meeting opened with an introduction to the project, and a challenge to residents in attendance to "roll up their sleeves" and prepare to participate. An overview slide presentation followed explaining the various implementation options for consideration including stream buffers, conservation subdivisions, site design standards, voluntary water conservation, stormwater ordinance, conservation easements, and constructed wetlands. Following the slide presentation, attendees were invited to visit information stations illustrating the various implementation options, and to ask questions one-on-one with project team members and share input on the options. Residents were asked to "cast their vote" by marking the options that were appealing to them as well as those that were not so appealing. Residents were reminded that their "votes" were not cast in stone and will be used by the project team as indicators of what implementation options may be feasible for this project.	Results of the "voting" conducted at the meeting was as follows: YES votes were cast for Revision of Site Design Standards, Improved Stormwater Ordinance, Impervious Surface Limit, and Transferable Development Rights. A mix of YES and NO votes were recorded for Conservation Subdivision Ordinance, Voluntary Conservation Easement Program, Land Acquisition Program, and Riparian Buffer Ordinance. Other comments recorded at the meeting included: lack of support from commissioners to support innovative planning ideas, concern over intrusion into wetland areas, privacy would be compromised by Conservation Subdivisions, developers generally select the options which are the cheapest, less growth is better, water conservation measures should also be emphasized, septic tanks should be restricted to protect water quality, and Transferable Development Rights are perhaps too complex for some communities.



Table 1.3 (continued) Public Input Received from Public Meetings.

Public Meeting Date/Location	Estimated Meeting Attendance	Meeting Format	Input Received From Group
<p>November 9, 2000 Newton County Judicial Center</p>	<p>40</p>	<p>The meeting opened with one-on-one discussions at information stations that illustrated implementation options. This was followed by an overview slide presentation on project findings and plan recommendations. Following the presentation, a group question/answer and discussion session was held. For the remainder of the meeting, attendees were given the opportunity to voice written or verbal comments.</p>	<ul style="list-style-type: none"> ■ Is there a plan to continue long-term monitoring? ■ Should a citizens watershed committee be formed to continue this cause? ■ Did the study determine a rate of change regarding pervious surfaces vs. impervious surfaces? ■ Do the project modeling projections correlate to EPD projections? ■ Is this a 4-county joint effort, or can each county select its own implementation options? ■ How important is enforcement in the success of a management plan? ■ Due to weather variations, how accurate can the modeling results be? ■ Will the recreational uses of the Alcovy be considered when determining future wastewater discharge limits? ■ Who will do long-term modeling, and who will analyze the data? ■ In building the model, was it taken into account that Newton County plans to install piping to the proposed Bear Creek Reservoir?



Regulatory Requirements for Source Water Assessment Plans

The 1996 amendments to the Safe Drinking Water Act (SDWA) require states to perform source water assessments for all water supply watersheds within the state's boundaries. The goal of the act is the development and implementation of prevention and protection strategies to address those potential threats to the water supply system identified through the assessment process. This law represents a movement towards a more preventive approach of avoiding contamination of public water supply systems.

The statute requires that states submit an Implementation Plan to the U.S. Environmental Protection Agency (EPA) for conducting the assessments. Georgia submitted such a plan to the EPA on January 29, 1999. The plan was approved on April 24, 2000, and became effective on May 1, 2000.

Responsibility for Conducting Source Water Assessments. The new SDWA requirements apply to public water systems that obtain their water from surface water supplies. Surface water systems that supply water to at least 50,000 people are given the primary responsibility for developing and implementing an assessment and protection plan for their system. However, these systems may make requests to Georgia Environmental Protection Division (EPD) for technical assistance and funding. EPD will have primary responsibility for conducting assessments for all surface water systems supplying water to less than 50,000 people. As such, EPD has funded this project through the Northeast Georgia Regional Development

Assessment Area. For the Source Water Assessment, the entire watershed that drains to the water intake is within the protection area; however, the EPA has given the states flexibility to identify and assess smaller areas or segments of the watershed for a cost and time-effective analysis. Georgia's Plan is based on protection distances defined in the EPD Rules of Environmental Planning Criteria, as part of the Georgia Planning Act of 1989. The plan identifies three assessment zones within the water supply watershed upstream from a given drinking water intake:

- The inner management zone (IMZ) – within a 7-mile radius above the intake,
- The outer management zone (OMZ) – radius between 7 and 20 miles of the intake, and
- The non-management zone (NMZ) – remainder of watershed above the OMZ.

Assessment Requirements. Each assessment must include a delineation of the drinking water supply watershed that drains to the intake location, an inventory of potential pollution and contaminant sources, and a determination of the susceptibility of the drinking water source to potential contamination. The susceptibility analysis is based on the potential for contaminants to be released into the environment as well as the associated risk to the surface water intake. In addition, the results of the assessment must be made available to the population served by the public water



system. This information may then be used for developing source water protection plans as part of local comprehensive planning efforts.

SOURCE WATER ASSESSMENT PLAN FOR MONROE UTILITY NETWORK

The Source Water Assessment includes the watershed description, assessment methodology and susceptibility results for the Monroe Water Supply intake.

Watershed Description

This section describes the water supply watershed and the potential contaminant sources within the watershed.

City and County Jurisdictions. The water supply watershed for Monroe Utility Network encompasses just under 100 square miles, including the headwaters of the Alcovy River (Figure 1.2). Therefore, according to the EPD Rules of Environmental Planning Criteria, as part of the Georgia Planning Act of 1989, this is a small water supply watershed. It includes portions of the cities of Lawrenceville, Dacula, and Grayson in Gwinnett County, and the city of Between in Walton County (Table 1.4). Approximately 171 acres, or 0.7 percent of the water supply watershed is covered with impervious surfaces.

These urban areas constitute a potential contaminant source from sanitary sewer overflows and non-point source pollution, including septic tank failures.

Table 1.4 List of Counties and Municipalities in the Water Supply Watershed for Monroe Utilities Network

Counties	Land Area within the Water Supply		Municipalities	Land Area within the Water Supply Watershed	
	Watershed (acres)	(% of total)		(acres)	(% of total)
Gwinnett	41,777	65 %	Dacula	561	0.9
			Lawrenceville	2,812	4.3
			Grayson	421	0.6
Walton	23,760	35%	Between	556	0.9



Waterbodies. The headwaters of the Alcovy River originate in Gwinnett County and include Tribble Mill Branch, Shoal Creek, Hopkins Creek, Palm Creek, and Cedar Creek. Tribble Mill and Bay Creek also originate in Gwinnett County and flow through upper Walton County to the Alcovy River just north of the city of Between. Beaverdam Creek originates in Walton County and flows to the Briscoe Reservoir, and then into the Alcovy River west of the city of Monroe (Figure 1.2). Table 1.5 gives the distances of each tributary to the intake. Distances are given in river miles and represent the distance from the confluence of the tributary with the Alcovy River to the drinking water intake.

Table 1.5 Distance of Tributary Confluences to the Monroe Drinking Water Intake

Waterbody Name	Distance from Confluence to the Intake (River miles)
Bay Creek	4.01
Tribble Mill Branch	12.69
Shoal Creek	16.07
Hopkins Creek	17.86
Palm Creek	11.07
Cedar Creek	20.12
Beaverdam Creek	0.37

Roadways. Major roads that transverse the Monroe Utilities water supply watershed include Highways 29 and 316 in Gwinnett County and Highway 81 in north Walton County. Highway 78 forms the southwest boundary of the watershed (Figure 1.2). Roads present a potential threat to source water given that vehicles, particularly tractor trailers, can overturn spilling their load into or near a water way. Table 1.6 lists the major roads in the Monroe Utilities water supply watershed and the distances (in river miles) of their intersection with a major waterway to the drinking water intake. There may be additional road crossings of other small tributary channels that are not mapped. Field inspection is necessary to correctly identify and map these areas.



Table 1.6 Road Crossings in the Monroe Utilities Water Supply Watershed

Road	River/Creek Crossing	Distance to Intake (river miles)
Highway 81	Bay Creek	8.3
	Unnamed tributary to Bay Creek	7.0
	Alcovy River	7.1
	Unnamed tributary to Beaverdam Creek	7.3
	Beaverdam Creek	7.6
Highway 29	Shoal Creek	19.6
	Alcovy River	18.6
	Unnamed tributary to Alcovy River	18.2
	Unnamed west tributary to Hopkins Creek	19.7
	Hopkins Creek	19.2
	Unnamed east tributary to Hopkins Creek	19.1
Highway 316	Unnamed Upper tributary to Cedar Creek	22.4
	Unnamed lower tributary to Cedar Creek	22.1
	Cedar Creek	21.2
	Alcovy River	19.5
	Unnamed tributary to Alcovy River	19.7
	Tributary to Hopkins Creek	17.6
	Hopkins Creek	17.7

Railways. The CSX railroad runs from Lawrenceville to Dacula near Highway 316. During the course of the study, a spill occurred from the railway on September 3, 2000 near the Gwinnett County airport. Ethylene glycol and methanol were released into the Alcovy River. Alternate water sources were utilized for a period following the spill until testing revealed no risk of contamination.

Pipelines. Three pipelines traverse the Upper Alcovy within the Monroe water supply watershed:

- *The Transcontinental Gas Pipeline Corporation* (natural gas), oriented northwest to southeast and crossing the Alcovy River just north of Hwy 316;
- *The Colonial Pipeline Company* (oil), oriented east to west and located north of Lawrenceville and south of Dacula, crossing Hopkins Creek and the Alcovy River; and
- *The Plantation Pipeline Company* (oil), oriented east to west, located south of Lawrenceville and crossing Shoal Creek and the Alcovy River.



Airports. One airport is located within the watershed, the Gwinnett County Airport, Briscoe Field (Figure 1.2). Gwinnett and Walton Counties are also directly under flight paths into and out of Hartsfield International Airport, located south of Atlanta.

Fueling Stations. There are five fueling stations within the Monroe water supply watershed. All are located in the Lawrenceville area. These are potential pollution sources because large quantities of fuel are stored at these locations and because fuel is delivered to them on a regular basis.

- Circle M Food Shop
- Crown Central Petroleum
- Chevron Station
- The Pit Stop
- Gas Incorporated

Industries, Manufacturing Facilities and Businesses. Several industrial and manufacturing facilities and other business that store and handle potential contaminants are located within the Monroe water supply watershed. Most are situated in and around the city of Lawrenceville (Figure 1.2).

- | | |
|--|---|
| ■ Vulcan Materials Company, Grayson Quarry | ■ Atlanta Attachment Company |
| ■ McCoy, J.L. | ■ Classic Smoke Removal |
| ■ Speedy Transmission | ■ Arrow Lincoln Mercury, Inc. |
| ■ National Paint and Body Shop | ■ Coca-cola, Lawrenceville Distribution |
| ■ Crowe Industrial Coatings | ■ Gwinnett County Police Department |
| ■ Pro Care Cleaners | ■ BellSouth Telecommunications |
| ■ Progress Container Corporation | ■ Contech |
| ■ Dolco Packaging Corporation | ■ Whitley's Garage |
| ■ Commercial Carriers, Inc. | ■ Goodyear Auto Service Center |
| ■ American Cleaners | ■ Gwinnett County Traffic Engine |



Assessment Methodology

This assessment was conducted following the guidelines outlined in Georgia's Source Water Assessment and Implementation Plan, approved April 24, 2000. The following briefly describes the data collection, processing, and inventory procedures used to complete the source water assessment for Monroe Utilities.

Land Cover. Land coverage was obtained both for watershed modeling and for an initial assessment of non-point sources influences to water quality in water supply watersheds. A satellite image of the entire Alcovy Watershed was acquired on October 28, 1999.

The land cover was further analyzed and delineated to more accurately depict agricultural areas and to create a smaller number of categories that were distinguishable for watershed modeling. Those new categories are listed below:

- Wet—includes open bodies of water and non-forested wetlands
- Forest—includes coniferous, deciduous and mixed forest
- Nonforest
- Low density residential development (LDR)
- Confined animal feeding - includes poultry and hog farm operations
- Grazed - includes areas used for cattle grazing
- Row crop - includes areas used for row cropping



Potential Contaminant Source Data. Potential pollution and contaminant source data were downloaded from the Georgia GIS data Clearinghouse. These data included sites listed in classifications, including the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), Industrial Facility Discharge (IFD, Toxic Release Inventory (TRI), Hazardous Site Inventory (HSI), National Pollution Discharge Elimination System (NPDES), etc. Metadata and other date/source references for the data were also obtained. Definitions of above federal and state potential pollution source classifications were reviewed and given in Appendix A. The definition of a classification or listing can provide general information helpful in the susceptibility analysis for assessing both release and risk potential.

EPA and EPD web sites were inventoried to obtain any outstanding data not available at the Georgia GIS Data Clearinghouse sites. Various web sites were queried to obtain information that is more detailed and to verify that data were up-to-date. Information such as the possible **type** of potential pollutant (e.g., specific hazardous waste/chemicals or type of agricultural waste lagoon), **volume** of potential pollutant (e.g., <1,000 gallons or >10,000 gallons), and/or any **history of spills** were obtained. Business or facilities no longer in existence/operation or those that have been removed from the above listings were eliminated from the SWAPP contaminant inventory.

Cryptosporidium Sampling. The Georgia Source Water Assessment and Protection Implementation Plan states that raw water sampling for *Cryptosporidium parvum* will be conducted for surface waters above drinking water intakes. The protocol developed for the Monroe Utilities source water assessment was designed for baseline sampling for *Cryptosporidium parvum* and *Giardia* above drinking water intakes in the Alcovy. (The protocol and cost is the same for doing both.) A baseline sampling protocol was formulated after researching the literature and seeking advice from several experts in the field to identify and understand the complexities of sampling and analysis. Routine sampling was conducted to detect the presence or absence of cysts and oocysts. All samples reported no detection of *Giardia* nor *Cryptosporidium*. See Table 1.7 for specific results.

Samples were collected monthly above each intake for a period of six months beginning in January 2001. Samples were collected and transported to EPD's lab, where they were filtered and shipped to an outside laboratory the same day for analysis. Samples arrived at the laboratory within 24 hours of sample collection and were not allowed to freeze. The method for sample analysis used is Method 1623. This method was recommended because EPA will soon require that Method 1623 be used, and it is already becoming more widely accepted over other methods.

Brown and Caldwell served as sample facilitators for the water treatment plants for the first month of *Cryptosporidium* sampling. After becoming familiar with the sampling equipment and methodology, BC set up a training schedule with the water treatment plant staff so that they could take over the sampling efforts for the following five-month period.



Data Limitations. In performing a desktop susceptibility analysis, one limitation is verifying the current listing of a business/facility on a federal or state potential pollution/contaminant source list (i.e. CERCLA, RCRA, IFD, etc.). We found that many federal and state databases are not up-to-date and therefore, extra time was necessary to investigate the status of these businesses.

Another limitation proved to be the amount of information available through queries at web sites such as, the EPA RCRIS and CERCLIS sites. For example, in performing a query on a particular RCRA site at the EPA RCRIS web site, the limited information available from the query would some times list whether the business is classified as a “small quantity,” “large quantity,” or “a conditionally exempt small quantity” generator. The RCRIS query also provided links to the Facility Detail Reports and Envirofacts reports, which provided facility contact information, but lacked other pertinent information needed for the source water assessment. The query revealed which types of data were collected by the facility, such as Notification or Part A data. Yet, information on the type and volume of hazardous chemicals or wastes was not listed, nor was the history of spills given.

Similarly, queries performed at the EPA CERCLIS web site provided general facility and site action information, but lacked specific information on the type and volume of hazardous waste site. The site provided information on the site assessment dates, lead agency, and other various qualifiers. A limitation of the CERCLIS web query proved to be the 3-week waiting period for a detailed ROD (Record of Decisions) report. Once the web query limitations were realized, Freedom of Information Act (FOIA) requests were made to EPA regarding the two CERCLA sites located in the Monroe Utilities Network watershed. Further details on these two CERCLA sites, McCoy, J.L. and McCluskey’s Farm, are still outstanding, yet it is unlikely that the FOIA information will change their rankings in the susceptibility matrix.

Assumptions. The following is a list of the various assumptions made in performing the susceptibility analysis for Monroe Utilities Network.

Some sites listed in the Industrial Facility Discharge (IFD) database were not in the NPDES database, likely because they are no longer direct dischargers to surface waters. Instead, it was concluded that the IFD sites listed below either tie into the sanitary sewer system or no longer exist.

Assumed former IFD sites:

- Dacula High School – on sanitary sewer,
- Dyer Elementary School – on sanitary sewer, and
- Lawrenceville – Shoal Creek STP – no longer exists.



Similarly, Toxic Release Inventory (TRI) web queries revealed that the following sites are no longer listed in the TRI database:

- Owen of Georgia
- Reedspectrun
- Ricoh Electronics

TRI web queries also revealed that the following businesses are listed on the TRI for air emissions only, and therefore do not release to surface waters:

- Crowe Industrial Coatings
- Goodwin Company

Because the specific type, volume, and history of spill data were not available for most RCRA sites at the EPA RCRIS web site, we assumed the following:

- Release potential categories: “Duration of Release” = low due to little likelihood of a release and no reported releases; “Ease of Travel/Transport” = low, secondary containment controls in place
- For RCRA small quantity generators, Potential Release category, “Volume of Release” = low (less than 1,000 gallons).
- For RCRA large quantity generators, Potential Release category, “Volume of Release” = medium (greater than 1,000 gallons and less than 10,000 gallons).

Because EPA CERCLIS web site did not provide detailed information about the type, volume and history of spills, we assumed the following:

- McClusky Farm – Site Reassessment on 7/13/00 and declared “NFRAP (No Further Remedial Action Planned).” Therefore, susceptibility ranking = low release potential and low risk.
- McCoy, J.L. – Preliminary Assessment on 9/30/89, deferred to RCRA and Coast Guard as lead agency. Therefore, susceptibility ranking = medium release potential and medium risk.

In order to standardize the ranking of roads (including primary, secondary paved, and secondary unpaved), the following supplemental guidance was developed to assist in ranking the scheme:



- Primary roads (interstates and highways):

RELEASE POTENTIAL	RISK POTENTIAL
> 10 road crossings, High	Large transport trucks, High
5 – 10 road crossings, Medium	Large transport trucks, High
< 5 road crossings, Low	Large transport trucks, High

- Secondary roads, paved:

RELEASE POTENTIAL	RISK POTENTIAL
> 100 road crossings, High	Large transport trucks, High
50 – 100 road crossings, Medium	Large transport trucks, High
< 50 road crossings, Low	Large transport trucks, High

- Secondary roads, unpaved:

RELEASE POTENTIAL	RISK POTENTIAL
> 100 road crossings, High	No large transport trucks, Low
50 – 100 road crossings, Medium	No large transport trucks, Low
< 50 road crossings, Low	No large transport trucks, Low

Results

Figure 1.2 illustrates the delineation of assessment areas and gives the location of the potential pollution sources. The inner management zone (IMZ) is approximately 20,030 acres. The outer management zone (OMZ) is the remainder of the watershed and encompasses approximately 44,580 acres and is contained mostly within Gwinnett County. The SWAPP guidance for surface source water was used to rank individual potential pollution sources according to their potential for release and their potential risk to source water. Appendix B gives the complete inventory of contaminants along with the individual rankings for the release and risk potential along with a justification for each.

There are no potential point sources of pollution at this time located within the IMZ of the water supply watershed for Monroe Utilities. Therefore, the greatest threat to source water quality from this assessment area is runoff from urban and agricultural non-point sources, oil pipelines, potential leaching from septic systems, and the potential for spills at road crossings. However, there are no major urban areas, no interstate crossings, and only one major highway road crossing in the IMZ. There are, however, many potential point sources of pollution situated within the OMZ. These are mostly clustered around the city of Lawrenceville.

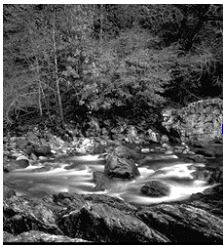
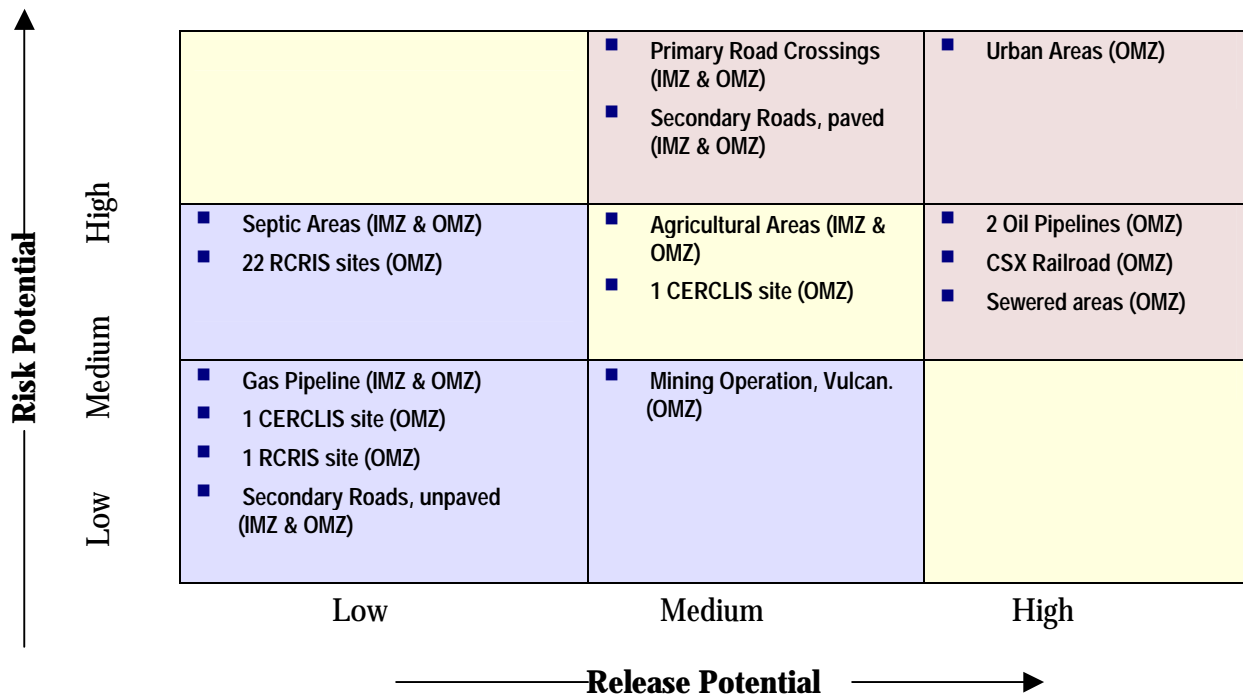


Figure 1.3 illustrates the matrix of potential contaminant rankings. The SWAPP guidance was used to calculate the relative percent of occurrence of contaminants within each priority zone and the overall susceptibility. Sources listed as occurring in both the IMZ and OMZ were weighted accordingly for the overall susceptibility. The largest number of potential sources (74%) was ranked as low priority. Medium and high priority contaminants represent 7 and 19 percent, respectively, of the total. The overall susceptibility of the intake is rated low based on this analysis.

Figure 1.3 Matrix Summary of Potential Contaminant Rankings



High Priority Contaminants:	19%
Medium Priority Contaminants:	7 %
Low Priority Contaminants:	74%

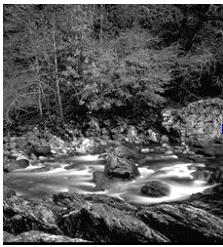


Table 1.7 Results from Cryptosporidium and Giardia Sampling For Monroe Utilities

Cryptosporidium and Giardia Sampling Results			
Location	Sample Date	Total Giardia (per 100 ml)	Total Cryptosporidium (per 100 ml)
City of Monroe, Alcovy River	Jan 22, 2001	ND	ND
	A sample was not collected for the month of February		
	March 26, 2001	ND	ND
	April 25, 2001	ND	ND
	May 23, 2000	ND	ND
	June 18, 2001	ND	ND

Table 1.7 shows sampling results for routine monthly sampling the first six months of 2001. All samples had no detection of cysts or oocysts.



Summary and Recommendations

The primary threat to source water quality for Monroe Utilities is runoff from urban areas. A plan for managing urban stormwater runoff is presented in a separate document, *The Alcovy River Watershed Protection Plan*. Other potential contaminants that fell in the high priority zone of the susceptibility matrix included leaks and spills from sewer areas, primary and secondary paved roads, the railroad and the 2 oil pipelines. Roads and railways present a potential threat to source water through the potential for release of spills from transport vehicles. Oil pipelines present a threat mainly because they cross headwater streams in multiple locations. Similarly, sewer pipelines are situated along stream corridors and cross streams at multiple locations in Gwinnett County.

This source water assessment and protection plan can be used by Monroe Utilities in times when emergency response is needed in reaction to a contamination of the drinking water supply. The information contained herein can be used to communicate to authorities the relative distances of road crossings and other features to the drinking water intake. Through identifying various in-stream lengths from potential contaminants to the drinking water intake, scientists and water managers involved in emergency response will be able to use these data to estimate contaminant travel time to the intake. Also, the contaminant inventory (Appendix B) lists potential pollution and contaminant sources in the Monroe water supply watershed that were assessed to complete the susceptibility analysis. This list may be used in conjunction with Figure 1.2 to help water managers more accurately identify contamination source locations as well as the types of contaminants originating from various point and nonpoint sources. This plan may be used to develop a more detailed emergency spill response plan. Details of the plan could include contact names and numbers at source locations throughout the watershed, a list of emergency response officials, laboratory personnel and analytical capabilities, among others.