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SOURCE WATER ASSESSMENT PLAN FOR THE NEWTON COUNTY WATER SYSTEM WSID 217001

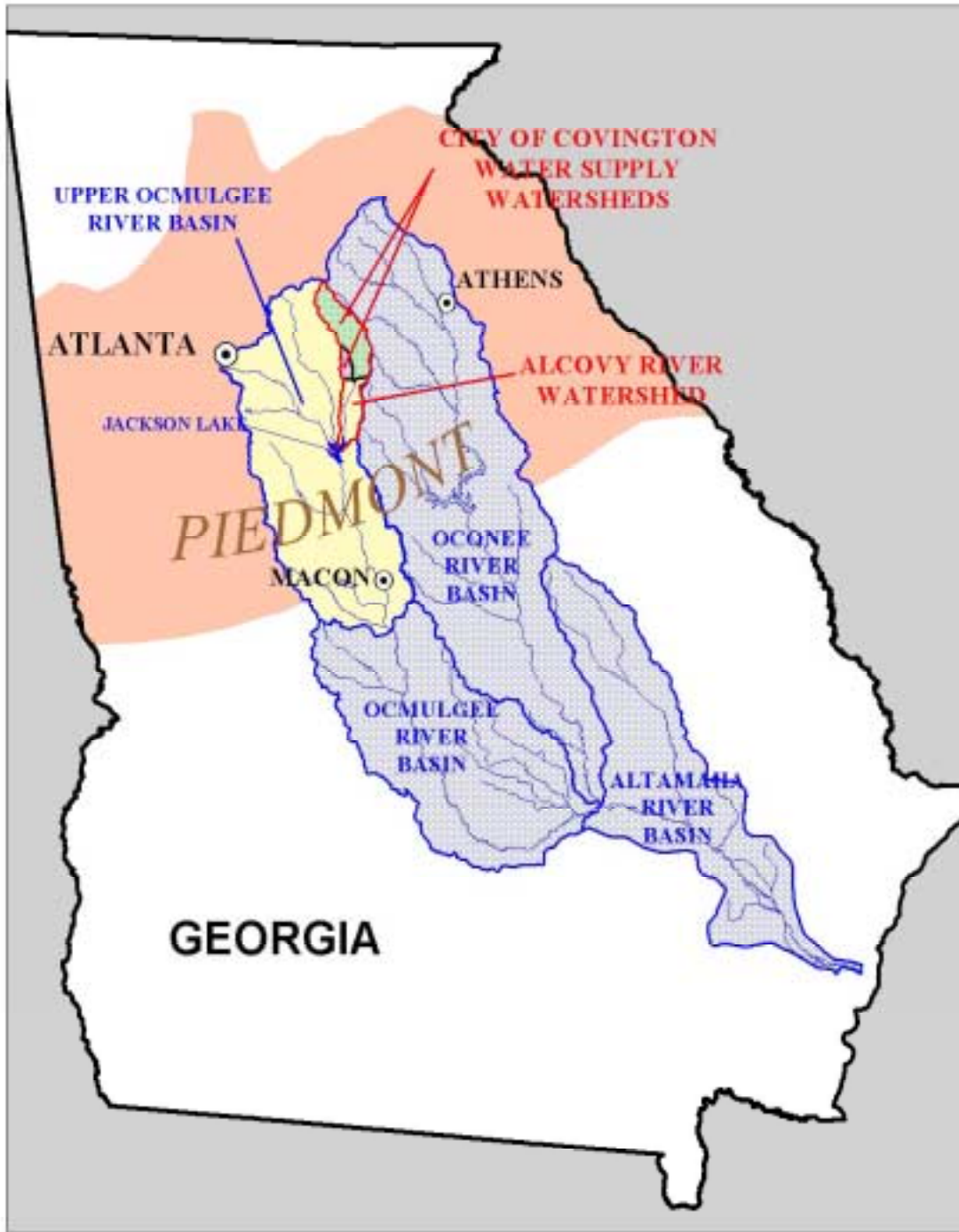
This source water assessment is for the Newton County Water System in Covington, Georgia. The drinking water system includes two raw water intakes: the Cornish Creek Reservoir (Source # 101) and the Alcovy River (Source # 102). The following source water assessment was prepared in accordance with Georgia's 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 susceptibility of both the Cornish Creek and Alcovy River intakes was rated *medium*. According to this analysis, the greatest potential threat to source water quality in the small water supply watershed of Cornish Creek is agricultural waste ponds and secondary paved roads. The greatest potential threat to source water quality in the Covington Alcovy River large water supply watershed is Loganville's Water Pollution Control Plant permitted discharge and primary and secondary roads.

BACKGROUND INFORMATION

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

Water Supply Watershed Descriptions

The two drinking water intakes for Newton County Water System are both situated within the Alcovy River watershed, located approximately thirty miles east of Atlanta and northeast of Covington. One intake is on the Alcovy River itself and the other is near the dam on Lake Varner. Lake Varner lies on Cornish Creek. Both are located in Newton County, Georgia. The Alcovy River is a 292 square mile (~187,000 ac) watershed situated within the Upper Ocmulgee Basin (Figure 1.1).



BROWN AND CALDWELL

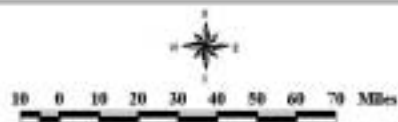


Figure 1.1
Location of the City
of Covington Water
Supply Watersheds

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The water supply watershed for the Cornish Creek reservoir is approximately 25 square miles (~15,899 ac) in size and includes parts of two counties (Walton and Newton) and two cities (Walnut Grove and Jersey) in the Alcovy River watershed. The Cornish Creek intake is a source of drinking water to approximately 35,900 customers. Water is currently withdrawn at an average monthly rate of 7.5 MGD from Lake Varner and is treated at the Cornish Creek Water Treatment Plant for Newton County Water and Sewer Authority. From there, it is distributed to the customers in the City of Covington and a portion is sold wholesale to Newton County Water and Sewer Authority. The Authority in turn sells the treated water both wholesale and retail to the City of Covington (Table 1.1).

The water supply watershed for the Alcovy River intake is approximately 181 square miles (~115,797 ac) in size and includes parts of three counties (Gwinnett, Walton and Newton) and six cities (Grayson, Loganville, Between, Monroe, Jersey and Social Circle) in the Middle Alcovy watershed. The Alcovy River intake supplies 11,000 customers in the City of Covington. Water is currently being withdrawn from the river intake at an average monthly rate of 4.0 MGD and is pumped to the Williams Street Water Treatment Plant. It is then sold to customers in the City of Covington by the Newton Water and Sewer Authority (Table 1.1).

Table 1.1 Water Withdrawal Summary for Newton County Water System.

Source	Current, MGD			Comment
	Permit Number	Permitted Withdrawal	Use (Year)	
Cornish Creek Reservoir (Lake Varner)	WO2170097 (Source #101) Through 6/27/2006	7.5 Max Day 7.5 Monthly Average	7.5 Max Day 7.5 Monthly Average	Treated at Cornish Creek WTP (7.5 mgd capacity) Plant is currently being upgraded to 12 mgd.
Alcovy River (@ trestle bridge upstream of Strouds Creek)	WO2170097 (Source #102) Through 6/27/2006	4.5 Max Day 4.0 Monthly Average	4.5 Max Day 4.0 Monthly Average	Treated at Williams Street WTP (4.5 mgd capacity)



The source water assessment for the Newton County water system 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 River Watershed Assessment 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 served 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 watershed assessment areas 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 Newton County source water assessment, recommendations from the Technical Advisory Committee (TAC) aided in the development of the Newton County SWAPP. TAC members provided technical guidance in developing the susceptibility analyses for the Newton County Water System water supply watersheds. 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 Newton County Water System will be made available to the public at the Atlanta EPD office and from the Newton County Water and Sewer Authority. There are also plans to post the Newton County SWAPP report on the web at <http://www.dnr.state.ga.us/enviro/>. Furthermore, a summary of the SWAPP report for Newton County Water System, 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 the Newton County Water Supply Watersheds

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	No significant concerns were raised by this group, although they expressed interest in remaining informed of the project.
Newton County Smart Growth/ Betsy Moorehouse	3/2/00	25	Jennifer Fine of the Northeast Georgia Regional Development Center attended this meeting in a support role, with the main presentation being given by the Georgia Wildlife Federation on issues related to the Alcovy.
Covington Kiwanis Club/ Dr. John Sieweke	3/16/00	100	The group seemed pleased with the project efforts, and raised no concerns about any particular policy tools.
Newton Clean and Beautiful/ Vicky Giles	5/22/00	25	To be Added
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.
Neighbors of East Newton/ Betsy Bledsoe	10/17/00	60+	This group expressed a great deal of interest in the project and the issues, and asked many questions. They expressed general support for all of the policy tools presented, with no one tool raising any red flags. Several in this group had heard a presentation by Laurie Fowler at another forum months ago, and had requested additional information at that time about

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Group/Contact Person	Date	Estimated Meeting Attendance	Input Received From Group
			Transferable Development Rights (TDRs). The group expressed interest in remaining informed about the project.
Piedmont Cattleman's Association/ Ricky Wheeler	7/13/00	70	This group was given the written survey following the presentation, but only one was returned completed. This forms expressed interested for all the policy tools, except for questions about voluntary conservation easements, land acquisition program, and transferable development rights (TDRs). The comment on the form was, "I agree that we need to make sure we keep our green space." One of the questions raised by a member of this group was, "How much pollution from cattle grazing areas will be allowed before cattlemen become regulated by EPD?" Two other individuals from Oxford expressed concern over sedimentation onto their property from adjacent development.
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.
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.



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 previous 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 EPD 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, which 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.

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.

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 assessments for the city of Covington. Since there are two drinking water intakes that serve Covington, two source water assessments were conducted. This report gives the results of both assessments. The same assessment area delineation methodology was used for each, utilizing the 7 and 20-mile IMZ/OMZ assessment area designations.

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 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 are given in Appendix B. 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. Businesses 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 except one showed no *Cryptosporidium* or *Giardia*. See Table 1.10 for specific results.

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

Brown and Caldwell will serve as sample facilitators for the water treatment plants for the first month of *Cryptosporidium* sampling. After becoming familiar with the sampling equipment and methodology, will set up a training schedule with the water treatment plant staff so they can 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 site. 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 sometimes 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 the Newton County water supply watersheds. 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).

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

SOURCE WATER ASSESSMENT PLAN FOR NEWTON COUNTY WATER SYSTEM, CORNISH CREEK RESERVOIR AND ALCOVY RIVER INTAKES

The Source Water Assessment includes watershed descriptions, assessment methodology and results for Newton County water supply intakes of *Cornish Creek Reservoir* and the *Alcovy River*.

Watershed Description

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

City and County Jurisdictions. The water supply watershed for Newton County’s *Cornish Creek Reservoir* intake encompasses approximately 25 square miles, including the headwaters of Cornish Creek and Little Cornish Creek (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 Walnut Grove and Jersey in Walton County (Table 1.4). Approximately 133 acres, or 0.8 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.

The water supply watershed for the Newton County’s *Alcovy River* intake encompasses approximately 181 square miles, including the headwaters of the Alcovy River and Big Flat Creek (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 large water supply watershed. It includes portions of the cities of Lawrenceville, Grayson, Dacula, and Loganville in Gwinnett County. It also includes portions of the cities of Between, Monroe, Walnut Grove, Jersey and Social Circle in Walton County, as well as a small portion of Newton County (Table 1.4). Approximately 1,377 acres or 1.8 percent of the water supply watershed is covered with impervious surfaces.

Table 1.4 List of Counties and Municipalities in the Newton County Cornish Creek Reservoir Water Supply Watershed.

Counties	Land Area within the Water Supply Watershed		Municipalities	Land Area within the Water Supply Watershed	
	(acres)	(% of total)		(acres)	(% of total)
Walton	10,268	65	Walnut Grove	317	0.2
			Jersey	242	0.2
Newton	5,630	35	N/A	N/A	N/A

Table 1.5 List of Counties and Municipalities in the Newton County Alcovy River Water Supply Watershed.

Counties	Land Area within the Water Supply Watershed		Municipalities	Land Area within the Water Supply Watershed	
	(acres)	(% of total)		(acres)	(% of total)
Gwinnett	41,777	32	Lawrenceville	2,812	2.1
			Grayson	421	0.3
			Dacula	561	0.4
			Loganville	293	0.2
Walton	3,332	63	Loganville	1,369	1.0
			Between	556	0.4
			Monroe	2,929	2.2
			Walnut Grove	317	0.2
			Jersey	257	0.2
Newton	6,586	5	Social Circle	2,587	1.9
			N/A	N/A	N/A



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Waterbodies. The headwaters of **Cornish Creek** originate in its tributaries in Walton County north of Highway 138. Cornish Creek flows south to Lake Varner. Little Cornish Creek originates in both Walton and Newton Counties and flows northwest to southeast to Lake Varner. The **Cornish Creek Reservoir** intake is located in the southern corner of Lake Varner off Alcovy Road (Figure 1.2). Table 1.6 lists the distance the confluence of each creek with Lake Varner to the intake.

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. The headwaters of Big Flat Creek originate in the City of Loganville. Big Flat Creek flows south where it meets Little Flat Creek, near Monroe Jersey Road. Big Flat Creek then continues south where it joins the mainstream of the Alcovy about 1.4 miles upstream of the City of Covington intake on the river (Figure 1.2). Table 1.7 gives the distances of each tributary to the City of Covington’s **Alcovy River** 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 1.6 Distance of Tributary Confluences with Cornish Creek to the Cornish Creek Reservoir Drinking Water Intake.

Waterbody Name	Distance from Confluence to the Intake (River miles)
Cornish Creek	3.5
Little Cornish Creek	2.7

Table 1.7 Distance of Tributary Confluences with the Alcovy River to the Alcovy River Intake.

Waterbody Name	Distance from Confluence to the Intake (River miles)
Bay Creek	18.45
Tribble Mill Branch	27.13
Shoal Creek	30.51
Hopkins Creek	32.30
Palm Creek	25.51
Cedar Creek	34.56
Beaverdam Creek	14.81
Mountain Creek	8.91
Big Flat Creek	1.65



Roadways. Major roads that transverse the *Cornish Creek Reservoir* water supply watershed includes State Highways 138 and Highway 81, which forms the western boundary of the watershed. The Alcovy Road/Alcovy Station Road/Youth Jersey road forms the eastern boundary (Figure 1.2) of the watershed. 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 1.8 lists the major roads in the *Cornish Creek Reservoir* water supply watershed and the distances (in river miles) of the intersections with a major waterway to the drinking water intake

Major roads that transverse the *Alcovy River* water supply watershed include State Highways 138, Highway 78, Highway 81 and Highway 11. State Highways 29 and 316 also traverse the watershed, yet they are located outside of the Outer Management Zone (OMZ) (Figure 1.2). Table 1.9 lists the major road in the *Alcovy River* water supply watershed and the distances (in river miles) of the intersections with a major waterway to the drinking water intake. There may be additional road crossings of other small tributary channels within each watershed that are not mapped. Field inspection is necessary to correctly identify and map these areas.

Table 1.8 Road Crossings in the Cornish Creek Reservoir Water Supply Watershed.

Road	River/Creek Crossing	Distance to Intake (river miles)
Highway 138	Unnamed upper tributary of Cornish Creek	8.8
	Cornish Creek	7.9
Highway 81	Little Cornish Creek	4.3
	Unnamed lower tributary to Cornish Creek	9.3



Table 1.9 Road Crossings in the Alcovy River Intake Water Supply Watershed.

Road	River/Creek Crossing	Distance to Intake (river miles)
Highway 29	Alcovy River	34.3
	Unnamed tributary to Alcovy River	33.9
	Unnamed west tributary to Hopkins Creek	35.4
	Hopkins Creek	34.9
	Unnamed east tributary to Hopkins Creek	34.8
	Unnamed Upper tributary to Cedar Creek	37.8
Highway 316	Unnamed lower tributary to Cedar Creek	37.8
	Cedar Creek	36.9
	Alcovy River	35.2
	Unnamed tributary to Alcovy River	35.4
	Tributary to Hopkins Creek	33.3
	Hopkins Creek	33.4
Highway 81	Bay Creek	24.0
	Unnamed tributary to Bay Creek	22.7
	Alcovy River	22.8
	Unnamed tributary to Beaverdam Creek	23.0
	Beaverdam Creek	23.3
	Big Flat Creek	19.8
Highway 78	Alcovy River	15.5
	Unnamed upper tributary to Alcovy River	15.6
	Unnamed lower tributary to Alcovy River	15.8
	Mountain Creek	14.8
	Unnamed tributary to Mountain Creek	15.4
	Big Flat Creek	16.6
Spring Street	Mountain Creek	14.0
	Unnamed west tributary to Mountain Creek	14.4
	Unnamed east tributary to Mountain Creek	14.6
Highway 11	Unnamed tributary to Mountain Creek	13.6
	Alcovy River	14.1
	Mountain Creek	14.5
Highway 138	Big Flat Creek	9.6
	Little Flat Creek	10.0



Pipelines. One natural gas pipeline, owned and operated by Transcontinental Gas Pipeline Corporation, traverses the **Cornish Creek Reservoir** water supply watershed. This gas pipeline parallels Highway 138 in the upper portion of the water supply watershed in Walton County.

- The Transcontinental Gas Pipeline Corporation (natural gas). Oriented southwest to northeast and crossing “Unnamed upper tributary of Cornish Creek” and “Cornish Creek.”

Four pipelines traverse the Upper and Middle Alcovy within the Newton County **Alcovy River** water supply watershed:

- *The Transcontinental Gas Pipeline Corporation* (natural gas), 2 different lines traverse the City of Covington’s Alcovy River intake water supply watershed.
 - 1) Oriented northwest to southeast and crossing the Alcovy River just north of Hwy 316; part of this pipeline is located outside the City of Covington’s Alcovy River Intake OMZ. The pipeline crosses Palm Creek, Cedar Creek, Beaverdam Creek and tributaries to the Alcovy River
 - 2) Oriented southwest to northeast, paralleling State Highway 138, crosses Cornish Creek, Big Flat Creek, Little Flat Creek, the Alcovy River, Mountain Creek and their tributaries.
- *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; located outside the City of Covington’s Alcovy River Intake OMZ. and,
- *The Plantation Pipeline Company* (oil), oriented east to west, located south of Lawrenceville and crossing Shoal Creek and the Alcovy River, again located outside the City of Covington’s Alcovy River Intake OMZ.

Agricultural Waste Ponds. There are four agricultural waste ponds/confined animal feedlots within the **Cornish Creek Reservoir** water supply watershed. All of the ponds are located within the IMZ. Three of the ponds drain into Little Cornish Creek and one pond drains into Lake Varner south of Cornish Creek. These are potential pollution sources because large quantities of livestock waste, such as that from hog and poultry waste, are generated and stored. These areas present a threat in terms of potential overflows, runoff and leaching and are a source nutrients, bacteria and BOD.

- West Harris Rockmore Road– Little Cornish Creek.
- East Harris Rockmore Road– Little Cornish Creek.
- Cornish Mountain Chapel Road– Little Cornish Creek.
- Boogers Hill Road– Lake Varner.



There are five agricultural waste ponds within the **Alcovy River** water supply watershed. Four are within either the IMZ or OMZ and are listed below. The fifth pond is located outside of the OMZ. All of the five waste ponds drain into the Alcovy River or its tributaries (Figure 1.2).

- HD Atha Road Agricultural Waste Pond (IMZ)
- Ho Hum Hollow Road Agricultural Waste (OMZ)
- Ho Hum Hollow Road Agricultural Waste Pond (OMZ)
- Indian Shoals Road Agricultural Waste Pond (OMZ)

Confined Animal Feedlots. There are four agricultural waste ponds/confined animal feedlots within the **Cornish Creek Reservoir** water supply watershed. All are located within the IMZ and correspond to the agricultural waste ponds previously listed.

There are fourteen confined animal feedlots located within the **Alcovy River** water supply watershed. Seven are within either the IMZ or OMZ and are listed below along with the receiving streams. The remaining seven are located outside of the OMZ.

- H.D. Atha Road Confined Animal Feedlot, drains to the Alcovy River (IMZ)
- Monroe Jersey Road Confined Animal Feedlot, drains to Mountain Creek (IMZ)
- New Hope Church. Road Confined Animal Feedlot, drains to Little Flat Creek (OMZ)
- Hodges Road confined Animal Feedlot, drains to Big Flat Creek (OMZ)
- Grayson New Hope Road (West) Confined Animal Feedlot, drains to Tribble Mill Creek (OMZ)
- Chandler Road Confined Animal Feedlot, drains to Tribble Mill Creek (OMZ)
- Grayson New Hope Road (East) Confined Animal Feedlot, drains to Tribble Mill Creek (OMZ)

Airports. Two airports are located within the **Cornish Creek Reservoir** water supply watershed. Poole Farm Airport off Highway 81 along the western watershed boundary drains into Little Cornish Creek and Sunset Strip Airport off Pilot Road drains into the main stem of Cornish Creek. Airports are a potential pollution source given the large amount of hazardous chemicals that are used in the maintenance and operation of airports and airplanes, as well as the large area of impervious surface (Figure 1.2).

- Poole Farm Airport



- **Sunset Strip Airport**

One airport is located within the **Alcovy River** water supply watershed, the Gwinnett County Airport, Briscoe Field (Figure 1.2). Yet, this airport lies outside of the OMZ, therefore its potential pollution impact was not factored into the City of Covington Alcovy River intake's susceptibility analysis, in accordance with the EPD guidance. 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 Covington **Alcovy River** water supply watershed. However, all are located in the Lawrenceville area and outside of the OMZ. Therefore, the fueling stations were not considered in the susceptibility analysis for the City of Covington Alcovy River intake's susceptibility analysis. Yet, 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 (Outside OMZ)
- Crown Central Petroleum (Outside OMZ)
- Chevron Station (Outside OMZ)
- The Pit Stop (Outside OMZ)
- Gas Incorporated (Outside OMZ)

NPDES Permit Holders. There are four NPDES permit holders within the City of Covington **Alcovy River** water supply watershed OMZ. These NPDES discharges pose a potential threat to the drinking water if the permits are exceeded, or if treatment is not sufficient to protect water quality.

- Vulcan Materials, Grayson Quarry (OMZ)
- Loganville Water Pollution Control Plant and Land Application System (OMZ)
- Park Place Nursing Home (OMZ)
- Universal-Rundle Corporation (OMZ)



Industries, Manufacturing Facilities and Businesses. Several industrial and manufacturing facilities and other business that store and handle potential contaminants are located within the **Alcovy River** water supply watershed. Yet, most are situated in and around the city of Lawrenceville and are located outside of the watershed's OMZ (Figure 1.2). Again, all of the industries and manufacturing facilities located outside of the Alcovy River OMZ were not factored in to the susceptibility analysis as stipulated in the EPD Source Water Assessment Guidance document. The following is a list of all industries, manufacturing facilities and businesses and their assessment area location.

Outside the OMZ:

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

Within the OMZ:

- Monroe Mountain Creek Pond (OMZ)
- Vulcan Materials Company, Grayson Quarry (OMZ)
- Greeson Motors (OMZ)
- Premier Automotive Inc. (OMZ)
- Flambeau Southeast Corporation (OMZ)
- Bees Super Service Inc. (OMZ)
- Big Flat Creek Water Pollution Control Plant, Land Application Site (OMZ)



Results for Cornish Creek

Figure 1.2 illustrates the delineation of Cornish Creek Reservoir assessment area and gives the location of the potential pollution sources. The inner management zone (IMZ) is approximately 13,664 acres. The outer management zone (OMZ) is the remainder of the watershed and encompasses approximately 2,234 acres and is contained entirely within Walton County. Appendix B gives the complete inventory of contaminants along with the rankings for the release and risk potential.

The potential point sources of pollution within the IMZ of the water supply watershed for the Cornish Creek Reservoir include agricultural waste ponds and confined animal feedlots, two small airports, and a natural gas pipeline. Potential non-point sources of pollution with the IMZ include runoff from small urban/residential areas, roadways that carry transport vehicles, agricultural runoff, and potential leaching of septic areas. No potential point sources of pollution exist in the Cornish Creek OMZ. The potential non-point sources of pollution in the OMZ include urban/residential and agricultural runoff, leaching of septic areas and roadways.

Figure 1.3 gives a summary of the contaminant rankings. High priority contaminants represent approximately 31% of the total potential contaminants. The majority of contaminants (38%) fell within the medium priority region of the matrix and 31% ranked as low priority. These results do not conform to any of the overall susceptibility categories given in the guidance. Therefore, best judgment was used to determine overall susceptibility. The overall susceptibility of the Cornish Creek Reservoir intake was rated medium. According to this analysis, the greatest potential threat to source water quality is agricultural waste ponds and secondary paved roads. Primary roads, septic areas, confined animal feedlots, and other agricultural non-point source runoffs are of secondary concern to source water quality.



Figure 1.3 Matrix Summary of Potential Contaminant Rankings for Cornish Creek

↑ Risk ↓	High	<ul style="list-style-type: none"> ■ Septic areas (IMZ) ■ Primary roads (IMZ & OMZ) 	<ul style="list-style-type: none"> ■ 4 Agricultural waste ponds (IMZ) ■ Secondary roads, paved (IMZ & OMZ) 	
	Medium	<ul style="list-style-type: none"> ■ 2 Airports (IMZ) ■ 1 Confined animal feedlots (IMZ) 	<ul style="list-style-type: none"> ■ Agricultural non-point sources (IMZ & OMZ) ■ 3 Confined animal feedlots (IMZ) 	
	Low	<ul style="list-style-type: none"> ■ Natural gas pipeline (IMZ) ■ Urban/residential non-point sources (IMZ & OMZ) 		

High Priority Contaminants:	31 %
Medium Priority Contaminants:	38 %
Low Priority Contaminants:	31 %



Results for Alcovy River Intake

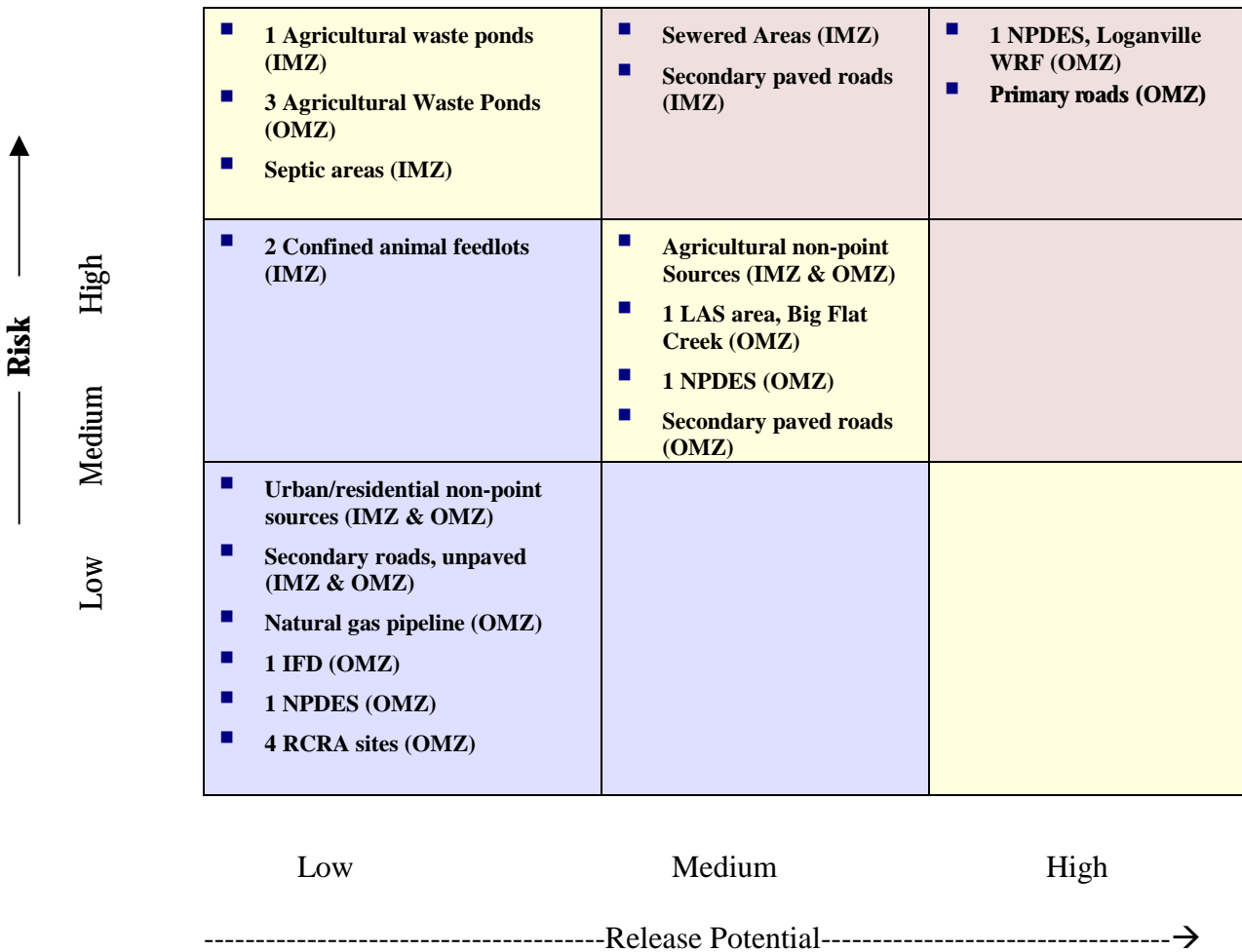
Figure 1.2 illustrates the delineation of the Alcovy River intake assessment areas and gives the location of the potential pollution sources. The inner management zone (IMZ) is approximately 19,229 acres. The outer management zone (OMZ) is the remainder of the watershed and encompasses approximately 67,733 acres and is contained within Walton and Gwinnett Counties. Appendix C gives the complete inventory of contaminants along with the rankings for the release and risk potential.

The potential point sources of pollution within the IMZ of the water supply watershed for the Newton County Alcovy River intake include agricultural waste ponds and confined animal feedlots. Potential non-point sources of pollution with the IMZ include urban/residential and agricultural runoff, leaching of septic areas and roadways. Potential point sources of pollution existing in the OMZ include agricultural waste ponds, a natural gas pipeline, Big Flat Creek WPCP Land Application site; various NPDES permit holders, and business/facilities that handle hazardous materials. The potential non-point sources of pollution in the OMZ include urban/residential and agricultural runoff, leaching of septic areas and roadways.

Figure 1.4 gives a summary of the contaminant rankings. High priority contaminants represent approximately 17% of the total potential contaminants. The majority of contaminants (38%) fell within the medium priority region of the matrix and 45% ranked as low priority. These results do exactly not conform to any of the overall susceptibility categories given in the guidance. Therefore, best judgment was used to determine overall susceptibility. The overall susceptibility of the Alcovy River intake was rated medium. According to this analysis, the greatest potential threat to source water quality in the Covington Alcovy River water supply watershed Loganville WPCP NPDES discharge and primary and secondary roads. Agricultural waste ponds, septic areas, the Loganville LAS system, an NPDES, and secondary paved roads are of secondary concern to source water quality.



Figure 1.4 Matrix Summary of Potential Contaminant Rankings for Alcovy River



High Priority Contaminants:	17 %
Medium Priority Contaminants:	38 %
Low Priority Contaminants:	45 %



Table 1.10 Results from Cryptosporidium and Giardia Sampling For Newton County

Cryptosporidium and Giardia Sampling Results			
Location	Sample Date	Total Giardia (per 100 ml)	Total Cryptosporidium (per 100 ml)
Cornish Creek-Pinstock WTF	Jan 22, 2001	ND	ND
	Feb 26, 2001	ND	ND
	March 26, 2001	ND	ND
	April 25, 2001	ND	8.9*
	May 23, 2001	ND	ND
	June 18, 2001	ND	ND
City of Covington holding pond	Jan 22, 2001	ND	ND
	Feb 26, 2001	ND	ND
	March 26, 2001	ND	ND
	April 25, 2001	ND	ND
	May 23, 2001	ND	ND
	June 18, 2001	ND	ND

ND – None Detected

Table 1.10 shows sampling results for routine monthly sampling the first six months of 2001. All samples except one showed no Cryptosporidium or Giardia detected.

*Cryptosporidium Oocysts with Amorphous Structure (1 Oocyst detected in 11.2 L)



Summary and Recommendations

The primary threat to source water quality for the Newton County Water System Cornish Creek Reservoir is agricultural waste ponds and the threat that roadways present in terms of the potential for the release of spills from transport vehicles roads. The primary threat to the Alcovy River water source is the Loganville wastewater discharge and major roadways. A watershed management plan is presented in a separate document, *The Alcovy River Watershed Protection Plan*.

This source water assessment and protection plan can be used by Newton County 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 inventories (Appendices B and C) lists potential pollution and contaminant sources in the Newton County water supply watersheds 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.