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Source Water Assessment Plan Report

Haralson County-Bremen Bush Creek Surface Water Intake (WSID #1430000)

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Introduction

Rationale and Purpose

The 1996 Amendments to the Federal Safe Drinking Water Act (SDWA) introduced a new approach for ensuring clean and safe drinking water served by public water suppliers in the United States. Building upon the past strengths of the Surface Water Treatment Rule, increases in water monitoring and other compliance measures, the U.S. Environmental Protection Agency (USEPA) and the Georgia Environmental Protection Division (GAEPD) are now advocating prevention as an important tool in the protection of public water suppliers from contamination and source protection. In order to implement prevention and protection, an assessment of potential pollution sources must first be conducted.

Georgia's Source Water Assessment Plan (SWAP) has a specific focus on water supply source protection and sharing like goals with other water quality protection and enhancement programs (e.g. GAEPD River Basin Management Planning and Nonpoint Source programs). These programs seek to prevent and control impairments to water quality as well as abate contamination sources currently impacting uses. With these programs sharing similar goals, care should be taken to integrate the activities of SWAP so that its implementation can compliment other water quality protection and enhancement programs.

Limitations

This report was prepared to assess threats to Haralson County's public water supply. It is based on published information and information obtained from local residents and stakeholders familiar with the assessment area. Not all potential or existing sources of groundwater or surface water contamination in the Bush Creek area are identified. Only sources of contamination in the catchment area of the surface water intake are considered potential contamination sources. The catchment area is the land area to which atmospheric precipitation falls upon and flows downward to the intake structure.

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Source Water Assessment Plan Funding

By the "Safe Drinking Water Act (SDWA) Amendments of 1996", Public L. 104-182, and amending title XIV of the Public Health Service Act, Congress has empowered the United States Environmental Protection Agency (EPA) to make capitalization grants to assist in establishing a drinking water state revolving fund (DWSRF) for assistance to public water systems in financing the cost of infrastructure needed to achieve or maintain compliance with SDWA requirements and to protect public health. Section 1452 of the SDWA authorizes States to provide funding for certain non-project activities, called Set-Asides, from the DWSRF for capacity development and source water assessment and protection for public water systems at the local government level. This funding will also assist EPD in compliance with the requirements of the Safe Drinking Water Amendments of 1996. EPD has appropriated funds for source water assessments to assist local governments through contracts to coordinate and facilitate the implementation of the State's Source Water Assessment and Protection Plan.

The Source Water Assessment carried out in accordance with the Georgia's Source Water Assessment and Protection Plan was funded by a grant of \$120,000 to the City of Villa Rica from the Georgia Environmental Facilities Authority (GEFA)

Public Participation

The 1996 SDWA Amendments place a strong emphasis on public awareness and involvement. It is required that the public be involved in the development of this Source Water Assessment Program and that the assessment results be made available to the public. The involvement of public interest groups, business groups, local governments conservation groups, water suppliers, and others is encouraged. Many news releases were distributed via print and broadcast media to reach the largest geographic area and to inform the general public about the Source Water Assessment Program and its development.

A technical advisory committee/task force has been established to provide input in the development of this source water assessment plan. Groups that were invited to participate on the committee are

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listed in Appendixes 1-5. Two (2) public meetings were held prior to development of the Source Water Assessment Plan. The purpose of these meetings was to present the proposed plan to the general public.

Background

The Community

The water source intake for Haralson County (WSID #1430000) is located Bush Creek. Bush Creek is a tributary of the Tallapoosa River located northwest of the City of Bremen.

Source Delineation

Introduction

The first technical step in the Source Water Assessment Plan is to conduct the delineation of the source waters. This includes identifying the locations of the source water intake points on a map, delineating the topographic boundary of the watersheds, and delineating any and all municipalities and county borders associated with the watershed.

The entire watershed that drains into a surface drinking water intake is considered the Source Water Protection Area. The USEPA realizes, for the purpose of inventorying potential pollution sources and determining susceptibility, the State can identify smaller areas or segments of watersheds and buffer zones for a cost and time effective analysis. The GAEPD has decided to utilize these smaller assessment areas to identify and inventory the potential pollution sources, determine susceptibility, and possibly initiate protection approaches.

The assessment area methodology is based upon protection distances within the **GAEPD Rules of Environmental Planning Criteria: Criteria for Water Supply Watersheds (391-3-16-01)**. The assessment area delineation is comprised of three management zones: the 7-mile inner management zone, the 20-mile outer management zone, and the non-management zone that extends beyond 20 miles.

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Source Water Delineation

Source water delineation includes identifying the locations of the source water intake points on a map, delineating the topographic boundary of the watersheds, and delineating any and all municipalities and county boundaries associated with the watershed.

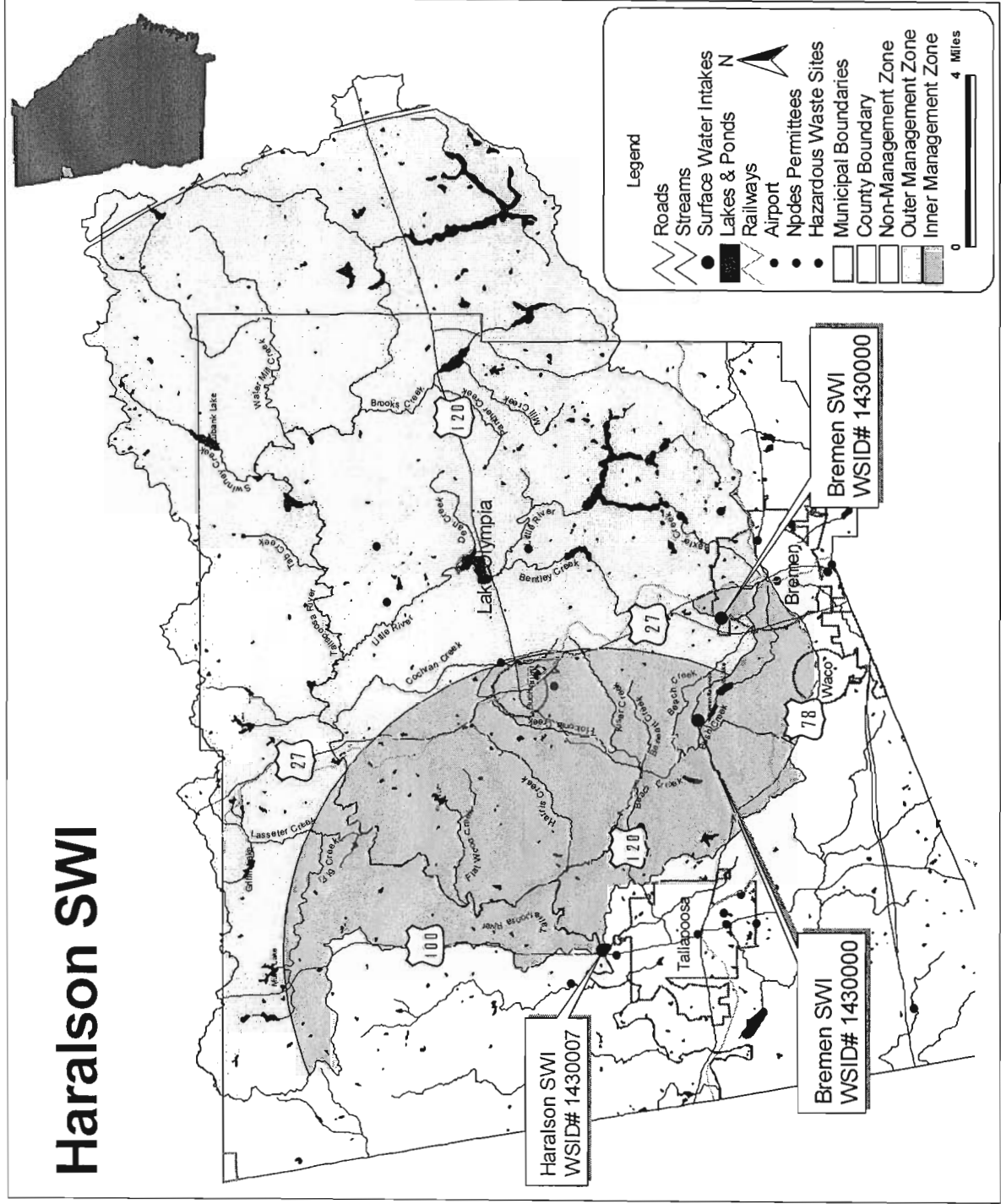
The delineation of the watershed for the Haralson County-Bush Creek intake (WSID #1430000) was determined utilizing a combination of geographic information system (GIS) software and geographic (topographic) data supplied by numerous sources to include: the US Geological Survey, the US Bureau of the Census, State Base Maps of Georgia, the Georgia Department of Transportation, the Georgia Department of Industry Trade and Tourism, and the Georgia Department of Natural Resources-Environmental Protection Division (GAEPD).

The catchment area, which is the land area to which atmospheric precipitation falls upon and flows downward to the intake structure, of the Haralson County-Bush Creek intake extends for approximately 5 square miles. The perimeter of the catchment area was based on 1:24,000 scale 12-digit Hydrologic Unit Code (HUC) boundaries produced by the EPD.



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Public Water Supply

The Haralson County receives a portion of their water from the intake on Bush Creek (WSID# 1430000). The City of Bremen public water system serves approximately 8,024 residents. Coagulation, flocculation, sedimentation, filtration, and disinfection are used to treat the water.

Water Quality

Potential Contaminant Inventory

An inventory of potential contaminant sources was conducted to assess the susceptibility of Bremen's drinking water source to contamination. Sources of all primary water contaminants and cryptosporidium were identified, however, only potential sources of contaminants that are the greatest threat to human health were selected for detailed inventory. The contaminants of greatest concern to Bowdon are nitrate, microbial contaminants, solvents, and sediment.

The inventory for Haralson County focuses on the facilities that possibly generate, use, or store potential contaminants in the assessment region.

Inventory Method

Available databases were searched to identify businesses and land uses that are potential sources of regulated contaminants in the inventory region. The following steps were followed:

1. Airports, confined animal feedlots, oil pipelines, gas pipelines, railways, and roads were downloaded from the Georgia GIS Clearinghouse.
2. EPA's Envirofacts System was queried to identify EPA regulated facilities located in the inventory region. This system accessed facilities listed in the following databases: Resource Conservation and Recovery Information System (RCRIS), Biennial Reporting System (BRS), Toxic Release Inventory (TRI), Permit Compliance System (PCS), and Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS).
3. An inventory of facilities that possess NPDES permits was obtained from the Georgia Department of Natural Resources Environmental Protection Division (EPD) Water Protection Branch.

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4. An inventory of facilities that possess NPDES stormwater permits was obtained from the Georgia GIS Clearinghouse.
5. Potential pollution sites were verified and amended through telephone calls, visual sightings, and communal knowledge from members of the advisory and technical committees.

Potential contaminant sources are designated as significant if they are in the surface water catchment area and fall into one of the following categories:

1. Agricultural Waste Lagoon
2. Airports
3. Confined Animal Feedlots
4. Garbage Transfer Stations
5. Hazardous Waste Facilities
6. LAS Permit Holders
7. Landfills
8. Large Industries Which Utilize Hazardous Chemicals
9. Large Industries Which Have Bulk Chemical and Petroleum Storage
10. Large Industries Which Have Federal Categorical Standards
11. Large Quantity Generators
12. Lift Stations
13. Marinas
14. Military Bases
15. Mining
16. NPDES Permit Holders
17. NPDES Industrial Stormwater
18. Non-sewer Areas
19. Oil Pipelines
20. Power Plants
21. Railways Adjacent to or on Bridges Crossing over Streams
22. Roads Adjacent to or Bridges Crossing over Streams
23. Sewer Areas
24. Wastewater Plants
25. Water plants

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The following are the references for the databases that were searched for the potential pollution inventory:

Tallapoosa River Basin Management Plan

The Georgia Department of Natural Resources Environmental Protection Division, in cooperation with the USDA Natural Resources and Conservation Commission, Georgia Soil and Water Conservation Commission, Georgia Forestry Commission, the US Geological Survey, and Georgia Wildlife Resources Division, developed and implemented a river basin management planning program to protect, enhance, and restore the waters of the Tallapoosa River Basin, which include the Little Tallapoosa River and its tributaries. The Tallapoosa River Basin Management Plan provide for effective monitoring, allocation, use, regulation, and management of water resources. It also identified existing and future water quality issues, emphasizing nonpoint sources of pollution.

The Georgia 2000 List of Waters

The Georgia 2000 List of Waters is a requirement by Section 303(d) of the Federal Clean Water Act (CWA). The list was developed in accordance with 40 CFR Part 130.7(b)(4) and specific guidance provided by the United States Environmental Protection Agency (USEPA) Office of Water. The Georgia Environmental Protection Division (EPD) has used the "List of Waters" approach since the late 1970s. The lists of waters have been included in the *Water Quality in Georgia* reports submitted to the USEPA in accordance with Section 305(b) of the CWA. Expanded lists including waters partially or not supporting water uses have been included in each Georgia 305(b) Report beginning with the 1982-1983 report. The lists have provided information on parameters violated, causes of the violations, and actions planned to reduce the problems. The lists included point and nonpoint source issues.

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(www.epa.gov/storet/)

STORET is EPA's STOrage and RETrieval database system for water quality monitoring data. The states, local governments, and federal agencies, e.g. the US Geological Survey and the Corps of Engineers, have extensively monitored water quality in the Tallapoosa River Basin. Some of this data was available on STORET.

ENVIROFACTS

(<http://www.epa.gov/enviro/>)

EPA's ENVIROFACTS System was queried to identify EPA regulated facilities located in the Little Tallapoosa River Drainage Basin. This system accesses facilities listed in the following databases: Resource Conservation and Recovery Information System (RCRIS), Biennial Reporting System (BRS), Toxic Release Inventory (TRI), Hazardous Substances Inventory (HSI), and the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS). The available reports were browsed for facility information including handler/facility classification to be used in assessing whether a facility should be classified as a significant potential contaminant source. The Permit Compliance System (PCS) was queried to identify concentrated animal feeding operations with NPDES permits.

The Department of Natural Resources Environmental Protection Division (EPD)

(<http://www.dnr.state.ga.us/dnr/environ/>)

The State of Georgia GIS Clearinghouse

(<http://www.gis.state.ga.us/Clearinghouse/clearinghouse.html>)

Inventory Limitations

The potential sources of contaminants for Carrollton's public water supply are identified from data and reports that are readily available. Consequently, unregulated activities or unreported contaminant

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releases may have been missed. The use of multiple sources of data should ensure that the sources identified represent the major threats to the source water for Carrollton.

Cryptosporidium Sampling

Results

Susceptibility Assessment

The main focus of the susceptibility determination methodology is to determine overall susceptibility of the source water prior to being withdrawn in the drinking water intake. Susceptibility is defined as “the potential for a Public Water System to draw water contaminated by inventoried sources at concentrations that would pose concern.” The determination would take into account the “toxicity, environmental fate and transport” of the contaminant and the “location, likelihood of release and effectiveness of mitigation” for the potential pollution sources. This produces a qualitative measure (high, medium, low) that enables those delegated to do assessments and the state to determine easily and quickly the level of susceptibility the surface water intake has to potential pollution sources upstream (**EPD Source Water Assessment Implementation Plan, 2000**).

The susceptibility determination consists of two main parts: the release potential of a contaminant and the risk the contaminants would be to the surface source water and eventually the surface water intake. Risk is, in the event the contaminant does reach the surface water and the drinking water intake, how great of an impact it will have on the drinking water supply. The combination of the scores from the release potential and risk make up the overall source water susceptibility. The overall source water susceptibility score accounts for the type of water quality that could be present at a drinking water intake prior to being withdrawn into the intake.

Release Potential

The method for determining the release potential include categories for consideration that have weight measures for High, Medium, and Low priority ranking. Depending on the source and/or the contaminant (s), one or more of the following categories may be appropriate for consideration in evaluating the release potential:

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- **Determine the distance from surface water** – Potential pollution sources within the assessment area that are in closer proximity to surface water pose a greater threat to raw water quality than do those sources that are further away.
- **Estimate the volume of the release** – Potential pollution sources in the assessment area are not actual pollution sources until an actual release to the environment occurs. The amount of a possible release is estimated using good sound judgment.
- **Estimate the duration of the release** – Sudden releases are usually accidental spills or storm events. Both may pose a threat to the drinking water supply.
- **Determine the ease of travel/transport** – General topography, the presence of defined channels or other considerations that would enhance or mitigate the ease of travel/transport of the potential pollutant to surface water are important considerations. Travel via overland flow and/or possible run-off conveyances to surface water such as drainage ditches, etc. will be much easier than travel through the soil via groundwater.

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Release Potential Categories for Surface Source Water

Category	Ranking
Distance from surface water	<u>High</u> – less than or equal to 500 ft. <u>Low</u> – further than 500 ft.
Volume of release	<u>High</u> – greater than 10,000 gallons <u>Medium</u> – greater than 1,000 gallons and less than 10,000 gallons <u>Low</u> – less than 1,000 gallons
Duration of release	<u>High</u> – on-going unpermitted releases, high likelihood of unanticipated one time catastrophic event <u>Medium</u> – on-going, permitted releases, chronic small events, likelihood on continued releases <u>Low</u> – little likelihood of a release, no reported releases
Ease of Travel/Transport	<u>High</u> – hilly topography, many run-off conveyances, overland flow very likely, few or no structural controls in place <u>Medium</u> – moderate topography or number of run-off conveyances, overland flow likely, use of some structural controls <u>Low</u> – generally flat topography, travel primarily through soil via groundwater, highly volatile substances that adhere to soils, overland flow not likely and structural controls in place.

Risk

As with determining release potential, the method for determining the risk to the surface water intake includes different categories for consideration that have weight measures for High, Medium, and Low priority ranking.

Determine the contaminant(s) of concern – Is the contaminant biological, physical, or chemical?

Determine the distance from the surface water intake – Potential pollution sources within the assessment area that are in closer proximity to the surface water intake pose a greater threat to raw water quality than do those sources that are further away.

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Determine the toxicity – The more toxic, the higher the risk posed to the drinking water supply and public health.

Risk Categories for Surface Source Water

Category	Ranking
Distance from surface water intake	High – within 7 miles upstream Medium – between 7 and 15 miles upstream Low – between 15 and 20 miles upstream
Toxicity	High – acute, pathogens Medium - chronic, chemicals Low – secondary, taste, odor

Along with the general categories listed above, EPD proposes additional guidance to supplement the assessment of two different categories of potential pollutant sources: Regulated Pollutant Sources and Non-Point Sources. Regulated Pollutant Sources include those facilities EPD monitors and regulates. The following table lists the potential and risk guidelines for regulated pollutant sources.

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Regulated Pollutant Sources Potential and Risk Guidelines

Point Source	Potential	Risk
Landfills, Dumps	<p><u>High</u> – abandoned/closed landfills, history of groundwater contamination</p> <p><u>Medium</u> – open dumps, inert waste, no groundwater contamination</p> <p><u>Low</u> – contained landfills, no groundwater contamination, in compliance</p>	Based on waste categorization
Hazardous Waste Large Quantity Generators and/or TSD Facilities, Superfund Sites	<p><u>High</u> – history of spills, unremediated sites, not following corrective action plan</p> <p><u>Medium</u> – periodic noncompliance, partly remediated sites, generators or sites with permits (even in compliance)</p> <p><u>Low</u> – compliance with regulations, few or no releases, fully remediated sites.</p>	Based on type of operation and volume of materials handled
NPDES Permit Holders, LAS Permit Holders	<p><u>High</u> – chronic permit violations, waste lagoons (especially unlined), chronic sewer overflows and/or bypasses</p> <p><u>Medium</u> – periodic permit violations, moderate number of sewer overflows and/or bypasses</p> <p><u>Low</u> – compliance with permit conditions, few sewer overflows and/or bypasses</p>	Based on regulated pollutants

Non-Point Sources includes potential pollution in runoff from various land uses in the watershed. Susceptibility is determined by the type of land use in the assessment area and if information is available showing use of best management practices or buffer zones. The following is a list of non-point source guidelines.

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Non-Point Source Guidelines

Non-Point Source	Potential	Risk
Agriculture, Urban, Forestry	<p><u>High</u> – No BMP, high pesticide use, high livestock density, high density of forestry activities, high percentage of impervious surface, hilly topography, abandoned mines, visible signs of erosion or other water quality violations</p> <p><u>Medium</u> – BMP in place but not always properly implemented, moderate livestock density, moderate density of forestry activities, moderate percentage of impervious surface, moderate topography, some buffers in place.</p> <p><u>Low</u> – BMP in place and properly implemented, low livestock density, low density of forestry activities, low percentage of impervious surface, generally flat topography, buffer zones in place</p>	<p><u>High</u> – Immediate proximity of surface water, high toxicity and/or volume</p> <p><u>Medium</u> – Near main stem or major tributary, moderate volume and/or toxicity</p> <p><u>Low</u> – No surface water in close proximity, low or little volume and/or toxicity</p>

After determining the overall potential and risk using the weighted measures along with good judgment, each source is plotted on a chart in relation to the other sources with the axes representing the potential and risk as shown below:

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Release Potential Chart

High ↑	(4) High Risk Low Potential	(7) High Risk Medium Potential	(9) High Risk High Potential
	(2) Medium Risk Low Potential	(5) Medium Risk Medium Potential	(8) Medium Risk High Potential
	(1) Low Risk Low Potential	(3) Low Risk Medium Potential	(6) Low Risk High Potential
	Low	Medium	High →

After all sources were charted, they were prioritized as follows:

High Priority: Contaminant Sources located in Grid Squares 7,8, and 9

Medium Priority: Contaminant Sources located in Grid Squares 4,5, and 6

Low Priority: Contaminant Sources located in Grid Squares 1,2, and 3

High priority would be the pollutant sources to be addressed first in order to have the maximum impact on reducing the susceptibility of the drinking water intake to potential adverse effects.

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The overall susceptibility of the intake can be determined as follows:

High Susceptibility	40% or more of the sources chart in grid squares 7, 8, and 9
Medium Susceptibility	20% or less of the sources chart in grid squares 7, 8, and 9 and 40% or more of the grid squares chart in grid squares 4, 5, and 6
Low Susceptibility	20% or less of the sources chart in grid squares 7, 8, and 9 and 20% or less of the sources chart in grid squares 4, 5, and 6

Results

Only one (1) potential pollutant fell in a priority class. It was a road that fell in the medium priority range. This means that this potential source do not warrant a significant level of concern. The overall susceptibility score for the Bremen Surface Water Intake (WSID #1430000) was **Medium**.

The results of the susceptibility determination are summarized in the following tables:

Pollutant Classes

Medium Priority
Gordon St.

Risk	High	High Risk/Low Potential (1)	High Risk/Medium Potential	High Risk/High Potential
	Medium	Medium Risk/Low Potential	Medium Risk/Medium Potential	Medium Risk/High Potential
	Low	Low Risk/Low Potential	Low Risk/Medium Potential	Low Risk/High Potential
		Low	Medium	High
		Release Potential		

Overall source water susceptibility score = Medium Susceptibility

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Appendix

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Appendix 1 – Stakeholders

Name	Company
Kristian Taylor	Coosa Valley RDC
Kevin Farrell	GAEPD Watershed Planning & Monitoring
Henry Booker, Executive Director	Chattahoochee Flint RDC
Teresa Chapman, Mayor	City of Franklin
Teresa Ferguson, City Clerk	City of Mount Zion
John Griffin, Mayor	City of Mount Zion
Walter Hines, Mayor	City of Whitesburg
Eley Loftin, Mayor	City of Centralhatchee
Bob Merrill, Mayor	City of Roopville
Gerald Pilgrim, Mayor	City of Carrollton
Denney H. Rogers, Mayor	City of Ephesus
Tom Sills, Planning Director	Chattahoochee-Flint RDC
Mick Smith, Environmental Engineer	Georgia EPD Water Protection Branch
Jerry Hood	City of Buchanan
Monroe Spake, Mayor	City of Villa Rica
Mark Teal, Engineer	City of Carrollton
James W. Watts Jr., Mayor	City of Bowdon
Micajah Bagwell, Mayor	City of Tallapoosa
Travis Pritchard, Mayor	City of Waco

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Appendix 2 - Advisory Committee Members

Name	Company
Charles Sanders, Sole Commissioner	Haralson County
Sharon Swell, Mayor	City of Bremen
Jim Carden, Past Mayor	City of Bremen
Mr. Robert Barr	Carroll County
Lester Harmon, Mayor	City of Temple
Dr. Jim Agan	
Carl Brack	
Tom Crawford	
Perry Hicks, Past City Manager	City of Bowdon
Tommy J. Holland, County Engineer	Carroll County
Donna Lackey, Director	Heard County Chamber of Commerce
Lewis Mason, Water Superintendent	Carrollton Water Plant
Mal Milam, Manager	GA Power Plant Wansley
Larry Pike, Chairman	Heard County Commissioners
Steve Russell, City Manager	City of Villa Rica
Randy Williams	
Randy Yarbrough, Executive Director	Heard County Water Authority

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Appendix 3 - State Executives

Name
Rep. Lynn Smith
Rep. Tracy Stallings
Rep. Jack West
Rep. Jim McBrayer

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Appendix 4 - Technical Committee

Name	Company
Jim Baxley, Executive Director	Carroll County Water Authority
Doyle Bentley, Water Plant Manager	City of Buchanan
Sam Sharp, District Conservationist	NRCS
Frank Carlson, Water Treatment Superintendent	City of Bowdon
John Edwards, Water Superintendent	City of Temple
Mike Kaufmann, Wastewater Superintendent	City of Villa Rica
Howard Ray	Hughes & Ray
Paul Sims, Sr. Env. Engineer	Southwire
Lynn Smith, Water Superintendent	City of Villa Rica
Lewis Mason, Water Superintendent	Carrollton Water Plant
Ed Reynolds, Water Plant Manager	Heard County
Tom Roberts, Plant Manager	Gold Kist
Donny Boswell	
Stephen Cash, Water Treatment Plant Manager	City of Bremen

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Appendix 5 - Consultants

Consultants

Name	Company
Johnny Waters, Geosciences Dept. Head	State University of West Georgia
Thomas Hynes, Vice President	State University of West Georgia
Richard Miller, Dean of Arts & Sciences	State University of West Georgia
Beheruz Sethna, President	State University of West Georgia
Jet Toney	Cornerstone Communications
Nolton Johnson	Department of Natural Resources Environmental Protection Division
Robert Scott, Program Manager	DNR Environmental Protection Division
Sue Grunwald, SWAP Program Manager	EPD
Paul R. Burks, Executive Director	Georgia Environmental Facilities Authority (GEFA)
Elizabeth Booth	DNR-EPD-WP
Paul Lamarre, Unit Coordinator	DNR-EPD-WP
Lonice Barrett, Commissioner	GA – DNR

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City of Bowdon Surface Water Intake (WSID #0450000)



Appendix 6 - Susceptibility Data

Bremen SWI					
Facility Name	Entity	Nearest Receiving Stream	SWI source water	Potential	Risk
1 Gordon St.	Road that crosses over streams	Bush Creek	Bush Creek	Low - low percentage of impervious surface area, generally flat topography, buffer zones in place	High - Immediate proximity of surface water

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