

Source Water Protection Plan

WALTON PUBLIC SERVICE DISTRICT

PWSID 3304407

ROANE COUNTY

June 30, 2016

Prepared by:

WALTON PSD/TRIAD ENGINEERING, INC.

L. Lee McCoy, Jr., PE

Preparer's Name:

Senior Engineer

Title of Preparer:

TRIAD ENGINEERING, INC.

Name of Contractor(s)/Consultant(s) (if used):

I certify the information in the source water protection plan is complete and accurate to the best of my knowledge.

Signature of responsible party or designee authorized to sign for water utility:

Rick Parsons

Print Name of Authorizing Signatory (see instructions):

Chief Operator

Title of Authorizing Signatory:

6/30/2015

Date of Submission

Table of Contents

Purpose	1
What are the benefits of preparing a Source Water Protection Plan?.....	1
Background: WV Source Water Assessment and Protection Program	1
State Regulatory Requirements	2
System Information	2
Water Treatment and Storage	3
Delineations	6
Protection Team	7
Potential Sources of Significant Contamination	9
Confidentiality of PSSCs.....	9
Local and Regional PSSCs.....	9
Prioritization of Threats and Management Strategies	15
Implementation Plan for Management and Outreach Strategies	15
Education and Outreach Strategies	22
Contingency Plan	25
Response Networks and Communication.....	25
Operation During Loss of Power.....	26
Future Water Supply Needs.....	27
Water Loss Calculation	28
Early Warning Monitoring System	29
Single Source Feasibility Study	31
Communication Plan	31
Emergency Response	32
Conclusion	32

List of Tables

Table 1. Population Served by Walton Public Service District	3
Table 2. Walton Public Service District Water Treatment Information	4
Table 3. Walton Public Service District Surface Water Sources	5
Table 4. Walton Public Service District Groundwater Sources	5
Table 5. Watershed Delineation Information	7
Table 6. Protection Team Member and Contact Information	8
Table 7. Locally Identified Potential Sources of Significant Contamination	11
Table 8. Priority PSSCs or Critical Areas	16
Table 9. Priority PSSC Management Strategies	17
Table 10. Education and Outreach Implementation Plan	23
Table 11. Walton Public Service District Water Shortage Response Capability	25
Table 12. Generator Capacity	26
Table 13. Future Water Supply Needs for Walton Public Service District	28
Table 14. Water Loss Information	28
Table 15. Early Warning Monitoring System Capabilities	30

Appendices

Appendix A. Figures	33
Appendix B. Early Warning Monitoring System Forms	41
Appendix C. Communication Plan	42
Appendix D. Single Source Feasibility Study	59
Appendix E. Supporting Documentation	60

SOURCE WATER PROGRAM ACRONYMS

AST	Aboveground Storage Tank
BMP	Best Management Practices
ERP	Emergency Response Plan
GWUDI	Ground Water Under the Direct Influence of Surface Water
LEPC	Local Emergency Planning Committee
OEHS/EED	Office of Environmental Health Services/Environmental Engineering Division
PE	Professional Engineer
PSSCs	Potential Source of Significant Contamination
PWSU	Public Water System Utility
RAIN	River Alert Information Network

RPDC	Regional Planning and Development Council
SDWA	Safe Drinking Water Act
SWAP	Source Water Assessment and Protection
SWAPP	Source Water Assessment and Protection Program
SWP	Source Water Protection
SWPP	Source Water Protection Plan
WARN	Water/Wastewater Agency Response Network
WHPA	Wellhead Protection Area
WHPP	Wellhead Protection Program
WSDA	Watershed Delineation Area
WVBPH	West Virginia Bureau for Public Health
WVDEP	West Virginia Department of Environmental Protection
WVDHHR	West Virginia Department of Health and Human Resources
WVDHSEM	Division of Homeland Security and Emergency Management
ZCC	Zone of Critical Concern
ZPC	Zone of Peripheral Concern

Purpose

The goal of the West Virginia Bureau of Public Health (WVBPH) source water assessment and protection (SWAP) program is to prevent degradation of source waters which may preclude present and future uses of drinking water supplies to provide safe water in sufficient quantity to users. The most efficient way to accomplish this goal is to encourage and oversee source water protection on a local level. Many aspects of source water protection may be best addressed by engaging local stakeholders.

The intent of this document is to describe what Walton Public Service District has done, is currently doing, and plans to do to protect its source of drinking water. Although this water system treats the water to meet federal and state drinking water standards, conventional treatment does not fully eradicate all potential contaminants and treatment that goes beyond conventional methods is often very expensive. By completing this plan, Walton Public Service District acknowledges that implementing measures to minimize and mitigate contamination can be a relatively economical way to help ensure the safety of the drinking water.

What are the benefits of preparing a Source Water Protection Plan?

- Fulfills the requirement for the public water utilities to complete or update their source water protection plan.
- Identifying and prioritizing potential threats to the source of drinking water; and establishing strategies to minimize the threats.
- Planning for emergency response to incidents that compromise the water supply by contamination or depletion, including how the public, state, and local agencies will be informed.
- Planning for future expansion and development, including establishing secondary sources of water.
- Ensuring conditions to provide the safest and highest quality drinking water to customers at the lowest possible cost.
- Providing more opportunities for funding to improve infrastructure, purchase land in the protection area, and other improvements to the intake or source water protection areas.

Background: WV Source Water Assessment and Protection Program

Since 1974 the federal Safe Drinking Water Act (SDWA) has set minimum standards on the construction, operation, and quality of water provided by public water systems. In 1986, Congress amended the SDWA. A portion of those amendments were designed to protect the source water contribution areas around ground water supply wells. This program eventually became known as the Wellhead Protection Program (WHPP). The purpose of the WHPP is to prevent pollution of the source water supplying the wells.

The Safe Drinking Water Act Amendments of 1996 expanded the concept of wellhead protection to include surface water sources under the umbrella term of Source Water Protection. The amendments encourage states to establish SWAP programs to protect all public drinking water supplies. As part of this initiative states must explain how protection areas for each public water system will be delineated, how potential contaminant sources will be inventoried, and how susceptibility ratings will be established.

In 1999, the WVBPH published the West Virginia Source Water Assessment and Protection Program, which was endorsed by the United States Environmental Protection Agency. Over the next few years, WVBPH staff

completed an assessment (i.e., delineation, inventory and susceptibility analysis) for all of West Virginia's public water systems. Each public water system was sent a copy of its assessment report. Information regarding assessment reports for Walton Public Service District can be found in **Table 1**.

State Regulatory Requirements

On June 6, 2014, §16 1 2 and §16 1 9a of the Code of West Virginia, 1931, was reenacted and amended by adding three new sections, designated §16 1 9c, §16 1 9d and §16-1-9e. The changes to the code outlines specific requirements for public water utilities that draw water from a surface water source or a surface water influenced groundwater source.

Under the amended and new codes each existing public water utility using surface water or ground water influenced by surface water as a source must have completed or updated a source water protection plan by July 1, 2016, and must continue to update their plan every three years. Existing source water protection plans have been developed for many public water utilities in the past. If available, these plans were reviewed and considered in the development of this updated plan. Any new water system established after July 1, 2016 must submit a source water protection plan before they start to operate. A new plan is also required when there is a significant change in the potential sources of significant contamination (PSSC) within the zone of critical concern (ZCC).

The code also requires that public water utilities include details regarding PSSCs, protection measures, system capacities, contingency plans, and communication plans. Before a plan can be approved, the local health department and public will be invited to contribute information for consideration. In some instances, public water utilities may be asked to conduct independent studies of the source water protection area and specific threats to gain additional information.

System Information

Walton Public Service District is classified as a state regulated public utility and operates a community public water system. A community public water system is a system that regularly supplies drinking water from its own sources to at least 15 service connections used by year round residents of the area or regularly serves 25 or more people throughout the entire year. For purposes of this source water protection plan, community public water systems are also referred to as public water utilities. Information on the population served by this utility is presented in **Table 1** below.

Table 1. Population Served by Walton Public Service District

Administrative office location:		7178 Charleston Road, Walton, WV 25286	
Is the system a public utility, according to the Public Service Commission rule?		Yes	
Date of Most Recent Source Water Assessment Report:		2/2003	
Date of Most Recent Source Water Protection Plan:		10/27/2010	
Population served directly:		934	
Bulk Water Purchaser Systems:	System Name	PWSID Number	Population
	None		
Total Population Served by the Utility:		934	
Does the utility have multiple source water protection areas (SWPAs)?		No	
How many SWPAs does the utility have?		1	

Water Treatment and Storage

As required, Walton Public Service District has assessed their system (e.g., treatment capacity, storage capacity, unaccounted for water, contingency plans) to evaluate their ability to provide drinking water and protect public health. **Table 2** contains information on the water treatment methods and capacity of the utility. Information about the surface sources from which Walton Public Service District draws water can be found in **Table 3**. If the utility draws water from any groundwater sources to blend with the surface water the information about these ground water sources can be found in **Table 4**.

Table 2. Walton Public Service District Water Treatment Information

Water Treatment Processes (List All Processes in Order)	Pre-sedimentation, coagulation/flocculation, sedimentation, filtration, fluoridation and disinfection with chlorine gas.
Current Treatment Capacity (gal/day)	360,000
Current Average Production (gal/day)	140,000
Maximum Quantity Treated and Produced (gal)	240,000
Minimum Quantity Treated and Produced (gal)	100
Average Hours of Operation	10
Maximum Hours of Operation in One Day	24
Minimum Hours of Operation in One Day	8
Number of Storage Tanks Maintained	5
Total Gallons of Treated Water Storage (gal)	567,000
Total Gallons of Raw Water Storage (gal)	357,760,022

Table 3. Walton Public Service District Surface Water Sources

Intake Name	SDWIS #	Local Name	Describe Intake	Name of Water Source	Date Constructed/ Modified	Frequency of Use (Primary/ Backup/ Emergency)	Activity Status (Active/ Inactive)
Silcott Fork Reservoir		Silcott Fork	Intake is at the base of the downstream face of the dam, where the principle spillway outlets.	Silcott Fork	1978	Primary	Active

Table 4. Walton Public Service District Groundwater Sources

Does the utility blend with groundwater?					No				
Well/Spring Name	SDWIS #	Local Name	Date Constructed/ Modified	Completion Report Available (Yes/No)	Well Depth (ft)	Casing Depth (ft)	Grout (Yes/No)	Frequency of Use (Primary/ Backup/ Emergency)	Activity Status (Active/ Inactive)
NA									

Delineations

For surface water systems, delineation is the process used to identify and map the drainage basin that supplies water to a surface water intake. This area is generally referred to as the source water protection area (SWPA). All surface waters are susceptible to contamination because they are exposed at the surface and lack a protective barrier from contamination. Accidental spills, releases, sudden precipitation events that result in overland runoff, or storm sewer discharges can allow pollutants to readily enter the source water and potentially contaminate the drinking water at the intake. The SWPA for surface water is distinguished as a Watershed Delineation Area (WSDA) for planning purposes; and the Zone of Peripheral Concern (ZPC) and Zone of Critical Concern (ZCC) are defined for regulatory purposes.

The WSDA includes the entire watershed area upstream of the intake to the boundary of the State of West Virginia border or a topographic boundary. The ZCC for a public surface water supply is a corridor along streams within the watershed that warrants more detailed scrutiny due to its proximity to the surface water intake and the intake's susceptibility to potential contaminants within that corridor. The ZCC is determined using a mathematical model that accounts for stream flows, gradient and area topography. The length of the ZCC is based on a five-hour time-of-travel of water in the streams to the water intake, plus an additional one-quarter mile below the water intake. The width of the zone of critical concern is 1,000 feet measured horizontally from each bank of the principal stream and five hundred feet measured horizontally from each bank of the tributaries draining into the principal stream. Ohio River ZCC delineations are based on ORSANCO guidance and extend 25 miles above the intake and one-quarter mile below the intake. The Ohio River ZCC delineations include 1,320 feet (one-quarter mile) measured from the bank of the main stem of the Ohio River and 500 feet on tributary.

The ZPC for a public surface water supply source and for a public surface water influenced groundwater supply source is a corridor along streams within a watershed that warrants scrutiny due to its proximity to the surface water intake and the intake's susceptibility to potential contaminants within that corridor. The ZPC is determined using a mathematical model that accounts for stream flows, gradient and area topography. The length of the zone of peripheral concern is based on an additional five-hour time-of-travel of water in the streams beyond the perimeter of the zone of critical concern, which creates a protection zone of ten hours above the water intake. The width of the zone of peripheral concern is one thousand feet measured horizontally from each bank of the principal stream and five hundred feet measured horizontally from each bank of the tributaries draining into the principal stream.

For groundwater supplies there are two types of SWPA delineations: 1) wellhead delineations and 2) conjunctive delineations, which are developed for supplies identified as groundwater under the direct influence of surface water, or GWUDIs. A wellhead protection area is determined to be the area contributing to the recharge of the groundwater source (well or spring), within a five year time of travel. A conjunctive delineation combines a wellhead protection area for the hydrogeologic recharge and a connected surface area contributing to the wellhead.

Information and maps of the WSDA, ZCC, ZPC and Wellhead Protection Area for this public water supply were provided to the utility and are attached to this report. See **Appendix A. Figures 1, 2 and 3**. Other information about the WSDA is shown in **Table 5**.

Table 5. Watershed Delineation Information

Size of WSDA (Indicate units)	3.27 square miles
River Watershed Name (8-digit HUC)	05050008
Size of Zone of Critical Concern (Acres)	1,145 acres
Size of Zone of Peripheral Concern (Acres) (Include ZCC area)	1,145 acres
Method of Delineation for Groundwater Sources	NA
Area of Wellhead Protection Area (Acres)	NA

Protection Team

One important step in preparing a source water protection plan is to organize a source water protection team who will help develop and implement the plan. The legislative rule requires that water utilities make every effort to inform and engage the public, local government, local emergency planners, the local health department and affected residents at all levels of the development of the protection plan. WVBPH recommends that the water utility invite representatives from these organizations to join the protection team, which will ensure that they are given an opportunity to contribute in all aspects of source water protection plan development. Public water utilities should document their efforts to engage representatives and provide an explanation if any local stakeholder is unable to participate. In addition, other local stakeholders may be invited to participate on the team or contribute information to be considered. These individuals may be emergency response personnel, local decision makers, business and industry representatives, land owners (of land in the protection area), and additional concerned citizens.

The administrative contact for Walton Public Service District is responsible for assembling the protection team and ensuring that members are provided the opportunity to contribute to the development of the plan. The acting members of the Protection Team are listed in **Table 6**.

The role of the protection team members will be to contribute information to the development of the source water protection plan, review draft plans and make recommendations to ensure accuracy and completeness, and when possible contribute to implementation and maintenance of the protection plan. The protection team members are chosen as trusted representatives of the community served by the water utility and may be designated to access confidential data that contains details about the local PSSCs. The input of the protection team will be carefully considered by the water utility when making final decisions relative to the documentation and implementation of the source water protection plan.

Walton Public Service District will be responsible for updating the source water protection plan and rely upon input from the protection team and the public to better inform their decisions. To find out how you can become involved as a participant or contributor, visit the utility website or call the utility phone number, which are provided in **Table 6**.

Table 6. Protection Team Member and Contact Information

Name	Representing	Title	Phone Number	Email
Susie Cummings	Walton PSD	Board Member		
Rick Parsons	Walton PSD	Chief Operator	304.577.9118	wwwatergirl@frontier.com
Melissa O'Brien	Roane County Commission	Commissioner	304.533.5146	mobrien@k12.wv.us
Lawrence Looney	Walton PSD	Board Member		
Bill Greathouse	Walton PSD	Operator	304.532.6914	
Lloyd Naylor	Walton PSD	Board Member		
Date of first protection Team Meeting		5/4/2016		
Efforts made to inform and engage local stakeholders (public, local government, local emergency planners, local health department, and affected residents) and explain absence of recommended stakeholders:		Information for the meeting was posted at public buildings, the meeting was advertised in the local newspaper, letters were mailed to potential team members (see attached list in Appendix E) and phone calls were made to invite team members. The reason for the absence of recommended stakeholders is unknown.		

Potential Sources of Significant Contamination

Source water protection plans should provide a complete and comprehensive list of the PSSC contained within the ZCC based upon information obtained from the WVBPH, working in cooperation with the Department of Environmental Protection (WVDEP) and the Division of Homeland Security and Emergency Management (WVDHSEM). A facility or activity is listed as a PSSC if it has the potential to release a contaminant that could potentially impact a nearby public water supply, and it does not necessarily indicate that any release has occurred.

The list of PSSCs located in the SWPA is organized into two types: 1) SWAP PSSCs, and 2) Regulated Data. SWAP PSSCs are those that have been collected and verified by the WVBPH SWAP program during previous field investigations to form the source water assessment reports and source water protection plans. Regulated PSSCs are derived from federal and state regulated databases, and may include data from WVDEP, US Environmental Protection Agency, WVDHSEM, and from state data sources.

Confidentiality of PSSCs

A list of the PSSCs contained within the ZCC should be included in the source water protection plan. However, the exact location, characteristics and approximate quantities of contaminants shall only be made known to one or more designees of the public water utility and maintained in a confidential manner. In the event of a chemical spill, release or other related emergency, information pertaining to the contaminant shall be immediately disseminated to any emergency responders reporting to the site. The designees for Walton Public Service District are identified in the communication planning section of the source water protection plan.

PSSC data from some agencies (ex. (WVDHSEM), WVDEP, etc.) may be restricted due to the sensitive nature of the data. Locational data will be provided to the public water utility. However, to obtain specific details regarding contaminants, (such as information included in Tier II reports), water utilities should contact the local emergency planning commission (LEPC) or agencies, directly. While the maps and lists of the PSSCs and regulated sites are to be maintained in a confidential manner, these data are provided in **Appendix A, Figures 1, 2, 3 and 4** for internal review and planning uses only.

Local and Regional PSSCs

For the purposes of this source water protection plan, local PSSCs are those that are identified by the water utility and local stakeholders not included in the PSSCs lists distributed by the WVBPH and other agencies. Local stakeholders may identify local PSSCs for two main reasons. The first is that it is possible that threats exist from unregulated sources and land uses that have not already been inventoried and do not appear in regulated databases. For this reason each public water utility should investigate their protection area for local PSSCs. A PSSC inventory should identify all contaminant sources and land uses in the delineated ZCC. The second reason local PSSCs are identified is because public water utilities may consider expanding the PSSC inventory effort outside of the ZCC into the ZPC and WSDA if necessary to properly identify all threats that could impact the drinking water source. As the utility considers threats in the watershed they may consider collaborating with upstream communities to identify and manage regional PSSCs.

When conducting local and regional PSSC inventories, utilities should consider that some sources may be obvious like above ground storage tanks, landfills, livestock confinement areas, highway or railroad right of ways, and sewage treatment facilities. Others are harder to locate like abandoned cesspools, underground tanks, French drains, dry wells, or old dumps and mines.

Walton Public Service District reviewed intake locations and the delineated SWPAs to verify the existence of PSSCs provided by the WVBPH and identify new PSSCs. If possible, locations of regulated sites within the SWPA were confirmed. Information on any new or updated PSSCs identified by Walton Public Service District that do not already appear in datasets from the WVBPH can be found in **Table 7**.

Table 7. Locally Identified Potential Sources of Significant Contamination

PSSC Number	Map Code	Site Name	Site Description	Comments
1	I-44	WATER TREATMENT PLANT	Other	Individual Industrial
2	A-18	farmland	Pasture	farmland
3	A-18	farmland	Pasture	farmland
76	R-5	AW MARTIN	SEPTIC SYSTEM	
77	R-5	LANA UNDERWOOD	SEPTIC SYSTEM	
79	R-5	LANA UNDERWOOD	SEPTIC SYSTEM	
80	R-5	LILLIE OBRIEN	SEPTIC SYSTEM	
81	R-5	ANGELA ROGERS	SEPTIC SYSTEM	
82	R-5	UNKNOWN	SEPTIC SYSTEM	ABANDONED HOUSE
83	R-5	MILLER	SEPTIC SYSTEM	ABANDONED HOUSE
84	R-5	MILLER	SEPTIC SYSTEM	
85	R-5	ROBERT SHAFER	SEPTIC SYSTEM	

PSSC Number	Map Code	Site Name	Site Description	Comments
86	R-5	RAYMOND COX	SEPTIC SYSTEM	
87	R-5	UNKNOWN	SEPTIC SYSTEM	
88	R-5	LARRY LOWE	SEPTIC SYSTEM	
89	R-5	KEVIN LOWE	SEPTIC SYSTEM	
90	R-5	MATHEW PAINTER	SEPTIC SYSTEM	
91	R-5	DANNY COX	SEPTIC SYSTEM	
92	R-5	HALSTEAD	SEPTIC SYSTEM	
94	R-5	JIM GREATHOUSE	SEPTIC SYSTEM	
95	R-5	LEE PARSONS	SEPTIC SYSTEM	
96	R-5	UNKNOWN	SEPTIC SYSTEM	
98	R-5	DELBERT GOOD	SEPTIC SYSTEM	
99	R-5	UNKNOW	SEPTIC SYSTEM	ABANDONED HOUSE
100	R-5	HAROLD SMITH	SEPTIC SYSTEM	

PSSC Number	Map Code	Site Name	Site Description	Comments
101	R-5	ROGER CRISLIP	SEPTIC SYSTEM	
102	R-5	AMBER OBRIEN	SEPTIC SYSTEM	
103	R-5	AMANDA NICHOLS	SEPTIC SYSTEM	
104	R-5	LARRY COTTRELL FARM	SEPTIC SYSTEM	
105	R-5	LARRY COTTRELL	SEPTIC SYSTEM	
106	R-5	COTTRELL PROPERTY	SEPTIC SYSTEM	
107	R-5	JAIME COTTRELL	SEPTIC SYSTEM	
108	R-5	TAYLOR	SEPTIC SYSTEM	
109	R-5	GREG FRANCK	SEPTIC SYSTEM	
110	R-5	BART BERRY	SEPTIC SYSTEM	
111	R-5	SHARRON PAXTON	SEPTIC SYSTEM	
112	R-5	CHARLES HOLLAND	SEPTIC SYSTEM	
113	R-5	JOE PAINTER FARM	SEPTIC SYSTEM	

PSSC Number	Map Code	Site Name	Site Description	Comments
114	R-5	MARY BETH PAINTER	SEPTIC SYSTEM	

Prioritization of Potential Threats and Management Strategies

Once the utility has identified local concerns, they must develop a management plan that identifies specific activities that will be pursued by the public water utility in cooperation and concert with the WVBPH, local health departments, local emergency responders, LEPCs, and other agencies or organizations to protect the source water from contamination.

Depending on the number identified, it may not be feasible to develop management strategies for all of the PSSCs in the SWPA. The identified PSSCs can be prioritized by potential threat to water quality, proximity to the intake(s), and local concern. The highest priority PSSCs can be addressed first in the initial management plan. Lower ranked PSSCs can be addressed in the future as time and resources allow. To assess the threat to the source water, water systems should consider confidential information about each PSSC. This information may be obtained from state or local emergency planning agencies, Tier II reports, facility owner, facility groundwater protection plans, spill prevention response plans, results of field investigations, etc.

In addition to identifying and prioritizing PSSCs within the SWPA, local source water concerns may also focus on critical areas. For the purposes of this source water protection plan, a critical area is defined as an area that is identified by local stakeholders and can lie within or outside of the ZCC. Critical areas may contain one or more PSSC(s) which would require immediate response to address a potential incident that could impact the source water.

A list of priority PSSCs was selected and ranked by the Walton Public Service District Protection Team. This list reflects the concerns of this specific utility and may contain PSSCs not previously identified and not within the ZCC or ZPC. **Table 8** contains a description of why each critical area or PSSC is considered a threat and what management strategies the utility is either currently using or could use in the future to address each threat.

Implementation Plan for Management Strategies

Walton Public Service District reviewed the recommended strategies listed in their previous source water protection plan, to consider if any of them should be adopted and incorporated in this updated plan. **Table 9** provides a brief statement summarizing the status of the recommended strategies. **Table 9** also lists strategies from a previous plan that are being incorporated in this plan update.

When considering source management strategies and education and outreach strategies, this utility has considered how and when the strategies will be implemented. The initial step in implementation is to establish responsible parties and timelines to implement the strategies. The water utility, working in conjunction with the protection team members, can determine the best process for completing activities within the projected time periods. Additional meetings may be needed during the initial effort to complete activities, after which the Protection Team should consider meeting annually to review and update the Source Water Protection Plan. A system of regular updates should be included in every implementation plan.

Proposed commitments and schedules may change but should be well documented and reported to the local stakeholders. If possible, utilities should include cost estimates for strategies to better plan for implementation and possible funding opportunities. Walton Public Service District has developed an implementation plan for priority concerns **Table 8**. The responsible team member, timeline, and potential cost of each strategy are presented in **Table 9**. Note: Because timelines may change, future plan updates should describe the status of each strategy and explain the lack of progress.

Table 8. Priority PSSCs or Critical Areas

PSSC or Critical Area	Priority Number	Reason for Concern
Residents along Harmony Road, Silcott Fork and Snyder Run	1	Coliform and noncoliform bacteria; viruses; nitrates; heavy metals; synthetic detergents; cooking and motor oils; bleach; pesticides; paints; paint thinner; photographic chemicals; swimming pool chemicals; septic tank/cesspool cleaner chemicals; elevated levels of chloride, sulfate, calcium, magnesium, potassium, and phosphate. These are the only areas with PSSCs within the Zone of Critical Concern. Several residents along these roads do not have permits for septic systems. These residents either have septic systems that have not been permitted or no septic system at all (straight outlet to stream).
Confined Animal Feeding Operations along Harmony Road	2	Livestock sewage wastes; nitrates; phosphates; chloride; chemical sprays and dips for controlling insect, bacterial, viral, and fungal pests on livestock; coliform and noncoliform bacteria; viruses
Potential for vandalism along headwaters of Silcott Fork (Silcott Run)	3	Vandals could potentially release hazardous chemicals in the headwaters of Silcott Lake. There are ATV trails along the feeding stream.
Oil and Gas Wells	4	. Contaminants such as brine water, benzene and certain radioactive elements are used in the fracturing process and could spill.
Future Development	5	Extent and type of future development, including potential impacts on source water, is not known at this time.

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status/Schedule	Comments	Estimated Cost
1. General	<p>There are 4 general management strategies for source water protection. These are incorporated in this plan update and listed below:</p> <ol style="list-style-type: none"> 1. A tier II recommendation is to meet with county OES or local fire chief to have access to local tier II information that is confidential and maintain that going forward with at least one annual meeting. Identify tier II facilities in critical areas and reach out to them. 2. No generator – recommend doing the wiring to accept a generator. MOVRC will submit grant paperwork for a generator. 	Alan Bell	This work will begin in 2016		\$0 up front costs to begin these strategies.

	<p>3. Build capacity to identify contaminants, BPH staff will assist. The first step is to get spill reports</p> <p>Build communication team if possible to include more local and county entities including but not limited to: County OES/911 health department, county commission local fire department, etc.</p>				
1. Residents along Harmony Road, Silcott Fork and Snyder Run	Residents are supposed to provide proof that they have a permitted septic system in order to receive water from Walton PSD. Also to educate residents about why a septic system is required.	Bill Greathouse	Ongoing	A list of residents living in the ZCC has been developed.	\$0
2. Confined Animal Feeding Operations along Harmony Road	There were no management strategies recommended in the existing plan. A new strategy is to encourage farmers to graze animals as far away from the stream as possible.	Rick Parsons	Ongoing		\$0
3. Vandalism	<p>There were 2 management strategies recommended in the existing plan:</p> <p>1. Adding signage at visible places to inform the public that tampering with installation is a federal offense and that this is a source water protection area and providing emergency numbers.</p>	Rick Parsons	Strategy 1 has been completed, Strategy 2 is being evaluated by the board.	Cameras may not be fiscally feasible.	\$20,000

	2. Install security cameras at the intake and WTP.				
4. Oil and Gas Wells	<p>There were 5 management strategies recommended in the existing plan:</p> <ol style="list-style-type: none"> 1. Reviewing public information of surface water protection practices for oil and gas industry to raise PSD staff awareness of surface water protection practices of oil and gas industry (completed) 2. Evaluate increased sampling of water quality for parameters associated with oil and gas industry to better assess whether source water quality is being impacted by oil and gas industry 3. Evaluate installing monitoring equipment upstream of the intake are being evaluated as part of this SWPP. 4. Maintain contact with other neighboring public water systems, to receive input on effects of anticipated Marcellus shale and gas well drilling and tract status of regulations through such 	Rick Parsons	Strategies 1 and 4 have been completed. Strategies 2 and 3 are being evaluated as a part of this SWPP. Strategy 5 is not yet applicable.	The installation of the early detection system may reduce the need for additional sampling.	\$20,000 for early detection monitoring system, with \$500 yearly operational costs. The cost for increased sampling is currently being evaluated

	<p>organizations as WVDHHR, WVRWA, WVPSC and WVDEP.</p> <p>5. If parameters associated with oil and gas industry become problematic to water quality, consider symposium form local oil and gas industry to raise awareness of source water protection and review regulatory requirements.</p>				
5. Future Development	<p>1. Raise awareness of city and/or county government by providing SWPA map and educational brochure to help make decision making with respect to future development.</p> <p>2. Evaluate what authority exists at city and/or county government regarding approval over development that could be a high risk to surface water resources. Included would be reviewing (a) location of properties around Silcott Fork Lake, and (b) reviewing potential existing county regulations regarding land around Silcott Fork Lake.</p> <p>3. Have county evaluate developing policy where PSD</p>	Rick Parsons	<p>1. Copies of the latest SWPP will be distributed to the Roane County Commission.</p> <p>2. Currently, Roane County does not enforce ordinances for approval over development that could be a high risk to surface water resources. Walton PSD is in close contact with Roane County Commission and will work with Roane County when/if they develop ordinances for development.</p> <p>3. Roane County does not currently enforce</p>		\$200

	Chief Operator provides input on potential development during building process.		ordinances for approval over development that could be a high risk to surface water resources.		
--	---	--	--	--	--

Education and Outreach Strategies

The goal of education and outreach is to raise awareness of the need to protect drinking water supplies and build support for implementation strategies. Education and outreach activities will also ensure that affected citizens and other local stakeholders are kept informed and provided an opportunity to contribute to the development of the source water protection plan. Walton Public Service District has created an Education and Outreach plan that describes activities it has either already implemented or could implement in the future to keep the local community involved in protecting their source of drinking water. This information can be found in **Table 10**.

Table 10. Education and Outreach Implementation Plan

Education and Outreach Strategy	Description of Activity	Responsible Protection Team Member	Status/Schedule	Comments	Estimated Cost
Utilize Social Media	Use Walton PSDs Facebook page to inform customers with educational materials related to source water protection.	Melissa O'Brien	This strategy is currently being utilized.	The Walton PSD Facebook page has 630 friends as of 5/10/2016.	\$0
Consumer Confidence Report	A copy of the Consumer Confidence Report is kept online at CDC.gov	Melissa O'Brien	This strategy is currently being utilized.	A link to the CCR will be posted on the Facebook page.	\$0
Educational Brochure at www.yourwateryourdecision.org . This brochure building tool was prepared by the Source Water Collaborative, a partnership between local, state and federal drinking water organizations and regulatory entities including USEPA	Provide web address to public for their use.	Melissa O'Brien	This strategy is currently being utilized	A link to the brochure will be posted on the Facebook page.	\$0

School Curricula	Source water protection is incorporated in the schools curriculum.	Melissa O'Brien	This strategy is currently in the beginning stages. It is Walton PSD's goal to have source water protection added to the school curricula by 2017.	This strategy is currently being discussed with local schools.	\$0
Awareness of Best Management Practices and Need to Protect Drinking Water Supplies	Local first responders are to be educated about BMPs and the need to protect drinking water supplies	Rick Parsons	This strategy has is currently being utilized.		\$1,100
Signage	Use signage to inform public about the limits of the source water protection area and provide an emergency number.	Rick Parsons	This strategy has been utilized.		\$257

Contingency Plan

The goal of contingency planning is to identify and document how the utility will prepare for and respond to any drinking water shortages or emergencies that may occur due to short and long term water interruption, or incidents of spill or contamination. Utilities should examine their capacity to protect their intake, treatment, and distribution system from contamination. They should also review their ability to use alternative sources and minimize water loss, as well as their ability to operate during power outages. In addition, utilities should report the feasibility of establishing an early warning monitoring system and meeting future water demands.

Isolating or diverting any possible contaminant from the intake for a public water system is an important strategy in the event of an emergency. One commonly used method of diverting contaminants from an intake is establishing booms around the intake. This can be effective, but only for contaminants that float on the surface of the water. Alternatively, utilities can choose to pump floating contaminants from the water or chemically neutralize the contaminant before it enters the treatment facility.

Public utilities using surface sources should be able to close the intake by one means or another. However, depending upon the system, methods for doing so could vary greatly from closing valves, lowering hatches or gates, raising the intake piping out of the water, or shutting down pumps. Systems should have plans in place in advance as to the best method to protect the intake and treatment facility. Utilities may benefit from turning off pumps and, if possible, closing the intake opening to prevent contaminants from entering the piping leading to the pumps. Utilities should also have a plan in place to sample raw water to identify the movement of a plume and allow for maximum pumping time before shutting down an intake (See Early Warning Monitoring System). The amount of time that an intake can remain closed depends on the water infrastructure and should be determined by the utility before an emergency occurs. The longer an intake can remain closed in such a case, the better.

Treated water storage capacity in the event of such an emergency also becomes extremely important. Storage capacity can directly determine how well a water system can respond to a contamination event and how long an intake can remain closed. Information regarding the water shortage response capability of Walton Public Service District is provided in **Table 11**.

Response Networks and Communication

Statewide initiatives for emergency response, including source water related incidents, are being developed. These include the West Virginia Water/Wastewater Agency Response Network (WV WARN, see <http://www.wvwarn.org/>) and the Rural Water Association Emergency Response Team (see <http://www.wvrwa.org/>). Walton Public Service District has analyzed its ability to effectively respond to emergencies and this information is provided in **Table 11**.

Table 11. Walton Public Service District Water Shortage Response Capability

Can the utility isolate or divert contamination from the intake or groundwater supply?	No
Describe the utility's capability to isolate or divert potential contaminants:	NA

Can the utility switch to an alternative water source or intake that can supply full capacity at any time?	No
Describe in detail the utility's capability to switch to an alternative source:	NA
Can the utility close the water intake to prevent contamination from entering the water supply?	Yes
How long can the intake stay closed?	Approximately 3 days
Describe the process to close the intake:	Turn a gate valve.
Describe the treated water storage capacity of the water system:	567,000 gallons
Is the utility a member of WVRWA Emergency Response Team?	No
Is the utility a member of WV-WARN?	No
List any other mutual aid agreements to provide or receive assistance in the event of an emergency:	Spencer provides Walton PSD with water during emergencies requiring closure of the intake. However, Spencer Water Department cannot meet Walton PSD full demand.

Operation During Loss of Power

This utility analyzed and examined its ability to operate effectively during a loss of power. This involved ensuring a means to supply water through treatment, storage, and distribution without creating a public health emergency. Information regarding the utility's capacity for operation during power outages is shown in **Table 12**.

Table 12. Generator Capacity

What is the type and capacity of the generator needed to operate during a loss of power?	Generac 65 kW with auto switch
Can the utility connect to generator at intake/wellhead? If yes, select a scenario that best describes system.	NA. There is no power at the intake. No generator needed.
Can the utility connect to generator at treatment facility? If yes, select a scenario that best describes system.	Has standby or portable generator, hard-wired and ready to turn on.

Can the utility connect to a generator in distribution system? If yes, select a scenario that best describes system.		Has standby or portable generator, hard-wired and ready to turn on.	
Does the utility have adequate fuel on hand for the generator?		Yes	
What is your on-hand fuel storage and how long will it last operating at full capacity?		Gallons	Hours
		1000 lb liquid propane tank	480
Provide a list of suppliers that could provide generators and fuel in the event of an emergency:	Supplier		Contact Name
	Generator	Southern States	304.927.3570
	Generator		
	Fuel		
	Fuel		
Does the utility test the generator(s) periodically?		Yes	
Does the utility routinely maintain the generator?		Yes	
If no scenario describing the ability to connect to generator matches the utility's system or if utility does not have ability to connect to a generator, describe plans to respond to power outages:		NA	

Future Water Supply Needs

When planning for potential emergencies and developing contingency plans, a utility needs to not only consider their current demands for treated water but also account for likely future needs. This could mean expanding current intake sources or developing new ones in the near future. This can be an expensive and time consuming process, and any water utility should take this into account when determining emergency preparedness. Walton Public Service District has analyzed its ability to meet future water demands at current capacity, and this information is included in **Table 13**.

Table 13. Future Water Supply Needs for Walton Public Service District

<p>Is the utility able to meet water demands with the current production capacity over the next 5 years? If so, explain how you plan to do so.</p>	<p>Yes. Walton PSD can treat and distribute over 2 times the current demands. That is room for 100% growth.</p>
<p>If not, describe the circumstances and plans to increase production capacity:</p>	<p>NA</p>

Water Loss Calculation

In any public water system there is a certain percentage of the total treated water that does not reach the customer. Some of this water is used in treatment plant processes such as back washing filters or flushing piping, but there is usually at least a small percentage that goes unaccounted for. To measure and report on this unaccounted for water, a public utility must use the same method used in the Public Service Commission’s rule, *Rules for the Government of Water Utilities*, 150CSR7, section 5.6. The rule defines unaccounted for water as the volume of water introduced into the distribution system less all metered usage and all known non-metered usage which can be estimated with reasonable accuracy.

To further clarify, metered usages are most often those that are distributed to customers. Non-metered usages that are being estimated include uses such as by the fire departments for fires or training, un-metered bulk sells, flushing to maintain the distribution system, backwashing filters, and cleaning settling basins. By totaling the metered and non-metered uses the utility calculates unaccounted for water. Note: To complete annual reports submitted to the PSC, utilities typically account for known water main breaks by estimating the amount of water lost. However, for the purposes of the source water protection plan, any water lost due to leaks, even if the system is aware of how much water is lost at a main break, is not considered a use. Water lost through leaks and main breaks cannot be controlled during a water shortages or other emergencies and should be included in the calculation of percentage of water loss for purposes of the source water protection plan. The data in **Table 14** is taken from the most recently submitted Walton Public Service District PSC Annual Report.

Table 14. Water Loss Information

<p>Total Water Pumped (gal)</p>		<p>40,258,000</p>
<p>Total Water Purchased (gal)</p>		<p>0</p>
<p>Total Water Pumped and Purchased (gal)</p>		<p>40,258,000</p>
<p>Water Loss Accounted for Except Main Leaks (gal)</p>	<p>Mains, Plants, Filters, Flushing, etc.</p>	<p>201,000</p>
	<p>Fire Department</p>	<p>158,000</p>
	<p>Back Washing</p>	<p>1,000</p>

	Blowing Settling Basins	0
Total Water Loss Accounted For Except Main Leaks		360,000
Water Sold- Total Gallons (gal)		37,059,000
Unaccounted For Lost Water (gal)		2,627,000
Water lost from main leaks (gal)		212,000
Total gallons of Unaccounted for Lost Water and Water Lost from Main Leaks (gal)		2,839,000
Total Percent Unaccounted For Water and Water Lost from Main Leaks (gal)		7%
If total percentage of Unaccounted for Water is greater than 15%, please describe any measures that could be taken to correct this problem:	NA	

Early Warning Monitoring System

Public water utilities are required to provide an examination of the technical and economic feasibility of implementing an early warning monitoring system. Implementing an early warning monitoring system may be approached in different ways depending upon the water utility's resources and threats to the source water. A utility may install a continuous monitoring system that will provide real time information regarding water quality conditions. This would require utilities to analyze the data in order to establish what condition is indicative of a contamination event. Continuous monitoring will provide results for a predetermined set of parameters. The more parameters being monitored, the more sophisticated the monitoring equipment will be. When establishing a continuous monitoring system, the utility should consider the logistics of placing and maintaining the equipment, and receiving output data from the equipment.

Alternately, or in addition, a utility may also pull periodic grab samples on a regular basis, or in case of a reported incident. The grab samples may be analyzed for specific contaminants. A utility should examine their PSSCs to determine what chemical contaminants could pose a threat to the water source. If possible, the utility should plan in advance how those contaminants will be detected. Consideration should be given for where samples will be collected, the preservations and hold times for samples, available laboratories to analyze samples, and costs associated with the sampling event. Regardless of the type of monitoring (continuous or grab), utilities should collect samples for their source throughout the year to better understand the baseline water quality conditions and natural seasonal fluctuations. Having a baseline will help determine if changes in the water quality are indicative of a contamination event and inform the needed response.

Every utility should establish a system or process for receiving or detecting chemical threats with sufficient time to respond to protect the treatment facility and public health. All approaches to receiving and responding to an early warning should incorporate communication with facility owners and operators that pose a threat to the water quality, with state and local emergency response agencies, with surrounding water

utilities, and with the public. Communication plays an important role in knowing how to interpret data and how to respond.

Walton Public Service District has analyzed its ability to monitor for and detect potential contaminants that could impact its source water. Information regarding this utility’s early warning monitoring system capabilities can be found in **Table 15** and in **Appendix B**.

Table 15. Early Warning Monitoring System Capabilities

<p>Does your system currently receive spill notifications from a state agency, neighboring water system, local emergency responders, or other facilities? If yes, from whom do you receive notices?</p>	<p>No</p>	
<p>Are you aware of any facilities, land uses, or critical areas within your protection areas where chemical contaminants could be released or spilled?</p>	<p>Yes</p>	
<p>Are you prepared to detect potential contaminants if notified of a spill?</p>	<p>Yes</p>	
<p>List laboratories (and contact information) on whom you would rely to analyze water samples in case of a reported spill.</p>	<p>Laboratories</p>	
	<p>Name</p>	<p>Contact</p>
	<p>REIC Laboratory</p>	<p>304.255.2500</p>
	<p></p>	<p></p>
<p>Do you have an understanding of baseline or normal conditions for your source water quality that accounts for seasonal fluctuations?</p>	<p>Yes</p>	
<p>Does your utility currently monitor raw water (through continuous monitoring or periodic grab samples) at the surface water intake or from a groundwater source on a regular basis?</p>	<p>Yes. Periodic Grab Samples</p>	
<p>Provide or estimate the capital and O&M costs for your current or proposed early warning system or upgraded system.</p>	<p>Capital</p>	<p>\$19,800</p>
	<p>Yearly O & M</p>	<p>\$500</p>

<p>Do you serve more than 100,000 customers? If so, please describe the methods you use to monitor at the same technical levels utilized by ORSANCO.</p>	<p>No.</p>
<p>Note: Complete appropriate Early Warning Monitoring form for your system in Appendix B (Line 71).</p>	

Single Source Feasibility Study

If a public water utility’s water supply plant is served by a single–source intake to a surface water source of supply or a surface water influenced source of supply, the submitted source water protection plan must also include an examination and analysis of the technical and economic feasibility of alternative sources of water to provide continued safe and reliable public water service in the event that its primary source of supply is detrimentally affected by contamination, release, spill event or other reason. These alternatives may include a secondary intake, two days of additional raw or treated water storage, an interconnection with neighboring systems, or other options identified on a local level. Note: a suitable secondary intake would draw water supplies from a substantially different location or water source.

To accomplish this requirement, utilities should examine all existing or possible alternatives and rank them by their technical, economic, and environmental feasibility. To have a consistent and complete method for ranking alternatives, WVBPH has developed a feasibility study guide (**See Instructions**). This guide provides several criteria to consider for each category, organized in a Feasibility Study Matrix. By completing the Feasibility Study Matrix, utilities will demonstrate the process used to examine the feasibility of each alternative and document scores that compare the alternatives. The Feasibility Study matrix and summary of the results are presented in an alternatives feasibility study attached as **Appendix D**.

Communication Plan

Walton Public Service District has also developed a Communication Plan that documents the manner in which the public water utility, working in concert with state and local emergency response agencies, shall notify the local health agencies and the public of the initial spill or contamination event and provide updated information related to any contamination or impairment of the source water supply or the system's drinking water supply. The initial notification to the public will occur in any event no later than thirty minutes after the public water system becomes aware of the spill, release, or potential contamination of the public water system. A copy of the source water protection plan and the Communication Plan has been provided to the local fire department. Walton Public Service District will update the Communication Plan as needed to ensure contact information is up to date.

Procedures should be in place for the kinds of catastrophic spills that can reasonably be predicted at the source location or within the SWPA. The chain-of-command, notification procedures and response actions should be known by all water system employees.

The WVBPH has developed a recommended communication plan template that provides a tiered incident communication process to provide a universal system of alert levels to utilities and water system managers. The comprehensive Communication Plan for Walton Public Service District is attached as **Appendix C** [Lines 74-87] for internal review and planning purposes only.

The West Virginia Department of Environmental Protection is capable of providing expertise and assistance related to prevention, containment, and clean-up of chemical spills. The West Virginia Department of Environmental Protection Emergency Response 24-hour Phone is 1-800-642-3074. The West Virginia Department of Environmental Protection also operates an upstream distance estimator that can be used to determine the distance from a spill site to the closest public water supply surface water intake.

Emergency Response Short Form

A public water utility must be prepared for any number of emergency scenarios and events that would require immediate response. It is imperative that information about key contacts, emergency services, and downstream water systems be posted and readily available in the event of an emergency. Elements of this source water protection plan, such as the contingency planning and communication plan, may contain similar information to the utility's emergency response plan. However, the emergency response plan is to be kept confidential and is not included in this source water protection plan. An Emergency Short Form is included in **Appendix C** to support the Communicate Plan by providing quick access to important information about emergency response and are to be used for internal review and planning purposes only.

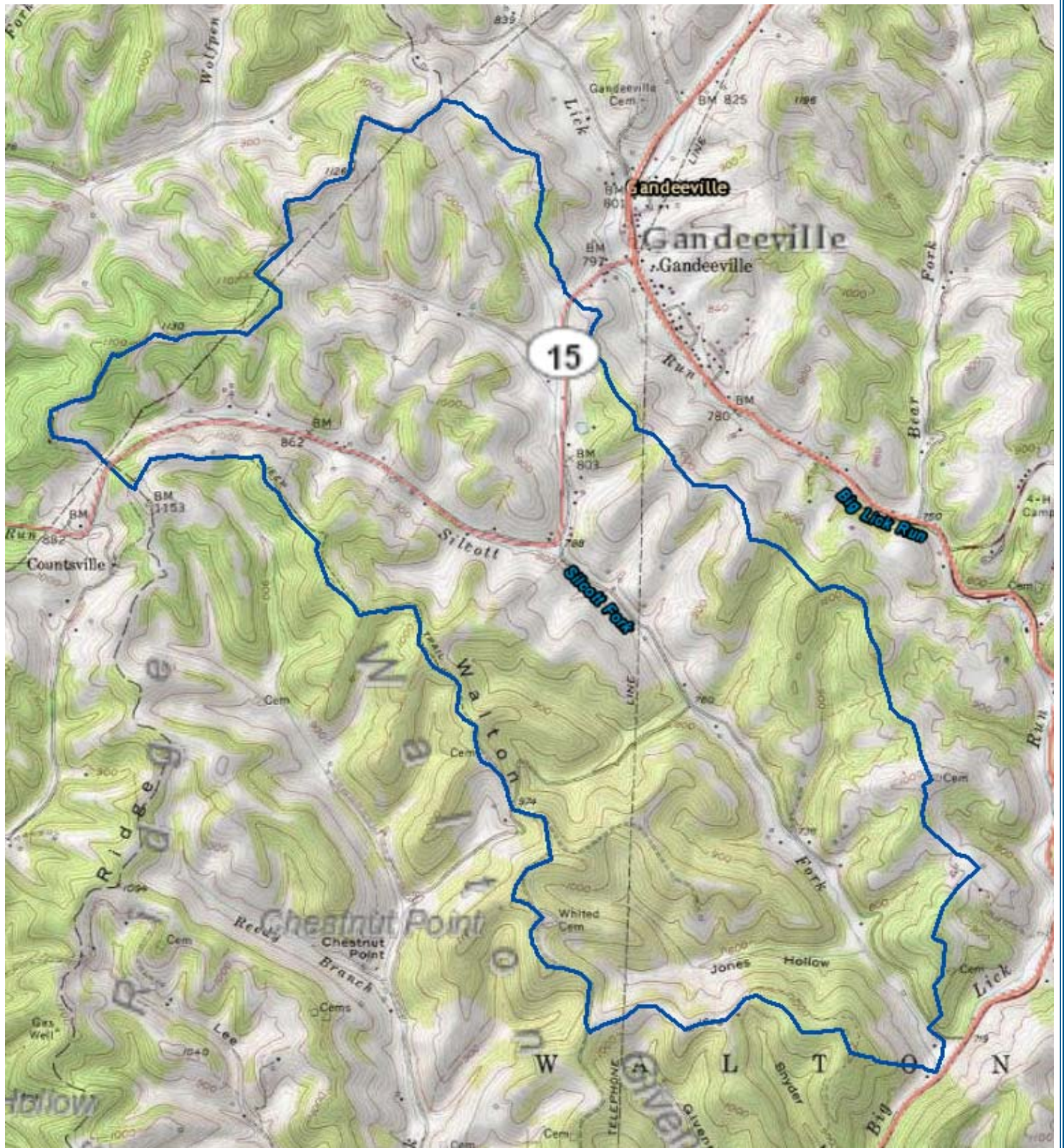
Conclusion

This report represents a detailed explanation of the required elements of Walton Public Service District's Source Water Protection Plan. Any supporting documentation or other materials that the utility considers relevant to their plan can be found in **Appendix F**.

This source water protection plan is intended to help prepare community public water systems all over West Virginia to properly handle any emergencies that might compromise the quality of the system's source water supply. It is imperative that this plan is updated as often as necessary to reflect the changing circumstances within the water system. The protection team should continue to meet regularly and continue to engage the public whenever possible. Communities taking local responsibility for the quality of their source water is the most effective way to prevent contamination and protect a water system against contaminated drinking water. Community cooperation, sufficient preparation, and accurate monitoring are all critical components of this source water protection plan, and a multi-faceted approach is the only way to ensure that a system is as protected as possible against source water degradation.

Appendix A. Figures

Watershed Delineation Area (WSDA Map



TRIAD PROJECT NO: 04-15-0044

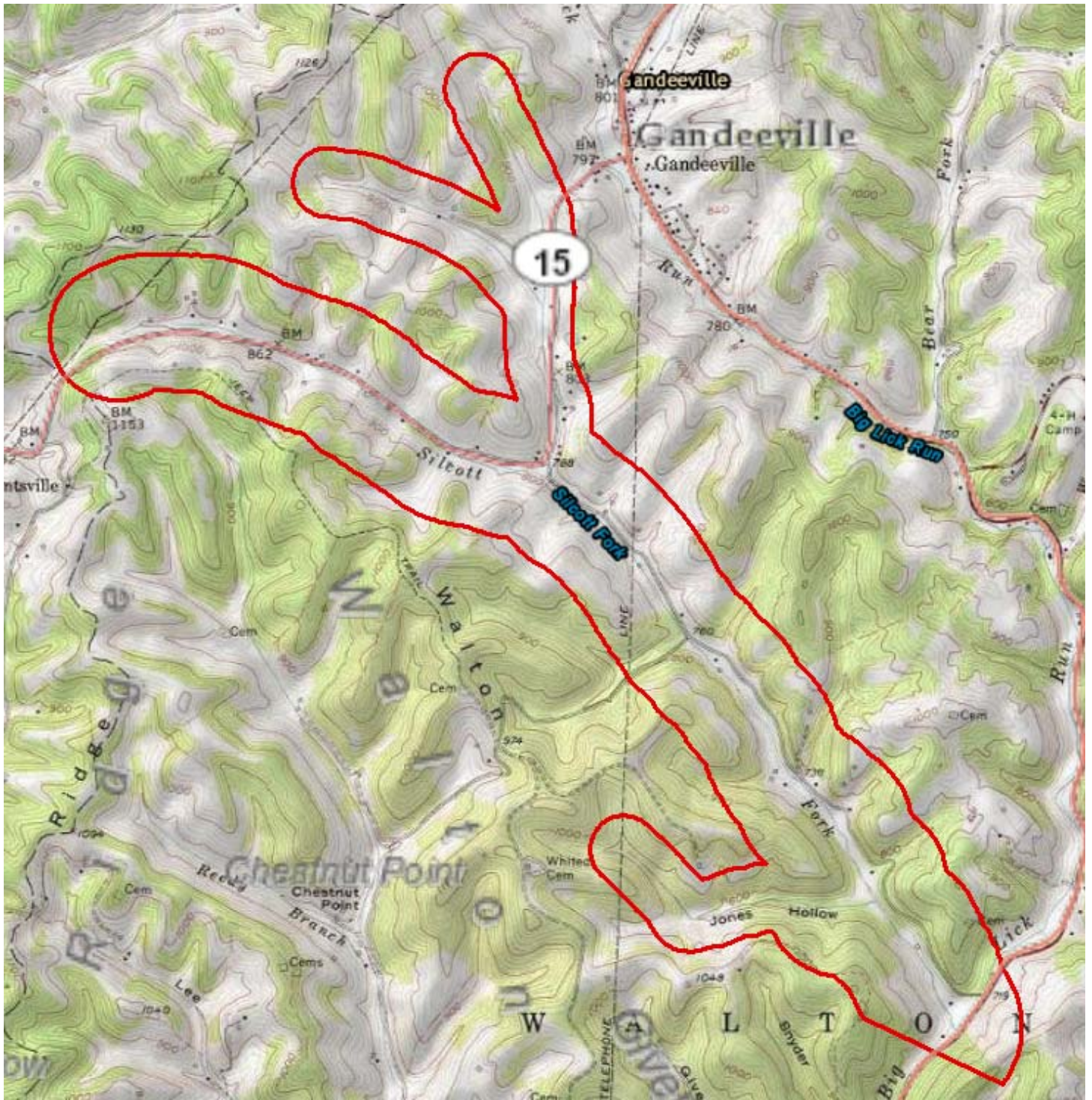
Figure 1

DATE: May 31, 2016

CLIENT: Walton Public Service District

Walton Public Service District Source Water Watershed Map

Zone of Critical Concern (ZCC) and Zone of Peripheral Concern (ZPC) Map(s)



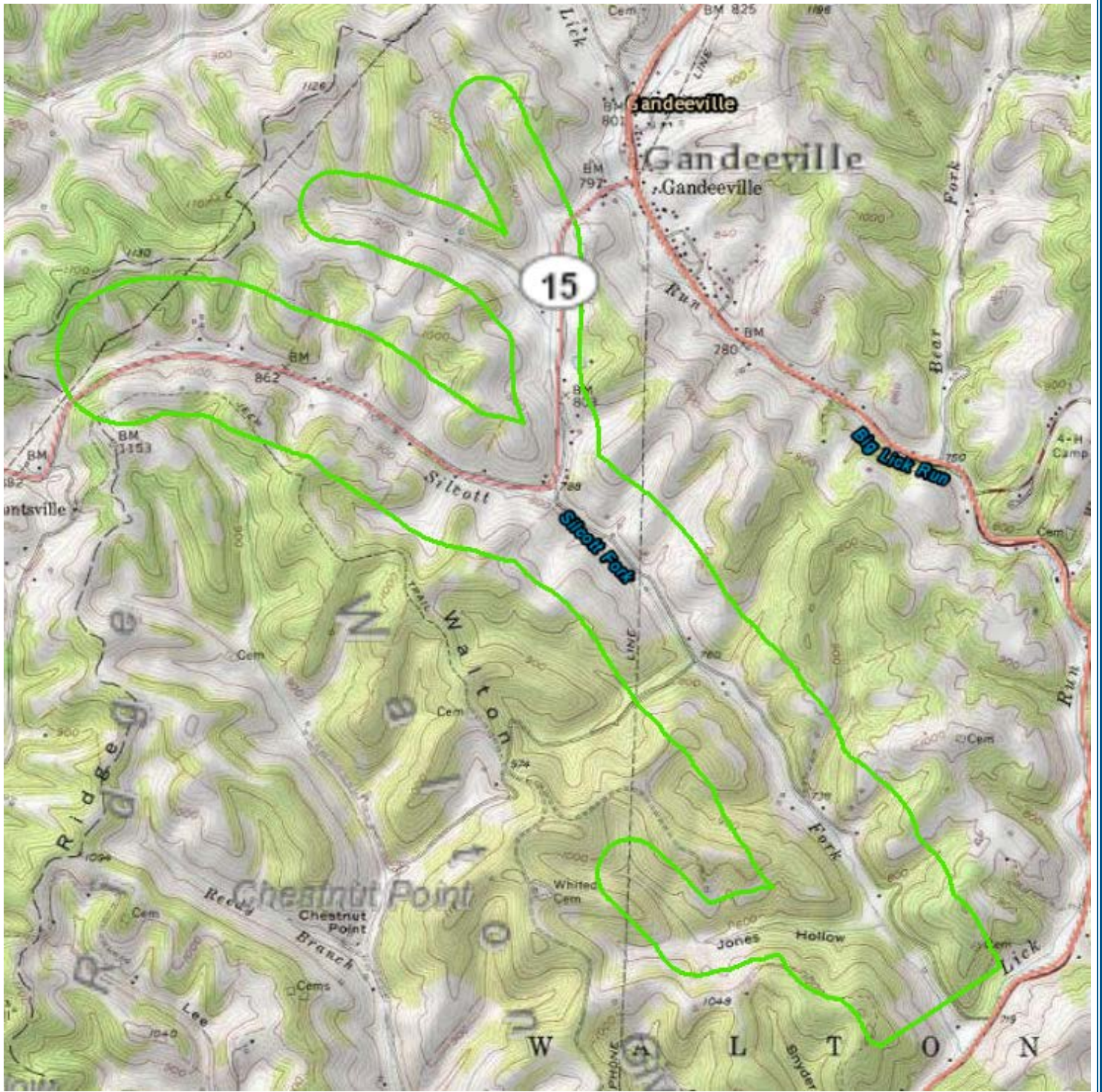
TRIAD PROJECT NO: 04-15-0044

Figure 3

DATE: May 31, 2016

1=40,000

Walton Public Service District Zone of Critical Concern



TRIAD PROJECT NO: 04-15-0044

Figure 2

DATE: May 31, 2016

CLIENT: Walton Public Service District

Walton Public Service District Source Water Zone of Peripheral Concern

List of Locally Identified PSSCs

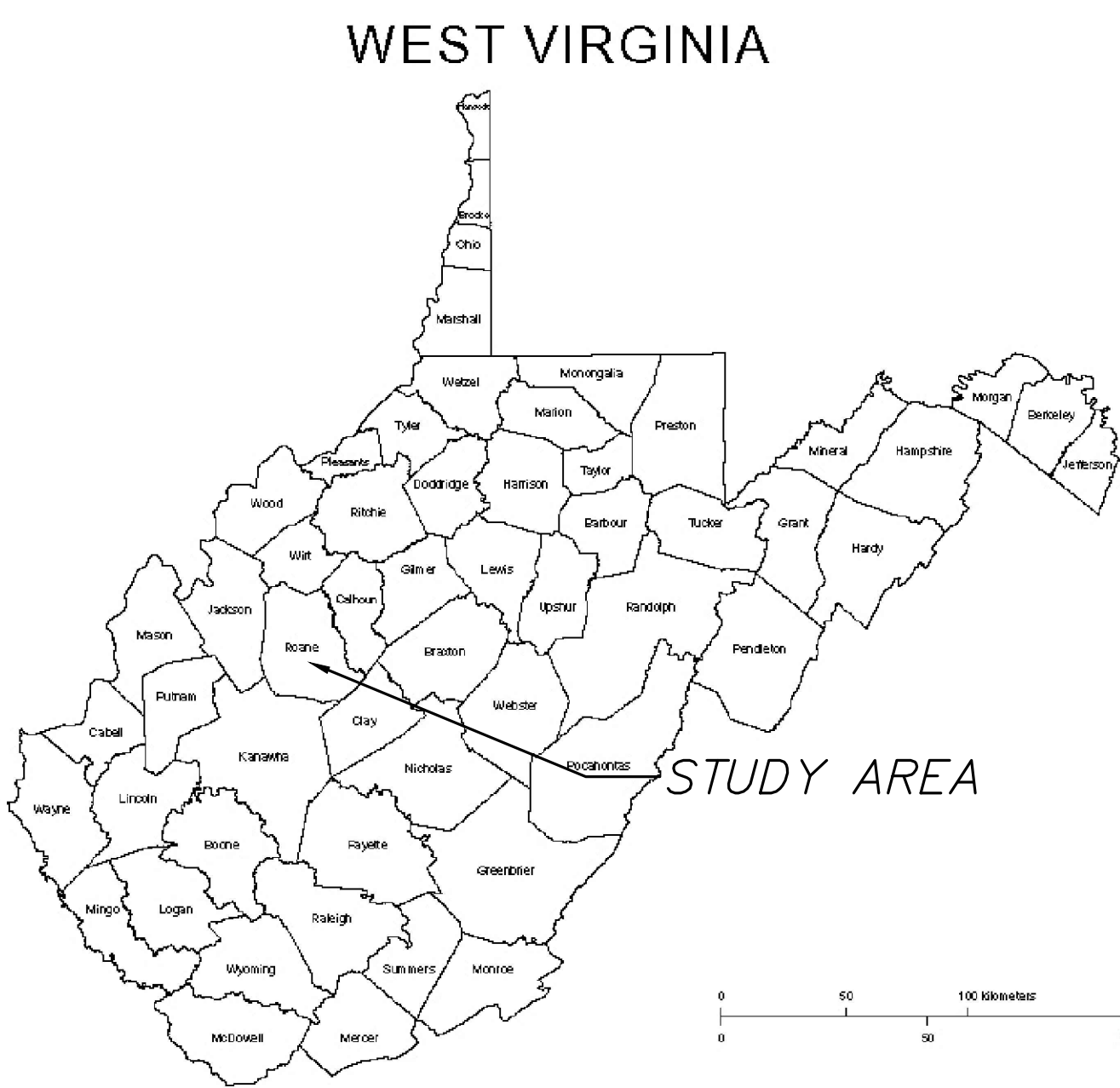
Figure 4 - List of Locally Identified PSSCs

PSC #	ArcMap LAYER	SITENAME	SITE DESCRIPTION	LATITUDE	LONGITUDE	COMMENTS
1	I-44	WATER TREATMENT PLANT	Other	38.6722	-81.3958	Individual Industrial
2	A-18	farmland	Pasture*	38.696752	-81.415571	farmland
3	A-18	farmland	Pasture*	38.693376	-81.42129	farmland
76	R-5	AW MARTIN	SEPTIC SYSTEM	38.698	-81.43498	
77	R-5	LANA UNDERWOOD	SEPTIC SYSTEM	38.698735	-81.433	
79	R-5	LANA UNDERWOOD	SEPTIC SYSTEM	38.69841	-81.432	
80	R-5	LILLIE OBRIEN	SEPTIC SYSTEM	38.696961	-81.429	
81	R-5	ANGELA ROGERS	SEPTIC SYSTEM	38.697464	-81.429	
82	R-5	UNKNOWN	SEPTIC SYSTEM	38.697691	-81.428	ABANDONED HOUSE
83	R-5	MILLER	SEPTIC SYSTEM	38.697029	-81.428	ABANDONED HOUSE
84	R-5	MILLER	SEPTIC SYSTEM	38.697	-81.427759	
85	R-5	ROBERT SHAFER	SEPTIC SYSTEM	38.697733	-81.428	
86	R-5	RAYMOND COX	SEPTIC SYSTEM	38.696907	-81.427	
87	R-5	UNKNOWN	SEPTIC SYSTEM	38.697604	-81.426	
88	R-5	LARRY LOWE	SEPTIC SYSTEM	38.695962	-81.427	
89	R-5	KEVIN LOWE	SEPTIC SYSTEM	38.695676	-81.427	
90	R-5	MATHEW PAINTER	SEPTIC SYSTEM	38.697645	-81.426	
91	R-5	DANNY COX	SEPTIC SYSTEM	38.696929	-81.427	
92	R-5	HALSTEAD	SEPTIC SYSTEM	38.695863	-81.425	
94	R-5	JIM GREATHOUSE	SEPTIC SYSTEM	38.694933	-81.422	
95	R-5	LEE PARSONS	SEPTIC SYSTEM	38.693166	-81.42	
96	R-5	UNKNOWN	SEPTIC SYSTEM	38.693181	-81.42	
98	R-5	DELBERT GOOD	SEPTIC SYSTEM	38.694547	-81.418	
99	R-5	UNKNOWN	SEPTIC SYSTEM	38.694358	-81.418	ABANDONED HOUSE
100	R-5	HAROLD SMITH	SEPTIC SYSTEM	38.69413	-81.418	
101	R-5	ROGER CRISLIP	SEPTIC SYSTEM	38.693035	-81.416	
102	R-5	AMBER OBRIEN	SEPTIC SYSTEM	38.693027	-81.414	
103	R-5	AMANDA NICHOLS	SEPTIC SYSTEM	38.692186	-81.414	

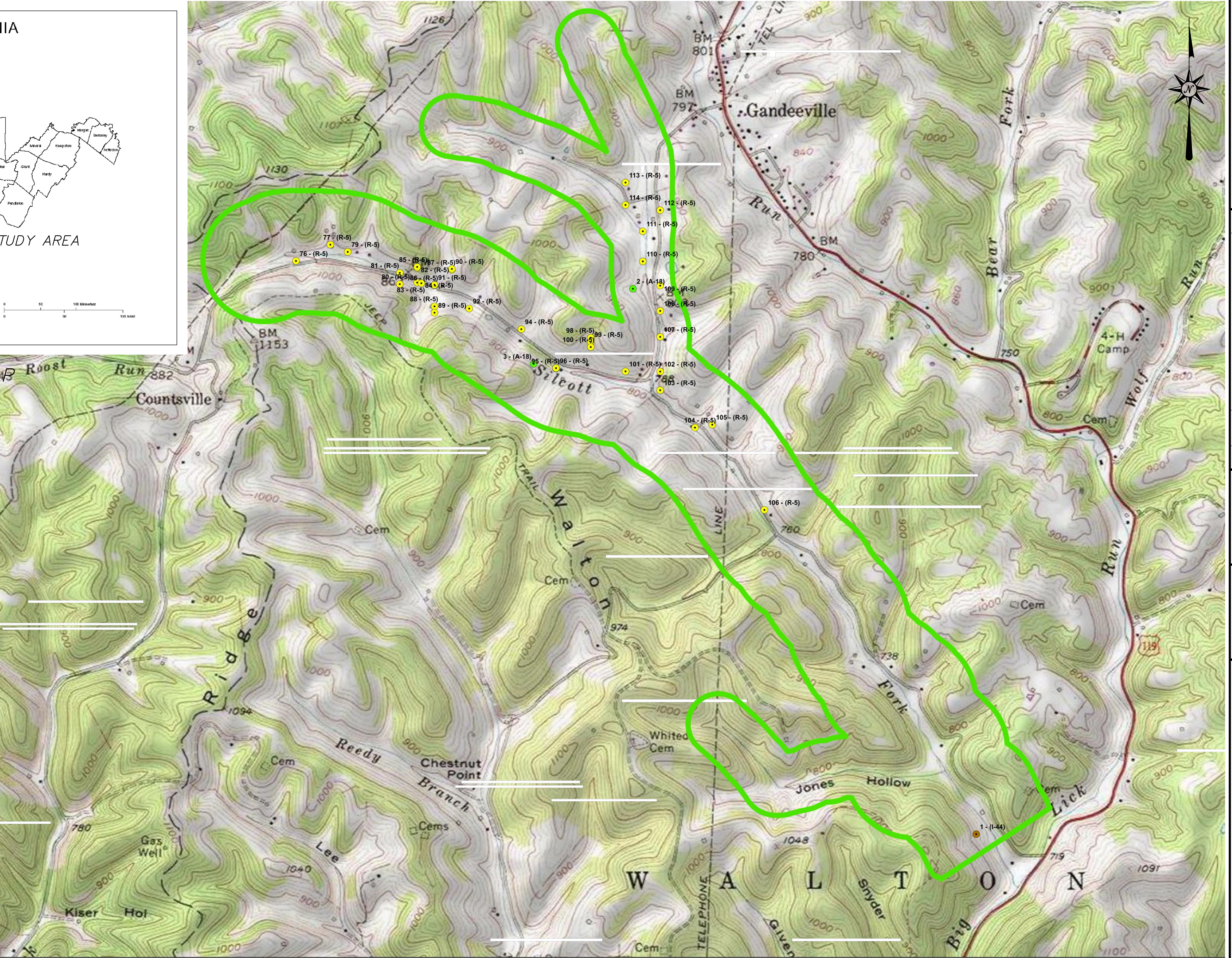
PSC #	ArcMap LAYER	SITENAME	SITE DESCRIPTION	LATITUDE	LONGITUDE	COMMENTS
104	R-5	LARRY COTTRELL FARM	SEPTIC SYSTEM	38.690505	-81.412	
105	R-5	LARRY COTTRELL	SEPTIC SYSTEM	38.690637	-81.411	
106	R-5	COTTRELL PROPERTY	SEPTIC SYSTEM	38.686795	-81.408	
107	R-5	JAIME COTTRELL	SEPTIC SYSTEM	38.694587	-81.414	
108	R-5	TAYLOR	SEPTIC SYSTEM	38.695754	-81.414	
109	R-5	GREG FRANCK	SEPTIC SYSTEM	38.696895	-81.414	
110	R-5	BART BERRY	SEPTIC SYSTEM	38.697982	-81.415	
111	R-5	SHARRON PAXTON	SEPTIC SYSTEM	38.699337	-81.415	
112	R-5	CHARLES HOLLAND	SEPTIC SYSTEM	38.700286	-81.414	
113	R-5	JOE PAINTER FARM	SEPTIC SYSTEM	38.701529	-81.416	
114	R-5	MARY BETH PAINTER	SEPTIC SYSTEM	38.700523	-81.416	

Map of Locally Identified PSSCs





- ◆ AST_Unique
- AST_With_Chemicals
- ◆ ERIS_Wells
- ◆ HPU
- ◆ OWRNPDES_Outlets
- ◆ Superfund_RCRA_Facilities
- ◆ SWAP_PCS
- Agriculture
- Commercial
- Industrial
- Municipal
- Residential
- ◆ Volunteer_Remediation
- ◆ Grantsville_Municipal_Watershed
- ◆ Grantsville_Municipal_ZCC
- ◆ Grantsville_Municipal_ZPC



TRIAD ENGINEERING, INC.
 10541 TEAYS VALLEY ROAD
 SCOTT DEPOT, WV 25560
 PH: 304.755.0721 FAX: 304.755.1880

OFFICE LOCATIONS
 MARYLAND • PENNSYLVANIA • VIRGINIA • WEST VIRGINIA • OHIO

REV. #	DATE	DESCRIPTION

CADD FILE: walton MAPS.dwg	CHECKED BY: LLM	SCALE: 1:10,000
DRAWN BY: LLM	DATE: 6/30/2016	

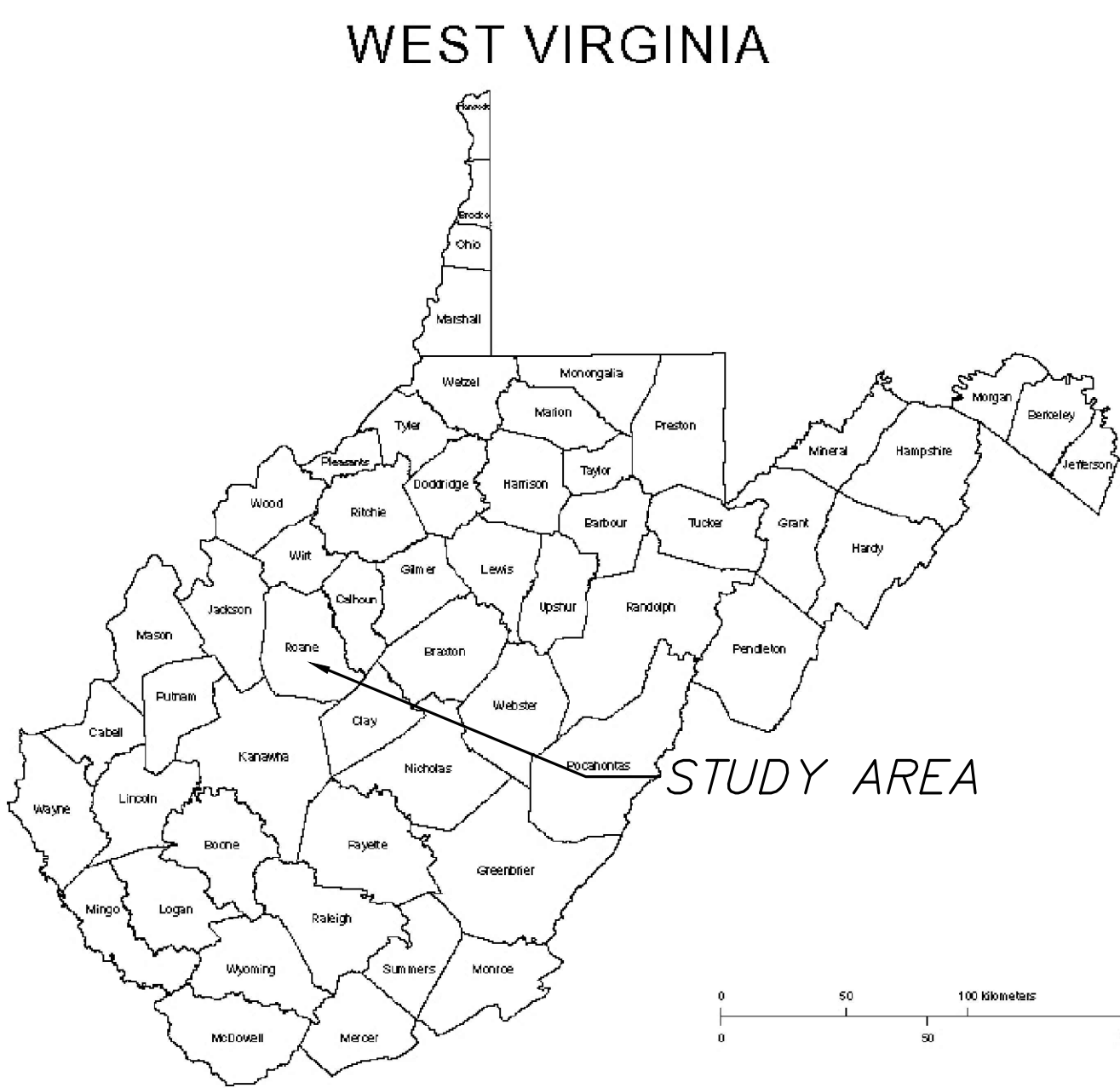
WALTON PUBLIC SERVICE DISTRICT
 CALHOUN COUNTY, WV

**ZONE OF CRITICAL CONCERN W/
 LOCALLY IDENTIFIED PSSCS**

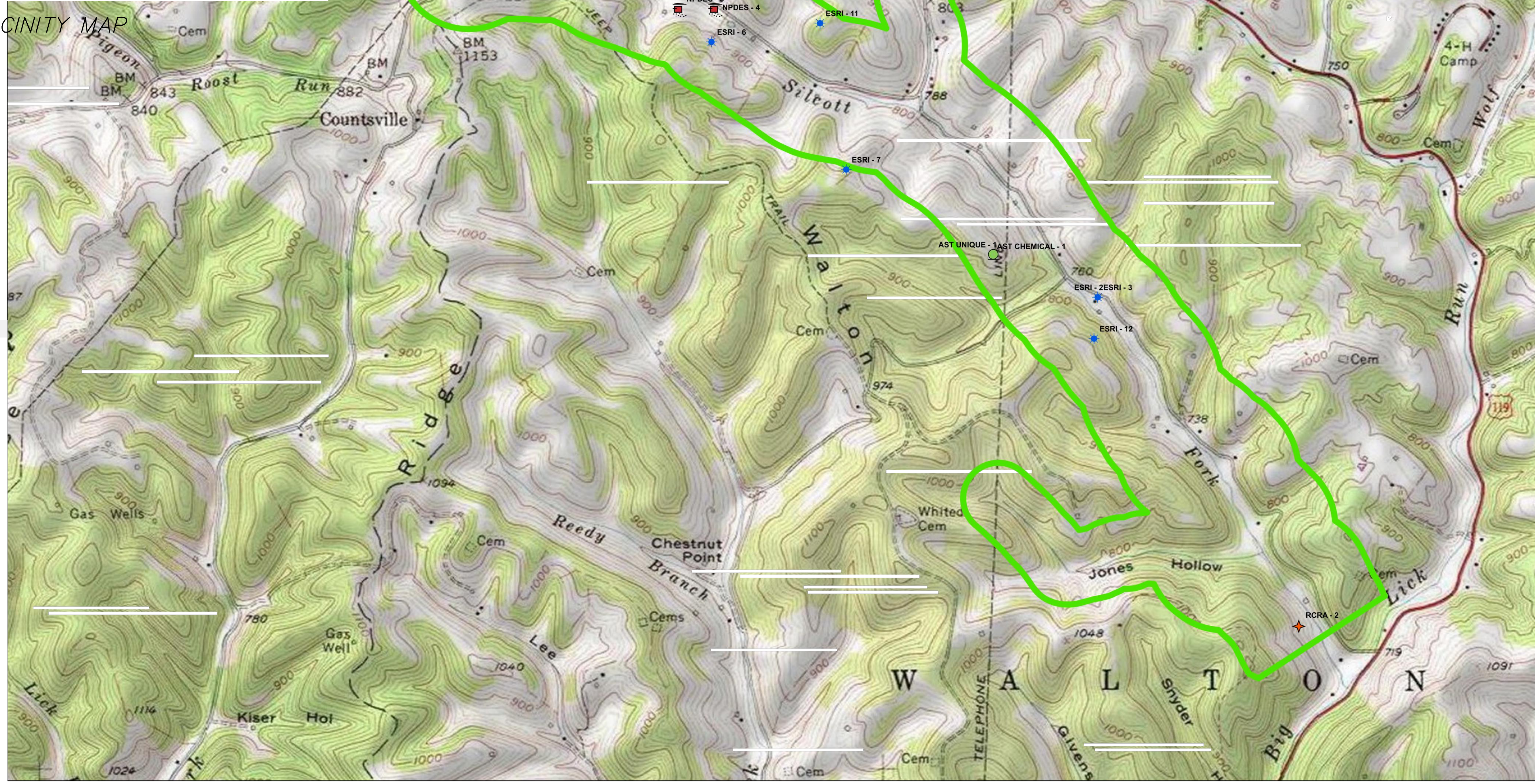
Printed by: jncosy
 Y:\sw_sas_042015_0_04-15-0044 move source water protection plans\walton\phase 2\walton maps.dwg

List of Regulated PSSCs

Map of Regulated PSSCs



VICINITY MAP



- ◆ AST_Unique
- ◆ AST_With_Chemicals
- ◆ ERIS_Wells
- ◆ HPU
- ◆ OWRNPDES_Outlets
- ◆ Superfund_RCRA_Facilities
- ◆ SWAP_PCS
- Agriculture
- Commercial
- Industrial
- Municipal
- Residential
- ◆ Volunteer_Remediation
- ◆ Grantsville_Municipal_Watershed
- ◆ Grantsville_Municipal_ZCC
- ◆ Grantsville_Municipal_ZPC

TRIAD ENGINEERING, INC.
 10541 TEAYS VALLEY ROAD
 SCOTT DEPOT, WV 25560
 PH: 304.755.0721 FAX: 304.755.1880

REV. #	DATE	DESCRIPTION

CADD FILE: walton MAPS.dwg
 DRAWN BY: LLM
 CHECKED BY: LLM
 DATE: 6/30/2016
 SCALE: 1:10,000

WALTON PUBLIC SERVICE DISTRICT
 CALHOUN COUNTY, WV
**ZONE OF CRITICAL CONCERN W/
 REGULATED PSSCS**



FIG 7
 SHEET NUMBER:
 PROJECT No.: 04-15-0044

Plotted by: mcozby
 v:\new_sas_042015_0_04-15-0044 move: source: water protection\planning\walton\phase 2\walton maps.dwg

Appendix B. Early Warning Monitoring System Forms

Appendix B-Form B

Proposed Early Warning Monitoring System Worksheet- Surface

Describe the type of early warning detection equipment that could be installed, including the design.
<p>An Advanced Water Quality Monitoring Platform connected to the riser is proposed. For the basis of this report, we evaluated and priced an EXO2 sonde (probe) with related appurtenances from YSI (xylem). The sonde can be moved up and down in the water column as needed. The system proposed includes:</p> <ul style="list-style-type: none"> • Sensors for: <ul style="list-style-type: none"> ○ Conductivity (to detect potential contaminants from oil and gas wells) ○ Salinity (to detect potential contaminants from oil and gas wells (brine)) ○ Total Suspended Solids (TDS) (to detect potential contaminants from oil and gas wells) ○ pH (Changes in pH provide information regarding potential heavy metals such as iron and manganese). ○ Turbidity (Total Suspended Solids) (this is a standard measurement for raw water sources. Bacteria such as e. coli and protozoa such as Giardia can attach themselves to the suspended solids and promote gastrointestinal disease). • Central wiper – This wipes the sensors prior to each reading to remove algae or other biofouling) • Localized power (D batteries) • Connection to existing SCADA system at the water treatment plant • Mounting of the system to the riser • Initial training and set up
Where would the equipment be located?
In a raw water sampling port that exists in the water plant.
What would the maintenance plan for the monitoring equipment entail?
Occasional adjustment in elevation and replacement of batteries
Describe the proposed sampling plan at the monitoring site.
The monitoring system takes readings at user-defined intervals. To start, readings should be taken every hour, but can be adjusted as needed.
Describe the proposed procedures for data management and analysis.
The monitoring system will be connected to the water treatment plants system via hard wiring.

Appendix C. Communication Plan

Communication Plan

For Walton Public Service District

PWSID: 3304407 District: St. Albans

Certified Operator: Rick Parsons

Contact Phone Number: 304.577.9118

Contact Email Address: wwatergirl@frontier.com

Plan Developed On: 5/31/2016 Plan Update Due On: _____

ACKNOWLEDGMENTS:

*This plan was developed by **Rick Parsons** to meet certain requirements of the Source Water and Assessment Protection Program (SWAPP) and the Wellhead Protection Program (WHPP) for the State of West Virginia, as directed by the federal Safe Drinking Water Act (SDWA) and state laws and regulations.*

Table of Contents

Introduction - 45
TIERS Reporting System - 45
Communication Team - 46
Communication Team Duties - 47
Incident / Event Communication Procedure - 48
TIERS Flow Chart - 49
Emergency Short Forms - 55
Emergency Contact Information - 58

Introduction

Legislative Rule 64CSR3 requires public water systems to develop a Communication Plan that documents how public water suppliers, working in concert with state and local emergency response agencies, shall notify state and local health agencies and the public in the event of a spill or contamination event that poses a potential threat to public health and safety. The plan must indicate how the public water supplier will provide updated information, with an initial notification to the public to occur no later than thirty minutes after the supplier becomes aware that the spill, release or potential contamination of the public water system poses a potential threat to public health and safety.

The public water system has responsibility to communicate to the public, as well as to state and local health agencies. This plan is intended to comply with the requirements of Legislative Rule 64CSR3, and other state and federal regulations.

TIERS Reporting System

This water system has elected to use the *Tiered Incident / Event Reporting System* (TIERS) for communicating with the public, agencies, the media, and other entities in the event of a spill or other incident that may threaten water quality. TIERS provides a multi-level notification framework, which escalates the communicated threat level commensurate with the drinking water system risks associated with a particular contamination incident or event. TIERS also includes a procedural flow chart illustrating key incident response communication functions and how they interface with overall event response / incident management actions. Finally, TIERS identifies the roles and responsibilities for key people involved in risk response, public notification, news media and other communication.

TIERS provides an easy-to-remember five-tiered **A-B-C-D-E** risk-based incident response communication format, as described below. Table 1 provides also associated risk levels. Example press releases are provided as attachments to this plan.

A = Announcement. The water system is issuing an announcement to the public and public agencies about an incident or event that may pose a threat to water quality. Additional information will be provided as it becomes available. As always, if water system customers notice anything unusual about their water, they should contact the water system

B = Boil Water. A boil water advisory has been issued by the water system. Customers may use the water for showering, bathing, and other non-potable uses, but should boil water used for drinking or cooking.

C = Cannot Drink. The water system asks that users not drink or cook with the water at this time. Non-potable uses, such as showering, bathing, cleaning, and outdoor uses are not affected.

D = Do Not Use. An incident or event has occurred affecting nearly all uses of the water. Do not use the water for drinking, cooking, showering, bathing, cleaning, or other tasks where water can come in contact with your skin. Water can be used for flushing commodes and fire protection.

E=Emergency. Water cannot be used for any reason.

Tier	Tier Category	Risk Level	Tier Summary
A	A nnouncement	Low	The water system is issuing an announcement to the public and public agencies about an incident or event that could pose a threat to public health and safety. Additional information will be provided as it becomes available.
B	B oil Water Advisory	Moderate	Water system users are advised to boil any water to be used for drinking or cooking, due to possible microbial contamination. The system operator will notify users when the boil water advisory is lifted.
C	C annot Drink	High	System users should not drink or cook with the water until further notice. The water can still be used for showering, bathing, cleaning, and other tasks.
D	D o Not Use	Very High	The water should only be used for flushing commodes and fire protection until further notice. More information on this notice will be provided as soon as it is available.
E	E mergency	Extremely High	The water should not be used for any purpose until further notice. More information on this notice will be provided as soon as it is available.

Communication Team

The Communication Team for the water system is listed in the table below, along with key roles. In the event of a spill or other incident that may affect water quality, the water system spokesperson will provide initial information, until the team assembles (if necessary) to provide follow-up communication.

Water system communication team members, organizations, and roles.

Team Member Name	Organization	Phone	Email	Role
Rick Parsons	Walton PSD	304.577.9118	wwwatergirl@frontier.com	Primary Spokesperson
Karen Meadows	Walton PSD	304.577.9118	Wwwwatergirl@frontier.com	Secondary Spokesperson
Susie Cummings	Walton PSD	304.531.8250		Member

In the event of a spill, release, or other incident that may threaten water quality, members of the team who are available will coordinate with the management staff of the local water supplier to:

- Collect information needed to investigate, analyze, and characterize the incident/event
- Provide information to the management staff, so they can decide how to respond
- Assist the management staff in handling event response and communication duties
- Coordinate fully and seamlessly with the management staff to ensure response effectiveness

Communication Team Duties

The communication team will be responsible for working cooperatively with the management staff and state and local emergency response agencies to notify local health agencies and the public of the initial spill or contamination event. The team will also provide updated information related to any contamination or impairment of the source water supply or the system's drinking water supply.

According to Legislative Rule 64CSR3, the initial notification to the public will occur no later than thirty minutes after the public water system becomes aware that the spill, release or potential contamination of the public water system poses a potential threat to public health and safety.

As part of the group implementing the Source Water Protection Plan, team members are expected to be familiar with the plan, including incident/event response and communication tasks. Specifically, team members should:

- Be knowledgeable on elements of the Source Water Protection Plan and Communication Plan
- Attend team meetings to ensure up-to-date knowledge of the system and its functions
- Participate in periodic exercises that practice incident response and communication tasks
- Help to educate local officials, the media, and others on source water protection
- Cooperate with water supplier efforts to coordinate incident response communication
- Be prepared to respond to requests for field investigations of reported incidents
- Agree not to speak on behalf of the water supplier unless designated as the system's spokesperson

The primary spokesperson will be responsible for speaking on behalf of the water system to local agencies, the public, and the news media. The spokesperson should work with the management staff and the team to ensure that all communication is clear, accurate, timely, and consistent. The spokesperson may authorize and/or direct others to issue news releases or other information that has been approved by the system's management staff. The spokesperson is expected to be on call immediately when an incident or event which may threaten water quality occurs. The spokesperson will perform the following tasks in the event of a spill, release, or other event that threatens water quality:

- Announce which risk level (A, B, C, D, or E) will apply to the public notifications that are issued (see example press releases attached)
- Issue news releases, updates, and other information regarding the incident/event
- Use the news media, email, social media, and other appropriate information venues
- Ensure that news releases are sent to local health agencies and the public
- Respond to questions from the news media and others regarding the incident/event
- Appear at news conferences and interviews to explain incident response, etc.

Incident / Event Communication Procedure

The flow chart in this section illustrates how the water system will respond when it receives a report that a spill, release, or other contamination event may have occurred. Key elements of the flow chart are described below.

Communication with agencies, the public, and the media during threat incidents

Upon initial notification of the incident/event, system managers and staff will collect information and verify the need for further investigation. Only properly trained personnel will perform onsite investigations if permitted by emergency responders. If further investigation is warranted, and the initial facts support it, the water system spokesperson will issue a public communication statement consistent with the threat level. In addition, water system personnel and partners will be dispatched to conduct reconnaissance, a threat assessment, and a threat characterization, if present. This work may include:

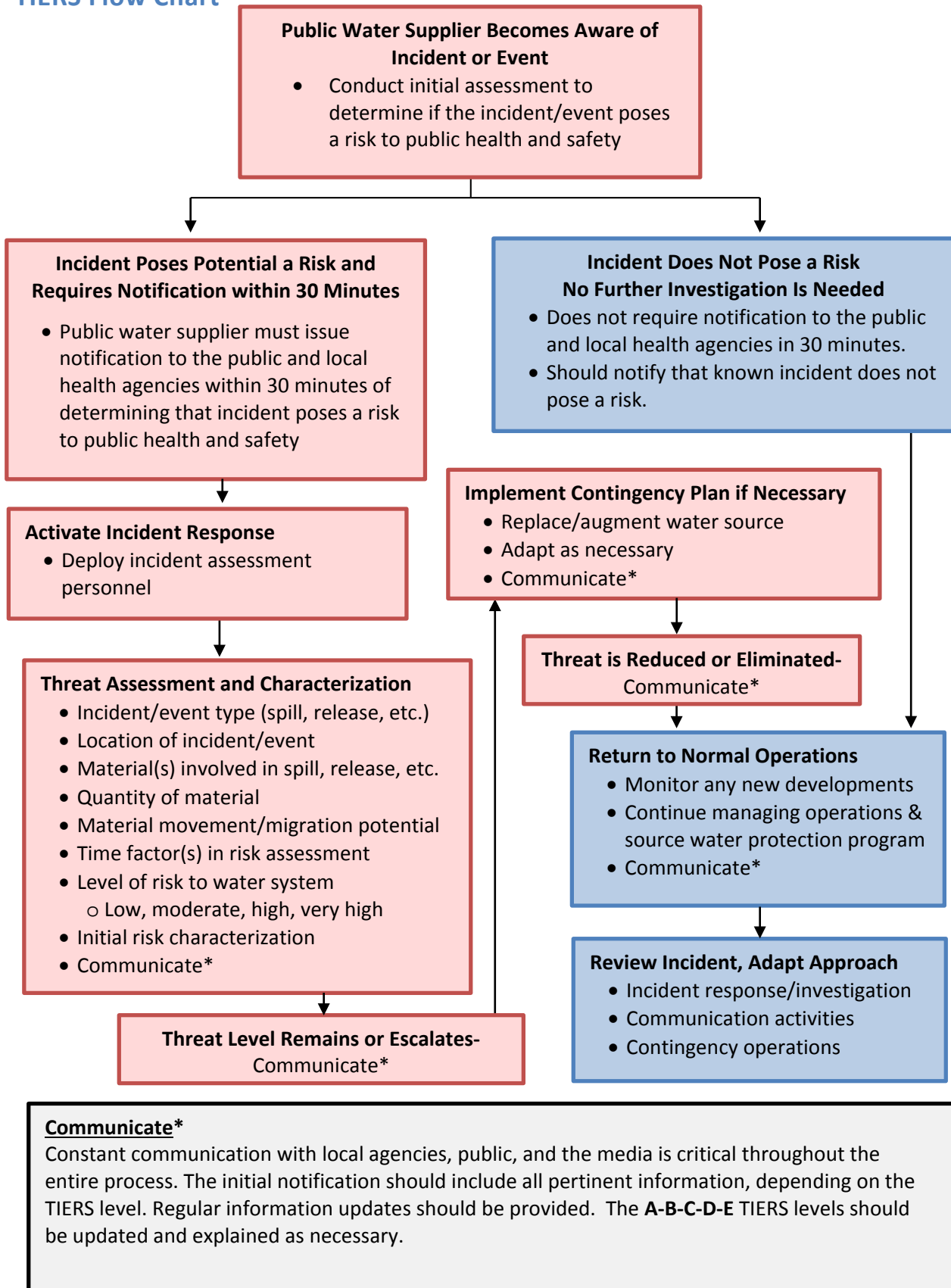
- Verification of the incident/event type (spill, release, etc.)
- Location of incident/event
- Type of material(s) involved in spill, release, etc.
- Quantity of material involved
- Potential of the material to move, migrate, or be transported
- Relevant time factor(s) in the risk assessment (e.g., downstream movement rate)
- Overall level of risk to water system, whether low, moderate, high, or very high
- Development of the initial risk characterization

As the flow chart indicates, several iterative cycles will occur after the initial threat assessment, including communication with local agencies and the public, further investigation of the incident, possible implementation of the water system's contingency plan, and eventual elimination of the threat and a return to normal operations. Communication activities during this period will include:

- The initial release (i.e., **Announcement, Boil Water, Cannot Drink, Do Not Use, or Emergency** attached)
 - Sent to local health agencies, the public, and the news media within 30 minutes
- Notification of the local water system's source water protection and communication teams
 - If warranted by initial findings regarding the spill, release, or incident
- Notification of the WV Bureau of Public Health
 - As required
- Periodic information updates, as incident response information is received
- Updates to the applicable A-B-C-D-E advisory tier, as necessary

If time permits and the need arises, after the threat level is reduced, and operations return to normal, the water system staff, the communication and source water protection teams, and their partners may conduct a post-event review and assessment. The purpose of the review is to examine the response to the incident, relevant communication activities, and overall outcomes. Plans and procedures may be updated, altered, or adapted based on lessons learned through this process.

TIERS Flow Chart



Press Release Attachments

TIERS Levels A, B, C, D, and E

**UTILITY ISSUED NOTICE – LEVEL A
PUBLIC WATER SYSTEM ANNOUNCEMENT
A WATER SYSTEM INVESTIGATION IS UNDERWAY**

On _____ at ____:____ AM/PM, the _____ Water System began investigating an incident that may affect local water quality.

The incident involves the following situation at this location:

There are no restrictions on water use at this time. As always, if water system customers notice anything unusual about their water – such as abnormal odors, colors, sheen, etc. – they should contact the water system at _____.

At this time there is no need for concern if you have consumed or used the water.

Regular updates will be provided about this Announcement as water system staff continue their investigation. Again, there are no restrictions on water use at this time.

State Water System ID# _____ Date Distributed: _____

UTILITY ISSUED NOTICE – LEVEL B
BOIL WATER ADVISORY
A BOIL WATER ADVISORY IS IN EFFECT

On _____ at ____:____ am/pm, a water problem occurred causing contamination of your water. The areas that are affected are as follows:

Entire Water System or Other: _____

CONDITIONS INDICATE THERE IS A HIGH PROBABILITY THAT YOUR WATER IS CONTAMINATED. TESTING HAS NOT OCCURRED TO CONFIRM OR DENY THE PRESENCE OF CONTAMINATION IN YOUR WATER.

What should I do?

- **DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST.** Bring all water to a boil, let it boil for one minute, and let it cool before using, or use bottled water. Boiled or bottled water should be used for drinking, making ice, brushing teeth, washing dishes, bathing, and food preparation **until further notice**. Boiling kills bacteria and other organisms in the water.

What happened?

- The problem is related to _____

What is being done?

- The water system is taking the following action: _____

What should a customer do if they have consumed or used the water?

- _____

We will inform you when you no longer need to boil your water. We anticipate resolving the problem within _____ hours/days. For more information, please contact

_____ at _____ or _____ at _____.

General guidelines on ways to lessen the health risk are available from the EPA Safe Drinking Water Hotline at 1 (800) 426-4791.

Please share this information others who use this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice was distributed by _____

State Water System ID# _____ Date Distributed: _____

UTILITY ISSUED NOTICE – LEVEL C
“CANNOT DRINK” WATER NOTIFICATION
A LEVEL C WATER ADVISORY IS IN EFFECT

On _____ at ____:____ am/pm, a water problem occurred causing contamination of your water. The areas that are affected are as follows:

Entire Water System or Other: _____

CONDITIONS INDICATE THERE IS A HIGH PROBABILITY THAT YOUR WATER IS CONTAMINATED. TESTING HAS NOT OCCURRED TO CONFIRM OR DENY THE PRESENCE OF CONTAMINATION IN YOUR WATER.

What should I do?

- **DO NOT DRINK THE WATER.** You can't drink the water, but you can use it for showering, bathing, toilet-flushing, and other non-potable purposes.
- **BOILING WILL NOT PURIFY THE WATER.** Do not drink the water, even if it is boiled. The type of contamination suspected is not removed by boiling.

What happened?

- **The problem is related to** _____

What is being done?

- **The water system is taking the following action:** _____

What should a customer do if they have consumed or used the water?

- _____

We will inform you when the water is safe to drink. We anticipate resolving the problem within _____ hours/days. For more information – or to report unusual water conditions such as abnormal odors, colors, sheen, etc. – please contact _____ at _____ or _____ at _____.

Please share this information others who use this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice was distributed by _____

State Water System ID# _____ Date Distributed: _____

UTILITY ISSUED NOTICE – LEVEL D
“DO NOT USE” WATER NOTIFICATION
A LEVEL D WATER ADVISORY IS IN EFFECT

On _____ at ____:____ am/pm, a water problem occurred causing contamination of your water. The areas that are affected are as follows:

Entire Water System or Other: _____

CONDITIONS INDICATE THERE IS A HIGH PROBABILITY THAT YOUR WATER IS CONTAMINATED. TESTING HAS NOT OCCURRED TO CONFIRM OR DENY THE PRESENCE OF CONTAMINATION IN YOUR WATER.

What should I do?

- **DO NOT DRINK THE WATER.** The water is contaminated.
- **DO NOT SHOWER OR BATHE IN THE WATER.** You can't use the water for drinking, showering, or bathing. It can be used for toilet flushing and firefighting.
- **BOILING WILL NOT PURIFY THE WATER.** Do not use the water, even if it is boiled. The type of contamination suspected is not removed by boiling.

What happened?

- **The problem is related to** _____

What is being done?

- **The water system is taking the following action:** _____

What should a customer do if they have consumed or used the water?

- _____

We will inform you when the water is safe to drink. We anticipate resolving the problem within _____ hours/days. For more information – or to report unusual water conditions such as abnormal odors, colors, sheen, etc. – please contact _____ at _____ or _____ at _____.

Please share this information others who use this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice was distributed by _____

State Water System ID# _____ Date Distributed: _____

**UTILITY ISSUED NOTICE – LEVEL E
EMERGENCY WATER NOTIFICATION
A LEVEL E WATER ADVISORY IS IN EFFECT**

On _____ at ____:____ am/pm, a water problem occurred causing contamination of your water. The areas that are affected are as follows:

Entire Water System or Other: _____

CONDITIONS INDICATE THERE IS A HIGH PROBABILITY THAT YOUR WATER IS CONTAMINATED. TESTING HAS NOT OCCURRED TO CONFIRM OR DENY THE PRESENCE OF CONTAMINATION IN YOUR WATER.

What should I do?

- **DO NOT DRINK THE WATER.** The water is contaminated.
- **DO NOT USE THE WATER FOR ANY PURPOSE!** You can't use the water for drinking, showering, or bathing, or any other use – not even for toilet flushing.
- **BOILING WILL NOT PURIFY THE WATER.** Do not use the water, even if it is boiled. The type of contamination suspected is not removed by boiling.

What happened?

- **The problem is related to** _____

What is being done?

- **The water system is taking the following action:** _____

What should a customer do if they have consumed or used the water?

- _____

We will inform you when the water is safe to drink. We anticipate resolving the problem within _____ hours/days. For more information – or to report unusual water conditions such as abnormal odors, colors, sheen, etc. – please contact _____ at _____ or _____ at _____.

Please share this information others who use this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice was distributed by _____

State Water System ID# _____ Date Distributed: _____

Emergency Short Forms

Emergency Communication Information

	Name	Phone Number	Email	
Designated spokesperson:	Rick Parsons	304.577.9118	wwwatergirl@frontier.com	
Alternate spokesperson:	Karen Meadows	304.577.9118	wwwatergirl@frontier.com	
Designated location to disseminate information to media:	Walton Fire Building			
Methods of contacting affected residents:	911 emergency call system coordinated through Melissa Gilbert.			
Media contacts:	Name	Title	Phone Number	Email
	Multiple	WVRC 104.7 FM	304.927.3760	

Emergency Services Contacts

	Name	Emergency Phone	Alternate Phone	Email
Local Police	Bo Williams	911	304.927.3410	bwilliams@rcsd@yahoo.com
Local Fire Department	John Kelley	911	304.577.6229	
Local Ambulance Service	Danny Cronin	911	304.927.3725	dannycronin@roaneens.com

Hazardous Material Response Service	John Kelly	911	304.577.6229	
--	------------	-----	--------------	--

Key Personnel

	Name	Title	Phone	Email
Key staff responsible for coordinating emergency response procedures?	Rick Parsons	Chief Operator	304.532.6914	wwatergirl@frontier.com
Staff responsible for keeping confidential PSSC information and releasing to emergency responders:	Karen Meadows	Office Manager	304.577.9118	wwatergirl@frontier.com

Sensitive Populations

Other communities that are served by the utility:	None		
Major user/sensitive population notification:	Name	Emergency Phone	Alternate Phone
	Walton Middle School	304.577.6731	
EED District Office Contact:	Name	Phone	Email
	Richard Snyder	304.722.0611	Richard.c.snyder@wv.gov
OEHS Readiness Coordinator	Warren Von Dollen	304-356-4290 (main)	warren.r.vondollen@wv.gov

		304-550-5607 (cell)	
Downstream Water Contacts:	Water System Name	Contact Name	Emergency Phone
	WVAWC		304.525.8193
Are you planning on implementing the TIER system?	Yes		

Emergency Response Information

Has the utility developed a detailed Emergency Response Plan in accordance with the Public Health Security Bioterrorism Preparedness and Response Pan Act of 2002?	Yes
When was the Emergency Response Plan developed or last updated?	2011

Emergency Contact Information

State Emergency Spill Notification

1-800-642-3074

Office of Emergency Services

<http://www.wvdhsem.gov/>
Charleston, WV- (304) 558-5380

WV Bureau for Public Health Office of Environmental Health Services (OEHS)

www.wvdhhr.org/oehs

Readiness Coordinator- Warren Von Dollen

Phone; 304-356-4290

Cell; 304-550-5607

e-mail; warren.r.vondollen@wv.gov

Environmental Engineering Division Staff

Charleston, Central Office (304) 558-2981

Beckley, District 1 (304) 256-6666

St. Albans, District 2 (304) 722-0611

Kearneysville, District 4 (304) 725-9453

Wheeling, District 5 (304) 238-1145

Fairmont, District 6 (304) 368-2530

National Response Center - Chemical, Oil, & Chemical/Biological Terrorism

1-800-424-8802

WV State Fire Marshal's Office

1-800-233-3473

West Virginia State Police

1-304-746-2100

WV Watch – Report Suspicious Activity

1-866-989-2824

DEP Distance Calculator

<http://tagis.dep.wv.gov/pswicheck/>

Appendix D. Single Source Feasibility Study

Single Source Feasibility Study

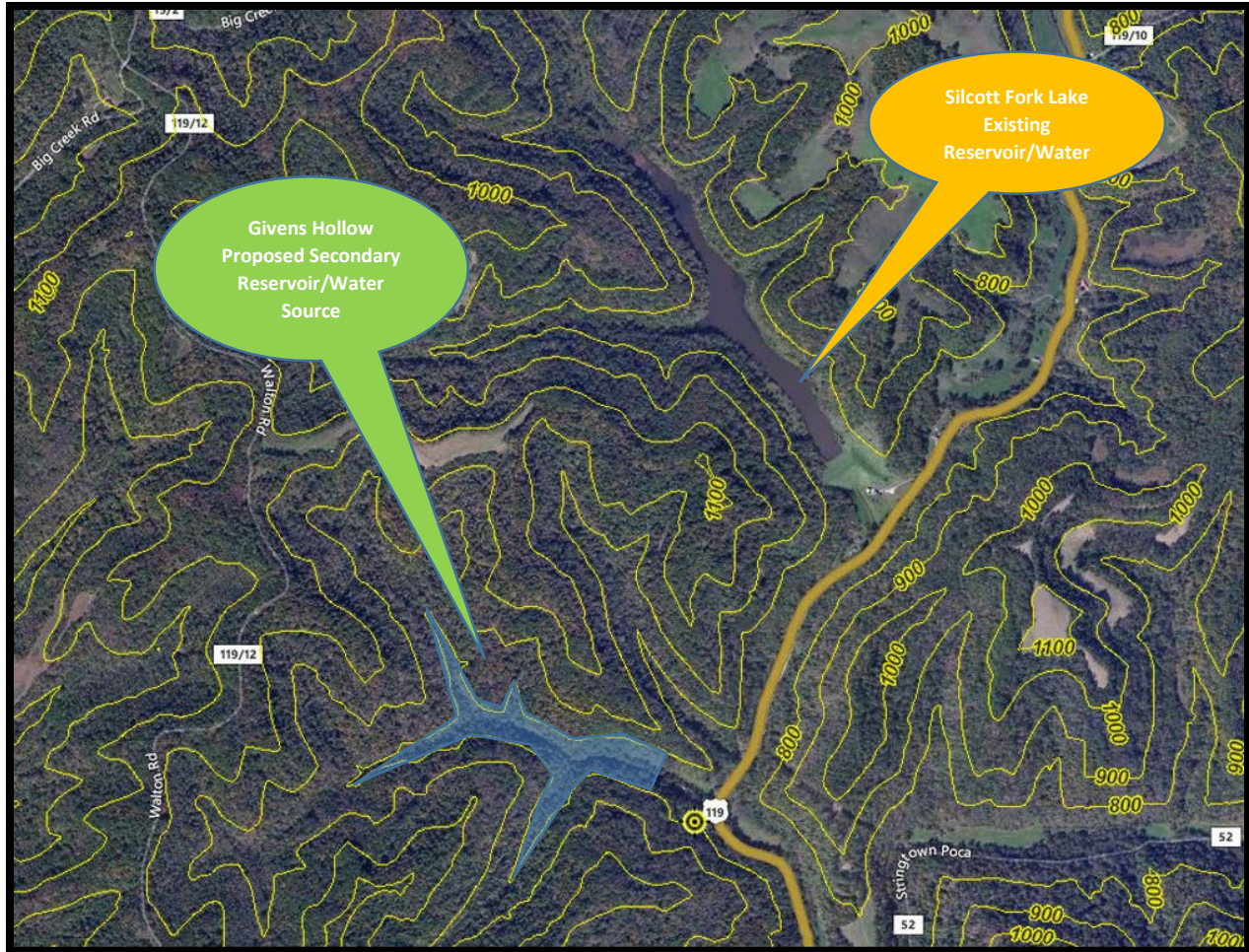
Discussion - Currently, there are approximately 943 customers served by Walton PSD. According to a *Preliminary Engineering Report prepared by Dunn Engineers for a proposed Camp Shepard – Quarry Run Waterline Extension, dated September 2013*, an additional 31 customers are proposed, which brings the total customers to 974. Additional growth was not considered, as population has historically declined in this geographical region. According to 64 CSR 77 (WVDHHR Water System Design Standards) the interconnection must be able to provide 300 gallon per day (gpd) for each customer, plus fire flow, if applicable, for at least two days. Also according to 64 CSR 77, fire flow can be calculated at 250 gallons per minute (gpm) for two hours (total of 30,000 gallons). Pressure evaluations and calculations are not a part of this project and pressure is assumed to be adequate. Therefore, the required volume of a secondary source can be calculated as follows:

$$((974 \times 300) \times 2 \text{ days}) + 30,000 = \mathbf{614,400 \text{ gallons}}$$

Backup Intake

Introduction - One secondary source option for Walton PSD is the construction or establishment of a secondary or backup intake which draws water supplies from a substantially different location or water source.

Exploration – Windshield surveys were performed, and discussions were held with local stakeholders to better ascertain the feasibility of establishing a backup intake at an existing water source or constructing a water and backup intake. No obvious existing water sources were revealed. Therefore, a new water source was evaluated. Locations and options for a new water source were discussed with Walton PSD personnel. For the basis of this analysis, the retention of Givens Hollow, a valley near the existing water treatment plant and water source (Silcott Fork Lake) was considered. Further investigation and study should be performed prior to final selection of Givens Hollow as a reservoir location.



Evaluation – The backup intake was evaluated for three criteria: Economic, Technical and Environmental. It must be stated that geographical location of a secondary reservoir greatly affects the accuracy of these criteria.

- Economics
 - Operations and Maintenance Costs – Operations and maintenance costs would include operation and maintenance of a source water intake system, early warning detection system, pump station and 3,200 feet of 8” PVC waterline. In addition, the reservoir would be subject to bi-annual inspections by a licensed engineer for submission to West Virginia Department of Environmental Protection – Dam Safety Division. Operational and maintenance costs would be similar to those currently experienced at the existing pump station and source of supply expenses currently experienced. From the latest Annual Report on file for Walton PSD (2010), current pumping and intake operations cost approximately \$16,000/year. It can be assumed that the proposed system will exhibit similar costs. This calculates to an incremental increase to the current budget year cost of \$0.45/kgal.

- Capital Costs – For estimating purposes, it is considered that an earthen dam would be constructed to create a reservoir in Givens Hollow. The dam would be from approximate elevation 790 to elevation 760 with an average bottom depth of 750. The resulting reservoir could hold up to 150,000,000 gallons. Capital funds would be expended for the acquisition of property, construction of approximately 3,200 feet of PVC 8” waterline and a pump station to pump the raw water to the existing treatment plant just upstream. Dimensions were estimated using GIS data and mapping. Based on a life of 15 years, 8% annual interest and the following cost opinion, the annualized capital cost to implement the alternative was calculated to be \$140,553/35,328,000 gallons, or \$3.98/kgal.

Item	Unit	Quantity	Unit Cost	Total Item Cost	Notes
Property Acquisition	AC	70	\$ 2,000	\$ 140,000	John Fields - Walton District - TM 9, PAR 19
Dam Construction	LS	1	\$ 500,000	\$ 500,000	Earthen dam with related appurtenances, engineering, etc.
8" PVC Waterline	LF	3200	\$ 20	\$ 64,000	Run line to current waterworks.
					Pump water to current waterworks. Following conversations with Walton PSD, it was estimated that a similar pump system to that currently in service at Silcott Fork Lake would be appropriate. This cost is listed as the replacement cost for the existing pump station in the Annual Report, 2010)
Pump Station	LS	1	\$ 479,000	\$ 479,000	
Early Warning System	LS	1	\$ 20,000	\$ 20,000	From Early Warning System specified for existing plant
				\$ 1,203,000	

- Technical

- Permitting – A permit from WVDEP Dam Safety for construction of earthen dam, from the United States Corps of Engineers for work within a waterway, West Virginia Department of Natural Resources for work within a waterway and WVDEP Erosion and Sediment Control for erosion and sediment control during construction are required. In addition, a permit from West Virginia Bureau of Public Health is required for significant improvements to water supply system and WVDOH for work within public highway right of way. Obtaining these permits will involve a significant amount of effort, but approval from these agencies is likely.
- Resilience/Flexibility – A secondary reservoir provides additional resilience to the water system, as it is a separate source in a different water shed. In addition, the earthen embankment can be raised if needed to increase capacity.
- Institutional Requirements – Walton PSD will need to acquire approximately 70 acres from property currently or formerly owned by John Fields (TM 9, Parcel 19). There are currently no development or planning restrictions in place as a barrier to this alternative.

- Environmental

- Environmental Impacts – The potential reservoir area will need to be evaluated for endangered species, potential historical preservation issues and cemeteries. Preliminary evaluation indicates that these items should not provide significant hurdles for the project.

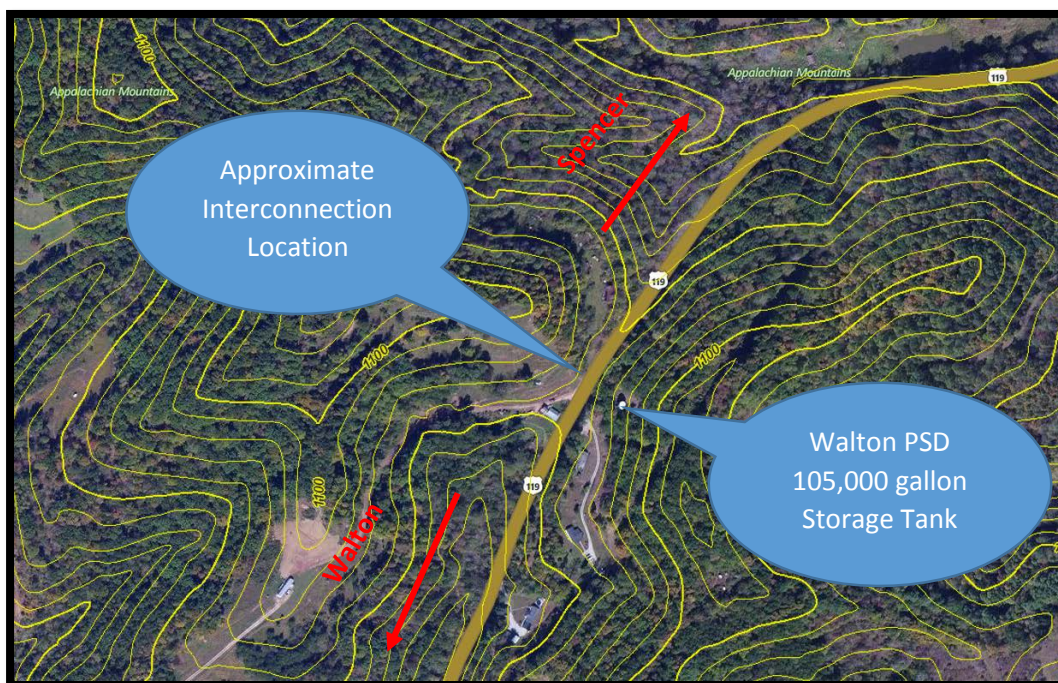
-
- Aesthetic Impacts – A second reservoir provides a potential recreational and park area for the use of local residents and tourists

 - Stakeholder Issues – Landowners at/adjacent to the proposed reservoir are stakeholders for this project.

Interconnect

Introduction - One secondary source option for Walton PSD is establishing an operational interconnection with another PWSU to allow the utility to receive its water from a different source of supply.

Exploration – Walton PSD has a current interconnection with Spencer Water Department. The interconnection with Spencer Water Department was last used in summer 2009 for two days. Spencer Water Department can supply water to “cover almost all customers served by Walton PSD.” (Meeting Memo, dated August 4, 2010, prepared by Potesta). According to Rick Parsons, General Manager of Walton PSD, there were two areas that were not able to be served during the interconnection event in 2009 due to inadequate pressure. These unserved areas have scarce population and can likely be serviced by temporary portable tank systems, such as a heavy duty urethane coated fabric tank.



Evaluation – The interconnection was evaluated for three criteria: Economic, Technical and Environmental.

- Economics
 - Operations and Maintenance Costs – Operations and maintenance costs are minimal with this second source option. The valves connecting the systems should be inspected and actuated on a yearly basis. During emergency events temporary portable tank systems would have to be transported and connected to the water main. For the basis of this analysis, the increase to operational and maintenance costs are assume to be negligible.
 - Capital Costs – Capital costs include the purchase of temporary portable water containment systems, including emergency power. For the basis of this evaluation it is assume that the customers not served during the 2009 connection to Spencer PSD can be

service by four temporary portable water containment systems. The estimated cost for each of these systems including associated valves is \$30,000 (3,000 gallon each) for a total capital investment of approximately \$120,000. Based on a life of 15 years, 8% annual interest and the following cost opinion, the annualized capital cost to implement the alternative was calculated to be \$14,020/35,328,000 gallons, or \$0.40/kgal.

- Technical
 - Permitting – No permits are currently anticipated for the implementation of this plan.
 - Resilience/Flexibility – An interconnection with a separate system served by a different treatment works and different water source significant increases the resilience of a system. There is also the added benefit of Walton PSD being able to provide water to Spencer Water Department if the need arises. However, Walton PSD does not have the capacity to be considered a secondary source for Spencer Water Department.
 - Institutional Requirements – Walton PSD will need to form an agreement with Spencer Water Department and their legal representatives for use of their system during emergency situations.
- Environmental
 - Environmental Impacts – Preliminary evaluation indicates that there will not be significant environmental impacts with this option.
 - Aesthetic Impacts – There should be no adverse aesthetic impacts.
 - Stakeholder Issues – Spencer Water Department and residents being served by the temporary portable water tanks would be stakeholders.

Treated Water Storage

Introduction - One secondary source option for Walton PSD is establishing/constructing enough treated water storage for use during a shutdown of the currently used water intake.

Exploration – Walton PSD currently owns and operates five water storage tanks totaling 567,000 gallons:

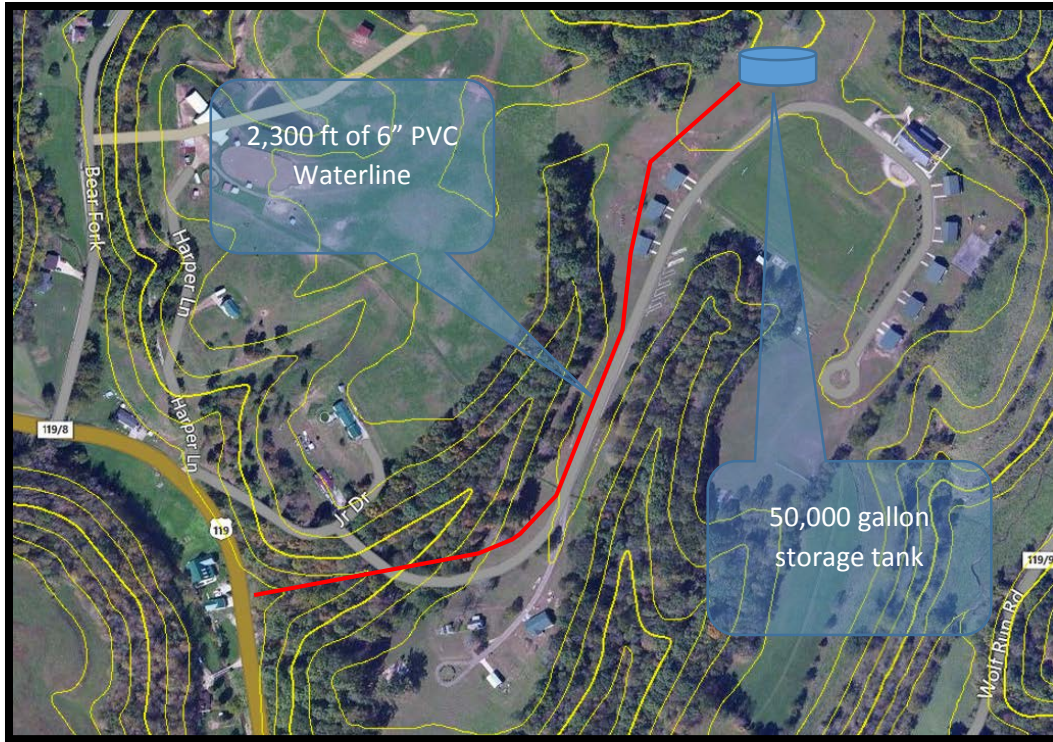
Tank	Year Built	Capacity (gal)	Size	Material
Walton	1991	100,000	25'Ø x 27' H	Painted Steel
Gandeeville	1992	105,000	26'Ø x 27' H	Glass Fused to Steel
Ambler Ridge	1991	200,000	19'Ø x 96' H	Glass Fused to Steel
Long Ridge	1994	45,000	18'Ø x 26'	Painted Steel
Gabe	1999	117,000	26'Ø x 36'	Painted Steel
Total		567,000		

Table from "Preliminary Engineering Report" prepared by Dunn Engineers for a proposed Camp Shepard – Quarry Run Waterline Extension, dated September 2013

By reason that 567,000 gallons exist in existing tanks, in order to achieve the goal of 614,400 gallons an additional storage amount of 47,400 gallons is required for the treated water storage to be considered a secondary source with the following stipulations:

- The water source must be closed quickly enough to prevent contamination of the treated water stored in the tanks.
- The tanks will need to be full prior to the emergency event.
- Proper circulation of the treated water stored in the tanks must be considered and evaluated for turn-over requirements. From discussions with Walton PSD, turn-over will not be an issue if this second source is utilized.

The "Preliminary Engineering Report" prepared by Dunn Engineers for a proposed Camp Shepard – Quarry Run Waterline Extension, dated September 2013 includes the construction of a 50,000 gallon water storage tank at Camp Shepard. From discussions with Walton PSD, this would be a logical location to construct



Evaluation – The treated water storage as a second source was evaluated for three criteria: Economic, Technical and Environmental.

- Economics
 - Operations and Maintenance Costs – The addition of a storage tank and 2,300 of water main can be estimated to require the following operations and maintenance costs:

Item	Unit	Quantity	Unit Cost	Total Item C	Notes
Personnel	HR	260	\$ 30	\$ 7,800	Assume 1 hour a day, 5 days a week, 52 weeks a year
Power	LS	1	\$ 1,000	\$ 1,000	
Replacement Parts, Supplies	LS	1	\$ 11,050	\$ 11,050	Based on 5% of capital costs.
				\$ 19,850	

This results in an Operations and Maintenance cost of \$19,850/35,328,000 gallons, or \$0.56/kgal.

- Capital Costs – A cost opinion for the construction of a 50,000 gallon tank and 2,300 feet of 6" PVC waterline is as follows:

Item	Unit	Quantity	Unit Cost	Total Item Cost
6" PVC water line	LF	2300	\$ 20	\$ 46,000
50,000 treated water storage tank	LS	1	\$ 175,000	\$ 175,000
				\$ 221,000

Based on a life of 15 years, 8% annual interest and the following cost opinion, the annualized capital cost to implement the alternative was calculated to be \$25,820/35,328,000 gallons, or \$0.73/kgal.

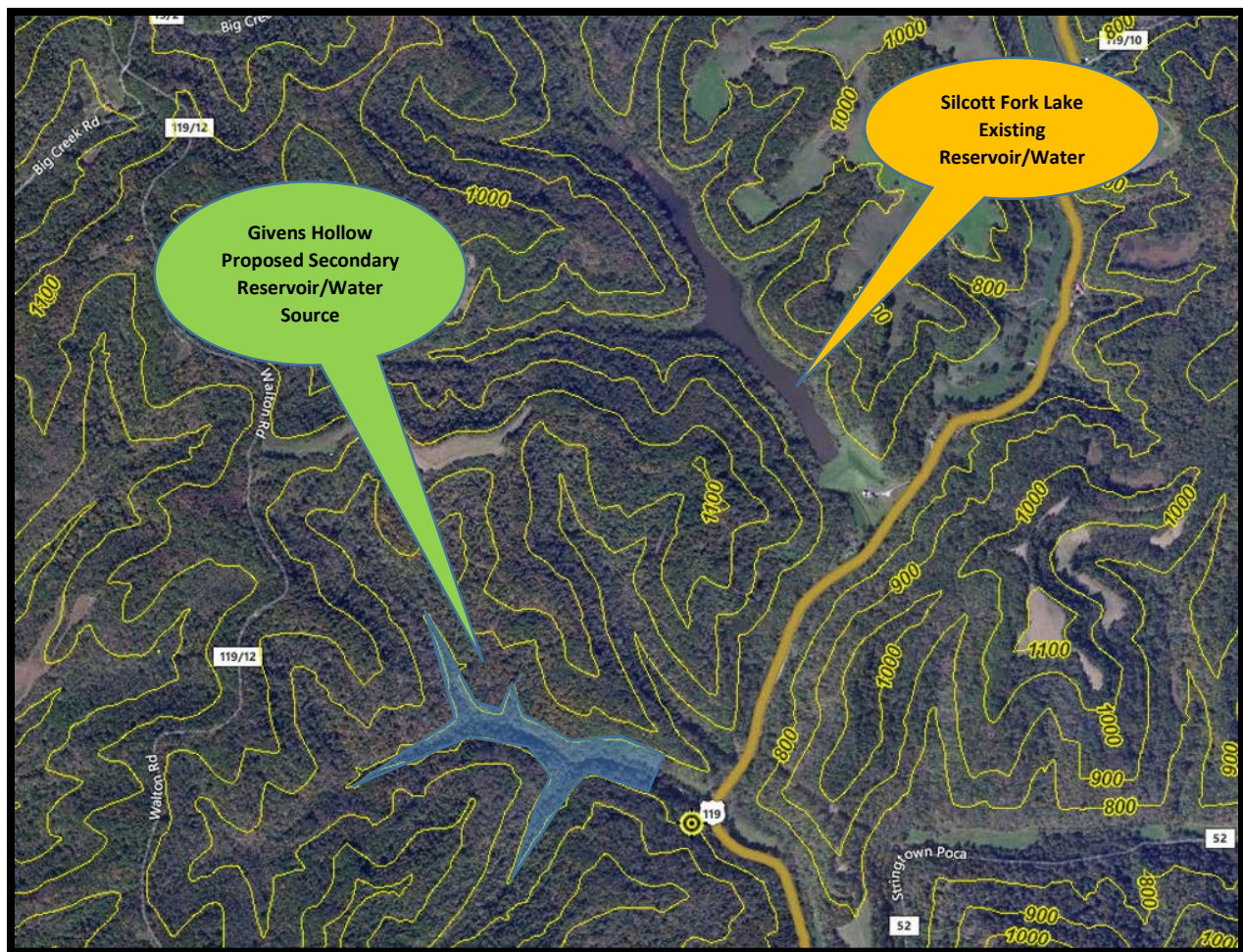
- Technical
 - Permitting – A permit from WVDEP Erosion and Sediment Control for erosion and sediment control during construction is required. In addition, a permit from West Virginia Bureau of Public Health is required for significant improvement to water supply system. Obtaining these permits will involve a moderate amount of effort, and approval from these agencies is likely.
 - Resilience/Flexibility – Six treated water storage tanks at different locations throughout the system provides Walton PSD with significant flexibility during normal operations.
 - Institutional Requirements – There are currently no development or planning restrictions in place as a barrier to this alternative.

- Environmental
 - Environmental Impacts – The potential reservoir area will need to be evaluated for endangered species, potential historical preservation issues and cemeteries. Preliminary evaluation indicates that these should items should be non-issues. The construction of the new 50,000 gallon storage tank at Camp Shepard would provide fire service to the camp.
 - Aesthetic Impacts – Five storage tanks are currently a part of the system. The additional storage tank should not have significant impacts.
 - Stakeholder Issues – Five storage tanks are currently a part of the system. The additional storage tank should not have significant stakeholder issues.

Raw Water Storage

Introduction - One secondary source option for Walton PSD is the construction or establishment of a secondary or backup intake which draws water supplies from a substantially different location or raw water source.

Exploration – Windshield surveys were performed, and discussions were held with local stakeholders to better ascertain the feasibility of establishing a backup intake at an existing water source or constructing a water and backup intake. No obvious existing water sources were revealed. Therefore, a new water source was evaluated. Locations and options for a new water source were discussed with Walton PSD. For the basis of this analysis, the retention of Givens Hollow, a valley near the existing water treatment plant and water source (Silcott Fork Lake) was considered. Further investigation and study should be performed prior to final selection of Givens Hollow as a reservoir location.



Evaluation – The backup intake was evaluated for three criteria: Economic, Technical and Environmental. It must be stated that geographical location of a secondary reservoir greatly affects the accuracy of these criteria.

- Economics
 - Operations and Maintenance Costs – Operations and maintenance costs would include operation and maintenance of a source water intake system, early warning detection system, pump station and 3,200 feet of 8” plastic waterline. In addition, the reservoir would be subject to bi-annual inspections by a licensed engineer for submission to West Virginia Department of Environmental Protection – Dam Safety Division. Operational and maintenance costs would be similar to those currently experienced at the existing pump station and source of supply expenses currently experienced. From the latest Annual Report on file for Walton PSD (2010), current pumping and intake operations cost approximately \$16,000/year. It can be assumed that the proposed system will exhibit similar costs. This calculates to an incremental increase to the current budget year cost of \$0.45/kgal.
 - Capital Costs – For estimating purposes, it is considered that an earthen dam would be constructed to create a reservoir in Givens Hollow. The dam would be from approximate elevation 790 to elevation 760 with a bottom depth of 750. The resulting reservoir could hold up to 150,000,000 gallons. Capital funds would be expended for the acquisition of property, construction of approximately 3,200 feet of plastic 8” waterline and a pump station to pump the raw water to the existing treatment plant just upstream. Dimensions were estimated using GIS data and mapping. Based on a life of 15 years, 8% annual interest and the following cost opinion, the annualized capital cost to implement the alternative was calculated to be \$140,553/35,328,000 gallons, or \$3.98/kgal.

Item	Unit	Quantity	Unit Cost	Total Item Cost	Notes
Property Acquisition	AC	70	\$ 2,000	\$ 140,000	John Fields - Walton District - TM 9, PAR 19
Dam Construction	LS	1	\$ 500,000	\$ 500,000	Earthen dam with related appurtenances, engineering, etc.
8" PVC Waterline	LF	3200	\$ 20	\$ 64,000	Run line to current waterworks.
Pump Station	LS	1	\$ 479,000	\$ 479,000	Pump water to current waterworks. Following conversations with Walton PSD, it was estimated that a similar pump system to that currently in service at Silcott Fork Lake would be appropriate. This cost is listed as the replacement cost for the existing pump station in the Annual Report, 2010)
Early Warning System	LS	1	\$ 20,000	\$ 20,000	From Early Warning System specified for existing plant
				\$ 1,203,000	

- Technical
 - Permitting – A permit from WVDEP Dam Safety for construction of earthen dam, from the United States Corps of Engineers for work within a waterway, West Virginia Department of Natural Resources for work within a waterway and WVDEP for erosion and sediment control during construction are required. In addition, a permit from West Virginia Bureau of Public Health is required for significant improvements to water supply system and WVDOH for work within public highway right of way. Obtaining these permits will involve a significant amount of effort, but approval from these agencies is likely.
 - Resilience/Flexibility – A secondary reservoir provides additional resilience to the water system, as it is a totally separate source in a different water shed. In addition, the earthen embankment can be raised if needed to increase capacity.

- Institutional Requirements – Walton PSD will need to acquire approximately 70 acres from property currently or formerly owned by John Fields (TM 9, Parcel 19). There are currently no development or planning restrictions in place as a barrier to this alternative.

- Environmental
 - Environmental Impacts – The potential reservoir area will need to be evaluated for endangered species, potential historical preservation issues and cemeteries. Preliminary evaluation indicates that these items should not provide significant hurdles for the project.

 - Aesthetic Impacts – A second reservoir provides a potential recreational and park area for the use of local residents and tourists

 - Stakeholder Issues – Landowners at/adjacent to the proposed reservoir are stakeholders for this project.

Appendix E. Supporting Documentation

Personal Invitations and follow-up phone calls and emails were made to the following potential Protection Team Members:

Organization	Name	Address	Phone	Email
Roane County NRCS	Jason Crislip	677 Ripley Road, Spencer, WV 25276	304.927.1022	jason.crislip@wv.usda.gov
Roane County Sheriff	L. Todd Cole	Street Spencer, WV 25276	304.927.3410	tcole.rcsd@yahoo.com, ljirles@sheriff.state.wv.us
Roane County Emergency Medical Services (EMS)	Danny Cronin	200 East Main Street, Spencer, WV 25276	304.927.3725	dannycronin@roaneems.com
Roane Office of Emergency Services (OES)	Melissa Gilbert	205 East Main Street , Spencer, WV 25276	304.927.0911	
Roane County Building Commission	Jen Rand	200 East Main Street, Spencer, WV 25276	304.927.0078	jenrand@commission.state.wv.us
Camp Sheppard Advisory Committee	Gary Mace	200 East Main Street, Spencer, WV 25276	304.927.3101	maceg@nationwide.com
Roane County Economic Development Authority	Mark W. Whitley	207 Court Street Spencer, WV 25276	304.927.5189	director@roanecountyeda.org
Roane County Schools	Jerry Gardner	P.O. Box 609, Spencer, WV 25276	304.927.6400	
Mid-Ohio Valley Health Department	Drema Mace	211 6th Street, Parkersburg, WV 26101	304.485.7374	
Roane General Hospital	Doug Bentz	201 Hospital Drive, Spencer, WV 25276	304.927.4444	

Protection Team/Public Meeting announcements were posted at public buildings and was advertised in the Times Herald on April 7, 2016:

honor roll.

■ **Seniors**

Theodor Anderson, Halie Austin, Kiersten Bennett, Caleb Boggs, Kelsey Brown, Alexander Burgess, Nikita Cantley, Dakota Carper, Ondrej Deimling, Logan Goodall, Stephanie Hall, William Harper Jr., Johnathan Harris, Kelli Hayes, Logan Hickman, Brittany Hicks, Cole Hoff, Caitlyn Hudnall, Jonathan Jett, Nicholas Keaton, Kara Kizer, Kirsty Lawrence, Dakota Lyons, Hunter McCormick, Cody McCune, Tony McCune Jr., Kelcie Metz, Stetson Moore,

iVoteMike.com

A Flamingo in your yard shows support for Mike Greenlee for County Commission.

Paid for by candidate.

PUBLIC MEETING ANNOUNCEMENT

Wednesday, May 4, 2016, 6:00 P.M.

Walton Community Building

**Walton Public Service District
Source Water Assessment and Protection Plan**

Walton Public Service District is supplied by a surface water source. Improper use, disposal and or management of chemicals and other potential pollutants can contaminate the surface water supply.

Walton Public Service District is asking all residents and businesses to follow all regulations as required by state and federal laws, report any spills to appropriate officials, and implement best management practices within operations to prevent the improper management of any materials that could contaminate the surface water resources.

Walton Public Service District invites the public to attend a public meeting on Wednesday, May 4, 2016 to discuss the Source Water Assessment and Protection Plan and to solicit members for a "Protection Team." The role of the Protection Team is to contribute information to the development of the Source Water Protection Plan, to review draft plans and make recommendations and when possible contribute to implementation and maintenance of the plan.

Paid for by candi

Sign in list for Protection Team/Public Meeting:

WALTON PUBLIC SERVICE DISTRICT
 SOURCE WATER ASSESSMENT & PROTECTION PLAN
 PROTECTION TEAM DEVELOPMENT MEETING
 MAY 4, 2016

Name	Company	Email Address	Phone Number	Would you like to be a Team Member?
1. Susie Cummings	WPSD			
2. Rick Pasaz	WPSO			
3. Melissa OBrien	Roane Co. Commission	mbrien@kia.wv.us	304-533-5146	
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				