Source Water Protection Plan

POCAHONTAS COUNTY PUBLIC SERVICE DISTRICT

PWSID: WV3303812

POCAHONTAS COUNTY

Pocahontas County Public Service District

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

Signature: _____ Date: 6/16/16

Mark Smith

Chairman, Pocahontas County Public Service District

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Executive Summary

The Pocahontas County Public Service District was evaluated for potential threats to source water quality and quantity, the ability of the utility to respond to emergency source water compromise, the communication plan to streamline operations between multiple agencies, education and outreach efforts to raise public awareness of source water protection, and alternatives to a single-source intake.

The Pocahontas County PSD is a public water utility which serves approximately 557 people in Pocahontas County, WV. The water treatment plant is a 500 gpm facility which is served by three groundwater springs and currently produces an average of 57,000 gallons per day. The system has 325,000 gallons of treated water storage amd 210,000 gallons of raw water storage, which can provide approximately three days' supply at the maximum production rate experienced in the last year.

An analysis identifying potential sources of significant contamination was performed and seven unique sites were found within the utility's Zone of Critical Concern. Of these, one is an industrial site related to utility operations, one was agricultural in nature, and five were residential sources of contamination, mainly household septic or aeration units.

Priority management strategies for the identified PSSCs include continued monitoring of source water composition, public education of household waste management systems, best management practices for commercial and industrial operators with regards to storage and disposal of chemical waste, fertilizer management and nutrient runoff education for agricultural operations, and proper abandonment of personal water wells or commercial gas wells within the protection area.

In the event of a spill or other contamination, the utility has several options for protecting the integrity of its operations. Source water supply can be interrupted by closing valves below the springs to prevent contamination from entering the system and current storage capacity translates to three days' usage at maximum production observed within the past year. The utility also has the ability to connect to a generator in the event of power loss. Communication with emergency personnel and other public agencies is already well-established to ensure effective dissemination of instructions and information in the event of an emergency.

The above is presented in greater detail in the utility's Source Water Protection Plan as the following report.

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. Every aspect of source water protection is best addressed by engaging local stakeholders.

The intent of this document is to describe what Pocahontas County 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, Pocahontas County Public Service District acknowledges that implementing measures to prevent 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 Pocahontas County 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

Pocahontas County 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 Pocahontas County Public Service District

Administrative office location:	14066 Back Mountain Road, Bartow, WV 24920		
Is the system a public utility, according to the Public Service Commission rule?	Yes		
Date of Most Recent Source Water Assessment Report:	October 31, 2013		
Date of Most Recent Source Water Protection Plan:	N/A		
Population served directly:	557		
Bulk Water Purchaser Systems:	**System Name**	**PWSID Number**	**Population**
	None		
Total Population Served by the Utility:	557		
Does the utility have multiple source water protection areas (SWPAs)?	No		
How many SWPAs does the utility have?	One		

Water Treatment and Storage

As required, Pocahontas County 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 groundwater sources from which Pocahontas County Public Service District draws water can be found in **Table 3**.

Table 2. Pocahontas County Public Service District Water Treatment Information

Water Treatment Processes (List All Processes in Order)	Prechlorination, coagulation, sedimentation, filtration, postchlorination and pH adjustment
Current Treatment Capacity (gal/min)	500
Current Average Production (gal/day)	57,000
Maximum Quantity Treated and Produced (gal)	201,000
Minimum Quantity Treated and Produced (gal)	33,990
Average Hours of Operation	5.2 hours/day
Maximum Hours of Operation in One Day	18
Minimum Hours of Operation in One Day	3
Number of Storage Tanks Maintained	2
Total Gallons of Treated Water Storage (gal)	325,000
Total Gallons of Raw Water Storage (gal)	210,000

Table 3. Pocahontas County Public Service District Groundwater Sources

Does the utility blend with groundwater?					Source is groundwater only				
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)**
Spring 1	SP001	-	Unknown	No	Unknown	Unknown	Unknown	Primary	Active
Spring 2	SP002	-	Unknown	No	Unknown	Unknown	Unknown	Backup	Active
Spring 3	SP003	-	Unknown	No	Unknown	Unknown	Unknown	Backup	Active

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) 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 warrant 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 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. 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 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**. Other information about the WSDA is shown in **Table 4**.

Table 4. Watershed Delineation Information

Size of WSDA (Indicate units)	N/A – Groundwater Source
River Watershed Name (8-digit HUC)	West Fork Greenbrier River (00030103)
Size of Zone of Critical Concern (Acres)	N/A
Size of Zone of Peripheral Concern (Acres) (Include ZCC area)	N/A
Method of Delineation for Groundwater Sources	Hydrogeologic mapping based on geologic structure, bedrock lithology, and topography
Area of Wellhead Protection Area (Acres)	554

Protection Team

Communities with successful protection plans form a protection team to help develop and implement the plan. A protection team provides a broader level of oversight and should include individuals familiar with protective strategies. Team members should include: water supply staff including the manager and designated operator, LEPC representative, local health department representative, local government officials and affected citizen representative. If any of these representatives are not available to participate on the protection team

the water utility should document the effort to engage them and the reason why they were not available. 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 Pocahontas County 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 5**. Members of the Protection Team reviewed the system's Source Water Assessment Report, included as an attachment for this report, and existing Source Water Protection Plan, as well as newly collected threat data to make informed decisions on threats, protective measures, and implementation actions. A summary of meetings and correspondence as part of the SWPP update process is included in **Appendix F**. The Protection Team will also be responsible for updating the source water protection plan continually and documenting their efforts to engage local stakeholders. These efforts will be guided through the utility to involve citizens as participants or contributors, who can contact the utility at 304-456-3127 for more information on how to become involved.

Table 5. Protection Team Member and Contact Information

Name	Representing	Title	Phone Number	Email
Jeff Wayne	Pocahontas County PSD	**Chief Operator**	[redacted]	pocahontascopsd@frontier.net
Cindy Barkley	Pocahontas County PSD	**Operator**		pocahontascopsd@frontier.net
Linda McCoy	Pocahontas County Health Department	**Administrator**		
Lew Baker	WV Rural Water Association	**Source WaterProtection Specialist**		lewbaker@wvrwa.org
Buster Varner	Bartow-Frank-Durbin Fire Dept.	**Chief**		
Mike O'Brien	Pocahontas County EMS	**Director**		
Date of first protection Team Meeting		May 22, 2015		
Efforts to engage local stakeholders and explain absence of required stakeholders:		Member information and correspondence are included in Appendix F.		

Potential Significant Sources of Contamination

Source water protection plans should provide a complete and comprehensive list of the potential sources of significant contamination (PSSC) contained within the ZCC, based upon information obtained from the Department of Environmental Protection (WVDEP), the WVBPH, the Division of Homeland Security and Emergency Management. 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 that utilities receive of PSSCs located in their 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, Division of Homeland Security and Emergency Management, and out of 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 related emergency, information pertaining to any spill or release of contaminant shall be immediately disseminated to any emergency responders reporting to the site of a spill or release. The designee(s) will be identified in the communication plan section of the source water protection plan.

PSSC data from some agencies (ex. Division of Homeland Security and Emergency Management, 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 on Tier II reports), water utilities should contact the local emergency planning commission or agencies, directly. Maps of the PSSCs and regulated site locations are provided in **Appendix A. Figures 1-2**.

Local and Regional PSSCs

For the purposes of this source water protection plan, local PSSCs are those that are identified by local stakeholders in addition to 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.

The Pocahontas County Public Service District protection team verified intake locations and reviewed the delineated area (SWPA) to verify the existence of PSSCs previously identified, identify any new PSSCs, and to gain local knowledge of the presence of PSSCs not listed on the original or updated inventory or in regulated databases and not easily detected. Information on any new or updated PSSCs can be found in **Table 6**. If possible, locations of regulated sites within the SWPA were verified.

Table 6. Locally Identified Potential Significant Sources of Contamination

PSSC Number	Map Code	Site Name	Site Description	Comments
1	R-4	Septic System	Residential septic systems	Threat Level: High Chemicals: VOC, SOC, NN
2	R-4	Septic System	Residential septic systems	Threat Level: High Chemicals: VOC, SOC, NN
3	R-4	Septic System	Residential septic systems	Threat Level: High Chemicals: VOC, SOC, NN
4	I-30	Utility Right-of-Way	Power transmission line corridor	Threat Level: Medium Chemicals: M, VOC, SOC
5	R-4	Septic System	Residential septic systems	Threat Level: High Chemicals: VOC, SOC, NN
6	R-4	Septic System	Residential septic systems	Threat Level: High Chemicals: VOC, SOC, NN
7	A-18	Pasture	Small farm and pasture	Threat Level: Low Chemicals: MP, SOC

M – Metals
MP – Microbiological Pathogens (Total/Fecal Coliform, Viruses, Protozoa)
NN – Nitrate/Nitrite
SOC – Synthetic Organic Compounds
VOC – Volatile Organic Compounds

Prioritization of Threats and Management Strategies

It may not be feasible to develop management strategies for all of the PSSCs within the SWPA, depending on the total number identified. 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 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 purposes of this source water protection plan, a critical area is defined as an area, identified by local stakeholders, within or outside of the ZCC, that may contain one or more PSSC(s), and/or within which immediate response would be necessary to address the incident and to protect the source water.

Once the utilities have identified local concerns, they will develop and implement source management strategies to protect the source water from protection, in cooperation with the WVBPH, local health departments, local emergency responders, local emergency planning committees, and other agencies and organizations. Source management strategies are any actions taken to protect the source water from specific PSSCs, types of sources, and critical areas. For example, prohibitions of certain land uses or facilities, design standards, best management practices, operating standards, and reporting requirements are typical source management strategies. Land purchases, conservation easements, and purchase of development rights are also considered source management strategies. Water utilities may also consider notification to and coordination with government agencies during a water supply impairment as a management strategy. Lastly, one strategy all water utilities should implement is period surveys of their protection areas to stay aware of threats.

It is advisable to focus source management strategies on high-priority PSSCs and especially any that are within the utilities jurisdiction. However, the utility can protect against contaminant sources outside its jurisdiction by working with the officials of the county in which the sources are located. Also, if watershed groups are active in the area of concern, the utility may be able to partner with them.

A list of these priority PSSCs was selected and ranked by the Pocahontas County 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. It 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. This information can be found in **Table 7.**

Implementation Plan for Management Strategies

When considering source management strategies and education and outreach strategies, this utility has considered how the strategies will be implemented. The initial step in implementation is to discuss responsible parties and timelines to implement the strategies. 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. Pocahontas County Public Service District has developed an implementation plan for each strategy listed in the Prioritization of Threats section. The responsible team member, timeline, and potential cost of each strategy was estimated and is presented in **Table 8**.

Table 7. Priority PSSCs or Critical Areas

PSSC or Critical Area	Priority Number	Reason for Concern
Residential – Septic Systems	1	Location is likely in a karst formation, which would increase the rate of contamination from possible failing septic systems within the SWPA.
Industrial - Utilities	2	Utilities use various herbicides for vegetative control along right-of-way corridors. These have the potential runoff or leach into groundwater resources.
Agriculture	3	Runoff from agricultural operations can include fertilizers, herbicides, insecticides, and animal waste. Within the source protection area, but runoff is unlikely to impact springs.

Table 8. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status/Schedule	Comments	Estimated Cost
Residential	Continue to analyze source samples, educate landowners on source water protection, discuss possible septic issues if source quality decreases.	Jeff Wayne	Short Term (0-2 Years)		Time spent providing educational materials and discussing management strategies with residents
Utility	Continue to analyze source samples and coordinate with utility to determine, if possible, types and quantities of herbicides used and the frequency of their application.	Jeff Wayne	Short Term (0-2 Years)		Time expenditures coordinating with utility managers and ensuring best application practices.
Agriculture	Continue to analyze source samples and discuss with landowner about agricultural runoff and nutrient loading if problems are detected. Possibly discuss best use of land and farming operations in order to protect source quality if issues arise.	Jeff Wayne	Short Term (0-2 Years)		Costs for educational materials. Time expenditures for any training and meetings.

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 insure 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. Pocahontas County Public Service District has created an Education and Outreach plan that it has either already implemented or plans to implement in the future to keep the local community involved in protecting their source of drinking water. This information can be found in **Table 9**.

Table 9. Education and Outreach Implementation Plan

Education and Outreach Strategy	Description of Activity	Responsible Protection Team Member	Status/Schedule	Comments	Estimated Cost
Current Billing/Consumer Confidence Reports	Information about source water protection and public emergency response can be included in annual Consumer Confidence Reports issued by the District.	Jeff Wayne	Short Term (0-2 Years)		Time spent compiling information
Emergency Planning	Continue to coordinate with emergency services in the area to ensure open communication and cooperation in the event of a spill.	Jeff Wayne, Mike O'Brien, Buster Varner	Short Term (0-2 Years)		Minimal
Community Partners	Partner with area non-governmental organizations, watershed associations, conservation groups, etc. on existing water protection and education efforts. Continue efforts with the Pocahontas County Water Resources Task Force	Jeff Wayne, Cindy Barkley	Long Term (5+ Years)		Time costs associated with outreach and planning
Public Meeting	Engage with the community in a public meeting to educate about source water protection and PSSC management. This can be done in conjunction with related partners and organizations.	Jeff Wayne, Cindy Barkley	Pending	Based on existing meeting schedules and public accommodation	Time spent preparing materials and presenting information

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. In the case of Pocahontas County PSD, the source of drinking water is a number of springs above the utility, from which water is gravity-fed to the system. The utility is limited in their ability to manage source water in the event of a contamination; in such an emergency, the system is isolated from the source by closing valves to prevent inundation with the contaminated supply. In the intervening time between

source quality compromise and system restoration, the utility has a total of 325,000 gallons of storage, or about three days' supply based on maximum reported production within the last year. Information regarding the water shortage response capability of Pocahontas County Public Service District is summarized in **Table 10**.

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/). Pocahontas County Public Service District has analyzed its ability to effectively respond to emergencies and this information is provided in **Table 10**.

Table 10. Pocahontas County 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:	Utility is unable to divert contamination; it can only isolate the system by closing valves to prevent any contaminated source water from entering the system.
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:	N/A
Can the utility close the water intake to prevent contamination from entering the water supply?	Yes
How long can the intake stay closed?	Three (3) days
Describe the process to close the intake:	System is gravity-fed; it can be isolated from contamination by closing valves
Describe the treated water storage capacity of the water system:	325,000 gallons total: One 225,000 gallon steel tank One 100,000 gallon steel tank
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:	Durbin-Frank-Bartow Fire Department Town of Marlinton

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 utilities capacity for operation during power outages is shown in **Table 11**.

Table 11. Generator Capacity

What is the type and capacity of the generator needed to operate during a loss of power?	Diesel Generator			
Can the utility connect to generator at intake/wellhead? If yes, select a scenario that best describes system.	N/A, gravity-fed			
Can the utility connect to generator at treatment facility? If yes, select a scenario that best describes system.	Yes, the generator can be connected to run the pumps at the treatment facility.			
Can the utility connect to a generator in distribution system? If yes, select a scenario that best describes system.	N/A, all gravity-fed			
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**		
	Unknown; readily available			
Provide a list of suppliers that could provide generators and fuel in the event of an emergency:	**Supplier**		**Contact Name**	**Phone Number**
	Generator	Mountaineer Generator Service		304-636-0011

	Generator			
	Fuel	Woodford Oil		304-636-2688
	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:		N/A		

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. Pocahontas County Public Service District has analyzed its ability to meet future water demands at current capacity, and this information is included in **Table 12**.

Table 12. Future Water Supply Needs for Pocahontas County Public Service District

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.	Yes. The District does not anticipate any significant increase in customer base through population growth or commercial relocation within the next five years. Any slight growth according to projected population changes can be managed with the current treatment capacity.
If not, describe the circumstances and plans to increase production capacity:	N/A

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 13** is taken from the most recently submitted Pocahontas County Public Service District PSC Annual Report.

Table 13. Water Loss Information

Total Water Pumped (gal)		25,907,000
Total Water Purchased (gal)		0
Total Water Pumped and Purchased (gal)		25,907,000
Water Loss Accounted for Except Main Leaks (gal)	**Mains, Plants, Filters, Flushing, etc.**	653,000
	Fire Department	150,000
	Back Washing	347,000

	Blowing Settling Basins	0
Total Water Loss Accounted For Except Main Leaks		1,150,000
Water Sold- Total Gallons (gal)		12,912,000
Unaccounted For Lost Water (gal)		10,358,000
Water lost from main leaks (gal)		1,487,000
Total gallons of Unaccounted for Lost Water and Water Lost from Main Leaks (gal)		11,845,000
Total Percent Unaccounted For Water and Water Lost from Main Leaks (gal)		45.7%
If total percentage of Unaccounted for Water is greater than 15%, please describe any measures that could be taken to correct this problem:	The PSD is undergoing a meter replacement program as well as targeting areas for transmission and service line replacement.	

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.

Pocahontas County 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 14** and in **Appendix B.**

Table 14. Early Warning Monitoring System Capabilities

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?	Yes; Bartow-Frank-Durbin Fire Dept.	
Are you aware of any facilities, land uses, or critical areas within your protection areas where chemical contaminants could be released or spilled?	Yes, but limited chance of contamination; no roads or population in vicinity	
Are you prepared to detect potential contaminants if notified of a spill?	Yes, off-site. Will collect samples and send to lab for testing	
List laboratories (and contact information) on whom you would rely to analyze water samples in	**Laboratories**	
	Name	**Contact**
	REIC Labs	800-999-0105

case of a reported spill.		
Do you have an understanding of baseline or normal conditions for your source water quality that accounts for seasonal fluctuations?	Yes	
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?	Yes	
Provide or estimate the capital and O&M costs for your current or proposed early warning system or upgraded system.	**Capital**	N/A
	Yearly O & M	N/A
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.	No	
Note: Complete appropriate Early Warning Monitoring form for your system in Appendix B (Line 71).		

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 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 raw or treated water storage, interconnection with neighboring systems, or other options identified on a local level. Note a secondary intake would draw water supplies from a substantially different location or water source.

In order to accomplish this requirement, utilities should examine all existing or possible alternatives and rank them by their technical, economic, and environmental feasibility. In order to have a consistent complete method for ranking alternatives, WVBPH has developed a feasibility study guide. This guide provides several criteria to consider for each category, organized in a scoring matrix. By completing the Feasibility Study utilities

will demonstrate the process used to examine the feasibility of each alternative. The Feasibility Study matrix is attached as **Appendix D**. Those alternatives that are ranked highest and deemed to be most feasible will then be the subject of a second, more in depth, study to analyze the comparative costs, risks and benefits of implementing each of the described alternatives. An alternatives analysis report providing these details is attached as **Appendix E**.

Communication Plan

The Protection Team for this water system 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. The Protection Team will update the Communication Plan continually to insure 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 Pocahontas County Public Service District is titled **Appendix C**.

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

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 systems be posted and readily available in the event of an emergency. Information regarding this utility's Emergency Response Plan can be found in **Appendix C**. Several short forms are included and provide quick access to important information about emergency response. These should be printed and made available for reference by utility personnel. The following information should be included in the utility's Emergency Response Plan:

- Emergency Response Team
- Emergency Communication Equipment
- List of sensitive populations
- List of major users
- Personnel and property protection measures?
- Planned training courses
- Resource inventory
- Repair and supply providers
- Procedures for specific emergency incidents

If this information is not included in the plan, the emergency response plan should be reevaluated and updated to provide all important information. Contact the DHHR SWAP program at (304)356-4298 for guidance with this process.

Conclusion

This report represents a detailed explanation of the required elements of Pocahontas County 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**.

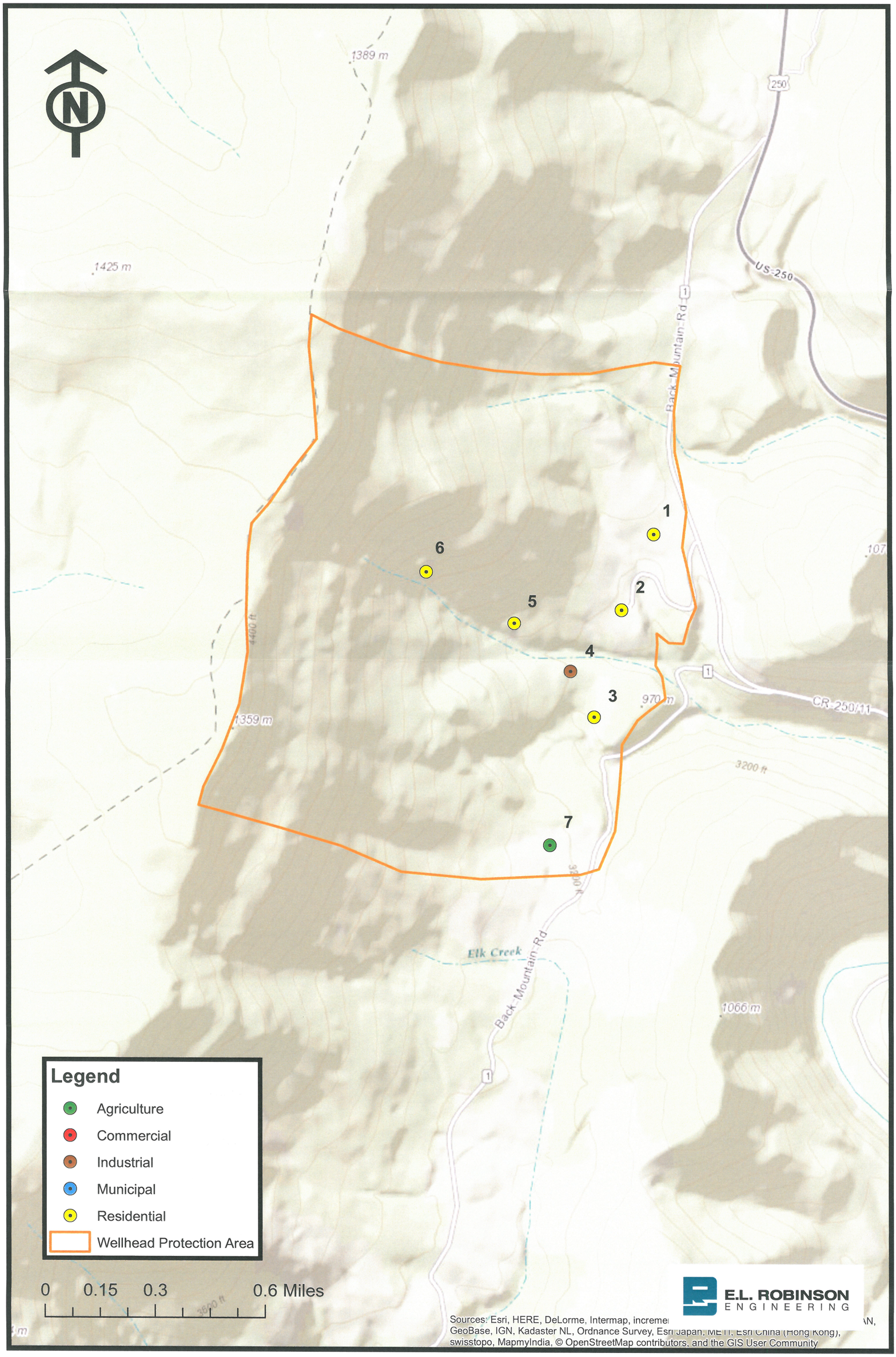
This source water protection plan is intended to help prepare community public water systems all over West Virginia to properly handle any emergencies that might compromise the quality of the system's source water supply. It is imperative that this plan is updated as often as necessary to reflect the 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

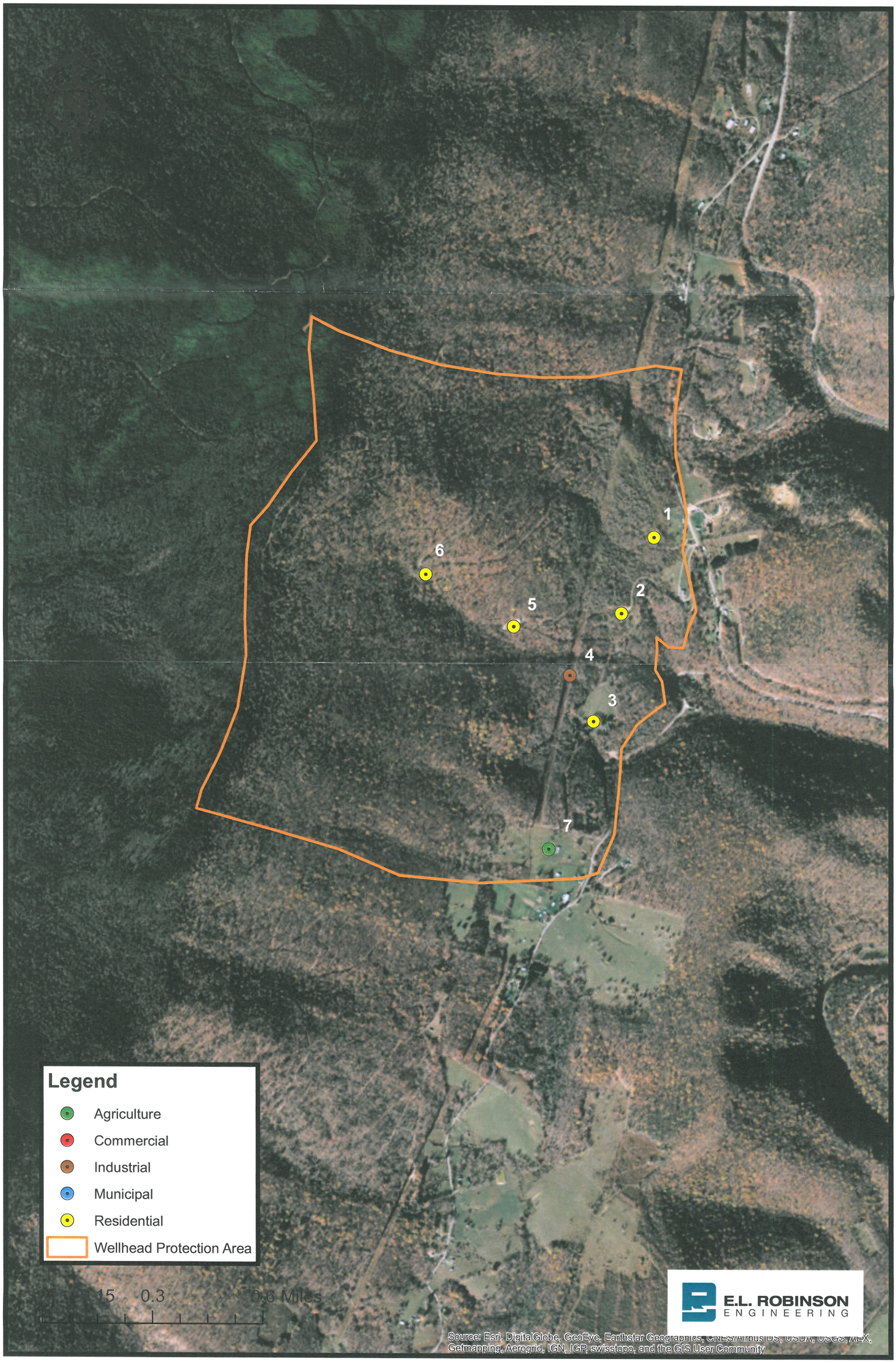
Map of Protection Area and Identified PSSCs, Topographic

Figure 1 - Pocahontas County PSD Source Water Protection Area, Topographic



Map of Protection Area and Identified PSSCs, Aerial

Figure 2 - Pocahontas County PSD Source Water Protection Area, Aerial



Appendix B. Early Warning Monitoring System Forms

Select and Attach the Appropriate Form for Your System

Form A-Complete if you currently have an early warning monitoring system installed for a surface water source

Form B-If you do not currently have an early warning monitoring system installed for a surface water intake or are planning to upgrade or replace your current system, complete this form.

Form C-Complete if you currently have an early warning monitoring system for a groundwater source.

Form D- If you do not currently have an early warning monitoring system installed for a groundwater source or are planning to upgrade or replace your current system, complete this form.

Note: You may need to fill out and attach more than one form to your Protection Plan, depending on your current situation.

Appendix B-Form D

Describe the type of ground water monitoring network that could be installed, including the design and location.
A CMT Multilevel Groundwater Monitoring System could be employed, if desired. This would be a 3-Channel system contained in single tubes, with a 1/4" Mini Inertial Pump and a 3/8" DVP. The wells would be spaced roughly 500 ft. apart and at least 1,000 feet north of the northernmost spring.
How many monitoring (sentinel) wells would need to be established?
3
What is the expected rate of travel of a contaminant through the groundwater system?
Unknown
Provide the distance from the contaminant source to the proposed monitoring wells.
Unknown
What is the distance from the proposed monitoring equipment to the wellhead?
Unknown
What would the maintenance plan for the monitoring equipment entail?
Weekly routine maintenance
Describe the proposed sampling plan at the monitoring site.
Unknown
Describe the proposed procedures for data management and analysis.
Unknown

<u>Proposed</u> Early Warning Monitoring System Worksheet- Groundwater Source

Appendix C. Communication Plan

Communication Plan Template

For Pocahontas County Public Service District

PWSID: _____3303812_____ District: _____Philippi_____

Certified Operator: _____Jeff Wayne_____

Contact Phone Number: _____[redacted]_____

Contact Email Address_____pocahontascopsd@frontiernet.net_____

Plan Developed On: ____5/26/2016_____ Plan Update Due On: _____

ACKNOWLEDGMENTS:

This plan was developed by Elliott Lewis, EIT, E.L. Robinson Engineering Company, 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

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.

> **A** = **A**nnouncement. 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 = **B**oil 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 = **C**annot 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 = **D**o 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=**E**mergency. 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
Jeff Wayne	Pocahontas County PSD	[redacted]	pocahontascopsd @frontiernet.net	Primary Spokesperson
Cindy Barkley	Pocahontas County PSD	[redacted]	pocahontascopsd @frontiernet.net	Secondary Spokesperson
Lewis Baker	WV Rural Water	[redacted]	lewbaker@gmail.com	Member
Mike O'Brien	Pocahontas County EMS	[redacted]		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 Plan and Communication Plan
- Attend team meetings to ensure up-to-date knowledge of the system and its functions
- Participate in periodic exercises that “game out” 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
- Not 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
- 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. 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

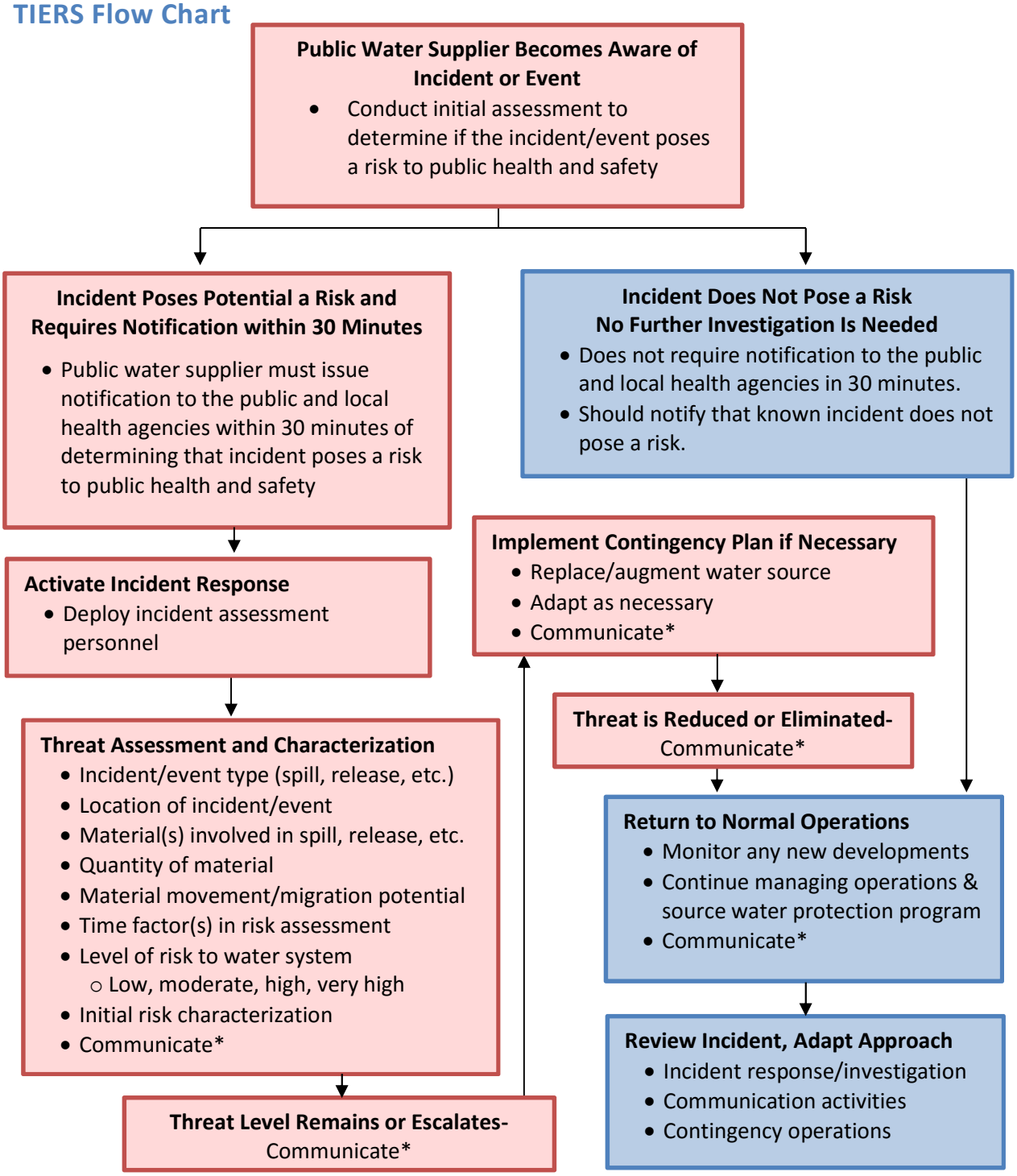
As the flow chart indicates, several iterative cycles will occur after the initial threat assessment, including communication with local agencies and the public, further investigation of the incident, possible implementation of the water system's contingency plan, and eventual elimination of the threat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

- The initial release (i.e., **A**nnouncement, **B**oil Water, **C**annot Drink, **D**o Not Use, or **E**mergency)
    - 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

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 will 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



Communicate*

Constant communication with local agencies, public, and the media is critical throughout the entire process. The initial notification should include all pertinent information, depending on the TIERS level. Regular information updates should be provided. The **A-B-C-D-E** TIERS levels should be updated and explained as necessary.

Emergency Short Form 1

Emergency Communication Information

	Name	Phone Number	Email
Designated spokesperson:	Jeff Wayne	[redacted]	pocahontascopsd @frontiernet.net
Alternate spokesperson:	Cindy Barkley	[redacted]	pocahontascopsd @frontiernet.net
Designated location to disseminate information to media:	Pocahontas County PSD Office		

Methods of contacting affected residents:	**Word of mouth**	**Yes**	**Posted notices**	**Yes**
	Door-to-door canvasing		**Radio**	**Yes**
	Newspaper	**Yes**	**Other**	**Yes**

Media contacts:	**Name**	**Title**	**Phone Number**	**Email**
	WBOY	Television Station	304-624-6152	dgraye@wboy.com
	WVMR	Radio Station	304-799-6004	richard@amrmail.org

Emergency Services Contacts

	Name	Emergency Phone	Alternate Phone	Email
Local Police	Pocahontas County Sheriff's Department	911	304-799-4445	drjonese @sheriff.state.wv.us
Local Fire Department	Bartow-Frank-Durbin Fire & Rescue	911	304-456-4999	
Local Ambulance Service	Pocahontas County EMS	911	304-799-6537	
Hazardous Material Response Service	WV DEP	800-642-3074		

Emergency Short Form 2

Key Personnel

	Name	Title	Phone	Email
Key staff responsible for coordinating emergency response procedures?	Jeff Wayne	Chief Operator	[redacted]	pocahontascopsd@frontiernet.net
Staff responsible for keeping confidential PSSC information and releasing to emergency responders:	Jeff Wayne	Chief Operator	[redacted]7	pocahontascopsd@frontiernet.net

Sensitive Populations

Other communities that are served by the utility:	None		
Major user/sensitive population notification:	**Name**	**Emergency Phone**	**Alternate Phone**
	None		
EED District Office Contact:	**Name**	**Phone**	**Email**
	Craig Cobb	304-368-2530	craig.r.cobb@wv.gov

Downstream Water Contacts:	**Water System Name**	**Contact Name**	**Emergency Phone**	**Alternate Phone**
	Denmar Correctional Center	Sylvia Haney (Primary), Mark Riggsby (Alternate), Randy Stemple (Alternate)	304-653-4201	
Are you planning on implementing the TIER system?		Yes		

Emergency Short Form 3

Emergency Response Information

List laboratories available to perform sample analysis in case of emergency:	**Name**	**Phone**
	REIC Labs	800-999-0105
Has the utility developed a detailed Emergency Response Plan in accordance with the Public Health Security Bioterrorism Preparedness and Response Pan Act of 2002 that covers the following areas?	No	
When was the Emergency Response Plan developed or last updated?	N/A	

Emergency Short Form 4

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

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
Philippi, District 6 (304) 457-2296

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 Supply Alternatives Feasibility Analysis

The Pocahontas County Public Service District obtains its water from three source springs. These springs are within the same groundwater contribution area and are determined to be GWUDI springs, and therefore considered a single source. In the event of contamination or source compromise, the District currently has no other alternative to provide drinking water beyond the system storage capacity. Several alternatives are compared in the following that the District can consider implementing to provide an alternative source should the current springs be rendered inoperable for an extended period of time.

Secondary Intake

The District currently receives its water from the three source springs, but as these are under direct influence, the treatment plant was configured as a surface water treatment facility. The District could conceivably establish a surface water intake outside the groundwater contribution area and the watershed to avoid any contamination or failure experienced at the springs. Such an intake would be sited at the East Fork Greenbrier River as to be in a separate watershed. It would also be required to be upstream of the sewage treatment lagoon just west of Durbin. This would require approximately 9,700 linear feet of waterline to reach the treatment plant, bar screen and other intake structures, a new intake pump to transport the water, treatment plant modifications or increased chemical consumption, depending on the raw water quality, and other related appurtenances. In total, this could cost approximately $1.5-2.0 million in capital expenditures.

As all three springs are GWUDI sources and within the same contribution area, any new groundwater source well would need to be sited outside this area as to avoid the same contamination. This would require a minimum of 6,500 linear feet of transmission line, new well, casing, source pump, and other related appurtenances. This alternative would cost approximately $750,000-1,000,000 in capital expenditures.

Increased Water Storage Capacity

The District currently has 210,000 gallons of raw water storage and 325,000 gallons of treated water storage, for a total of 535,000 gallons. The maximum daily production experienced in the last year was 201,000 gallons, which would require 402,000 gallons for a two-day usage by the District's consumers. In the event of source disruption, the District's total capacity would then continue to provide service for an additional 2.66 days before exhaustion at maximum usage. As the District has sufficient total storage to meet this demand, no further addition to system capacity is needed.

Interconnection with Adjacent PWSU

The closest water systems to the District are Huttonsville Public Service District (Randolph County) and the Cass Scenic Railroad. Huttonsville PSD currently operates a 4 MGD capacity treatment plant and has sufficient capacity to serve the Pocahontas PSD customer base on a temporary basis in the event of a contamination or source failure. Due to the distance and topography between the two service areas, nearly 90,000 linear feet of transmission line and numerous booster pump stations would be required. This would cost approximately $7.0-7.7 million. Likewise, the Cass Scenic Railroad system would require nearly 70,000 linear feet of water line, several pump stations, and other related appurtenances. This would require around $6.0-6.75 million to accomplish.

Two additional areas have water supplies which were evaluated to determine their viability for interconnection. Green Bank Elementary-Middle School is located approximately 8.5 miles from the Pocahontas County PSD service area. The school currently uses a groundwater supply to serve approximately 325 people at the facility. It was indicated that the well does not have sufficient production capabilities to meet the needs of both areas on a contingency basis, and, coupled with the school's lack of water storage, an interconnection to the school was also ruled out at this time.

The National Radio Astronomy Observatory is located approximately eight miles from the Pocahontas PSD service area. Jody Bolyard, Manager of Environment, Safety, and Security at NRAO's Green Bank Facility, indicated that at peak staffing they provide water for nearly 150 people. The capacity of the facility's storage tank was unknown at the time of correspondence, but Mr. Bolyard indicated that the facility would likely not have capacity to supply both service areas in the event of an emergency and thus a dedicated interconnection would not be feasible. It should be noted, however, that in the event of an emergency, he indicated that they would be willing to help as much as possible.

Summary

A summary of the alternative source of supply costs are as follows:

- Groundwater Well: $750,000-1,000,000
- Surface Water Intake: $1.5-2.0 million
- **Raw and Finished Water Storage: N/A, sufficient capacity**
- Cass Interconnection: $6.0-6.75 million
- Huttonsville Interconnection: $7.0-7.7 million
- NRAO interconnection: Not feasible
- Green Bank Elementary-Middle School interconnection: Not feasible

Comparing the costs and likely feasibility of each alternative, it is evident that, because the District has more than two days' storage at maximum production, it is sufficiently positioned to provide service in the event of temporary source interruption due to a contamination or a spill. Should the system capacity be exhausted before the resumption of normal service, the District is currently prepared to coordinate with local emergency officials to provide trucked water as a source of supply. While inconvenient for customers, the likelihood of an extended service outage is low. Further, the cost to

consumers in this scenario would be far exceeded by the cost to build a new intake or construct an interconnection with a neighboring supplier. The estimated cost to haul water to the service area would approximately be $5,000 to $7,000 per day at maximum consumption, which is two orders of magnitude less than the next most-affordable alternative. Should the PSD decide, however, to pursue a dedicated alternative source, a new, non-GWUDI groundwater well would be the most cost-effective option.

Appendix E. Alternatives Analysis

Feasibility Matrix **Pocahontas County PSD** **PWSID: WV3303812** **Date: 1/10/2016** **Completed By: Elliott Lewis, EIT, E.L. Robinson Engineering Co.**

Alternative Strategy Description	Economic Criteria					Technical Criteria							Environmental Criteria						Final Score	Total Capital Cost	Comments
	Operation and Maintenance Costs	*Capital Costs*	***Total***	***Total %***	***Weighted Total***	*Permitting*	*Flexibility*	*Resilience*	*Institutional Requirements*	***Total***	***Total %***	***Weighted Total***	*Environmental Impacts*	*Aesthetic Impacts*	*Stakeholder Issues*	***Total***	***Total %***	***Weighted Total***			
Backup Intake	2.7	1.7	**4.3**	**72.2%**	**28.9%**	2.0	2.0	2.3	2.0	**8.3**	**69.4%**	**27.8%**	2.0	2.5	2.0	**6.5**	**72.2%**	**14.4%**	**71.1%**	**$1,500,000**	It can be pursued in the future depending on financial considerations and distance of the wellhead from the treatement plant.
Interconnect	2.7	0.0	**2.7**	**44.4%**	**17.8%**	2.0	1.5	2.7	2.3	**8.5**	**70.8%**	**28.3%**	3.0	2.5	2.0	**7.5**	**83.3%**	**16.7%**	**62.8%**	**$7,000,000**	Technically feasible, but cost would be too great to implement.
Treated water storage	3.0	3.0	**6.0**	**100.0%**	**40.0%**	3.0	3.0	3.0	3.0	**12.0**	**100.0%**	**40.0%**	3.0	3.0	3.0	**9.0**	**100.0%**	**20.0%**	**100.0%**	**$0**	System has sufficient excess total capacity to meet two days' storage requirement at maximum consumption.
Raw Water Storage	3.0	3.0	**6.0**	**100.0%**	**40.0%**	3.0	3.0	3.0	3.0	**12.0**	**100.0%**	**40.0%**	3.0	3.0	3.0	**9.0**	**100.0%**	**20.0%**	**100.0%**	**$0**	System has sufficient excess total capacity to meet two days' storage requirement at maximum consumption.
Other-(Trucked Water)	2.7	3.0	**5.7**	**94.4%**	**37.8%**	3.0	2.5	2.7	2.7	**10.8**	**90.3%**	**36.1%**	3.0	2.5	2.3	**7.8**	**87.0%**	**17.4%**	**91.3%**	**$0**	This would only be used in the case of an extended outage should the supply be exhausted beyond the storage capacity of the system.

Scoring:

0 – Not feasible. Criterion cannot be met by this alternative and removes the alternative from further consideration.
1 – Feasible but difficult. Criterion represents a significant barrier to successful implementation but does not eliminate it from consideration.
2 – Feasible. Criterion can be met by the alternative.
3 – Very Feasible. Criterion can be easily met by the alternative

Feasibility Matrix **Pocahontas County PSD** **PWSID: WV3303812** **1/10/2016** **Matrix Completed By:** **Elliott Lewis, EIT, E.L. Robinson Engineering Co.**

Criteria	Question	Backup Intake	Feasibility	Interconnect	Feasibility	Treated Water Storage	Feasibility	Raw Water Storage	Feasibility	Other-(Trucked Water)	Feasibility
Economic Criteria											
What is the total current budget year cost to operate and maintain the PWSU (current budget year)?		$137,528.00		$137,528.00		$137,528.00		$137,528.00		$137,528.00	
O and M Costs	Describe the major O&M cost requirements for the alternative?	Power, possible increased treatment chemicals	2	Power	2	None	3	None	3	Fuel, water expenses	2
	What is the incremental cost ($/gal) to operate and maintain the alternative?	$1,500.00	3	$1,000.00	3	$0.00	3	$0.00	3	$0.10	3
	Cost comparison of the incremental O&M cost to the current budgeted costs (%)	1.09%	3	0.73%	3	0.00%	3	0.00%	3	0.00%	3
O and M-Feasibility Score			***2.7***		***2.7***		***3.0***		***3.0***		***2.7***
Describe the capital improvements required to implement the alternative.		New wellhead or surface intake, pumps, transmission line, related appurtenances		Transmission line, pumps, related appurtenances		None		None		No Permanent Improvements	
Capital Costs	What is the total capital cost for the alternative?	$1,500,000.00	1	$7,000,000.00	0	$0.00	3	$0.00	3	$0.00	3
	What is the annualized capital cost to implement the alternative, including land and easement costs, convenience tap fees, etc. ($/gal)	$15,000.00	2	$70,000.00	0	$0.00	3	$0.00	3	$0.00	3
	Cost comparison of the alternatives annualized capital cost to the current budgeted costs (%)	10.91%	2	50.90%	0	0.00%	3	0.00%	3	0.00%	3
Capitol Cost-Feasibility Score			***1.7***		***0.0***		***3.0***		***3.0***		***3.0***
Technical Criteria											
Permitting	Provide a listing of the expected permits required and the permitting agencies involved in their approval.	WV DOH, US ACOE, WV BPH, NPDES	1	WV DOH, US ACOE, WV BPH, NPDES	1	None	3	None	3	None	3
	What is the timeframe for permit approval for each permit?	12-18 months	2	12-18 months	2	N/A	3	N/A	3	N/A	3
	Describe the major requirements in obtaining the permits (environmental impact studies, public hearings, etc.)	Environmental clearance, documentation, hydraulic models, public notice	2	Environmental clearance, documentation, hydraulic models, public notice	2	N/A	3	N/A	3	N/A	3
	What is the likelihood of successfully obtaining the permits?	Good	2	Good	2	N/A	3	N/A	3	N/A	3
	Does the implementation of the alternative require regulatory exceptions or variances?	No	3	No	3	No	3	No	3	No	3
Permitting-Feasibility Score			***2.0***		***2.0***		***3.0***		***3.0***		***3.0***
Flexibility	Will the alternative be needed on a regular basis or only used intermittently?	Intermittently	2	Intermittently	2	Excess capacity needed only intermittently	3	Excess capacity needed only intermittently	3	Intermittently	2
	How will implementing the alternative affect the PWSU's current method of treating and delivering potable water including meeting Safe Drinking Water Act regulations? (ex. In the case of storage, will the alternative increase the likelihood of disinfection byproducts?)	A surface source may require additional chemicals or upgrades to the existing treatment plant	2	Length of line would increase age of delivered water based on average consumption rates	1	No change	3	No change	3	No Change	3
Flexibility-Feasibility Score			***2.0***		***1.5***		***3.0***		***3.0***		***2.5***
Resilience	Will the alternative provide any advantages or disadvantages to meeting seasonal changes in demand?	Can provide some flexibility if current source flows decrease	3	Yes, but interconnected PWSU would likely have the same seasonal change in demand	2	N/A	3	N/A	3	No	3
	How resistant will the alternative be to extreme weather conditions such as drought and flooding?	Will be designed to withstand damage from flooding. Drought conditions may impact supply	2	Components will be resistant to extreme conditions	3	N/A	3	N/A	3	N/A	3

	Will the alternative be expandable to meet the growing needs of the service area?	Yes, but will require upgrades	2	Yes	3	Yes, but no growth anticipated	3	Yes, but no growth anticipated	3	Amount of water would increase, but not growth anticipated	2
Resilience-Feasibility Score			***2.3***		***2.7***		***3.0***		***3.0***		***2.7***
Institutional Requirements	Identify any agreements or other legal instruments with governmental entities, private institutions or other PWSU required to implement the alternative.	None identified	3	Would need agreement with neighboring PWSU	2	N/A	3	N/A	3	Coordinate with emergency services and neighboring PSDs (Huttonsville, Cass, Marlinton)	2
	Are any development/planning restrictions in place that can act as a barrier to the implementation of the alternative.	Would need to be located in different watershed or groundwater recharge area	1	No	3	No	3	No	3	No	3
	Identify potential land acquisitions and easements requirements.	Majority of work would be within WV DOH right-of-way	2	Majority of work would be within WV DOH right-of-way	2	N/A	3	N/A	3	N/A	3
Institutional Requirements-Feasibility Score			***2.0***		***2.3***		***3.0***		***3.0***		***2.7***
Environmental Criteria											
Environmental Impacts	Identify any environmentally protected areas or habitats that might be impacted by the alternative.	Wellhead would be relatively small, but would be located near undeveloped property	2	None identified if work is done along previously disturbed right-of-ways	3	N/A	3	N/A	3	N/A	3
Environmental Impacts-Feasibility Score			***2.0***		***3.0***		***3.0***		***3.0***		***3.0***
Aesthetic Impacts	Identify any visual or noise issues caused by the alternative that may affect local land uses?	Would require permanent structures in the form of pump stations	2	Would require permanent structures in the form of pump stations	2	N/A	3	N/A	3	Some noise from trucks, but would only be temporary	2
	Identify any mitigation measures that will be required to address aesthetic impacts?	None identified	3	None identified	3	N/A	3	N/A	3	None	3
Aesthetic Impacts-Feasibility Score			***2.5***		***2.5***		***3.0***		***3.0***		***2.5***
Stakeholder Issues	Identify the potential stakeholders affected by the alternative.	Private landowners	2	Private landowners	2	N/A	3	N/A	3	Area emergency officials, local customers, adjacent PSD	2
	Identify the potential issues with stakeholders for and against the alternative.	Unwillingness to sell land or allow easement for pump stations, transmission line, etc.	2	Unwillingness to sell land or allow easement for pump stations, transmission line, etc.	2	N/A	3	N/A	3	Inconvenience to customers required to pick up water	2
	Will stakeholder concerns represent a significant barrier to implementation (or assistance) of the alternative?	Possibly, but doubtful	2	Possibly, but doubtful	2	No	3	No	3	No	3
Stakeholder Issues-Feasibility Score			***2.0***		***2.0***		***3.0***		***3.0***		***2.3***
Comments		It can be pursued in the future depending on financial considerations and distance of the wellhead from the treatement plant.		Technically feasible, but cost would be too great to implement.		System has sufficient excess total capacity to meet two days' storage requirement at maximum consumption.		System has sufficient excess total capacity to meet two days' storage requirement at maximum consumption.		This would only be used in the case of an extended outage should the supply be exhausted beyond the storage capacity of the system.	

Instructions: Using the expanded instructions in the "FEASIBILITY STUDY GUIDANCE DOCUMENT", complete the white and gray input cells. Rank each criteria based on the evidence provided and best professional judgement. Rank the criteria 0-3, assuming 0=not feasible and 3=most feasible. The password to edit fillable cells is "swap".

Scoring:

0 – Not feasible. Criterion cannot be met by this alternative and removes the alternative from further consideration.

1 – Feasible but difficult. Criterion represents a significant barrier to successful implementation but does not eliminate it from consideration.

2 – Feasible. Criterion can be met by the alternative.

3 – Very Feasible. Criterion can be easily met by the alternative

Appendix F. Supporting Documentation

Pocahontas County PSD – Source Water Protection Plan Development – Meetings Summary

Date: May 22, 2015
Location: Slaty Fork, WV
Attendees: Eric Coberly (E. L. Robinson Engineering), PSD Board Members (Tom Shipley, David Litsey, Amon Tracey), Ricky Barkley (PSD Manager)
Summary of Dialogue: Kick-off meeting – overview of legislation, source water protection plan development, priority areas, and potential sources of contamination.

Date: July 28, 2015
Location: Slaty Fork, WV
Attendees: Randall Lewis (E. L. Robinson Engineering), PSD Board Members (Mark Smith, David Litsey, Amon Tracey), Lloyd Coleman (Wastewater Operator)
Summary of Dialogue: Progress report on plan development.

Date: July 29, 2015
Location: Slaty Fork, WV
Attendees: Randall Lewis, Cindy Barkley (Operator)
Summary of Dialogue: Progress report on plan development.

Date: September 29, 2015
Location: Slaty Fork, WV
Attendees: Randall Lewis, Ricky Barkley, PSD Board Members (Mark Smith, David Litsey, Amon Tracey), Lloyd Coleman (Wastewater Operator)
Summary of Dialogue: Draft SWPP presented to the PSD board and was approved.

Efforts to recruit Protection Team Members:

The Contractor has worked with the utility to identify potential Protection Team members. The members of the PSD board, as well as the water operators and wastewater operator have attended multiple meetings. In addition, representatives of the local Emergency Services provided information on area water contingency