Source Water Protection Plan
Berkeley County Pswd-Potomac River

PWSID: WV3300218

Berkeley County

May 2024

Prepared By:

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Superintendent

In cooperation with Berkeley County Pswd-Potomac River

WV Bureau for Public Health, Source Water Assessment and Protection Program

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

Responsible party of designee authorized to sign for water utility is on file:

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Name of Authorizing Signatory:

Superintendent

Title of Authorizing Signatory:

4/11/2024

Date of Submission (mm/dd/yyyy):

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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
SWPA	Source Water Protection Area
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	West Virginia Division of Homeland Security and Emergency Management
ZCC	Zone of Critical Concern
ZPC	Zone of Peripheral Concern

1.0 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 Berkeley County Pswd-Potomac River 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, Berkeley County Pswd-Potomac River acknowledges that implementing measures to minimize and mitigate contamination can be a relatively economical way to help ensure the safety of the drinking water.

1.1. WHAT ARE THE BENEFITS OF PREPARING A SOURCE WATER PROTECTION PLAN?

- Fulfilling 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.

2.0 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 Berkeley County Pswd-Potomac River can be found in **Table 1**.

3.0 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.

4.0 SYSTEM INFORMATION

BERKELEY COUNTY PSWD-POTOMAC RIVER 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 BERKELEY COUNTY PSWD-POTOMAC RIVER

Administrative office location:	251 Caperton Blvd, Martinsburg, BERKELEY, WV, 25403		
Is the system a public utility, according to the Public Service Commission rule?	Yes		
Date of Most Recent Source Water Assessment Report:	2/23/2021		
Date of Most Recent Source Water Protection Plan:	10/1/2021		
Population served directly:	27335		
Bulk Water Purchaser Systems:	System Name	PWSID Number	Population
Total Population Served by the Utility:	27335		
Does utility have multiple Source Water Protection Areas(SWPAs)?	Yes		
How many SWPAs does the utility have?	2		

5.0 WATER TREATMENT AND STORAGE

As required, Berkeley County Pswd-Potomac River 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 Berkeley County Pswd-Potomac River 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. Berkeley County Pswd-Potomac River Water Treatment Information

BCSPWD-Potomac River WTP	
Water treatment processes (in order of occurrence) includes:	FILTRATION, ULTRAFILTRATION, ACTIVATED CARBON, POWDERED, 5.0-LOG REMOVE/INACTIV CRYPTO, COAGULATION, FLOCCULATION, GASEOUS CHLORINATION, POST, PERMANGANATE, RAPID MIX, SEDIMENTATION, ULTRAVIOLET RADIATION
The treatment capacity is approximately (GPD):	6,000,000
Current average production is approximately (GPD):	3,000,000
Maximum gallons of water treated and produced at that plant in one day during the past year was:	6,588,000
Minimum gallons of water treated and produced at that plant in one day during the past year was:	3,295,000
Plant is operated an average of hours a day:	16
Maximum number of hours of operation in one day at that plant during the past year was:	24
Minimum number of hours of operation in one day at that plant during the past year was:	8
How many storage tank(s) are maintained on systems distrbution system:	8
Total gallons of treated water storage:	5,240,000
Total gallons of raw water storage (GALs):	0

6.0 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 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 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. The Ohio River ZCC delineations include 1,320 feet (1/4 mile) measured from the bank of the main stem of the Ohio River and 500 feet on a 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**. Other information about the WSDA is shown in **Table 5**.

Table 5. Watershed Delineation Information

Well / Spring Name	Potomac River
Size of WSDA (Square Miles)	5534
River Watershed Name (8-digit HUC)	Conococheague-Opequon - 02070004
Size of Zone of Critical Concern (Acres)	9398
Size of Zone of Peripheral Concern (Acres) (Include ZCC area)	17770
Do you blend with ground water	Yes
Do you have an intake or well/spring missing from the list?	No
Well / Spring Name	WELL B
Method of Delineation for Groundwater Sources	Hydrogeologic Mapping
Area of Wellhead Protection Area (Acres)	4,319
Size of WSDA (Square Miles)	0
River Watershed Name (8-digit HUC)	Conococheague-Opequon - 02070004
Size of Zone of Critical Concern (Acres)	0
Size of Zone of Peripheral Concern (Acres) (Include ZCC area)	0
Well / Spring Name	WELL A
Method of Delineation for Groundwater Sources	Hydrogeologic Mapping
Area of Wellhead Protection Area (Acres)	4,319
Size of WSDA (Square Miles)	0
River Watershed Name (8-digit HUC)	Conococheague-Opequon - 02070004
Size of Zone of Critical Concern (Acres)	0
Size of Zone of Peripheral Concern (Acres) (Include ZCC area)	0
Well / Spring Name	WELL D
Method of Delineation for Groundwater Sources	Hydrogeologic Mapping
Area of Wellhead Protection Area (Acres)	4,319
Size of WSDA (Square Miles)	0
River Watershed Name (8-digit HUC)	Conococheague-Opequon - 02070004
Size of Zone of Critical Concern (Acres)	0
Size of Zone of Peripheral Concern (Acres) (Include ZCC area)	0

7.0 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 Berkeley County Pswd-Potomac River 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.

Berkeley County Pswd-Potomac River 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**.

8.0 POTENTIAL SOURCES OF SIGNIFICANT CONTAMINATION

Source water protection plans should provide a complete and comprehensive list of the PSSCs contained within the ZCC, based upon information obtained from the WVBPH, working in cooperation with the West Virginia Department of Environmental Protection (WVDEP) and the West Virginia 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 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.

8.1. CONFIDENTIALITY OF PSSCS

A list of the PSSCs contained within the ZCC should be included in the source water protection plan. 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 Berkeley County Pswd-Potomac River 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** for internal review and planning uses only.

8.2. 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 Berkeley County Pswd-Potomac River 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 Berkeley County Pswd-Potomac River and not already appearing in datasets from the WVBPH can be found in .**Table 7**.

Table 7. Locally Identified potential Sources of Significant Contamination

Please see Appendix A to view this information.

8.3. PRIORITIZATION OF 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, LEPC and other agencies and organizations to protect the source water from contamination threats.

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 PSSCs which would require immediate response to address a potential incident that could impact the source water.

A list of these priority PSSCs was selected and ranked by the Berkeley County Pswd-Potomac River 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.

9.0 IMPLEMENTATION PLAN FOR MANAGEMENT STRATEGIES

Berkeley County Pswd-Potomac River 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. Berkeley County Pswd-Potomac River has developed an implementation plan for priority concerns listed in **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
Gas Stations and Auto Repair Shops	1	Oils, antifreeze, and other automobile fluids can cause contamination of groundwater sources if not cleaned up and disposed of properly.
Highways (I81 and Rt. 11)	2	Both the Potomac River Intake and 3 groundwater supply wells serving the System are susceptible to accidental leaks and spills of vehicle fluids or hazardous freight. I-81 and Route 11 cross the Potomac River approximately 5 and 6 miles up-gradient of the Potomac River Intake, respectively. The area is underlain by karst terrain which puts groundwater sources at a higher risk from surficial contaminants as well. Both the I-81 Corridor and Route 11 also pass through the SWPA associated with the 3 groundwater supply wells serving the System.
Railroad Traffic	3	The railroad tracks run parallel to the source water. An accident on the railroad or leaks from standing train cars may result in spills into the water supply.
Wastewater Treatment Plants	4	There are several Wastewater Treatment Plants within and just outside the ZCC associated with the Potomac River Intake. Wastewater discharge poses a threat due to the introduction of nutrients (which may contribute to eutrophication) and pathogens.
Mining Operations and Fly Ash Pits	5	The Potomac River Intake is potentially threatened by heavy metals, which may leach from fly ash ponds and pits into nearby surface water bodies and shallow groundwater aquifers. These operations present a potential hazard through slow seepage of contaminated groundwater into the Potomac River via recharge pathways, or by the potential for ponds to rupture or burst, rapidly releasing potentially contaminated water into the Potomac River or shallow groundwater aquifer. There are several Fly Ash Pits and Surface Mining operations within the ZCC for the Potomac River Intake.
Industrial & Commercial Activity	6	Facilities such as gas stations and auto repair shops lie within and just outside both the ZCC and SWPA for the Potomac River WTP and pose a threat due to the potential for accidental leaks, spills, improper disposal of petroleum products and other wastes, or improperly managed stormwater runoff.
Sinkholes	7	When sinkholes occur a direct conduit from the surface to groundwater is created and natural soil filtration processes are bypassed. Water quality threats are dependent on land use. This hazard is applicable to the three groundwater supply wells serving the system.

Septic Systems & Public Sewer	8	The status of some older septic systems is unknown and failures and leaks are possible. Unlike other areas, in karst terrain a septic tends to fail downwards and can therefore be virtually undetectable. Public sewer expansion is more favorable, but sinkhole monitoring and leak detection are encouraged.
Agricultural activities	9	Due to agricultural land use in the area, nutrient levels can become elevated in surrounding surface water bodies and/or the underlying groundwater system.

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Gas Stations and Auto Repair Shops	Communicate with owners the need for them to properly dispose of oil and other automobile products. Ask them to follow regulations and institute BMPs to contain and clean up spills. One such regulation is installing secondary containment around above ground storage tanks and/or chemical storage areas. Monitor compliance with state environmental regulations.	Steve DeRidder	Ongoing		
Gas Stations and Auto Repair Shops	Provide owners or operators with copies of material on underground storage tank maintenance. These facilities may already be implementing best management practices for monitoring and/or containing a potential leak or spill and may be reviewed.	Steve DeRidder	Completed		
Gas Stations and Auto Repair Shops	Consider whether operating or historic stations and shops are compliant with rules regarding USTs and leaking underground storage tanks (LUSTs). If you suspect an issue with an UST or LUST, contact the WVDEP at (304)926-0499 and ask for the Underground Storage Tank Staff for an inspection.	Steve DeRidder	Completed		

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Agricultural activities	BCPSWD will work with the County Extension Service, the Soil and Water Conservation District, and/or Natural Resources Conservation Service (NRCS) to encourage agricultural land owners to participate in nutrient management planning, forest conservation, land retirement and management programs (including riparian zone preservation or restoration) within the SWPA. Efforts here will focus on education and outreach measures.	BCPSWD	Ongoing	Nutrient management plans are not required for agricultural facilities within Berkeley County but are provided at no cost by the USDA NRCS.	BCPSWD staff time associated with raising local awareness of the existence of these programs.

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Highways (I81 and Rt. 11)	BCPSWD, in conjunction with Berkeley County OHSEM, will work with the Department of Transportation (DOT) to explore opportunities to create and manage prestocked emergency spill response kits at state operated facilities along highway and railroad corridors (including the facility at Tabler Station Road). Alternative plans will be arranged should an agreement not be reached by these entities. The county currently possesses 25 bags of absorbent on hand with the possibility of acquiring up to 50 additional bags from neighboring emergency response entities. These entities may contact Frederick County, VA for additional emergency response & coordination of emergency equipment. OHSEM will work with LEPC coordinators and other emergency personnel to ensure that BCPSWD receives timely notification in the event of highway or other roadway spills within SWPAs. BCPSWD and OHSEM will work with the DOT to explore traffic regulation options for key highway corridors, and revisit postings of source water protection signs along these roadways.	Mr. Eddie Gochenour	Ongoing		Staff time involving members from BCPSWD, DOT, and OHSEM. Material costs for additional spill response kits/absorbent bags.

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Septic Systems & Public Sewer	BCPSWD will work with Public Sewer to develop a leak detection protocol and recommend areas which would benefit from incorporation into the public sewer system, as development occurs. BCPSWD will work with the Health Department, to the degree feasible, to encourage homeowners to maintain and routinely inspect their septic systems or replace old or failing septic systems with Best Available Technologies (BATs).	BCPSWD	Ongoing	BCPSWD will pursue this recommendation at the time of the next Sewer Expansion Plan update. Extending the gravity sanitary sewer system to every resident in the county is not feasible.	BCPSWD staff time and public sewer staff time to determine priority sewer expansion areas. Material costs associated with expansion of sewers. Staff time providing informational materials
Railroad Traffic	New stragegy	n/a	Not Started		

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Railroad Traffic	New strategyBerkeley County OHSEM will work with LEPC and other local emergency responders to utilize the training materials provided by CSX railways (i.e., planning guides and inperson/ on-site trainings, featuring a safety rail car) and their short line partners, which include Winchester and Western. OHSEM and emergency responders will also work with CSX to inquire about the Rail Respond program, which provides easy mobile access to critical information about what's traveling on CSX rails. Information regarding these programs is provided in Appendix F-7. Emergency personnel have also expressed interest in performing routine Emergency Response drills for Highway and Railroad spills. BCPSWD will work with WV DEP or BPH to perform a Hazmat Re-route request to prevent specific potential contaminants from being transported through system SWPAs. These entities, along with OHSEM, will work with railroad companies to discuss safety measures, emergency plans and inspection routine(s).	Mr. Eddie Gochenour	Ongoing	The Berkeley County OHSEM Director has already started a dialogue with CSX to request training materials and the use of the CSX training car within the next two years.	Staff time involving members from BCPSWD, DOT, OHSEM, other LEPC agencies and BPH and/or WV DEP. Staff time at the LEPC level, and for members of local emergency response stations (e.g., local fire department, police department, etc.).
Railroad Traffic	New strategy	n/a	Not Started		

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Industrial & Commercial Activity	BCPSWD will request Groundwater Protection Plans (GPPs) and/or stormwater management plans from WV DEP for commercial and industrial facilities located within the SWPAs. From these the utility will investigate what (if any) preventative pollution measures are already in place for these facilities. This will permit the utility to better understand protection strategies already in place at these facilities and more accurately determine the threat posed by specific facilities. BCPSWD will educate facility owners on the potential threat of sinkhole development caused by improper stormwater management. BCPSWD will distribute site-specific Best Management Practice lists, along with advanced hazardous materials containment options to facilities (which will include vaulted Above ground Storage Tanks) on an as-needed basis.	BCPSWD	Ongoing	Education outreach and voluntary strategies such as these are the most effective means of source water protection for this hazard at this time, as more restrictive localized regulations cannot be implemented.	BCPSWD staff time putting together information packets/materials for commercial business owners, as well as research time to pull GPPs from WV DEP records.

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Sinkholes	Region 9 will be researching available funding opportunities to create a SWPAspecific sinkhole management program. Currently, sinkholes that develop in the County are the responsibility of private land owners and other similar entities (including homeowner's associations). The goal of the sinkhole management program will be to assign responsibility for mitigation and repair to relevant parties, encourage routine investigations along key travel corridors and provide advice and funding opportunities for sinkholes that develop on lands within the SWPA. Implementation of this task will take many years and cooperation from multiple public and private entities. The recommended sinkhole management plan is broadly based upon the Carroll County, MD sinkhole management plan.	Region 9	Ongoing	Currently, there is not a specific government entity that oversees sinkhole mitigation and repair once lands have been developed. The Planning Department only has regulations in place to address existing sinkholes on lands that have not been developed.	Region 9 staff time researching available grant funding opportunities. BCPSWD staff time for utilizing funding information provided by Region 9. County Council, BCPSWD and DEP staff time for determining how best to allocate potentially available funds.
Sinkholes	New strategy	n/a	Not Started		
Mining Operations and Fly Ash Pits	BCPSWD will conduct a cost estimate and feasibility study of implementing an Early Warning Monitoring System to be located downgradient of these hazards, which would analyze water quality parameters indicative of a release from these facilities.	BCPSWD	Ongoing		

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Wastewater Treatment Plants	This potential threat might become less of an issue if the Potomac River Intake remained closed during stormflow events. BCPSWD will map the nearest WWTPs, assess time of travel, and establish communication pathways to receive notifications of failures.	BCPSWD	Ongoing		BCPSWD staff time assessing time of travel and communicating with wastewater treatment operators

10.0 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. Berkeley County Pswd-Potomac River 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
General Information Dissemination	BCPSWD will include educational information on the following topics on their website for public use: source water protection, water conservation, household hazardous materials disposal, pharmaceuticals disposal, observing and reporting spills/leaks.	BCPSWD	Ongoing		Staff time pulling together information and making it available to public.
Display Information	Include informational materials (i.e., brochures, maps, etc.) in county government offices and other public places (i.e., local fairs). Host non-confidential SWPP online for public review and comment. Work with DOT for protection area sign expansion/coverage.	BCPSWD, Region 9 & WV BPH	Ongoing		Staff time creating and displaying relevant information
Clean Up Events	Coordinate with local Clean Up efforts and publicize projects. Work closely with Watershed Associations in this regard.	BCPSWD	Ongoing		Staff time associated with watershed group coordination
Become an PRBSWPP Member	At the outset of this SWAP, we recommended that BCPSWD become a member of the PRBSWPP (Potomac River Basin Source Water Protection Partnership), which is an interstate program that provides SWP education and outreach opportunities, among various other services oriented towards protecting and improving the quality of water for the Potomac River. BCPSWD has since joined this organization and participates in quarterly meetings and training/educational opportunities as they occur.	BCPSWD	Ongoing	BCPSWD is now an active member of the PRBSWPP.	Staff time attending and contributing to meetings.

Table 10. Education and Outreach Implementation Plan

Education and Outreach Strategy	Description of Activity	Responsible Protection Team Member	Status / Schedule	Comments	Estimated Cost
Emergency Planning and Coordination	Participate with local fire departments and County Emergency Services on a regular basis. This will ensure that all the agencies understand the boundaries of the SWPA, are in constant communication with one another, and are prepared in the event of an emergency.	Steve DeRidder LEPC	Ongoing		
BMP Lists	Distribute lists of industry specific BMPs to the owners of (1) Gas Stations, (2) Car Repair Shops, (3) Agricultural Lands/Facilities within the SWPA (Future Farmers, etc.). Provide SWPP education materials.	BCPSWD	Ongoing		Staff time creating BMP lists using published/provided materials
Early Education	Work with area schools to include source water protection information into the curriculum, or present information at assemblies or in classroom events (e.g., environmental science class).	BCPSWD	Ongoing		Staff time providing information to school system or attending events/classes
Public Workshops	Present Source Water Protection information at already scheduled public meetings (i.e. utility board meetings) and/or plan a Source Water specific Public Presentation.	BCPSWD	Ongoing	Status / Schedule will be evaluated based on participation and perceived need.	Staff time preparing for and hosting workshops

11.0 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. During contingency planning, 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 and include 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 contaminant 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.

Raw and treated water storage capacity also becomes extremely important in the event of such an emergency. Storage capacity can directly determine how effectively 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 Berkeley County Pswd-Potomac River is provided in **Table 11**.

11.1. RESPONSE NETWORKS AND COMMUNICATION

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** for internal review and planning uses only.

Table 11. Berkeley County Pswd-Potomac River Water Shortage Response Capacity

Can the water utility isolate or divert contamination from the intake and groundwater supply?	Yes
Describe the results of an examination and analysis of the public water system's ability to isolate or divert contaminated waters from its surface water intake or groundwater supply:	Able to Close the intake valves to prevent contaminated water from entering the wet well.
Describe the results of an examination and analysis of the public water system's existing ability to switch to an alternative water source or intake in the event of contamination of its primary water source:	BCPSWD has 3 wells that can used for short term use and blend with main source
Is the Utility able to close the water intake in the event of a spill?	Yes
How long can the Utility keep the intake closed?	3 days
Describe the process to close the intake:	Manually close the valves
Describe the treated water system's storage capacity of the water system:	BCSPWD has 7 tanks and 1 storage tank on the site if the plant.
Gallons of storage capacity (raw water)	0
Gallons of storage capacity (treated water)	0
Is the Utility a member of WVRWA Emergency Response Team?:	Yes
Is the Utility a member of WV-WARN?:	No
List other agreements to provide receive assistance in case of emergency:	City of Martinsburg,Mutual Aid Agreement

11.2. OPERATION DURING LOSS OF POWER

Berkeley County Pswd-Potomac River analyzed 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 summarized in **Table 12**.

Table 12. Generator Capacity

Can you connect to a generator at the intake/wellhead?:	No
Please provide a scenario that best describes your system:	
What do you have (KW)?	
What do you need (KW)?	
Can you connect to a generator at the treatment facility?:	No
Please provide a scenario that best describes your system:	
What do you have (KW)?	
What do you need (KW)?	

Can you connect to a generator at the distribution system?:		Yes	
Please provide a scenario that best describes your system:		No, there is not a generator hookup at the treatment facility; however, the Potomac River treatment plant (and intake) is supplied by two separate power grids. Whichever grid experiences a power failure, the other grid will automatically serve as the plant's main power supply. both the Rumsey Booster Station and the Blairton Booster Station are pre-wired for a portable generator.	
What do you have (KW)?		800.00	
What do you need (KW)?		800.00	
Does the utility have fuel on hand for generator?:		Yes	
Hours:		48	
Gallons:		500	
Provide a list of suppliers and alternate suppliers that could provide fuel in the event of an emergency:		Supplier	Phone Number
	Fuel	Roach Energy	(304)263-3329
Does the utility test the generator(s) periodically?:		Yes	
Does the utility routinely maintain the generator(s)?:		Yes	
If the Utility does not have generator or the ability to connect to a generator, describe plans to respond to power outages:		Plant on 2 different grids	

11.3. 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. Berkeley County Pswd-Potomac River 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 Berkeley County Pswd-Potomac River

Is the Utility able to meet water demands with the current capacity for the next five years?	Yes
Explain how you plan to do so:	N/A

11.4. 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 method described 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 usage by fire departments for fires or training, un-metered bulk sells, flushing to maintain the distribution system, and water used for backwashing filters and cleaning settling basins. By totaling the known 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 Berkeley County Pswd-Potomac River PSC Annual Report.

Table 14. Water Loss Information

Water pumped - Total Gallons:		1,144,655,000
*Water purchased - Total Gallons:		79,000
Total gallons of water pumped and purchased:		1,144,734,000
Total gallons of water loss accounted for except main leaks:	Mains, plaint, filters, flushing, etc - Total Gallons:	15,000
	Fire department - Total Gallons:	75,000
	Back washing - Total Gallons:	18,064
	Blowing settling basins - Total Gallons:	3,300
Total Accounted for Water Loss		111,364
Unaccounted for lost water - Total Gallons:		144,617,636
Water sold - Gallons:		1,000,000,000
Water Lost From Main Leaks:		5,000
Total Gallons of Unaccounted for Lost Water and Water Lost from Main Leaks:		144,622,636
Total percent unaccounted for water		13
Describe the measures to correct water loss greater than 15%:	Berkeley County has a leak detection program	

11.5. 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 to establish what condition is indicative of a contamination event. Continuous monitoring will provide results for a predetermined set of parameters. The more parameters that are being monitored, the more sophisticated the monitoring equipment will need to 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 to 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. Establishing 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.

Berkeley County Pswd-Potomac River 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 is provided in **Table 15** and in **Appendix B**.

Table 15. 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?	Yes	
From whom do you receive notices?	West Virginia Department of Health, ICPRB	
Are you aware of any facilities, land uses, or critical areas within your protection areas where chemical contaminants could be released or spilled?	Yes	
Are you prepared to detect potential contaminants if notified of a spill?	Yes	
List laboratories (and contact information) on whom you would rely to analyze water samples in case of a reported spill.	Laboratories	
	Name	Phone Number
	Eurofins Eaton Analytical	(574)233-4777
	Pace Labs	(800)999-0105
	Environmental Engineering &	(757)873-1543
Do you have an understanding of baseline or normal conditions for your source water uality that accounts for seasonal fluctuations?	Yes	
Does your utility (aside from turbidity monitoring) currently monitor your raw water through continuous monitoring at the surface water intake or groundwater source to detect changes in water quality that could indicate contamination?	No	
Does your utility collect periodic grab samples (ex. possess reserved sample bottles, on-call laboratory services, and trained personnel) in response to a spill notification or to investigate changes in water quality that could indicate contamination?	Yes	

Please explain:		turbidity, temperature, Manganese, and pH are monitored and recorded on a daily basis prior to treatment
Provide or estimate the capital and O&M costs for your current or proposed early warning system or upgraded system.	Capital Cost:	40,000
	O&M Cost:	2,000
Do you serve more than 100,000 customers?		No
Does your system currently receive spill notifications from a state agency, neighboring water system, local emergency responders, or other facilities?		Yes
Are you prepared to detect potential contaminants if notified of a spill?		Yes
Please describe the methods you use to monbitor at the same technical levels utilized by ORSANCO:		

12.0 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. 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**.

13.0 COMMUNICATION PLAN

Berkeley County Pswd-Potomac River 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 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. Berkeley County Pswd-Potomac River will update the Communication Plan as needed to ensure contact information is up to date.

Procedures should be in place to effectively react to 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 Berkeley County Pswd-Potomac River is attached as **Appendix C** 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.

14.0 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 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.

15.0 CONCLUSION

This report represents a detailed explanation of the required elements of Berkeley County Pswd-Potomac River's Source Water Protection Plan. Any supporting documentation or other materials that the utility considers relevant to their plan can be found in **Appendix E**.

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 AND TABLES

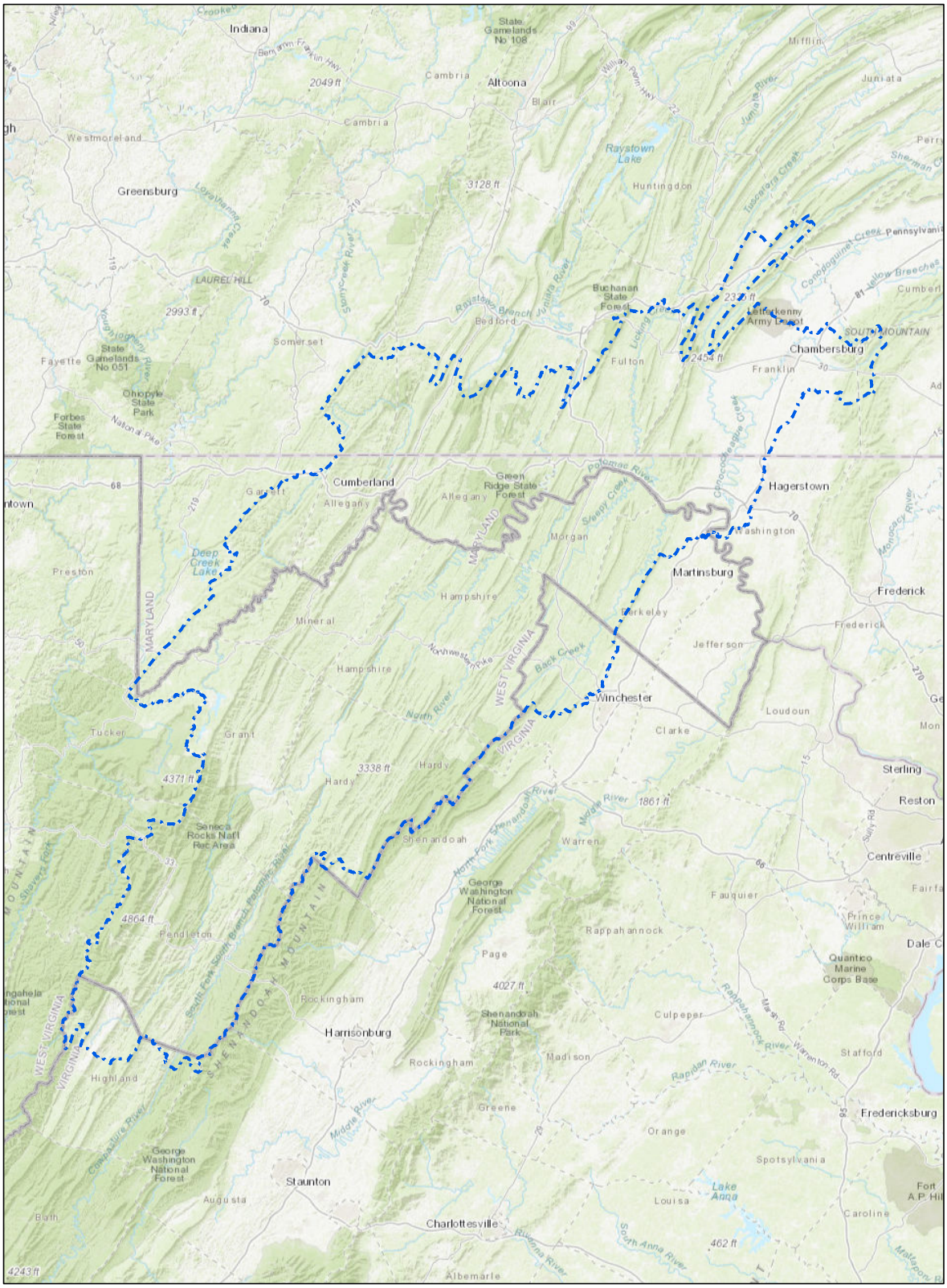
Water Source / Delineation

Surface Water Sources

Intake: Potomac River

Map of watershed delineation area

WV3300218 WDA Map



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PWS Query: Watersheds

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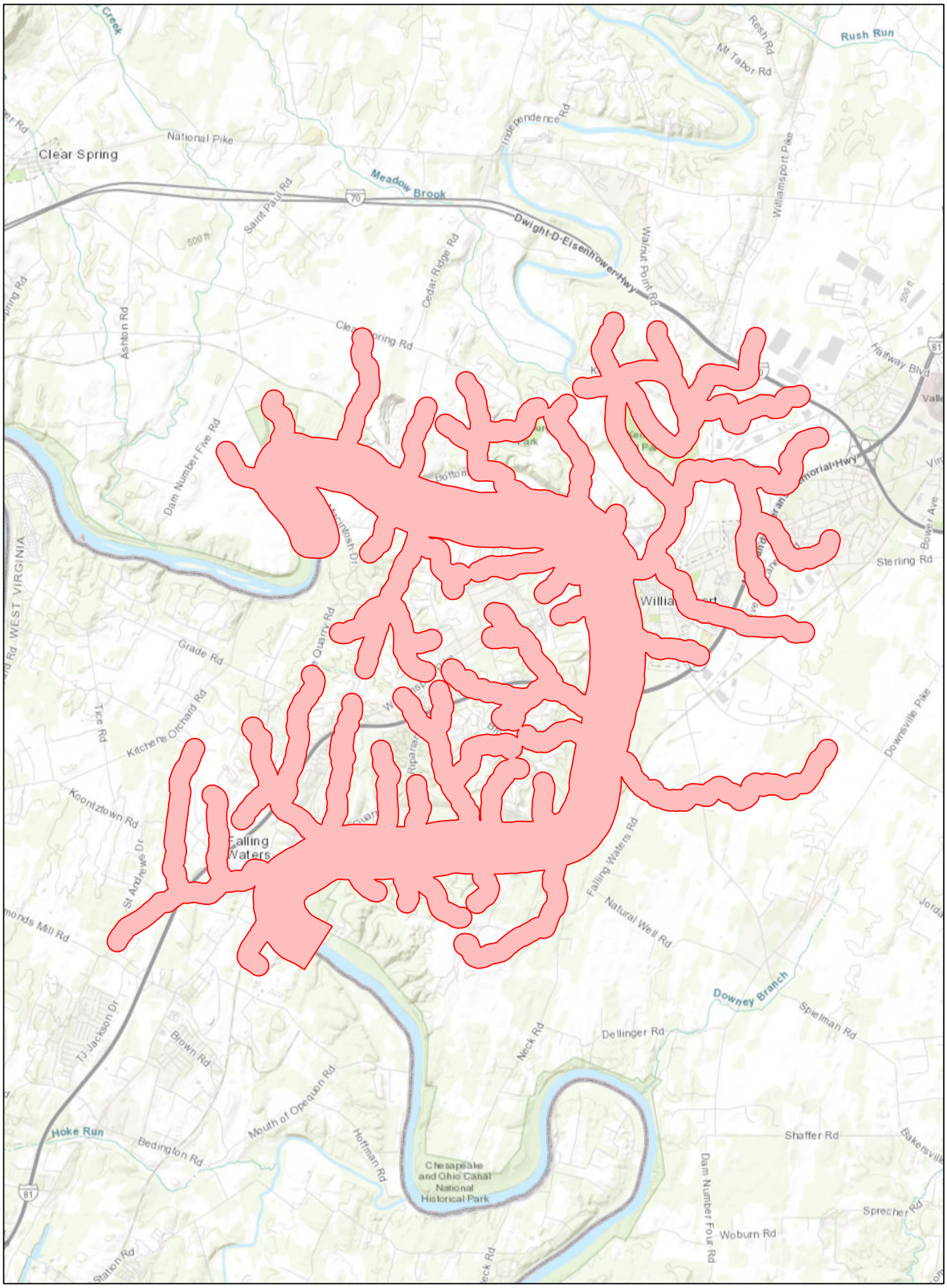
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Source Water Assessment and Wellhead Protection Programs

Map of zone of critical Concerns

WV3300218 ZCC Map



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PWS Query: Zone of Critical Concern

State_WV

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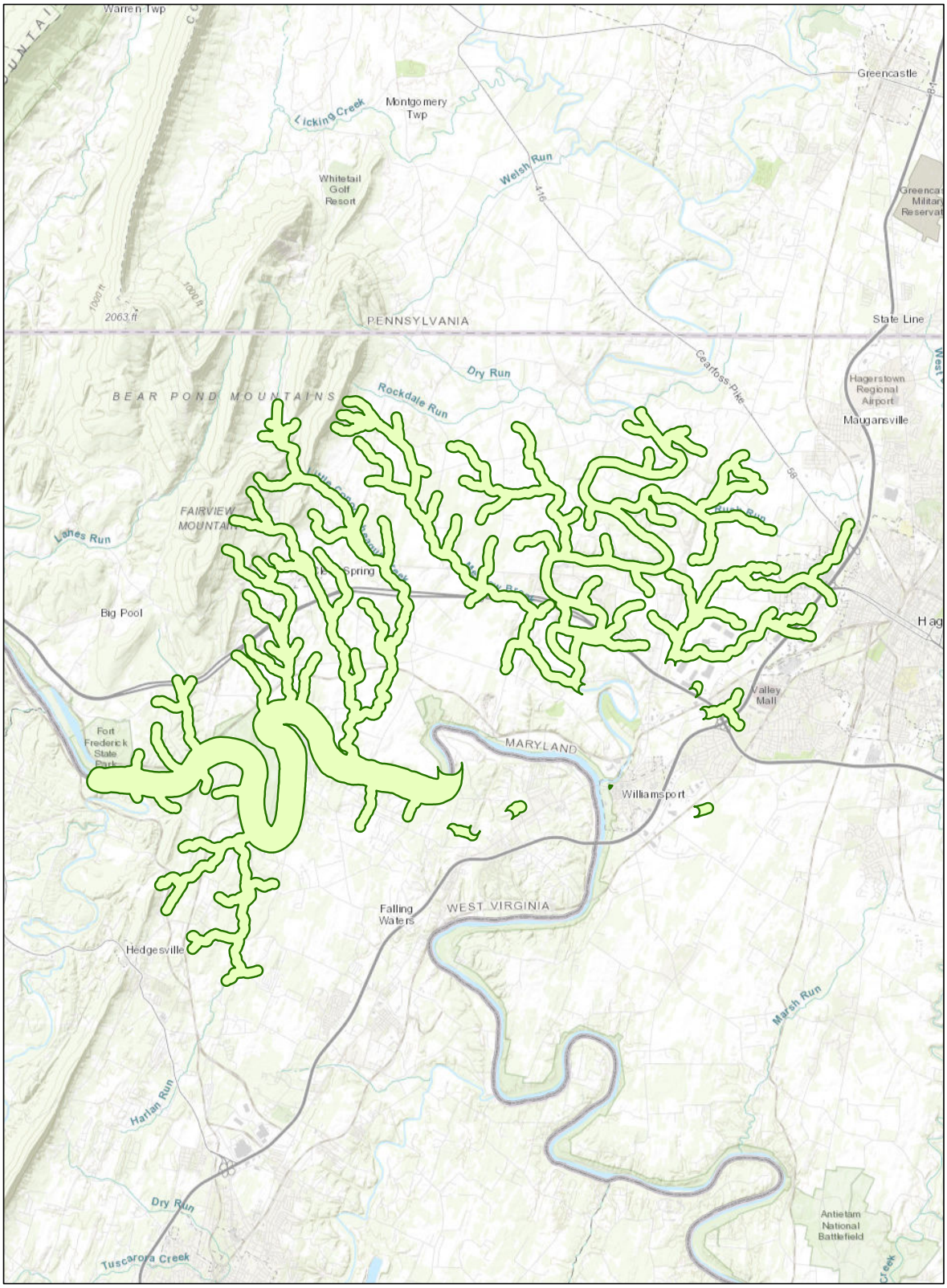
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Source Water Assessment and Wellhead Protection Programs

Map of zone of peripheral Concerns

WV3300218 ZPC Map



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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

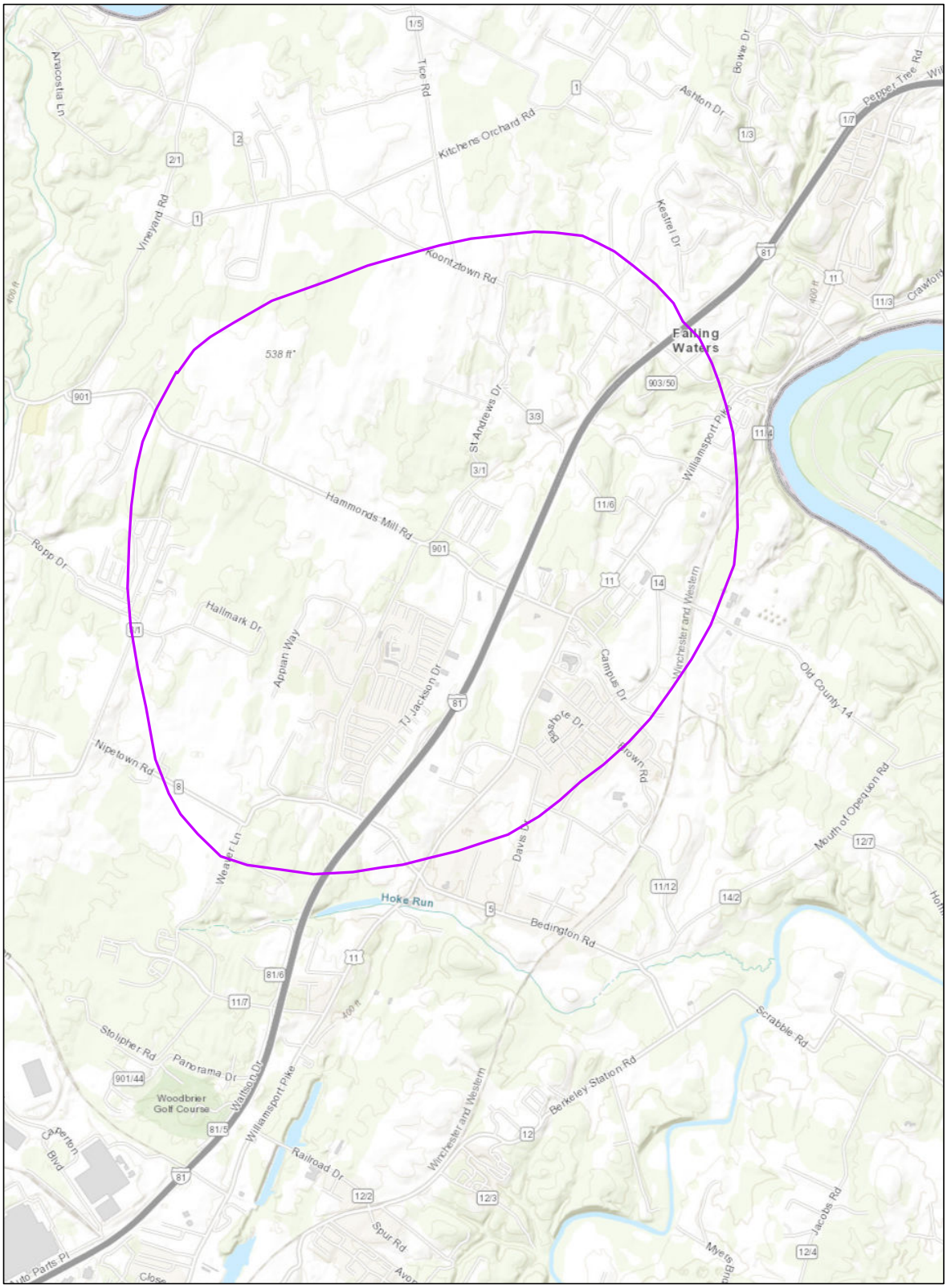
Source Water Assessment and Wellhead Protection Programs

Ground Water Sources

Intake: WL002

Map of wellhead protection

WV3300218 WHPA Map



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WHPA Query: Well Head Protection Area

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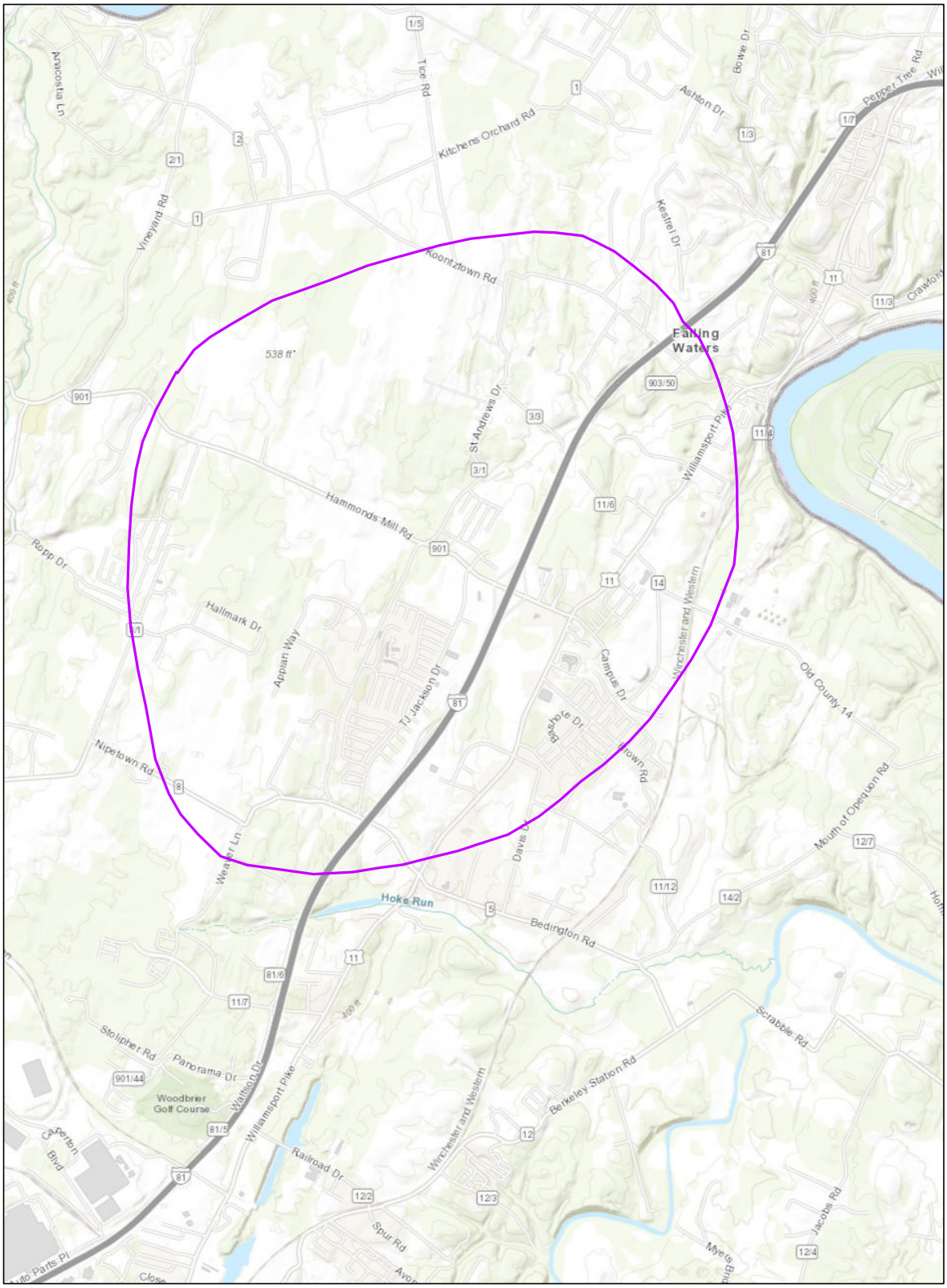
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Source Water Assessment and Wellhead Protection Programs

Map of wellhead protection

WV3300218 WHPA Map



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WHPA Query: Well Head Protection Area

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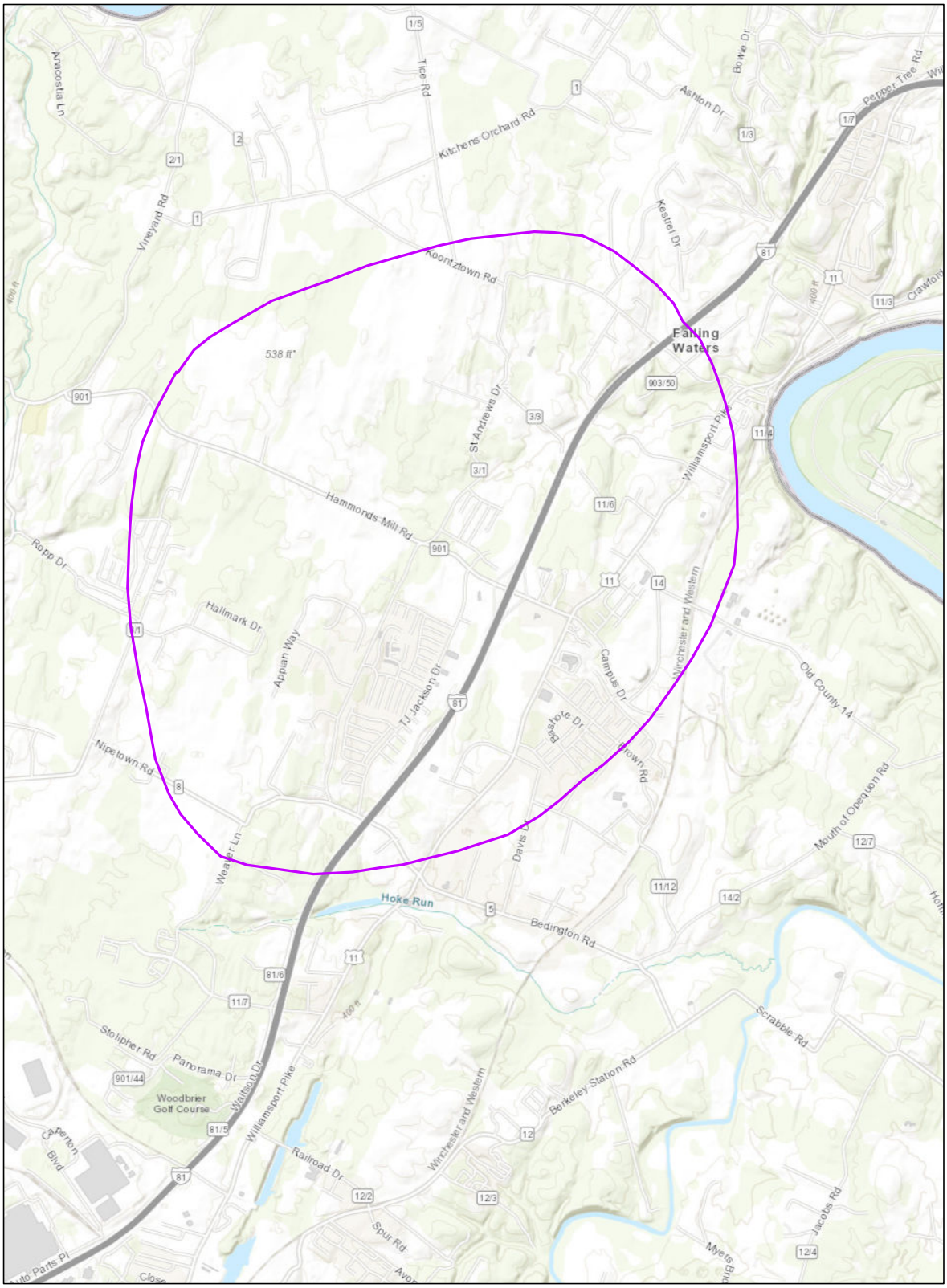
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Source Water Assessment and Wellhead Protection Programs

Map of wellhead protection

WV3300218 WHPA Map



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WHPA Query: Well Head Protection Area

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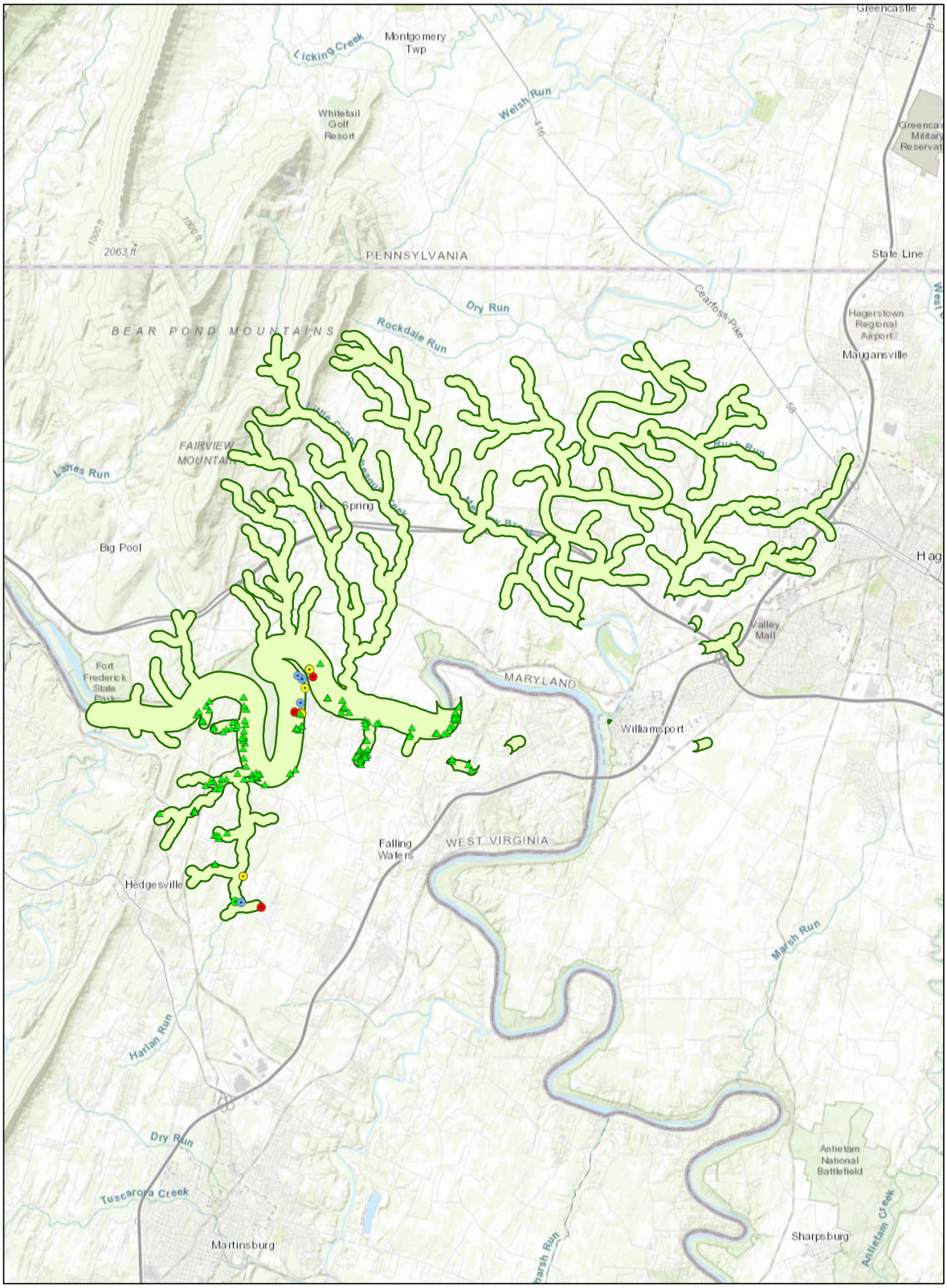
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Source Water Assessment and Wellhead Protection Programs

PSSC Maps

Local and Regional PSSC Map

WV3300218 ZPC PSSC Map



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- PSSC Query: Source Water Protection PSSC
- Agriculture
- Commercial
- Municipal
- Residential
- PWS Query: Zone of Peripheral Concern
- State_WV

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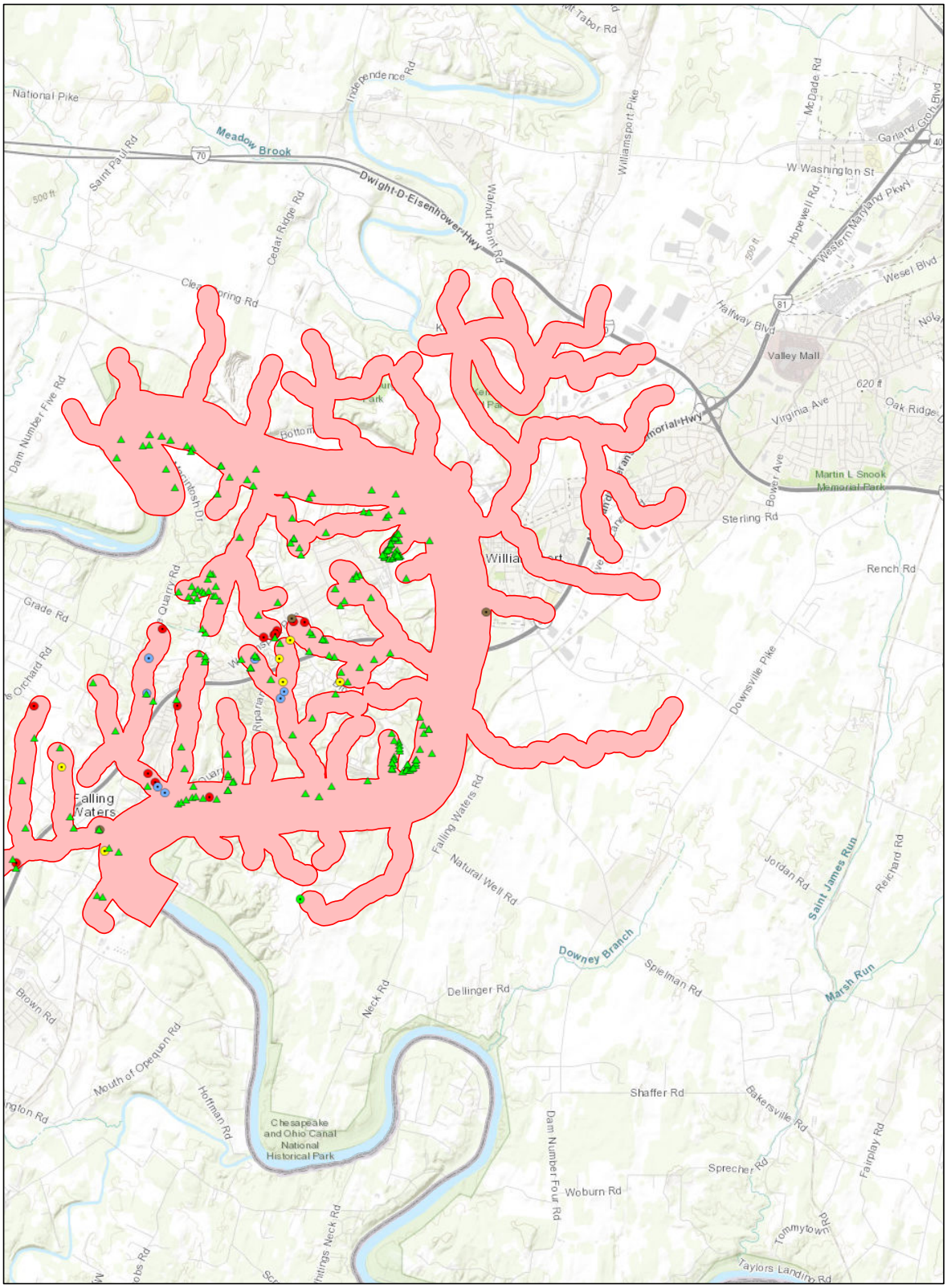
0 1.25 2.5 5 mi

0 2 4 8 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Source Water Assessment and Wellhead Protection Programs

WV3300218 ZCC PSSC Map



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- Industrial
- Municipal
- Residential
- PWS Query: Zone of Critical Concern
- State_WV

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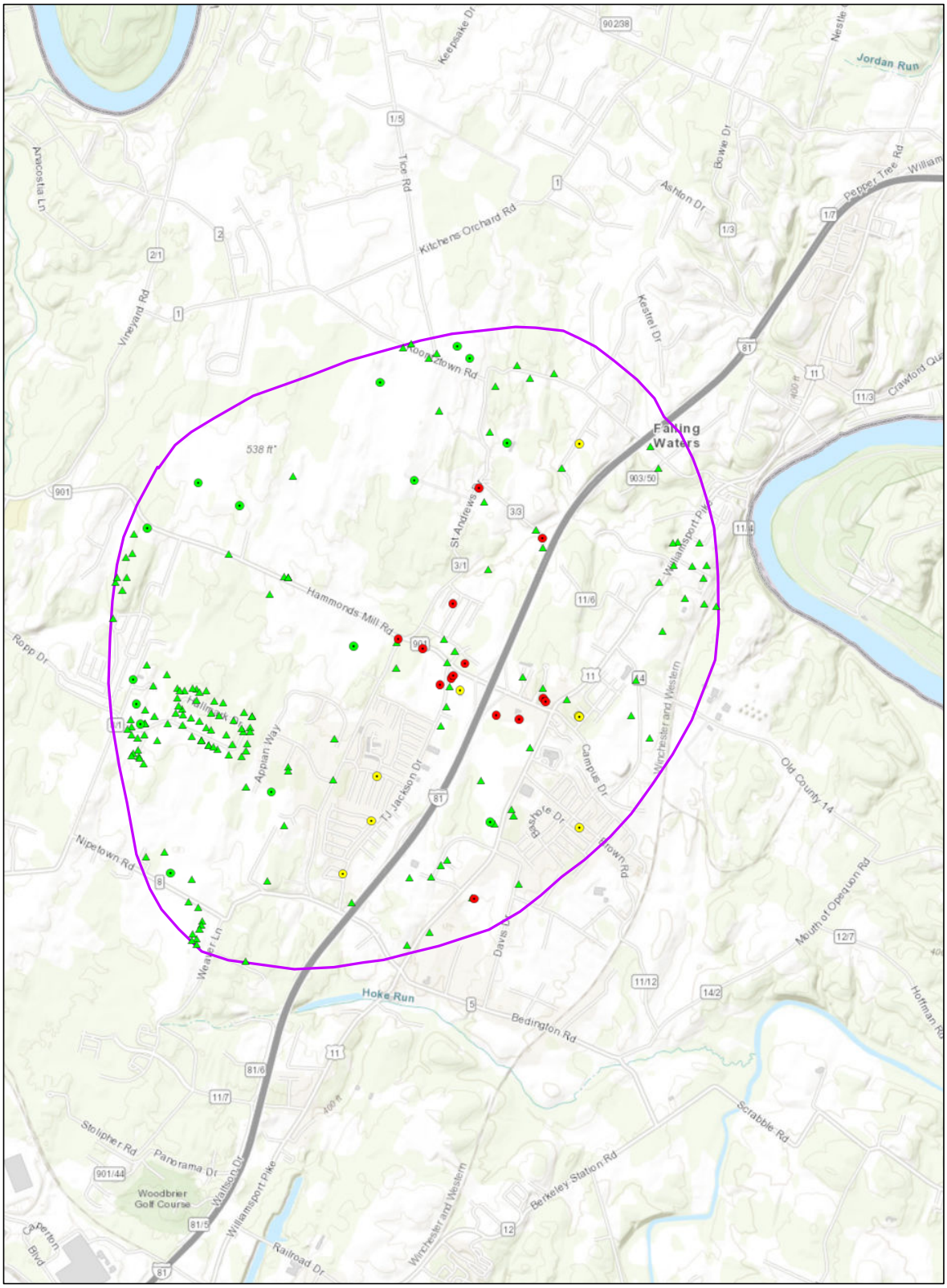
0 0.5 1 2 mi

0 1 2 4 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Source Water Assessment and Wellhead Protection Programs

WV3300218 WHPA PSSC Map



4/10/2024, 11:13:10 AM

PSSC Query: Source Water Protection PSSC

- Agriculture
- Commercial
- Residential

- PSSC Query: NPDES Permit
- WHPA Query: Well Head Protection Area
- State_WV

1:36,112

0 0.3 0.6 1.2 mi

0 0.5 1 2 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Source Water Assessment and Wellhead Protection Programs

PSSC Lists

Local and Regional PSSC List

Table 1: ZCC PSSC List

Site Name	Description	Type
ASAP Power Coating Company	Machine and metalworking shops	Industrial
Harmony Cemetery	Cemeteries	Commercial
Pepper Tree discharge	Wastewater Treatment Plant	Municipal
Basic Auto Parts B repair shop	Auto repair shops	Commercial
Storage	Body shops	Commercial
Construction site for houses and Food Lion	Construction areas	Commercial
Midway Trailer Park WWTP	Storm Drains	Municipal
Parry's Auto Garage and Repair Shop	Auto repair shops	Commercial
Falling Waters Campsite	Camp grounds	Commercial
Retention Pond	Lagoon/Pond/Pit	Industrial
Wastewater Treatment facility	Wastewater Treatment Plant	Municipal
New single family home development	Residential (single family homes)	Residential
Individual water treatment site/outlet	Wastewater Treatment Plant	Municipal
Individual Outlet	Vault toilets	Municipal
Berkeley County PSSD Outlet	Vault toilets	Municipal
Residential (mobile home park)	Residential (single family homes)	Residential
Penwells Home and Auto Repair	Auto repair shops	Commercial
Unknown Source (from aerial)	Other	Commercial
Construction Area	Construction areas	Commercial
Residential (single family homes)	Residential (single family homes)	Residential
Falling Waters, West Virginia	Residential (single family homes)	Residential
My Mechanic, Inc.	Auto repair shops	Commercial
Other	Other	Commercial
Sam's Used Cars and Trucks	Car dealerships	Commercial
Basic Auto Parts	Other	Commercial
Wastewater Treatment Plant	Wastewater Treatment Plant	Municipal
Residential (single family homes)	Residential (single family homes)	Residential
Residential (single family homes)	Residential (single family homes)	Residential
PCS #10	Animal Feedlots	Agriculture
PCS #9 Petroleum production and storage facilities	Petroleum production and storage facilities	Industrial
My Mechanic Inc	Auto repair shops	Commercial

Table 2: ZCC NPDES Permits

Permit Number	Description
WVG550854	Sewage General
WVG550911	Sewage General
WVG551160	Sewage General
WVG551199	Sewage General
0003-91-003	5W32 - Septic Systems(Drain Field Disposal Mthd)
013447	Septic Seal Permit
014352	Septic Seal Permit
013915	Septic Seal Permit
015944	Septic Seal Permit
015954	Septic Seal Permit
013912	Septic Seal Permit
015843	Septic Seal Permit
013733	Septic Seal Permit
013841	Septic Seal Permit
015130	Septic Seal Permit
015131	Septic Seal Permit
014692	Septic Seal Permit
018339	Septic Seal Permit
018542	Septic Seal Permit
014907	Septic Seal Permit
018577	Septic Seal Permit
018579	Septic Seal Permit
017632	Septic Seal Permit
014274	Septic Seal Permit
019558	Septic Seal Permit
019065	Septic Seal Permit
019067	Septic Seal Permit
018829	Septic Seal Permit
020005	Septic Seal Permit
021838	Septic Seal Permit
021839	Septic Seal Permit
021840	Septic Seal Permit
021853	Septic Seal Permit
022135	Septic Seal Permit
021854	Septic Seal Permit
021855	Septic Seal Permit

022651	Septic Seal Permit
022652	Septic Seal Permit
022653	Septic Seal Permit
022654	Septic Seal Permit
022656	Septic Seal Permit
022657	Septic Seal Permit
022658	Septic Seal Permit
022659	Septic Seal Permit
022660	Septic Seal Permit
022661	Septic Seal Permit
022662	Septic Seal Permit
023047	Septic Seal Permit
023048	Septic Seal Permit
023049	Septic Seal Permit
023054	Septic Seal Permit
020946	Septic Seal Permit
022941	Septic Seal Permit
022943	Septic Seal Permit
022944	Septic Seal Permit
022945	Septic Seal Permit
022946	Septic Seal Permit
022947	Septic Seal Permit
022948	Septic Seal Permit
022165	Septic Seal Permit
022962	Septic Seal Permit
022983	Septic Seal Permit
022984	Septic Seal Permit
022985	Septic Seal Permit
022989	Septic Seal Permit
023433	Septic Seal Permit
023434	Septic Seal Permit
026692	Septic Seal Permit
026693	Septic Seal Permit
026205	Septic Seal Permit
026708	Septic Seal Permit
024467	Septic Seal Permit
024468	Septic Seal Permit
024469	Septic Seal Permit
024470	Septic Seal Permit
024477	Septic Seal Permit
024481	Septic Seal Permit
024496	Septic Seal Permit
024497	Septic Seal Permit

026719	Septic Seal Permit
024983	Septic Seal Permit
025276	Septic Seal Permit
028387	Septic Seal Permit
029271	Septic Seal Permit
029316	Septic Seal Permit
027959	Septic Seal Permit
027960	Septic Seal Permit
027961	Septic Seal Permit
027962	Septic Seal Permit
027970	Septic Seal Permit
027971	Septic Seal Permit
027972	Septic Seal Permit
027978	Septic Seal Permit
027979	Septic Seal Permit
027980	Septic Seal Permit
026917	Septic Seal Permit
026925	Septic Seal Permit
026926	Septic Seal Permit
026927	Septic Seal Permit
026928	Septic Seal Permit
028719	Septic Seal Permit
028720	Septic Seal Permit
028721	Septic Seal Permit
027645	Septic Seal Permit
027646	Septic Seal Permit
WVG640112	Water Treatment Plant (GP)
030484	Septic Seal Permit
030972	Septic Seal Permit
031599	Septic Seal Permit
032321	Septic Seal Permit
032782	Septic Seal Permit
034583	Septic Seal Permit
034584	Septic Seal Permit
034585	Septic Seal Permit
034593	Septic Seal Permit
034596	Septic Seal Permit
034597	Septic Seal Permit
034598	Septic Seal Permit
034600	Septic Seal Permit
034601	Septic Seal Permit
033892	Septic Seal Permit
033896	Septic Seal Permit

036437	Septic Seal Permit
038191	Septic Seal Permit
034229	Septic Seal Permit
034239	Septic Seal Permit
034250	Septic Seal Permit
035122	Septic Seal Permit
036664	Septic Seal Permit
037387	Septic Seal Permit
039404	Septic Seal Permit
WVR104458	Storm Water Construction (GP)
040738	Septic Seal Permit
040742	Septic Seal Permit
042574	Septic Seal Permit
042579	Septic Seal Permit
041004	Septic Seal Permit
041007	Septic Seal Permit
WVG414126	Home Aeration Unit General
043035	Septic Seal Permit
WVSG20117	Sludge/Septic POTW Disposal (GP)
044441	Septic Seal Permit
045389	Septic Seal Permit
045395	Septic Seal Permit
047657	Septic Seal Permit
046915	Septic Seal Permit
047311	Septic Seal Permit
047515	Septic Seal Permit
047516	Septic Seal Permit
WVG414907	Home Aeration Unit General
048520	Septic Seal Permit
050314	Septic Seal Permit
048917	Septic Seal Permit
049121	Septic Seal Permit
051640	Septic Seal Permit
054233	Septic Seal Permit
053661	Septic Seal Permit
054148	Septic Seal Permit
056958	Septic Seal Permit
056961	Septic Seal Permit
055554	Septic Seal Permit
055655	Septic Seal Permit
WVR108659	Storm Water Construction (GP)
054996	Septic Seal Permit
057022	Septic Seal Permit

061265	Septic Seal Permit
061284	Septic Seal Permit
059057	Septic Seal Permit
059059	Septic Seal Permit
059064	Septic Seal Permit
061016	Septic Seal Permit
068718	Septic Seal Permit
061033	Septic Seal Permit
061034	Septic Seal Permit
061067	Septic Seal Permit
066061	Septic Seal Permit
066465	Septic Seal Permit
058988	Septic Seal Permit
058965	Septic Seal Permit
063723	Septic Seal Permit
065996	Septic Seal Permit
066012	Septic Seal Permit
066033	Septic Seal Permit
068792	Septic Seal Permit
063553	Septic Seal Permit
063606	Septic Seal Permit
063611	Septic Seal Permit
059088	Septic Seal Permit
063684	Septic Seal Permit
058370	Septic Seal Permit
058422	Septic Seal Permit
058429	Septic Seal Permit
058452	Septic Seal Permit
066528	Septic Seal Permit
061456	Septic Seal Permit
061460	Septic Seal Permit
061466	Septic Seal Permit
066450	Septic Seal Permit
1509-21-003	5W11 - Septic Systems (Non-Residential disp wells)
1509-21-003	5W11- Septic Systems (Non-Residential)
WVG417134	Home Aeration Unit General
061411	Septic Seal Permit
061090	Septic Seal Permit
061389	Septic Seal Permit

Table 3: ZPC PSSC List

Site Name	Description	Category
Swimming Pool/Bath House	Swimming Pools	Municipal
Residential (single family homes)	Residential (single family homes)	Residential
Residential (single family homes)	Residential (single family homes)	Residential
Park Lands	Park lands	Municipal
Sewage Lift Station	Sewer Lines	Municipal
Sewage Lift Station	Sewer Lines	Municipal
AM-VETS POST 38	Other	Commercial
HOUSES	Residential (single family homes)	Residential
AM-VETS POST 38	Marina/boat docks	Commercial
RIVER BEND PARK	Camp grounds	Commercial
HOUSES	Residential (single family homes)	Residential

Table 4: ZPC NPDES Permits

Permit Number	Description
WV0105384	Ind Other
WV0105384	OTHER
WVG551294	Sewage General
016643	Septic Seal Permit
018342	Septic Seal Permit
018543	Septic Seal Permit
018544	Septic Seal Permit
018582	Septic Seal Permit
017649	Septic Seal Permit
019454	Septic Seal Permit
019455	Septic Seal Permit
020013	Septic Seal Permit
019036	Septic Seal Permit
018833	Septic Seal Permit
021827	Septic Seal Permit
022642	Septic Seal Permit
020738	Septic Seal Permit
022626	Septic Seal Permit
023016	Septic Seal Permit
023024	Septic Seal Permit
022161	Septic Seal Permit
026033	Septic Seal Permit
026046	Septic Seal Permit
026202	Septic Seal Permit
024490	Septic Seal Permit
025491	Septic Seal Permit
024980	Septic Seal Permit
028398	Septic Seal Permit
028401	Septic Seal Permit
028403	Septic Seal Permit
028404	Septic Seal Permit
029237	Septic Seal Permit
029281	Septic Seal Permit
029285	Septic Seal Permit
026913	Septic Seal Permit
029246	Septic Seal Permit
029247	Septic Seal Permit

029248	Septic Seal Permit
029249	Septic Seal Permit
029250	Septic Seal Permit
029251	Septic Seal Permit
029252	Septic Seal Permit
030493	Septic Seal Permit
030957	Septic Seal Permit
030660	Septic Seal Permit
031595	Septic Seal Permit
031603	Septic Seal Permit
0786-04-003	5W32 - Septic Systems(Drain Field Disposal Mthd)
032316	Septic Seal Permit
029711	Septic Seal Permit
032776	Septic Seal Permit
037658	Septic Seal Permit
037373	Septic Seal Permit
037380	Septic Seal Permit
037381	Septic Seal Permit
041326	Septic Seal Permit
041003	Septic Seal Permit
044626	Septic Seal Permit
044900	Septic Seal Permit
043538	Septic Seal Permit
043975	Septic Seal Permit
045527	Septic Seal Permit
045400	Septic Seal Permit
045726	Septic Seal Permit
047655	Septic Seal Permit
049346	Septic Seal Permit
050095	Septic Seal Permit
049680	Septic Seal Permit
048909	Septic Seal Permit
048910	Septic Seal Permit
050802	Septic Seal Permit
051624	Septic Seal Permit
051061	Septic Seal Permit
052310	Septic Seal Permit
053329	Septic Seal Permit
053513	Septic Seal Permit
053518	Septic Seal Permit
054147	Septic Seal Permit
054153	Septic Seal Permit
053894	Septic Seal Permit

053909	Septic Seal Permit
054161	Septic Seal Permit
054814	Septic Seal Permit
055817	Septic Seal Permit
055549	Septic Seal Permit
055113	Septic Seal Permit
054611	Septic Seal Permit
054725	Septic Seal Permit
054729	Septic Seal Permit
055299	Septic Seal Permit
055310	Septic Seal Permit
056998	Septic Seal Permit
061261	Septic Seal Permit
061287	Septic Seal Permit
068821	Septic Seal Permit
068829	Septic Seal Permit
063829	Septic Seal Permit
066090	Septic Seal Permit
068745	Septic Seal Permit
068750	Septic Seal Permit
068705	Septic Seal Permit
068717	Septic Seal Permit
066477	Septic Seal Permit
066478	Septic Seal Permit
068895	Septic Seal Permit
058959	Septic Seal Permit
058960	Septic Seal Permit
058961	Septic Seal Permit
066488	Septic Seal Permit
066503	Septic Seal Permit
063724	Septic Seal Permit
065985	Septic Seal Permit
066001	Septic Seal Permit
066025	Septic Seal Permit
066027	Septic Seal Permit
068771	Septic Seal Permit
068772	Septic Seal Permit
063546	Septic Seal Permit
063552	Septic Seal Permit
063554	Septic Seal Permit
063559	Septic Seal Permit
063567	Septic Seal Permit
063568	Septic Seal Permit

063576	Septic Seal Permit
063625	Septic Seal Permit

Table 5: WHPA PSSC List

Site Name	Description
Shell gas station	Gas Stations
Sheetz Gas Station	Gas Stations
Walmart	Other
Penwells Home and Auto Repair	Auto repair shops
Animal Feedlots	Animal Feedlots
Crops: Orchards	Crops: orchards
Crops: Other	Crops: other
Crops: Corn, Soybean, Wheat	Crops, corn, soybean, wheat
Uhaul Rentals	Auto repair shops
Other Animal Facilities	Other animal facilities
Construction Area	Construction areas
Auto and Truck Repair Shop	Auto repair shops
Health Clinic	Medical/dental offices/clinics
Shell Station	Gas Stations
Walmart	Parking lots/malls
Sheetz	Gas Stations
Residential (multi-unit)	Residential (multi-units)
Codys Salvage	Junk yards, scrap and auto
Southern States Petroleum Service	Farm chemical distributor
Farm Machinery Areas	Farm machinery areas
Health Clinic	Medical/dental offices/clinics
Holiday Inn Express	Residential (multi-units)
Crops: Orchards	Crops: orchards
Crops: Corn, Soybean, Wheat	Crops, corn, soybean, wheat
Crops: Corn, Soybean, Wheat	Crops, corn, soybean, wheat
Residential (single family homes)	Residential (single family homes)
Residential (single family homes)	Residential (single family homes)
Residential (multi-unit)	Residential (multi-units)
Burger King	Parking lots/malls
Residential (single family homes)	Residential (single family homes)
Animal Crop Field	Crops: other
Orchard	Crops: orchards
Krondola Ranch	Pasture*
Orchard	Crops: orchards
Spring Mills Apartments	Residential (multi-units)
Farm	Other animal facilities
Spring Mills Subdivision	Residential (single family homes)

Table 6: WHPA NPDES List

Permit Number	Description
037911	Septic Seal Permit
WVG610179	Storm Water Industrial (GP)
037912	Septic Seal Permit
012845	Septic Seal Permit
012898	Septic Seal Permit
015946	Septic Seal Permit
015947	Septic Seal Permit
015070	Septic Seal Permit
018579	Septic Seal Permit
017632	Septic Seal Permit
015598	Septic Seal Permit
017392	Septic Seal Permit
018846	Septic Seal Permit
019073	Septic Seal Permit
020005	Septic Seal Permit
022133	Septic Seal Permit
022135	Septic Seal Permit
022644	Septic Seal Permit
023054	Septic Seal Permit
022172	Septic Seal Permit
026012	Septic Seal Permit
026718	Septic Seal Permit
025287	Septic Seal Permit
028392	Septic Seal Permit
029298	Septic Seal Permit
027986	Septic Seal Permit
030228	Septic Seal Permit
WVG640112	Water Treatment Plant (GP)
030488	Septic Seal Permit
030489	Septic Seal Permit
030674	Septic Seal Permit
030675	Septic Seal Permit
031892	Septic Seal Permit
032774	Septic Seal Permit
032777	Septic Seal Permit
034593	Septic Seal Permit
033887	Septic Seal Permit
033888	Septic Seal Permit

033898	Septic Seal Permit
032474	Septic Seal Permit
033057	Septic Seal Permit
032482	Septic Seal Permit
036431	Septic Seal Permit
036435	Septic Seal Permit
036438	Septic Seal Permit
038183	Septic Seal Permit
035815	Septic Seal Permit
034229	Septic Seal Permit
035108	Septic Seal Permit
035120	Septic Seal Permit
037665	Septic Seal Permit
037375	Septic Seal Permit
037389	Septic Seal Permit
037465	Septic Seal Permit
039645	Septic Seal Permit
039643	Septic Seal Permit
041316	Septic Seal Permit
041318	Septic Seal Permit
041528	Septic Seal Permit
042622	Septic Seal Permit
040198	Septic Seal Permit
041002	Septic Seal Permit
044118	Septic Seal Permit
046006	Septic Seal Permit
046007	Septic Seal Permit
046008	Septic Seal Permit
046440	Septic Seal Permit
046446	Septic Seal Permit
046448	Septic Seal Permit
046684	Septic Seal Permit
046828	Septic Seal Permit
046836	Septic Seal Permit
045722	Septic Seal Permit
045723	Septic Seal Permit
047869	Septic Seal Permit
047218	Septic Seal Permit
WVR106395	Storm Water Construction (GP)
048145	Septic Seal Permit
048047	Septic Seal Permit
048365	Septic Seal Permit
048368	Septic Seal Permit

050091	Septic Seal Permit
049446	Septic Seal Permit
049450	Septic Seal Permit
048638	Septic Seal Permit
049682	Septic Seal Permit
049685	Septic Seal Permit
048912	Septic Seal Permit
050592	Septic Seal Permit
050483	Septic Seal Permit
050488	Septic Seal Permit
049268	Septic Seal Permit
051224	Septic Seal Permit
051638	Septic Seal Permit
WVR108051	Storm Water Construction (MCA)
051904	Septic Seal Permit
052927	Septic Seal Permit
052932	Septic Seal Permit
053197	Septic Seal Permit
053517	Septic Seal Permit
053891	Septic Seal Permit
053892	Septic Seal Permit
053893	Septic Seal Permit
054163	Septic Seal Permit
055587	Septic Seal Permit
055617	Septic Seal Permit
055637	Septic Seal Permit
WVR108659	Storm Water Construction (GP)
WVR108682	Storm Water Construction (GP)
055302	Septic Seal Permit
WVR111480	Storm Water Construction (MCA)
066080	Septic Seal Permit
WVR111811	Storm Water Construction (MCA)
WVR112011	Storm Water Construction (GP)
WVR111105	Storm Water Construction (GP)
068749	Septic Seal Permit
WVG611961	Storm Water Industrial (GP)
059050	Septic Seal Permit
059051	Septic Seal Permit
059008	Septic Seal Permit
059011	Septic Seal Permit
WVR112326	Storm Water Construction (MCA)
061217	Septic Seal Permit
WVR112264	Storm Water Construction (GP)

WVR112173	Storm Water Construction (MCA)
068898	Septic Seal Permit
058946	Septic Seal Permit
058972	Septic Seal Permit
063883	Septic Seal Permit
WVR110969	Storm Water Construction (MCA)
WVR110410	Storm Water Construction (GP)
WVR111982	Storm Water Construction (GP)
WVR112171	Storm Water Construction (MCA)
068770	Septic Seal Permit
WVG611900	Storm Water Industrial (GP)
WVR110772	Storm Water Construction (MCA)
063590	Septic Seal Permit
059093	Septic Seal Permit
059044	Septic Seal Permit
063674	Septic Seal Permit
063675	Septic Seal Permit
063692	Septic Seal Permit
063709	Septic Seal Permit
058420	Septic Seal Permit
058440	Septic Seal Permit
058447	Septic Seal Permit
WVR112271	Storm Water Construction (MCA)
WVR111973	Storm Water Construction (GP)
061455	Septic Seal Permit
067544	Septic Seal Permit
WVR111197	Storm Water Construction (GP)
WVR111363	Storm Water Construction (GP)
WVR112036	Storm Water Construction (GP)
WVR110847	Storm Water Construction (GP)
061378	Septic Seal Permit

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 for a groundwater source.

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

Form C - 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 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 B
Proposed Ground Monitoring Worksheet

Describe the type of early warning detection equipment that could be installed, including design:
Any source water detection equipment
Where would the equipment be located?:
Up stream of the intake
What would the maintenance plan for the monitoring equipment entail?:
Maintaining chemicals and probes
Describe the proposed sampling plan at the monitoring site:
would need continous monitoring
Describe the proposed procedures for data management and analysis:
Data would stored at the plant thru the scada ssytem

Appendix B - Form D
Proposed Ground Monitoring Worksheet

Describe the type of ground water monitoring network that could be installed, including the design and location:
Any ground water monitoring system
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?:
2 weeks to 2 months
Provide the distance from the contaminant source to the monitoring wells:
5 miles
What is the distance of the proposed monitoring equipment to the well head?:
5 miles radious
What would the maintenance plan for the monitoring equipment entail?:
maintaining the equipment
Describe the proposed sampling plan at the monitoring site:
data would be monitored thru scada system
Describe the proposed procedures for data management and analysis:
tracked through scada system

APPENDIX C. COMMUNICATION PLAN TEMPLATE

Berkeley County Pswd-Potomac River

PWSID: WV3300218

Authorizing Signature: Jim Ouellet

Contact Phone Number: (304)267-4600

Contact Email Address: jouellet@berkeleywater.org

Plan Developed On: April 2024

ACKNOWLEDGMENTS:

This plan was developed by [insert name, title of person completing plan, and who they work for] 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.

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 Advisory. 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	Announcement	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	Boil 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	Cannot 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	Do 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	Emergency	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
Jim Ouellet	Berkeley County Pswd-Potomac River	(304)267-4600	_jouellet@berkeleywater.org
Steve Deridder	Berkeley County Pswd-Potomac River	(304)267-4600	sderidder@berkeleywater.org

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 “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. 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

Emergency Service Contacts

	Name	Emergency Phone	Alternative Phone	Email
Police	Sheriff's Office		(304)267-7000	
Fire	Bedington Fire		(304)274-2381	
Ambulance	Berkeley County Ambulance		(304)274-5013	
Hazmat	Berkeley County Emergency		(304)263-1345	
Other				
Other				
Other				

Emergency Service Key Staff Members

	Name	Title	Phone	Email
Key Staff Responsible for Coordinating Emergency Response Rrocedures:	Jim Ouellet	Executive Director, P.E.	(304)267-4600	jouellet@berkeleywater.org
Staff Responsible for Keeping Confidential PSSC Information and Releasing to Emergency Responders.	Jim Ouellet	Executive Director	(304)267-4600	jouellet@berkeleywater.org

Emergency Response Information

List Laboratories available to perform sample analysis in case of emergency.	Name	Phone
	Eurofins	(574)233-4777
Has utility developed a detailed Emergency Response Plan in accordance with the Public Health Security Bioterrorism preparedness and Response Plan Act of 2002 that covers the following areas?:		Yes
When was the emergency response plan developed or last updated?:		2023

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 - Lee Orr

Phone: 304-356-4290

Cell: 304-550-5607

E-mail: Lee.E.Orr@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/

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.

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 _____.

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 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, olors, 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: _____

APPENDIX D. SINGLE SOURCE FEASIBILITY

Water Source Alternative:

Did not complete the alternative source study	
Name of Alternative:	City of Martinsburg Inner-connection
Brief Description of the Alternative:	City of Martinsburg Inner-connection
Feasible?:	No
Provide Cost Estimate:	$1
Would this alternative supply 100% of your needs?:	No
Economic Criteria - Operation and Maintenance Costs:	1
Economic Criteria - Capital Cost:	1
Technical Criteria - Permitting:	1
Technical Criteria - Flexibility:	0
Technical Criteria - Resilience:	1
Technical Criteria - Institutional Requirements:	0
Environmental Criteria - Environmental Impacts:	1
Environmental Criteria - Aesthetic Impacts:	0
Environmental Criteria - Stakeholder Issues:	0
Final Score:	11.11%

Matrix Document

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 turbidity, temperature, Manganese, and pH are monitored and recorded on a daily basis prior to treatment.	
Provide or estimate the capital and O&M costs for your current or proposed early warning system or upgraded system.	**Capital**	Three possible scenarios for a proposed early warning monitoring system for the Potomac River Intake are detailed in **Appendix F-6**
	Yearly O & M	See **Appendix F-6** for details.
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	

Single Source Feasibility Study

If a public water utility's water supply plant is served by a single–source intake for a surface water supply source or a GWUDI source, the submitted SWPP 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 from a chemical release or spill event, or other reasons (including drought). These alternatives may include a secondary source, raw or treated water storage, interconnection with neighboring systems, or other options identified on a local level. A secondary water supply source should draw water from a substantially different location or water source to best prevent contamination of both sources.

The BCPSWD Potomac River WTP is actively supplied by more than one source. If a contamination event were to impact the Potomac River intake, the system could rely on the three groundwater wells (Wells A, B, and D) and its interconnection with the City of Martinsburg. Should the groundwater wells become contaminated, the utility could rely on the surface water intake and their connection with the City of Martinsburg to supply its customers. The BCPSWD has a purchase agreement with the City of Martinsburg (PWSID #WV3300212) for up to 1 million gallons per day. As a result, completion of the Feasibility Study Matrix spreadsheet was not required for this system; however, a brief narrative is attached **(Appendix E)** which describes the alternatives already in place.

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APPENDIX E. SUPPORTING DOCUMENTATION