SOURCE WATER PROTECTION PLAN

Source Water Protection Plan

CHARLES TOWN UTILITY BOARD

PWSID WV3301905

JEFFERSON COUNTY

Charles Town Utility Board

June 28, 2019

Prepared by:

Charles Town Utility Board

and

TERRADON Corporation

Jane Arnett

Preparer's Name:

Utility Manager

Title of Preparer:

Charles Town Utility Board

TERRADON Corporation

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

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

(see following page)

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

Peter Kubic

Print Name of Authorizing Signatory (see instructions):

Vice Chairman, Charles Town Utility Board

Title of Authorizing Signatory:

Date of Submission (July/1/2019):

Jane Arnett

Preparer's Name:

Utility Manager

Title of Preparer:

Charles Town Utility Board

TERRADON Corporation

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

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

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

Print Name of Authorizing Signatory (see instructions):
Pete Kubic, Vice Chairman
Charles Town Utility Board

Title of Authorizing Signatory:
Vice Chairman
Charles Town Utility Board

Date of Submission (July 1, 2019):

Table of Contents

List of Tables

Appendices

SOURCE WATER PROGRAM ACRONYMS

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

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

Purpose

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

The intent of this document is to describe what Charles Town Utility Board 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, Charles Town Utility Board acknowledges that implementing measures to minimize and mitigate contamination can be a relatively economical way to help ensure the safety of the drinking water.

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

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

Background: WV Source Water Assessment and Protection Program

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

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

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

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

State Regulatory Requirements

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

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

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

System Information

Charles Town Utility Board 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 Charles Town Utility Board

Administrative office location:	661 S. George Street, Suite 101, Charles Town, WV 25414		
Is the system a public utility, according to the Public Service Commission rule?	Yes		
Date of Most Recent Source Water Assessment Report:	December 18, 2015		
Date of Most Recent Source Water Protection Plan:	May 2016		
Population served directly:	14,488 (Number calculated by the OEHS district engineer).		
Bulk Water Purchaser Systems:	**System Name**	**PWSID Number**	**Population**
	N/A		
Total Population Served by the Utility:	14,488 (Number calculated by the OEHS district engineer).		
Does the utility have multiple source water protection areas (SWPAs)?	No		
How many SWPAs does the utility have?	One		

Water Treatment and Storage

As required, Charles Town Utility Board 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 Charles Town Utility Board 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. Charles Town Utility Board Water Treatment Information

Water Treatment Processes (List All Processes in Order)	Coagulation, Flocculation, Sedimentation, Filtration, Disinfection (Chlorination), Fluoridation
Current Treatment Capacity (gal/day)	Maximum = 3,000,000 gallons/day
Current Average Production (gal/day)	1,656,000 gallons/day
Maximum Quantity Treated and Produced (gal)	2,420,000 gallons/day
Minimum Quantity Treated and Produced (gal)	1,171,00 gallons/day
Average Hours of Operation	16.7 hours/day
Maximum Hours of Operation in One Day	18.0 hours/day
Minimum Hours of Operation in One Day	10.0 hours/day
Number of Storage Tanks Maintained	Eight Gravity Storage Tanks
Total Gallons of Treated Water Storage (gal)	3,572,000 gallons
Total Gallons of Raw Water Storage (gal)	0 gallons

Table 3. Charles Town Utility Board Surface Water Sources

Intake Name	SDWIS #	Local Name	Describe Intake	Name of Water Source	Date Constructed/ Modified	Frequency of Use (Primary/ Backup/ Emergency)	Activity Status (Active/ Inactive)
Surface (Shenandoah River) IN001	WV3301905	Charles Town Water Treatment Facility	T-Shaped Design Screened Pipe to Wet Well	Shenandoah River	1989	Primary	Active
Alternate backup	WV3301905	Charles Town Water Treatment Facility	8 inch Trash Pump 1800 gallons per minute Supplemental supply to wet well. Used when leaf debris and frazil ice buildup on the intake structure is a problem	Shenandoah River	Portable	Secondary	Active

Table 4. Charles Town Utility Board Groundwater Sources

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

Delineations

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

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

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 by West Virginia Bureau for Public Health 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

Size of WSDA (Square Miles)	3008.553 Square Miles
River Watershed Name (8-digit HUC)	Shenandoah River (Jefferson County, WV) (02070007)
Size of Zone of Critical Concern (Acres)	8,691 (Acres)
Size of Zone of Peripheral Concern (Acres) (Include ZCC area)	22,394 (Acres)
Method of Delineation for Groundwater Sources	N/A
Area of Wellhead Protection Area (Acres)	N/A

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 Charles Town Utility Board 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.

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

Table 6. Protection Team Member and Contact Information

Name	Representing	Title	Phone Number	Email
Jane Arnett	Charles Town Utility Board	Utility Manager	304-724-3280	arnett@ctubwv.com
Chris Hutzler	Charles Town Utility Board	Chief Operator	304-724-3280 304-725-3761 Plant	chutzler@ctubwv.com
Stephen Allen	Jefferson County Office of Homeland Security and Emergency Management	Director	Office: 304- 728-3329	sallen@jeffersoncountywv.org
Denise Pouget Ed Hannon	Jefferson County Emergency Services Agency	Director Deputy Director	304-728-3287	DPouget@jcesa.org EHannon@jcesa.org
Bill Zaleski	Jefferson County Health Department	Sanitarian Supervisor	304-728-8416 Cell: 304-725-5075	Bill.H.Zaleski@wv.gov
John Mills	Jefferson County Local Emergency Planning Committee (LEPC)	President		lepc@jeffersoncountywv.org
Jeff Polczynski Chris Cross	Jefferson County Emergency Communications Center	Director Deputy Director	304-728-3317 304-728-3372	jpolczynski@jeffersoncountywv.org ccross@jeffersoncountywv.org
Todd Fagan	Jefferson County GIS Department	GIS Technician		tfagan@jeffersoncountywv.org
Mason Carter	Jefferson County Floodplain Ordinance Coordinator	Floodplain Coordinator		mcarter@jeffersoncountywv.org
Chief	Citizens Fire Department	Chief	304-725-2814	
Chief	Independent Fire Department	Chief	304-725-2514	ifc@independentfirecompany.net
Alana Hartman	WVDEP Division of Water and Waste Management (Nonpoint Section)	Environmental Resources Analyst	304-822-7266 EXT: 3623	Alana.C.Hartman@wv.gov

Alan Marchun	WVDHHR-Kearneysville District Office	Representative	304-725-9453	Alan.f.marchun@wv.gov
John Cole	RK&K Engineers	Consultant for Charles Town Utilities	304-788-3370	jcole@rkk.com
Lew Baker	WV Rural Water Association	FSA Sourcewater Specialist	Cell: 304-638-9883	lewbaker@wvrwa.org
Jennifer O'Brien	Eastern Panhandle Regional Planning & Development Council	Assistant Director	304-263-1743	jobrien@region9wv.com
Tanner Haid	WV Rivers Coalition	Representative	Cell: 304-886-2665	thaid@wvrivers.org
Karen Andersen	Friends of the Shenandoah	Representative		Kandersen@fors.org
Karen Bencala	Interstate Commission on the Potomac River Basin (ICPRB)	Senior Water Resources Planner	301-984-1908 Ext. 139	kbencala@icprb.org
Date of first Protection Team Meeting		Originally met in May of 2016. Scheduled to meet third quarter of this year and first and third quarter in 2020, 2021 and 2022. Dates to be determined.		
Efforts made to inform and engage local stakeholders (public, local government, local emergency planners, local health department, and affected residents) and explain absence of recommended stakeholders:		E-mail invitations to attend the Protection Team Meeting will be sent prior to the above meeting schedule. Phone calls will also be conducted as a follow-up to the e-mails.		

Potential Sources of Significant Contamination

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

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

Confidentiality of PSSCs

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

Local and Regional PSSCs

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

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

Charles Town Utility Board 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 Charles Town Utility Board that do not already appear in datasets from the WVBPH can be found in **Table 7**.

Table 7. Locally Identified Potential Sources of Significant Contamination (PSSC)

PSSC Number	Site Name	Site Description	Comments
1	Pasture	Animal Feedlots	Fenced out of creek.
2	Crop fields and feed lot	Animal Feedlots	None
3	Crops and Feed Lot	Crops, corn, soybean, wheat	None
4	Cattle pasture and small feed lot with barn	Animal Feedlots	None
5	Soybean field	Animal Feedlots	None
6	Cornfield	Crops, corn, soybean, wheat	None
7	Dave's Auto and RV Sales	Car dealerships	Small lot with about 30 vehicles.
8	Avon Bend Farm	Drainage canals (agricultural)	Barn with no livestock present but stock has access to stream.
9	Silos and storage area on private property	Pesticide/fertilizer/petroleum storage and Trans.	None
10	Oakwood Farm Dairy and Taylor Mountain Farm	Pasture	Crop land and pastures with corn and soybeans.
11	Water supply intake	Other	On Shenandoah River south of Route 9 bridge (Not shown on figure for security reasons).
12	Lakeshore Grille restaurant	Other	None
13	Old Lake Lodge at Shannondale - Closed	Other	Septic system not active
14	Old Lake Lodge at Shannondale - Closed	Other	Septic system not active
15	Old Lake Lodge at Shannondale - Closed	Other	Septic system not active
16	Wheatland Horse farm	Pasture	Housing development being built behind farm.
17	Railroad tracks crossing stream	Railroad Tracks and Yards.	None
18	Shannondale Springs Wildlife Management Area	Marina/boat docks.	Public Boat ramp

PSSC Number	Site Name	Site Description	Comments
19	Grammy's Place day care center - Closed	Other	Not active. Well head in front yard.
20	Railroad tracks crossing Bullskin Run near Wheatland	Railroad Tracks and Yards.	None
21	Trailer Community	Residential (single family homes).	Septic system not active.
22	House	Septic Systems (leach field).	None
23	House	Residential (single family homes).	None
24	PCS #12	Crops, corn, soybean, wheat.	Crops, corn, soybean, wheat.
25	House	Septic Systems (leach field).	None
26	House	Residential (single family homes).	None
27	House	Septic Systems (leach field).	None
28	House	Septic Systems (leach field).	None
West Virginia Regulated			
EPA RCRA			
R-1	Rhodrick Property UST Removal	3178 Kabletown Rd, Charles Town,	FRS-GEOCODE
EPA NPDES			
R-2	Snyder Environmental Services, Inc.	Sewage	WVSG10026
R-3	Black Fly/Gypsy Moth Programs	Industrial	WVG870001
R-4	Oakwood Farm, LLC	Industrial	WV0117544
R-5	Powell's Plumbing, Inc.	Sewage	WVSG10066
R-6	Shannondale Apartments Building 1	Sewage	WVG416065
R-7	Shannondale Apartments Building 2	Sewage	WVG416066
Regulated Above Ground Storage Tanks			
R-8	Stephen Groh - 019-00000129	2,000 Gallons	Permanently Out of Service

PSSC Number	Site Name	Site Description	Comments
R-9	Drilake Farm Inc - 019-00000146	2,000 Gallons	Permanently Out of Service
R-10	Drilake Farm Inc - 019-00000168	3,000 Gallons	Contains urea

Prioritization of Potential Threats and Management Strategies

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

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

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

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

Implementation Plan for Management Strategies

Charles Town Utility Board 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 bi-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. Charles Town Utility Board has developed an implementation plan for priority concerns **Table 8**. The responsible team member, timeline, and potential cost of each strategy are presented in **Table 9**. Note: Because timelines may change, future plan updates should describe the status of each strategy and explain the lack of progress.

Table 8. Priority PSSCs or Critical Areas

PSSC or Critical Area	Priority Number	Reason for Concern
Agricultural Land Uses	1	Pesticides, herbicides, and nutrients used for farm operations can migrate through surface waters into the water supply. Nonpoint source runoff from the livestock areas may introduce pathogens, particularly if the runoff occurs from confined spaces, such as feedlots. Overgrazing can create erosion issues. Areas used for disposal of animal waste or burying dead livestock can also cause contamination of the source water.
Industrial & Commercial Activity	2	Facilities such as gas stations, auto repair shops, and dry cleaners are located within the SWPA and pose a threat due to the potential for accidental spills, leaks, improper disposal of hazardous waste or improperly managed storm water runoff.
Boat Ramp	3	The WV Division of Natural Resources (WVDNR) Shannondale Springs Wildlife Management Area (WMA) has a boat ramp within the ZCC on a tributary upstream of the intake. Petroleum products from boats may contaminate the surface waters.
Railroad Traffic	4	The railroad tracks run through the protection watershed and cross 2 tributaries within the ZCC. A spill or leak could contaminate the source water. This contamination
On-Site Septic Systems	5	Failing septic systems or untreated sewage from on-site septic systems could infiltrate to the surface water source, raising concentrations of total coliform, particularly fecal coliform.
New Development Construction	6	Construction runoff from new development can increase turbidity, total dissolved solids, and total suspended solids in the surface waters. Petroleum products from construction equipment could migrate into surface waters should a spill or leak occur.

Table 9. Priority PSSC Management Strategies

Priority #	PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status/Schedule	Comments	Estimated Cost
1	Agricultural Land Uses	Work with the County Extension Service, the Soil and Water Conservation District, and/or the Natural Resource Conservation Service to raise awareness about and promote participation in forest conservation, land retirement and nutrient management programs within the SWPA.	Charles Town Utility Board	Ongoing	---	Personnel Time
2	Industrial & Commercial Activity	Charles Town will request Groundwater Protection Plans (GPPs) and/or stormwater management plans from WVDEP for commercial facilities located within the SWPA. Review and 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.	Charles Town Utility Board	Ongoing	---	Personnel Time
3	Boat Ramp	Contact personnel of the WVDNR Shannondale Springs WMA to identify any measures that the water system can assist to promote keeping the water free of petroleum products associated with boats.	Charles Town Utility Board	Within 1 year	---	Personnel Time

4	Railroad Traffic	When CSX railways offers or provides training materials, planning guides, trainings, exercises, etc., to the LEPC, Jefferson County LEPC will make the information available to local emergency response agencies so that they may choose to utilize them. CSX has made their Rail Respond internet-based program available to HSEM, LEPC, and emergency responders that can document to CSX a need to know, which provides access to critical information about response to accidents involving the CSX rails. Emergency personnel have also expressed interest to CSX in performing routine Emergency Response drills for Highway and Railroad spills. Charles Town Utilities will work with WV DEP or BPH to perform a Hazmat Re-route request to prevent specific potential contaminants from being transported through system source water protection areas. These entities will work with railroad companies to discuss safety measures, emergency plans and inspection routine(s).	Charles Town Utility Board Jefferson County Office of Homeland Security and Emergency Management WVDEP WVBPH	Ongoing	---	Personnel Time
5	On-Site Septic Systems	Charles Town Utilities 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). Outreach materials will encourage them to have their septic system inspected regularly and pumped every 5-10 years as needed. Also, the USEPA provides a complete guide for residents to maintain their septic systems, for the guide,	Charles Town Utility Board, Jefferson County Health Department, WVDEP-DWWM	Ongoing	---	Personnel Time

		visit: http://epa.gov/owm/septic/pubs/homeowner_guide_long.pdf				
6	New Development Construction	Ensure sediment and erosion control measures are being instituted at construction sites. Monitor compliance with existing regulations through inspections and/or contact with regulatory agencies (WVDEP).	Charles Town Utility Board	Ongoing	---	Personnel Time
7	Land Conservation within the Watershed, ZCC and ZPC.	Charles Town Utilities will focus on the connection between land conservation and source water protection. We will collaborate with conservation organizations like WV Rivers Coalition, WV Land Trust, the Farmland Protection Board, Land Trust of the Eastern Panhandle, Historic Landmark Commissions, and others to explore strategies to accelerate conservation easements that benefit our public drinking water source. The resulting management strategy will be a collaborative effort to identify priority conservation areas.	Lead: WV Rivers Coalition Charles Town Utility Board	Ongoing	Meet with WV Rivers Coalition to discuss opportunities	Minimal, staff time to attend meetings
8	Previous Plan Status	Implementation efforts since the past SWPP.	Constructed and completed (now in use) 1,000,000 gallon finished water storage tank located at the Water Treatment Plant.			

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. Charles Town Utility Board 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
General Information Dissemination	Include educational information on the following topics on website for public use: source water protection, water conservation, household hazardous materials disposal, pharmaceuticals disposal, observing and reporting spills/leaks.	Charles Town Utilities	Short Term (1-2 years)	Annual CCR information
Best Management Practices (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.	WVDEP and WVDHHR Charles Town Utilities	Short Term (1-2 years)	Charles Town can make this information available via web links on their web page
Clean Up Events	Coordinate with local Clean Up efforts and publicize projects. Work closely with Watershed Associations in this regard.	Charles Town Utilities	Mid Term (2-4 years)	Coordinate with local organizations and publish information on web page
Public-Private Partnerships	Work in concert with private partnerships such as WV Rivers Coalition to implement programs like Safe Water for West Virginia. This program would include outreach to landowners to promote land conservation within the ZCC, ZPC and water shed to better improve overall water quality.	West Virginia Rivers Coalition	Long Term (5+ years)	Educational Outreach
School Curricula	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). Consider	WVDEP/WVDHHR Charles Town Utilities	Long Term (5+ years)	Educational Outreach

	implementing in conjunction with City and County MS4 requirements.			
Display Information	(1) Include informational materials (i.e., brochures, maps, etc.) in County & City government offices and other public places (i.e., local fairs). Work with DOT for protection area sign expansion/coverage. (2) Host non-confidential SWPP online for public review and comment.	Charles Town Utilities	Short Term (1 year)	Charles Town will host a public version of the SWPP online
Emergency Planning and Coordination	Participate with local fire departments and County Emergency Services on a regular basis. This will ensure that all the agencies are in constant communication with one another and prepared in the event of an emergency.	Jefferson County Office of Homeland Security and Emergency Management Citizens and Independent Fire Departments Charles Town Utilities	Short Term and continual on-going training (1-2 years)	On-going training exercises by emergency services
Jefferson County Water Advisory Committee Participation	A representative from Charles Town Utilities will participate in the Jefferson County Water Advisory Committee. County cleanup days, outreach. Shepherdstown day, 7 watershed groups coordinated.	Charles Town Utilities	Short Term and ongoing there after (1-2 years)	The Jefferson County Water Advisory Committee meets the 3rd Wednesday of each month at the County Commission meeting room located at 200 E. Washington Street, Charles Town, WV.

Contingency Plan

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

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

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

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

Response Networks and Communication

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

Table 11. Charles Town Utility Board Water Shortage Response Capability

Can the utility isolate or divert contamination from the intake or groundwater supply?	Yes, isolation by electronically closing the drop gate of the intake to the wet well.
Describe the utility's capability to isolate or divert potential contaminants:	Using the ICPRB real time tool, Charles Town is informed of contaminant migration from upstream via real time modeling. The ICPRB is capable of determining time of travel of contaminants to the Charles Town intake. This will allow them to plan

	when to shut the drop gate of the intake to isolate and keep the system from taking in potential contaminants. In addition, they have an 1800 GPM trash pump that can be manually placed into the Shenandoah River with the suction approximately 20 feet from shore if the contaminants are not near the shore line.
Can the utility switch to an alternative water source or intake that can supply full capacity at any time?	Potentially
Describe in detail the utility's capability to switch to an alternative source:	Using the 1800 GPM portable trash pump the Utility can establish a temporary intake in the Shenandoah River close to the shoreline near the wet well. The utility currently has this capability and exercises it during periods of frazil ice or heavy organic leaf buildup on the intake structure.
Can the utility close the water intake to prevent contamination from entering the water supply?	Yes, a drop gate can be activated electronically from the Water Treatment Plant.
How long can the intake stay closed?	Finished water storage capacity is 3,572,000 gallons or approximately 2.16 days at current use.
Describe the process to close the intake:	The intake pumps can be shut down and the intake structure has a drop gate that can be closed electronically from the treatment plant.
Describe the treated water storage capacity of the water system:	8 storage tanks for a total storage of 3,572,000 gallons.
Route 9 Storage Tank **(installed 1998, Repainted 2015)**	500,000 gallons
Keys Ferry Storage Tank **(installed 1988, Repainted 2010)**	500,000 gallons
Avis Street Storage Tank **(installed 1976, Repainted 2015**	500,000 gallons
6th Avenue Storage Tanks **Standpipe (installed 2002)** **Elevated Tank (installed 1991, repainted 2016)**	125,000 gallons 337,000 gallons
Northern High Zone Standpipe **(installed 2006)**	360,000 gallons

Huntfield Storage Tank (installed 2002)	250,000 gallons
Locust Hill Storage Tank (installed 2003)	500,000 gallons
Water Treatment Plant Storage Tank (installed 2017)	1,000,000 gallons
Is the utility a member of WVRWA Emergency Response Team?	No
Is the utility a member of WV-WARN?	Yes
List any other mutual aid agreements to provide or receive assistance in the event of an emergency:	N/A

Operation During Loss of Power

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

Table 12. Generator Capacity

What is the type and capacity of the generator needed to operate during a loss of power?	The system has 4 emergency generators installed which are operational at the intake, water treatment plant and two booster stations.
Can the utility connect to generator at intake/wellhead? If yes, select a scenario that best describes system.	Yes, has standby generator, hard-wired and ready to turn on.
Can the utility connect to generator at treatment facility? If yes, select a scenario that best describes system.	Yes, has standby generator, hard-wired and ready to turn on.
Can the utility connect to a generator in distribution system? If yes, select a scenario that best describes system.	Yes, has standby generator, hard-wired and ready to turn on.
Does the utility have adequate fuel on hand for the generator?	Yes, each generator has an internal double walled AST filled with diesel fuel.

What is your on-hand fuel storage and how long will it last operating at full capacity?	Gallons Diesel CONFIDENTIAL	Hours CONFIDENTIAL
Raw Water Intake Generator **3 Phase Cummins 250 KW** **Model DQAC 1403873** **Serial # D140667237 (Spec H)**	550	179
Water Treatment Plant Generator **3 Phase Cummins 300 KW** **Model DQDAC 1344640** **Serial # A140620402 (Spec G)**	600	43
Huntfield Booster Station **3 Phase Cummins 100 KW**	310	54
Northern High Zone Booster Station (Ranson) **3 Phase Cummins 200 KW** **Model DFGC 5784250** **Serial # L060003643 (Spec N)**	360	126
1,800 gallon per minute trash pump (emergency pump)	80	24

	Supplier		Contact Name	Phone Number
Provide a list of suppliers that could provide generators and fuel in the event of an emergency:	**Generator**	WV National Guard	Garrison Commander	304-267-2772
	Fuel	Griffith Energy Services, Inc.	Tim Miller	Cell: 240-416-2830 tmiller@griffithoil.com
	Fuel	Roach Oil	Representative	304-263-3329
Cummins Service Contractor		Cummins Atlantic	Representative	540-931-9114

Does the utility test the generator(s) periodically?	Yes, they exercise the generators on a weekly basis
Does the utility routinely maintain the generator?	Yes, a yearly service contract with Cummins.
If no scenario describing the ability to connect to generator matches the utility's system or if utility does not have ability to connect to a generator, describe plans to respond to power outages:	In the event of a mechanical failure to the existing generators during an emergency, the system would need to obtain a Cummins Repair Technician, or obtain an equivalent emergency generator from a rental vendor or the National Guard. However, an electrician would need to wire a replacement generator into the transfer switch. The transfer switch is not currently configured to simply plug in a temporary generator.

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. Charles Town Utility Board 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 Charles Town Utility Board

Is the utility able to meet water demands with the current production capacity over the next 5 years? If so, explain how you plan to do so.	Yes, there is enough capacity to support more residential, commercial and industrial development within the service area. The following explains how this can be achieved: 1. The water plant can increase daily production hours (currently running at approximately 13.50 hours/day) to increase total water production for near future expansion needs. 2. With capital improvements to the water delivery system, the total amount of fresh water on hand will increase as the replacement piping projects continue. Thus, increasing available fresh water and future expansion.
If not, describe the circumstances and plans to increase production capacity:	Although the Utility is capable of meeting future demands, the utility is continuing with planned capital improvements of approximately $7,000,000 to replace known subpar piping types to eliminate and/or reduce piping failures.

Water Loss Calculation

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

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

the calculation of percentage of water loss for purposes of the source water protection plan. The data in **Table 14** is taken from the most recently submitted (2018) Charles Town Utility Board PSC Annual Report.

Table 14. Water Loss Information

Total Water Pumped (gal)		604,768,000
Total Water Purchased (gal)		None
Total Water Pumped and Purchased (gal)		604,768,000
Water Loss Accounted for Except Main Leaks (gal)	**Mains, Plants, Filters, Flushing, etc.**	16,500,000
	Fire Department	7,500,000
	Known Main Breaks & Repaired	15,500,000
	Back Washing	0
	Blowing Settling Basins	10,500,000
Total Water Loss Accounted For Except Main Leaks		34,500,000
Water Sold- Total Gallons (gal)		354,360,000
Unaccounted For Lost Water (gal)		200,408,000
Water lost from main leaks (gal)		15,500,000
Total gallons of Unaccounted for Lost Water and Water Lost from Main Leaks (gal)		215,908,000
Total Percent Unaccounted For Water and Water Lost from Main Leaks (gal)		35.70%
If total percentage of Unaccounted for Water is greater than 15%, please describe any measures that could be taken to correct this problem:	The utility is continuing with planned capital improvements of approximately $7,000,000. The improvements consist of replacing known 2-inch galvanized piping in the older sections of the water system around Ranson. Also, 1,100 feet older ACP (Transite) piping was replaced along Fairfax Boulevard, Ranson. Additionally, all Transite piping mains used in Ranson will eventually be replaced as needed.	

Early Warning Monitoring System

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

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

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

Charles Town Utility Board has analyzed its ability to monitor for and detect potential contaminants that could impact its source water. Information regarding this utility's early warning monitoring system capabilities can be found in **Table 15** and in **Appendix B.**

Table 15. Early Warning Monitoring System Capabilities

Does your system currently receive spill notifications from a state agency, neighboring water system, local emergency responders, or other facilities? If yes, from whom do you receive notices?	Yes, notifications are received from the WVDEP, WVDHHR and the WV Office of Homeland Security and Emergency Management. In addition the state of Virginia provides notifications as well as the Interstate Commission on the Potomac River Basin (ICPRB).
Are you aware of any facilities, land uses, or critical areas within your protection areas where chemical contaminants could be released or spilled?	Agricultural land use, areas around Front Royal, Virginia and two railroad bridges that cross the ZCC.
Are you prepared to detect potential contaminants if notified of a spill?	The Utility has the ability to detect potential contaminants that may affect pH, turbidity, temperature, total organic carbon, alkalinity and

<table>
<tr><td colspan="2"></td><td colspan="2">hardness. Other contaminants including VOCs, SVOCs and metals require analysis from an outside laboratory. System has HACH monitors for turbidity and chlorine.</td></tr>
<tr><td rowspan="3">List laboratories (and contact information) on whom you would rely to analyze water samples in case of a reported spill.</td><td colspan="3">Laboratories</td></tr>
<tr><td colspan="2">Name</td><td>Contact</td></tr>
<tr><td colspan="2">Pace Analytical Services</td><td>Scott Gross: 304-255-2500
Rapid Response Line:
877-859-7778</td></tr>
<tr><td colspan="2">HydroChem Laboratories</td><td>304-725-6174</td></tr>
<tr><td colspan="2">Do you have an understanding of baseline or normal conditions for your source water quality that accounts for seasonal fluctuations?</td><td colspan="2">Yes, the Utility continuously tests for turbidity in raw water and chlorine levels in finished water. Grab samples for pH, temperature, total organic carbon, alkalinity and hardness. Yearly tests for nitrate, nitrite inorganic and radionuclides have shown to be below the established MCLs. Monthly grab samples for cryptosporidium, E. Coli are being collected. Other contaminants including VOCs, SVOCs and metals are analyzed once per year from an outside laboratory.</td></tr>
<tr><td colspan="2">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?</td><td colspan="2">Yes, continuously test for turbidity in raw water and chlorine levels in finished water with HACH equipment. Daily grab samples for pH, turbidity, temperature, total organic carbon, alkalinity and hardness; monthly grab samples for cryptosporidium and E. Coli are being collected, yearly periodic grab for nitrate, nitrite, VOCs, SVOCs and Metals.</td></tr>
<tr><td rowspan="2" colspan="2">Provide or estimate the capital and O&M costs for your current or proposed early warning system or upgraded system.</td><td>Capital</td><td>$10,000-$15,000</td></tr>
<tr><td>Yearly O & M</td><td>$2,000-$3,000</td></tr>
<tr><td colspan="2">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.</td><td colspan="2">No</td></tr>
<tr><td colspan="4">Note: Complete appropriate Early Warning Monitoring form for your system in Appendix B.</td></tr>
</table>

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, Charles Town Utility Board installed a 1,000,000 gallon finished water storage tank at the water treatment plant in 2017, thus increasing their finished water storage capacity to 3,572,000 gallons or approximately 2.16 days of current use. This satisfies the requirements of §16-1-9c, 9B (Senate Bill 373, 2015) of a minimum of two (2) day storage capacity of finished and/or raw water.

Communication Plan

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

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

The WVBPH has developed a recommended communication plan template that provides a tiered incident communication process to provide a universal system of alert levels to utilities and water system managers. The comprehensive Communication Plan for Charles Town Utility Board 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.

Emergency Response Short Form

A public water utility must be prepared for any number of emergency scenarios and events that would require immediate response. It is imperative that information about key contacts, emergency services, and downstream water systems be posted and readily available in the event of an emergency. Elements of this source water protection plan, such as the contingency planning and communication plan, may contain similar information to

the utility's emergency response plan. However, the emergency response plan is to be kept confidential and is not included in this source water protection plan. An Emergency Short Form is included in **Appendix C** to support the Communications Plan by providing quick access to important information about emergency response and is to be used for internal review and planning purposes only.

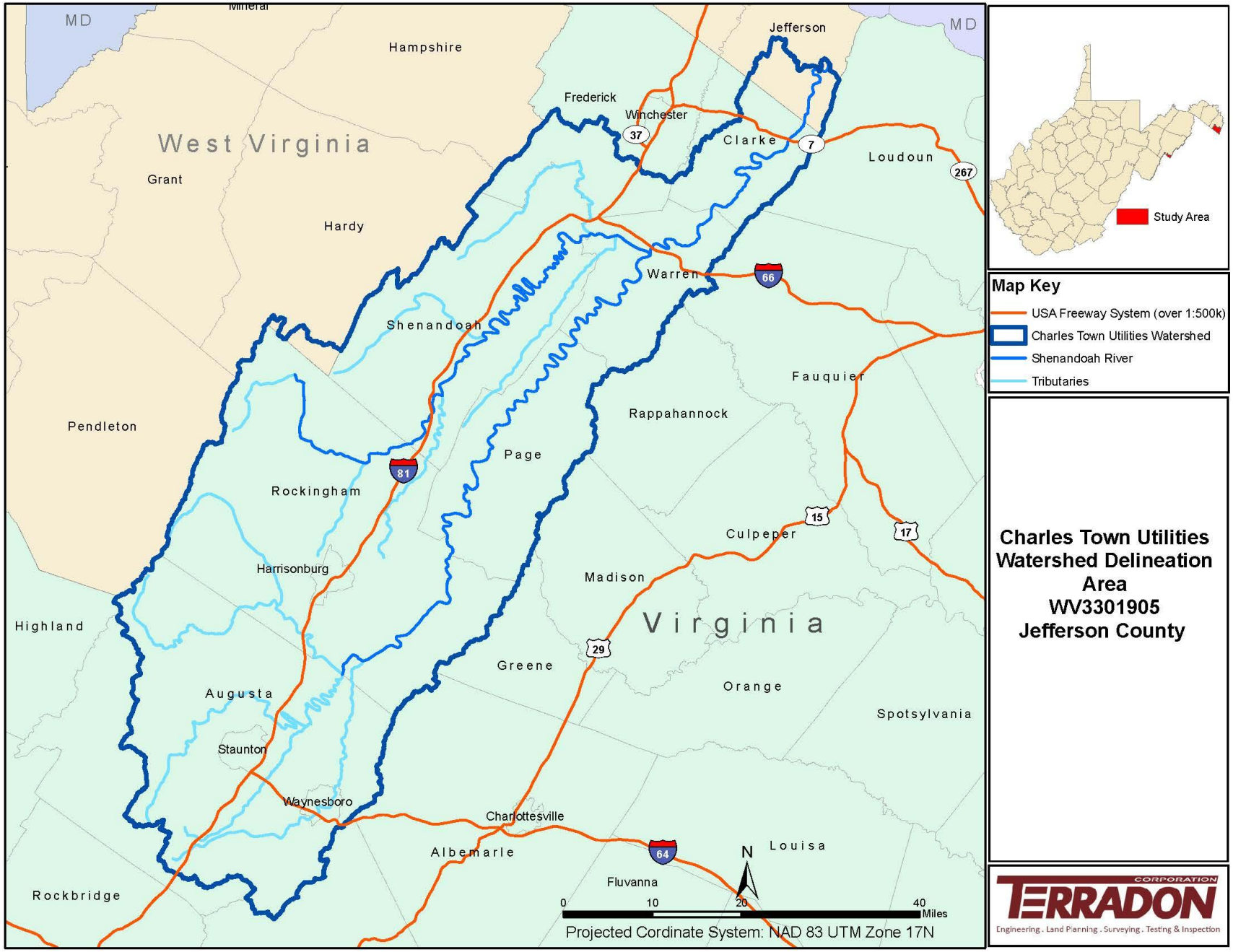
Conclusion

This report represents a detailed explanation of the required elements of Charles Town Utility Board's Source Water Protection Plan. Any supporting documentation or other materials that the utility considers relevant to their plan can be found in **Appendix D**.

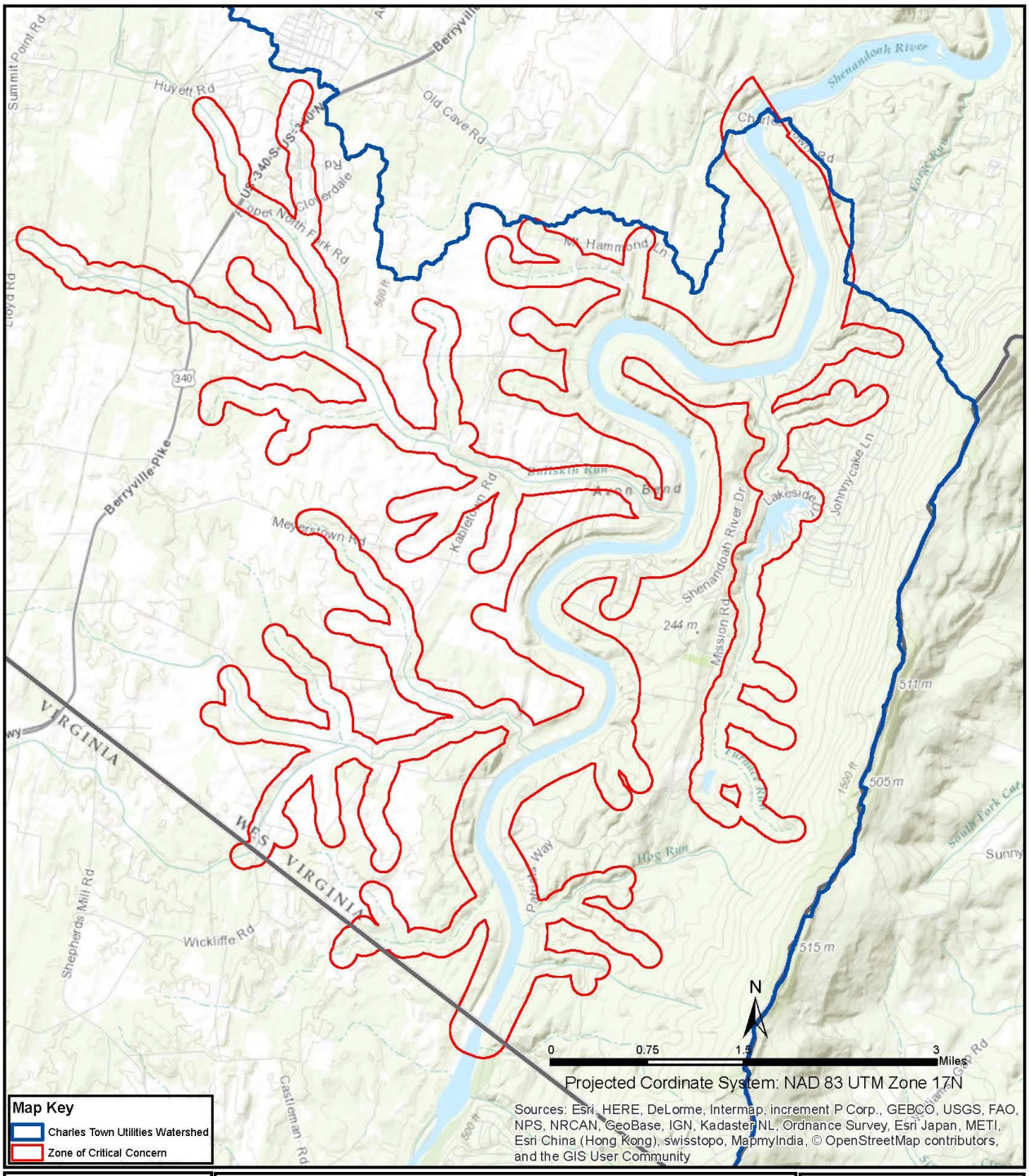
This source water protection plan is intended to help prepare community public water systems all over West Virginia to properly handle any emergencies that might compromise the quality of the system's source water supply. It is imperative that this plan is updated as often as necessary to reflect the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

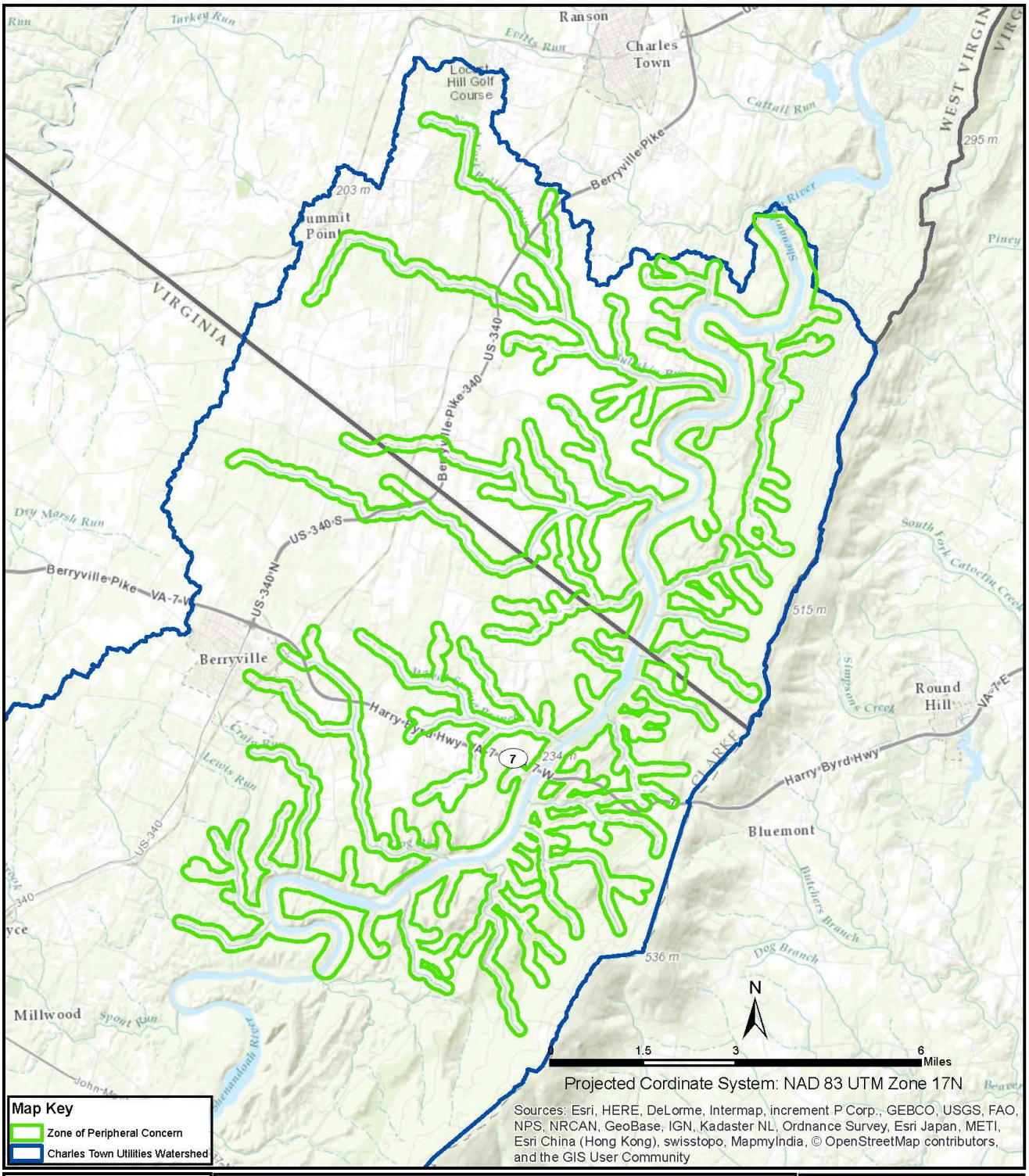
Appendix A. Figures

Watershed Delineation Area (WSDA Map)


MD
Mineral
Hampshire
Jefferson
MD
Frederick
Winchester
West Virginia
Clarke
Loudoun
Grant
Hardy
Warren
Shenandoah
Fauquier
Pendleton
Rappahannock
Page
Rockingham
Culpeper
Harrisonburg
Madison
Highland
Virginia
Greene
Orange
Augusta
Spotsylvania
Staunton
Waynesboro
Charlottesville
Albemarle
Louisa
Fluvanna
Rockbridge
N
0
10
20
40
Miles
Projected Cordinate System: NAD 83 UTM Zone 17N
Study Area
Map Key
USA Freeway System (over 1:500k)
Charles Town Utilities Watershed
Shenandoah River
Tributaries
Charles Town Utilities
Watershed Delineation
Area
WV3301905
Jefferson County
CORPORATION
TERRADON
Engineering . Land Planning . Surveying . Testing & Inspection

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





Charles Town Utilities Zone of Peripheral Concern

WV3301905

Jefferson County

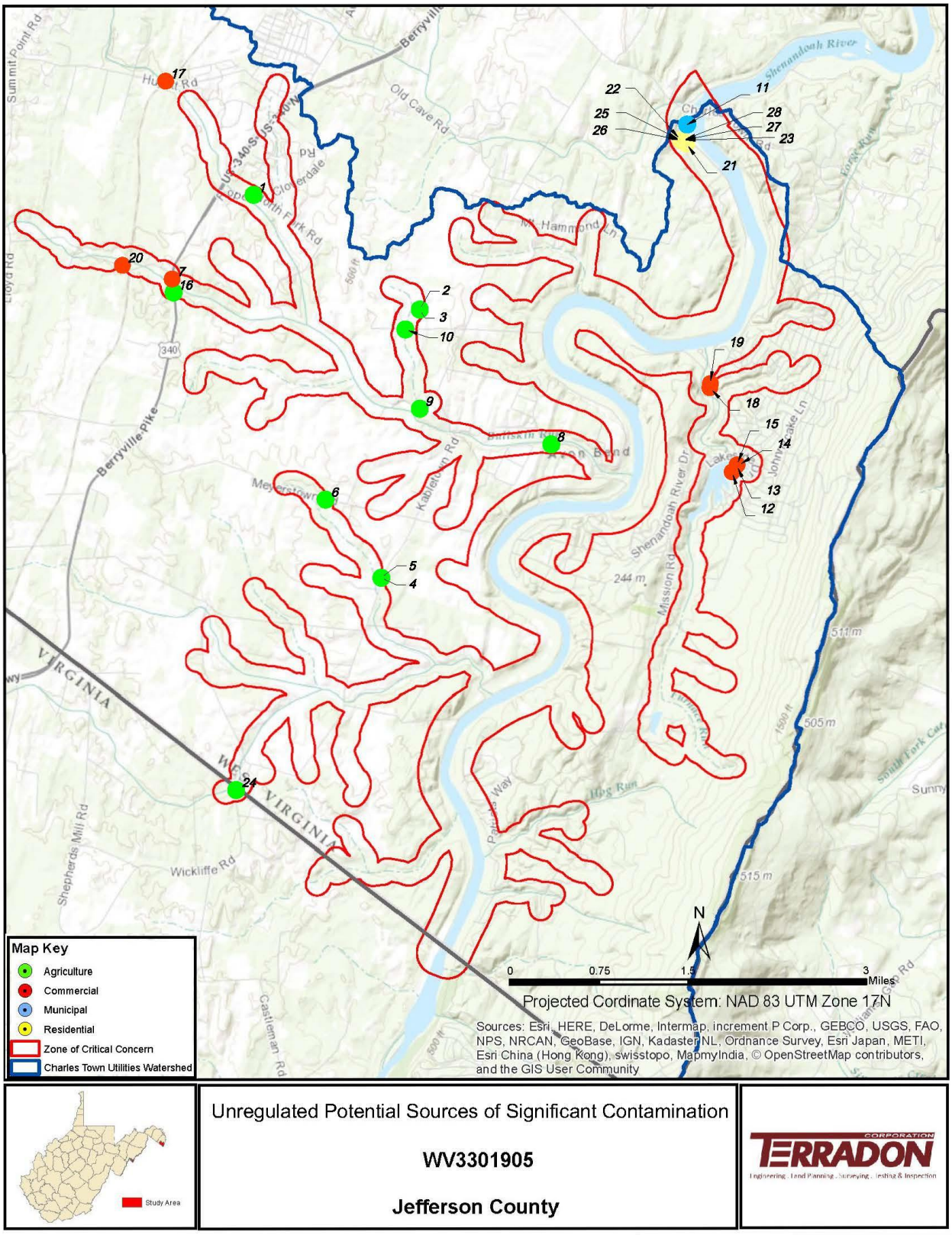
TERRADON CORPORATION
Engineering . Land Planning . Surveying . Testing & Inspection

List of Locally Identified PSSCs.

PSSC Number	Site Name	Site Description	SOURCE CATEGORY	ASSOCIATED CHEMICALS	THREAT TO GW	THREAT TO SW
1	Pasture	Animal Feedlots	Agriculture	MP, SOC	H	H
2	Crop fields and feed lot	Animal Feedlots	Agriculture	MP, SOC	H	H
3	Crops and Feed Lot	Crops, corn, soybean, wheat	Agriculture	NN, SOC, MP	H	H
4	Cattle pasture and small feed lot with barn	Animal Feedlots	Agriculture	MP, SOC	H	H
5	Soybean field	Animal Feedlots	Agriculture	MP, SOC	H	H
6	Corn field	Crops, corn, soybean, wheat	Agriculture	NN, SOC, MP	L	L
7	Dave's Auto and RV Sales	Car dealerships	Commercial	PH, VOC	H	L
8	Avon Bend Farm	Drainage canals (agricultural)	Agriculture	T	L	L
9	Silos and storage area on private property	Pesticide/fertilizer/petroleum storage and Trans.	Agriculture	PH, NN, SOC, VOC	L	L
10	Oakwood Farm Dairy and Taylor Mountain Farm	Pasture	Agriculture	MP, SOC	L	L
11	Water supply intake	Other	Municipal	Null	Null	Null
12	Lakeshore Grille restaurant	Other	Commercial	Null	Null	Null
13	Old Lake Lodge at Shannondale - Closed	Other	Commercial	Null	Null	Null
14	Old Lake Lodge at Shannondale - Closed	Other	Commercial	Null	Null	Null
15	Old Lake Lodge at Shannondale - Closed	Other	Commercial	Null	Null	Null
16	Wheatland Horse farm	Pasture	Agriculture	MP, SOC	L	L
17	Railroad tracks crossing stream	Railroad Tracks and Yards	Commercial	PH, M, VOC, HM, SOC	H	H
18	Shannondale Springs Wildlife Management Area	Marina/boat docks	Commercial	PH	L	H
19	Grammy's Place day care center - Closed	Other	Commercial	Null	Null	Null
20	Railroad tracks crossing Bullskin Run near Wheatland	Railroad Tracks and Yards	Commercial	PH, M, VOC, HM, SOC	H	H
21	Trailer Community	Residential (single family homes)	Residential	VOC, SOC, NN	H	H
22	House	Septic Systems (leach field)	Residential	MP, VOC, SOC, TO, NN	H	H
23	House	Residential (single family homes)	Residential	VOC, SOC, NN	H	H
24	PCS #12	Crops, corn, soybean, wheat	Agriculture	NN, SOC, MP	H	H

25	House	Septic Systems (leach field)	Residential	MP, VOC, SOC, TO, NN	H	H
26	House	Residential (single family homes)	Residential	VOC, SOC, NN	H	H
27	House	Septic Systems (leach field)	Residential	MP, VOC, SOC, TO, NN	H	H
28	House	Septic Systems (leach field)	Residential	MP, VOC, SOC, TO, NN	H	H

Map of Locally Identified PSSCs.



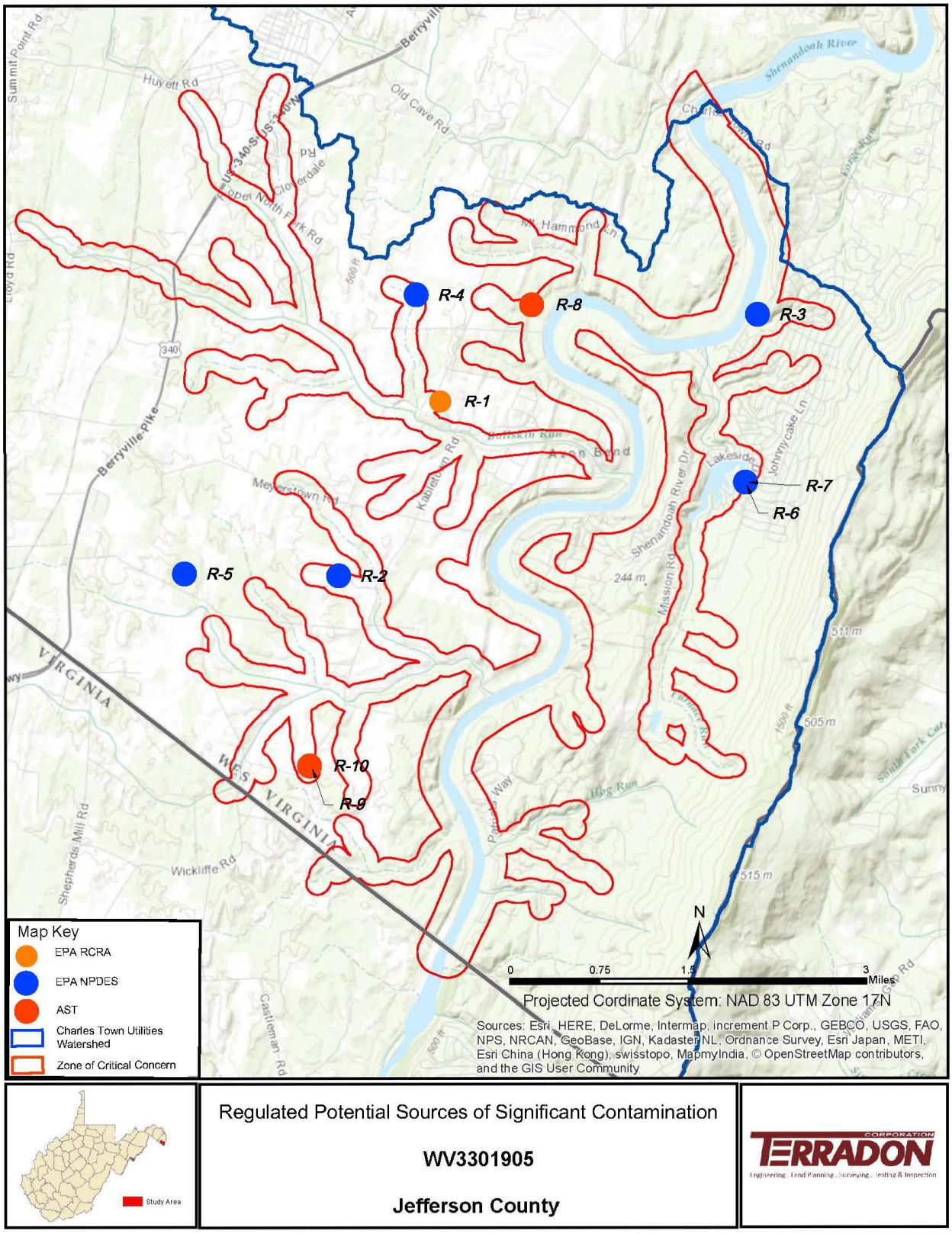
List of Regulated PSSCs

WEST VIRGINIA - EPA RCRA											
PSSC Number	**PRIMARY NAME**	**LOCATION**	**CITY NAME**	**FIPS CODE**	**HUC CODE**	**EPA REGION**	**SITE TYPE**	**CREATE DATE**	**UPDATE DATE**	**CONVEYOR**	**REFERENCE POINT**
R-1	RHODRICK PROPERTY UST REMOVAL	3178 KABLETOWN ROAD	CHARLES TOWN	54037	2070007	3	STATIONARY	2/17/2010	11/4/2013	FRS-GEOCODE	ENTRANCE POINT OF A FACILITY OR STATION

WEST VIRGINIA - EPA NPDES							
PSSC Number	**Permit ID**	**Facility Name**	**Description**	**T C Description**	**Permit Type**	**IUT Description**	**RP Name**
R-2	WVSG10026	Snyder Environmental Services, Inc.	Sludge/Septic Land Disposal (GP)	Renewed	Sewage	Land	Snyder Environmental Services, Inc.
R-3	WVG870001	Black Fly/Gypsy Moth Programs	Pesticide	Renewed	Industrial	Outlet	WV Department of Agriculture
R-4	WV0117544	Oakwood Farm, LLC	Land Application	New	Industrial	Land	Oakwood Farm, LLC
R-5	WVSG10066	Powell's Plumbing, Inc.	Sludge/Septic Land Disposal (GP)	Renewed	Sewage	Land	Powell's Plumbing, Inc.
R-6	WVG416065	Shannondale Apartments Building 1	Home Aeration Unit General	New	Sewage	Land	Shannondale Apartments, LLC
R-7	WVG416066	Shannondale Apartments Building 2	Home Aeration Unit General	New	Sewage	Land	Shannondale Apartments, LLC

WEST VIRGINIA – ABOVE GROUND STORAGE TANKS											
PSSC Number	**REFERANCE ID**	**RESPONSIBLE**	**FACILITY Location**	**TANK LABEL**	**TANK STATUS**	**CAPACITY (gallons)**	**Class Level**	**Product**	**COMMENTS**	**SECONDARY**	**SPILL_PLAN**
R-8	2014-0015313	Stephen Groh	5232 Kabletown Rd, Charles Town	019-00000129	Permanently Out of Service	2000	1	Diesel	None	None	Unknown
R-9	2014-0015767	DRILAKE Farm, Inc.	348 Smith Rd, Charles Town	019-00000146	Permanently Out of Service	2000	1	Urea	None	Other	Unknown
R-10	2014-0015767	DRILAKE Farm, Inc.	348 Smith Rd, Charles Town	019-00000168	Currently In Use	3000	1	Urea	None	None	Unknown

Map of Regulated PSSCs.



Appendix B. Early Warning Monitoring System Forms

Select and Attach the Appropriate Form for Your System

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

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

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

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

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

Appendix B- Form A

<u>Existing</u> Early Warning Monitoring System Worksheet- Surface Water Source

Describe the type of early warning detection equipment installed.
N/A
Describe the mechanism used to store data and an institutional framework to analyze and interpret the data.
Describe the process used to determine the credibility of a contamination event if a change is detected in the quality of source water.

Appendix B-Form B

<u>Proposed</u> Early Warning Monitoring System Worksheet- Surface

Describe the type of early warning detection equipment that could be installed, including the design.
The Utility has an existing HACH Surface Scatter 6 continuous monitoring system for turbidity in the raw water at the treatment plant. It is possible to upgrade the HACH monitoring equipment to a newer version that would be capable of additional analytical monitoring capacity for pH, conductivity and dissolved oxygen in addition to turbidity. Approximate costs to upgrade would be approximately $15,000.
Where would the equipment be located?
The current HACH Surface Scatter 6 is located at the water treatment plant. However, the Charles Town wet well structure at the intake is an ideal location to install an early warning detection system. The wet well is a cement structure with electrical service and an emergency power backup generator. The monitoring sensors can be installed in the wet well or in-line and the computer telemetry can be located in the pump area, which is elevated above the floodplain. The entire wet well structure is secure with a chain link fence and locked doors.
What would the maintenance plan for the monitoring equipment entail?
A service contract with HACH would enable an authorized HACH Technician to provide routine service on a quarterly basis to the monitoring equipment. This basic service contract would be approximately $2000 - $3000 per year with additional cost for replacement parts, if required.
Describe the proposed sampling plan at the monitoring site.
The online monitoring for pH, conductivity, dissolved oxygen and turbidity would be collected and logged on a 15-minute interval and saved to a computer. The data would be reviewed by the operator on a daily basis to make adjustments to the treatment process.
Describe the proposed procedures for data management and analysis.
This upgrade would be installed at the water treatment plant in the raw water. Ideally, it would be better to have the raw water monitoring at the intake wet well location. Electronic computer data logging with alarms that can be set for pre-selected thresholds for each parameter. Alarms would alert the operator to a potential problem for further review.

Appendix B-Form C THIS FORM IS NOT APPLICABLE TO Charles Town Utility Board
Existing Early Warning Monitoring System Worksheet- Groundwater Source

Describe the type of early warning detection equipment installed.
N/A
How many monitoring (sentinel) wells are established?
N/A
What is the expected rate of travel of a contaminant through the groundwater system?
N/A
Provide the distance from the contaminant source to the monitoring wells.
N/A
What is the distance of the monitoring equipment to the wellhead?
N/A
Describe the mechanism used to store data and an institutional framework to analyze and interpret the data.
N/A
Describe the process used to determine the credibility of a contamination event if a change is detected in the quality of source water.
N/A

Appendix B-Form D THIS FORM IS NOT APPLICABLE TO Charles Town Utility Board
Proposed Early Warning Monitoring System Worksheet- Groundwater Source

Describe the type of ground water monitoring network that could be installed, including the design and location.
N/A
How many monitoring (sentinel) wells would need to be established?
N/A
What is the expected rate of travel of a contaminant through the groundwater system?
N/A
Provide the distance from the contaminant source to the proposed monitoring wells.
N/A
What is the distance from the proposed monitoring equipment to the wellhead?
N/A
What would the maintenance plan for the monitoring equipment entail?
N/A
Describe the proposed sampling plan at the monitoring site.
N/A
Describe the proposed procedures for data management and analysis.
N/A

Appendix C. Communication Plan

Communication Plan Template

For Charles Town Utility Board

PWSID: WV3301905 District: Kearneysville

Certified Operator: Chris Hutzler

Contact Phone Number: 304-724-3280

Contact Email Address: _____

Plan Developed On: May 2019 Plan Update Due On: May 2022

ACKNOWLEDGMENTS:

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

Table of Contents

Introduction

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

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

TIERS Reporting System

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

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

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

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

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

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

E=**E**mergency. Water cannot be used for any reason.

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

Communication Team

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

Water system communication team members, organizations, and roles.

Team Member Name	Organization	Phone	Email	Role
Daryl Hennessy	Charles Town Utility Board City Manager and Chairman	304-724-3280		Primary Spokesperson
Pete Kubic	Charles Town Utility Board Vice Chairman	304-724-3280		Secondary Spokesperson
Jane Arnett	Charles Town Utility Board Utility Manager	304-724-3280	jarnett@ctubwv.com	
Chris Hutzler	Charles Town Utility Chief Operator	304-725-3761 Plant	chutzler@ ctubwv.com	
Stephen Allen	Jefferson County Office of Homeland Security and Emergency Management	304-728-3290	sallen@jeffersoncountywv.org	Member

Team Member Name	Organization	Phone	Email	Role
Bill Zaleski	Jefferson County Health Department	304-728-8416 Cell: 304-725-5075	Bill.H.Zaleski@wv.gov	Member
Alan Marchun	WVDHHR-Kearneysville District Office	304-725-9453	Alan.f.marchun@wv.gov	Member
Carlton Haywood	ICPRB Executive Director	301-274-8105 301-274-8133	chaywood@icprb.org	Spill modeling capabilities

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

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

Communication Team Duties

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

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

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

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

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

quality occurs. The spokesperson will perform the following tasks in the event of a spill, release, or other event that threatens water quality:

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

Incident / Event Communication Procedure

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

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

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

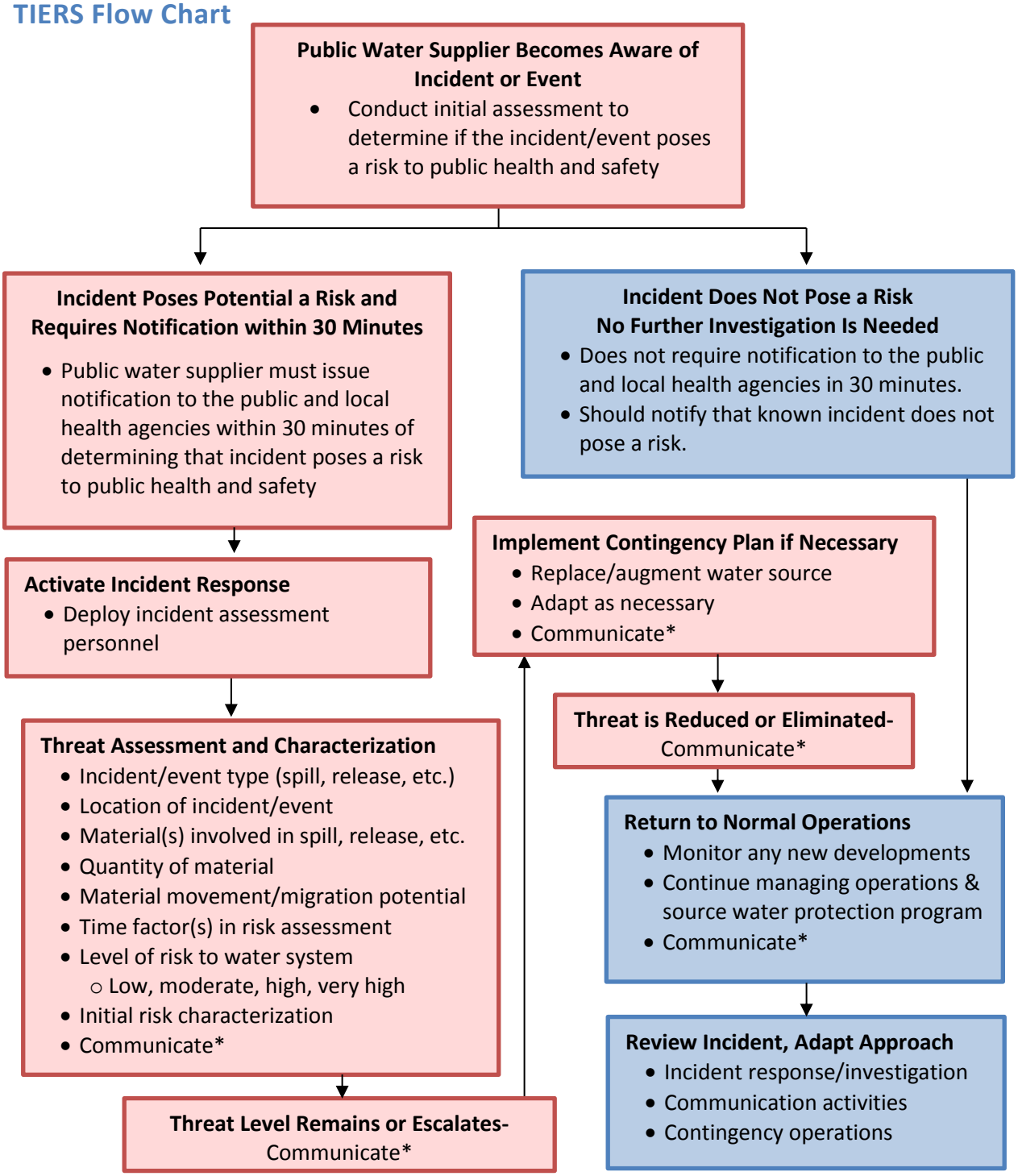
- Verification of the incident/event type (spill, release, etc.)
- Location of incident/event
- Type of material(s) involved in spill, release, etc.
- Quantity of material involved
- Potential of the material to move, migrate, or be transported
- Relevant time factor(s) in the risk assessment (e.g.,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

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

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

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

TIERS Flow Chart



Communicate*

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

Press Release Attachments

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

UTILITY ISSUED NOTICE – LEVEL A

PUBLIC WATER SYSTEM ANNOUNCEMENT

A WATER SYSTEM INVESTIGATION IS UNDERWAY

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

The incident involves the following situation at this location:
_____
_____
_____

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

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

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

State Water System ID# _____ Date Distributed: _____

UTILITY ISSUED NOTICE – LEVEL B

BOIL WATER ADVISORY

A BOIL WATER ADVISORY IS IN EFFECT

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

□ Entire Water System or □ Other: _____

_____

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

What should I do?

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

What happened?

- **The problem is related to** _____

What is being done?

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

  _____

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

- _____

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

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

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

This notice was distributed by _____

State Water System ID# _____ Date Distributed: _____

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

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

□ Entire Water System or □ Other: _____
_____

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

What should I do?

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

What happened?

- **The problem is related to** _____

What is being done?

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

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

- _____

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

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

This notice was distributed by _____

State Water System ID# _____ Date Distributed: _____

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

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

□ Entire Water System or □ Other: _____
_____

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

What should I do?

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

What happened?

- **The problem is related to** _____

What is being done?

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

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

- _____

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

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

This notice was distributed by _____

State Water System ID# _____ Date Distributed: _____

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

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

□ Entire Water System or □ Other: _____
_____

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

What should I do?

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

What happened?

- **The problem is related to** _____

What is being done?

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

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

- _____

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

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

This notice was distributed by _____

State Water System ID# _____ Date Distributed: _____

Emergency Communication Information

	Name	Phone Number	Email
Designated spokesperson:	Daryl Hennessy (Charles Town Utility Board City Manager and Chairman)	304-724-3280	
Alternate spokesperson:	Pete Kubic (Charles Town Utility Board Vice Chairman)	304-724-3280	
Designated location to disseminate information to media:	Charles Town Utility Board 661 South George Street, Suite 101 Charles Town, WV 25414 P: 304-724-3280 F: 304-725-4313		
Methods of contacting affected residents:	**Word of mouth, posted notices, door-to-door canvasing, radio, newspaper, etc.** **Auto Dialer of all utility users based on bills is in place.**		

Media contacts:	**Name**	**Title**	**Phone Number**	**Email**
	Bill Kohler; The Herald Mail Co.	Editor	301-733-5131	billk@herald-mail.com
	The Journal		304-263-8931 ext. 125	
	Spirit of Jefferson	Publisher	304-725-2046	editor@spiritofjefferson.com
	WRNR Radio		304-263-6586 304-263-6540	info@talkradiornr.com
	WKMZ Radio		304-263-2770	
	WEPM 1340		304-263-8868 304-263-4321	
	WYII		304-263-0637	
	WHAG Channel 25		301-797-4400	
	WLTF		Main: 304-263-8868 Studio: 888-797-5975	

Emergency Short Forms

Emergency Services Contacts

	Name	Emergency Phone	Alternate Phone	Email
WV State Police		911	304-725-9779	CONFIDENTIAL
Jefferson County Sheriff	Pete Dougherty	911	304-728-3205	pdougherty@jcsdwv.com
Charles Town Police Department	Chief Chris Kutcher Captain Glenn Stevens	911	304-725-2714	ckutcher@charlestownpolice.com gstevens@charlestownpolice.com
City of Ranson Police Department	Chief William Roper Captain Robbie Roberts	911	304-725-2411 304-725-8484 (After Hours)	chief@cityofransonwv.net rroberts@ransonwv.us
Local Fire Departments	Citizens Fire Company	911	304-725-2814	
	Independent Fire Company	911	304-725-2514	ifc@independentfirecompany.net
Local Ambulance Service	Jefferson County Ambulance Authority	911	304-728-3287	
Jefferson County Emergency Services Agency	Denise Pouget, Director Ed Hannon, Deputy Director	911	304-728-3287	DPouget@jcesa.org EHannon@jcesa.org
Hazardous Material Response Service	Stephen Allen Director Jefferson County Office of Homeland Security and Emergency Management	911	Office: 304-728-3290	sallen@jeffersoncountywv.org

Key Personnel

	Name	Title	Phone	Email
Key staff responsible for coordinating emergency response procedures?	Jane Arnett	Utility Manager	304-724-3280	jarnett@ctubwv.com
	Chris Hutzler	Charles Town Utility Chief Operator	304-725-3761 Plant	chutzler@ctubwv.com
Staff responsible for keeping confidential PSSC information and releasing to emergency responders:	Jane Arnett	Utility Manager	304-724-3280	jarnett@ctubwv.com

Sensitive Populations

Other communities that are served by the utility:	Hospital, Nursing Homes, City of Ranson, Jefferson County Schools, and Charles Town Races		
Major user/sensitive population notification:	**Name**	**Emergency Phone**	**Alternate Phone**
	Jefferson Memorial Hospital		304-728-1600
	Blue Ridge Care & Rehabilitation Center/Willow Tree Manor		304-725-6575
	Genesis HealthCare/ Shenandoah Health Village Center		304-724-1101
	City of Ranson		Andy Blake City Manager 304-725-1010

	Wright Denny School Charles Town Middle (Jefferson County Schools)		304-725-2513
	Charles Town Races		Donald Godfrey 304-886-9749
EED District Office Contact:	**Name**	**Phone**	CONFIDENTIAL
	Alan Marchun	304-725-9453 304-641-8727	Alan.F.Marchun@wv.gov
OEHS Readiness Coordinator	Warren Von Dollen	304-356-4290 304-550-5607	warren.r.vondollen@wv.gov

	Water System Name	**Contact Name**	**Emergency Phone**	**Alternate Phone**
Downstream Water Contacts:	City of Brunswick MD	Patrick Hoffmaster		301-834-7671
	City of Fredrick MD	Ben Arneson (Superintendent of Water Maintenance)		301-600-1681 301-600-1440 susans@cityoffrederick.com
	Sandy Hook Water System	Mr. Kim Bowers		240-313-2600
	Petersville, MD			301-834-7500
Surface Water Modeling Capabilities	Interstate Commission of the Potomac River Basin (ICPRB)	Karen Bencala	301-984-1908 Ext. 139	kbencala@icprb.org
	Interstate Commission of the Potomac River Basin (ICPRB)	Carlton Haywood, Executive Director	301-274-8133	Interstate Commission of the Potomac River Basin (ICPRB)
Are you planning on implementing the TIER system?		Yes		

Emergency Response Information

Has the utility developed a detailed Emergency Response Plan in accordance with the Public Health Security Bioterrorism Preparedness and Response Pan Act of 2002?	Yes
When was the Emergency Response Plan developed or last updated?	April 2016

Emergency Contact Information

State Emergency Spill Notification
1-800-642-3074

West Virginia Division of Homeland Security and Emergency Management
http://dhsem.wv.gov/
Charleston, WV- (304) 558-5380

WV Bureau for Public Health Office of Environmental Health Services (OEHS)
www.wvdhhr.org/oehs

Readiness Coordinator- Warren Von Dollen
Phone; (304) 558-6736
Cell; 304-550-5607
e-mail; warren.r.vondollen@wv.gov

Environmental Engineering Division Staff
Charleston, Central Office (304) 558-2981
Beckley, District 1 (304) 256-6666
St. Albans, District 2 (304) 722-0611
Kearneysville, District 4 (304) 725-9453
Wheeling, District 5 (304) 238-1145
Fairmont, District 6 (304) 368-2530

National Response Center - Chemical, Oil, & Chemical/Biological Terrorism
1-800-424-8802

WV State Fire Marshal's Office
1-800-233-3473

West Virginia State Police
1-304-746-2100

WV Watch – Report Suspicious Activity
1-866-989-2824

DEP Flow Distance Calculator
http://tagis.dep.wv.gov/pswicheck/

Appendix D. Supporting Documentation

The following documents are responses to the draft 2019 SWPP. These comments were presented at the public meeting held on June 13, 2019 and subsequently e-mailed to the Charles Town Utility Board. Comments from three different sources were submitted: WV Rivers Coalition, Tim Ross and Lewis Baker.

WV Rivers Coalition comments/suggestions were presented via a formal letter dated June 10, 2019 and addressed to Jane Arnett with the Charles Town Utility Board. Several of their suggestions were incorporated in the SWPP in sections: Management and Outreach Strategies and Education and Outreach Strategies.

Mr. Ross' and Mr. Baker's comments were submitted via e-mail and address the redacted information in the publicly available SWPP. While the Charles Town Utility Board understands their concern, Senate Bill 373 clearly states that the exact location of the possible sources of contaminants within the zone of critical concern is not subject to public disclosure. The following is the exact language:

Senate Bill 373 (passed March 8, 2014)

Chapter 16. Public Health

Article 1. State Public Health System

§16-1-9c

> **(8)** *A list of the potential sources of significant contamination contained within the zone of critical concern as provided by the Department of Environmental Protection, the Bureau for Public Health and the Division of Homeland Security and Emergency Management. The exact location of the contaminants within the zone of critical concern is not subject to public disclosure in response to a Freedom of Information Act request under article one, chapter twenty-nine-b of this code. However, the location, characteristics and approximate quantities of potential sources of significant contamination within the zone of critical concern shall be made known to one or more designees of the public water utility, and shall be maintained in a confidential manner by the public water utility. In the event of a chemical spill, release or related emergency, information pertaining to any spill or release of contaminant shall be immediately disseminated to any emergency responders responding to the site of a spill or release, and the general public shall be promptly notified in the event of a chemical spill, release or related emergency.*

Also, private contact information is not to be release to the public by governmental agencies through reports or documents, this information has also been redacted.

Other areas of the SWPP contain redacted sections that are sensitive to possible sabotage through terrorist activities. This is done to protect the water system and the general health and welfare of the Charles Town Utility Board's water customers.

WEST VIRGINIA RIVERS

June 10, 2019

Charles Town Utility Board
Jane Arnett
108 W Congress St
Charles Town, WV 25414

Dear Jane Arnett,

As you are in the process of collecting public input on your updates to your Source Water Protection Plan (SWPP), we would like to take this opportunity to provide a few preliminary recommendations.

West Virginia Rivers Coalition strongly believes that keeping our drinking water safe is a shared effort, requiring coordination among water utilities, government agencies, and the community. This is why we created the Safe Water for West Virginia program, designed intentionally to assist water utilities through collaborative efforts to implement source water protection plans. The program places a particular emphasis on implementation of management strategies that involve a public participation component. So far these collaborative strategies have included community outreach events and forums, public education materials, citizen monitoring, school-based education, land conservation coordination, and landowner outreach.

Below are three updates that we recommend incorporating into your SWPP to better leverage the growing community partnerships positioned to further advance source water protection.

Include Land Conservation as an additional Management Strategy. Associated management activities can include participating in the WV Safe Water Conservation Collaborative coordinated by WV Rivers Coalition. This collaborative is implementing a 5-year action plan to accelerate land conservation in source water protection areas.

Update Education and Outreach strategies. Associated activities can include supporting and participating in various public-private partnerships for source water protection, including the Safe Water for West Virginia program coordinated by the WV Rivers Coalition. This program assists with implementing SWPPs through community involvement and watershed protection. Upstream solutions to source water protection include outreach to landowners to promote land conservation, specifically within the zones of critical and peripheral concern to serve as critical protection areas for drinking water sources, as well as other best management practices involving private landowners such as septic pumping, riparian forest buffer plantings, and

others. Upstream solutions should include an education and outreach component to raise awareness of threats to drinking water sources and encourage voluntary implementation of best management practices for source water protection.

Plan regular meetings of the Source Water Protection Team. Contact information and meeting frequencies of the Protection Team should clearly be enumerated and made public in the SWPP to set up effective functioning of the team. We recommend adding WV Rivers Coalition's Eastern Panhandle Field Coordinator, Tanner Haid, to your Protection Team. His phone number is 304-886-2665 and email address is thaid@wvrivers.org. As our regional field staff representing the only statewide advocate for clean water and coordinating Safe Water for West Virginia activities in your service area, he is uniquely positioned to play a valuable role as a member of the Protection Team.

Thank you for your consideration of these recommended updates to your Source Water Protection Plan. Please reach out to our Eastern Panhandle Field Coordinator, Tanner Haid, for further background or details.

Sincerely,

Angie Rosser
Executive Director

Tanner Haid
Eastern Panhandle Field Coordinator

To Whom it may concern. Below are my comments concerning the Draft Source Water Protection Plan (SWPP).

1. The advertisement for the review of the SWPP did not include and address to submit comments nor did the Draft SWPP. While the advertisement said the report could be found on the CTUB website it didn't say where. After searching I found it under reports and information. Since this PLAN is neither, it was not intuitive that a draft plan would be there. It is obvious that CTUB wasn't really interested in receiving comments. At the hearing we were told that the email to send comments to was on the CTUB website. It was not under the "Contact Us" section, but at the very bottom of the page was the generic contact email.

A proper notification would have had the exact location of the SWPP and the address for comments in the legal advertisement. In addition the SWPP should have at least had a link on the home page of CTUB as stated in the advertisement.

There were many good comments made at the hearing. It is a pity that no public recording exists. If all who commented have not been notified they should be informed that their public comments are not available to the public and all efforts should be made for CTUB to acquire and publish the comments made.

Considering the lack of proper notification and lack of recording of public comment the hearing should be re-advertised and held again. This was not a proper public hearing..

It should be noted that there were no restrictions on the time limit for comment made at the beginning of the hearing. During my comments I tried to be as brief as possible and do not think that I took more time than others, but right after I said, "One final point," Mr. Hennessy asked me to end my comments. I found this rude and perceive it as another example of the lack of interest CTUB has in receiving public comment.

My main points are these and I look forward to making them again at a proper hearing. One properly advertised with a true record of the hearing.

1. The SWPP should state that Climate Change is occurring and that CTUB will investigate the possible impacts of climate change on the availability and quality of surface water. The SWPP should be a proactive and living document that recognizes real-world threats.

2. Education is key to protecting water as the author of the SWPP noted. Education is best done in schools with actions for the children to take home with them. Education should be ongoing as marketing such as protecting water sources is a multiyear endeavor.

3. There is too much use of Confidentiality in the SWPP. It is counter intuitive to want citizens and groups to identify possible threats to the water supply if the plan doesn't identify known threats. How would a person know if the threat they know of has been identified if they are not published? Most of the businesses and industries noted advertise their services so it doesn't make sense to not specify threats. I gave an example of the nonsensical use of the word Confidential. On the bottom of page 26 the plan admits CTUB can isolate or divert contamination from the intake by electronically closing the drop gate yet on page 27 when asked if the utility can close the water intake the answer was labeled

"Confidential." Confidential was also cited when asked for the process, which had already been described on page 26.

Confidential is also used when asked about suppliers. I would imagine these suppliers are under contract to deliver these supplies and that contract should be a public document.

I found it distressing that CTUB loses almost 36% of the water in its pipes. From the description of the fix it appears that the loss is all due to faulty pipes in Ranson. To me, losing this amount of water is a large threat to an adequate water supply. With all of the concern CTUB seems to have for sewer user rates it seems to me that stopping this large loss should be a high priority. Again, I reviewed two other SWPPs and CTUB has much higher loss rates than they did.

I stress as other speakers did as well that CTUB needs to limit the use of Confidential as much as possible. I have reviewed other SWPP and find the use of Confidential to be much less than in this plan.

To really produce a quality document CTUB needs to admit that CTUB is a public entity and to stop trying to operate under a shroud of secrecy. This document is not only a way to protect our water supplies but to improve the operations of CTUB and CTUB's reputation. I urge you to use this opportunity wisely.

Sincerely,
Tim Ross

Daryl Hennessey
Charles Town City Manager

June 23, 2019

I have reviewed the CTU SWPP 2019 update, and made these general observations:

According to WV code, the SWPPs are to be developed with "maximum public involvement". How to do this is not defined in code, but it could require a fair degree of transparency.

This is also the legislative intent behind the federal Community Right to Know Act, which established the Local Emergency Planning Committees (LEPCs), and requires facilities with hazardous materials to report to the LEPCs, with the reported information being public info. The idea here, and in SWPPs, is communities can be safer when informed, and local safety planning can benefit from public involvement.

On the other hand, WV agencies have determined some of the information in SWPPs may be too sensitive for public display. This view is based on the opposite premise that safety may sometimes be enhanced when information is restricted. It can be difficult to reconcile these opposing views about whether or when transparency can increase or lessen risks.

CTU's SWPP public draft uses the term "confidential" in place of hundreds of other words. Most of the information that is presumably included in CTU's internal SWPP report is not shared in the public version. It could seem to a reasonable person the SWPP report is too confidential, and the public was not involved to the maximum extent possible.

While there has been little public interest shown in what's in (or not in) the draft SWPP, this could change dramatically if there is a contamination event as happened at Charleston WV.

In that case the utility's customers wanted someone to pay for their perceived pain and suffering. The spiller went bancrupt, and the utility became the target of citizens' grievances. Ultimately the water utility and its insurers paid out $150 million in damages to the utility's customers, in large part because the utility had not developed a robust enough SWPP to protect it.

If Charles Town were to suffer a contamination event, how confident is CTU that its customers will be satisfied with the public version of its SWPP?

At some point the non-public version of the SWPP may have to be revealed. Will CTU's internal (non-public) version of the SWPP withstand public scutiny in the aftermath of a contamination event?

Respectfully,

Lewis Baker
WVRWA Source Water Protection Specialist