Source Water Protection Plan Milton Water

PWSID 3300609

Cabell County

June 2016

Prepared by:

Tetra Tech, Inc.

803 Quarrier Street, Suite 400

Charleston, WV 25314

In cooperation with:

City of Milton

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

Region II Planning and Development Council and

The Thrasher Group, Inc.



This page is intentionally blank.

Mindy Ramsey

Preparer's Name

Director, Water Resources Group

Title of Preparer

Tetra Tech, Inc.

Name of Contractor(s)/Consultant(s)

**Note: Portions of this plan relative to the contingency and single source alternative study were completed by The Thrasher Group. Their complete report is included as Appendix D.

I certify the information in the source water protection plan is complete and accurate to the best of my
knowledge.
Mar l (Sex)
Signature of responsible party or designee authorized to sign for water utility:
Print Name of Authorizing Signatory (see instructions):
Print Name of Authorizing Signatory (see instructions):
MAYOR
Title of Authorizing Signatory:
6-7-16
Date of Submission (mm/dd/yyyy):

This page is intentionally blank.



TABLE OF CONTENTS

1.0 PURPOSE	1
1.1 What are the benefits of preparing a Source Water Protection Plan?	1
2.0 BACKGROUND: WV SOURCE WATER ASSESSMENT AND PROTECTION PROGRAM	2
3.0 STATE REGULATORY REQUIREMENTS	3
4.0 SYSTEM INFORMATION	4
5.0 WATER TREATMENT AND STORAGE	4
6.0 DELINEATIONS	7
7.0 PROTECTION TEAM	9
8.0 POTENTIAL SIGNIFICANT SOURCES OF CONTAMINATION	12
8.1 Confidentiality of PSSCs	12
8.2 Local and Regional PSSCs	12
8.3 Prioritization of Threats and Management Strategies	14
9.0 IMPLEMENTATION PLAN FOR MANAGEMENT STRATEGIES	15
10.0 EDUCATION AND OUTREACH STRATEGIES	23
11.0 CONTINGENCY PLAN	27
11.1 Response Networks and Communication	27
11.2 Operation During Loss of Power	28
11.3 Future Water Supply Needs	29
11.4 Water Loss Calculation	30
11.5 Early Warning Monitoring System	31
12.0 SINGLE SOURCE FEASIBILITY STUDY	32
13.0 COMMUNICATION PLAN	34
14.0 EMERGENCY RESPONSE	35
15.0 CONCLUSION	36



LIST OF TABLES

Table 1. Population Served by Milton Water	4
Table 2. Milton Water Water Treatment Information	5
Table 3. Milton Water Surface Water Sources	6
Table 4. Milton Water Groundwater Sources	6
Table 5. Watershed Delineation Information	8
Table 6. Protection Team Member and Contact Information	10
Table 7. Locally Identified Potential Significant Sources of Contamination	13
Table 8. Priority PSSCs or Critical Areas	16
Table 9. Priority PSSC Management Strategies	17
Table 10. Education and Outreach Implementation Plan	24
Table 11. Milton Water Water Shortage Response Capability	27
Table 12. Generator Capacity	
Table 13. Future Water Supply Needs for Milton Water	29
Table 14. Water Loss Information	
Table 15. Early Warning Monitoring System Capabilities	32

APPENDICES

Appendix A. Figures

Appendix B. Early Warning Monitoring System Forms

Appendix C. Communication Plan Template

Appendix D. Single Source Feasibility Study

Appendix E. Supporting Documentation



SOURCE WATER PROGRAM ACRONYMS

AST Aboveground Storage Tank

BMP Best Management Practices

ERP Emergency Response Plan

GWUDI Ground Water Under the Direct Influence of Surface Water

LEPC Local Emergency Planning Committee

OEHS/EED Office of Environmental Health Services/Environmental Engineering Division

PE Professional Engineer

PSSCs Potential Source of Significant Contamination

PWSU Public Water System Utility

RAIN River Alert Information Network

RPDC Regional Planning and Development Council

SDWA Safe Drinking Water Act

SWAP Source Water Assessment and Protection

SWAPP Source Water Assessment and Protection Program

SWP Source Water Protection

SWPA Source Water Protection Area
SWPP Source Water Protection Plan

WARN Water/Wastewater Agency Response Network

WHPA Wellhead Protection Area

WHPP Wellhead Protection Program
WSDA Watershed Delineation Area

WVBPH West Virginia Bureau for Public Health

WVDEP West Virginia Department of Environmental Protection

WVDHHR West Virginia Department of Health and Human Resources

WVDHSEM West Virginia Division of Homeland Security and Emergency Management

ZCC Zone of Critical Concern

ZPC Zone of Peripheral Concern



1.0 PURPOSE

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

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

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

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



2.0 BACKGROUND: WV SOURCE WATER ASSESSMENT AND PROTECTION PROGRAM

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

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

In 1999, the WVBPH published the West Virginia Source Water Assessment and Protection Program, which was endorsed by the United States Environmental Protection Agency. Over the next few years, WVBPH staff completed an assessment (i.e., delineation, inventory and susceptibility analysis) for all of West Virginia's public water systems. Each public water system was sent a copy of its assessment report. Information regarding assessment reports for Milton Water can be found in **Table 1**.

3.0 STATE REGULATORY REQUIREMENTS

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

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

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



June 2016

4.0 SYSTEM INFORMATION

Milton Water 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 Milton Water

Administrative office location:			1139 Smith St Milton, West Virgin		
Is the system a public utility, according to the Public Service Commission rule?			Public Utility Municipality		
Date of Most Recent Source Water Assessment Report:			N/A By Bureau for Publ	ic Health	
Date of Most Recent Source Water Protection Plan:			N/A		
Populatio	on served directly:	2,364 Residential; 201 Commercial; 9 Industrial 2,574 Total Customers			
	System Name		PWSID Number	Population	
Bulk Water Purchaser Systems:	N/A		N/A	N/A	
-,	N/A		N/A	N/A	
Total Population Served by the Utility:		4,883			
Does the utility have multiple source water protection areas (SWPAs)?			No		
How many SWP	As does the utility have?		1		

^{*}This information is sourced from the Source Water Protection Contingency Plan completed by Thrasher in 2015. The study is included as Appendix D.

4 TETRA TECH

5.0 WATER TREATMENT AND STORAGE

As required, Milton Water 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 Milton Water 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. Milton Water Treatment Information

Water Treatment Processes (List All Processes in Order)	Raw Water Intake, Chemical Addition of DelPac and Potassium Permanganate, Static Mixing, Flocculation, Sedimentation, Filtration, Post-Chlorination, Clear Well
Current Treatment Capacity (gal/day)	800,000 GPD
Current Average Production (gal/day)	600,000 GPD
Maximum Quantity Treated and Produced	800,000 GPD
Minimum Quantity Treated and Produced	580,000 GPD
Average Hours of Operation	16 hours per day
Maximum Hours of Operation in One Day	24 hours per day
Minimum Hours of Operation in One Day	16 hours per day
Number of Storage Tanks Maintained	4
Total Gallons of Treated Water Storage (gal)	1,512,000 GAL
Total Gallons of Raw Water Storage (gal)	0 GAL

^{*}This information is sourced from the Source Water Protection Contingency Plan completed by Thrasher in 2015. The study is included as Appendix D.

5



Table 3. Milton Water 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)
Raw Water Intake	N/A	N/A	Conventional Raw Water Pump Station with Screen	Mud River	Constructed 1975	Primary	Active

^{*}This information is sourced from the Source Water Protection Contingency Plan completed by Thrasher in 2015. The study is included as Appendix D.

Table 4. Milton Water 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	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

6.0 DELINEATIONS

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

The WSDA includes the entire watershed area upstream of the intake to the boundary of the State of West Virginia border or a topographic boundary. The ZCC for a public surface water supply is a corridor along streams within the watershed that 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 500 feet measured horizontally from each bank of the tributaries draining into the principal stream. Ohio River ZCC delineations are based on ORSANCO guidance and extend 25 miles above the intake and one-quarter mile below the intake. The Ohio River ZCC delineations include 1,320 feet (one-quarter mile) measured from the bank of the main stem of the Ohio River and 500 feet on tributary.

The ZPC for a public surface water supply source and for a public surface water influenced groundwater supply source is a corridor along streams within a watershed that warrants scrutiny due to its proximity to the surface water intake and the intake's susceptibility to potential contaminants within that corridor. The ZPC is determined using a mathematical model that accounts for stream flows, gradient and area topography. The length of the zone of peripheral concern is based on an additional five-hour time-of-travel of water in the streams beyond the perimeter of the zone of critical concern, which creates a protection zone of ten hours above the water intake. The width of the zone of peripheral concern is 1,000 feet measured horizontally from each bank of the principal stream and 500 feet measured horizontally from each bank of the tributaries draining into the principal stream.

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

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

7



Table 5. Watershed Delineation Information

Size of WSDA (Indicate units)	290 square miles
River Watershed Name (8-digit HUC)	Lower Guyandotte River Watershed (05070102)
Size of Zone of Critical Concern (Acres)	10,815 acres
Size of Zone of Peripheral Concern (Acres) (Include ZCC area)	22,846 acres
Method of Delineation for Groundwater Sources	N/A
Area of Wellhead Protection Area (Acres)	N/A

7.0 PROTECTION TEAM

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

The administrative contact for Milton Water 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 potential sources of significant contamination. 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.

Milton Water 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
Tom Canterbury	City of Milton	Mayor	(304) 743-3032	cityclerk@cityofmiltonwv.com
Mark Smith	Milton Municipal Utilities Commission	WTP Chief of Operations	(304) 743-3821	-
Gerald Clagg	Milton Municipal Utilities Commission	Utility Supervisor	(304) 743-3821	-
Charlie Conard	City of Milton Council Water Utility Board	Town Council Member	(304) 743-3032	-
Randy Rutledge	City of Milton Stormwater	Stormwater	(304) 743-3032	stormwater@cityofmiltonwv.com
Tim Allen	City of Milton	-	(304) 743-3821	-
Keith Lee	Cabell Huntington Health Dept.	-		Keith.A.Lee@wv.gov
Reed Cook	Milton Volunteer Fire Department	-		-
Bob Legg	Milton Volunteer Fire Department	-		-
Phyllis Smith	City of Milton	Recorder	(304) 743-3032	recorder@cityofmiltonwv.com
Michelle Wallace	Milton Water	-	(304) 743-3422	miltonutilities@cityofmiltonwv.com
Donna Hatfield	Milton Water	-	(304) 743-3422	miltonwater@cityofmiltonwv.com
Date of first p	Date of first protection Team Meeting		May 11, 201	16
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:		attendance: Randy R Canterbury, Charles Cona	utledge, Gerald Clag rd, Michelle Wallace,	ton Water was held May 11, 2016. In g, Tim Allen, Phyllis Smith, Tom and Donna Hatfield representing the gg of the Milton VFD, Keith Lee of the

Cabell Huntington Health Department; Todd Cooper of the WVBPH; and Mindy Ramsey of Tetra Tech, Inc.

Ms. Ramsey described the requirements for Milton to update their source water protection plan. She explained that Tetra Tech's role is to compile information from their existing plan first drafted by Potesta and the new contingency plan that Thrasher prepared in 2015. In addition, Tetra Tech is assisting with engaging and informing local stakeholders. The purpose of this protection team meeting and a scheduled public presentation is to fulfill those requirements.

Presented the draft plan to the attendees and when appropriate asked for their responses to review or update the following portions of the plan: Protection Team roles; tables from Thrasher's Contingency Plan; major plan sections; delineations (ZCC, ZPC, and watershed) priority PSSCs; management strategies; and communication plan.

Discussed the communication plan and role of team members as primary and secondary spokespeople. Discussed emergency short forms and press release attachments. Elected to hold public meeting to present plan at next city council meeting on June 7, 2016. Meeting notes are attached in **Appendix E**.



8.0 POTENTIAL SOURCES OF SIGNIFICANT CONTAMINATION

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

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

8.1 CONFIDENTIALITY OF PSSCS

A list of the PSSCs contained within the ZCC should be included in the source water protection plan. 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 Milton Water are identified in the communication planning section of the source water protection plan.

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

8.2 LOCAL AND REGIONAL PSSCS

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

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

Milton Water 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 Milton Water that do not already appear in datasets from the WVBPH can be found in **Table 7**.

June 2016 12

Table 7. Locally Identified Potential Sources of Significant Contamination

PSSC Number	Map Code	Site Name	Site Description	Relative Risk Score	Comments
N/A					

8.3 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, LEPC and other agencies and 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 PSSCs 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 Milton Water 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.

June 2016 14

9.0 IMPLEMENTATION PLAN FOR MANAGEMENT STRATEGIES

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

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

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



Table 8. Priority PSSCs or Critical Areas

PSSC or Critical Area	Priority Number	Reason for Concern
Roadways	1	Sections of roadway pass through the SWPA, and potential spills are a concern.
Railroad Tracks	2	A section of railroad passes through the SWPA and potential spills or leaks are a concern.
Sanitary Septic Systems and Home Aeration Units	3	Discharge from smaller, failing sanitary systems, including home aeration units, can pose a possible contamination threat, including the introduction of fecal coliform into source water.
Oil and Gas Wells	4	Uncontrolled spills and releases could introduce contaminants into source water.
Overhead Power Lines	5	Use of chemicals for control of vegetation could leave herbicide residue in SWPA.
Industry	6	Surface water protection practices for local industries may not be known.
Future Development	7	Extent and type of future development, including potential impacts on source water, is not known at this time.
Vandalism	8	Vandals have broken into the plant previously. Security at Water Treatment Plant and intake is a concern.

Table 9. Priority PSSC Management Strategies

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status/ Schedule	Comments	Estimated Cost
Previous Plan Status	There were eight priority concerns associated with several management strategies recommended in the existing plan. One of these strategies have been accomplished. Eight of these are ongoing or continue to be a concern. These are incorporated in this plan update and listed below.	-	•	-	-
Source Water Protection Area	The utility is required to update the Source Water Protection Plan at least every 3 years and continue to monitor any ongoing or new activities that occur in the watershed.	Milton Water Protection Team	Ongoing every 3 years. Next update in 2019	-	-
	Better coordination of emergency response with local first responders, including raising awareness for the need to protect drinking water supplies.	City Council Member / City of Milton Utilities Supervisor	-	Work with local fire department and transportation department with spill response planning.	No direct cost, but ongoing annual effort is required.
Roadways	Consider installing signage along select roadways with emergency contact numbers. This would also help raise awareness with motorists and truckers that they are traveling through a source water protection zone while providing them with a call number in an emergency.	PWS Chief of Operations / City of Milton Utilities Supervisor / City Council Member	-	-	Typically \$1,000 to \$2,000. WVDHHR grant funds may be available.
	Maintain contact with fire department regarding the status of their booms for in-stream spill containment.	PWS Chief of Operations / City of Milton	Ongoing.	-	New booms can typically cost \$10,000 (dependent on

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status/ Schedule	Comments	Estimated Cost
		Utilities Supervisor			number of booms).
	Maintain contact with sanitary sewer department regarding status of their adsorbent for spills.	See above.		-	See above.
	Better coordination of emergency response with local first responders, including raising awareness for the need to protect drinking water supplies.	City Council Member / City of Milton Utilities Supervisor		Work with local fire department and transportation department with spill response planning.	No direct cost, but ongoing annual effort is required.
Railroad Tracks	Install signage just off railroad right-of-way with emergency contact numbers. This would also help raise awareness of railroad personnel that they are traveling through a source water protection zone while providing them with a call number in an emergency.	-	-	-	-
	Maintain contact with fire department regarding the status of their booms for in-stream spill containment.	PWS Chief of Operations / City of Milton Utilities Supervisor	Ongoing.	-	New booms can typically cost \$10,000 (dependent on number of booms).
	Maintain contact with sanitary sewer department regarding status of their adsorbent for spills.	See above.	See above.	-	See above.

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status/ Schedule	Comments	Estimated Cost
Sanitary Septic Systems and	Support study and planning of sanitary sewer system extensions along Mud River watershed to extend service to unserviced areas and eliminate failing septic systems, and home aeration units.	City of Milton	As required.	-	N/A; supporting extensions may not involve direct cost.
Home Aeration Units	Raise awareness at city government and/or county commission (see Number 8 below) for need for source water protection to increase support for proposed sanitary sewer system extensions.	City of Milton Utilities Supervisor	-	Utilize map included in this report. See Table 10 for information on educational brochure.	N/A
Oil and Gas Wells	Review public information on surface water protection practices for oil and gas industry to raise PWS staff awareness of surface water protection practices of oil and gas industry.	PWS Chief of Operations / City Council Member	-	The West Virginia Department of Environmental Protection retains copies of protection plans that can be obtained through Freedom of Information Act requests.	Minimal (Freedom of Information Act charges, mileage).
weils	If parameters associated with oil and gas industry become problematic to water quality, consider symposium for local oil and gas industry to raise awareness of source water protection and review regulatory requirements.	City of Milton / Consultant (Possibly)	Undetermin ed.	If deemed warranted	Undetermined, but could include consultant fees.
Overhead Power Lines	Contact electric utility to identify whether herbicides are used to control vegetation. If so, (a) install signage just off electric utility right-of-way with emergency contact numbers that would help raise awareness for the need to protect drinking water supplies while providing an emergency contact, and (b) offer to assist electric utility in developing a policy on proper application of herbicides.	PWS Chief of Operations / City Council Member	-	If herbicide use is identified, evaluate enhance testing of source water.	Minimal costs for contacting electric utility. Enhanced testing costs can range from \$1,000 and up depending on scope of program. WVDHHR grant funds might be



PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status/ Schedule	Comments	Estimated Cost
					available for enhanced testing.
	If herbicide use is identified, evaluate enhanced testing of source water.	See above.	See above.	See above.	See above.
Industry	Review public information on surface water protection practices, including results of sampling required by NPDES permit for industry to raise PWS staff awareness of surface water protection practices of industries on the watershed. This should include the oil and gas and coal industries.	PWS Chief of Operations / City Council Member	-	The West Virginia Department of Environmental Protection retains copies of protection plans that can be obtained through Freedom of Information Act requests.	Minimal (Freedom of Information Act charges, mileage).
	Raise awareness of city and/or county government by providing SWPA map and educational brochure, to help decision making with respect to future development.	City of Milton Utilities Supervisor	-	Utilize map included in this report. See Table 10 for information on educational brochure.	N/A
Future Development	Develop policy that PWS Chief Operator should comment on building permit applications.	City of Milton	-	-	N/A
	Evaluate what authority exists at city and/or county government regarding approval over development that could be a high risk to surface water resources.	PWS Chief of Operations / City Council Member	Undetermin ed.	Could require consultant, including legal.	Depends on consultant and/or legal fees, and

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status/ Schedule	Comments	Estimated Cost
					size and scope of project.
	Test backup intake pump/connection annually.	PWS Chief of Operations and Staff	Annually.	-	Minimal (fuel).
Vandalism	Evaluate improving security by adding security cameras at intake.	PWS Chief of Operations / City of Milton Utilities Supervisor	-	-	Undetermined, cost will vary, but is expected to range from \$5,000 to \$15,000. WVDHHR grant funds may be available.
	2. Continue to maintain signage at intake, at visible spots to general public, warning that tampering with this installation is a federal offense. If security cameras installed, consider new sign that provides a notice regarding video surveillance. Include emergency contact numbers. (There currently is signage up.)	PWS Chief of Operations	Ongoing.	Signs exist at intake and other system locations.	Typically \$1,000 to \$2,000 for new signs. WVDHHR grant funds may be available.
Yearly Windshield Survey	The utility's staff will perform a yearly "windshield survey" of the zone of critical concern. They will note changes in land use, water quality, and other developments that may have occurred since the previous year's survey. These changes will be	Water utility staff	Yearly, next survey in 2017	-	Minimal cost associated with staff time



PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status/ Schedule	Comments	Estimated Cost
	documented and reflected in future source water protection plan updates.				
Regular Coordination with Emergency Managers	Local emergency planners have access to confidential chemical contaminant information in Tier II reports from facilities in the SWPA. The utility should coordinate with the local emergency planners to gain an understanding of potential contaminants to better prepare for a spill event. Utility staff will continue to communicate with these emergency services groups on a regular basis, especially when there is not an ongoing emergency. They will invite the local emergency planners to meet yearly as part of the Source Water Protection Team.	Water utility staff emergency personnel	Engage local emergency planners immediately and communicat e on a regular basis.	-	Minimal cost associated with staff time
Yearly Source Water Protection Team Meetings	The utility's staff will invite the protection team to meet on a yearly basis to discuss any changes that might have occurred within the watershed or to find replacements for members who can no longer participate.	Source Water Protection Team	Yearly, next meeting in 2017	-	Minimal cost associated with staff time

10.0 EDUCATION AND OUTREACH STRATEGIES

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



 Table 10. Education and Outreach Implementation Plan

Education and Outreach Strategy	Description of Activity	Responsible Protection Team Member	Status/ Schedule	Comments	Estimated Cost
	Hold an informational meeting with local residents about source water protection efforts. This meeting is part of the source water protection planning process and will be incorporated into a regularly scheduled utility board meeting followed by a city council meeting.				
	A source water protection public meeting was held at city hall on June 7, 2016. Public meeting was held concurrently with regularly scheduled Milton City Council meeting. Meeting was open to the public and advertised in the newspaper and at the town hall a week before. An informational flier was posted around town, and a meeting notice ran on the city electronic message board.				
Public Meeting*	Attendees were: Tom Canterbury, Mayor; Cecil Taylor, Town Council; Phyllis Smith, Recorder; Charlie Conard, Town Council; Bob Legg, Town Council; Tennis Adkins, Town Council; Randy Rutledge, City of Milton. Citizens attending the meeting were Mavis Turley, Mary Ball, Jack Pancake, Betty Pancake, and Nancy Peterson.	Utility Staff	-	Future meetings could be structured as a water fair/public event with drinking water displays and activities. This could be combined with activities of the local watershed associations.	Minimal cost related to operator time.
	Reviewed source water protection timeline. Discussed Charleston Water Crisis of 2014 and reasons for new source water protection legislation. Discussed update to Milton's 2010 plan, and incorporation of Thrasher Group's contingency/feasibility study. Reviewed plan table of contents and sections. Noted that past source water protection activities once voluntary have now become mandatory.				
	Summarized potential significant sources. Summarized contingency plan alternatives.				

Education and Outreach Strategy	Description of Activity	Responsible Protection Team Member	Status/ Schedule	Comments	Estimated Cost
	Discussed 30 minute public notification requirement. Noted Communication Plan in Appendix C with emergency contact information. Reviewed designated spokespeople for Milton Water. Public meeting minutes are attached in Appendix E.				
Consumer Confidence Report	The water system publishes a Consumer Confidence Report (CCR) annually, as required by the Safe Drinking Water Act, which is sent to all water customers. Information concerning the Source Water Assessment is included in the CCR. In the future, the system will include a reference to this source water protection plan and how customers can access a copy.	Utility Staff	-	This would be in addition to required Source Water Assessment information, including source of water and susceptibility to contamination.	CCR required by SDWA, included in annual budget.
Brochures, pamphlets, and letters	Send a letter and/or brochure providing educational information to residences and businesses. These will alert the recipients of the need for source water protection and conservation. Businesses that use greater-than-household quantities of regulated substances may receive a different letter. The Source Water Collaborative has released an educational brochure building tool to assist with creating custom brochures targeting local decision makers. This tool is available at: http://www.yourwateryourdecision.org and may assist in community planning and development.	Utility Staff	-	-	Cost in brochure printing and mailing
School Curricula	Work with the school system to incorporate source water activities into the school curricula. Visit school or invite students for a plant tour to tie in with school curricula. Ask the school to include message in school newsletter to raise awareness about source water protection and conservation.	Utility Staff	In the future if requested	-	Minimal costs. Would require time to coordinate, visit classroom and provide tour.



Education and Outreach Strategy	Description of Activity	Responsible Protection Team Member	Status/ Schedule	Comments	Estimated Cost
	Can provide websites with free education materials to promote source water protection and conservation.				
Plant Tours	Coordinate with local Emergency Responders to make them familiar with the facilities in the event of an emergency. Responders should be familiar with where chlorine is kept and how to respond to a chlorine related incident.	Operator	Ongoing when requested	-	Minimal cost associated with operator's time.
Partner with Watershed Association	Partner with watershed associations or other civic groups. These groups may have similar goals and available volunteers that can integrate source water protection into their efforts.	Utility Staff	-	-	Cost associated with participation in activities.

11.0 CONTINGENCY PLAN

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

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

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

Raw and treated water storage capacity also becomes extremely important in the event of such an emergency. Storage capacity can directly determine how effectively a water system can respond to a contamination event and how long an intake can remain closed. Information regarding the water shortage response capability of Milton Water is provided in **Table 11**.

11.1 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/). Milton Water has analyzed its ability to effectively respond to emergencies and this information is also provided in **Table 11**.

Table 11. Milton Water Shortage Response Capability

Can the utility isolate or divert contamination from the intake or groundwater supply?	Yes
Describe the utility's capability to isolate or divert potential contaminants:	The utility is able to divert potential contaminants by shutting off the active intake and switching to a backup water source until the contaminant has passed and the raw water intake is safe to use.
Can the utility switch to an alternative water source or intake that can supply full capacity at any time?	Yes



Describe in detail the utility's capability to switch to an alternative source:	The utility is capable of switching to an alternative water source by utilizing a connection with the West Virginia American Water Company (WVAWC).
Can the utility close the water intake to prevent contamination from entering the water supply?	Yes
How long can the intake stay closed?	The intake can remain closed until the treated water storage levels become low, or until WVAWC cannot supply additional water to Milton Water.
Describe the process to close the intake:	The raw water pump is turned off.
Describe the treated water storage capacity of the water system:	The current treated water storage amount for the system consists of four (4) water storage tanks totaling 1,512,000 gallons of treated water. At the time of this report, the Milton Water system was operating at 80% treated water storage capacity.
Is the utility a member of WVRWA Emergency Response Team?	No
Is the utility a member of WV-WARN?	No
List any other mutual aid agreements to provide or receive assistance in the event of an emergency:	No

^{*}This information is sourced from the Source Water Protection Contingency Plan completed by Thrasher in 2015. The study is included as Appendix D.

11.2 OPERATION DURING LOSS OF POWER

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

Table 12. Generator Capacity

What is the type and capacity of the generator needed to operate during a los power?	A 100 kW stationary Kohler emergency generator with a 150A automatic transfer switch was sized for the utility and a cost estimate is provided in Appendix D.
Can the utility connect to generator at intake/wellhead? If yes, select a scenario best describes system.	
Can the utility connect to generator at treatment facility? If yes, select a scenar that best describes system.	



Can the utility connect to a generator in distribution system? If yes, select a scenario that best describes system.			No		
Does the utility have adequate fuel on hand for the generator?			Yes	3	
What is your on-hand	l fuel storage	and how	Gallons		Hours
long will it last opera			125 gal Diesel		N/A
		Supp	olier		Phone Number
Provide a list of	Generator	N/A		N/A	
suppliers that could provide generators	Generator				
and fuel in the event of an emergency:	Fuel	N/A		N/A	
	Fuel				
Does the utility te	st the genera	tor(s)	The generator is owned by the Cabell County 911 Center, so Milton Water does not periodically test the generator.		
Does the utility routinely maintain the generator?		The generator is owned by the Cabell County 911 Center, so Milton Water does not routinely maintain the generator.			
If no scenario describing the ability to connect to generator matches the utility's system or if utility does not have ability to connect to a generator, describe plans to respond to power outages:			N/A	A	

^{*}This information is sourced from the Source Water Protection Contingency Plan completed by Thrasher in 2015. The study is included as Appendix D.

11.3 FUTURE WATER SUPPLY NEEDS

When planning for potential emergencies and developing contingency plans, a utility needs to not only consider their current demands for treated water but also account for likely future needs. This could mean expanding current intake sources or developing new ones in the near future. This can be an expensive and time consuming process, and any water utility should take this into account when determining emergency preparedness. Milton Water 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 Milton Water

Is the utility able to meet water demands with the current	Yes; there is expected to be an increase of 50 - 60 customers within the next five (5) years, as the utility is experiencing an annual
production capacity over the next 5	the next five (5) years, as the utility is experiencing an annual



29 June 2016

years? If so, explain how you plan to do so.	increase in the number of customers of 3 to 4%. The plant is expected to remain under the maximum treatment capacity.
If not, describe the circumstances and plans to increase production capacity:	N/A

^{*}This information is sourced from the Source Water Protection Contingency Plan completed by Thrasher in 2015. The study is included as Appendix D.

11.4 WATER LOSS CALCULATION

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

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

Table 14. Water Loss Information

Total W	226,047,000	
Total Wa	0	
Total Water Pui	226,047,000	
	Mains, Plants, Filters, Flushing, etc.	50,000,000
Water Loss Accounted for Except Main Leaks	Fire Department	1,500,000
(gal)	Back Washing	3,500,000
	Blowing Settling Basins	1,000,000
Total Water Loss Accor	56,000,000	
Water Sol	125,233,000	

TETRA TECH

Unaccounted For Lost Water (gal)	41,614,000	
Water lost from main leaks (gal)	3,200,000	
Total gallons of Unaccounted for Lost Water and Wafer from Main Leaks (gal)	44,814,000	
Total Percent Unaccounted For Water and Water Lost from Main Leaks		19.83%
If total percentage of Unaccounted for Water is greater than 15%, please describe any measures that could be taken to correct this problem:	, please describe any measures	

^{*}This information is sourced from the Source Water Protection Contingency Plan completed by Thrasher in 2015. The study is included as Appendix D. Total gallons of unaccounted for lost water and unaccounted for water percentage have recently been corrected, and differ from values reported in the contingency plan.

11.5 EARLY WARNING MONITORING SYSTEM

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

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

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

Milton Water has analyzed its ability to monitor for and detect potential contaminants that could impact its source water. Information regarding this utility's early warning monitoring system capabilities is provided in **Table 15** and in **Appendix B**.



31 June 2016

Table 15. Early Warning Monitoring System Capabilities

Does your system currently receive spill notification from a state agency, neighboring water system, lo emergency responders, or other facilities? If yes from whom do you receive notices?			local	Yes; the utility receives spill notifications from the WV Health Department.	
Are you aware of any facilities, land uses, or crit areas within your protection areas where chemi contaminants could be released or spilled?		ical	Yes		
Are you prepared to det notified	ect poten d of a spil		nts if	f No	
List laboratories (and o	ontact			Laboratori	es
information) on whom would rely to analyze	n you		Nam	е	Contact
samples in case of a re		REI Consultants		ultants	(304) 255-2500
op		WV Offi	ce of L	ab Services	(304) 558-3530
Do you have an understanding of baseline or normal conditions for your source water quality that accounts for seasonal fluctuations?		Yes			
(through continuous m grab samples) at the su	Does your utility currently monitor raw water (through continuous monitoring or periodic grab samples) at the surface water intake or from a groundwater source on a regular basis?		Yes		Yes
Provide or estimate the	Monito	ring System	Hach sc1000 (B-2)		
capital and O&M costs for your current or proposed early	C	Capital	\$ 50,00		5 50,000
warning system or upgraded system.	Yea	rly O & M		\$ 750	
Do you serve more than 100,000 customers? If so, please describe the methods you use to monitor at the same technical levels utilized by ORSANCO.		No		No	

^{*}This information is sourced from the Source Water Protection Contingency Plan completed by Thrasher in 2015. The study is included as Appendix D.

TE TETRA TECH

12.0 SINGLE SOURCE FEASIBILITY STUDY

If a public utility's water treatment plant is supplied by a single—source intake in a surface water source 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 be required to draw water supplies from a substantially different location or water source.

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



33 June 2016

13.0 COMMUNICATION PLAN

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

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

The WVBPH has developed a recommended communication plan template that provides a tiered incident communication process to provide a universal system of alert levels to utilities and water system managers. The comprehensive Communication Plan for Milton Water is attached as **Appendix C** for internal review and planning purposes only.

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



14.0 EMERGENCY RESPONSE SHORT FORM

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

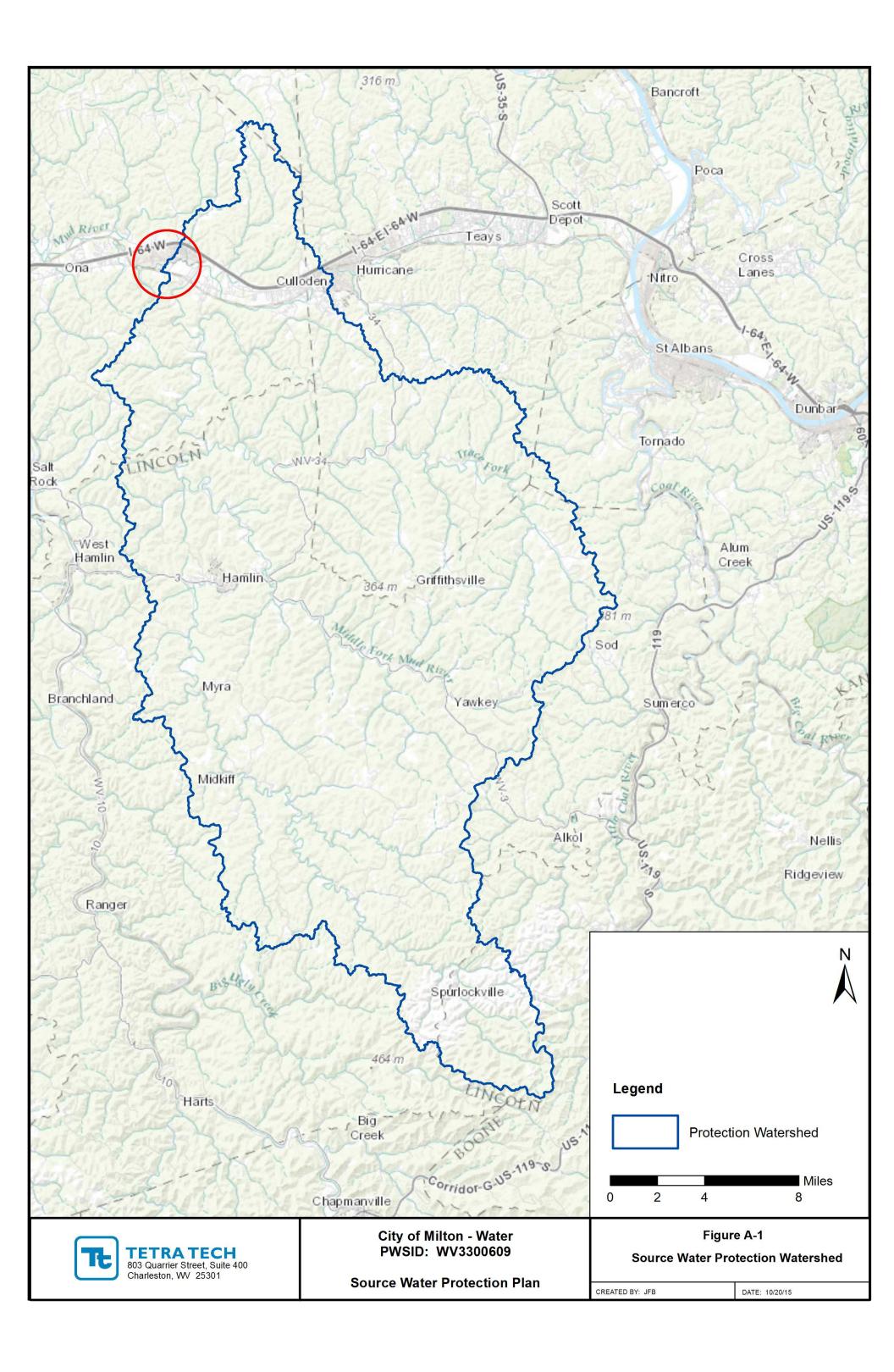


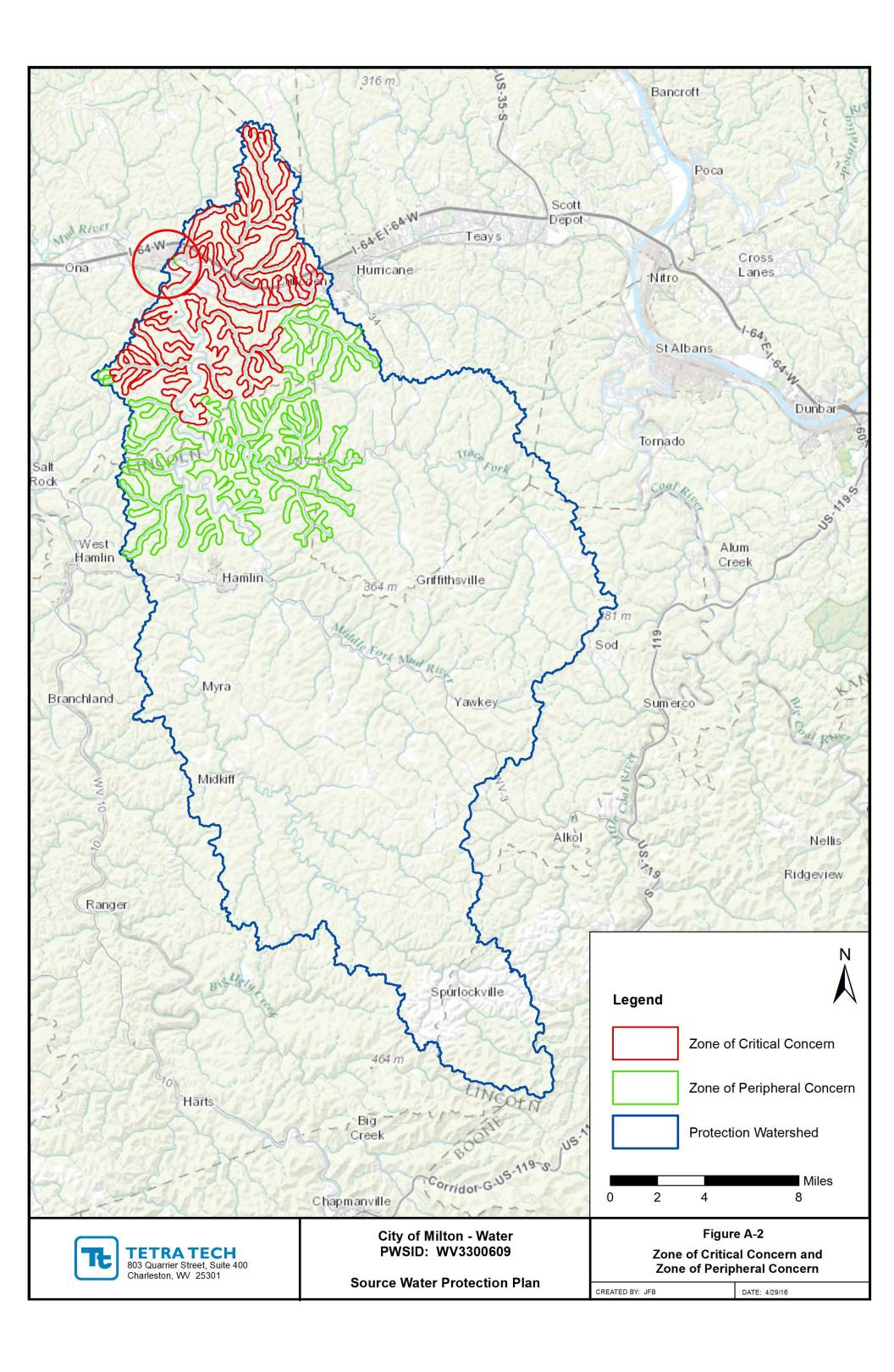
15.0 CONCLUSION

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

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

APPENDIX A. FIGURES





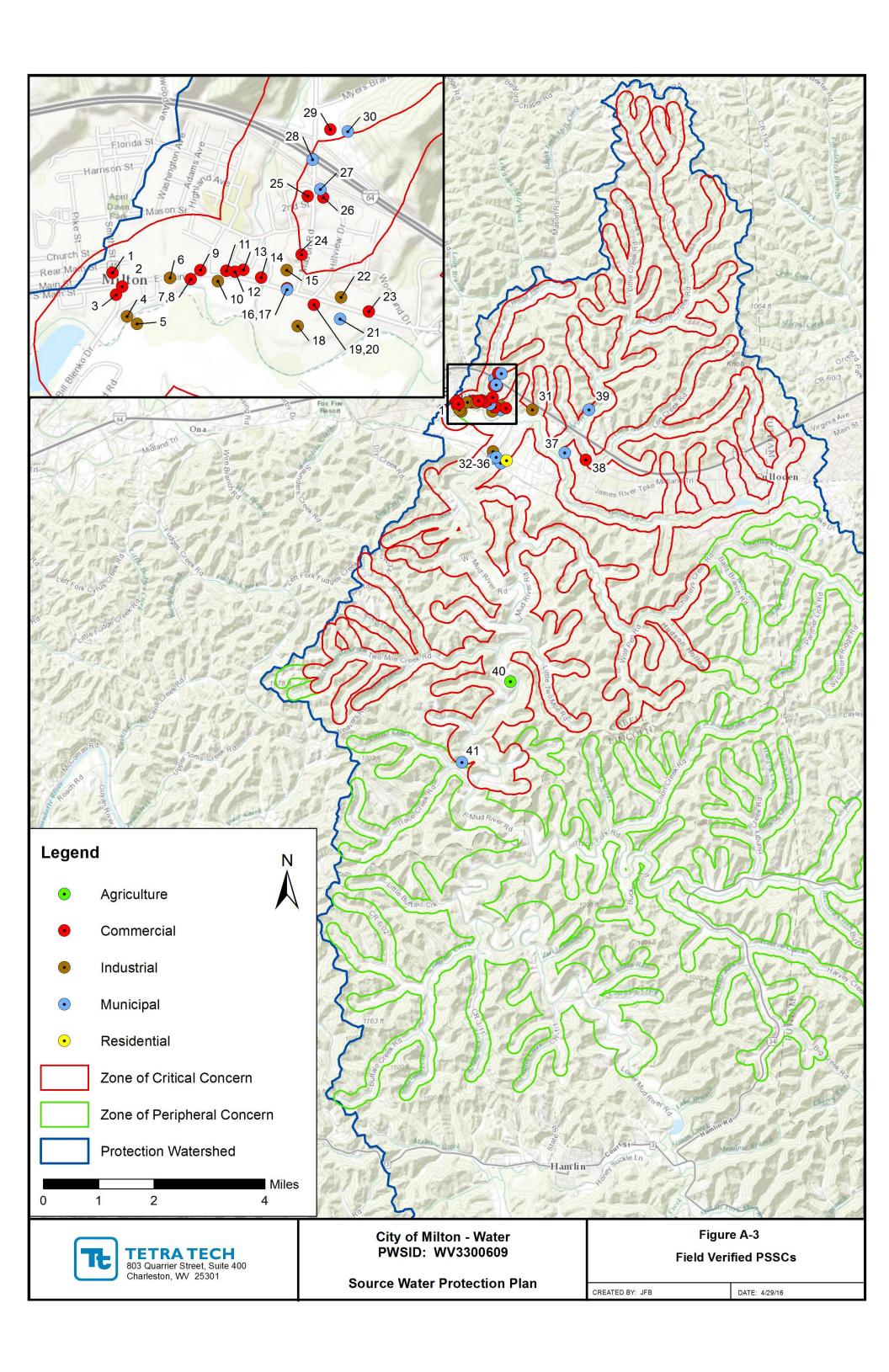
List of Field Verified PSSCs

PCS No.	Site Name	Site Description	Comments
1	Car dealerships	Harold Easter Car Dealership(Cd1)	automobile dealership
2	Funeral services and crematories	Heck Funeral Home	funeral home
3	Gas Stations	Chevron Gas Station (Gs3)	gas station
4	Other	Water Treatment Plant	Individual Industrial
5	Other	Milton City Of	Ind POTW
6	Other	Bolt Oil Tools	none
7	Car dealerships	D&B Auto Sales (Cd2)	automobile dealership
8	Dry cleaners	Nicholas Dry Cleaners (Dc1), Regulated	laundry facility
9	Gas Stations	Marathon Gas Station (Gs5)	gas station
10	Chemical Drums/Storage	Chemical Distributor (Cdt2)	CHEMICAL DISTRIBUTOR
11	Hardware/lumber/parts stores	Napa Auto Parts	auto parts sales
12	Hardware/lumber/parts stores	Advance Auto Parts	auto parts sales
13	Car washes	Fast Change & Car Wash (Cw2)	automobile maint. and cleaning
14	Auto repair shops	Auto Garage (Ars4)	automobile maint. and repair
15	Permitted Discharge Pipe (outfall)	River Bend Development	Storm Water Construction (GP)
16	Construction areas	Wendy's Construction (Cs1)	construction site
17	Highway	Us Route 60 (Hy4l10)	highway
18	Permitted Discharge Pipe (outfall)	Interstate Land Development	Storm Water Construction (GP)
19	Gas Stations	Rich Gas Station (Gs7)	gas station
20	Gas Stations	Gas Station(Gs4)	Gas Station
21	Road maintenance depots/deicing operations	Roadway Maintenance (Rmf1)	Rte 60
22	Electrical / electronic manufacturing	AEP Electrical Plant Electrical Manufacturing	electrical generation
23	Hardware/lumber/parts stores	84 Lumber	hardware and lumber sales
24	Gas Stations	Sheetz	gas station



A-3 June 2016

PCS No.	Site Name	Site Description	Comments
25	Gas Stations	Go Mart	gas station
26	Gas Stations	Exxon Gas Station (Gs6)	gas station
27	Highway	I-64 (Hy4l11)	
28	Highway	I-64 (Hy4l11)	Interstate
29	Hardware/lumber/parts stores	Skilton Contracting (Skt)	hardware store
30	Highway	Highway Cr-13 (Hy4l9)	county route
31	Chemical Manufacture	ISP Industrial Products (Isp)	Rt 60
32	Electrical / electronic manufacturing	Electrical Store (Elm1)	CR-25
33	Railroad Tracks (right of way)	Railroad Tracks (Rrty3)	railroad
34	Sewage sludge/Biological Solids application	Golden Heights Trailer Park	Sewage General
35	Highway	Highway Cr-25 & Balls Gap Rd.(Hy2l7)	county route
36	Residential (multi-units)	Golden Heights Trailer Park (Gnhi)	trailer park
37	Highway	Highway River Rd. & Cr-25 (Hy2l5)	county route
38	Equipment rental/repair shop	Conveyor MFG & Supply Equipment (Err2)	industrial products
39	Highway	Highway Cr-16 (Hy2l4)	county route
40	Fertilizer Storage	Fertilizer Storage (Fera)	Fertilizer Storage
41	Highway	Highway Cr-25 (Hy2l6)	county route



Milton Water Source Water Protection Plan

List of Regulated PSSCs

Regulated No.	Site Name	Site Description	Regulation ID	Comments
R1	LUST Site	C & D Food Stores #205	0600514 93-056	Cleanup Complete 03/08/2004
R2	LUST Site	East Stop	0600463 91-087-L06	Cleanup Complete 04/17/1992
R3	LUST Site	Mid Valley Mart	4006513 03-007	Cleanup Complete 03/31/2014
R4	LUST Site	7-Eleven 35927	2209619 05-055	none
R5	LUST Site	Kandi's Stop & Shop	2202794 94-101	Cleanup Complete 12/15/1995
R11	NPDES Outlet	Culloden PSD	WV0027731-001	Ind POTW Collection
R12	NPDES Outlet	Cornerstone at James River	WVG551362-001	Sewage General
R13	NPDES Outlet	Blenko Glass CO INC	WVG610608-001	Storm Water Industrial (GP)
R14	NPDES Outlet	Blenko Glass CO INC	WVG610608-009	Storm Water Industrial (GP)
R15	NPDES Outlet	Blenko Glass CO INC	WVG610608-013	Storm Water Industrial (GP)
R16	NPDES Outlet	Blenko Glass CO INC	WVG610608-007	Storm Water Industrial (GP)
R17	NPDES Outlet	Blenko Glass CO INC	WVG610608-016	Storm Water Industrial (GP)
R18	NPDES Outlet	James C. Dabney II	WVG410908-001	Home Aeration Unit General
R19	NPDES Outlet	Kenneth C. Carter	WVG410847-001	Home Aeration Unit General
R20	NPDES Outlet	Jacob Hess	WVG412064-001	Home Aeration Unit General
R21	NPDES Outlet	DANNY LEWIS	WVG412066-001	Home Aeration Unit General
R22	NPDES Outlet	Sherry Pauley	WVG411456-001	Home Aeration Unit General
R23	NPDES Outlet	Metal Center Recycling	WVG611671-001	Storm Water Industrial (GP)
R24	NPDES Outlet	Robert Childers	WVG411928-001	Home Aeration Unit General
R25	NPDES Outlet	Milton Cabell County EMS	WVG990224-001	Car Wash (GP)
R26	NPDES Outlet	NA	WVG410935-001	Home Aeration Unit General
R27	NPDES Outlet	Smith Concrete Company - Culloden	WVG610500-001	Storm Water Industrial (GP)
R28	NPDES Outlet	Phillip Mark Akers	WVG414386-001	Home Aeration Unit General



Milton Water Source Water Protection Plan

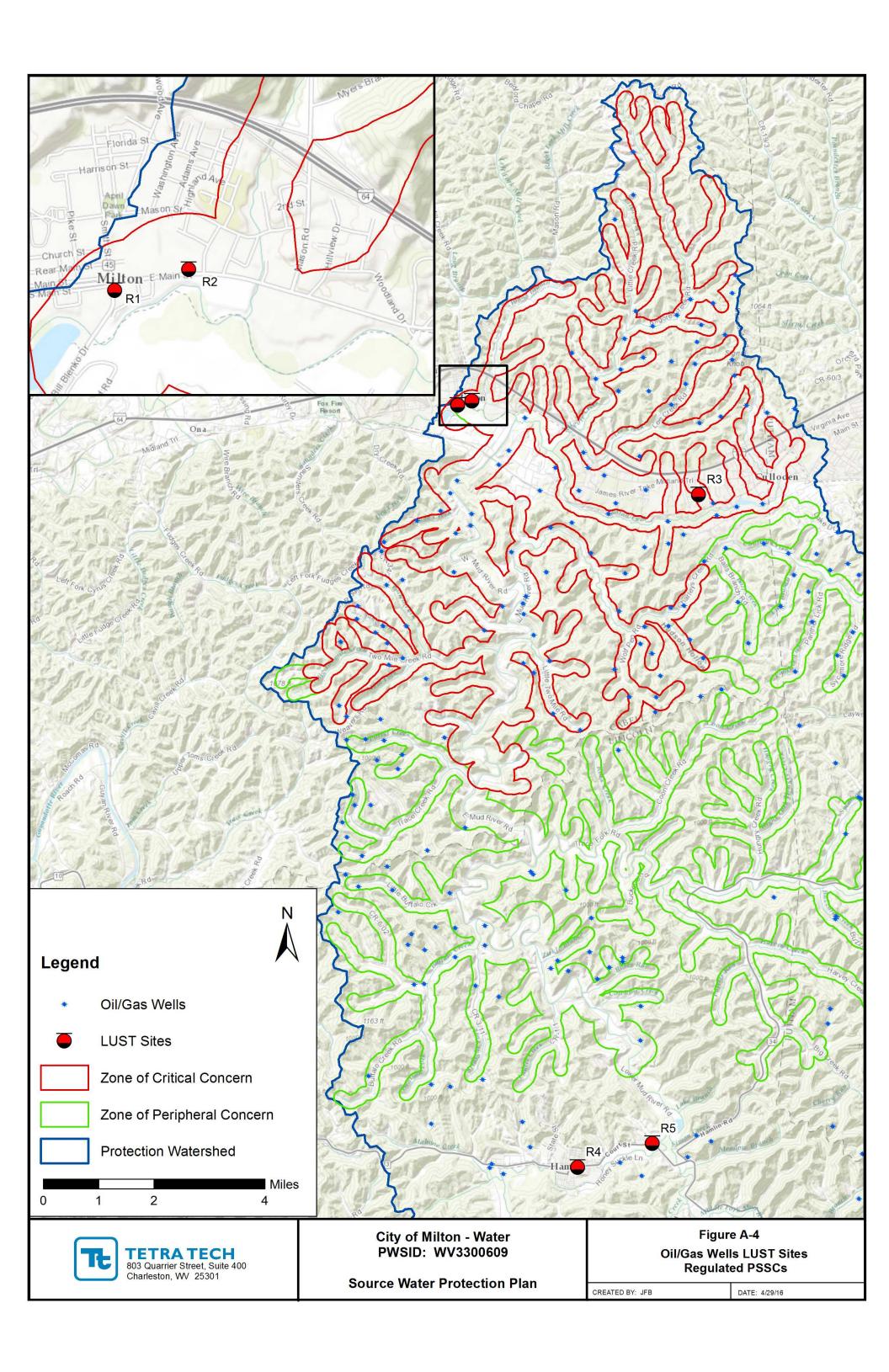
Regulated No.	Site Name	Site Description	Regulation ID	Comments
R29	NPDES Outlet	Jerry R Losh	WVG413657-001	Home Aeration Unit General
R30	NPDES Outlet	Hurricane Equipment CO INC	WVG610478-001	Storm Water Industrial (GP)
R31	NPDES Outlet	Hurricane Equipment CO INC	WVG610478-002	Storm Water Industrial (GP)
R32	NPDES Outlet	Service Wire CO	WVG610035-001	Storm Water Industrial (GP)
R33	NPDES Outlet	Service Wire CO	WVG610035-002	Storm Water Industrial (GP)
R34	NPDES Outlet	Service Wire CO	WVG610035-003	Storm Water Industrial (GP)
R35	NPDES Outlet	RCL Burco, LLC	WVG610743-001	Storm Water Industrial (GP)
R36	NPDES Outlet	RCL Burco, LLC	WVG610743-002	Storm Water Industrial (GP)
R37	NPDES Outlet	RCL Burco, LLC	WVG610743-003	Storm Water Industrial (GP)
R38	NPDES Outlet	RCL Burco, LLC	WVG610743-004	Storm Water Industrial (GP)
R39	NPDES Outlet	RCL Burco, LLC	WVG610743-005	Storm Water Industrial (GP)
R40	NPDES Outlet	Sousanah Freewill Baptist Church	WVG411137-001	Home Aeration Unit General
R41	NPDES Outlet	Shane Perry	WVG412315-001	Home Aeration Unit General
R42	NPDES Outlet	Dallas Keyser	WVG413950-001	Home Aeration Unit General
R43	NPDES Outlet	Steven A. Spurlock	WVG411461-001	Home Aeration Unit General
R44	NPDES Outlet	Larry M. Kelley	WVG411954-001	Home Aeration Unit General
R45	NPDES Outlet	Gregory R. Jimison	WVG411068-001	Home Aeration Unit General
R46	NPDES Outlet	Cooper, Margaret	WVG412228-001	Home Aeration Unit General
R47	NPDES Outlet	G Randy Cunningham	WVG414826-001	Home Aeration Unit General
R48	NPDES Outlet	Geri Herndon	WVG412305-001	Home Aeration Unit General
R49	NPDES Outlet	Bob Marian Steele	WVG411952-001	Home Aeration Unit General
R50	NPDES Outlet	Sweetland Terry	WVG414134-001	Home Aeration Unit General
R51	NPDES Outlet	NA	WVG411071-001	Home Aeration Unit General
R52	NPDES Outlet	Marty Weaver	WVG411895-001	Home Aeration Unit General

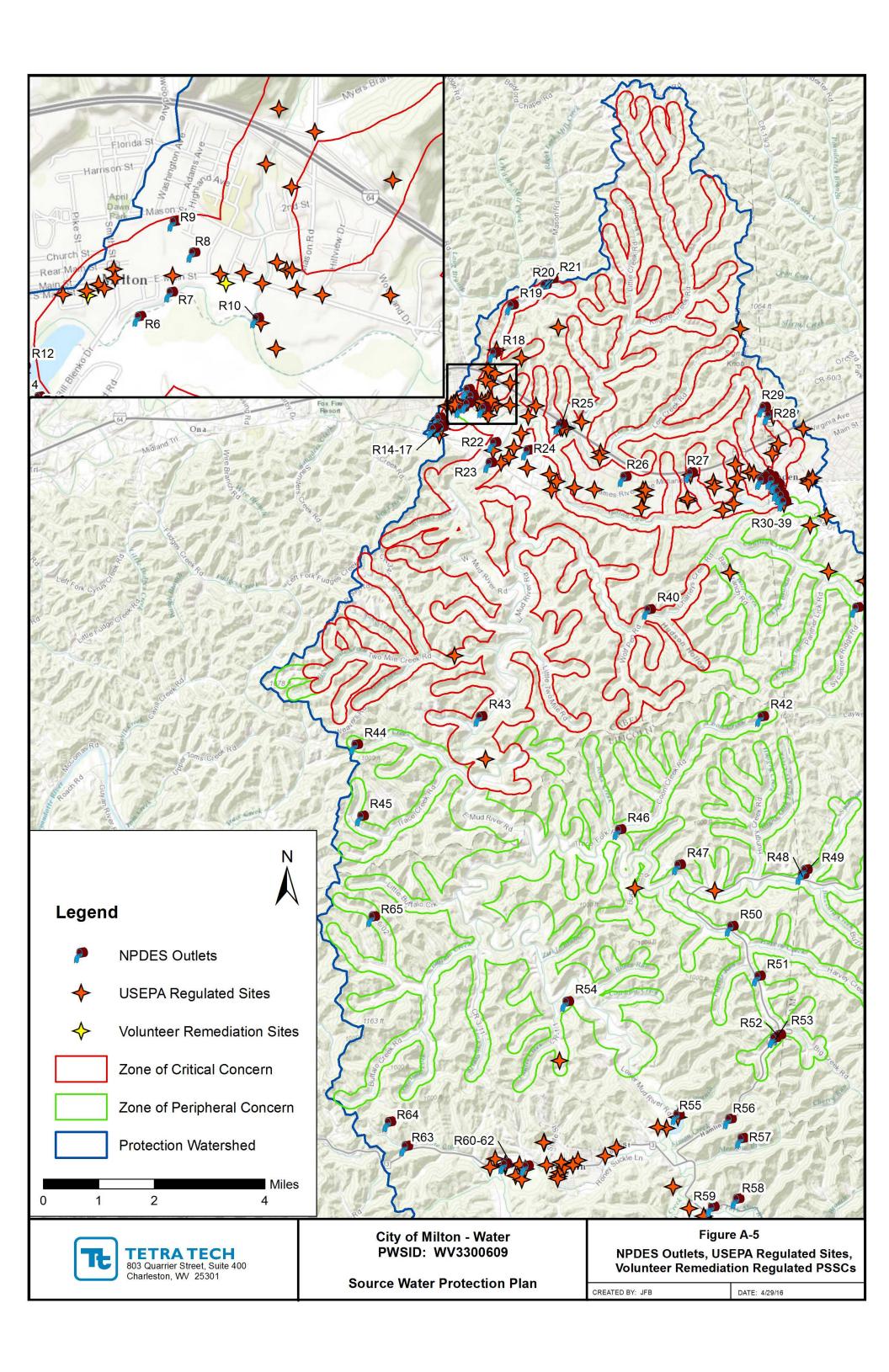


Milton Water Source Water Protection Plan

Regulated No.	Site Name	Site Description	Regulation ID	Comments
R53	NPDES Outlet	Eugene Stowers	WVG412137-001	Home Aeration Unit General
R54	NPDES Outlet	Robert and Bernice Vickers	WVG413843-001	Home Aeration Unit General
R55	NPDES Outlet	Hamlin PSD	WV0027693-001	Ind POTW
R56	NPDES Outlet	Gregory Adkins	WVG410808-001	Home Aeration Unit General
R57	NPDES Outlet	Owens, David Jr.	WVG412329-001	Home Aeration Unit General
R58	NPDES Outlet	Brian & Jill Adkins	WVG411225-001	Home Aeration Unit General
R59	NPDES Outlet	Charles & Marcella Ellison	WVG414054-001	Home Aeration Unit General
R60	NPDES Outlet	Lincoln County Schools	WVG412426-001	Home Aeration Unit General
R61	NPDES Outlet	Stowers & Sons Land CO INC	WVG610343-001	Storm Water Industrial (GP)
R62	NPDES Outlet	Stowers & Sons Land CO INC	WVG610343-002	Storm Water Industrial (GP)
R63	NPDES Outlet	Deloris J Slone	WVG411503-001	Home Aeration Unit General
R64	NPDES Outlet	Randy Holley	WVG411380-001	Home Aeration Unit General
R65	NPDES Outlet	Hurston G. King	WVG410504-001	Home Aeration Unit General







Milton Water Source Water Protection Plan

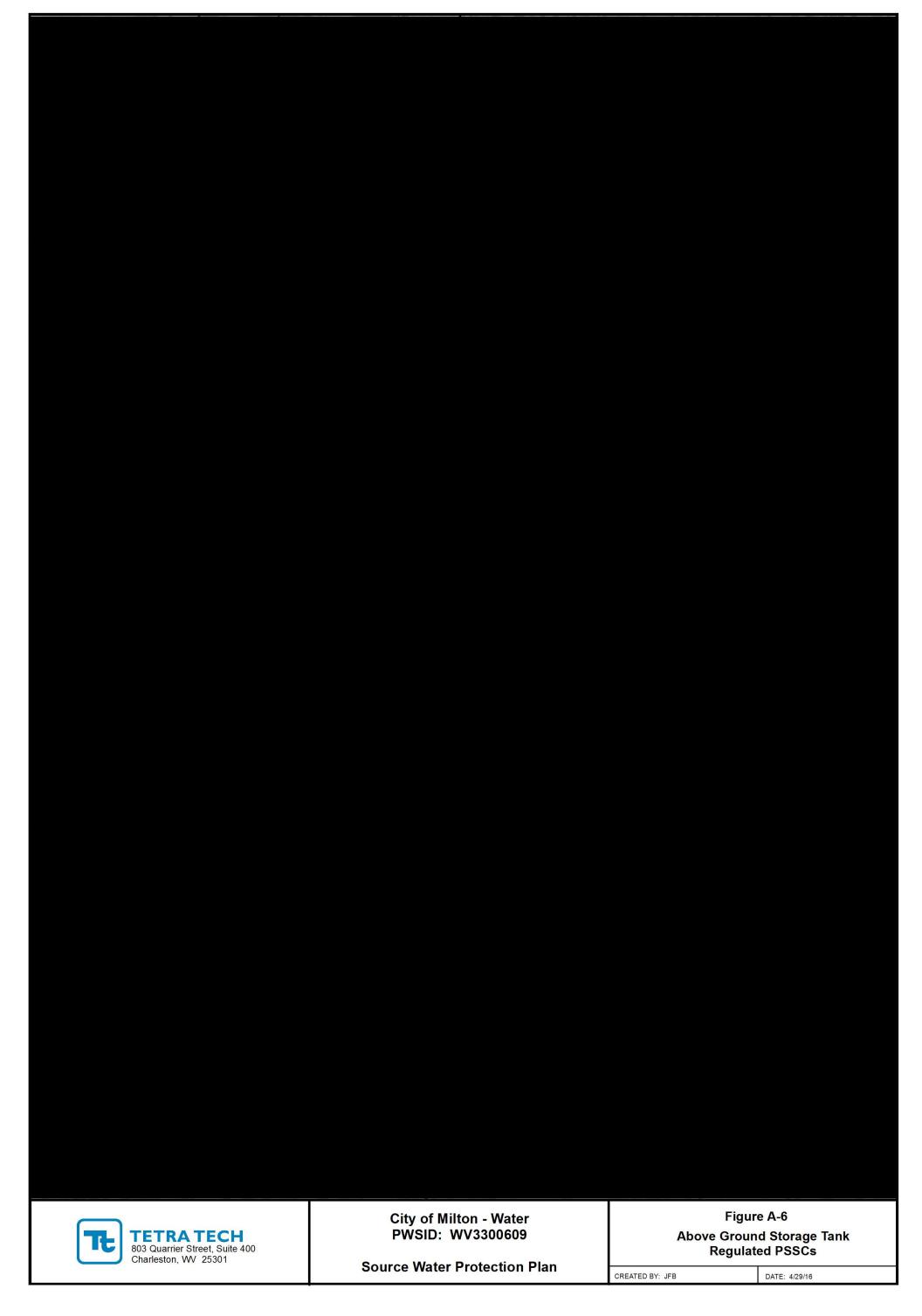
List of Above Ground Storage Tank Regulated PSSCs

PCS No.	Site Name	Site Description	Regulation ID	Comments
R66	Above Ground Storage Tank	Exco Resources (PA), LLC Ravenswood Office	006-00000155	
R67	Above Ground Storage Tank	Exco Resources (PA), LLC Ravenswood Office	006-00000110	
R68	Above Ground Storage Tank	Enervest Operating LLC. Enervest Operating, LLC	006-00000254	
R69	Above Ground Storage Tank	Teavee Oil & Gas, INC. Teavee Oil & Gas, Inc.	040-00000704	
R70	Above Ground Storage Tank	Smith Concrete CO Culloden Plant	006-00000272	
R71	Above Ground Storage Tank	Service Wire CO Service Wire Co	006-00000152	
R72	Above Ground Storage Tank	Exco Resources (PA), LLC Ravenswood Office	040-00000026	
R73	Above Ground Storage Tank	Allied Waste Sycamore Landfill, LLC Sycamore Landfill	040-00000201	
R74	Above Ground Storage Tank	Enervest Operating LLC. Enervest Operating, LLC	006-00000251	
R75	Above Ground Storage Tank	Columbia Gas Transmission Corp Nye	022-00000307	
R76	Above Ground Storage Tank	Mountain V Oil & Gas, INC. Mountain V Oil & Gas, Inc.	022-00000320	
R77	Above Ground Storage Tank	Columbia Gas Transmission Corp Hamlin Compressor Station	022-00000309	
R78	Above Ground Storage Tank	Dawson-Thompson Oil CO INC Stones Trucking	022-00000465	
R79	Above Ground Storage Tank	Dawson-Thompson Oil CO INC Stones Trucking	022-00000466	
R80	Above Ground Storage Tank	Jackson Management Company Hamlin Yard	022-00000477	
R81	Above Ground Storage Tank	Jackson Management Company Hamlin Yard	022-00000478	
R82	Above Ground Storage Tank	Jackson Management Company Hamlin Yard	022-00000479	
R83	Above Ground Storage Tank	Jackson Management Company Hamlin Yard	022-00000480	
R84	Above Ground Storage Tank	Jackson Management Company Hamlin Yard	022-00000481	
R85	Above Ground Storage Tank	Jackson Management Company Hamlin Yard	022-00000482	



A-9 June 2016

PCS No.	Site Name	Site Description	Regulation ID	Comments
R86	Above Ground Storage Tank	Jackson Management Company Hamlin Yard	022-00000483	
R87	Above Ground Storage Tank	Dawson-Thompson Oil CO INC Pettey Oilfield Services	022-00000467	
R88	Above Ground Storage Tank	Dawson-Thompson Oil CO INC Pettey Oilfield Services	022-00000468	
R89	Above Ground Storage Tank	Dawson-Thompson Oil CO INC Pettey Oilfield Services	022-00000469	
R90	Above Ground Storage Tank	Mahue Construction CO New Hamlin Tank Yard	999-00001464	
R91	Above Ground Storage Tank	Lincoln County Board Of Education Hamlin Bus garage	022-00000486	
R92	Above Ground Storage Tank	Lincoln County Board Of Education Hamlin Bus garage	022-00000487	
R93	Above Ground Storage Tank	Mahue Construction CO Hamlin Tank Yard	022-00000523	
R94	Above Ground Storage Tank	Mahue Construction CO Hamlin Tank Yard	022-00000524	
R95	Above Ground Storage Tank	Dawson-Thompson Oil CO INC Mahue Construction	022-00000491	



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.



B-1 June 2016

Appendix B-Form B

Proposed Early Warning Monitoring System Worksheet- Surface Water Source

Describe the type of early warning detection equipment that could be installed, including the design.

The early warning detection equipment that could be installed includes a level controller, display module, back panel, level & trough (see cost estimate by Hach Company in Appendix D, "Supporting Documentation") along with conductivity, oil-in-water, ORP, and pH sensors.

Where would the equipment be located?

Early warning monitoring systems would be located on the raw water intake line where Mud River surface water would enter the laboratory in the water treatment facility, or upstream of the raw water intake on the Mud River.

What would the maintenance plan for the monitoring equipment entail?

The proposed maintenance plan for the monitoring equipment shall consist of annual cleaning and/or exchanging of the probe(s) for the controller. Periodic calibration of the unit may also be required.

Describe the proposed sampling plan at the monitoring site.

Sampling of water quality data occurs every fifteen (15) minutes. Milton Water would need to retrieve data from the "History" of the controller data collector twice per month.

Describe the proposed procedures for data management and analysis.

Data management for the early warning monitoring system consists of data points (up to 500 points or approximately six months per probe) being recorded in the "History" of the controller data collector. To access the "History", the probe has to be plugged into the controller. Data is able to be removed via USB or through a local SCADA system.

*This information is sourced from the Source Water Protection Contingency Plan completed by Thrasher in 2015. The study is included as Appendix D.



APPENDIX C. COMMUNICATION PLAN TEMPLATE

System Name]		
PWSID:WV3300609	District:	District 2, St. Albans
•		
Contact Phone Number: Contact Email Address: _		
Plan Developed: <u>June 2016</u>	Plan Updat	te:

ACKNOWLEDGMENTS:

This plan was developed by Milton Water 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	1
TIERS REPORTING SYSTEM	1
COMMUNICATION TEAM	2
COMMUNICATION TEAM DUTIES	3
INCIDENT / EVENT COMMUNICATION PROCEDURE	3
TIERS FLOW CHART	5
EMERGENCY SHORT FORMS	6
EMERGENCY CONTACT INFORMATION	9
PRESS RELEASE ATTACHMENTS	10



INTRODUCTION

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

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

TIERS REPORTING SYSTEM

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

TIERS provides an easy-to-remember five-tiered **A-B-C-D-E** risk-based incident response communication format, as described below. Table 1 provides also associated risk levels.

- **A** = **A**nnouncement. The water system is issuing an announcement to the public and public agencies about an incident or event that may pose a threat to water quality. Additional information will be provided as it becomes available. As always, if water system customers notice anything unusual about their water, they should contact the water system
- **B** = **B**oil Water Advisory. A boil water advisory has been issued by the water system. Customers may use the water for showering, bathing, and other non-potable uses, but should boil water used for drinking or cooking.
- **C** = **C**annot Drink. The water system asks that users not drink or cook with the water at this time. Non-potable uses, such as showering, bathing, cleaning, and outdoor uses are not affected.
- **D** = **D**o Not Use. An incident or event has occurred affecting nearly all uses of the water. Do not use the water for drinking, cooking, showering, bathing, cleaning, or other tasks where water can come in contact with your skin. Water can be used for flushing commodes and fire protection.
- **E** = **E**mergency. Water cannot be used for any reason.

Tier	Tier Category	Risk Level	Tier Summary
A	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.
В	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-1 June 2016

				System users should not drink or cook with the water			
С	Ca	annot Drink	High	until further notice. The water can still be used for			
				showering, bathing, cleaning, and other tasks.			
				The water should only be used for flushing commodes			
D	D	D o Not Use	Very High	and fire protection until further notice. More information			
				on this notice will be provided as soon as it is available.			
			F	The water should not be used for any purpose until			
E	E	Emergency	Extremely High	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		Email	Role
Tom Canterbury	Mayor, Milton	(304) 743-3032	miltonwater@suddenlinkmail .com	Primary Spokesperson
Phyllis Smith	City of Milton	(304) 743-3032	-	Secondary Spokesperson
Mark Smith	Milton Municipal Utilities Commission	(304) 743-3821	-	Member
Gerald Clagg	Milton Municipal Utilities Commission	(304) 743-3821	-	Member
Charlie Conard	City of Milton Council Water Utility Board	(304) 743-3032	-	Member
Randy Rutledge	City of Milton Stormwater	(304) 743-3032	stormwater@cityofmiltonwv. com	Member
Tim Allen	City of Milton	(304) 743-3821	-	Member
Michelle Wallace	Milton Water	(304) 743-3422	miltonutilities@cityofmiltonw v.com	Member
Donna Hatfield	Milton Water	(304) 743-3422	miltonwater@cityofmiltonwv. com	Member

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

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

TETRA TECH

June 2016

COMMUNICATION TEAM DUTIES

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

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

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

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

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

- Announce which risk level (A, B, C, D, or E) will apply to the public notifications that are issued (see example press releases)
- · 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



C-3 June 2016

- Potential of the material to move, migrate, or be transported
- Relevant time factor(s) in the risk assessment (e.g., downstream movement rate)
- Overall level of risk to water system, whether low, moderate, high, or very high
- Development of the initial risk characterization

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

- The initial release (i.e., Announcement, Boil Water Advisory, Cannot Drink, Do Not Use, or Emergency, see attached example press releases)
 - o 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
 - o 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, 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.

TETRA TECH

TIERS FLOW CHART

Public Water Supplier Becomes Aware of Incident or Event

Conduct initial assessment to determine if the incident/event poses a risk to public health and safety

Incident Poses Potential a Risk and Requires Notification within 30 Minutes

 Public water supplier must issue notification to the public and local health agencies within 30 minutes of determining that incident poses a risk to public health and safety

Incident Does Not Pose a Risk No Further Investigation Is Needed

- Does not require notification to the public and local health agencies in 30 minutes.
- Should notify that known incident does not pose a risk.

Activate Incident Response

· Deploy incident assessment personnel

Implement Contingency Plan if **Necessary**

Replace/augment water source

Threat is Reduced or Eliminated-Communicate*

- Adapt as necessary
- Communicate*

Threat Assessment and Characterization

- Incident/event type (spill, release, etc.)
- Location of incident/event
- Material(s) involved in spill, release, etc.
- · Quantity of material
- Material movement/migration potential
- Time factor(s) in risk assessment
- Level of risk to water system o Low, moderate, high, very high
- Initial risk characterization

- **Review Incident, Adapt Approach** • Incident response/investigation
 - Communication activities
 - Contingency operations

Communicate*

Return to Normal Operations

- Monitor any new developments
- Continue managing operations & source water protection program
- Communicate*

Threat Level Remains or Escalates-Communicate*

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.



C-5 June 2016

EMERGENCY SHORT FORMS

Emergency Communication Information

		Nan	ne	Phone	Number		Email		
Designated spokesperson:		Tom Canterbury		304-7	43-3032	cityclerk@	cityclerk@cityofmiltonwv.com		
Alternate spokesperson:		Phyllis	Smith	304-7	43-3032	recorder@	cityof	miltonwv.com	
Designated location to disseminate information to media:			Milton City Hall 1139 Smith Street Milton WV 25541						
		Word o	of mouth		х	Posted not	ices	х	
	Methods of contacting affected residents:		Door-to-door canvasing			Radio		х	
		Newspaper			X Other				
	Nai	me Title			Phone Number			Email	
	WSAZ	TV 3	-			523-5333 0-3065 (fax)		-	
Media contacts:	WVO	WVOK 13			304-525-1313 304-343-6138 (fax)		-		
	WCHS 8/\	WVAH 11	-		304-345-4115 304-345-1849 (fax)			-	
	Herald D	Dispatch	-			526-4000 6-2857 (fax)		-	

Emergency Services Contacts

		Name	Emergency Phone	Alternate Phone	Email
	Local Police	Milton Police Department (Chief Joe Parsons)	911	304-389-3110	mpdchief@cityofmiltonw v.com

C-6

TE TETRA TECH

June 2016

Local Fire Department	Milton Fire Department (Acting Chief Tim Chastain)	911	304-972-1885	tchastain@fop122.com
Local Ambulance Service	Cabell County Emergency Medical Service	911	304-526-8484	Gordon.merry@ccems.o rg
Hazardous Material Response Service	Milton Fire Department (Acting Chief Tim Chastain)	911	304-972-1885	tchastain@fop122.com

Key Personnel

	Name	Title	Phone	Email
Key staff responsible for coordinating	Tim Allen	Water Plant Operator	304-743-3821 (plant)	-
emergency response procedures?	Bob Legg	Milton VFD and City Councilman		-
Staff responsible for keeping confidential	Tim Allen	Water Plant Operator	304-743-3821 (plant)	-
PSSC information and releasing to emergency responders:	Tom Canterbury	Mayor	304-743-3032	cityclerk@cityof miltonwv.com

Sensitive Populations

Other communities that are served by the utility:	Outlying rural areas near Milton					
Major user/sensitive	Name	Emergency Phone	Alternate Phone			
population notification:	Milton Pre-K Annex	304-743-7325	-			



			ementary nool	304-743-7303			-
		Milton Mid	dle School	304	4-743-7308		-
		Cabell Health Care Center		304-390-5709		-	
EED Distric	t Office	Name		Phone		Email	
Conta		JD Douglas		304-722-0611		J.D.Douglas@wv.gov	
	OEHS Readiness Coordinator		Warren Von Dollen		4-356-4290 (main) 50-5607 (cell)	warre	en.r.vondollen@wv.gov
Downstream		System me	Contact I	Name	Emergenc Phone	у	Alternate Phone
Water Contacts:		luntington /er Plant	N/A	800-685-86		60	304-353-6300
Are you planning on implementing the TIER system?		Yes					

Emergency Response Information

	Name		Phone	
List laboratories available to perform sample analysis in case of emergency:	WV State Lab, Attn: Jerry Gross		304-558-3530	
	REIC Laboratory		304-255-2500	
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?			it	2006

TETRA TECH

EMERGENCY CONTACT INFORMATION

State Emergency Spill Notification 1-800-642-3074

Office of Emergency Services

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

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

www.wvdhhr.org/oehs

Readiness Coordinator- Warren Von Dollen Phone; 304-356-4290 Cell; 304-550-5607

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

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

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

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

West Virginia State Police 1-304-746-2100

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

DEP Distance Calculator

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



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	al water quality.
The incident involves the following situation	
There are no restrictions on water use at the	is time. As always, if water system customers notice
anything unusual about their water - such a	as abnormal odors, colors, sheen, etc they should
contact the water system at	
At this time there is no need for concern if y	ou 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 restriction	s 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/pr water. The areas that are affected	m, a water problem occurred causing contamination of your lare as follows:
□ Entire Water System or □ Of	ther:
	IS A HIGH PROBABILITY THAT YOUR WATER IS S NOT OCCURRED TO CONFIRM OR DENY THE ON IN YOUR WATER.
What should I do?	
let it boil for one minute, ar bottled water should be us	TER WITHOUT BOILING IT FIRST. Bring all water to a boil and let it cool before using, or use bottled water. Boiled or ed for drinking, making ice, brushing teeth, washing dishes, tion until further notice. Boiling kills bacteria and other
What happened?	
The problem is related to	0
What is being done?	
The water system is taki	ing the following action:
	hey have consumed or used the water?
problem within hours/d	onger need to boil your water. We anticipate resolving the days. For more information, please contact
	sen the health risk are available from the EPA Safe Drinking
received this notice directly (for ex	ers who use this water, especially those who may not have kample, people in apartments, nursing homes, schools, and posting this notice in a public place or distributing copies by
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

	at: am/pr The areas that are affected	m, a water problem occurred causing contamination of your lare as follows:
□ Entir	e Water System or □ Of	ther:
CONT	ITIONS INDICATE THERE	IS A HIGH PROBABILITY THAT YOUR WATER IS S NOT OCCURRED TO CONFIRM OR DENY THE ON IN YOUR WATER.
What	should I do?	
•		TER. You can't drink the water, but you can use it for lushing, and other non-potable purposes.
•		IFY THE WATER. Do not drink the water, even if it is boiled. suspected is not removed by boiling.
What I	happened?	
•	The problem is related to	0
What i	s being done?	
•	The water system is taki	ng the following action:
		hey have consumed or used the water?
We wil	I inform you when the wate hours/days. For more nal odors, colors, sheen, et	er is safe to drink. We anticipate resolving the problem within information – or to report unusual water conditions such as c. – please contact at or
Please receive	ed this notice directly (for exses). You can do this by p	ers who use this water, especially those who may not have kample, people in apartments, nursing homes, schools, and posting this notice in a public place or distributing copies by
State \	Vater System ID#	Date Distributed:

TETRA TECH

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

water. The areas that are	am/pm, a water problem occurred causing contamination of your
	or Other:
CONTAMINATED. TESTI	THERE IS A HIGH PROBABILITY THAT YOUR WATER IS NG HAS NOT OCCURRED TO CONFIRM OR DENY THE MINATION IN YOUR WATER.
What should I do?	
DO NOT DRINK T	THE WATER. The water is contaminated.
	R OR BATHE IN THE WATER. You can't use the water for drinking, ning. It can be used for toilet flushing and firefighting.
	OT PURIFY THE WATER. Do not use the water, even if it is boiled. mination suspected is not removed by boiling.
What happened?	
The problem is related to the problem is related to the problem.	elated to
What is being done?	
The water syster	n is taking the following action:
What should a custome	er do if they have consumed or used the water?
•	
hours/days. I	the water is safe to drink. We anticipate resolving the problem within For more information – or to report unusual water conditions such as heen, etc. – please contact at or at
received this notice direct	tion others who use this water, especially those who may not have ly (for example, people in apartments, nursing homes, schools, and this by posting this notice in a public place or distributing copies by
This notice was distribute	d by
State Water System ID#	Data Distributed



C-13 June 2016

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 follo	ows:
•		
	THERE IS A HIGH TING HAS NOT OCC	PROBABILITY THAT YOUR WATER IS CURRED TO CONFIRM OR DENY THE R WATER.
What should I do?		
DO NOT DRINK	THE WATER. The w	rater is contaminated.
		Y PURPOSE! You can't use the water for drinkin e – not even for toilet flushing.
		ATER. Do not use the water, even if it is boiled. is not removed by boiling.
What happened?		
The problem is:	related to	
What is being done?		
The water syste	m is taking the follo	owing action:
What should a custome	er do if they have co	onsumed or used the water?
We will inform you when hours/days.	the water is safe to o For more information sheen, etc. – please	drink. We anticipate resolving the problem within n – or to report unusual water conditions such as contact or
received this notice direc	ctly (for example, peo	this water, especially those who may not have ple in apartments, nursing homes, schools, and notice in a public place or distributing copies by
This notice was distribute	ed by	
State Water System ID#		Date Distributed:

TETRA TECH

APPENDIX D. SINGLE SOURCE FEASIBILITY STUDY



D-1 June 2016



Source Water Protection Contingency Plan City of Milton - Water PWSID 3300609

Cabell County, West Virginia July 2015



Title of Preparer Project Engineer Name of Contractor(s)/Consultant(s) (if used): The Thrasher Group, Inc. 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): Title of Authorizing Signatory: Date of Submission (mm/dd/yyyy):

09/30/2015

TABLE OF CONTENTS

EXECUTIVE SUMMARY	4
PURPOSE	5
What are the benefits of preparing a Source Water Protection Plan?	5
BACKGROUND: WV SOURCE WATER ASSESSMENT AND PROTECTION PRO	
STATE REGULATORY REQUIREMENTS	6
SYSTEM INFORMATION	7
Table 1 – Population Served by Milton Water	8
WATER TREATMENT AND STORAGE	8
Table 2 – Milton Water Treatment Information	9
Table 3 – Milton Water Surface Water Sources	10
Table 4 – Milton Water Groundwater Sources	10
Response Networks and Communication	11
Table 5 – Milton Water Shortage Response Capability	11
Operation During Loss of Power	12
Table 6 – Generator Capacity	12
Future Water Supply Needs	13
Table 7 – Future Water Supply Needs for Milton Water	14
Water Loss Calculation	14
Table 8 – Water Loss Information	15
Early Warning Monitoring System	16
Table 9 – Early Warning Monitoring System Capabilities	17
SINGLE SOURCE FEASIBILITY STUDY	18
CONCLUSION & RECOMMENDATION	18
APPENDIX A – EARLY WARNING MONITORING SYSTEM FORMS	20
APPENDIX B - FEASIBILITY STUDY MATRIX	24
APPENDIX C – ALTERNATIVES ANALYSIS	26
APPENDIX D – SUPPORTING DOCUMENTATION	31
APPENDIX E - CONTACT INFORMATION	32

EXECUTIVE SUMMARY

This Source Water Protection Contingency Plan is being developed for the City of Milton Water (Milton Water), and is to be included as a portion of the complete Source Water Protection Plan being completed by other parties (per the West Virginia Bureau for Public Health).

Milton Water is a state regulated public utility and operates a public water system serving the area in and around the City. Milton Water serves 2,634 residential customers, 201 commercial customers, and 9 industrial customers. Milton Water does not provide water to nor purchase water from any other system.



Entrance to Water Plant

The water treatment facility for Milton Water obtains surface water from one (1) raw water intake located on the Mud River. The plant has a treatment capacity of 800,000 gallons per day and pumps approximately 16 hours per day on average. The facility currently produces an average of 600,000 gallons per day. Milton Water maintains four (4) treated water storage tanks totaling 1,512,000 gallons and does not have any raw water storage tanks.

Currently, the water system is experiencing 21% unaccounted for water; however, the utility is

conducting leak detection and making necessary repairs to reduce unaccounted for water.

Milton Water currently does not have a generator. The Cabell County 911 Center has a portable generator available, but there is no power connectivity available at the raw water intake, treatment facility, or any of the booster stations in the distribution system. A type of emergency power connection – an automatic transfer switch or quick connect – would need to be installed for the generator to be able to supply power.

Four (4) alternatives were evaluated in this source water protection plan (SWPP). Milton Water currently has no alternative source of water in the event that the primary water source is contaminated.

Backup Intake

Milton Water currently uses the Mud River intake as their primary source of surface water. Milton Water does not have another reasonable alternative water source, aside from the Mud River. This alternative was not analyzed in the feasibility analysis.

Interconnection

Milton Water is currently not interconnected with another utility. Previously, the Milton Water system was connected to the West Virginia American Water Company (WVAWC) system to provide water supply in the event of an emergency. A re-established interconnection with WVAWC was analyzed in the feasibility analysis.

Treated Water Storage

Milton Water currently has 1,512,000 gallons of treated water storage available. To satisfy the minimum required storage capacity, Milton Water needs 1,999,152 gallons of storage. The system did not meet the minimum required treated water storage capacity. The construction of a 491,000 gallon treated water storage tank was considered in the feasibility analysis.

Raw Water Storage

Milton Water currently has no raw water storage available. To satisfy the minimum required storage capacity, Milton Water needed 1,999,152 gallons of



Raw Water Pump Station on the Mud River

storage. The system did not meet the minimum required raw water storage capacity. The construction of a 2,026,000 gallon raw water storage tank was considered in the feasibility analysis.

This SWPP describes in detail the aforementioned aspects of the Milton Water public water system, analyzes alternatives for sources of water supply, and compares alternatives in a feasibility matrix to determine the most suitable and feasible alternative for Milton Water. The recommended alternative suggested for Milton Water is as follows: the construction of a re-established interconnection with WVAWC, including 25 LF of 12" water line, two (2) gate valves, one (1) master meter, and all required permitting. Further detail of the selection of this alternative is provided in the "Conclusion and Recommendation" section of this report.

PURPOSE

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

The intent of this document is to describe what Milton Water 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, Milton Water acknowledges that implementing measures to prevent contamination can be a relatively economical way to help ensure the safety of the drinking water.

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

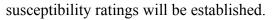
- Fulfills the requirement for the public water utilities to complete or update their source water protection plan.
- Identifies and prioritizes potential threats to the source of drinking water; and establishes strategies to minimize the threats.

- Plans for emergency responses to incidents that compromise the water supply by contamination or depletion, including how the public, state, and local agencies will be informed.
- Plans for future expansion and development, including establishing secondary sources of water.
- Ensures conditions to provide the safest and highest quality drinking water to customers at the lowest possible cost.
- Provides 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 was designed to protect the source water contribution areas around groundwater 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





Chemical Injection System

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 Milton Water 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 outline specific requirements for public water utilities that draw water from a surface water source or a groundwater source influenced by surface water (GUIDI).

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 contingency plan. Any new water system established after July 1, 2016 must submit a source water protection plan before they begin operation. 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

Milton Water is classified as a state regulated public utility and operates a public water system serving the area in and around the City. A 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, 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 Milton Water

Administrative of	fice location:	1139 Smith Street Milton, West Virginia 25541		
Is the system a public utility, according to the Public Service Commission rule?		Public Utility Municipality		
Date of Most Recent Source Water Assessment Report:		N/A By Bureau for Public Health		
Date of Most Recent Source Water Protection Plan:		N/A		
Population served directly:		2,364 Residential; 201 Commercial; 9 Industrial 2,574 Total Customers		
Bulk Water	System Name	PWSID Number	Population	
Purchaser	N/A	N/A	N/A	
Systems:	N/A	N/A	N/A	
Total Population Served by the Utility:		4,883		
Does the utility have multiple source water protection areas (SWPAs)?		No		
How many SWPAs does the utility have?		1		

WATER TREATMENT AND STORAGE

As required, Milton Water 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 water sources from which Milton Water 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 – Milton Water Treatment Information

	Raw Water Intake				
	↓ Chemical Addition of DelPac				
	and Potassium Permanganate				
	Q				
	Static Mixing				
Water Treatment Process (List in	↓ Flocculation				
order)					
,	Sedimentation				
	↓ .				
	Filtration				
	Post-Chlorination				
	Clear Well				
Current Treatment Capacity (gal/day)	800,000 GPD				
Current Average Production (gal/day)	600,000 GPD				
Maximum Quantity Treated and Produced (gal)	800,000 GPD				
Minimum Quantity Treated and Produced (gal)	580,000 GPD				
Average Hours of Operation	16 hours per day				
Maximum Hours of Operation in One Day	24 hours per day				
Minimum Hours of Operation in One Day	16 hours per day				
Number of Storage Tanks Maintained	4				
Total Gallons of Treated Water Storage (gal)	1,512,000 GAL				
Total Gallons of Raw Water Storage (gal)	0 GAL				

Table 3 – Milton Water Surface Water Sources

In	ntake Name	SDWIS #	Local Name	Describe Intake	Name of Water Source Construct Modified		Frequency of Use (Primary/ Backup/ Emergency)	Activity Status (Active/ Inactive)
Raw	Water Intake		N/A	Conventional Raw Water Pump Station with Screen	Mud River	1975 (C)	Primary	Active

Table 4 – Milton Water Groundwater Sources

Does the utility blend with groundwater? No

(C) – Constructed

(M) - Modified

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/). Milton Water has analyzed its ability to effectively respond to emergencies and this information is provided in **Table 5**.

Table 5 – Milton Water Shortage Response Capability

Can the utility isolate or divert contamination from the intake or groundwater supply?	Yes		
Describe the utility's capability to isolate or divert potential contaminants:	The utility is able to divert potential contaminants by shutting off the active intake and switching to a backup water source until the contaminant has passed and the raw water intake is safe to use.		
Can the utility switch to an alternative water source or intake that can supply full capacity at any time?	Yes		
Describe in detail the utility's capability to switch to an alternative source:	The utility is capable of switching to an alternative water source by utilizing a connection with the West Virginia American Water Company (WVAWC).		
Can the utility close the water intake to prevent contamination from entering the water supply?	Yes		
How long can the intake stay closed?	The intake can remain closed until the treated water storage levels become low, or until WVAWC cannot supply additional water to Milton Water.		
Describe the process to close the intake:	The raw water pump is turned off.		
Describe the treated water storage capacity of the water system:	The current treated water storage amount for the system consists of four (4) water storage tanks totaling 1,512,000 gallons of treated water. At the time of this report, the Milton Water system was operating at 80% treated water storage capacity.		
Is the utility a member of WVRWA Emergency Response Team?	No		
Is the utility a member of WV-WARN?	No		

List any other mutual aid agreements to provide or receive assistance in the event of an emergency:

No

It is suggested that, if the utility does not have the capability to divert contamination from the surface water intake, pre-cast concrete bases are constructed around the raw water intake to drop booms into the water and physically divert surface contaminants from entering the raw water intake.

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



Pre-Sedimentation Basin

the utility's capacity for operation during power outages is shown in **Table 6**. The utility's standby capacity would have the capability to provide power to the system as if normal power conditions existed. The utility's emergency capacity would have the capability to provide power to only the essential equipment and treatment processes to provide water to the system. Information regarding the emergency generator capacity for each utility was calculated by the WV BPH and can be found in Appendix D, "Supporting Documentation."

Table 6 – Generator Capacity

What is the type and capacity of the generator needed to operate during a loss of power?	A 100 kW stationary Kohler emergency generator with a 150A automatic transfer switch was sized for the utility and a cost estimate is provided in Appendix D.
Can the utility connect to generator at intake/wellhead? If yes, select a scenario that best describes system.	No
Can the utility connect to generator at treatment facility? If yes, select a scenario that best describes system.	No
Can the utility connect to a generator in distribution system? If yes, select a scenario that best describes system.	No
Does the utility have adequate fuel on hand for the generator?	Yes

What is your on-hand fuel storage and how long will it last operating at full capacity?		Gallons		Hours		
		125 gal Diesel		N/A		
Provide a list of		Supplier		Contact Name		Phone Number
suppliers that could	Generator	N/A		N/A		N/A
provide generators and fuel in the	Generator					
event of an	rent of an Fuel N/A		A	N/A		N/A
emergency:						
Does the utility test the generator(s) periodically?		The generator is owned by the Cabell County 911 Center, so Milton Water does not periodically test the generator.				
Does the utility routinely maintain the generator?		The generator is owned by the Cabell County 911 Center, so Milton Water does not routinely maintain the generator.				
If no scenario describing the ability to connect to generator matches the utility's system or if utility does not have ability to connect to a generator, describe plans to respond to power outages:			N/A	A		

If a portable generator is available through the respective county's 911 or Emergency Center, it is assumed the generator is available **only** for the utility for which this source water protection contingency plan is prepared. If more than one utility in the county uses the portable generator during power outages, it is suggested that each utility procure a generator specifically to protect their system during a power outage.

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. Milton Water has analyzed its ability to meet future water demands at current capacity and this information is included in **Table 7**.

Table 7 – Future Water Supply Needs for Milton Water

Is the utility able to meet water	Yes; there is expected to be an increase of 50 - 60 customers
demands with the current	within the next five (5) years, as the utility is experiencing
production capacity over the next	an annual increase in the number of customers of 3 to 4%.
5 years? If so, explain how you	The plant is expected to remain under the maximum
plan to do so.	treatment capacity.
If not, describe the circumstances	
and plans to increase production	N/A
capacity:	

Water Loss Calculation

In any public water system, there is a certain percentage of the total treated water that does not reach the customer distribution system. Some of this water is used in treatment plant processes such as backwashing filters or flushing piping, but there is usually at least a small percentage unaccounted. To measure and report on this unaccounted for water, a public utility must use the



Flocculation Basins

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. Nonmetered usages estimated include water used by fire departments for fires or training, un-metered bulk sales, 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 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 8** is taken from the most recently submitted Milton Water PSC Annual Report.

Table 8 – Water Loss Information

Total Water Pump	ed (gal)	226,047,000				
Total Water Purch	ased (gal)	0				
Total Water Pump	ed and Purchased (gal)	226,047,000				
	Mains, Plants, Filters, Flushing, etc.	50,000,000				
Water Loss Accounted for	Fire Department	1,500,000				
Except Main Leaks (gal)	Back Washing	3,500,000				
	Blowing Settling Basins	1,000,000				
Total Water Loss A	Accounted For Except Main Leaks	56,000,000				
Water Sold- Total	Gallons (gal)	125,233,000				
Unaccounted For I	Lost Water (gal)	44,814,000				
Water lost from ma	ain leaks (gal)	3,200,000				
Total gallons of Un Lost from Main Le	accounted for Lost Water and Water aks (gal)	48,014,000				
Total Percent Unac from Main Leaks (ecounted For Water and Water Lost %)	21.24 %				
•	of Unaccounted for Water is greater escribe any measures that could be is problem:	The utility is conducting leak detection and making necessary repairs.				

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, state and local emergency response agencies, surrounding water utilities, and the public. Communication plays an important role in knowing how to interpret data and how to respond.

Milton Water 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 9** and in **Appendix A**.

Table 9 – Early Warning Monitoring System Capabilities

Does your system currently reconotifications from a state agency water system, local emergency other facilities? If yes, from where the contract of the contra	cy, neighboring responders, or	Yes; the utility receives spill notifications from the WV Health Department.					
Are you aware of any facilities, critical areas within your prote where chemical contaminants or released or spilled?	ection areas	Yes					
Are you prepared to detect pot contaminants if notified of a sp		No					
		Lal	orator	ries			
List laboratories (and contact information) on which you	Na	ame		Contact			
would rely to analyze water samples in case of a reported	REI Co	nsultants		(304) 255-2500			
spill.	WV Office o	f Lab Servic	(304) 558-3530				
Do you have an understanding normal conditions for your sou quality that accounts for season fluctuations?	rce water	Yes					
Does your utility currently more (through continuous monitoring grab samples) at the surface was from a groundwater source on basis?	g or periodic ater intake or	Yes					
Provide or estimate the capital		Capital		\$ 50,000			
costs for your current or propo warning system or upgraded sy	•	Yearly O&M		\$ 750			
Do you serve more than 100,00 so, please describe the methods monitor at the same technical l by ORSANCO.	you use to			No			
Note: Complete appropriate Es (Line 71).	arly Warning Mo	nitoring for	m for y	our system in Appendix A			

SINGLE SOURCE FEASIBILITY STUDY

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

In order to accomplish this requirement, utilities should examine all existing or possible alternatives and rank them by their technical, economic, and environmental feasibility. In order to have a consistent method for ranking alternatives, WV BPH has developed a feasibility study guide. This guide provides several criteria to consider for each category, organized in a scoring matrix. By completing the Feasibility Study, utilities will demonstrate the process used to examine the feasibility of each alternative. The Feasibility Study matrix is attached as **Appendix B**. Those alternatives that



High Service Pumps

are ranked highest and deemed to be most feasible will then be the subject of a second, more indepth, study to analyze the comparative costs, risks, and benefits of implementing each of the described alternatives. An alternatives analysis report providing these details is attached as **Appendix C**.

CONCLUSION & RECOMMENDATION

This report represents a detailed explanation of the required elements of Milton Water'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 are 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.

As shown in the Feasibility Matrix in Appendix B, the alternative with the highest final score of feasibility is the interconnection. The recommendation for Milton Water consists of the following: the construction of a re-established interconnection with WVAWC, including 25 LF of 12" water line, two (2) gate valves, one (1) master meter, and all required permitting. The interconnection shall provide the treatment facility with a feasible backup source of water supply in the event that their primary water source becomes contaminated. A cost estimate is provided below. Further explanations of the costs are provided in Appendix D, "Supporting Documentation".

RECOMMENDED ALTERNATIVE COST ESTIMATE

25	LF	12" Water Line and Two (2) Gate Valves	\$ 66.85	\$ 1,671
1	EA	Master Meter	\$ 5,000.00	\$ 5,000
1	LS	Permitting	\$ 7,500.00	\$ 7,500
1	LS	Additional Fees	\$ 3,542.81	\$ 3,543
			TOTAL =	\$ 17,714

ASSUMPTIONS: One gate valve per 1,000 feet of additional water line. Non-rocky conditions. Additional Fees are predicted to be 25% of the overall cost. These include legal, engineering, and accounting requirements. Permits would include WV DEP, WV DNR, ACOE, WV SHPO, U.S. FWS, WV DOH, and County Floodplain. The piping route is included in Appendix D. Costs for each item include materials and labor. Communication to WVAWC must be made prior to construction of the interconnection.

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 plan 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 plan 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 A – Form B

Proposed Early Warning Monitoring System Worksheet- Surface

Describe the type of early warning detection equipment that could be installed, including the design.

The early warning detection equipment that could be installed includes a level controller, display module, back panel, level & trough (see cost estimate by Hach Company in Appendix D, "Supporting Documentation") along with conductivity, oil-in-water, ORP, and pH sensors.

Where would the equipment be located?

Early warning monitoring systems would be located on the raw water intake line where Mud River surface water would enter the laboratory in the water treatment facility, or upstream of the raw water intake on the Mud River.

What would the maintenance plan for the monitoring equipment entail?

The proposed maintenance plan for the monitoring equipment shall consist of annual cleaning and/or exchanging of the probe(s) for the controller. Periodic calibration of the unit may also be required.

Describe the proposed sampling plan at the monitoring site.

Sampling of water quality data occurs every fifteen (15) minutes. Milton Water would need to retrieve data from the "History" of the controller data collector twice per month.

Describe the proposed procedures for data management and analysis.

Data management for the early warning monitoring system consists of data points (up to 500 points or approximately six months per probe) being recorded in the "History" of the controller data collector. To access the "History", the probe has to be plugged into the controller. Data is able to be removed via USB or through a local SCADA system.

Literature related to the development and design of early warning systems is provided on the following pages. Courtesy of the American Water Works Association.

APPENDIX B - FEASIBILITY STUDY MATRIX

Feasibility Mat	trix		City of Milton Municipal Water PWSID: WV 3300609 Date: 6/30/2015 Completed by: Project E						Engineer -	The Thrasher Group	p, Inc.										
Alternative Strategy Description	Operation &		onomic Crite		Weighten;	Permitti.	Flexibility		chnical Crite		Total	Weighted ,	Environmental	Aesthetic J.	Siakeholder		⁷ Ot _d 0,	Weighted Total	Final Score	Total Capital Cost	Comments
Backup Intake	0.0	0.0	0.0	0.0%	0.0%	0.0	0.0	0.0	0.0	0.0	0.0%	0.0%	0.0	0.0	0.0	0.0	0.0%	0.0%	0.0%		There are no known streams that can supply adequate capacity for the treatment facility.
Interconnect	2.7	3.0	5.7	94.4%	37.8%	2.4	3.0	2.7	2.3	10.4	86.7%	34.7%	3.0	2.5	2.3	7.8	87.0%	17.4%	89.9%	\$17,714.00	No comment
Treated Water Storage	2.7	2.7	5.3	88.9%	35.6%	2.4	3.0	2.7	2.7	10.7	89.4%	35.8%	3.0	2.0	2.3	7.3	81.5%	16.3%	87.6%	\$669,625.00	No comment
Raw Water Storage	2.7	2.3	5.0	83.3%	33.3%	2.4	3.0	2.7	2.3	10.4	86.7%	34.7%	3.0	2.0	2.3	7.3	81.5%	16.3%	84.3%	\$1,682,950.00	No comment
Other (Specify)	0.0	0.0	0.0	0.0%	0.0%	0.0	0.0	0.0	0.0	0.0	0.0%	0.0%	0.0	0.0	0.0	0.0	0.0%	0.0%	0.0%	\$0.00	No comment

Scoring: 0

1

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

APPENDIX C – ALTERNATIVES ANALYSIS

ANALYSIS OF ALTERNATIVES

Milton Water currently has no alternative source of water supply in the event that the primary water source becomes contaminated.

1. Backup Intake

The Milton Water surface water intake located on the Mud River is currently the primary source of water supply.

There is no source of water supply large enough to supply sufficient capacity (420 gallons per minute) in close proximity to the water treatment facility.

Thus, this alternative will not be considered during the feasibility analysis.

2. Interconnection

The consideration of an alternative source of water could be provided by the West Virginia American Water Company (WVAWC). The connection point with WVAWC has been used in the past by Milton Water. The WVAWC system is located less than fifty (50) feet from the Milton Water system (see Appendix D, "Supporting Documentation"), and is known to be able to provide adequate capacity for the system in the event of an emergency.

Thus, a re-established interconnection with the WVAWC will be considered during the feasibility analysis.

A cost analysis is provided in Appendix D, "Supporting Documentation".

3. Treated Water Storage

The Milton Water treated water storage capacity for the system consists of four (4) water storage tanks totaling 1,512,000 gallons. On average, the water treatment facility produces 600,000 gallons per day of water.

The minimum required treated storage capacity is equal to two (2) days of system storage based on the plant's maximum level of production experienced within the past year, and the maximum required is equal to five (5) days of the average production according to WV BPH standards requiring 20% turnover per day.

The minimum required treated water storage capacity for the system would be:

999,576 gallons per day *2 days = 1,999,152 gallons

Therefore, the system currently does not meet the minimum required treated water storage capacity. The remaining minimum required treated water storage capacity for the system would be:

$$1,999,152 \text{ gallons} - 1,512,000 \text{ gallons} = 487,152 \text{ gallons}$$

Thus, the construction of a 491,000 gallon treated water storage tank will be considered during the feasibility analysis.

A cost analysis is provided in Appendix D, "Supporting Documentation".

At the request of the Milton Water Board, monthly operating reports from July 2013 to July 2015 were analyzed to determine the maximum produced in a 24-hour time period during each month. These values were then averaged to determine the average peak production value. The peak production for the whole analyzed data set is 999,576 gallons per day. The average peak production is 892,655 gallons per day. Senate Bill 373 requires the amount used to determine the treated water storage requirements to be the maximum produced within a 24-hour time period over the last year of monthly operating reports, which is 999,576 gallons per day.

The utility recognizes the significant difference in the peak and average peak daily production amounts (approximately 100,000 gallons) and understands the unaccounted for water percentage of 21% can contribute to increases in production values. A graph, provided in Appendix D, shows the trend of peak daily production amounts for the analyzed data set. If and when the utility chooses to move forward with the construction of additional treated water storage, the required amount to meet Senate Bill 373 may change due to a reduction in unaccounted for water.

4. Raw Water Storage

Milton Water does not have any raw water storage capacity for the system. As mentioned above, the water treatment facility produces 600,000 gallons per day on average and has a maximum production of 999,576 gallons per day.

The minimum required raw water storage capacity is equal to two (2) days of system storage based on the plant's maximum level of production experienced within the past year, and the maximum required is equal to five (5) days of the average production according to WV BPH standards requiring 20% turnover per day.

The minimum required raw water storage capacity for the system would be:

999,576 gallons per day
$$*2 \text{ days} = 1,999,152 \text{ gallons}$$

Therefore, the system currently does not meet the minimum required raw water storage capacity.

Thus, the construction of a 2,026,000 gallon raw water storage tank will be considered during the feasibility analysis.

A cost analysis is provided in Appendix D, "Supporting Documentation".

At the request of the Milton Water Board, monthly operating reports from July 2013 to July 2015 were analyzed to determine the maximum produced in a 24-hour time period during each month. These values were then averaged to determine the average peak production value. The peak production for the whole analyzed data set is 999,576 gallons per day. The average peak production is 892,655 gallons per day. Senate Bill 373 requires the amount used to determine the raw water storage requirements to be the maximum produced within a 24-hour time period over the last year of monthly operating reports, which is 999,576 gallons per day.

The utility recognizes the significant difference in the peak and average peak daily production amounts (approximately 100,000 gallons) and understands the unaccounted for water percentage of 21% can contribute to increases in production values. A graph, provided in Appendix D, shows the trend of peak daily production amounts for the analyzed data set. If and when the utility chooses to move forward with the construction of raw water storage, the required amount to meet Senate Bill 373 may change due to a reduction in unaccounted for water.

5. Other (Specify)

No other alternatives are being considered.

Feasibility Matrix City of Milton Municipal Water PWSID: WV 3300609 Date: 6/30/2015 Completed by: **Project Engineer - The Thrasher Group, Inc.** Feasibility Feasibility Criteria Question **Backup Intake** Interconnect Feasibility **Treated Water Storage** Feasibility **Raw Water Storage** Other (Specify) Feasibility Economic Criteria What is the total current budget year cost to operate and maintain the PWSU (current budget year)? \$729,900.00 \$729,900.00 \$729,900.00 \$729,900.00 \$729,900.00 Labor and materials for Labor and materials for Labor, power and materials Describe the major O&M cost requirements for the alternative? N/A 0 2 2 2 N/A 0 for maintenance maintenance maintenance What is the incremental cost (\$/gal) to operate and maintain the O and M Costs \$0.00 0 \$0.00 3 \$0.00 3 \$0.00 3 \$0.00 0 alternative? Cost comparison of the incremental O&M cost to the current budgeted 0.00% 0 0.00% 0.00% 3 0.00% 3 0.00% 3 0 costs (%) O and M-Feasibility Score 2.7 0.0 2.7 2.7 0.0 A re-established interconnection with Construction of a new Construction of a new Describe the capital improvements required to implement the alternative. N/A WVAWC, including water line 491,000 gallon treated water 2,026,000 gallon raw water N/A and all related storage tank. storage tank. appurtenances. What is the total capital cost for the alternative? \$0.00 0 \$17,714.00 3 \$669,625.00 2 \$1,682,950.00 1 \$0.00 0 What is the annualized capital cost to implement the alternative. \$0.00 0 \$0.00 3 \$0.00 3 \$0.01 3 \$0.00 **Capital Costs** including land and easement costs, convenience tap fees, etc. (\$/gal) Cost comparison of the alternatives annualized capital cost to the 0.00% 0 3 0.00% 0.00% 3 0.00% 0.00% 3 Ω current budgeted costs (%) 0.0 3.0 2.7 2.3 Capital Cost-Feasibility Score 0.0 Technical Criteria WV DEP, WV DNR, ACOE, WV WV DEP, WV DNR, ACOE, WV WV DEP, WV DNR, ACOE, WV Provide a listing of the expected permits required and the permitting 2 N/A 0 SHPO, US FWS, WV DOH and SHPO, US FWS, WV DOH and 2 SHPO, US FWS, WV DOH and 2 N/A 0 agencies involved in their approval. County Floodplain County Floodplain County Floodplain WV DEP (90 days), WV DNR WV DEP (90 days), WV DNR WV DEP (90 days), WV DNR (60 days), ACOE (90 days), (60 days), ACOE (90 days), (60 days), ACOE (90 days), WV SHPO (60 days), US FWS WV SHPO (60 days), US FWS WV SHPO (60 days), US FWS N/A 0 2 2 N/A What is the timeframe for permit approval for each permit? 2 0 Permitting (60 days), WV DOH (90 days) (60 days), WV DOH (90 days) (60 days), WV DOH (90 days) and County Floodplain (90 and County Floodplain (90 and County Floodplain (90 days) Describe the major requirements in obtaining the permits Environmental impact Environmental impact Environmental impact N/A 0 3 3 3 N/A 0 (environmental impact studies, public hearings, etc.) studies. studies. studies. What is the likelihood of successfully obtaining the permits? N/A N/A 0 Good 2 Good 2 Good 2 0 Does the implementation of the alternative require regulatory N/A 0 No 3 3 3 N/A exceptions or variances? Permitting-Feasibility Score 0.0 2.4 2.4 2.4 0.0 Will the alternative be needed on a regular basis or only used N/A 0 Intermittently 3 Intermittently 3 Intermittently 3 N/A 0 intermittently? The alternative will add The alternative will add How will implementing the alternative affect the PWSU's current Flexibility 491,000 gallons of treated 2,026,000 gallons of raw nethod of treating and delivering potable water including meeting Safe 0 3 N/A No impact water storage to the system, vater storage to the system, N/A 0 Drinking Water Act regulations? (ex. In the case of storage, will the and will not have any other and will not have any other alternative increase the likelihood of disinfection byproducts?) impact. impact. Flexibility-Feasibility Score 0.0 3.0 3.0 3.0 0.0

Criteria	Question	Backup Intake	Feasibility	Interconnect	Feasibility	Treated Water Storage	Feasibility	Raw Water Storage	Feasibility	Other (Specify)	Feasibility
	Will the alternative provide any advantages or disadvantages to meeting seasonal changes in demand?	N/A	0	Yes	3	Yes	3	Yes	3	N/A	0
Resilience	How resistant will the alternative be to extreme weather conditions such as drought and flooding?	N/A	0	Drought may limit the availability of water.	2	Drought may limit the availability of water.	2	Drought may limit the availability of water.	2	N/A	0
	Will the alternative be expandable to meet the growing needs of the service area?	N/A	0	Yes	3	Yes	3	Yes	3	N/A	0
	Resilience-Feasibility Score		0.0		2.7		2.7		2.7		0.0
	Identify any agreements or other legal instruments with governmental entities, private institutions or other PWSU required to implement the alternative.	N/A	0	An agreement with WVAWC will be required.	2	None	3	None	3	N/A	0
	Are any development/planning restrictions in place that can act as a barrier to the implementation of the alternative.	N/A	0	No	3	No	3	No	3	N/A	0
Institutional Requirements	Identify potential land acquisitions and easements requirements.	N/A	0	Easements (permanent and temporary) may be required for the construction of the interconnection.	2	Property acquisition would be required for the tank.	2	Property acquisition would be required for the tank.	1	N/A	0
Insti	itutional Requirements-Feasibility Score		0.0		2.3		2.7		2.3		0.0
	Environmental Criteria										
Environmental Impacts	Environmental Impacts Identify any environmentally protected areas or habitats that might be impacted by the alternative.		0	None are known.	3	None are known.	3	None are known.	3	N/A	0
En	ovironmental Impacts-Feasibility Score		0.0		3.0		3.0		3.0		0.0
Aesthetic Impacts	Identify any visual or noise issues caused by the alternative that may affect local land uses?	N/A	0	Construction would cause temporary noise issues.	3	Construction would cause temporary noise issues, and some visual impact would be made by the tank.	2	Construction would cause temporary noise issues, and some visual impact would be made by the tank.	2	N/A	0
	Identify any mitigation measures that will be required to address aesthetic impacts?	N/A	0	The construction would need to be as quick as possible.	2	The construction would need to be as quick as possible.	2	The construction would need to be as quick as possible.	2	N/A	0
	Aesthetic Impacts-Feasibility Score		0.0		2.5		2.0		2.0		0.0
	Identify the potential stakeholders affected by the alternative.	N/A	0	Water customers and land owners.	2	Water customers and land owners.	2	Water customers and land owners.	2	N/A	0
Stakeholder Issues	Identify the potential issues with stakeholders for and against the alternative.	N/A	0	A rate increase may be required to implement construction, and possible land ownership issues may arise.	2	A rate increase may be required to implement construction, and possible land ownership issues may arise.	2	A rate increase may be required to implement construction, and possible land ownership issues may arise.	2	N/A	0
	Will stakeholder concerns represent a significant barrier to implementation (or assistance) of the alternative?	N/A	0	No	3	No	3	No	3	N/A	0
	Stakeholder Issues-Feasibility Score		0.0		2.3		2.3		2.3		0.0
	There are no known streadequate capacity for the		No commen	t	No comment		No comment		No comme	nt	

APPENDIX D - SUPPORTING DOCUMENTATION

			Existing	# of	Generator				Amp				Fue	ı	Fuel T	Tank		Generator	Generator Cable	Generator			
PWS_ID	System Name	County	Generator?	Generators	Facility	Generator Location	Gen. KVA	Gen. KW	Load	Amp Load Basis	Volts	Phase	es Type	e Fuel Tan	ık Siz	ze	Generator Connection Point	Cable Size	Note	Cable Length	Cable Length Note	Other Information	District
WV3300609	MILTON WATER	CABELL	NO	1	TREATMEN	T PLACE GENERATOR ON	150	120	320 8	30% OF 400 MAIN	120 / 240	3 PHAS	SE DIESE	L ATTACHE	ED 300 (GAL C	ONNECT TO BUSS BARS ON	2 / 0 COPPER	R PARALLEL (2) TYPE	50 FEET EA	50 FEET EACH CABLE (2	(A) FIRE DEPT SERVED FROM SAME SOURCE. (B) FUEL AVAILABLE AT	DIST2
					PLANT	PAVED AREA IN FRONT OF			E	BREAKER		DELTA	A			L	OAD SIDE OF MAIN BREAKER		W PORTABLE		CABLES 4 CONDUCTOR	SITE, NO NEED FOR STORAGE TANK. (C) WILL NEED ELECTRICIAN TO	
						TREATMENT PLANT													POWER CABLES		WITH GROUND EACH	HOOK UP. (D) 80% POWER FACTOR USED IN CALCULATIONS	
																					CABLE)		
WV3300609	MILTON WATER	CABELL	NO	2	INTAKE	RAW WATER INTAKE	45	36	84 (3) - 10 HP FULL LOAD	120 / 240	3 PHA	SE DIESE	L ATTACHE	ED 100 (GAL B	USS CONNECTIONS ON LOAD	# 2 COPPER	TYPE W PORTABLE	50 FEET	50 FEET TOTAL LENGTH O	F (A) WILL NEED TO OBTAIN ELECTRICIAN (B) FUEL AVAILABLE AT SIT	E DIST2
					PUMP	BUILDING - OFF ROUTE 60						DELTA	A			S	IDE OF MAIN BREAKER		POWER CABLE		CABLE (4 CONDUCTORS	(C) CALCULATIONS BASED ON THREE 10 HP MOTORS OPERATING,	
					STATION	ACROSS FROM TREATMENT															WITH GROUND)	AND 80% POWER FACTOR.	
						PLANT																	
WV3300609	MILTON WATER	CABELL	NO	3	BOOSTER	NEWMANS BRANCH	75	60	136 (2) - 25 HP FULL LOAD	120 / 240	3 PHA	SE DIESE	L ATTACHE	ED 100 (GAL L	OAD SIDE OF DISCONNECT	# 1 COPPER	TYPE W PORTABLE	50 FEET	50 FEET TOTAL LENGTH O	F (A) BASED ON BOTH 25HP MOTORS OPERATING (B) FUEL AVAILABLE	DIST2
					PUMP	BOOSTER- OFF ROUTE 60						DELTA	Α			S	WITCH ON POLE WITHIN		POWER CABLE		CABLE (4 CONDUCTOR	WITHIN CITY (C) WILL NEED OUTSIDE ELECTRICIAN (D) 80% POWER	
					STATION	APPROXIMATELY 150 YEARDS										F	ENCED AREA.				WITH GROUND)	FACTOR USED IN CALCULATIONS	
						FENCED SITE.																	
WV3300609	MILTON WATER	CABELL	NO	4	BOOSTER	JESSIE LANE BOOSTER- OFF	5	4	20 (1) - 3 HP FULL LOAD	120 / 240	SINGL	E GAS	ATTACHE	ED 6 G	AL L	OAD SIDE OF DISCONNECT	#8 COPPER	TYPE SOW	50 FEET	50 FEET TOTAL LENGTH O	F (A) FUEL AVAILABLE WITHIN CITY (B) NEED ELECTRICIAN TO HOOK UI	DIST2
					PUMP	NEWMANS BRANCH										S	WITCH ABOVE PUMP PIT.		PORTABLE		CABLE (3 CONDUCTOR	UNIT	
					STATION	APPROXIMATELY 1/4 MILE													POWER CABLE		WITH GROUND)		
						FROM ROUTE 60.															,		
WV3300609	MILTON WATER	CABELL	NO	5	BOOSTER	FLEA MARKET BOOSTER -	15	12	15 E	BASED ON (2) - 5 HP @	277 / 480	3 PHAS	SE GAS	ATTACHE	ED 10 G	GAL L	OAD SIDE OF DISCONNECT	# 10 COPPER	R TYPE SO	50 FOOT	50 FEET TOTAL LENGTH O	F (A) SPOT GENERATOR INSIDE FENCED AREA (B) FUEL AVAILABLE	DIST2
					PUMP	LOCATED OFF ROUTE 60			4	180 VOLTS		WYE				S	WITCH ABOVE PUMP PIT		PORTABLE		CABLE (4 CONDUCTOR	WITHIN CITY (C) NEED ELECTRICIAN TO HOOK UP UNIT.	
					STATION	BEHIND THE FLEA MARKET IN													POWER CABLE		WITH GROUND)	· ·	
						FENCED AREA.															,		
						I LINCLD AINLA.																	

QUOTATION

PALCO SALES CORP

P.O. BOX 33 #2 WALL STREET WINFIELD, WV 25213 304-586-3838 PHONE or 800-503-7947 TOLL FREE 304-586-3843 FAX

May 8, 2015

TO: THRASHER ATTN: ROB

EMAIL: rhebb@thrashereng.com

QUOTE NO: 050815003

JOB NAME: THRASHER ENGINEERING

ONE (1) KOHLER MODEL 100REOZJF DIESEL FUELED EMERGENCY POWER GENERATOR SET RATED FOR CONTINUOUS STANDBY SERVICE AT 100 KW, 100 KVA, 120/240 VOLTS, SIN-GLE PHASE, 60 HERTZ, WITH THE FOLLOWING:

STANDBY NAMEPLATE STANDARD DUTY AIR CLEANER STANDARD WEATHER ENCLOSURE MAIN LINE CIRCUIT BREAKER: 400 AMP ENGINE BLOCK HEATER 120 AMP BATTERY CHARGER 12V, 6 AMP

SUB-BASE FUEL TANK: 209 GALLON = 24 HR.

PRODUCTION LITERATURE KIT ONE YEAR STANDARD WARRANTY

DEC 3000 CONTROLLER UNIT MOUNTED RADIATOR COOLING CRITICAL SILENCER FLEXIBLE FUEL LINE TAIL PIPE AND RAIN CAP BATTERY, OIL, COOLANT

ONE (1) KOHLER KSS-AFNF-0400S AUTOMATIC TRANSFER SWITCH:

400 AMPERES 2-POLE, 3-WIRE TIME DELAYS ONE YEAR WARRANTY 240 VOLT, 1-PHASE **NEMA 4X ENCLOSURE** EXERCISE CLOCK PRODUCTION LITERATURE KIT

PRICE: \$25,200.00 + TAX

INCLUDES FACTORY FREIGHT, DELIVERY AND INITIAL STARTUP.

TERMS: NET 30 DAYS WITH APPROVED CREDIT OR PAYMENT IN FULL BEFORE STARTUP.

DOES NOT INCLUDE STATE OR LOCAL TAXES. DOES NOT INCLUDE FUEL.

DOES NOT INCLUDE NETA TESTING OF ATS.

A CRANE MAY BE REQUIRED TO OFFLOAD THIS EQUIPMENT - IF SO, BY OTHERS.

UNIT WILL SHIP STANDARD WITH ONE SET OF O & M MANUALS FROM THE FACTORY, UNLESS OUR QUOTATION LISTS DIFFERENTLY. IF SUPPLEMENTAL SETS ARE REQUIRED, THEY ARE AVAILABLE AT ADDITONAL COSTS. QUOTE VALID FOR 30 DAYS.

TESTS AND INSPECTIONS: 1. Engine Exhausts Emissions-KOHLER Generator sets are EPA compliant. Certified per federal standards.

- 2. Noise Emission-Local noise codes unknown.
- 3. Exhaust System backpressure test by others.
- 4. Exhaust Emissions test. No site tests included.
- 5. Harmonic content done at the factory not onsite.

EARLY WARNING MONITORING COST ESTIMATE

Qı	ty.	Description	Unit Price	Total Cost
1	EA	Back Panel / Trough / Level (required)	\$ 4,350.00	\$ 4,350
1	EA	Probe Module SC1000 (6 sensors)	\$ 1,344.00	\$ 1,344
1	EA	Internal Card SC1000 (4 mA inputs)	\$ 879.00	\$ 879
1	EA	Display Module SC1000	\$ 2,770.00	\$ 2,770
1	EA	Conductivity Sensor	\$ 860.00	\$ 860
1	EA	FP360 SC Sensor, 500ppb, SS, 1.5 m Cable	\$ 17,480.00	\$ 17,480
1	EA	ORP Sensor	\$ 880.00	\$ 880
1	EA	pH Sensor, Ryton	\$ 800.00	\$ 800
1	LS	Installation	\$ 20,365.00	\$ 20,365
			TOTAL =	\$ 50,000

OPERATION & MAINTENANCE COST ESTIMATE

Qty.		Description	Unit Price	Total Cost	
1	LS	Annual O&M Cost	\$ 750.00	\$ 750	
			TOTAL =	\$ 750	

In addition to the early warning system, Milton Water should establish a baseline water quality for their sources.

Pricing Parameters
If the GPM needed is Greater than or Equal to 1,000 GPM (12" Pipe)
If the GPM needed is between 700 GPM to 999 GPM (8" Pipe)
If the GPM needed is less than 700 GPM (6" Pipe)

	Price for First 1,000 LF												
Item	Unit	\$/	Unit		Gate Valve (2)			Cos	t Per Foot				
12" Pipe	LF	\$	60.00	\$	6,850.00	\$	-	\$	66.85				
8" Pipe	LF	\$	37.00	\$	4,980.00	\$	-	\$	41.98				
6" Pipe	LF	\$	34.00	\$	4,330.00	\$	-	\$	38.33				

	Additional Footage after 1,000 LF											
Item	Unit	\$/U1	nit	Gate V	alve (1)	Cost	Per Foot					
12" Pipe	LF	\$	60.00	\$	2,200.00	\$	62.20					
8" Pipe	LF	\$	37.00	\$	1,265.00	\$	38.27					
6" Pipe	LF	\$	34.00	\$	940.00	\$	34.94					

Additional Costs	
Permitting (All)	\$ 7,500.00

Booster Station Cost							
GPM	\$/Gal	Total Cost					
400+	\$ 950.00	\$ -					
100+	\$ 1,798.00	\$ -					
60+	\$ 2,750.00	\$ -					

Total Cost of Interconnection								
First 1,000 LF	\$	1,671.25						
Master Meter	\$	5,000.00						
Permiting	\$	7,500.00						
Booster Station	\$	-						
Additional Fees	\$	3,542.81						
Total	\$	17,714						

Utility Information									
Existing Capacity	420	GPM							
Footage Needed	25	LF							

Assumptions
One gate valve per 1,000 feet of additional water line.

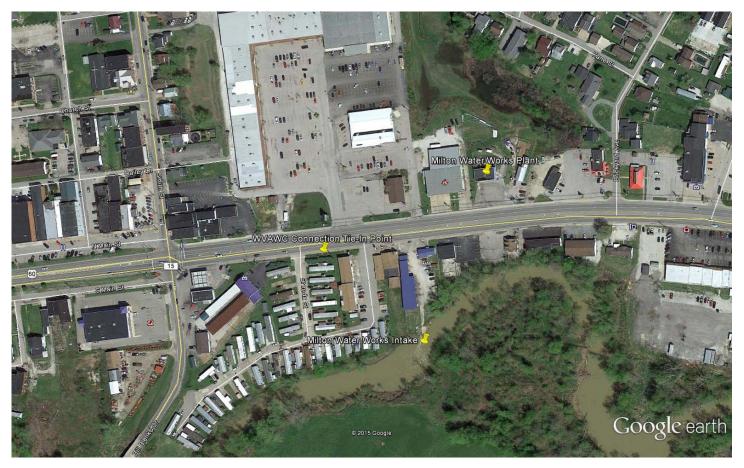
Non-rocky conditions.

Additional Fees predicted to be 25% of overall cost. These include legal, engineering and accounting requirements.

Permits would include WVDEP, WVDNR, ACOE, WVSHPO, USFW, WVDOH and County Floodplain.

The piping route is included in the following page of supporting documentation.

Costs for each item include materials and labor.





feet 1000 meters 300



	TREATED WATER TANK COST								
Gallons	Tank Dimension	Model Number	Cost	Cost Per Gallon					
105,000	25.17'dia. x 28.43' sidewall height	AQUASTORE tank Model 25 28 - SSWT	\$ 155,000	\$ 1.48					
209,000	30.77'dia. x 37.59' sidewall height	AQUASTORE tank Model 31 38 - SSWT	\$ 225,000	\$ 1.08					
297,000	39.16'dia. x 33.01' sidewall height	AQUASTORE tank Model 39 33 - SSWT	\$ 285,000	\$ 0.96					
438,000	47.55'dia. x 33.01' sidewall height	AQUASTORE tank Model 48 33 - SSWT	\$ 345,000	\$ 0.79					
491,000	50.35'dia. x 33.01' sidewall height	AQUASTORE tank Model 50 33 - SSWT	\$ 365,000	\$ 0.74					
607,000	55.95'dia. x 33.01' sidewall height	AQUASTORE tank Model 56 33 - SSWT	\$ 425,000	\$ 0.70					
691,000	64.34'dia. x 28.43' sidewall height	AQUASTORE tank Model 64 28 - SSWT	\$ 470,000	\$ 0.68					
816,000	69.93'dia. x 28.43' sidewall height	AQUASTORE tank Model 70 28 - SSWT	\$ 510,000	\$ 0.63					
948,000	69.93'dia. x 33.01' sidewall height	AQUASTORE tank Model 70 33 - SSWT	\$ 555,000	\$ 0.59					
1,025,000	72.73'dia. x 33.01' sidewall height	AQUASTORE tank Model 73 33 - SSWT	\$ 595,000	\$ 0.58					
1,260,000	72.73'dia. x 33.01' sidewall height	AQUASTORE tank Model 73 33 - SSWT	\$ 695,000	\$ 0.55					
1,453,000	97.91'dia. x 28.43' sidewall height	AQUASTORE tank Model 98 28- SSWT	\$ 790,000	\$ 0.54					
1,601,000	97.91'dia. x 28.43' sidewall height	AQUASTORE tank Model 98 28- SSWT	\$ 870,000	\$ 0.54					
1,789,000	103.5'dia. x 28.43' sidewall height	AQUASTORE tank Model 104 28- SSWT	\$ 945,000	\$ 0.53					
2,026,000	120.29'dia. x 23.84' sidewall height	AQUASTORE tank Model 120 24- SSWT	\$ 1,052,000	\$ 0.52					

COSTS OF ADDITIONAL ITEMS AND ASSU	JMPTIONS
Access Road and Site Preparation	\$ 40,000
Yard Piping and Vault	139
Bonds/Permits	\$ 20,000
Fencings	\$ 35,000
Engineering/Accounting/Legal Fees	259
Level-Sensing and Measuring Equipment	\$ 10,000
Rock Excavation of Foundation (if encountered)	59

ASSUMPTIONS: Cost are based on a standpipe glass lined tank. Price include access roads and site preparation (assuming land would need to be purchased for the tank site), telemetry, excavation in rock (% of Tank Cost), valve vault and piping (13% of tank Cost), fencing (Lump Sum). Does not include additional waterline from site to water system. Fees for engineering, legal and accounting services will be 25 percent of the overall project cost.

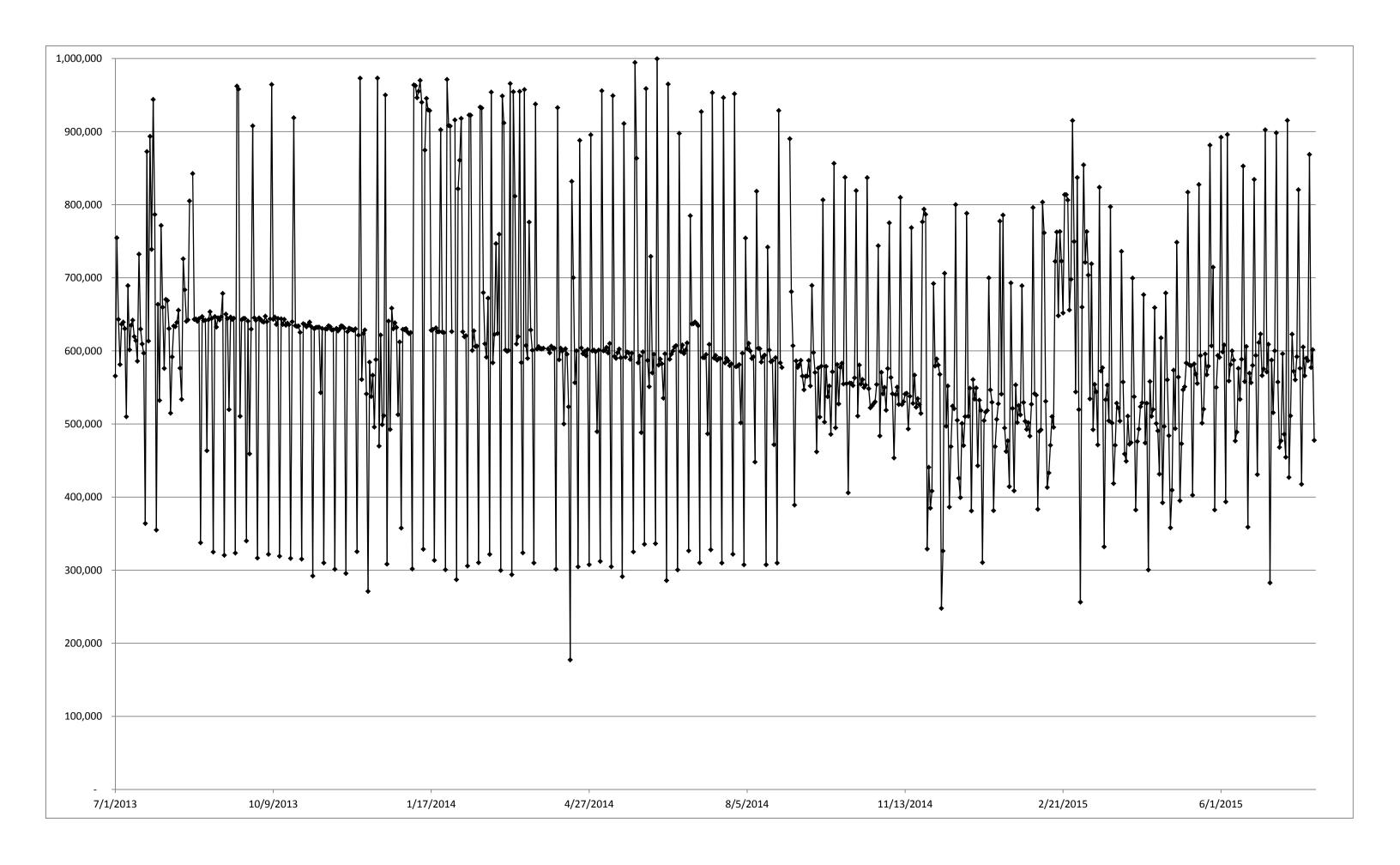
TOTAL COST (INCLUDING ADDITIONAL ITEMS) OF TREATED WATER STORAGE						
Gallons	Tank Dimension	Model Number		Cost		Cost Per Gallon
105,000	25.17'dia. x 28.43' sidewall height	AQUASTORE tank Model 25 28 - SSWT	\$	359,875	\$	3.43
209,000	30.77'dia. x 37.59' sidewall height	AQUASTORE tank Model 31 38 - SSWT	\$	463,125	\$	2.22
297,000	39.16'dia. x 33.01' sidewall height	AQUASTORE tank Model 39 33 - SSWT	\$	551,625	\$	1.86
438,000	47.55'dia. x 33.01' sidewall height	AQUASTORE tank Model 48 33 - SSWT	\$	640,125	\$	1.46
491,000	50.35'dia. x 33.01' sidewall height	AQUASTORE tank Model 50 33 - SSWT	\$	669,625	\$	1.36
607,000	55.95'dia. x 33.01' sidewall height	AQUASTORE tank Model 56 33 - SSWT	\$	758,125	\$	1.25
691,000	64.34'dia. x 28.43' sidewall height	AQUASTORE tank Model 64 28 - SSWT	\$	824,500	\$	1.19
816,000	69.93'dia. x 28.43' sidewall height	AQUASTORE tank Model 70 28 - SSWT	\$	883,500	\$	1.08
948,000	69.93'dia. x 33.01' sidewall height	AQUASTORE tank Model 70 33 - SSWT	\$	949,875	\$	1.00
1,025,000	72.73'dia. x 33.01' sidewall height	AQUASTORE tank Model 73 33 - SSWT	\$	1,008,875	\$	0.98
1,260,000	72.73'dia. x 33.01' sidewall height	AQUASTORE tank Model 73 33 - SSWT	\$	1,156,375	\$	0.92
1,453,000	97.91'dia. x 28.43' sidewall height	AQUASTORE tank Model 98 28- SSWT	\$	1,296,500	\$	0.89
1,601,000	97.91'dia. x 28.43' sidewall height	AQUASTORE tank Model 98 28- SSWT	\$	1,414,500	\$	0.88
1,789,000	103.5'dia. x 28.43' sidewall height	AQUASTORE tank Model 104 28- SSWT	\$	1,525,125	\$	0.85
2,026,000	120.29'dia. x 23.84' sidewall height	AQUASTORE tank Model 120 24- SSWT	\$	1,682,950	\$	0.83

RAW WATER TANK COST						
Gallons	Tank Dimension	Model Number		Cost		Cost Per Gallon
105,000	25.17'dia. x 28.43' sidewall height	AQUASTORE tank Model 25 28 - SSWT	\$	155,000	\$	1.48
209,000	30.77'dia. x 37.59' sidewall height	AQUASTORE tank Model 31 38 - SSWT	\$	225,000	\$	1.08
297,000	39.16'dia. x 33.01' sidewall height	AQUASTORE tank Model 39 33 - SSWT	\$	285,000	\$	0.96
438,000	47.55'dia. x 33.01' sidewall height	AQUASTORE tank Model 48 33 - SSWT	\$	345,000	\$	0.79
491,000	50.35'dia. x 33.01' sidewall height	AQUASTORE tank Model 50 33 - SSWT	\$	365,000	\$	0.74
607,000	55.95'dia. x 33.01' sidewall height	AQUASTORE tank Model 56 33 - SSWT	\$	425,000	\$	0.70
691,000	64.34'dia. x 28.43' sidewall height	AQUASTORE tank Model 64 28 - SSWT	\$	470,000	\$	0.68
816,000	69.93'dia. x 28.43' sidewall height	AQUASTORE tank Model 70 28 - SSWT	\$	510,000	\$	0.63
948,000	69.93'dia. x 33.01' sidewall height	AQUASTORE tank Model 70 33 - SSWT	\$	555,000	\$	0.59
1,025,000	72.73'dia. x 33.01' sidewall height	AQUASTORE tank Model 73 33 - SSWT	\$	595,000	\$	0.58
1,260,000	72.73'dia. x 33.01' sidewall height	AQUASTORE tank Model 73 33 - SSWT	\$	695,000	\$	0.55
1,453,000	97.91'dia. x 28.43' sidewall height	AQUASTORE tank Model 98 28- SSWT	\$	790,000	\$	0.54
1,601,000	97.91'dia. x 28.43' sidewall height	AQUASTORE tank Model 98 28- SSWT	\$	870,000	\$	0.54
1,789,000	103.5'dia. x 28.43' sidewall height	AQUASTORE tank Model 104 28- SSWT	\$	945,000	\$	0.53
2,026,000	120.29'dia. x 23.84' sidewall height	AQUASTORE tank Model 120 24- SSWT	\$	1,052,000	\$	0.52

COSTS OF ADDITIONAL ITEMS AND ASSUMPTIONS	S	
Access Road and Site Preparation	\$	40,000
Yard Piping and Vault		13%
Bonds/Permits	\$	20,000
Fencings	\$	35,000
Engineering/Accounting/Legal Fees		25%
Level-Sensing and Measuring Equipment	\$	10,000
Rock Excavation of Foundation (if encountered)		5%

ASSUMPTIONS: Cost are based on a standpipe glass lined tank. Price include access roads and site preparation (assuming land would need to be purchased for the tank site), telemetry, excavation in rock (% of Tank Cost), valve vault and piping (13% of tank Cost), fencing (Lump Sum). Does not include additional waterline from site to water system. Fees for engineering, legal and accounting services will be 25 percent of the overall project cost.

TOTAL COST (INCLUDING ADDITIONAL ITEMS) OF RAW WATER STORAGE						
Gallons	Tank Dimension	Model Number		Cost		Cost Per Gallon
105,000	25.17'dia. x 28.43' sidewall height	AQUASTORE tank Model 25 28 - SSWT	\$	359,875	\$	3.43
209,000	30.77'dia. x 37.59' sidewall height	AQUASTORE tank Model 31 38 - SSWT	\$	463,125	\$	2.22
297,000	39.16'dia. x 33.01' sidewall height	AQUASTORE tank Model 39 33 - SSWT	\$	551,625	\$	1.86
438,000	47.55'dia. x 33.01' sidewall height	AQUASTORE tank Model 48 33 - SSWT	\$	640,125	\$	1.46
491,000	50.35'dia. x 33.01' sidewall height	AQUASTORE tank Model 50 33 - SSWT	\$	669,625	\$	1.36
607,000	55.95'dia. x 33.01' sidewall height	AQUASTORE tank Model 56 33 - SSWT	\$	758,125	\$	1.25
691,000	64.34'dia. x 28.43' sidewall height	AQUASTORE tank Model 64 28 - SSWT	\$	824,500	\$	1.19
816,000	69.93'dia. x 28.43' sidewall height	AQUASTORE tank Model 70 28 - SSWT	\$	883,500	\$	1.08
948,000	69.93'dia. x 33.01' sidewall height	AQUASTORE tank Model 70 33 - SSWT	\$	949,875	\$	1.00
1,025,000	72.73'dia. x 33.01' sidewall height	AQUASTORE tank Model 73 33 - SSWT	\$	1,008,875	\$	0.98
1,260,000	72.73'dia. x 33.01' sidewall height	AQUASTORE tank Model 73 33 - SSWT	\$	1,156,375	\$	0.92
1,453,000	97.91'dia. x 28.43' sidewall height	AQUASTORE tank Model 98 28- SSWT	\$	1,296,500	\$	0.89
1,601,000	97.91'dia. x 28.43' sidewall height	AQUASTORE tank Model 98 28- SSWT	\$	1,414,500	\$	0.88
1,789,000	103.5'dia. x 28.43' sidewall height	AQUASTORE tank Model 104 28- SSWT	\$	1,525,125	\$	0.85
2,026,000	120.29'dia. x 23.84' sidewall height	AQUASTORE tank Model 120 24- SSWT	\$	1,682,950	\$	0.83



APPENDIX E - CONTACT INFORMATION

UTILITY CONTACT LIST

Name	Title	Phone Number	Email
Tim Allen	Chief Operator	304-743-3821	miltonwater@suddenlinkmail.com
Danny Neville	Operator Class II	304-743-3821	miltonwater@suddenlinkmail.com
Scott Fisher	Operator Class I	304-743-3821	miltonwater@suddenlinkmail.com
Gerald Clagg	Field Supervisor	304-743-3821	N/A

UTILITY POSITIONS

Name	Representing	Title	Phone Number	Email
Tom Canterbury	Mayor - Town Council	Utility Administrative Contact	304-743-3422	miltonwater@suddenlinkmail.com
Tim Allen	Chief Operator	Chief / Designated Operator	304-743-3821	miltonwater@suddenlinkmail.com
Keith Lee	Cabell County Health Department	County Health Department Representative	304-523-6483	N/A
Dave Chittum	Town Council	Affected Citizen / User Representative	304-743-3422	N/A
Gordon Mary	Cabell County 911	LEPC County Local Emergency Planning Committee Coordinator	304-526-3381	N/A
Tom Canterbury	Mayor - Town Council	Local Government	304-743-3422	miltonwater@suddenlinkmail.com

APPENDIX E. SUPPORTING DOCUMENTATION

Source Water Protection Team Meeting Notes

Milton Water, May 11, 2016

In attendance: Randy Rutledge, Gerald Clagg, Tim Allen, Phyllis Smith, Tom Canterbury, Charles Conard, Michelle Wallace, and Donna Hatfield representing the Town of Milton Water; Reed Cook and Bob Legg of the Milton VFD, Keith Lee of the Cabell Huntington Health Department; Todd Cooper of the WVBPH; and Mindy Ramsey of Tetra Tech, Inc.

Mindy described the requirements for Milton to update their source water protection plan. She explained that Tetra Tech's role is to compile information from their existing plan first drafted by Potesta and the new contingency plan that Thrasher prepared in 2015. In addition, Tetra Tech is assisting with engaging and informing local stakeholders. The purpose of this protection team meeting and a scheduled public presentation is to fulfill those requirements.

Mindy presented the draft plan to the attendees and when appropriate asked for their responses for the following areas:

- I. Introduction- Protection Team Role
- II. Goal for Meeting/Review Draft Document
 - a. Incorporated the tables from Thrasher- Contingency Plan
 - b. Other plan sections: Delineations (ZCC, ZPC, and watershed), Protection Team, Priority PSSCs, Management Strategies, Communication Plan
 - c. Completing/Clarifying Information
 - i. Who will be signing on behalf of the water utility? The Mayor said that he would sign the plan.
 - ii. Protection team participants, titles, telephone numbers, and emails for participants (Table 6)
 - iii. Provide overview of PSSCs (see next page). There was a situation before where a car wrecked into the river. The water system was able to shut down the intake while leaking gasoline passed. There is already a good relationship with the first responders, because they understand the importance of informing the water plant operator. The plant also has a radio to monitor if a wreck occurs.
 - iv. Are all concerns addressed? (Table 8)- Mindy will modify the list of priorities to move vandalism down or off.
 - v. Are management strategies appropriate to commit effort? (Table 9)
 - vi. Education and outreach strategies appropriate to commit effort? (Table 10)
 - vii. Discuss the communication plan and team members (Appendix C)—the water system is able to communicate with customers through Facebook and their website.
 - viii. Discuss Emergency Short Forms(p. C-6)



E-1 June 2016

Source Water Protection Public Meeting Minutes

Milton Water, June 7, 2016

Attendees:

- Tom Canterbury, Mayor
- Cecil Taylor, Town Council
- · Phyllis Smith, Recorder
- Charlie Conard, Town Council
- Bob Legg, Town Council
- Tennis Adkins, Town Council
- Randy Rutledge, City of Milton
- Mavis Turley, Citizen
- Mary Ball, Citizen
- Jack Pancake, Citizen
- · Betty Pancake, Citizen
- Nancy Peterson, Citizen
- John Beckman, Tetra Tech

Public meeting was held concurrently with regularly scheduled Milton City Council meeting. Meeting was open to the public and advertised in the newspaper and at the town hall a week before.

Reviewed source water protection timeline. Discussed Charleston Water Crisis of 2014 and reasons for new source water protection legislation. Discussed update to Milton's 2010 plan, and incorporation of Thrasher Group's contingency/feasibility study. Reviewed plan table of contents and sections. Noted that past source water protection activities once voluntary have now become mandatory.

Summarized potential significant sources: Interstate 64 and Route 60 cross watershed – potential for vehicle accidents or toxic spills; some residences and facilities upstream of intake are on septic systems or home aeration units – potential for sewage leaks to reach Mud River and its tributaries; and oil and gas development is common in the watershed – small spills associated with drilling are possible.

Summarized contingency plan alternatives: backup intake on other body of water – not feasible because no water body large enough to meet demand exists nearby; interconnection with WV American Water; increase treated water storage; and build raw water storage tank.

Discussed 30 minute public notification requirement. Noted Communication Plan in Appendix C with emergency contact information. Reviewed designated spokespeople for Milton Water.

Question was asked if railroads were included as a potential source of significant contamination. Tetra Tech replied that spills from potential train derailments were considered in the source water protection plan.

Mayor Tom Canterbury announced that Milton Water will pursue establishing an interconnection with West Virginia American Water as a backup source to be used in an emergency.

Mayor Tom Canterbury signed protection plan signature page. Tetra Tech will assemble plan final document and submit to DHHR electronically.



E-2 June 2016

Do your part to keep contaminants out of our children's source water!



Contaminants

Cleaning Products

Automotive Products

Fuel Oil

Furniture Strippers

Oil-based Paints

Sewage

Lawn and Garden Products

Sediments

Pharmaceuticals

Source Water Links

www.wvdhhr.org/oehs/eed/swap/ www.epa.gov/safewater/index.html www.epa.gov/watersense/ http://orsanco.org

For Kids

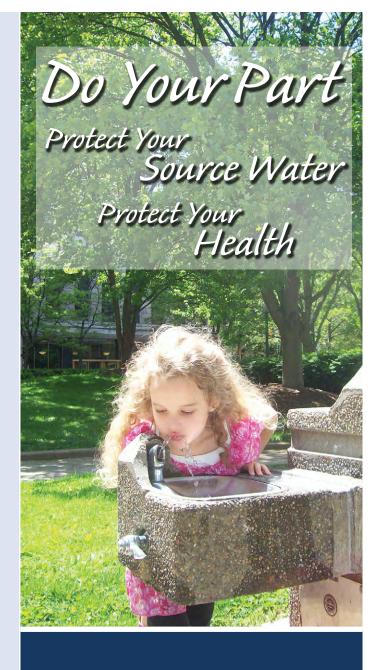
www.epa.gov/safewater/kids/index.html www.epa.gov/watersense/kids/index.html www.groundwater.org/kids/



Contacts

WV Department of Health and Human Resources Source Water Assessment and Protection Program 350 Capitol Street, Room 313 Charleston, WV 25301-3713 phone: (304) 558-2981 fax: (304) 558-4322

e-mail: EEDSourceWaterProtection@wv.gov





Prepared by Tetra Tech
In cooperation with the WVDHHR Source Water
Assessment and Protection Program

Drinking water is essential for life. Learn what you can do to protect your drinking water sources.

Making choices to protect and conserve the source of your drinking water will help keep you, your family, and neighbors safe and healthy now and in the future.



Do Your Part to Protect Source Water

- ✓ Recycle used oil and other automotive products at a service center. Don't pour them on the ground or down storm drains. Storm drains can lead directly to your source water.
- ✓ Fix leaks from your automobile and clean up spills.
- ✓ Apply fertilizers and pesticides as directed. Consider natural alternatives to chemicals.
- chemicals.

 ✓ Don't flush
 pharmaceuticals.
 - Dispose by mixing with coffee grounds or kitty litter, sealing in a container, and placing in the trash. Organize a collection day with a pharmacy and local police department.
- √ Take unwanted household chemical waste, such as cleaners, oils, and paints to proper waste collection sites. Don't dump down your sink, toilet, or storm drains. Consider organizing a collection day in your community.
- ✓ Check for leaks at heating fuel tanks and install pads to catch accidental leaks or spills.
- ✓ Report unused water wells to your utility or WVDHHR.
- ✓ Inspect your septic system regularly and pump every 5-10 years.

Do Your Part to Conserve Source Water

- ✓ Turn off the water when you brush your teeth and take shorter showers.
- Wash full loads of clothes and dishes.
- ✓ Don't use your toilet to flush trash.
- ✓ Fix leaking faucets, toilets, and lines. Consider installing toilets, faucets, and appliances designed to save water.
- ✓ Water your lawn and garden in the morning. Consider installing a rain barrel at your downspouts to collect rain to water your lawn and garden, instead of using treated water.



- ✓ Use native plants in landscape that don't need extra watering. Use mulch to hold moisture.
- ✓ Don't let your garden hose run when washing your car.
- ✓ Don't panic if you are asked to conserve during a drought. Your utility



will respond to water shortages based on your normal water use. Running extra water in your home during a drought will make it more difficult to respond to the water shortage.