



# Source Water Protection Plan

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PWSID WV3305402

WOOD COUNTY

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Prepared by:

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

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

**Todd Grinstead**

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**Print Name of Authorizing Signatory**

**General Manager**

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**Title of Authorizing Signatory**

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**Date of Submission (mm/dd/yyyy)**

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## SOURCE WATER PROGRAM ACRONYMS

AST	Aboveground Storage Tank
BMP	Best Management Practices
ERP	Emergency Response Plan
GWUDI	Ground Water Under the Direct Influence of Surface Water
LEPC	Local Emergency Planning Committee
OEHS/EED	Office of Environmental Health Services/Environmental Engineering Division
PE	Professional Engineer
PSSCs	Potential Source of Significant Contamination
PWSU	Public Water System Utility
RAIN	River Alert Information Network
RPDC	Regional Planning and Development Council
SDWA	Safe Drinking Water Act
SWAP	Source Water Assessment and Protection
SWAPP	Source Water Assessment and Protection Program
SWP	Source Water Protection
SWPP	Source Water Protection Plan
WARN	Water/Wastewater Agency Response Network
WHPA	Wellhead Protection Area
WHPP	Wellhead Protection Program
WSDA	Watershed Delineation Area
WVBPH	West Virginia Bureau for Public Health
WVDEP	West Virginia Department of Environmental Protection
WVDHHR	West Virginia Department of Health and Human Resources
WVDHSEM	Division of Homeland Security and Emergency Management
ZCC	Zone of Critical Concern
ZPC	Zone of Peripheral Concern

## Purpose

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

The intent of this document is to describe what Claywood Park Public Service District (PSD) 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, Claywood Park PSD acknowledges that implementing measures to minimize and mitigate contamination can be a relatively economical way to help ensure the safety of the drinking water.

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

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

## Background: WV Source Water Assessment and Protection Program

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

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

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

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

## State Regulatory Requirements

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

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

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

## System Information

Claywood Park PSD 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 Claywood Park PSD**

<b>Administrative office location:</b>	594 Davisville Rd Davisville, WV 26142		
<b>Is the system a public utility, according to the Public Service Commission rule?</b>	Yes		
<b>Date of Most Recent Source Water Assessment Report:</b>	04/01/2003		
<b>Date of Most Recent Source Water Protection Plan:</b>	07/06/2016		
<b>Population served directly:</b>	8,141		
<b>Bulk Water Purchaser Systems:</b>	<b>System Name</b>	<b>PWSID Number</b>	<b>Population</b>
	Town of Elizabeth	WV3305302	1,598
	Mineral Wells Public Service District	WV3305405	5,674
<b>Total Population Served by the Utility:</b>	15,413		
<b>Does the utility have multiple source water protection areas (SWPAs)?</b>	No		
<b>How many SWPAs does the utility have?</b>	1		

## Water Treatment and Storage

As required, Claywood Park PSD 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 Claywood Park PSD 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. Claywood Park PSD Water Treatment Information**

<p><b>Water Treatment Processes</b> <b>(List All Processes in Order)</b></p>	<p>Upflow Clarification Filtration Disinfection</p>
<p><b>Current Treatment Capacity (gal/day)</b></p>	<p>4,320,000</p>
<p><b>Current Average Production (gal/day)</b></p>	<p>1,302,750</p>
<p><b>Maximum Quantity Treated and Produced (gal)</b></p>	<p>1,788,000</p>
<p><b>Minimum Quantity Treated and Produced (gal)</b></p>	<p>895,000</p>
<p><b>Average Hours of Operation</b></p>	<p>8</p>
<p><b>Maximum Hours of Operation in One Day</b></p>	<p>11</p>
<p><b>Minimum Hours of Operation in One Day</b></p>	<p>5</p>
<p><b>Number of Storage Tanks Maintained</b></p>	<p>16</p>
<p><b>Total Gallons of Treated Water Storage (gal)</b></p>	<p>4,112,000</p>
<p><b>Total Gallons of Raw Water Storage (gal)</b></p>	<p>0</p>

**Table 3. Claywood Park PSD 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)
River Intake	WV3305402	River Intake	Submerged Screened Pipe	Little Kanawha River	January 2007	Primary	Active

**Table 4. Claywood Park PSD 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

## Delineations

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

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

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

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

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

**Table 5. Watershed Delineation Information**

<b>Size of WSDA (Indicate units)</b>	2,194 sq miles
<b>River Watershed Name (8-digit HUC)</b>	Little Kanawha 05030203
<b>Size of Zone of Critical Concern (Acres)</b>	9,236
<b>Size of Zone of Peripheral Concern (Acres) (Include ZCC area)</b>	27,887
<b>Method of Delineation for Groundwater Sources</b>	n/a
<b>Area of Wellhead Protection Area (Acres)</b>	n/a

## Protection Team

One important step in preparing a source water protection plan is to organize a source water protection team who will help develop and implement the plan. The legislative rule requires that water utilities make every effort to inform and engage the public, local government, local emergency planners, the local health department and affected residents at all levels of the development of the protection plan. WVBPB 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 Claywood Park PSD is responsible for assembling the protection team and ensuring that members are provided the opportunity to contribute to the development of the plan. The acting members of the Protection Team are listed in **Table 6**.

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

Claywood Park PSD 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**.

## Public Participation

Two meetings were held to engage the public and form a protection team. A protection team orientation meeting was held on January 20, 2016. Perspective team members were invited by letter with follow-ups by phone. A total of nine people attended the meeting, including four Claywood Park PSD employees. A public Source Water Protection Planning meeting was held on March 29, 2016. The meeting was advertised on the Claywood Park PSD website, in-office with a flyer and handouts, and on social media. Specific parties, such as first responders, were invited to the public meeting by letter. A total of eight people participated in the meeting, including two Claywood Park PSD employees. In addition to the meetings, public comments were solicited on the Claywood Park PSD website. One set of comments was received from the Wood County Local Emergency Planning Committee representative. No additional public comments were received.

**Table 6. Protection Team Member and Contact Information**

Name	Representing	Title	Phone Number	Email
Todd Grinstead	Claywood Park PSD	General Manager	304-422-6042	<a href="mailto:todd@woodpsd.org">todd@woodpsd.org</a>
Cory Willis	Claywood Park PSD	Chief Operator	304-422-6042	<a href="mailto:cory@woodpsd.org">cory@woodpsd.org</a>
Erica Johnson	Claywood Park PSD	GIS Analyst & Special Projects Coordinator	304-422-6042	<a href="mailto:erica@woodpsd.org">erica@woodpsd.org</a>
Nicole Needs	Mid-Ohio Valley Health Dept. (Wood Co.)	Sanitarian	304-420-1478	<a href="mailto:nicole.a.needs@wv.gov">nicole.a.needs@wv.gov</a>
Angela Linville	Mid-Ohio Valley Health Dept. (Wirt Co.)	Sanitarian	304-420-1472	<a href="mailto:angela.d.linville@wv.gov">angela.d.linville@wv.gov</a>
Todd Anderson	Mineral Wells PSD	Manager	304-488-4168	<a href="mailto:toddmwpsd@frontier.com">toddmwpsd@frontier.com</a>
Kevin Campbell	Affected Residents	WVDEP Hazardous Waste Inspector	304-420-4635	<a href="mailto:kevin.campbell@wv.gov">kevin.campbell@wv.gov</a>
Terry Moore	Wood/Wirt Co LEPC	Chairman	304-420-0911	<a href="mailto:tmoore@thrashereng.com">tmoore@thrashereng.com</a>
<b>Date of first protection Team Meeting</b>		January 20, 2016		
<b>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:</b>		Potential team members were mailed invitations and contacted by phone. The public meeting was advertised on the website, in-office with a flyer, and on social media. Specific parties, such as first responders, were invited to the public meeting by letter.		

## Potential Sources of Significant Contamination

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

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

### Confidentiality of PSSCs

A list of the PSSCs contained within the ZCC should be included in the source water protection plan. However, the exact location, characteristics and approximate quantities of contaminants shall only be made known to one or more designees of the public water utility and maintained in a confidential manner. In the event of a chemical spill, release or other related emergency, information pertaining to the contaminant shall be immediately disseminated to any emergency responders reporting to the site. The designees for Claywood Park PSD 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 3-10** for internal review and planning uses only.

### Local and Regional PSSCs

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

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

Claywood Park PSD 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 Claywood Park PSD that do not already appear in datasets from the WVBPH can be found in **Table 7**.

**Table 7. Locally Identified Potential Sources of Significant Contamination**

PSSC Number	Map Label	Site Name	Site Description	Comments
1	P-1	U.S. Route 50	Highway	Continues into zone of peripheral concern
2	P-2	State Route 47	Highway	Continues into zone of peripheral concern
3	P-3	State Route 14	Highway	Continues into zone of peripheral concern
4	n/a	Overhead power lines	Electric Right-of-Way	Use of chemicals for control of vegetation could leave herbicide residue in SWPA

## Prioritization of Potential Threats and Management Strategies

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

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

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

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

## Implementation Plan for Management Strategies

Claywood Park PSD 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. Claywood Park PSD has developed an implementation plan for priority concerns (**Table 8**). The responsible team member, timeline, and potential cost of each strategy are presented in **Table 9**. Note: Because timelines may change, future plan updates should describe the status of each strategy and explain the lack of progress.

**Table 8. Priority PSSCs or Critical Areas**

<b>PSSC or Critical Area</b>	<b>Priority Number</b>	<b>Reason for Concern</b>
Highways (U.S. Route 50, State Route 47 & 14)	1	Sections of roadway pass through the SWPA and potential spills are a concern.
Local Industry (Sunshine Metals, Tri-State)	2	Industrial and commercial facilities are located near the intake. Chemical/fuel storage at these sites could quickly impact the source water supply if spilled or released.
Oil and gas wells and related storage tanks	3	Uncontrolled spills or releases could introduce contaminants into source water.
Sanitary septic systems, home aeration units and wastewater treatment systems	4	Discharge from failing septic systems or poorly functioning treatment systems can pose a contamination threat, including the introduction of fecal coliform into source water.

**Table 9. Priority PSSC Management Strategies**

PSSC or Critical Area	Management Activity	Responsible Protection Team Member	Status/Schedule	Comments	Estimated Cost
Oil and gas wells and related storage tanks	Subscribe to WVDEP Office of Oil and Gas email notifications for counties in the SWPA. Review notices as received and submit comments if necessary.	Special Projects Coordinator	Subscription completed  Monitoring of notices ongoing		n/a
Local Industry	Subscribe to WVDEP Public Notice mailing list. Review notices as received and submit comments if necessary.	Special Projects Coordinator	Subscription completed  Monitoring of notices ongoing	Notices include pending permits and enforcement actions.	n/a
Local Industry	Work with Local Emergency Planning Committee and 911 Center to assure relevant Tier II data is available in an emergency.	Special Projects Coordinator	Yearly	There are currently no Tier II sites in the zone of critical concern.	n/a
General	Develop and implement standard spill notification and response protocol.	Special Projects Coordinator & General Manager	Tool developed  Response to spills in the watershed as they occur	Tool developed to determine estimated arrival time of spills. Each applicable spill notification is entered into the tool and response is tracked.	n/a  (developed internally)

General	Attend trainings and webinars on source water protection topics to stay up-to-date on policies, practices and available tools.	Special Projects Coordinator	As available		Minimal
General	Update Source Water Protection Plan including performing a review of permitted sites in ZCC and ZPC and updating priority list as appropriate.	Special Projects Coordinator	Annual	Data will come from various sources including WVDHHR, WVDEP and EPA.	n/a
General	Review and update information in emergency response plan.	Special Projects Coordinator	Annual		n/a
Previous Plan Status	There were 11 management strategies recommended in the existing plan. Three (3) of these strategies have been accomplished. Seven (7) of these are ongoing or continue to be a concern. These are incorporated in this plan update and listed below.			One strategy (symposium for oil and gas) is not deemed necessary at this time, but will be revisited if conditions change in coming years.	
Highways	Coordinate with local first responders to raise awareness of need to notify water system of any potential spills in SWPA.	General Manager	Ongoing		n/a
	Evaluate purchase of booms for in-stream spill containment.	General Manager	Complete	Due to depth of intake and partnership with local fire departments, purchase of booms is not considered a priority at this time.	Undetermined

	Evaluate installing signage along state routes with emergency contact number.	General Manager	Complete 2019	Signs were installed on Claywood Park PSD property near intake facing roadway.	Minimal
Local Industry	Continue building working relationships with local industries and stress the importance of immediate spill notification.	General Manager and Assistant Manager	Ongoing		n/a
Local Industry Oil & Gas	Continue to evaluate enhanced testing of source water and installation of early warning monitoring system, based on most likely source water contaminants.	General Manager	Installed 2017	Purchased through WVDHHR SW grant.	~\$47,000 + annual maintenance
Sanitary septic systems, home aeration units and wastewater treatment systems	A project is currently under construction to replace existing waste treatment systems in Spring Valley, Newark Acres and Little Kanawha Estates with a newly constructed centralized sewage treatment plant. Additionally, over 60 homes will be converted from septic systems to central sewer service.	Engineered by Cerrone Associates, Inc.	Newark Wastewater Treatment Plant went online June 2016	Existing waste treatment systems were decommissioned	\$6 Million
	Continue to study and plan sanitary sewer system extensions to extend service to unserved areas and eliminate failing septic systems and home aeration units.	General Manager & Consulting Engineer	Ongoing		Unknown
General	Evaluate improving security measures, including security cameras at intake.	General Manager	2020	Pursue SW Grant funding	Undetermined

## 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. Claywood Park PSD 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
Consumer Confidence Report (CCR)	The utility publishes a CCR annually, as required by the Safe Drinking Water Act, which is made available to all customers. Information about the source of drinking water and the source water assessment and protection plan are included in the report.	PSD General Manager	Annual		Minimal
Plant Tours	Provide plant tours to interested groups to explain water source and treatment.	Chief Operator	As requested		n/a
Website	Source water protection information will be included on the District's website <a href="http://www.woodpsd.org">www.woodpsd.org</a> .	Special Projects Coordinator	Complete	Will be updated as needed	n/a
Social Media	Claywood Park PSD uses social media such as Facebook and Twitter to connect with customers and disseminate useful information.	General Manager	Ongoing	Social media is also used as a tool for alerting customers in emergency situations.	n/a

## Contingency Plan

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

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

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

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

### Response Networks and Communication

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

**Table 11. Claywood Park PSD Water Shortage Response Capability**

<b>Can the utility isolate or divert contamination from the intake or groundwater supply?</b>	Yes
<b>Describe the utility’s capability to isolate or divert potential contaminants:</b>	Claywood Park PSD can shut down the river intake lift station so that any contamination would not make it to the Water Treatment Plant (WTP). The District’s source of water is the Little Kanawha River, and there is no way to divert the flow of the river at the intake. It takes approximately 12.5 minutes (2,690 linear feet of 18” pipe at a pump rate of 2,850 gpm) for the water that is pumped from the lift station to reach the WTP.
<b>Can the utility switch to an alternative water source or intake that can supply full capacity at any time?</b>	No
<b>Describe in detail the utility’s capability to switch to an alternative source:</b>	The District currently has no alternative water source or intake. Additional information is provided in the Single Source Feasibility Study, <b>Appendix C</b> .
<b>Can the utility close the water intake to prevent contamination from entering the water supply?</b>	Yes
<b>How long can the intake stay closed?</b>	At average water consumption rates over 51 hours. At maximum consumption rates, approximately 46 hours. This is including only water storage in the system core. In an emergency, additional tanks in the distribution system would be carefully managed to extend the time the intake could be closed.
<b>Describe the process to close the intake:</b>	The raw water intake is a lift station that can be shut down by turning off the pumps. There are also inline valves that can be closed to further isolate the intake from the WTP.
<b>Describe the treated water storage capacity of the water system:</b>	The District has a total of sixteen (16) storage tanks including the three (3) transfer tanks located at the WTP. The other thirteen (13) are located throughout the system and provide 2.814 million gallons of storage capacity outside of the WTP transfer tanks.
<b>Is the utility a member of WVRWA Emergency Response Team?</b>	Yes
<b>Is the utility a member of WV-WARN?</b>	Yes
<b>List any other mutual aid agreements to provide or receive assistance in the event of an emergency:</b>	The District has a good working relationship with local Public Service Districts and Utility Boards.

## Operation During Loss of Power

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

**Table 12. Generator Capacity**

<b>What is the type and capacity of the generator needed to operate during a loss of power?</b>	WTP – 450 kW Generator Raw Water Intake – 150 kW Generator		
<b>Can the utility connect to generator at intake/wellhead? If yes, select a scenario that best describes system.</b>	Yes A permanent diesel generator is installed at the intake.		
<b>Can the utility connect to generator at treatment facility? If yes, select a scenario that best describes system.</b>	Yes A permanent natural gas fired generator is installed at the water treatment plant.		
<b>Can the utility connect to a generator in distribution system? If yes, select a scenario that best describes system.</b>	Yes The booster stations throughout the system either have permanent generators or have manual transfer switches ready for portable generation.		
<b>Does the utility have adequate fuel on hand for the generator?</b>	Yes		
<b>What is your on-hand fuel storage and how long will it last operating at full capacity?</b>	<b>Gallons</b>	<b>Hours</b>	
	Various portable generators with storage tanks	16-24 hours at full capacity	
<b>Provide a list of suppliers that could provide generators and fuel in the event of an emergency:</b>	<b>Supplier</b>		<b>Contact Name</b>
	<b>Generator</b>	Walker Caterpillar	Jody Pauley
	<b>Fuel</b>	Cutlip Warner	
<b>Does the utility test the generator(s) periodically?</b>	Yes		

Does the utility routinely maintain the generator?	Yes
If no scenario describing the ability to connect to generator matches the utility's system or if utility does not have ability to connect to a generator, describe plans to respond to power outages:	n/a

### Future Water Supply Needs

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

Is the utility able to meet water demands with the current production capacity over the next 5 years? If so, explain how you plan to do so.	Yes  The WTP was upgraded in 2007 to 4.3 MGD. Current average production is 1.3 MGD with a daily maximum of 1.788 MGD.
If not, describe the circumstances and plans to increase production capacity:	n/a

### Water Loss Calculation

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

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

**Table 14. Water Loss Information**

<b>Total Water Pumped (gal)</b>		454,386,000
<b>Total Water Purchased (gal)</b>		0
<b>Total Water Pumped and Purchased (gal)</b>		454,386,000
<b>Water Loss Accounted for Except Main Leaks (gal)</b>	<b>Mains, Plants, Filters, Flushing, etc.</b>	10,836,000
	<b>Fire Department</b>	800,000
	<b>Back Washing</b>	0
	<b>Blowing Settling Basins</b>	0
<b>Total Water Loss Accounted For Except Main Leaks</b>		11,636,000
<b>Water Sold- Total Gallons (gal)</b>		350,785,000
<b>Unaccounted For Lost Water (gal)</b>		76,965,000
<b>Water lost from main leaks (gal)</b>		15,000,000
<b>Total gallons of Unaccounted for Lost Water and Water Lost from Main Leaks (gal)</b>		91,965,000
<b>Total Percent Unaccounted For Water and Water Lost from Main Leaks (gal)</b>		20.24%
<b>If total percentage of Unaccounted for Water is greater than 15%, please describe any measures that could be taken to correct this problem:</b>	A Miscellaneous Water System Improvements Project was completed in 2017. This project included the replacement of a problematic 8" main water line. A reduction in water loss should be seen in upcoming years due to this replacement.	

### Early Warning Monitoring System

Public water utilities are required to provide an examination of the technical and economic feasibility of implementing an early warning monitoring system. Implementing an early warning monitoring system may be approached in different ways depending upon the water utility's resources and threats to the source water. A utility may install a continuous monitoring system that will provide real time information regarding water quality conditions. This would require utilities to analyze the data in order to establish what condition is indicative of a contamination event. Continuous monitoring will provide results for a predetermined set of

parameters. The more parameters being monitored, the more sophisticated the monitoring equipment will be. When establishing a continuous monitoring system, the utility should consider the logistics of placing and maintaining the equipment, and receiving output data from the equipment.

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

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

Claywood Park PSD has analyzed its ability to monitor for and detect potential contaminants that could impact its source water. Information regarding this utility’s early warning monitoring system capabilities can be found in **Table 15 and 16**.

**Table 15. Early Warning Monitoring System Capabilities**

<p><b>Does your system currently receive spill notifications from a state agency, neighboring water system, local emergency responders, or other facilities? If yes, from whom do you receive notices?</b></p>	<p style="text-align: center;">Yes</p> <p>Spill notices are received through automated email from the Wheeling Department of Health district office. Spill notices have also been reported by phone by the WVDEP and upstream water systems. Local emergency responders have been asked to directly report to spills.</p>	
<p><b>Are you aware of any facilities, land uses, or critical areas within your protection areas where chemical contaminants could be released or spilled?</b></p>	<p style="text-align: center;">Yes</p>	
<p><b>Are you prepared to detect potential contaminants if notified of a spill?</b></p>	<p style="text-align: center;">Yes</p>	
<p><b>List laboratories (and contact</b></p>	<p><b>Laboratories</b></p>	
	<p><b>Name</b></p>	<p><b>Contact</b></p>

information) on whom you would rely to analyze water samples in case of a reported spill.	REIC Labs	1-304-253-3933
	State Lab	1-304-552-2564
Do you have an understanding of baseline or normal conditions for your source water quality that accounts for seasonal fluctuations?	Yes	
Does your utility (aside from turbidity monitoring) currently monitor your raw water through continuous monitoring at the surface water intake or groundwater source to detect changed in water quality that could indicate contamination?	Yes A Hach Source Water Monitoring panel was installed in 2017 to continuously monitor water quality.	
Does your utility collect periodic grab samples (ex. possess reserved sample bottles, on-call laboratory services, and trained personnel) in response to a spill notification or to investigate changes in water quality that could indicate contamination?	Yes The district does routine water quality tests to assist with quality control. The district also maintains a supply of sample bottles and has a good working relationship with REIC Labs to facilitate extra sampling in the event of suspected contamination or unusual water quality changes.	
Provide or estimate the capital and O&M costs for your current or proposed early warning system or upgraded system.	Capital	\$47,044
	Yearly O & M	\$7,250
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	

Table 16. Surface Monitoring

Do you currently have surface water sources?	Yes
If so, do you currently have an early warning monitoring system installed for surface water sources?	Yes
Are you considering upgrading or replacing the existing system?	Yes
Describe the type of early warning detection equipment installed:	Hach Source Water Monitoring Panel with pH, conductivity, ammonium and oil-in-water probes

<b>Describe the mechanism to store the data and an institutional framework to analyze and interpret the data:</b>	Data is sent to existing SCADA system for continuous trending and monitoring of data. Data is also written hourly to an Excel database to allow for historical data analysis.
<b>Describe the process to determine the credibility of a contamination event if a change is detected in the quality of source water:</b>	If water quality parameters are outside normal values, the operator would first investigate the source water panel for quality issues such as a fouled sensor. If available, a benchtop lab test can also be performed to confirm the test results. Operators would use all available information and their best professional judgement to determine the credibility of a potential contamination event.
<b>Describe the type of early warning detection equipment that could be installed, including design:</b>	The addition of a UVAS Plus sc probe to existing panel
<b>Where would the equipment be located?</b>	On the existing panel at the water treatment plant
<b>What would the maintenance plan for the monitoring equipment entail?</b>	The probe would be added to the maintenance contract
<b>Describe the proposed sampling plan at the monitoring site:</b>	As existing
<b>Describe the proposed procedures for data management and analysis:</b>	As existing

## Single Source Feasibility Study

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

To accomplish this requirement, utilities should examine all existing or possible alternatives and rank them by their technical, economic, and environmental feasibility. To have a consistent and complete method for ranking alternatives, WVBPH has developed a feasibility study guide. This guide provides several criteria to

consider for each category, organized in a Feasibility Study Matrix. By completing the Feasibility Study Matrix, utilities will demonstrate the process used to examine the feasibility of each alternative and document scores that compare the alternatives. The Feasibility Study matrix and summary of the results are presented in an alternatives feasibility study attached as **Appendix C**.

## Communication Plan

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

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

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

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

## Emergency Response Short Form

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

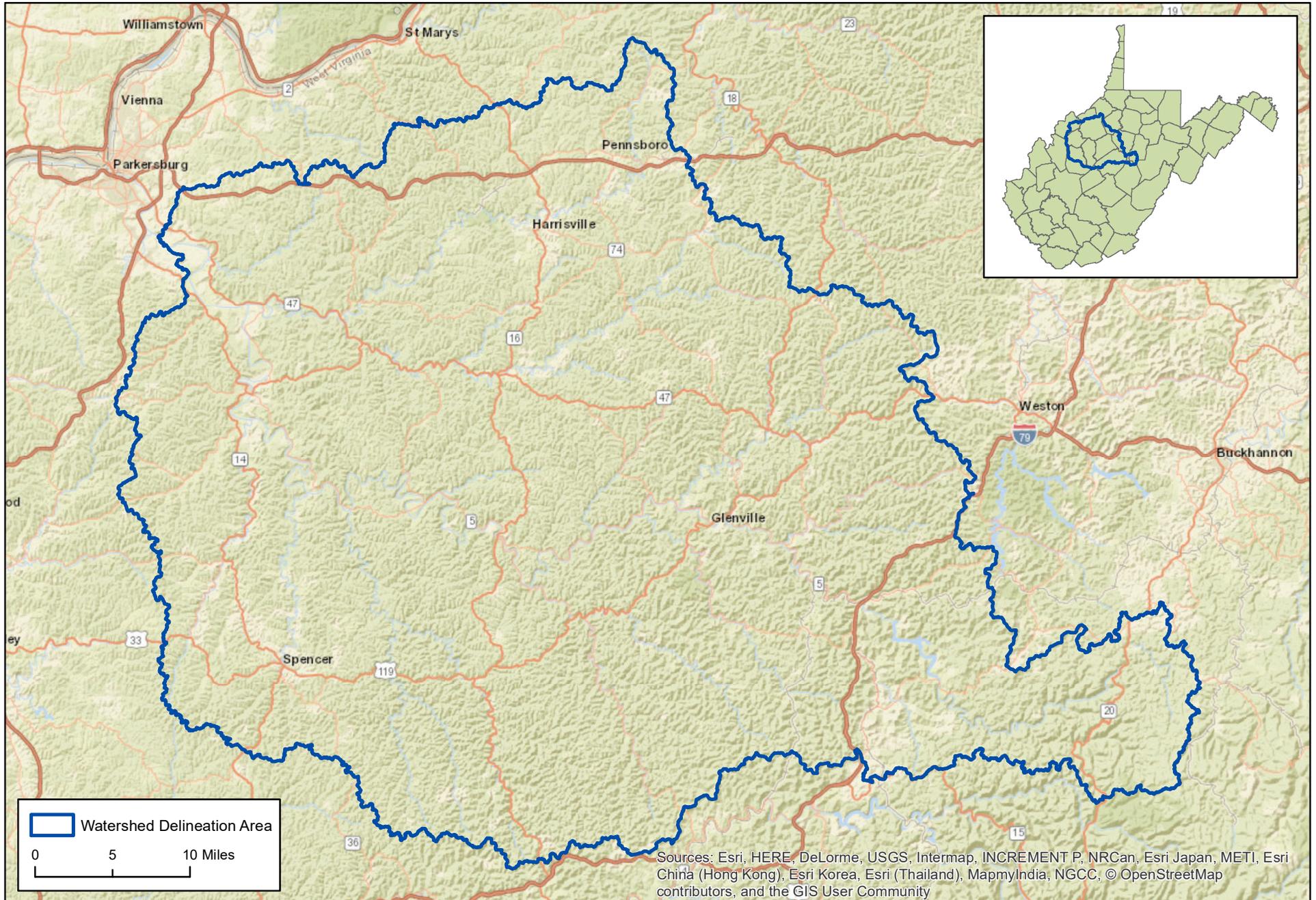
## Conclusion

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

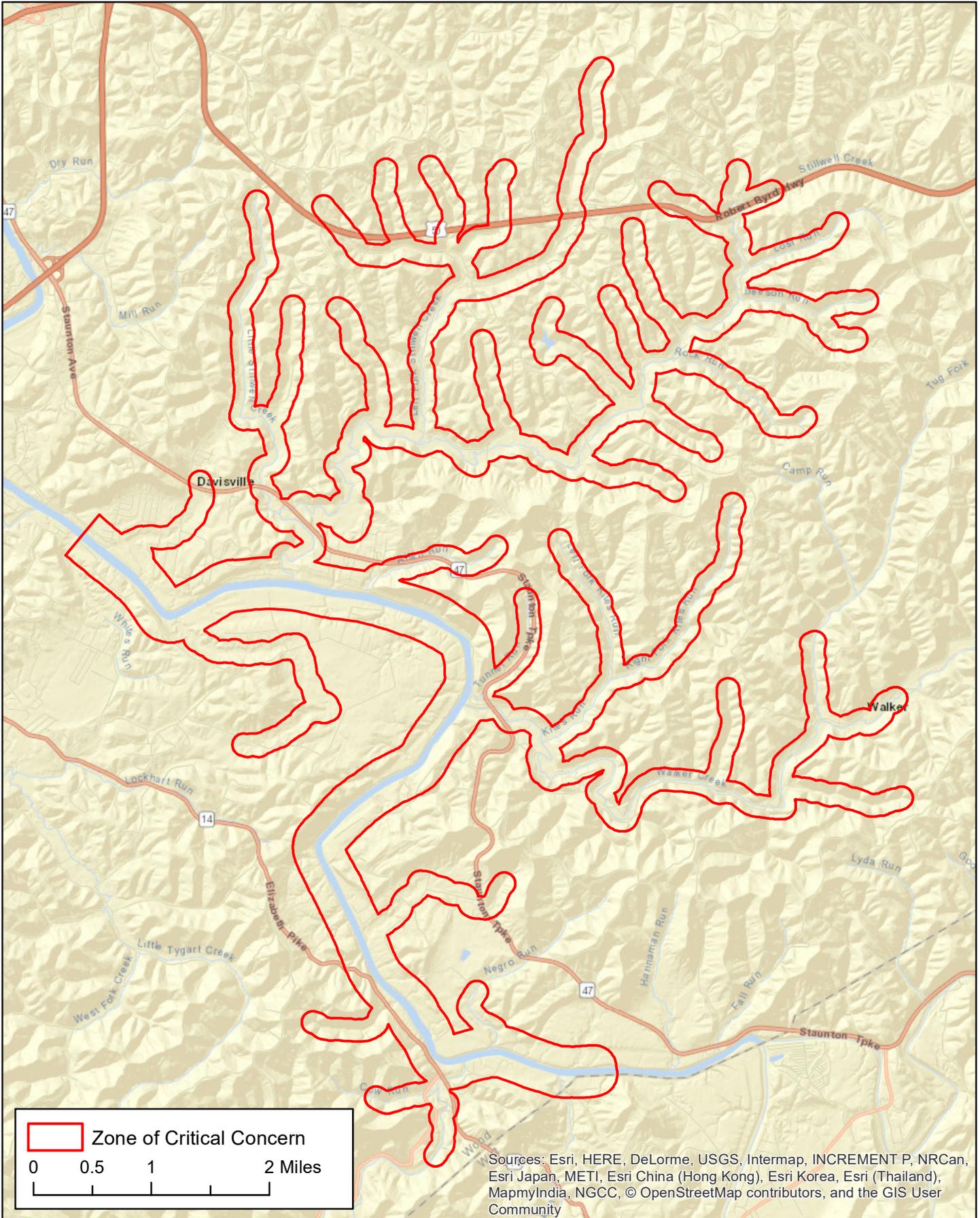
This source water protection plan is intended to help prepare community public water systems all over West Virginia to properly handle any emergencies that might compromise the quality of the system's source water supply. It is imperative that this plan is updated as often as necessary to reflect the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

## Appendix A. Figures

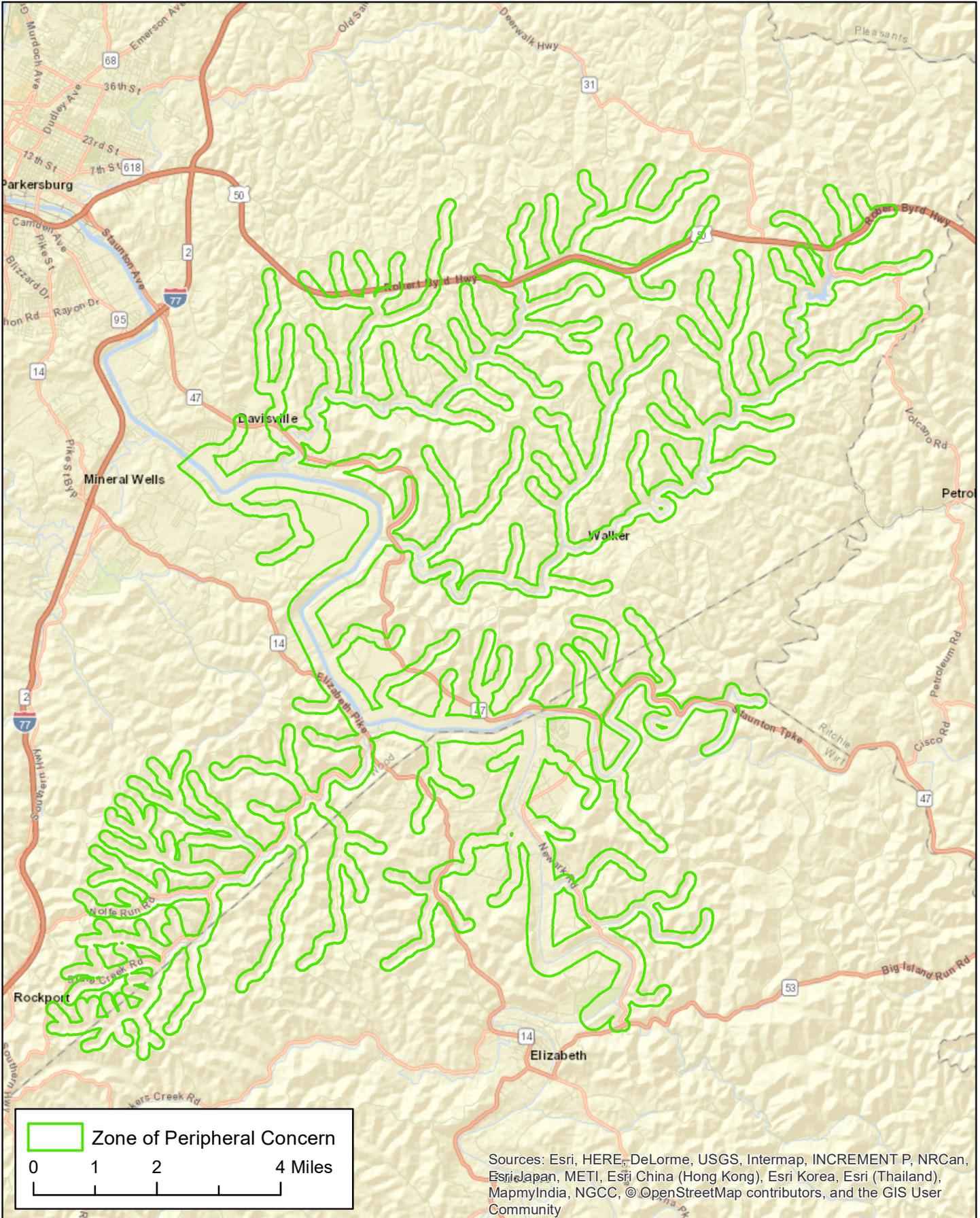
# Watershed Delineation Area



# Zone of Critical Concern



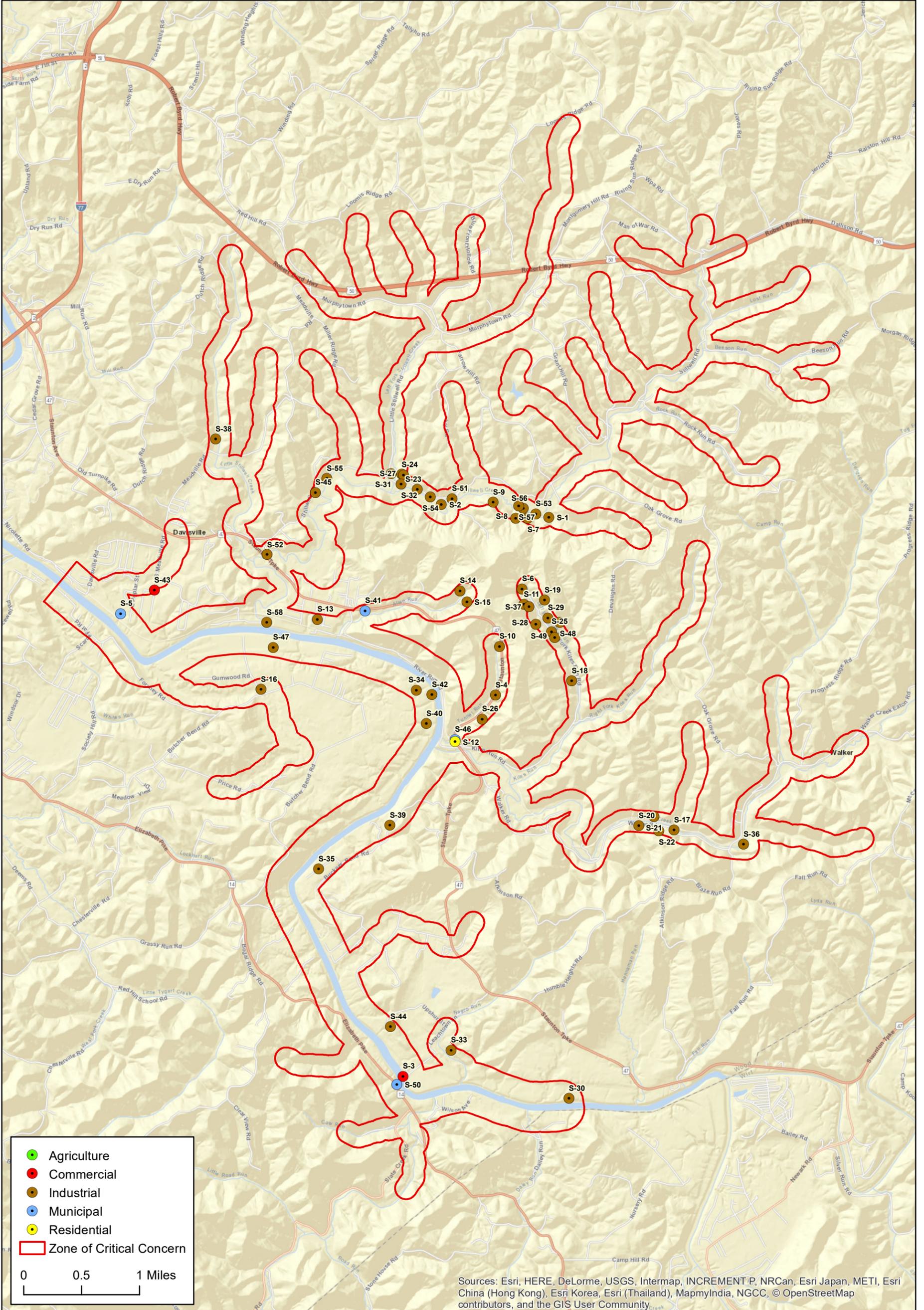
# Zone of Peripheral Concern



List of WVBPH SWAP PSSCs

Map Label	Name	Category	Description
S-1	AEC	Industrial	Oil/Gas Well
S-2	BIG B DRILLING CO.; INC.	Industrial	Oil/Gas Well
S-3	Boat Launch	Commercial	Boat Launch, small boat ramp
S-4	CLAY RESOURCES; INC.	Industrial	Oil/Gas Well
S-5	COMMUNITY ACRES SUBD.	Municipal	OWRNPDES
S-6	GEDCO OIL & GAS JOINT VENTURE	Industrial	Oil/Gas Well
S-7	GEDCO OIL & GAS JOINT VENTURE	Industrial	Oil/Gas Well
S-8	GEDCO OIL & GAS JOINT VENTURE	Industrial	Oil/Gas Well
S-9	GEDCO OIL & GAS JOINT VENTURE	Industrial	Oil/Gas Well
S-10	GEDCO OIL & GAS JOINT VENTURE	Industrial	Oil/Gas Well
S-11	GEDCO OIL & GAS JOINT VENTURE	Industrial	Oil/Gas Well
S-12	Hillbilly Inn	Residential	Septic tank
S-13	KIRKS I G A MARKET	Industrial	OWRNPDES - now is a video rental store
S-14	L.K. ENERGIES; INC.	Industrial	Oil/Gas Well
S-15	L.K. ENERGIES; INC.	Industrial	Oil/Gas Well
S-16	Oil/Gas Well	Industrial	Oil/Gas Well
S-17	Oil/Gas Well	Industrial	Oil/Gas Well
S-18	Oil/Gas Well	Industrial	Oil/Gas Well
S-19	Oil/Gas Well	Industrial	RAMSEY; CECIL LEON
S-20	Oil/Gas Well	Industrial	Oil/Gas Well
S-21	Oil/Gas Well	Industrial	Oil/Gas Well
S-22	Oil/Gas Well	Industrial	Oil/Gas Well
S-23	Oil/Gas Well	Industrial	Oil/Gas Well
S-24	Oil/Gas Well	Industrial	Oil/Gas Well
S-25	Oil/Gas Well	Industrial	Oil/Gas Well
S-26	Oil/Gas Well	Industrial	Oil/Gas Well
S-27	Oil/Gas Well	Industrial	Oil/Gas Well
S-28	Oil/Gas Well	Industrial	RAMSEY; CECIL LEON
S-29	Oil/Gas Well	Industrial	RAMSEY; CECIL LEON
S-30	Oil/Gas Well	Industrial	Oil/Gas Well
S-31	Oil/Gas Well	Industrial	Oil/Gas Well
S-32	Oil/Gas Well	Industrial	Oil/Gas Well
S-33	Oil/Gas Well	Industrial	Oil/Gas Well
S-34	Oil/Gas Well	Industrial	Oil/Gas Well
S-35	OPERATOR UNKNOWN	Industrial	Oil/Gas Well
S-36	OPERATOR UNKNOWN	Industrial	Oil/Gas Well
S-37	OPERATOR UNKNOWN	Industrial	Oil/Gas Well
S-38	OPERATOR UNKNOWN	Industrial	Oil/Gas Well
S-39	OPERATOR UNKNOWN	Industrial	Oil/Gas Well
S-40	PENNZOIL PRODUCTS COMPANY	Industrial	Oil/Gas Well
S-41	POND NO. 1	Municipal	OWRNPDES

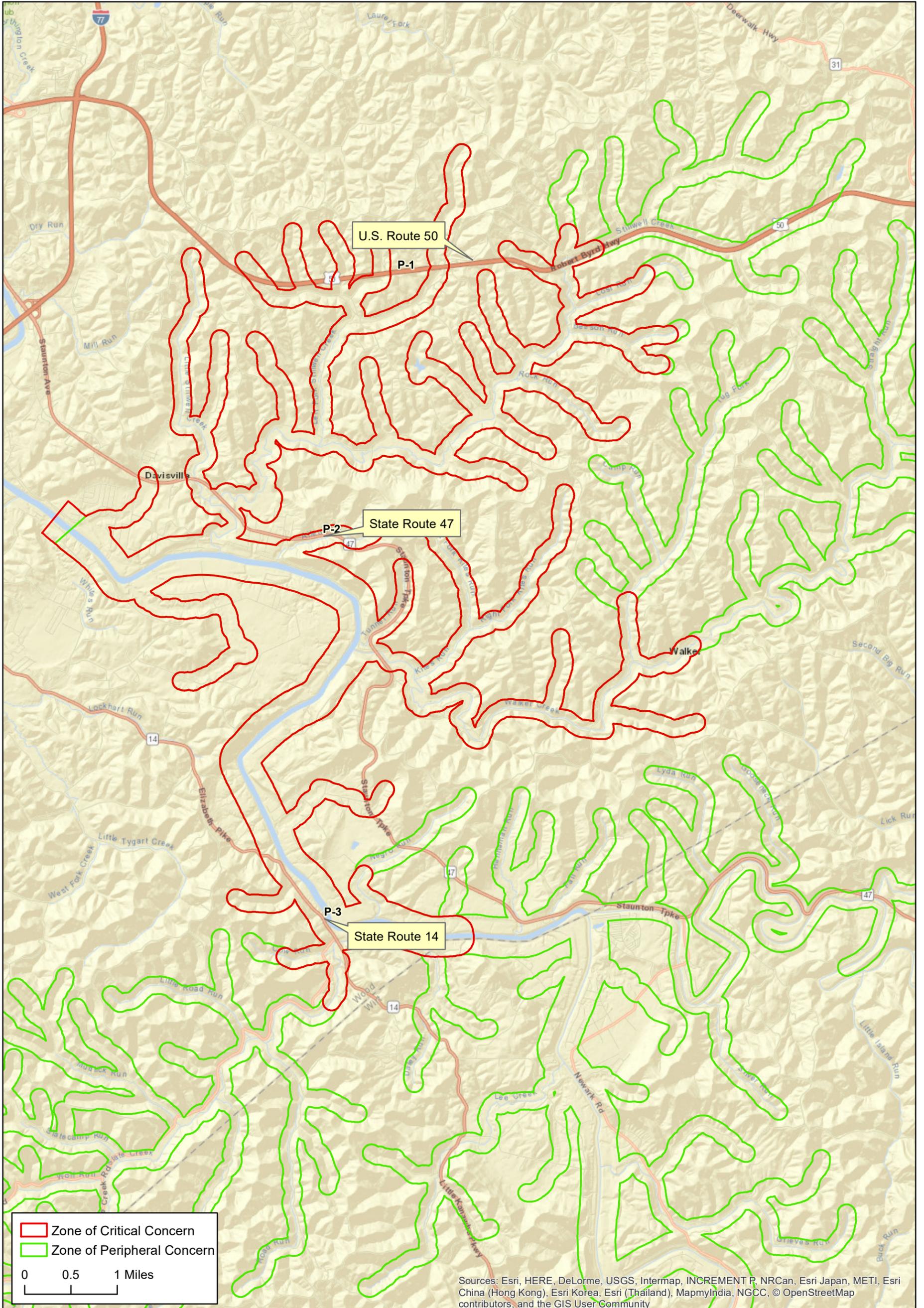
S-42	PRENCO	Industrial	Oil/Gas Well
S-43	PWP-package with perfection	Commercial	Abandoned Industrial
S-44	RED OAK OIL & GAS ASSOCIATES	Industrial	Oil/Gas Well
S-45	RITCHIE PETROLEUM CORP.	Industrial	Oil/Gas Well
S-46	Route 47	Municipal	Highway
S-47	SMITH; CARL E.; PETROLEUM; INC.	Industrial	Oil/Gas Well
S-48	SMITH; CARL E.; PETROLEUM; INC.	Industrial	Oil/Gas Well
S-49	SMITH; CARL E.; PETROLEUM; INC.	Industrial	Oil/Gas Well
S-50	State Route 14	Municipal	Highway
S-51	TRIAD	Industrial	Oil/Gas Well
S-52	TRIAD	Industrial	Oil/Gas Well
S-53	TRIAD	Industrial	Oil/Gas Well
S-54	TRIAD	Industrial	Oil/Gas Well
S-55	TRIAD	Industrial	Oil/Gas Well
S-56	TRIAD	Industrial	Oil/Gas Well
S-57	TRIAD	Industrial	Oil/Gas Well
S-58	TRIAD.SPILL	Industrial	Oil/Gas Well



### List of Locally Identified PSSCs

Map Label	Permit ID	Name	Permit Type	Description
P-1	n/a	U.S. Route 50	n/a	Highway
P-2	n/a	State Route 47	n/a	Highway
P-3	n/a	State Route 14	n/a	Highway
n/a	n/a	Overhead power lines	n/s	Electric

# Locally Identified PSSCs



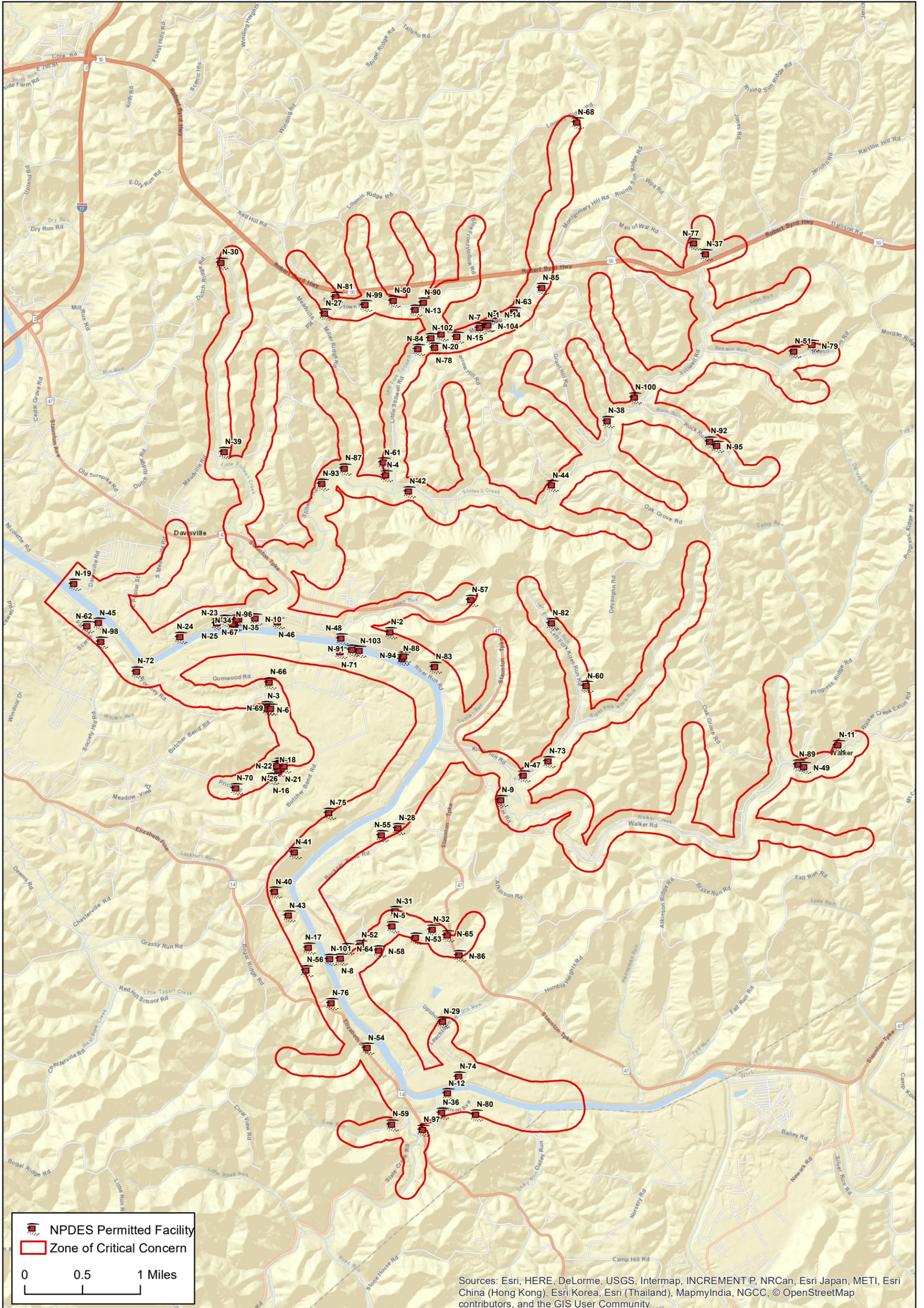
## NPDES Permitted Facilities

Map Label	Permit ID	Facility Name	Permit Type	Description
N-1	WVG611225	Danser, Inc	Industrial	Storm Water Industrial (GP)
N-2	WVR106658	WV0113	Industrial	Storm Water Construction (NOI)
N-3	WVR106823	T & S Trucking Repair Shop	Industrial	Storm Water Construction (GP)
N-4	WVR108021	2015 water system improvements project	Industrial	Storm Water Construction (GP)
N-5	WVR108962	Lockhart Farm	Industrial	Storm Water Construction (NOI)
N-6	WVRNE0161	Rig Builders	Industrial	Storm Water Industrial ( No Exposure )
N-7	011677		Septic Tank	Septic Seal Permit
N-8	012322		Septic Tank	Septic Seal Permit
N-9	012324		Septic Tank	Septic Seal Permit
N-10	012352		Septic Tank	Septic Seal Permit
N-11	012376		Septic Tank	Septic Seal Permit
N-12	013033		Septic Tank	Septic Seal Permit
N-13	013322		Septic Tank	Septic Seal Permit
N-14	013469		Septic Tank	Septic Seal Permit
N-15	016155		Septic Tank	Septic Seal Permit
N-16	016161		Septic Tank	Septic Seal Permit
N-17	016241		Septic Tank	Septic Seal Permit
N-18	016787		Septic Tank	Septic Seal Permit
N-19	017350		Septic Tank	Septic Seal Permit
N-20	018132		Septic Tank	Septic Seal Permit
N-21	018455		Septic Tank	Septic Seal Permit
N-22	018790		Septic Tank	Septic Seal Permit
N-23	018973		Septic Tank	Septic Seal Permit
N-24	018974		Septic Tank	Septic Seal Permit
N-25	018977		Septic Tank	Septic Seal Permit
N-26	018988		Septic Tank	Septic Seal Permit
N-27	019546		Septic Tank	Septic Seal Permit
N-28	019696		Septic Tank	Septic Seal Permit
N-29	020503		Septic Tank	Septic Seal Permit
N-30	021816		Septic Tank	Septic Seal Permit
N-31	022590		Septic Tank	Septic Seal Permit
N-32	022598		Septic Tank	Septic Seal Permit
N-33	022909		Septic Tank	Septic Seal Permit
N-34	022910		Septic Tank	Septic Seal Permit
N-35	023301		Septic Tank	Septic Seal Permit
N-36	023304		Septic Tank	Septic Seal Permit
N-37	024968		Septic Tank	Septic Seal Permit
N-38	029737		Septic Tank	Septic Seal Permit
N-39	030020		Septic Tank	Septic Seal Permit
N-40	031083		Septic Tank	Septic Seal Permit

Map Label	Permit ID	Facility Name	Permit Type	Description
N-41	031853		Septic Tank	Septic Seal Permit
N-42	031857		Septic Tank	Septic Seal Permit
N-43	032052		Septic Tank	Septic Seal Permit
N-44	033267		Septic Tank	Septic Seal Permit
N-45	034323		Septic Tank	Septic Seal Permit
N-46	034327		Septic Tank	Septic Seal Permit
N-47	034332		Septic Tank	Septic Seal Permit
N-48	035675		Septic Tank	Septic Seal Permit
N-49	036286		Septic Tank	Septic Seal Permit
N-50	038246		Septic Tank	Septic Seal Permit
N-51	038458		Septic Tank	Septic Seal Permit
N-52	039459		Septic Tank	Septic Seal Permit
N-53	039547		Septic Tank	Septic Seal Permit
N-54	039811		Septic Tank	Septic Seal Permit
N-55	041053		Septic Tank	Septic Seal Permit
N-56	041055		Septic Tank	Septic Seal Permit
N-57	041963		Septic Tank	Septic Seal Permit
N-58	043145		Septic Tank	Septic Seal Permit
N-59	045019		Septic Tank	Septic Seal Permit
N-60	045020		Septic Tank	Septic Seal Permit
N-61	045199		Septic Tank	Septic Seal Permit
N-62	045203		Septic Tank	Septic Seal Permit
N-63	046397		Septic Tank	Septic Seal Permit
N-64	047265		Septic Tank	Septic Seal Permit
N-65	047729		Septic Tank	Septic Seal Permit
N-66	047888		Septic Tank	Septic Seal Permit
N-67	047890		Septic Tank	Septic Seal Permit
N-68	048279		Septic Tank	Septic Seal Permit
N-69	048852		Septic Tank	Septic Seal Permit
N-70	049415		Septic Tank	Septic Seal Permit
N-71	050335		Septic Tank	Septic Seal Permit
N-72	050857		Septic Tank	Septic Seal Permit
N-73	050998		Septic Tank	Septic Seal Permit
N-74	051157		Septic Tank	Septic Seal Permit
N-75	051490		Septic Tank	Septic Seal Permit
N-76	053250		Septic Tank	Septic Seal Permit
N-77	053562		Septic Tank	Septic Seal Permit
N-78	056827		Septic Tank	Septic Seal Permit
N-79	056830		Septic Tank	Septic Seal Permit
N-80	056860		Septic Tank	Septic Seal Permit
N-81	056862		Septic Tank	Septic Seal Permit
N-82	056866		Septic Tank	Septic Seal Permit
N-83	056884		Septic Tank	Septic Seal Permit

Map Label	Permit ID	Facility Name	Permit Type	Description
N-84	056904		Septic Tank	Septic Seal Permit
N-85	WVG410016	Violet Jenkins	Sewage	Home Aeration Unit General
N-86	WVG410026	Denzel and Mary States	Sewage	Home Aeration Unit General
N-87	WVG410038	JERRY & JENNIFER SPARKS	Sewage	Home Aeration Unit General
N-88	WVG410309	Thomas R. McGary	Sewage	Home Aeration Unit General
N-89	WVG410649	Wayne R. Kirby	Sewage	Home Aeration Unit General
N-90	WVG411703	Larry K. Smith	Sewage	Home Aeration Unit General
N-91	WVG411982	Melina Huddy	Sewage	Home Aeration Unit General
N-92	WVG412489	Townsend, Brian	Sewage	Home Aeration Unit General
N-93	WVG412678	Rick E Brannon	Sewage	Home Aeration Unit General
N-94	WVG413845	Edsil C. Smith	Sewage	Home Aeration Unit General
N-95	WVG414613	Cathy f Dinnin	Sewage	Home Aeration Unit General
N-96	WVG414813	Dana Hamm	Sewage	Home Aeration Unit General
N-97	WVG415485	Roger Baileys residence	Sewage	Home Aeration Unit General
N-98	WVG415506	Ralph and Barbara Cozad residence	Sewage	Home Aeration Unit General
N-99	WVG415638	Kelly J. Lee	Sewage	Home Aeration Unit General
N-100	WVG415676	Thomas T. Schreckengost II	Sewage	Home Aeration Unit General
N-101	WVG416001	Rodney Wilson Laura Garcia	Sewage	Home Aeration Unit General
N-102	WVG550490	RODNEY RICHARDS APTS.	Sewage	Sewage General
N-103	WVG550625	Butcher Bend Lagoon	Sewage	Sewage General
N-104	WVG550875	Danser, Inc.	Sewage	Sewage General

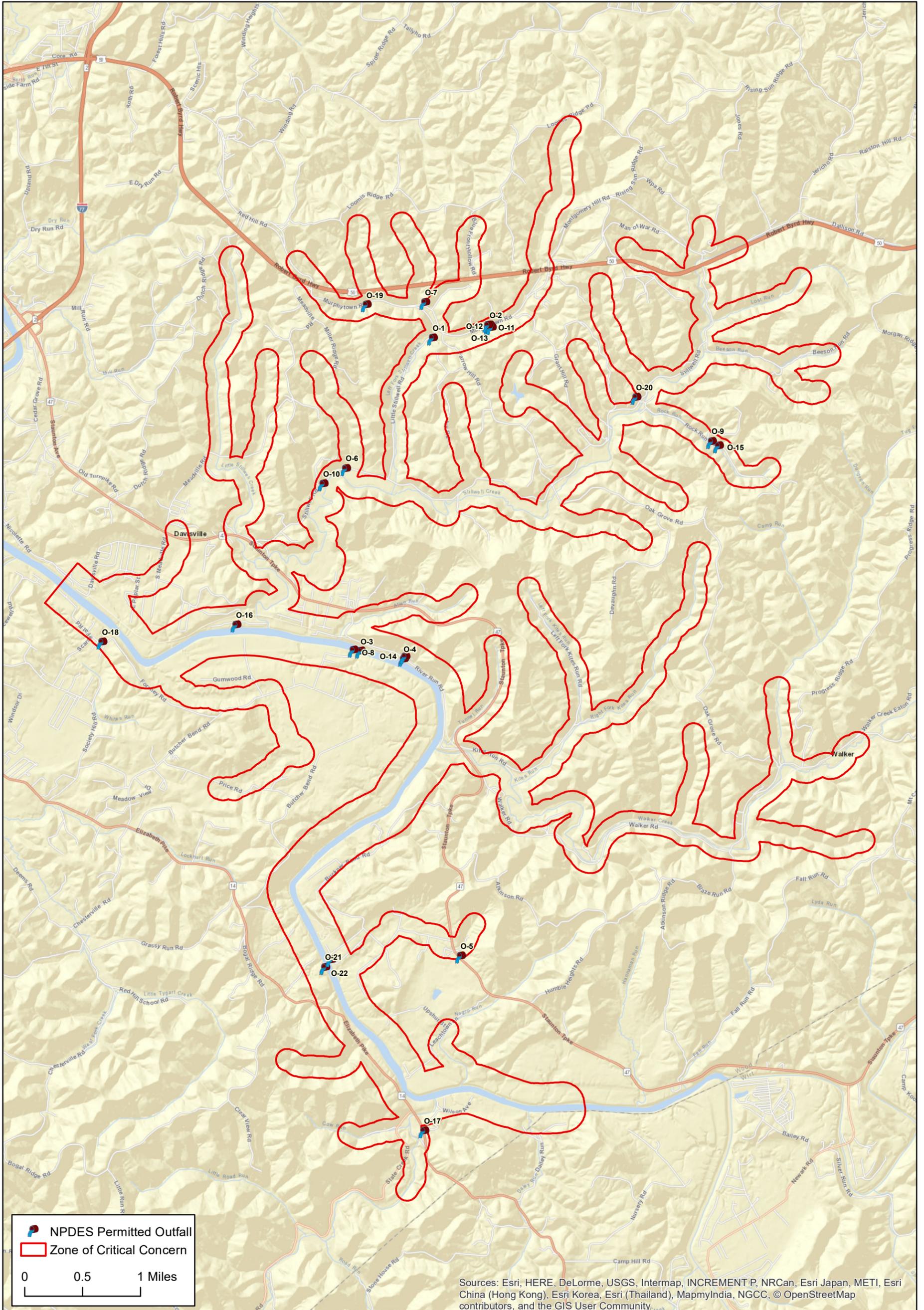
## Regulated PSSCs NPDES Permitted Facilities



## NPDES Permitted Outfalls

Map Label	Permit ID	Facility Name	Permit Type	Description
O-1	WVG611225	Danser, Inc	Industrial	Outlet
O-2	WVG611225	Danser, Inc	Industrial	Outlet
O-3	WVG611225	Danser, Inc	Industrial	Outlet
O-4	WVG670763	TL-255 2018 Pipeline Replacement	Industrial	Outlet
O-5	WVG410026	Denzel and Mary States	Sewage	Outlet
O-6	WVG410038	JERRY & JENNIFER SPARKS	Sewage	Outlet
O-7	WVG410309	Thomas R. McGary	Sewage	Outlet
O-8	WVG411703	Larry K. Smith	Sewage	Outlet
O-9	WVG411982	Melina Huddy	Sewage	Outlet
O-10	WVG412489	Townsend, Brian	Sewage	Outlet
O-11	WVG412678	Rick E Brannon	Sewage	Outlet
O-12	WVG413845	Edsil C. Smith	Sewage	Outlet
O-13	WVG414613	Cathy f Dinnin	Sewage	Outlet
O-14	WVG414813	Dana Hamm	Sewage	Outlet
O-15	WVG415485	Roger Baileys residence	Sewage	Outlet
O-16	WVG415506	Ralph and Barbara Cozad residence	Sewage	Outlet
O-17	WVG415638	Kelly J. Lee	Sewage	Outlet
O-18	WVG415676	Thomas T. Schreckengost II	Sewage	Outlet
O-19	WVG416001	Rodney Wilson Laura Garcia	Sewage	Outlet
O-20	WVG550490	RODNEY RICHARDS APTS.	Sewage	Outlet
O-21	WVG550625	Butcher Bend Lagoon	Sewage	Outlet
O-22	WVG550875	Danser, Inc.	Sewage	Outlet

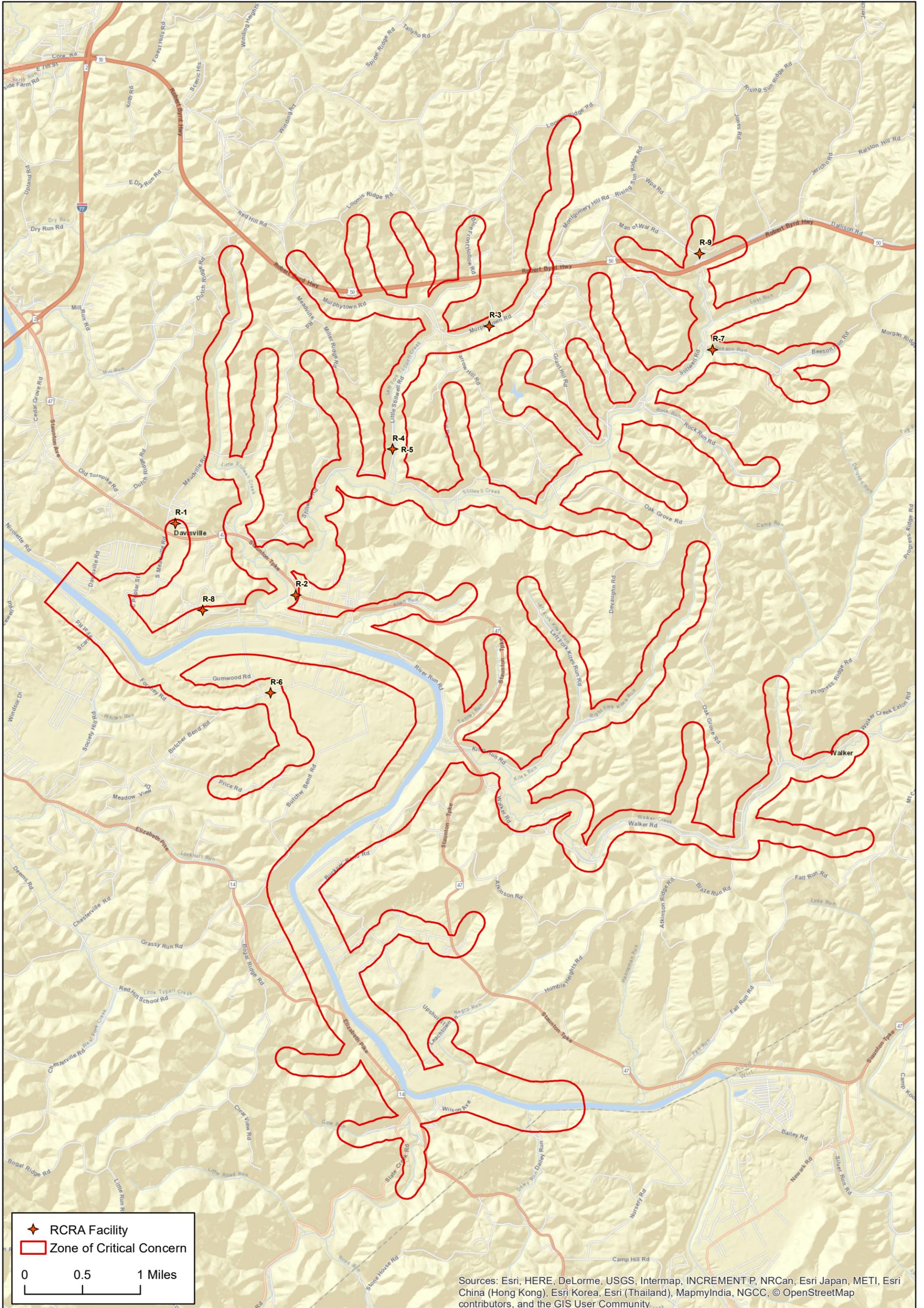
## Regulated PSSCs NPDES Permitted Outfalls



## RCRA Facilities

Map Label	Permit ID	Facility Name	Permit Type	Description
R-1	110006151163	RICKS TRANSMISSION	RCRAINFO	WVD988797718
R-2	110007872828	FOAMCOAT ROOFING & COATINGS	RCRAINFO	WV0000919001
R-3	110007879448	DANSER INC	RCRAINFO	WVD982568255
R-4	110007880258	CARL KELLY PAVING INC	RCRAINFO	WVD982675217
R-5	110007880711	ALL AMERICAN TRUCKING INC	RCRAINFO	WVD982683617
R-6	110007888456	RIG BUILDERS TRUCK SERVICE	RCRAINFO	WVD988796629
R-7	110007893280	FORE TIMBER CO	RCRAINFO	WVR000005785
R-8	110016707278	SPECIALTY PIPING CORPORATION	RCRAINFO	WVR000503839
R-9	110043866082	AFFORDABLE ASPHALT MAINTENANCE	RCRAINFO	WVR000514679

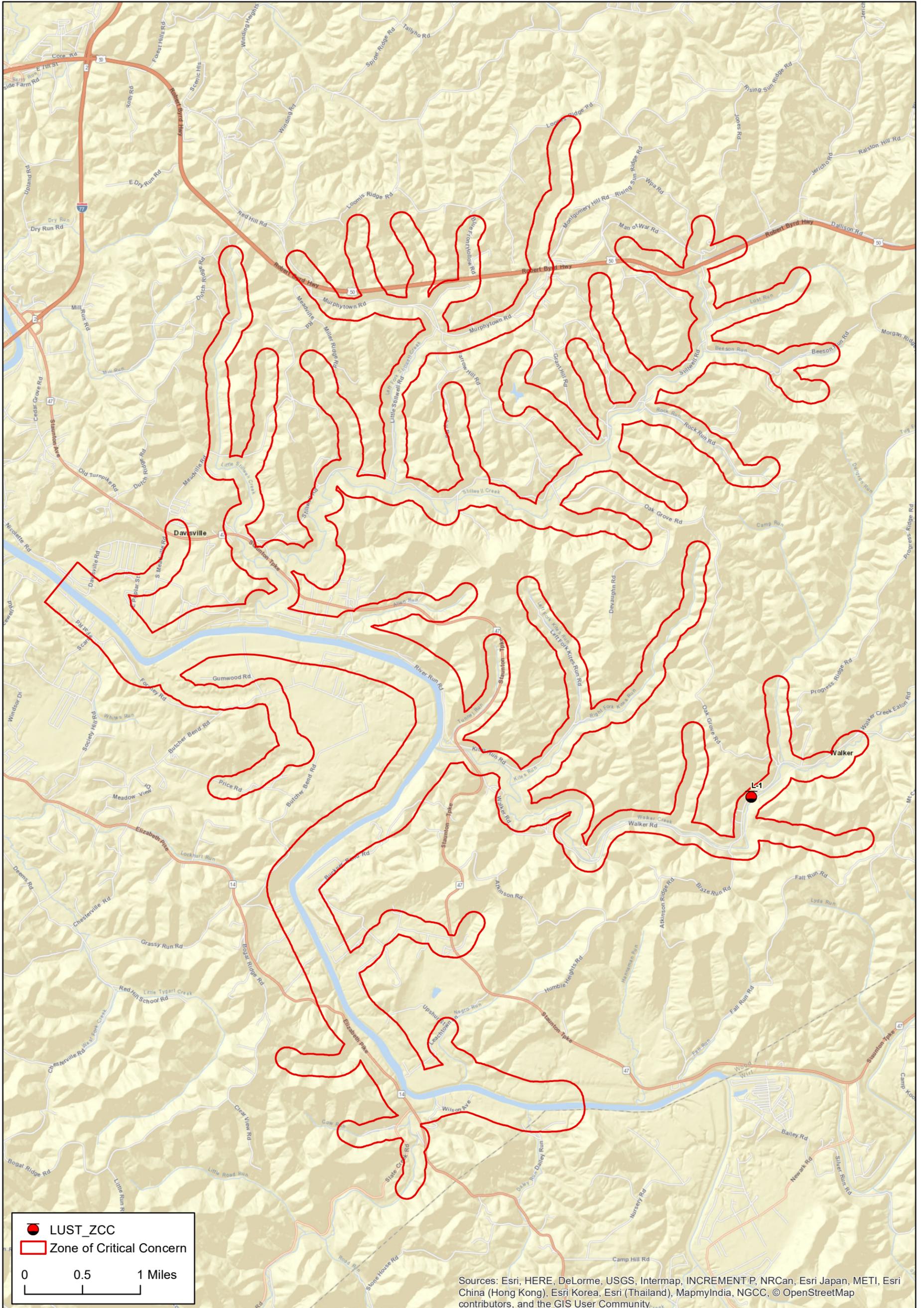
## Regulated PSSCs RCRA Facilities



### Leaking Underground Storage Tank (LUST) Sites

Map Label	Permit ID	Facility Name	Permit Type	Description
L-1	5407550	HANDY MART		Cleanup complete 6/9/95

## Regulated PSSCs LUST Sites



### **Aboveground Storage Tank (AST) Sites**

Information regarding ASTs is considered confidential. If you have any immediate needs for information about aboveground storage tanks (AST's) please call the WV Department of Environmental Protection (DEP) at (304)-926-0499, and ask for the Public Information Office. The AST information is collected and maintained by the UST/AST program at the DEP.



## **Regulated PSSCs AST Sites**

Information regarding ASTs is considered confidential. If you have any immediate needs for information about aboveground storage tanks (AST's) please call the WV Department of Environmental Protection (DEP) at (304)-926-0499, and ask for the Public Information Office. The AST information is collected and maintained by the UST/AST program at the DEP.

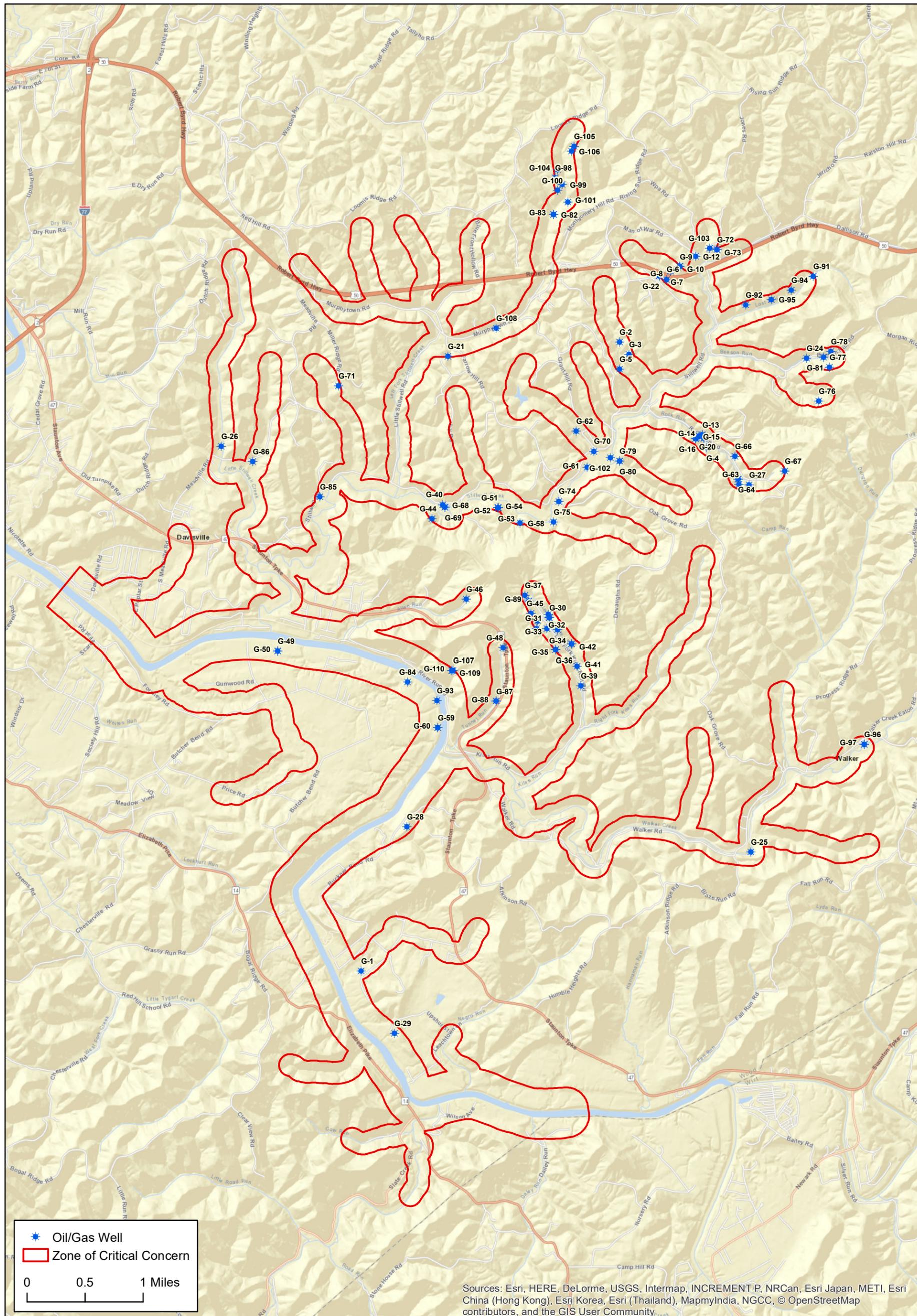
## Oil and Gas Wells

Map Label	Permit ID	Facility Name	Permit Type	Description
G-1	085-08981	UNKNOWN - DEP PAID PLUGGING CONTRACT	Plugging	Plugged
G-2	107-00062	OPERATOR UNKNOWN	Field Assigned Number	Never Drilled
G-3	107-00067	OPERATOR UNKNOWN	Field Assigned Number	Never Drilled
G-4	107-00077	OPERATOR UNKNOWN	Field Assigned Number	Abandoned Well
G-5	107-00111	OPERATOR UNKNOWN	Plugging	Plugged
G-6	107-00189	OPERATOR UNKNOWN	Plugging	Plugged
G-7	107-00194	C. I. MCKOWN & SON, INC.	Other Well	Active Well
G-8	107-00194	C. I. MCKOWN & SON, INC.	Fracture	Active Well
G-9	107-00226	EAST RESOURCES, INC.	Fracture	Plugged
G-10	107-00226	EAST RESOURCES, INC.	Fracture	Plugged
G-11	107-00226	EAST RESOURCES, INC.	Plugging	Plugged
G-12	107-00237	OPERATOR UNKNOWN	Plugging	Plugged
G-13	107-00274	OPERATOR UNKNOWN	Field Assigned Number	Plugged
G-14	107-00274	OPERATOR UNKNOWN	Plugging	Plugged
G-15	107-00275	OPERATOR UNKNOWN	Field Assigned Number	Plugged
G-16	107-00275	OPERATOR UNKNOWN	Plugging	Plugged
G-17	107-00276	OPERATOR UNKNOWN	Other Well	Plugged
G-18	107-00276	OPERATOR UNKNOWN	Plugging	Plugged
G-19	107-00278	OPERATOR UNKNOWN	Other Well	Plugged
G-20	107-00278	OPERATOR UNKNOWN	Plugging	Plugged
G-21	107-00344	OPERATOR UNKNOWN	Plugging	Plugged
G-22	107-00368	EAST RESOURCES, INC.	Other Well	Plugged
G-23	107-00368	EAST RESOURCES, INC.	Plugging	Plugged
G-24	107-00388	OPERATOR UNKNOWN	Other Well	Abandoned Well
G-25	107-00456	OPERATOR UNKNOWN	Plugging	Plugged
G-26	107-00510	OPERATOR UNKNOWN	Plugging	Plugged
G-27	107-00522	OPERATOR UNKNOWN	Field Assigned Number	Never Drilled
G-28	107-00596	OPERATOR UNKNOWN	Field Assigned Number	Plugged
G-29	107-00602	RED OAK OIL & GAS ASSOCIATES	Other Well	Abandoned Well
G-30	107-00611	HAUGHT, INC.	Vertical Well	Plugged
G-31	107-00611	HAUGHT, INC.	Plugging	Plugged
G-32	107-00618	RAMSEY, CECIL LEON	Other Well	Abandoned Well
G-33	107-00619	OPERATOR UNKNOWN	Other Well	Abandoned Well
G-34	107-00620	RAMSEY, CECIL LEON	Other Well	Abandoned Well
G-35	107-00621	HAUGHT, INC.	Other Well	Plugged
G-36	107-00621	HAUGHT, INC.	Plugging	Plugged
G-37	107-00623	PATCHWORK OIL & GAS LLC	Other Well	Active Well
G-38	107-00624	RAMSEY, CECIL LEON	Other Well	Abandoned Well
G-39	107-00626	BIG B DRILLING COMPANY, INC.	Vertical Well	Abandoned Well
G-40	107-00627	BIG B DRILLING COMPANY, INC.	Vertical Well	Abandoned Well
G-41	107-00632	SMITH, CARL E PETROLEUM INC	Vertical Well	Abandoned Well

Map Label	Permit ID	Facility Name	Permit Type	Description
G-42	107-00634	SMITH, CARL E PETROLEUM INC	Vertical Well	Plugged
G-43	107-00634	SMITH, CARL E PETROLEUM INC	Plugging	Plugged
G-44	107-00635	BIG B DRILLING COMPANY, INC.	Vertical Well	Never Drilled
G-45	107-00636	PATCHWORK OIL & GAS LLC	Other Well	Active Well
G-46	107-00647	L.K. ENERGIES, INC.	Other Well	Abandoned Well
G-47	107-00648	OPERATOR UNKNOWN	Other Well	Abandoned Well
G-48	107-00650	PATCHWORK OIL & GAS LLC	Other Well	Active Well
G-49	107-00653	SMITH, CARL E PETROLEUM INC	Vertical Well	Plugged
G-50	107-00653	SMITH, CARL E PETROLEUM INC	Plugging	Plugged
G-51	107-00658	PATCHWORK OIL & GAS LLC	Secondary Recovery Well	Active Well
G-52	107-00658	PATCHWORK OIL & GAS LLC	UIC Permit	Active Well
G-53	107-00658	PATCHWORK OIL & GAS LLC	UIC Permit	Active Well
G-54	107-00658	PATCHWORK OIL & GAS LLC	UIC Permit	Active Well
G-55	107-00658	PATCHWORK OIL & GAS LLC	UIC Permit	Active Well
G-56	107-00658	PATCHWORK OIL & GAS LLC	UIC Permit	Active Well
G-57	107-00658	PATCHWORK OIL & GAS LLC	UIC Permit	Active Well
G-58	107-00659	PATCHWORK OIL & GAS LLC	Other Well	Active Well
G-59	107-00660	EAST RESOURCES, INC.	Vertical Well	Plugged
G-60	107-00660	EAST RESOURCES, INC.	Plugging	Plugged
G-61	107-00667	COMMONWEALTH ENERGY, INC.	Other Well	Active Well
G-62	107-00671	COMMONWEALTH ENERGY, INC.	Other Well	Active Well
G-63	107-00672	COMMONWEALTH ENERGY, INC.	Other Well	Active Well
G-64	107-00675	AMERICAN ENERGY CORPORATION	Vertical Well	Plugged
G-65	107-00675	AMERICAN ENERGY CORPORATION	Plugging	Plugged
G-66	107-00677	COMMONWEALTH ENERGY, INC.	Other Well	Active Well
G-67	107-00685	COMMONWEALTH ENERGY, INC.	Other Well	Active Well
G-68	107-00706	BIG B DRILLING COMPANY, INC.	Vertical Well	Plugged
G-69	107-00706	BIG B DRILLING COMPANY, INC.	Plugging	Plugged
G-70	107-00713	COMMONWEALTH ENERGY, INC.	Other Well	Active Well
G-71	107-00721	TRIDEX, INC.	Fracture	Abandoned Well
G-72	107-00739	LIPPIZAN PETROLEUM, INC.	Plugging	Active Well
G-73	107-00739	LIPPIZAN PETROLEUM, INC.	UIC Permit	Active Well
G-74	107-00761	COMMONWEALTH ENERGY, INC.	Other Well	Active Well
G-75	107-00764	COMMONWEALTH ENERGY, INC.	Other Well	Active Well
G-76	107-00774	COMMONWEALTH ENERGY, INC.	Other Well	Active Well
G-77	107-00817	COMMONWEALTH ENERGY, INC.	Other Well	Active Well
G-78	107-00848	COMMONWEALTH ENERGY, INC.	Vertical Well	Active Well
G-79	107-00849	HAUGHT, INC.	Other Well	Plugged
G-80	107-00849	HAUGHT, INC.	Plugging	Plugged
G-81	107-00860	COMMONWEALTH ENERGY, INC.	Vertical Well	Active Well
G-82	107-00898	GLASS DEVELOPMENT COMPANY	Other Well	Active Well

Map Label	Permit ID	Facility Name	Permit Type	Description
G-83	107-00898	GLASS DEVELOPMENT COMPANY	Fracture	Active Well
G-84	107-01170	PRENCO	Other Well	Active Well
G-85	107-01243	PREMMA OIL & GAS, LLC	Other Well	Active Well
G-86	107-01261	WESTFALL, RALPH A	Other Well	Active Well
G-87	107-01272	CLAY RESOURCES, INC.	Vertical Well	Plugged
G-88	107-01272	CLAY RESOURCES, INC.	Plugging	Plugged
G-89	107-01284	CLAY RESOURCES, INC.	Other Well	Plugged
G-90	107-01284	CLAY RESOURCES, INC.	Plugging	Plugged
G-91	107-01285	K. PETROLEUM, INC.	Other Well	Active Well
G-92	107-01286	K. PETROLEUM, INC.	Other Well	Active Well
G-93	107-01289	PRENCO	Other Well	Active Well
G-94	107-01291	K. PETROLEUM, INC.	Other Well	Active Well
G-95	107-01293	K. PETROLEUM, INC.	Other Well	Active Well
G-96	107-01331	CABOT OIL & GAS CO WV	Other Well	Plugged
G-97	107-01331	CABOT OIL & GAS CO WV	Plugging	Plugged
G-98	107-01466	GLASS DEVELOPMENT COMPANY	Other Well	Active Well
G-99	107-01467	GLASS DEVELOPMENT COMPANY	Vertical Well	Active Well
G-100	107-01468	GLASS DEVELOPMENT COMPANY	Vertical Well	Active Well
G-101	107-01469	GLASS DEVELOPMENT COMPANY	Vertical Well	Active Well
G-102	107-01490	GLASS DEVELOPMENT COMPANY	Vertical Well	Abandoned Well
G-103	107-01511	REYNOLDS, KARL L	Assigned Permit Number	Abandoned Well
G-104	107-01549	REYNOLDS, KARL L	Assigned Permit Number	Abandoned Well
G-105	107-01550	REYNOLDS, KARL L	Assigned Permit Number	Abandoned Well
G-106	107-01551	REYNOLDS, KARL L	Assigned Permit Number	Abandoned Well
G-107	107-01587	TRIAD RESOURCES, INC.	Vertical Well	Never Drilled
G-108	107-01617	UNKNOWN - DEP PAID PLUGGING CONTRACT	Plugging	Plugged
G-109	107-01630	PATCHWORK OIL & GAS LLC	Vertical Well	Abandoned Well
G-110	107-01630	PATCHWORK OIL & GAS LLC	Re-Work	Abandoned Well

## Regulated PSSCs Oil and Gas Wells



## Appendix B. Communication Plan

# Communication Plan

## For Claywood Park PSD

PWSID: WV3305402 District: Wheeling

Certified Operator: Cory Willis

Contact Phone Number: 304-422-1675

Contact Email Address: [cory@woodpsd.org](mailto:cory@woodpsd.org)

Plan Last Updated: April 2019 Next Plan Update Due: April 2020

### ACKNOWLEDGMENTS:

*This plan was developed by Erica Johnson, Special Projects Coordinator for Claywood Park PSD 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.*

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## Introduction

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

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

## TIERS Reporting System

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

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

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

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

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

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

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

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

## Communication Team

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

Water system communication team members, organizations, and roles.

Team Member Name	Organization	Phone	Email	Role
Todd Grinstead	Claywood Park PSD	304-422-6042	Todd@woodpsd.org	Primary Spokesperson
Shayne Brabham	Claywood Park PSD	304-422-6042	Shayne@woodpsd.org	Secondary Spokesperson
A.J. Allen	Claywood Park PSD	304-422-6042	AJ.Allen@woodpsd.org	Member
Cory Willis	Claywood Park PSD	304-422-1675	Cory@woodpsd.org	Member

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

- Collect information needed to investigate, analyze, and characterize the incident/event
- Provide information to the management staff, so they can decide how to respond

- Assist the management staff in handling event response and communication duties
- Coordinate fully and seamlessly with the management staff to ensure response effectiveness

## Communication Team Duties

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

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

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

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

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

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

## Incident / Event Communication Procedure

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

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

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

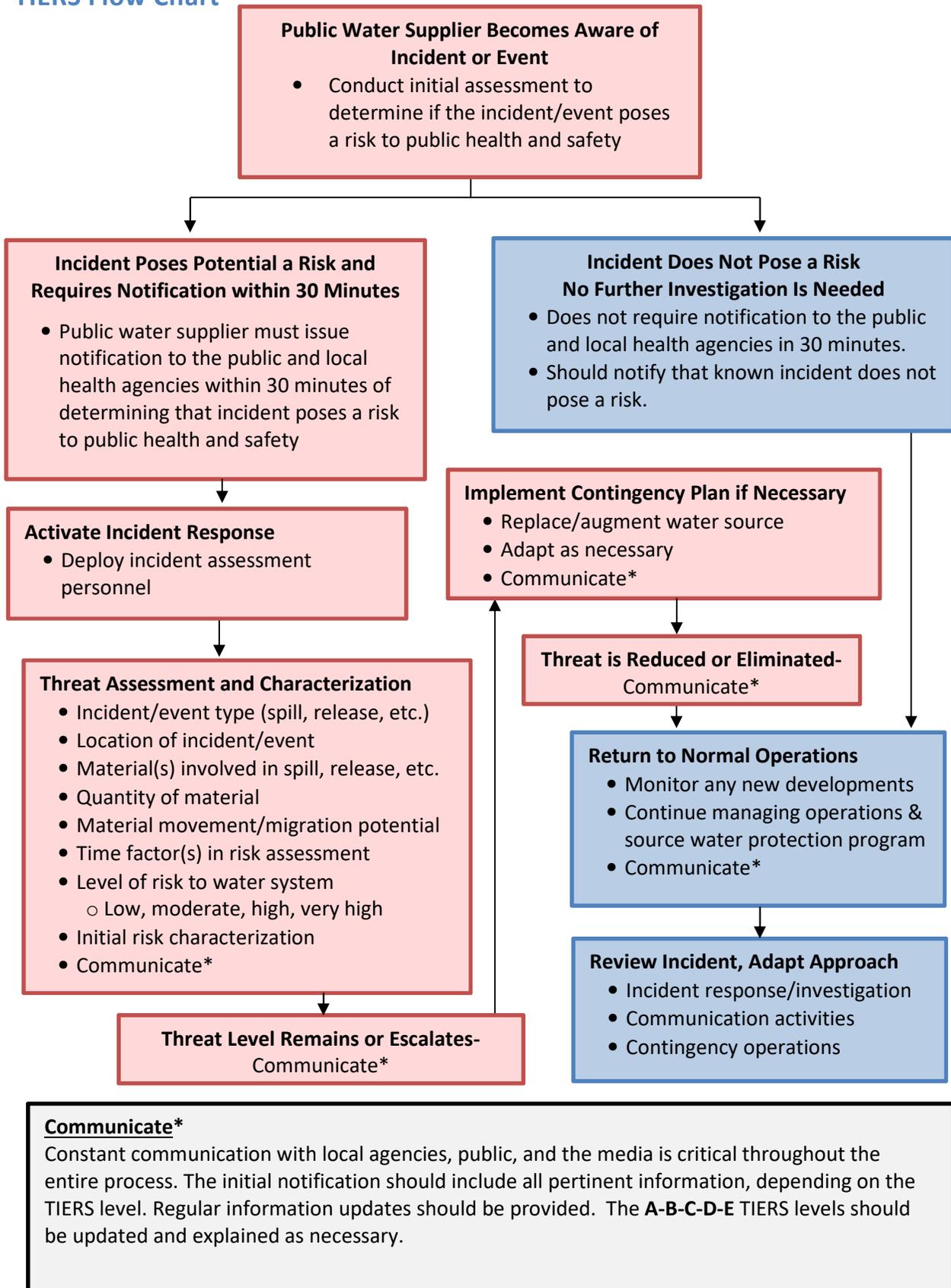
- Verification of the incident/event type (spill, release, etc.)
- Location of incident/event
- Type of material(s) involved in spill, release, etc.
- Quantity of material involved
- Potential of the material to move, migrate, or be transported
- Relevant time factor(s) in the risk assessment (e.g.,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

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

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

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

## TIERS Flow Chart



**Press Release Attachments**

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

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

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

The incident involves the following situation at this location:

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

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

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

State Water System ID# \_\_\_\_\_ Date Distributed: \_\_\_\_\_

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

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

Entire Water System    or     Other: \_\_\_\_\_

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

**What should I do?**

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

**What happened?**

- **The problem is related to** \_\_\_\_\_

**What is being done?**

- **The water system is taking the following action:** \_\_\_\_\_  
\_\_\_\_\_

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

- \_\_\_\_\_

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

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

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

This notice was distributed by \_\_\_\_\_

State Water System ID# \_\_\_\_\_ Date Distributed: \_\_\_\_\_

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

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

Entire Water System    or     Other: \_\_\_\_\_

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

**What should I do?**

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

**What happened?**

- **The problem is related to** \_\_\_\_\_

**What is being done?**

- **The water system is taking the following action:** \_\_\_\_\_

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

- \_\_\_\_\_

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

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

This notice was distributed by \_\_\_\_\_

State Water System ID# \_\_\_\_\_ Date Distributed: \_\_\_\_\_

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

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

Entire Water System    or     Other: \_\_\_\_\_

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

**What should I do?**

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

**What happened?**

- **The problem is related to** \_\_\_\_\_

**What is being done?**

- **The water system is taking the following action:** \_\_\_\_\_

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

- \_\_\_\_\_

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

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

This notice was distributed by \_\_\_\_\_

State Water System ID# \_\_\_\_\_ Date Distributed: \_\_\_\_\_

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

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

Entire Water System    or     Other: \_\_\_\_\_

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

**What should I do?**

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

**What happened?**

- **The problem is related to** \_\_\_\_\_

**What is being done?**

- **The water system is taking the following action:** \_\_\_\_\_

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

- \_\_\_\_\_

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

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

This notice was distributed by \_\_\_\_\_

State Water System ID# \_\_\_\_\_ Date Distributed: \_\_\_\_\_

## Emergency Short Forms

### Emergency Communication Information

	Name	Phone Number	Email	
<b>Designated spokesperson:</b>	Todd Grinstead	304-422-6042	<a href="mailto:todd@woodpsd.org">todd@woodpsd.org</a>	
<b>Alternate spokesperson:</b>	Shayne Brabham	304-422-6042	<a href="mailto:shayne@woodpsd.org">shayne@woodpsd.org</a>	
<b>Designated location to disseminate information to media:</b>	Claywood Park PSD Business Office			
<b>Methods of contacting affected residents:</b>	Automated calling system, Word of mouth, Door-to-door canvassing, Newspaper, Posted notices, Radio, Facebook, Twitter, Website			
<b>Media contacts:</b>	Name	Title	Phone Number	Email
	Clear Channel Radio			<a href="mailto:leahallen@iheartmedia.com">leahallen@iheartmedia.com</a>
	Results Radio Attn: Brian Guthrie		304-485-4565 Fax 304-424-6955	<a href="mailto:chelmick@resultsradiowv.com">chelmick@resultsradiowv.com</a>
	WTAP		304-485-4588	<a href="mailto:news@thenewscenter.tv">news@thenewscenter.tv</a>
	Parkersburg News & Sentinel Attn: Becky Miller		304-485-1891 Fax 304-485-5122	
	Wirt Co Journal			<a href="mailto:news@wirtjournal.com">news@wirtjournal.com</a>

### Emergency Services Contacts

	Name	Emergency Phone	Alternate Phone	Email
<b>Local Police</b>	Wood Co. Sheriff's Dept	911	304-424-0197	<a href="mailto:sheriff@woodcountywv.com">sheriff@woodcountywv.com</a>
<b>Local Fire Department</b>	Eastwood VFD	911	304-422-4410	<a href="mailto:contacteastwoodvfd@gmail.com">contacteastwoodvfd@gmail.com</a>
<b>Local Ambulance Service</b>	Camden Clark Medical Center	911	304-424-2111	
<b>Hazardous Material Response Service</b>	Dupont Haz-Mat Team	911	Contacted by fire dept.	
	REIC Labs	304-253-3933		<a href="mailto:info@reiclabs.com">info@reiclabs.com</a>
	State Lab	304-552-2564	304-558-3530	

### Key Personnel

	Name	Title	Phone	Email
<b>Key staff responsible for coordinating emergency response procedures?</b>	Todd Grinstead	General Manager	304-422-6042	<a href="mailto:todd@woodpsd.org">todd@woodpsd.org</a>
	Shayne Brabham	Assistant Manager	304-422-6042	<a href="mailto:shayne@woodpsd.org">shayne@woodpsd.org</a>
<b>Staff responsible for keeping confidential PSSC information and releasing to emergency</b>	Todd Grinstead	General Manager	304-422-6042	<a href="mailto:todd@woodpsd.org">todd@woodpsd.org</a>
	Shayne Brabham	Assistant Manager	304-422-6042	<a href="mailto:shayne@woodpsd.org">shayne@woodpsd.org</a>

<b>responders:</b>				
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**Sensitive Populations**

<b>Other communities that are served by the utility:</b>	Town of Elizabeth City of Mineral Wells			
<b>Major user/sensitive population notification:</b>	<b>Name</b>	<b>Emergency Phone</b>	<b>Alternate Phone</b>	
	Town of Elizabeth	304-275-3200		
	Mineral Wells PSD	304-489-2915		
	Cedar Grove Personal Care	304-424-6023		
	Ohio Valley Health Care	304-485-5137		
	WVUP	304-424-8000		
	Wirt Co. Schools	304-275-4279		
	Wood County Schools	304-420-9663		
<b>EED District Office Contact:</b>	<b>Name</b>	<b>Phone</b>	<b>Email</b>	
	Bob Smith	304-238-1145	Bob.A.Smith@wv.gov	
<b>OEHS Readiness Coordinator</b>	Jeffrey Smith	304-558-6708	jeffrey.e.smith@wv.gov	
<b>Downstream Water</b>	<b>Water System Name</b>	<b>Contact Name</b>	<b>Emergency Phone</b>	<b>Alternate Phone</b>

<b>Contacts:</b>	WVAW – Huntington District (Guyandotte Station Intake)		1-800-685-8660	
<b>Are you planning on implementing the TIER system?</b>		Yes		

### Emergency Response Information

<b>Has the utility developed a detailed Emergency Response Plan in accordance with the Public Health Security Bioterrorism Preparedness and Response Pan Act of 2002?</b>	Yes
<b>When was the Emergency Response Plan developed or last updated?</b>	2018

## 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](http://www.wvdhhr.org/oehs)

*Readiness Coordinator- Jeffrey Smith*

Phone; 304-588-6708

e-mail; [Jeffrey.e.smith@wv.gov](mailto:Jeffrey.e.smith@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](tel:304-368-2530)

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

1-800-424-8802

### **WV State Fire Marshal's Office**

1-800-233-3473

### **West Virginia State Police**

1-304-746-2100

### **WV Watch – Report Suspicious Activity**

1-866-989-2824

### **DEP Distance Calculator**

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

## Appendix C. Single Source Feasibility Study

Feasibility Matrix		Claywood Park Public Service District				PWSID: WV3305402			Date: 42122			Completed By: Cerrone Associates, Inc.									
Alternative Strategy Description	Economic Criteria					Technical Criteria						Environmental Criteria						Final Score	Total Capital Cost	Comments	
	Operation and Maintenance Costs	Capital Costs	Total	Total %	Weighted Total	Permitting	Flexibility	Resilience	Institutional Requirements	Total	Total %	Weighted Total	Environmental Impacts	Aesthetic Impacts	Stakeholder Issues	Total	Total %				Weighted Total
Backup Intake	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%	\$0.0	Comments
Interconnect	1.0	1.0	2.0	33.3%	13.3%	2.8	2.0	2.0	2.7	9.5	78.9%	31.6%	1.0	2.0	0.0	3.0	33.3%	6.7%	51.6%	\$440,000.0	Comments
Treated water storage	3.0	3.0	6.0	100.0%	40.0%	3.0	3.0	3.0	3.0	12.0	100.0%	40.0%	3.0	3.0	0.0	6.0	66.7%	13.3%	93.3%	\$570,000.0	Comments
Raw Water Storage	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%	\$0.0	Comments
Other-(Name of Alternative)	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%	\$0.0	Comments

**Scoring:**

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

## Feasibility Study Narrative

### Treated Water Storage – Very Feasible

Additional treated water storage is the most feasible option for Claywood Park PSD. Two (2) days of treated water storage is a possibility (See Appendix D). The existing Transfer Tanks hold 762,000 gallons of treated water to be supplied out into the Claywood Park system. Claywood Park also has two (2) additional storage tanks in the “core system”. The Dutch Ridge Tanks and Kanawha Tank (990,000 gallons total) are supplied directly from the Water Treatment Plant (WTP) and provide water out to the entire distribution system. These tanks in combination with the Transfer Tanks provide over 39 hours of storage for the entire system at average consumption rates. At the maximum monthly consumption rate, storage would last approximately 35 hours.

The District is adding a third Transfer Tank at the WTP through an upcoming Miscellaneous Water System Improvements project, expected to be completed by late 2016. This additional capacity would bring the total storage capacity, including the core tanks, to 51.5 hours at average consumption, covering the two (2) day capacity for all of Claywood Park PSD customers. At maximum consumption this storage capacity would cover approximately 46 hours. Claywood Park PSD has an additional eleven (11) tanks in the distribution system, not included in these calculations. During an emergency, this additional water storage would be carefully managed to extend the time the intake could be closed.

### Interconnection – Feasible but Difficult

Interconnection with the City of Parkersburg is a possibility. Based on an engineering report by the City of Parkersburg, tie-in point A could provide approximately 2 million gallons per day (MGD) of water and tie-in point B could provide approximately 0.33 MGD. Although Parkersburg could theoretically meet the District’s current demand for water, an in-depth engineering study of Claywood Park’s distribution system would be required to determine hydraulic capacity of existing infrastructure. Additional large diameter line may be necessary to convey water from tie-in points to existing tanks for further distribution.

The scenarios (with estimated construction costs) are as follows:

#### Tie-In Point A – Emergency line along State Route 47

Item	Unit Cost	Total Cost
233 Linear feet 8” water line	\$30 per linear foot	\$69,000
1 Booster station	\$275,000 each	\$275,000
1 Flushout emergency tie in	\$60,000 each	\$60,000
3 Creek crossings	\$11,000 each	\$33,000
1 Tie in	\$5,000 each	\$5,000
<b>Total</b>		<b>\$442,000</b>

Tie-In Point B – Emergency line from State Route 50 and Interstate 77 intersection to Red Hill

Item	Unit Cost	Total Cost
11000 Linear feet 8" water line	\$30 per linear foot	\$330,000
1 Flushout emergency tie in	\$60,000 each	\$60,000
3 Creek crossings	\$11,000 each	\$33,000
3 Tie ins	\$5,000 each	\$15,000
<b>Total</b>		<b>\$438,000</b>

The amount of \$440,000 was used for the interconnection option in the feasibility matrix since each of the options are so close in the overall cost estimate.

Backup Intake – Not Feasible

A secondary intake is not feasible for the Claywood Park Public Service District due to the location of the water plant and existing intake structure.

Raw Water Storage – Not Feasible

Due to the quantity of water required to be stored for extended emergency operation, raw water storage is not a feasible option due high costs and available land restraints.

## Appendix D. Supporting Documentation

### Claywood Park PSD Storage Capacity

Existing Transfer Tanks (TT):	762,000 gallons
Existing Core Tanks (Dutch Ridge & Kanawha):	990,000 gallons
Future Transfer Tank:	531,000 gallons
Additional Storage in System:	1,856,000 gallons
Water Sold Fiscal Year 2015:	388,076,000 gallons/year
Maximum Water Use Month Fiscal Year 2015:	35,649,210 gallons/month (June 2015)

	Average Sold Fiscal Year 2015	Maximum Sold Fiscal Year 2015
Gallons per day	1,063,222 (388,076,000/365)	1,188,307 (35,649,210/30)
Gallons per hour	44,301 (1,063,222/24)	49,513 (1,188,307/24)
Existing Transfer Tanks and Core Storage (hrs)	39.5 ((762,000+990,000)/44,301)	35.4 ((762,000+990,000)/49,513)
Existing plus future Transfer Tanks and Core Storage (hrs)	51.5 ((762,000+531,000+990,000)/44,301)	46.1 ((762,000+531,000+990,000)/49,513)

## Appendix E. Supporting Documentation

### Claywood Park PSD Storage Capacity

Existing Transfer Tanks (TT):	762,000 gallons
Existing Core Tanks (Dutch Ridge & Kanawha):	990,000 gallons
Future Transfer Tank:	531,000 gallons
Additional Storage in System:	1,856,000 gallons
Water Sold Fiscal Year 2015:	388,076,000 gallons/year
Maximum Water Use Month Fiscal Year 2015:	35,649,210 gallons/month (June 2015)

	Average Sold Fiscal Year 2015	Maximum Sold Fiscal Year 2015
Gallons per day	1,063,222 (388,076,000/365)	1,188,307 (35,649,210/30)
Gallons per hour	44,301 (1,063,222/24)	49,513 (1,188,307/24)
Existing Transfer Tanks and Core Storage (hrs)	39.5 ((762,000+990,000)/44,301)	35.4 ((762,000+990,000)/49,513)
Existing plus future Transfer Tanks and Core Storage (hrs)	51.5 ((762,000+531,000+990,000)/44,301)	46.1 ((762,000+531,000+990,000)/49,513)