



Watershed Improvement Branch

Nonpoint Source Management Plan

<http://www.dep.wv.gov/nonpoint>

West Virginia's Nonpoint Source Program's Management Plan



Prepared
By

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Statement of Policy Regarding the Equal Opportunity to use and Participate in Programs

It is the policy of WVDEP to provide its facilities, services and programs to all persons without regard to sex, race, color, age, religion, national origin and handicap. Proper licenses, registration and compliance with official rules and regulations are the only sources of restrictions for facility use or program participation. West Virginia's NPS Program is funded by Clean Water Action §319 Grants, administered by the USEPA.

Cover photos

Watershed Celebration Day participants; Passive and active acid mine drainage (AMD) treatment - Deckers Creek watershed; AGO wetland restoration – White Sulphur Springs Hatchery; Public stream access constructed using porous pavers - Back Creek watershed protection plan

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Chapter 1 - Introduction

This document is West Virginia’s revised Nonpoint Source Management Plan (WVNPSMP). It updates the State’s NPS Management Plan originally developed under §319 of the Clean Water Act (CWA) in 2000. WVNPSMP was revised and received USEPA approval September 2014. This update is the five-year revision as required by [USEPA guidance](#).

The WVNPSMP will be reviewed/revised periodically. If updates occur before the five-year cycle, the changes/addendums will be submitted to USEPA for approval. Every five years the entire document will be updated as needed and re-submitted to USEPA for comment. WVDEP is committed to the process of making sure WVNPSMP consistently addresses NPS Program needs and priorities considering new and existing TMDLs, WBPs, funding and stakeholder opportunities.

Statutory background

Congress enacted §319 of the CWA in 1987, establishing a national program to control nonpoint sources of water pollution. CWA §101(a)(7) states, “it is the national policy that programs for the control of nonpoint sources of pollution be developed and implemented in an expeditious manner to enable the goals of this Act to be met through the control of both point and nonpoint sources of pollution.”

Funding appropriated under §319 can be used to implement state NPS programs including, as appropriate, non-regulatory or regulatory programs for enforcement, technical assistance, financial assistance, education, training, technology transfer, and demonstration projects to achieve implementation of best management practices (BMPs) and water quality goals.

Under §319(a), all states have addressed NPS pollution by developing NPS assessment reports that identify NPS pollution problems and sources responsible for the water quality impairments. Under §319(b), all states have also adopted state NPS management programs to control NPS pollution. State NPS management programs provide the foundation for state programs to address NPS pollution. These programs should articulate each state’s strategy to address nonpoint sources and to achieve/maintain water quality standards. Since 1990, Congress has annually appropriated grant funds to states under §319(h) to implement their approved state NPS management program.

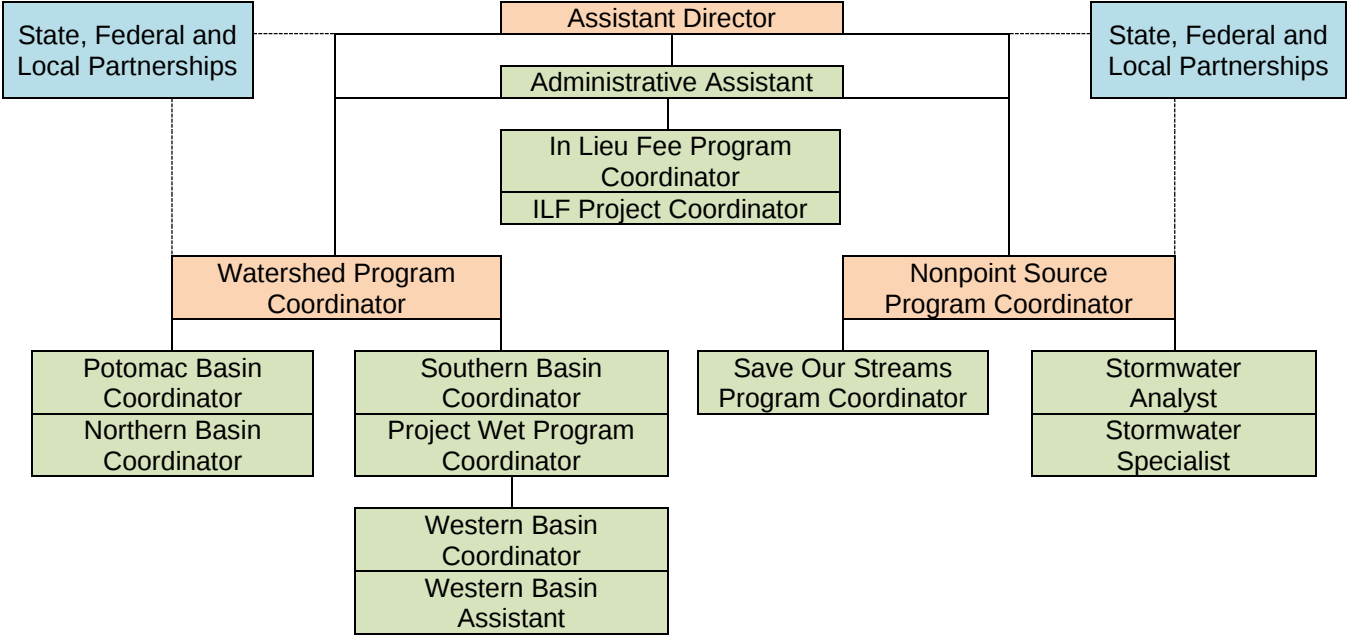
Nonpoint Source pollution is not specifically defined in the CWA. A brief definition is that nonpoint pollution includes pollution caused by rainfall or snowmelt moving over and through the ground and carrying natural and human-made pollutants into lakes, rivers, streams, wetlands, estuaries, other coastal waters and ground water. Atmospheric deposition and hydrologic modification are also sources of nonpoint pollution.

Organization and structure

As the lead agency, WVDEP’s, Division of Water and Waste Management’s (DWWM), Watershed Improvement Branch (WIB) NPS Program manages and coordinates the statewide NPS Program activities. The NPS Program is grouped within WIB along with the Stream Partners Program (SPP), Chesapeake Bay (CB) Program, and the In Lieu Fee (ILF) Program. WIB employs four environmental specialists as Basin Coordinators (BCs), a Western Basin Assistant, and two Stormwater Specialist (SWS) to locally coordinate, develop, track and implement plans

and projects. WIB also employs the Project Wet Coordinator, Save Our Streams (SOS) Coordinator, and an ILF Program and Project Coordinator. USEPA’s §319 Grant funds the NPS Program Coordinator, Northern and Southern Basin Coordinators and a portion of the Assistant Director and Administrative Assistant salaries. WV Conservation Agency (WVCA) takes a leadership role in agriculture and construction activities.

Table 1 – WIB Organizational Chart



The above chart shows the hierarchal structure of WIB. However, many of our duties and responsibilities cross-over into many areas depending upon the type of grants, goals and objectives of the work and the skill sets of the employees. To carry out the overall goals and objectives of the NPS program we work as a team. Our Mission Statement is “**To inspire and empower people to value and work for clean water**”. The WIB name change occurred in July 2015. The Watershed Improvement Branch (WIB) is a name that better reflects what the programs in this section are all about.

WIB coordinates within WVDEP with the Division of Mining and Reclamation (DMR), the Office of Abandoned Mined lands and Reclamation (OAMR), the Stormwater Permitting Program, Clean Water State Revolving Loan Fund (CWSRF), the Watershed Assessment Branch (WAB), Office of Oil and Gas (O&G) and Office of Environmental Enforcement (EE). Other agency partners include the WV Dept. of Agriculture (WVDA), WV Division of Forestry (WVDOF), WV Division of Natural Resources (WVDNR), WV Dept. of Health and Human Resources (WVDHHR), US Office of Surface Mining (OSM), US Dept. of Agriculture’s Natural Resource Conservation Service (NRCS). Non-governmental partners include West Virginia University (WVU), Canaan Valley Institute (CVI), Cacapon Institute (CI), WV Rivers Coalition (WVRC), numerous watershed groups, schools (elementary through college), and multiple non-governmental organizations (NGOs).

Chapter 2 - Watershed management

WIB is charged with the mission of implementing nonpoint source TMDLs. The goal is the full restoration of the targeted stream with its removal from the State’s 303(d) list. The 303(d) list, now the Integrated Report is published by WVDEP-WAB every two years. It identifies streams that are not meeting water quality standards.

Watersheds are selected for TMDLs based on the groupings and schedule listed in Table 2 and the Figure 1 map. A TMDL is the total amount of a pollutant that can be assimilated by the receiving water while still achieving water quality standards. TMDLs can be expressed in terms of mass per time such as tons per year or by other appropriate measures. TMDLs can be like a water quality budget for a specific water body. The “expenses” of the “budget” are comprised of the sum of individual wasteload allocations for point sources, load allocations for nonpoint sources, and natural background levels. In addition, the TMDL must include a margin of safety. The “assets” of the budget would be all those factors that allow the water body to dilute or absorb pollutants. As with

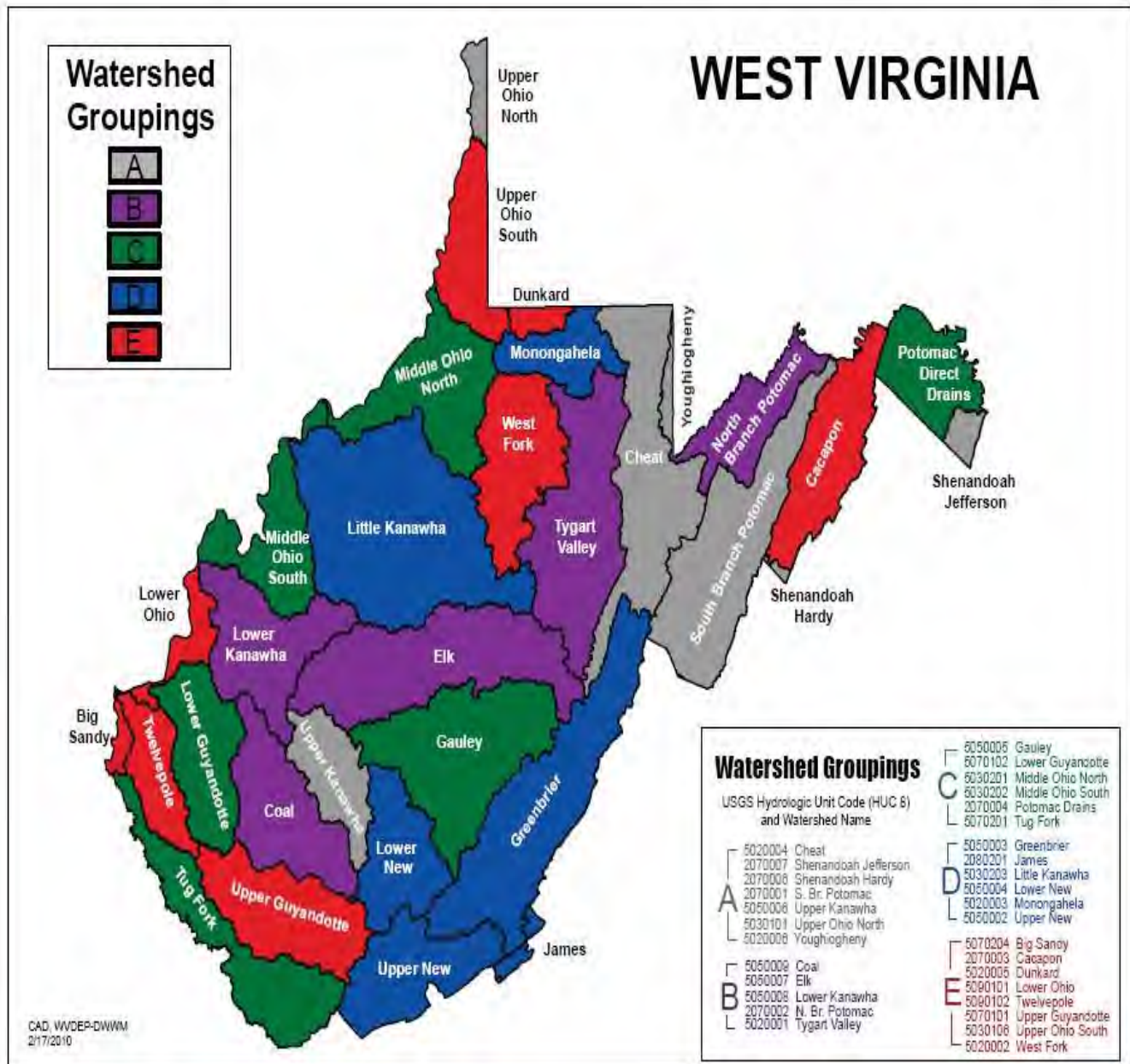
any budget when expenses are greater than assets problems occur. A TMDL sets load reductions from the various sources to bring the “budget” back into balance. It allows for various management options that will achieve the desired source load reductions. A load reduction is the amount of pollutant that is prevented from entering a stream. Achieving load reductions is the goal of any NPS project.

While WVDEP normally cycles through the watershed groupings each year for sampling, other factors influence the TMDL development schedule. For instance, the number of impaired waters not already addressed influences priority, as does the desire to revise older TMDLs to update point source contributions or address changes in water quality standards. WVDEP is currently developing TMDLs for the Upper Guyandotte, Twelvepole, Lower Ohio, and Big Sandy watershed, all of which fall in the Group E watershed group; as well as for the Lower Guyandotte in Group C. Pre-TMDL monitoring data is currently being collected to inform the development of TMDLs for the Tug Fork watershed, also in Group C. Planning has begun to select streams and stations to monitor from a portion of the Little Kanawha River watershed in Group D. The streams included in the TMDL development schedule are provided in [Appendix 3](#).

Table 2 – WVDEPs WAB sampling cycle

2019 (Group D) Greenbrier River James River Little Kanawha River Lower New River Monongahela River Upper New River	2020 (Group E) Cheat River Shenandoah River South Branch Potomac Upper Kanawha River Upper Ohio North Youghiogheny River	2021 (Group A) Gauley River Lower Guyandotte River Middle Ohio North Middle Ohio South Potomac Direct Drains Tug Fork River
2022 (Group B) Big Sandy Cacapon River Dunkard Creek Lower Ohio Twelvepole Creek Upper Guyandotte River Upper Ohio South West Fork River	2023 (Group C) Coal River Elk River Lower Kanawha River North Branch Potomac Tygart Valley River	

Figure 1 – WV Watershed Groupings



Stakeholder involvement

WIB relies on the TMDL process to help prioritize watersheds for the development of watershed based plans (WBPs). This provides the initial priority regions, but further refinements are needed before choices can be made on where on-the-ground successes are likely. One successful approach is the development of local Project Teams, usually facilitated by BCs, WVCA Conservation Specialists (CS) or other lead agency representative willing to act as the facilitator.

There are several successful project teams that meet regularly throughout our priority watersheds; Tuscarora Creek, Mill Creek Opequon, Elks Run, Sleepy Creek, Morris Creek, Deckers Creek Restoration Team, Upper Buckhannon, and Cheat River of Promise, just to name a few. WIB works to improve and expand project teams to other priority watersheds to help build the capacity of local stakeholder groups. Guidance is provided to project teams regarding their organizational structure, priorities etc. Every team is different... More information can be found [HERE](#).

Basin Coordinators

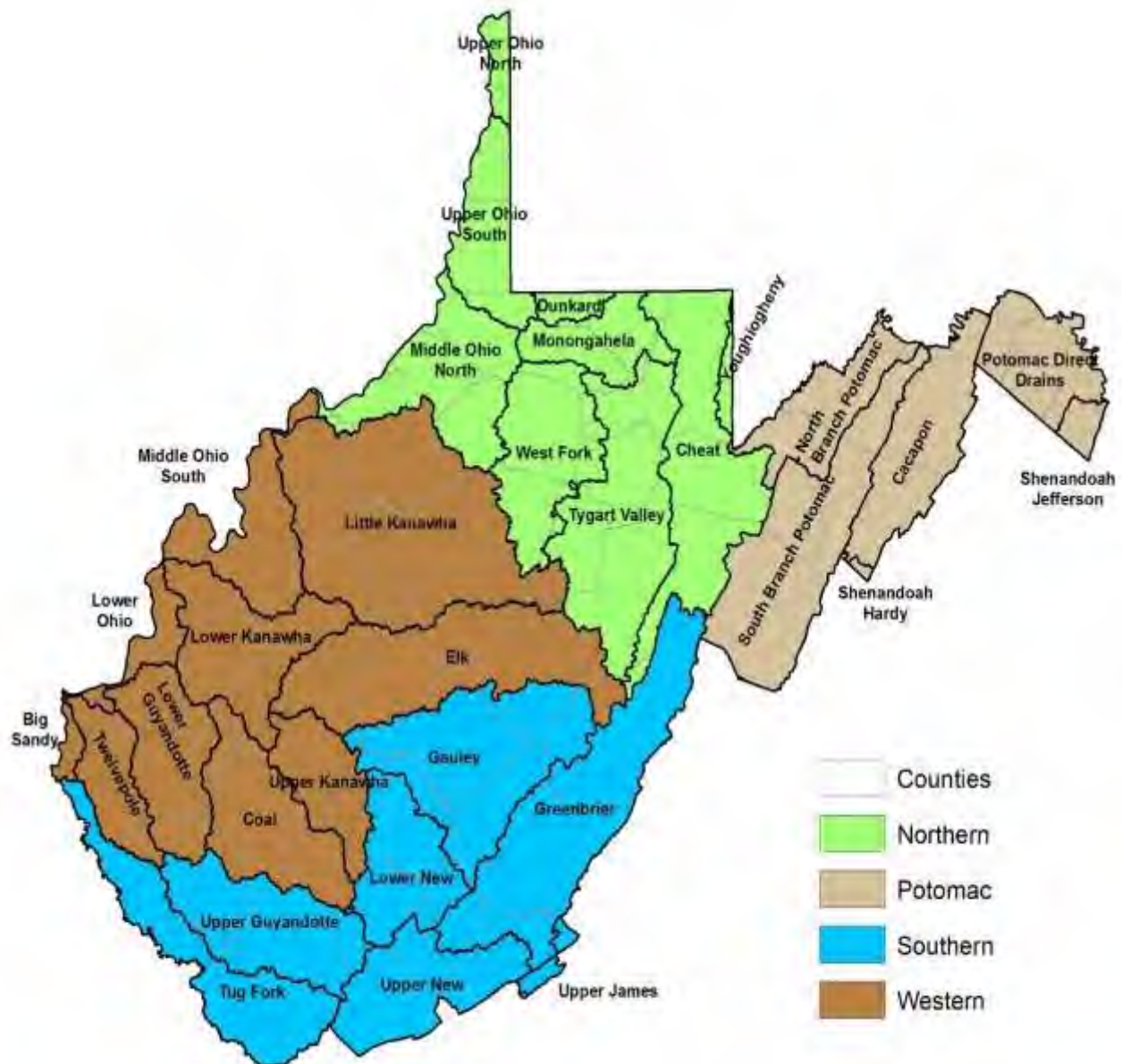
BCs are WIB staff that help the local watershed protection efforts become reality. These experts are responsible for organizing local efforts to implement water quality improvement projects. To help get improvements on the ground, BCs have roles in:

- Fostering and supporting volunteer watershed associations and other organizations;
- Educating citizens on nonpoint pollution issues;
- Identifying local stakeholders and partners;
- Assisting with the development of WBPs; and
- Facilitating project teams to implement water quality projects.

The BCs efforts are extremely important to each successful implementation of our WBPs and watershed projects. Not only do they foster working relationships within their own regions, but they will also work with other BCs or specialists from other agencies in other regions of the state to get projects implemented. A map of the regions is provided in [Figure 2](#).

1. Potomac Basin: The water quality drivers in this region are the Chesapeake Bay TMDL for nutrients and sediment, and local bacteria and biological impairments. The Potomac BC coordinates the nonpoint BMP data collection effort for the CB Program and participates in its Watershed Technical Workgroup. The PBC also works with local watershed associations and interacts with local governments. The PBC is funded by Chesapeake Bay grant monies. Active WBPs in the region include Mill Creek of Opequon, Tuscarora Creek, Elks Run, Sleepy Creek, Anderson Run (new) and Back Creek watershed protection plan (WPP).
2. Northern Basin: In this region, several non-governmental organizations (NGOs) are planning and carrying out watershed projects to decrease loads of acidity and metals from abandoned mines so that streams will meet TMDL targets. Our Northern BC manages most of the NPS Program's AMD restoration efforts. Active WBPs in this region include Lower Cheat, Deckers Creek, Upper Buckhannon, Roaring Creek, North Fork Blackwater, Big Sandy Creek (new) and Lamberts Run. Note: The Lower Cheat is being subdivided into smaller HUC12 size plans and most of which will be completed in 2019, 2020 and 2021.
3. Western Basin: Water quality in the western region of West Virginia varies, but is generally listed as impaired due to fecal coliform, sediment, and AMD per the corresponding TMDLs. Our Western BC's works closest with AMD treatment and stormwater issues with Municipal Separate Storm Sewer Systems (MS4) permittees. Active WBPs in this region include Morris Creek, Cane Fork, Cherry Fork and Browns Creek.
4. Southern Basin: The Southern BC continues to establish relationships with state and federal agencies, volunteer organizations and community leaders. The southern part of West Virginia has a myriad of water pollution concerns, the most prominent being bacteria. Active WBPs in this region include Wolf Creek, Muddy Creek of Greenbrier, Second Creek, Potts Creek, Knapp Creek, Piney Creek, Milligan Creek, Indian Creek, Pipestem Creek, Spring Creek, Anthony Creek and Upper Meadow River.

Figure 2 – BC regions



Watershed based plans

WBPs are developed through local stakeholder involvement. Projects that are developed within a watershed must be designed to implement the plan. The WBP will identify all the partnerships, projects, funding sources, follow-up monitoring, and timeline. A WBP can be based on a watershed strategy or a TMDL (or both) and more clearly defines the specific responsibilities of each stakeholder group in implementing efforts to restore a watershed to compliance with water quality standards.

A complete list of all WBPs are provided in [Appendix 2](#). The list includes active, not active, revised and plans currently being developed. Currently WIB has 42 WBPs in various stages of implementation. In late 2018 and early 2019, WIB held focused discussions with agency stakeholders on future WBP development, completion of current plans and revisions of those that have stalled. These discussions are on-going and will continue at least annually, or more frequently if needed.

Due to the large number of WBPs that are in or nearly in the implementation phase, WIB does not anticipate many new WBP submissions within the next five-years. At least two, perhaps a few more are anticipated. However, if opportunities present themselves the NPS Program will support the development of future WBPs, alternate plans and especially WPPs.

Watershed tracking

WBP/TMDL load reduction goals are calculated from TMDL allocations and key BMP goals are identified from WBPs and entered into USEPA's Watershed Plan Tracker (WPT) database. This step requires a dialogue with the author(s) of the watershed plan and state TMDL program to assure that information is properly interpreted. The next step requires that the implementation data in GRTS be checked to assure that it matches the TMDL boundaries identified in the WBP already entered in the WPT. Once these adjustments have been made in GRTS, the linkage is established between WPT and GRTS. Implementation, tracking reports and charts are created in Oracle Business Intelligence (OBI), a companion program. The NPS Program will use the WPT to track the progress of WBPs and schedule regular conference calls/meetings to update WBPs and correct any misinformation. A portion of the \$319 grant funding is dedicated to [watershed tracking](#).

[Appendix 1](#) provides examples of WBT reports from OBI.

Healthy waters protection and evaluation

Healthy watersheds provide many ecosystem services and environmental benefits, including clean water, recreational opportunities, habitat for fish and wildlife, and reduced vulnerability to severe impacts such as flooding and climate change. Traditionally, the chemical, biological and physical characteristics of a watershed were used to determine a water body's health. However, it is now understood that a more holistic approach is necessary to maintain the integrity of healthy watershed systems. It is necessary to also understand the hydrology, geomorphology and natural disturbance patterns in the area. Only with a complete understanding of all these factors can we begin to protect the remaining healthy waters.

Protection tools in WV

Antidegradation refers to federal regulations designed to maintain and protect high quality waters and existing water quality in other waters from unnecessary pollution. This policy will ensure that West Virginia's waters are protected from activities which have the potential to lower water quality. West Virginia is required to establish a tiered antidegradation policy and implementation procedure.

Specific steps to be followed depend upon which tier of antidegradation applies. Procedures are outlined in the legislative rule Series 5 Antidegradation Implementation Procedures - Title 60CSR5. All waters are assigned to specific tiers depending upon the level of protection necessary to maintain high quality and/or existing uses. The higher the tier, the more stringent the requirements are for protection. West Virginia categorizes waters into the following tiers.

1. **Tier 1:** Maintains and protects existing uses of a water body and the water quality conditions necessary to support such uses. A waterbody that is listed as impaired on the state's 303(d) list is considered a Tier 1 water as it pertains to the specific pollutant listed.



The Back Creek WPP received EPA approval in 2015. Since then, two major watershed projects have been funded and are nearly complete.

2. Tier 2: Maintains and protects "high quality" waters - water bodies where the level of water quality exceeds levels necessary to support recreation and wildlife and the propagation and maintenance of fish and other aquatic life. Tier 2 is the default assignment for a waterbody not listed as impaired on the states 303(d) list.
3. Tier 3: Maintains and protects water quality in outstanding national resource waters.

The Tier 3 category includes waters in Federal Wilderness Areas, specifically designated federal waters, and high quality waters or naturally reproducing trout streams in state parks, national parks, and national forests. Guidance pertaining to Tier 3 waters can be found in Series 2A Designation of Tier 3 Waters - Title 47CSR2A. Unique to WV is a process for **nominating** candidate waters for inclusion in the Tier 3 category. The nomination procedures are outlined in Series 5 Antidegradation Implementation Procedures - Title 60CRS5, Section 7.1. Section 7.1 outlines all necessary information and documentation that must be included in the nomination packet, and general procedures WVDEP staff utilizes during the nomination review. Nominations have been received and approved for Fill Hollow Creek and Watkins Run; both are headwater streams that support native trout, located in Preston County in the Buffalo Creek-Cheat River HUC12.

Another tool has been recently developed through collaboration with The Nature Conservancy (TNC) and funding from EPA and WVDEP. The tool, known as the WV Watershed Assessment Pilot Project (WVWAPP) is an interactive GIS map designed to help decision-makers and stakeholders prioritize watershed areas for protection and restoration activities. The data included comes from a wide variety of national and state sources including WVDEP's water quality, mining and oil and gas data, WVU's mining data, land cover and protected lands data from TNC, wetlands data from US Army Corp of Engineers (ACOE) and the US Fish and Wildlife Service (USFWS), climate data from NOAA and a variety of other legitimate data layers. The tool uses multiple metrics and a color-coded system to rate and display the condition of HUC12 and catchments layers in the categories of streams, wetlands and uplands.

Table 5 – Categories of the WVWAPP

Streams	Wetlands	Uplands
• Overall • Water quality • Water quantity • Hydrologic connectivity • Biodiversity • Riparian habitat	• Overall • Water quality • Hydrology • Biodiversity • Wetland habitat	• Overall • Habitat connectivity • Habitat quality • Biodiversity

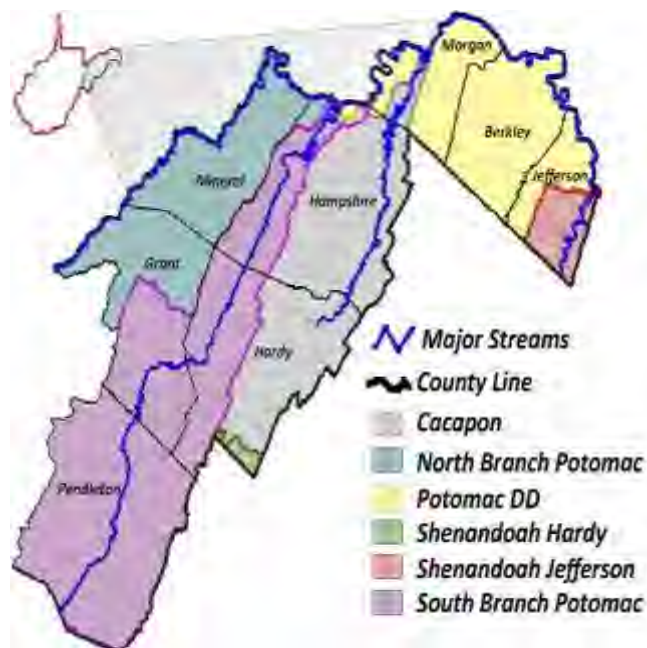
The TNC tool, due primarily to funding needed to maintain it, will most likely change. Discussions with WVDEP and others are on-going to find alternate hosts. A new tool, the Watershed Resource Registry (WRR) was recently implemented. WRR is similar to TNC's tool, but in many ways is more complete and has an expanded coverage area. The purpose of WRR is to help prioritize areas for restoration and preservation and its target audience is planners in natural resources, transportation and watershed managers. Learn more about WRR in [Appendix 4](#) and go to: <https://watershedresourcesregistry.org/>. In the future, WRR may incorporate much of the information from WVWAPP. Developers are currently reviewing the technical challenges. An option on the table is to incorporate the most important components from the TNC into WRR. Until that occurs the TNC tool will continue to be utilized.

Chesapeake Bay Program

West Virginia's Potomac drainage and a small portion of the James River are headwaters to the [Chesapeake Bay](#). WV's CB Program efforts are fully integrated into the NPS Program in both the WVDEP and WVCA. Additional partners, including WVDA, WVDOF, watershed groups, NGO's and other stakeholders are also long time participants in West Virginia's NPS and CB Programs.

West Virginia's Chesapeake Bay TMDL Phase 3 [Watershed Implementation Plan](#) (WIP) identifies the actions that will be undertaken between 2018 and 2025 to reduce the contribution of nitrogen, phosphorus and sediment to the Bay. Most of these activities are nonpoint source BMPs on agricultural and urban lands. CB Program watershed priorities are based upon delivered nutrient load to the Bay. Within the Potomac drainage and the James River, WVDEP also has several local TMDLs that require fecal coliform and sediment reductions. Many of the same practices address both nutrients and fecal coliform. Since approval of the last WVNMP, NPS Program

staff and partners have developed WBPs for seven priority basins in WV's Chesapeake Bay drainage. Where local TMDLs and CB Program priorities overlap, West Virginia is achieving the greatest efficiency of technical and financial resources.



Agricultural BMPs such as nutrient management, forested riparian buffers, livestock exclusion, and agricultural waste management are priorities in West Virginia's WIP and WBPs. West Virginia uses a combination of USDA Farm Bill funding through programs like EQIP, WHIP, CBWI (now RCPP), and CREP to fund most of the agricultural BMP installations. WIB works closely with NRCS and other agriculture partners to develop proposals for RCPP and other USDA funding. West Virginia also uses Chesapeake Bay Implementation Funds to support agriculture practices. WVCA's Agricultural Enhancement Program and §319 funds are also used where appropriate and/or needed.

Technical assistance for BMP implementation and nutrient management planning is provided by NRCS, WVCA, WVDA and County Extension Agents.

Urban stormwater BMPs such as rain gardens and other infiltration practices as well as policy and program activities such as development of local stormwater

ordinances are also areas of focus. With few regulated MS4s within the Potomac drainage, most of the effort is placed upon working with local governments to develop stormwater ordinances comparable to West Virginia's MS4 program requirement for management of the first 1 inch of rainfall. This requires the first one-inch of rainfall to be managed so it can infiltrate and evapotranspiration to reduce the pollutants in stormwater. Voluntary urban stormwater BMPs are also installed in §319 priority watersheds and by using §319 AGO funds and Chesapeake Bay Implementation grant funds. Technical assistance on urban stormwater issues is provided through WV's NPS Program staff.

WV's NPS Program and CB Program staff participates in various CB committees providing input on policy and program development as well as reporting and progress evaluations. BMP verification has become a major focal point for the CB Program to ensure that BMPs that have been installed and continue to perform as intended. Two year milestones, that include programmatic goals and BMP implementation, are also established by West Virginia as required by EPA. Overall, progress made in advancing water quality improvements in West Virginia's Chesapeake Bay drainage are in part due to the ongoing nonpoint program activities and staff that have been in place for decades.

Additional grant opportunities (AGOs)

An AGO is a request for proposals from viable organizations for projects related to nonpoint source pollution issues. These projects can include education and outreach to the public or a specific sector of the public, monitoring of nonpoint sources and construction of practices to reduce nonpoint source pollution, staff support or a wide variety of other projects with a nonpoint focus. AGOs have been a valuable tool for the NPS Program. These small grants have allowed us to expand our volunteer base, improve outreach throughout the state by providing demonstration projects in high visibility areas that mitigate nonpoint sources of pollution, and support NPS monitoring programs.

In 2017 WIB was able to develop and fund a grant program that provided up to \$30,000 in staff support. The program, initially called [Watershed Pilot Program](#) (WPP) funded positions for four watershed groups that currently have active WBPs or are developing and revising future WBPs. The organizations selected are responsible for all human resources management; they must provide office space, computer and internet access, have access to water quality monitoring equipment, can manage payroll, insurance etc. The term of the grant is three years and the second phase of the WPP is set to expire in 2021. However, the effort may continue if funding can be procured. WIB is encourage by the success of the WPP. With WPP funding, local groups that were not able to

manage §319 watershed projects in the past, have successfully implemented multiple projects, improved outreach and developed local partnerships to support their efforts.

Chapter 3 - Water quality monitoring

Monitoring of water quality will be accomplished within the DWWM through the WAB. WAB provides water quality data and monitoring support for NPS Program projects throughout West Virginia. Sampling of the mainstem and tributary loading impacts provides an overall picture as to the total degree of pollutant impacts. WAB will assist WIB in evaluating the effectiveness of NPS projects, helps identify areas for future projects, and through the TMDL process targets other priority areas for WBP development and protection opportunities.

Additional monitoring support will be provided by the BCs by monitoring for load reductions from specific projects, assisting our partners who conduct monitoring, and working with groups to produce an approved Quality Assurance Project Plan (QAPP). The NPS Program will continue to participate in the National Water Quality Initiative (NWQI) webinars that focus on NPS monitoring and will seek technical guidance from USEPA, if needed. Finally, additional support will be provided by the SOS Program through training and in some cases specific project monitoring.

Water quality standards

Water quality standards are the backbone of the 303(d) and 305(b) processes of the federal CWA. In West Virginia, the water quality standards are codified as 47CSR2 – Legislative Rules of the Department of Environmental Protection – Requirements Governing Water Quality Standards. Impairment assessments conducted for the 2012 cycle are based upon water quality standards that have received USEPA's approval and are currently considered effective for CWA purposes. A waterbody is considered impaired if it violates water quality standards and does not meet its designated uses. Some examples of designated uses are water contact recreation, propagation and maintenance of fish and other aquatic life, and public water supply.

Because implementation of the load allocations established by TMDLs are not enforceable under the CWA, for waters impaired solely or partly by NPS pollution sources, the primary implementation mechanism is generally the state NPS Program coupled with other state, local, and federal land management programs and authorities. Thus, the NPS program is an important mechanism to implement TMDLs and restore the impaired waters listed under 303(d) where NPS pollution is a contributor to the water quality impairment. This is best achieved through the development of WBPs that incorporate information from TMDLs that have been developed in the watershed. The implementation of WBPs has been and continues to be the highest priorities for the use of §319 funds.

With the multiple WBPs now in existence in the state, monitoring the progress of these plans becomes more and more important.

Quality Assurance Project Plans

The Quality Assurance Project Plan (QAPP) integrates all technical and quality aspects of a project, including planning, implementation, and assessment. The purpose of the QAPP is to document planning results for environmental data operations and to provide a project-specific "blueprint" for obtaining the type and quality of environmental data needed for a specific decision or use. The QAPP document describes how QA/QC procedures are applied to an environmental data operation to assure that the results obtained are of the type and quality needed and expected.

As mentioned previously the BCs will work with groups to develop QAPPs as needed for each watershed project proposal or their entire WBP if that is more appropriate. Technical guidance and support are also provided by WVDEPs NPS Program Coordinator, WAB, TMDL section, EPA, and contractual support. Several watershed groups such as Friends of Deckers Creek and Friends of the Cheat have written approved QAPPs within their watersheds for Acid Mine Drainage (AMD) monitoring and are also available to provide technical assistance.

The NPS Program follows the guidance provided by "USEPA Requirements for Quality Assurance Project Plans EPA QA/R-5" for development of QAPPs for its watershed projects. These are submitted formally to EPA Region III for approval. Note: West Virginia, Pennsylvania and other regional partners are currently working with USEPA to develop a QAPP template and to make other suggestions and improvements that will streamline future QAPP development and approval.

Volunteer monitoring

Volunteer monitoring efforts have always played key roles in §319 projects and will continue to do so into the future. The [WV Save Our Streams](#) (SOS) Program, once part of the NPS Program budget it is now funded by §106 and the Water Quality Management Fund, but it is still supported and managed by the NPS Program. The SOS Program provides technical monitoring assistance, training and certification. Volunteers receive a full day of classroom and stream side training on water quality, habitat and benthic macroinvertebrate collection and identification. They then must take a test and demonstrate their skills to become certified volunteer stream monitors.

Typically, these groups educate and encourage community members to get involved in the efforts to restore priority watersheds. Their local monitoring activities not only provide data, but they also demonstrate the importance of water quality. Volunteer monitoring groups often assist more experienced watershed groups that have active §319 projects, and through additional training by these groups and SOS are used to collect benthic data that can be preserved and analyzed to determine the impact of projects on biological integrity.

STORET/WQX

USEPA requires states to enter their water quality monitoring data, for data collected in a waterbody as a part of the implementation of a §319 project, into USEPA's storage and retrieval (STORET) data system. All water quality data generated with §319 funding, either directly or by sub-award, are required to be transmitted into the STORET data warehouse using either the Water Quality Exchange (WQX) or WQXweb.

In the past WVDEPs NPS Program has not been consistent entering its data into STORET and has simply relied on the WAB. The number of WBPs and watershed projects is far less than the number of typical stations that WAB monitors during their rotation through their cyclical monitoring cycle. If we need project monitoring, we communicate with WAB as early as possible, but even under these circumstances much of our project monitoring is completed by watershed associations or other partners. These partners have not entered their data into STORET on a consistent basis.

Over the next several years more emphasis will be placed on this effort. The Northern BC has been tasked with the lead, and thus far his expertise resulted in successful WQX entries for multiple watershed groups. WIB also plans to hold regional training on the use of STORET and WQX and are currently exploring database tools that have successfully integrated with WQX.

Operation and maintenance

Operation and maintenance (O&M) are required on all practices installed with §319 funds. Practices for agriculture, AMD, septic systems, and urban stormwater are operated and maintained for the expected lifespan of the practice. This requirement is passed on to all partners of WVDEP's sub-grant awards.

In June of 2015 the NPS Program's NBC, our expert in AMD, completed a manual that provides guidance and encourages watershed groups to develop plans for the O&M of all their projects, and to gather resources to carry out those plans. The chapters in the manual include information on:

- Institutional practices supporting O&M
- O&M considerations through the project life cycle
- Common BMPs for AMD remediation and their maintenance needs
- Post construction inspection, monitoring, and operation
- Post-construction major maintenance and more

The [O&M manual](#) provides comprehensive guidance on the topic and is available for download from the NPS Program website.

Chapter 4 - NPS priority categories

Agriculture

WIB coordinates with other federal and state agricultural agencies on watershed projects and cost sharing incentives and provides water quality monitoring support to priority agricultural projects. NPS Program staff participate in meetings of the various Soil and Water conservation organizations and committees, the NRCS State Technical Committee, Conservation Reserve Enhancement Program (CREP) Committee and the Nutrient Management Advisory Committee. The NPS Program also provides guidance and support to WVCA as they develop and implement WBPs and watershed projects. Additionally, the NPS Program assists as needed in facilitating the use of CWSRF for agriculture through WV's Agriculture Water Quality Loan Program (AgWQLP). The proposed procedure for the use of CWSRF is for the implementation of BMPs related to agriculture, and includes cooperation between the DWWM's Construction Assistance Branch, WVCA, NRCS, Farm Service Agency (FSA) and local banking institutions.

The WVCA develops WBPs and implements the agriculture components of West Virginia's NPS Program in priority watersheds as designated by the 303(d) list and approved TMDLs to protect and restore streams. WVCA provides coordination and BMP installation for overall water quality improvement in targeted watersheds. Projects include but are not limited to the basins shown in Table 6.

Coordination with USDA Programs

The opportunity to assist producers on the farm varies from region to region within West Virginia. Technical and monetary assistance often goes hand in hand with the local NRCS field offices. Where gaps exist in Farm Bill funding, §319 can step in and fill these voids. Again, this varies from area to area where EQIP priorities are set by the local working committees. An example would be the earmarked additional funding in the Chesapeake Bay drainage area of West Virginia which receives additional funding thereby limiting the opportunity for §319 WBP participation. Contrasting is the Greenbrier and western areas of the State where federal funds are limited, and §319 allows additional opportunities to pick up and correct resource concerns.

Table 6 – WBPs with WVCA is the lead agency

Watershed plan	HUC12	HUC12_name	Year	Pollutant	Status
Mill Creek - South Branch	020700010401	South Mill Creek	2007	Bacteria	NA
	020700010402	Johnson Run-Mill Creek	2007		
Anderson Run	020700010602	Anderson Run	2019	Bacteria/sediment	A
Lost River	020700030502	Upper Cove Run - Lost River	2006	Bacteria	NA
	020700030504	Kimsey Run - Lost River	2006		
Sleepy Creek	020700040201	Upper Sleepy Creek	2008	Bacteria	A
	020700040202	Middle Fork Sleepy Creek	2008		
	020700040203	Middle Sleepy Creek	2008		
	020700040204	Meadow Branch	2008		
	020700040205	Lower Sleepy Creek	2008		
Back Creek	020700040404	Brush Creek - Back Creek	2014	None	A
	020700040405	Babbs Run	2014		
	020700040406	Warm Springs Hollow - Back Creek	2014		
	020700040407	Elk Branch - Back Creek	2014		
	020700040408	Tilhance Creek	2014		
	020700040409	Outlet Back Creek	2014		
Elk Run	020700041107	Elk Run	2013	Bacteria	A
South Fork Potts Creek	020802010301	Sweet Springs Creek - Cove Creek	2012	Bacteria	NA
	020802010401	South Fork Potts Creek	2012		
Indian Creek	050500020701	Burnside Branch	2017	Bacteria	A
	050500020702	Rock Camp Creek	2017		
	050500020703	Upper Indian Creek	2017		
	050500020704	Middle Indian Creek	2017		
	050500020705	Lower Indian Creek	2017		
Pipestem Creek	050500020909	Little Bluestone River	2018	Bacteria	A

Watershed plan	HUC12	HUC12_name	Year	Pollutant	Status
Knapp Creek	050500030201	Douthat Creek	2013	Bacteria	A
	050500030202	Headwaters Knapp Creek	2013		
	050500030203	Outlet Knapp Creek	2013		
Beaver Creek	050500030406	Beaver Creek	2017	Bacteria	A
Spring Creek	050500030408	Spring Creek	2015	Bacteria	A
Anthony Creek	050500030502	North Fork Anthony Creek	2019	Bacteria	A
	050500030503	Upper Anthony Creek	2019		
	050500030504	Middle Anthony Creek	2019		
	050500030505	Lower Anthony Creek	2019		
Second Creek	050500030701	Upper Second Creek	2008	Bacteria	A
	050500030703	Lower Second Creek	2008		
Muddy Creek - Greenbrier	050500030802	Kitchen Creek	2009	Bacteria	NA
	050500030803	Mill Creek	2009		
	050500030804	Muddy Creek	2009		
Milligan Creek/Davis Springs	050500030903	Milligan Creek - Greenbrier River	2014	Bacteria	A
Upper Meadow River	050500050601	Little Clear Creek	2014	Bacteria/Metals	A
	050500050602	Otter Creek-Meadow River	2014		
	050500050603	Big Clear Creek	2014		
	050500050604	Sewell Creek	2014		
	050500050605	Mill Creek - Meadow River	2014		
Cherry Fork	050500080401	Headwaters Eighteenmile Creek	2018	Bacteria	A

Status

A (Active), NA (Not active)

Additionally, Farm Bill cost-share programs require considerable amounts of paperwork and contracting which can be a long and undesirable process. These programs also frequently require a ranking system to prioritize resource concerns and can result in up to a one year waiting period to determine qualification. An example would be farmers/producers who have extensive or numerous “problems” on their operations and are willing to enter into contracts (thereby committing additional dollars out of their pockets) are more likely to rank out at a higher level for funding than a smaller producer or one with limited issues needing attention. This is often where the 319 Program can be exceptionally helpful in making water quality improvements.

It should also be noted that CREP has been a popular opportunity and choice for landowners. The cost share rates on this program are currently the highest in West Virginia and pay upward of 90-100% for practices such as riparian buffer establishment, alternative watering, streambank fencing, etc. The State does commit funding to this program to increase the cost-share rates and encourage participation while also allowing program dollars to be spread as far as possible.

Resource extraction

WVDEP's DMR works closely with WIB to identify state resources for match and/or to construct AMD treatment systems. Since 2011 DMR has fully or partially funded 11 AMD and other restoration projects in watersheds with mining WBPs. These were managed by WIB and thus are subject to more stringent review and reporting. The funding source, known as stream restoration funds (SRF) supported these projects. SRF accumulated due to administrative enforcement actions but have since dried-up due primarily to the downturn in mining activities. It is possible that this funding may be an option in the future.

WVDEP's AML Program was created in 1981 to manage the reclamation of lands and waters affected by mining prior to passage of the Surface Mining Control and Reclamation Act (SMCRA) in 1977. The AML program is funded by a fee placed on coal, currently set at 31.5 cents per ton for surface-mined coal, and 13.5 cents per ton for coal mined underground. Their mission is to protect public health, safety, and property from past coal mining and enhance the environment through reclamation and restoration of land and water resources. The OAML and WIB work closely together to develop, fund and implement restoration projects in mining impaired watersheds.

WVDEP's OSR is part of the Division of Land Restoration. OSR is mandated by the State of West Virginia to protect public health, safety and property by reclaiming and treating water on all bond forfeited coal mining

permits since August 1977 in an expeditious and cost effective manner. Funding is from forfeited bond collections, civil penalties and the Special Reclamation Tax on mined coal.

WIB held several meetings with OAML and OSR Program Managers to brainstorm ways to further our partnerships with ever increasing funding pressures. Our mining sections within the agency are feeling the crunch of the economic downturn and the coal industry rhetoric regarding EPA's regulatory restrictions and its impact on jobs. The State funding sources that were once more readily available for matching federal dollars are much more difficult to come by. However, both Programs have agreed to partner locally with watershed groups by keeping open lines of communication, providing data requested, being open to treatment options during land restoration projects, and providing lime when that option is available.

WVDEP's OSR and AML has dedicated significant effort to improving conditions in several NPS priority areas. These efforts have led to the completion of successful projects in [Muddy Creek](#) of the Cheat and [Three Forks Creek](#). Future work is being planned for the North Fork of Blackwater, Little Sandy of the Tygart, Wolf Creek and Cane Fork. Specific priorities for AML and OSR projects are provided in [Appendix 3](#).



Figure 3 - Muddy Creek A&T treatment highlights from Friends of the Cheat (FOC) recently published state of the watershed report.

WIB also cooperates with US Department of Interior's Office of Surface Mining (OSM) on their Watershed Cooperative Agreement Program (WCAP). OSM provides technical assistance, oversight and match to pre-SMCRA AMD treatment projects. OSM and AML staff assist with training, workshops and guidance for local watershed associations and others on developing project proposals, conceptual designs, procurement, construction oversight and other areas as needed. OSM is an integral part of West Virginia's NPS Program.

WVDEP's O&G Office is responsible for monitoring and regulating all actions related to the exploration, drilling, storage and production of oil and natural gas.

- It maintains records on over 55,000 active and 12,000 inactive oil & gas wells.
- It manages Abandoned Well Plugging and Reclamation Program.
- It ensures surface/groundwater is protected from oil and gas activities.

In addition, WVDEP's DWWP has issued a State General Water Pollution Control Permit to regulate the discharge of stormwater runoff associated with oil and gas related construction activities. The General Permit authorizes discharges composed entirely of stormwater associated with oil and gas field activities or operations associated with exploration, production, processing or treatment operations or transmission facilities, disturbing one acre or greater of land area, to the waters of the State. This permit is designed to address oil and gas construction related activities such as pipelines, access roads, and construction of most transmission and processing facilities. The general permit requires the proper installation and maintenance of appropriate BMPs outlined in a stormwater pollution prevention plan.

Urban stormwater/developed lands

West Virginia is a rural state with a population of 1.79 million in 2018, spread across 24,230 square miles. West Virginia's largest cities are Charleston, Huntington, Parkersburg, Morgantown and Wheeling, with a high population of 49,736 in Charleston to 28,486 in Wheeling. West Virginia has no Phase 1 MS4 communities and 55 registered Phase 2 MS4s.

Construction stormwater

WVDEP's Construction Stormwater General Permit is used to regulate discharges of stormwater associated with construction activity. Operators of construction sites that disturb one acre or greater, including smaller sites that are part of a larger common plan of development, register under the general permit and maintain permit coverage through the construction and reclamation period. The permit requires the development of stormwater pollution prevention plans (SWPPPs) that identify site-specific sediment and erosion controls that will be implemented to achieve the following goals:

1. Limiting the amount of total disturbance
2. Diverting upslope water around disturbed areas of the site
3. Limiting the exposure of disturbed areas to the shortest duration possible
4. Controlling internal water and runoff
5. Removing sediment from stormwater before it leaves the site

In 2019 WVDEP reissued the General Permit replacing the practice of one-year construction phase limitations and monitoring for stormwater discharges in areas with sediment TMDLs or Tier 3 receiving waters with the use of enhanced BMPs. Enhanced BMPs include:

- Project Phasing - Limiting the acres of disturbance at any given time.
- A 100 foot (or greater) buffer zone for waters of the state when a natural vegetated buffer exists in pre-construction conditions.
- Inspection of all erosion and sediment controls within disturbed areas at least once every four calendar days and within 24 hours after any precipitation event greater than 0.25 inches per 24 hours period.
- Repairs or maintenance shall be performed immediately to BMPs.
- Super Silt Fence, Belted Silt Retention Fence, or equivalent shall be used along streams and wetlands and at all stream crossings including staging areas.,
- Use of erosion control blankets for slopes steeper than 3:1 horizontal to vertical
- Sediment traps/basins constructed with baffles and/or skimmers and sediment forebays.

- Use of approved flocculants
- Soil tackifiers
- Temporary seeding and mulching within 4 days when areas will not be re-disturbed for more than 14 days.
- Permanent seeding and mulching within 4 days of reaching final grade.
- Permanent stabilization within 7 days after construction has been complete.
- Submittal of the Notice of Termination by no later than 15 business days after permanent stabilization of all disturbed areas

SWPPPs for all sites that are three acres or larger are individually reviewed and approved. When construction activities are complete, and all disturbed areas are stabilized, registrants are required to submit a Notice of Termination (NOT) to end permit coverage.

The primary outreach event conducted by the NPS Program is the WV Construction and Design Expo which is held annually. WVCA and WVDEP attend to present and discuss NPS issues with representatives of West Virginia's construction and design industry. Recent workshops include BMP recommendations for oil and gas pipeline construction, BMP recommendations for stream crossings for linear construction projects and green infrastructure and stormwater control measures: design and construction. Continuing education credits are provided.

Municipal Separate Storm Sewer Systems¹

Statewide program

West Virginia has an established NPDES program that governs discharges of waste into waters of the state. West Virginia's Municipal Separate Storm Sewer System (MS4) program is funded through NPDES permit fees and regulates small MS4s under a General Permit. The General permit was first issued in 2003 and will next be reissued in 2019. The MS4 General Permit represents a strong effort to address existing and potential water quality issues.

West Virginia's MS4 General Permit requires that MS4s develop (or evaluate/revise) and submit stormwater management programs (SWMPs) to WVDEP for approval near the beginning of each 5-year permit cycle. The SWMP includes minimum control measures in each of six categories outlined in the Federal Phase II stormwater rule [40 CFR § 122.32(a)], along with measurable goals and milestones for each measure. The minimum control measure categories are public education and outreach, public involvement and participation, illicit discharge detection and elimination, controlling runoff from construction sites, controlling post-construction runoff from new development and redevelopment, and pollution prevention and good housekeeping for municipal operations. New MS4s must fully implement their SWMPs by the end of their first permit cycle.

The post-construction minimum control measure of the General Permit directs MS4s to develop ordinances requiring all new development and redevelopment of one acre or greater to manage the first one inch of rainfall by utilizing runoff reduction and stormwater treatment practices. Runoff reduction practices include, for example, canopy interception, soil amendments, evaporation, rainfall harvesting infiltration, and evapotranspiration. Stormwater treatment practices include filtration, wet ponds, and wetlands.

In certain situations, the one inch rainfall stormwater runoff management requirement may be reduced by up to 0.75 inch. To incentivize the minimization of adding new impervious surfaces, redevelopment, high density, vertical density, mixed use, and transit oriented developments may qualify for a lower stormwater runoff management requirement. Meeting one of the above qualifiers reduces the amount of runoff to manage by 0.2" to the first 0.80 inch of rainfall. Each incentive will allow the developer to reduce the amount of stormwater that is required to be managed on site by 0.2 inch. A maximum reduction of 0.75 inch is allowed (Permit section Part II.C.7.e.13.b.), leaving a minimum of 0.25-inch precipitation event to be managed.

The MS4 General Permit also contains a section with strong watershed protection elements that includes non-structural practices to protect water quality. For the most difficult sites, MS4 permittees can develop a payment-in-lieu program or offset mitigation to address runoff reduction and stormwater treatment requirements.

¹ \$319 funds are not used to directly implement MS4 permits. WVDEP has used Clean Water State Revolving Loan Funds to implement stormwater practices within MS4 communities.

Unregulated developed lands

WIB, with regards to unregulated, developed lands, depends on voluntary participation from local governments and landowners. Implementation of urban stormwater BMPs, adoption of new laws and ordinances by state and local governments and an increase in both personnel and financial resources will be necessary to reduce nonpoint source pollution from unregulated developed lands.

For the most part, West Virginia is well suited to enable success through voluntary action. Through WIB staff including WVDEPs Basin Coordinators, Stormwater Specialist, Project WET, and WVCA CS's have been very effective at building partnerships across the spectrum of government and non-government organizations. These staff and programs provide technical assistance to local governments, watershed associations, homeowners and others on rain barrels, rain gardens, low impact development, and urban stormwater BMPs. They assist local governments in strengthening local stormwater ordinances to reduce stormwater runoff and pollutants. They conduct workshops, organize outreach events, write news articles, and work with individuals and local governments on site specific needs. They assist with planning and implementation of the urban stormwater component of WBPs.

Wastewater

West Virginia is predominantly rural with a median household income below the national average. Approximately 60% of West Virginia residents are served by public sewer systems. Small communities and individual homes are in the bottomlands of narrow valleys or on hillsides. Homes, businesses, roadways, railroads, and inevitably, streams, are often clustered near leaving little space for additional infrastructure such as drainfields or treatment plants. Old and failing septic systems exist throughout the state. A significant challenge exists of collecting and treating wastewater. Thus, the NPS Program is working with individuals and small communities to demonstrate and implement cluster and individual on site systems to address this need and reduce nonpoint source pollution from failing septic systems.

WIB conducts outreach and coordination to educate individuals and communities on the nonpoint source impacts from failing systems and the options available to address them. Training for local governments, public service districts and local wastewater treatment staff is coordinated to increase confidence that alternative systems can be successfully operated and maintained. Inventories of need have been conducted, demonstration projects have been installed and follow up continues as we address this problem. Extensions of sewer lines to existing wastewater treatment plants are also a part of the effort to reduce these nonpoint source impacts.

WIB also works in cooperation with WVDEPs CWSRF Program to offer grants and loans to correct failing systems. This effort allows eligible non-profit organizations to administer the loan program for on-site individual and cluster wastewater systems. In addition, we work to continue using CWSRF funds in combination with §319 or other resources to install community wide decentralized wastewater systems. These systems are put in place where soils and/or lot sizes are not suitable for an individual on-site system.

Recently, WVDEP's Abandoned Mine Lands Program has been offering funding through OSM and the Abandoned Mine Land Reclamation Economic Development Pilot Program. This pilot program provides \$25 million to West Virginia to accelerate the remediation of AML sites with economic and community development end uses. The intent of the pilot program is to explore and implement strategies to return legacy coal sites to productive uses. In 2018 funds were provided to construct alternative wastewater treatment for Ashland - Crumpler in the North Fork Elkhorn Creek where the NPS Program has a bacteria based watershed based plan. Funds were also provided for Iaeger, WV where community straight pipes discharge directly into the Tug Fork.

WVDEP is working diligently to foster better working relationships with WVDHHR's County Sanitarians by inviting them to participate in project team meetings and any other focus where their knowledge and expertise are needed. 60% of WIB active WBPs have fecal coliform as their major impairment, so support from local PSDs and sanitarians is critical in successful implementation of these WBPs.

Silviculture

The Logging and Sediment Control Act (LSCA) was signed into law in March 1992. It requires the licensing of all logging operators and the certification of loggers in safety, first aid and BMPs on the logging operation. The act follows the procedures and requires the adherence to the BMPs in the WVDOF's BMP Manual. A seven-member committee to review and adopt new BMP standards has been established. The NPS Program represents the

DWWM on this committee, which meets to update the manual every three years. The registration of logging operations implemented through the NPS Program is a mandatory notification format under the LSCA. Notifications are reported quarterly to the Director of DWWM by the WVDOF. The Office of EE provides enforcement when water quality standards are violated.

In 2013 the WVDOF completed the development of the Logging Operation Notification, Inspection and Enforcement (LONIE) system, which was partially funded with a § 319 grant. LONIE provides the WVDOF with a state of the art system to manage the thousands of active logging operations throughout the state. The web-based online database and simple mapping API allows users to submit, track, and enforce logging operation notifications and activities. The new streamlined system facilitates accurate data entry, improves the allocation of limited resources, facilitates the timeliness and accuracy of reporting activities, and provides real time spatial data detailing harvesting activities occurring in the state. Each of these benefits help the WVDOF improve their ability to implement and enforce the LSCA and minimize NPS pollution from logging and other silvicultural activities.

Additionally, the LONIE system provides improved service to landowners, forest operators who can access notifications, inspection reports, and enforcement actions at any time, as well as have improved contact with the state foresters who visit active jobs. Centralized, uniform, and organized data provide the WVDOF new opportunities to analyze harvesting and enforcement data to improve service, identify potential issues, and support departmental programming.

Source water protection

In West Virginia, the Source Water Assessment and Protection Program encompasses both the wellhead protection and surface water source water assessment efforts. Implementation of the wellhead protection program began in the early 1990's, as part of West Virginia ground water protection strategy. This protection strategy was extended to surface water sources with the 1996 Safe Drinking Water Act Amendments, which are regulated by WVDHHR, Bureau for Public Health. The Act requires states to develop and implement a Source Water Assessment and Protection (SWAP) program designed to evaluate the vulnerability of public drinking water systems to possible sources of contamination and encourages states to work with these systems in developing protection and management plans.

The recent chemical spill in the Kanawha Valley has brought attention to the vulnerability of our water supplies. There are still many questions to be answered and many more to be considered regarding more stringent regulations, better preparedness and more research regarding the effects of un-regulated or under-regulated chemicals. The NPS Program received many calls from concerned citizens and although not directly involved could provide some outreach assistance to the local community by partnering with the City of Charleston's Stormwater Utility and sponsoring several rain barrel workshops. Water re-recycling and re-use became and still is very popular and the local population is making connections to the drinking water and the water quality of our streams and rivers. A major outcome of this disaster was the recent passage of Senate Bill 373 (SB-373), a bill relating to water resources protection. The bill has three parts:

1. Development and submission of Source Water Protection Plans;
2. Public Water Supply Protection Act; and
3. Above Ground Storage Tank Act.

Although no specific goals and objectives have been identified, SB-373 provides opportunities for §319 resources to be used, especially to assist WV DHHRs SWAP Program expand their source water assessment and protection efforts, and engage citizens, which is a required element of the SWPP. Since the spill a schedule for producing and revising all SWPPs have been developed. Most are completed, and many have been revised. In 2017 EPA offered funding support to develop WBP and SWPP integration efforts. WIB submitted a proposal and was awarded funding, which is currently underway. A second phase to continue the effort has been submitted and approved for the FY2019 §319 award.

Stream restoration

West Virginia has over 32,000 miles of streams. Its rugged terrain and steep mountains result in some of the most beautiful headwater streams on the east coast. Anthropogenic impacts, such as agriculture, timber harvesting, resource extraction, and urban development over the past 300 years have resulted in increased velocity of stormwater and instability in stream channels. This instability causes erosion and sedimentation,

eliminates stream habitat, reduces the efficiency of nutrient processing, and contributes to nonpoint source pollution.

Stream restoration projects are a consideration in all nonpoint sectors and are accomplished in cooperation with many of the same partners and programs. WVCA provides technical assistance and project oversight on stream restoration in agriculture and urban lands. WVDEP's ILF program and mitigation funds have been brought to bear to complement and enhance nonpoint source projects. Trout Unlimited, CVI, USFWS and WVDNR have provided project planning and assistance for a variety of nonpoint source projects. Multiple opportunities exist for stream restoration projects in priority watersheds and statewide.

Chapter 5 - Administration and coordination

WIB manages and coordinates the statewide program through various cooperating agencies, non-profits such as watershed associations, colleges and universities, conservation districts, NGOs, municipalities and others. As implementation efforts are initiated, close coordination is necessary to ensure that individual program elements are adequately being addressed. Because plans are never static, there may be a need to revise implementation elements. Any changes in implementation procedures must first receive approval from the NPS Program, and if approved, be reported to the USEPA project office.

WIB provides funding directly to agency partners, watershed associations, other non-profits, NGOs, colleges and universities and others through sub-grants. Project proposals for WBP development, project and BMP implementation, monitoring, and education and outreach are reviewed and approved by the NPS Program. Management and oversight of the existing sub-grants related to NPS projects is a necessary aspect of the workload.

Responsibilities include preparing, reviewing and approving WBPs and watershed restoration project proposals; preparing program guidelines and policies; delegating program activities to state and federal agencies through negotiations of interagency agreements; oversight of agency and partner progress in implementing field work; analysis and evaluation of water quality impacts from NPS pollution; and managing financial budgets.

USEPA has mandated the use of GRTS for tracking §319 grants and submitting progress status reports. The NPS Coordinator is responsible for maintaining West Virginia's portion of GRTS. The NPS Coordinator is also responsible for providing guidance to our partners so that the necessary data elements that need to be reported are provided in the proposals and entered in the GRTS database. Coordination between WIB and its partners is required to facilitate adequate and timely GRTS data entry and annual reporting.

A wide variety of training materials, mostly web-based, have been developed to provide information, guidance, facilitate reporting, and provide a means of submitting the necessary documents for watershed proposals. The next phase is the development of a tool to improve the submission of AGOs and watershed proposals. WIB has developed an initial tool but the use of the tool has been slow to catch on thus far. Even with all the guidance manuals and the effort already provided we realize additional training is needed. Below are some thoughts for the future:

- The nuts and bolts of WBP developments
- The basics of how to read TMDLs, taking that information, and translating it to a WBP
- Nuts and bolts of reporting
- §319 101 (currently planned for 2019-2020)
- What is the most important and critical information needed for reporting?
- What is the best way to communicate the successes of your projects?
- How do we develop better and more sustainable partnerships?

Another goal is to have continuous submission of project proposals and a review process in place twice each year. We will develop a bank of proposals from which to choose from in any given fiscal year and communicate with the stakeholders so that they are fully aware of our plans for a project. For the last three years, the number of watershed project proposals have far exceeded our §319 allocations and we've had to either phase projects, not fund them, or look for other creative ways to cut back. This has been a challenge and impedes the implementations of WBPs. Over the years, our review processes have evolved, which allows us to make better

decisions. The basic scoring rubric we use to help us decide on AGO funding is described below. We use a similar methodology to review watershed project proposals, except that the rubric is more intense.

Project ranking

Initial proposals include the organizations contact information, and consist of a brief description, including an initial budget. NPS personnel evaluate the initial proposals to determine which organizations will be invited to submit formal grant proposals. The proposals are evaluated on the criteria below using a 1-10 scale. High and low outliers are removed, and rankings are determined based on the total score. The rankings are then compared to the amount of funding available and the awards will be determined based on the ranks and funding.

Criteria and ranking

1	2	3	4	5	6	7	8	9	10
Poor			Fair		Good			Excellent	

1. Project is nonpoint pollution related.
2. Project fits the mission of the NPS Program and will benefit the watershed and/or public.
3. The project is an activity that would qualify for §319 funding based on the appropriate planning or listing qualifications.
4. The project will result in a substantial benefit to the watershed and/or community either through reducing NPS pollution through BMP implementation, providing outreach and education, monitoring sources and causes of NPS pollution or sustaining/improving capacity of organizations to develop and manage future §319 projects.
5. The organization is viable with the capability to successfully complete the project.
6. The budget and total funding request is reasonable.
7. The organization has proven it can complete a project and can manage grant funds responsibly.

Organizations that are invited to submit a formal proposal (e.g. workplan) must do so within 30 days of the invitation. The workplan must be submitted to the NPS Program Coordinator.

Program evaluation

§319(h)(8) of the CWA provides that no §319 grant may be made to a state in any fiscal year unless USEPA determines that the state has made satisfactory progress in the preceding fiscal year in meeting the schedule specified in its NPS management program. USEPA regions determine, based on an examination of state activities, reports, reviews, and other documents, as well as discussions with the state in the previous year, whether the state's progress for the previous fiscal year in meeting the schedule set forth in its NPS management program was satisfactory.

§319(h)(11) requires states to report annually on progress in meeting the schedule of milestones contained in their NPS management programs, and, to the extent information is available, report reductions in NPS pollutant loadings and improvements in water quality resulting from program implementation. This information may be provided in the format suggested in the most recent guidance. States may also use GRTS to meet some of their annual reporting requirements.

In addition to the federal evaluation, West Virginia will evaluate the NPS Program every two-years through key performance indicators (KPIs). Evaluating the outcomes helps to keep the process of change moving forward. If the original strategy needs to be revised, it allows managers to make decisions that enable future processes of change to be more effective. KPIs include the following:

- Stakeholder engagement
- Outcomes and impacts
- Benefits
- Learning
- Effectiveness of the project

The method(s) for this internal evaluation will be shared questionnaires. The NPS Program will ask BCs to engage local stakeholders in this process, and WIB Program Managers as well as other staff will provide input

from their experiences working within the §319 Program. Below are examples of evaluation questions. Note: This list may be expanded and/or revised as the process evolves.

1. Are goals and objectives being achieved or not? If they are, then acknowledging, reward and communicate the progress. If not, then consider the following questions.
2. Will the goals be achieved per the timelines specified in the plan? If not, then why?
3. Should the deadlines for completion be changed (Note: Great care goes into this decision, it is important to know why efforts are behind schedule before times are changed)?
4. Do personnel have adequate resources (money, equipment, facilities, training, etc.) to achieve the goals?
5. Are the goals and objectives realistic?
6. Should priorities be changed to put more focus on achieving the goals?
7. Should the goals be changed (Note: Know why efforts are not achieving the goals before changing the goals)?
8. What can be learned from our monitoring and evaluation to improve future planning activities and improve future monitoring and evaluation efforts?

This internal program evaluation is separate from any/all federal requirements from §319(h)(8) or annual reporting requirements described in §319(h)(11). The major goal of the KPI process is to use regular feedback to improve the NPS Program services, when possible, and grow to meet future challenges.

Funding

WIB is supported by a variety of funding sources. Statewide program activities, watershed restoration and watershed protection are all important to the program's success. Coordinated efforts among a variety of partners help the nonpoint source program diversify and extend our limited resources. Below are the primary sources of funding used for nonpoint source activities in West Virginia.

Abandoned Mine Lands Set Aside Fund

WVDEP's OAMLR has established an AMD set aside fund to address AMD problems. Dollars from the fund including all interest earned are used to for the abatement of causes and treatment of the effects of acid mine drainage from abandoned mine lands. In the past, these funds have been used for project construction of both active and passive treatment systems as well as O&M. Several projects, though not all, have been constructed in 319 priority watersheds in cooperation with the NPS Program.

More recently, WVDEP's Abandoned Mine Lands Program has been offering funding through OSM and the Abandoned Mine Land Reclamation Economic Development Pilot Program. This pilot program provides \$25 million to accelerate the remediation of AML sites with economic and community development end uses. The intent of the pilot program is to explore and implement strategies to return legacy coal sites to productive uses. This funding has been used to eliminate failing septic systems and straight pipes in conjunction with economic development opportunities.

Chesapeake Bay Program funding

West Virginia accesses several financial resources made available through the Chesapeake Bay Partnership. Chesapeake Bay Program implementation and regulatory and accountability grants include and complement the NPS Program efforts. National Fish and Wildlife Foundation grants have also been awarded to nonprofits in West Virginia that are conducting nonpoint source outreach, education and projects.

Clean Water Act §106 Funds

WVDEP uses §106 funds to support several activities related to nonpoint source pollution. WVDEP's Watershed Management Framework's five year cycle including watershed sampling and assessment; TMDL development and implementation; and environmental permitting and enforcement are supported by the 106 Program. Currently, WVDEP's statewide Watershed Coordinator, who provides supervision for nonpoint program staff, administers the SPP, coordinates the WV Watershed Network (WVWN), Watershed Celebration Day (WDC), and CB Program funding; and the Western BC, who conducts nonpoint source program outreach, assistance to local watershed associations, and develops and implements watershed plans are funded by 106.

Clean Water Act §319 Funds

WVDEP-WIB is the primary recipient of §319 funds in West Virginia. WIB provides program and watershed project funding to partner agencies, nonprofits, universities, local governments, watershed associations and others to undertake nonpoint source education efforts, monitoring, demonstration projects, and BMP implementation statewide and in watersheds with WBPs.

Clean Water State Revolving Fund (CWSRF)

The primary long term goal identified in West Virginia's CWSRF FY 2019 Intended Use Plan (IUP) is to expand CWSRF accessibility by creating new financial assistance programs to address nonpoint pollution control problems. A secondary long term goal is to integrate the CWSRF into WVDEP's Watershed Management Framework to increase program effectiveness by targeting CWSRF funds toward higher priority watersheds. CWSRF funds are available through the WVDEP's Agriculture Water Quality Loan Program (AgWQLP) in partnership with the WVCA. The AgWQLP provides a source of low interest financing match funds to implement best management practices that will reduce agricultural NPS impacts on water quality. CWSRF funds are available to eliminate existing health hazards and water quality problems from direct sewage discharges resulting from failing septic systems or direct pipes to streams.

This program operates statewide in cooperation with the WV Housing Development Fund and local county sanitarians. In §319 priority watersheds, WIB staff will facilitate the use of these funds. Stormwater/green infrastructure funding is also available through the SRF program. Finally, the CWSRF funds West Virginia's Project WET (Water Education for Teachers) through its administrative fee account. Project WET provides education and outreach on water quality and nonpoint source pollution to teachers and students statewide.

Local Watershed Groups, Nonprofit Partners and Local Governments

Local watershed associations and other nonprofits often bring a variety of resources to the program. Contributions from local businesses, contractors, association members, local governments and other stakeholders, as well as fundraising and grant writing have brought match and/or operation and maintenance to nonpoint source projects. Watershed associations have accessed EPA Brownfields and urban watershed funding for nonpoint source projects.

Office of Surface Mining Watershed Cooperative Agreement Program (WCAP) Funds

OSM WCAP funds are provided to watershed organizations to complete local AMD reclamation projects on abandoned mine lands. Funds are limited to 33% of total project cost up to \$100,000. WIB relies heavily on WCAP to match §319 funds in priority watersheds.

USDA Farm Bill Program Funds

WIB cooperates with NRCS and FSA to access USDA Farm Bill programs and funding. EQIP, WHIP, CREP, RCPP, Farmland protection, and wetlands reserve programs are the primary resources available in West Virginia to address agricultural nonpoint source pollution statewide. In §319 priority watersheds, a combination of funds is used to achieve a comprehensive watershed approach. Special programs, such as USDA's Regional Conservation Partnership Program (RCPP) and National Water Quality Inventory (NWQI) are also coordinated in West Virginia to select priority watersheds and implement agriculture best management practices.

USFWS Partners for Wildlife

The USFWS Partners for Wildlife program is very active in West Virginia, constructing fence and planting trees in cooperation with CREP and other programs to restore and protect riparian corridors. In 2013, the Program hit a milestone of 1 million feet of fence installed in West Virginia.

West Virginia Conservation Agency Agriculture Enhancement Program Funds

The WVCA has funds available through its Ag Enhancement Program (AgEP) for technical assistance and agricultural practices identified as priorities in Conservation Districts. The purpose of the AgEP, administered by the WVCA through local conservation districts, is to increase farm productivity by conserving soil and making wise

use of agricultural resources and to improve water quality in the state's streams and rivers. Each of the 14 Districts identifies their own practices for funding.

West Virginia General Revenue Funds and/or Permitting Fees

WV state agencies, including WVCA, WVDA, WVDOF, WVDEP and others are supported by state general and special revenue funds, including permitting fees. Programs within state agencies, such as NPDES CAFO permits, groundwater permits, oil and gas permits, logging sediment control act and others protect rivers and streams from nonpoint source pollution and are funded through general and special revenue. Nonpoint source environmental enforcement activities related to nonpoint source pollution are supported by these funds as well.

West Virginia In Lieu Fee Program and/or Mitigation Funds

In some instances, it is possible for mitigation or ILF projects and funds to complement our nonpoint source projects in 319 priority watersheds. Historically long term operation and maintenance of passive AMD treatment has been obtained, though this is no longer an option under the 2008 Mitigation Rule. In Lieu Fee stream mitigation projects have been implemented in watersheds with nonpoint source watershed based plans including the Elk Headwaters. WVDEP continues to look for opportunities where these programs can be coordinated to increase or enhance nonpoint source projects.

West Virginia Stream Partners Program

The Stream Partners Program (SPP) is a cooperative effort of the WVCA, WVDEP, WVDOF, and WVDNR. The Program is housed within the Nonpoint Source Program of WV DEP. The program provides \$100,000 annually to support the efforts of local watershed volunteers, many of whom partner with the Nonpoint Source Program on larger watershed planning and implementation efforts.

Other funding sources

Other funding sources used have included: US Army Corps of Engineers for watershed planning, USDA Rural Development programs for wastewater and failing septic, WVDHHR SWAP Program, WV Community and Development Block Grants, Regional Planning and Development Council funds, and EPA Clean Water Act § 604(b) funds.

Outreach

Accomplishing the goals and objectives of the NPS Program requires the maintenance of public awareness through the development of educational materials, public presentations, media, workshops as well as individual contacts. The NPS Program strives to promote the Program's efforts and educate the broader population regarding the need to reduce and control future impacts from nonpoint sources of pollution. By educating our citizens through training, workshops, informative materials, web-based information and the media, a climate of concern is built that will support strong policies, regulations and programs to restore water quality.

All NPS Program staff directly contributes to the accomplishments of the education component for agriculture, silviculture, wastewater, urban stormwater, acid mine drainage etc. We assist and participate in Project Wet activities, stream monitoring demonstrations, watershed outreach activities, and other environmental activities with academic institutions, 4-H, scouts, community groups and many others. As a supporter of the WV Watershed Network (WVWN) the NPS Program participates in organizing and sponsoring Watershed Celebration Day (WCD). WCD is a two-day annual event that celebrates the accomplishments of watershed association volunteers. WCD provides an opportunity for these volunteers to network with other associations across the state as well as state and federal agencies, to share and learn new techniques. The volunteers are honored for their efforts with awards and recognition.

Two Statewide Programs are housed within WIB, Project WET and WV Save Our Streams, both promote the NPS mission statement **"To inspire and empower people to value and work for clean water"**. These programs are nationally recognized for their accomplishments and continue to inspire volunteers, teachers and students throughout West Virginia.

In addition, WVCA's Watershed Resource Center (WRC) educates the public, watershed associations, and others on nonpoint source pollution and best management practices. The WRC houses an extensive website and disseminates information related to nonpoint source pollution. Assistance is also provided through a variety of efforts with targeted audiences ranging from one-on-one discussions to presentations made in large group settings. Education is delivered through distribution of brochures, fact sheets, conference presentations, watershed model demonstrations, hands-on field days, articles written on NPS topics and published in newsletters, project demonstration, presentations to school students, community groups, watershed associations, landowners, land/resource users, professionals, local farmers, developers, contractors, engineers, government representatives, the public, and staff. The WRC also publishes its own newsletter quarterly, WaterNet, hosts Facebook and twitter sites, and provides desktop publishing as needed for agency staff and watershed associations.

Chapter 6 - Goals and objectives

WIB's primary goal focuses on planning, development and implementation of comprehensive watershed restoration projects to remove streams from the state's 303(d) list. The difficulty in coordinating a stakeholder driven process to implement voluntary compliance aimed at achieving mandatory water quality objectives is a special challenge. The development of realistic WBPs, effective project proposals, and the implementation of these projects is time consuming. The process requires a great effort and resources from all the NPS partners and stakeholders.

Responsibilities include preparing, reviewing and approving watershed based plans and restoration project proposals; preparing program guidelines and policies; delegating program activities to state and federal agencies through negotiations of interagency agreements; oversight of agency and partners progress in implementing field work; analysis and evaluation of water quality impacts from nonpoint source pollution; and managing financial budgets. Actions involved in meeting these responsibilities include reviewing and managing USEPA's GRTS and §319 sub-grants; protecting water quality standards; assisting when needed in enforcement measures; coordinating with stakeholders and agencies the on AMD issues; with the NRCS and WVCA on agricultural issues; with a variety of agencies and stakeholders in the CBP; with WVDEP's SRF Program to deliver loans to individuals to install agriculture BMPs and correct failing septic systems; with WVDEP's ILF Program to align projects where feasible; with other agencies on the nonpoint aspects of developing and implementing TMDLs and WBPs, and designing technical measures to correct nonpoint source problems.

Short-term goals

Short-term goals and objectives describe the annual activities that WIB undertakes to administer the program's activities. These may change slightly from year to year as new watershed proposals are added; however, the basic activities and actions that guide these and all other aspects of the §319 Program are consistent.

An example of short-term goals from a recent annual workplan is provided in [Appendix 6](#).

Long-term goals

The long-term goals describe the implementation priorities into the future. This list is based on extensive hours of evaluating the progress of existing WBPs, considering new WBPs and determining to the extent possible the expected load reductions. They also include other long-term goals and objectives the NPS Program believes are possible. These long-term goals will be evaluated every two-years and we will work with EPA to adjust our schedules and goals as opportunities and/or changes occur.

Watershed management

1. **Goal:** Conduct restoration activities and BMP implementation in priority watersheds with the goal of achieving load reductions that will meet their designated uses by 2025. **Table 7** provides load reduction projections for the major categories of NPS pollutants.

Objectives

- a) By 2021 develop two-four new WBPs in priority areas as designated by the Watershed Management Framework and TMDL processes.
- b) Every three-five years, evaluate the progress of active WBPs and revise as needed. E

- c) By 2021 complete the proposed watershed projects and achieve the required load reductions (LRs) that will meet the designated uses completing two WBPs.
 - d) Every two-years or more frequently when needed or requested by EPA, report on active WBPs in accordance with the milestones established in approved plans. Work w/USEAP to update all tracking information.
 - e) By 2021 target HUC12 basins in the Lower Kanawha, Little Kanawha, Upper, Middle and Lower Ohio for the development of WBPs.
 - f) Support and encourage the remediation of watersheds impacted by wastewater in priority watershed and on a statewide basis by promoting the statewide efforts of the CWSRF and Agricultural Loan Programs.
 - g) Support, and provide funding and technical assistance within priority watersheds and on a statewide basis to stream restoration projects that restore the streams natural hydrologic conditions and reduce sedimentation.
 - h) Submit a minimum of one water quality restoration success story or two water quality improvement [Success Stories](#) annually.
2. **Goal:** Support and encourage the protection of healthy watersheds and work with local stakeholders to educate their communities on their importance. This includes waters identified as high quality and outstanding national resources, as well as those that remain high quality but may be threatened by NPS pollutants.

Objectives

- a) If there is local stakeholder interest, funding and agency support, a Watershed Protection Plan (WPP) will be developed to protect high value water bodies identified as Tier 3. The goal is to develop one WPP within the next five years.
- b) If there is local stakeholder interest, funding and agency support efforts will be made to protect high priority wetland and riparian areas and other high value watershed resources, including water quality reference streams, in priority restoration and protection watersheds. The goal is to engage land trust, local landowners and others to implement conservation easement protection (CEP). The goal is to develop two-four CEPs within each of the approved WPPs within the next five years.
- c) Support the development of the WVPAPP/WRR and other tools and encourage WVDEP to develop statewide criteria to define healthy waters that will ensure better protection of high quality watersheds.

The major load reduction (LR) goals are reflected in [Table 7](#). The table shows LR progress since approval of the last WVPMP and [Table 7a](#) provides estimates for the next 5-years. These projections are based on previous results as well as realistic expectations for future NPS watershed project LRs. The projections will be used to evaluate the progress and the successes of the NPS Programs watershed management activities on a statewide basis and in priority watersheds.

Table 7 – LRs results for the major categories of nonpoint source pollutants

	Year	Acidity tons/yr	Metals-total lbs/yr	Nitrogen lbs/yr	Phosphorus lbs/yr	Sediment tons/yr	Fecal coliform cfu
5-year goals (past)	LR	300	140,000	280,000	220,000	6,000	1.70E+15
	2014	46.5	25,042	262,963	129,369	7,803	2.28E+15
	2015	97.4	49,017	397,811	381,282	7,878	9.64E+13
	2016	161.0	102,667	853,890	344,793	11,287	6.20E+13
	2017	27.8	20,689	141,217	17,654	2,963	1.07E+13
	2018	22.3	24,046	120,902	43,777	3,340	8.82E+15
Results:		355	221,461	1,776,783	916,875	33,272	1.13E+16
% Diff		4.2	11.3	36.4	30.7	34.7	36.9

WV exceeded the past five-year LR goals by an average of 25.7 percent increase.

Table 7a – Projected LRs for the major categories of nonpoint source pollutants

5-year goals (next)	Year	Acidity tons/yr	Metals-total lbs/yr	Nitrogen lbs/yr	Phosphorus lbs/yr	Sediment tons/yr	Fecal coliform cfu
	LR	350	180,000	400,000	300,000	20,000	2.00E+15
	2019						
	2020						
	2021						
	2022						
	2023						
Results:							

Agriculture

3. **Goal:** Targeting statewide opportunities and priority watersheds, promote the conservation of cropland, pastureland and other land within the agriculture community through technical assistance, BMP implementation, conservation planning, nutrient management, monitoring and education.

Objectives

- Every two-years develop 15 Conservation Plans under the Farm Bill Programs.
- Every two years 15 nutrient management plans will be written or reviewed. Estimates for nutrients will be provided, if possible. The overall goals are reflected in Table 7 .
- Every two-years provide technical assistance to 15 agriculture producers with the development, protection, stabilization and/or maintenance of riparian areas or with resource management advice that protects surface water.
- Provide estimated reduction of sediment from stabilization/restoration of failing streambank, etc. (Calculated by BEHI) on an annual basis using the values provided in Table 7 as the targets.
- Provide estimated sediment reductions due in part to change in management schemes; rotational grazing, exclusion, etc. (Calculated by RUSLE) on an annual basis using the values provided in Table 7 as the targets.
- Provide information on the Agriculture Water Quality Loan Program to 10 agricultural landowners on an annual basis.

4. **Goal:** Manage pesticides to protect surface and groundwater.

Objectives

- Every two-years coordinate pesticide collection to protect surface and ground water in compliance with WVDA.
- By 2021 organize a minimum two pesticide collection pickups by in cooperation with WVU Extension and the WVDA.

5. **Goal:** Support monitoring programs in priority watersheds impaired by agricultural nonpoint pollutants.

Objective

- WVCA staff will assists landowners, watershed associations and partner agencies with stream monitoring activities in priority watersheds as needed.

Urban stormwater/Developed lands

6. **Goal:** Improve and protect West Virginia's soil and water resources by reducing the amount of erosion from earthwork sites through education and technical assistance.

Objectives

- Provide technical assistance and/or information to attendees at the WV Construction & Design Exposition over the course of five years through an informational display booth with technicians on hand to answer questions.

7. **Goal:** Provide education and technical assistance on Stormwater Best Management Practices.

Objectives

- a) From 2015-2020 provide five stormwater workshops or demonstration projects.
- b) By 2018 present 20 stormwater management workshops across the state.
- c) By 2016 provide technical advice regarding stormwater management quality and/or quantity issues to 20 clients.

Resource extraction

8. **Goal:** If funding allows, the NPS Program will coordinate to the extent possible with WVDEP's OAMLRL, OSR, OO&G and WVDOP on future project opportunities in watersheds impaired by resource extraction activities.

Objectives

- a) Where their project aligns with current WBPs, or where TMDLs and other sources of information suggest alternate WBPs could be developed to fully restore smaller impacted watersheds; the NPS Program will partner with local stakeholders our agency and partner agencies to develop restoration projects. See Table 7 for LR projections.
 - b) If funding allows, the NPS Program will partner with WVDEP's mining program and the federal OSM to provide support for long-term operation and maintenance of passive and active AMD treatment.
9. **Goal:** Support the WVDOP in their administration of the Logging and Sediment Control Act (LSCA), which reduces the potential impacts to water quality from forestry operations. The NPS Program will work with the WVDOP to support LSCA activities, the objectives listed below as well as other activities that promote the protection of water quality from NPS pollution; however, WVDOP is the primary agency for implementing all forestry management activities.

Objectives

- a) Every three-years participate in the Forestry BMP Committee that updates and revises the WVDOP BMP Manual.
- b) Increase community/landowner involvement with Urban Forestry Program, Stewardship Incentive Program (SIP) and Forest Incentive Program (FIP).
- c) Encourage proper forestry management on all forest lands, which will ensure a productive forest and enhance water quality.

Chesapeake Bay Program

10. **Goal:** WV is a headwater state for the Chesapeake Bay watershed and the NPS Program will support the goals of the CB Agreement by serving on committees, participating in regular meetings and calls and providing input to the future development of the Bay TMDL and models. The NPS Program will also work on specific objectives that support the general goals of the CB Program. The general goals of the Chesapeake Bay Agreement are as follows:
 - 1) Protect, restore and enhance finfish, shellfish and other living resources, their habitats and ecological relationships to sustain all fisheries and provide for a balanced ecosystem in the watershed and Bay.
 - 2) Restore, enhance and protect a network of land and water habitats to support fish and wildlife, and to afford other public benefits, including water quality, recreational uses and scenic value across the watershed.
 - 3) Reduce pollutants to achieve the water quality necessary to support the aquatic living resources of the Bay and its tributaries and protect human health.
 - 4) Ensure that the Bay and its rivers are free of effects of toxic contaminants on living resources and human health.
 - 5) Sustain state-identified healthy waters and watersheds recognized for their high quality and/or high ecological value.
 - 6) Increase the number and the diversity of local citizen stewards and local governments that actively support and carry out the conservation and restoration activities that achieve healthy local streams, rivers and a vibrant Chesapeake Bay.
 - 7) Conserve landscapes treasured by citizens to maintain water quality and habitat; sustain working forests, farms and maritime communities; and conserve lands of cultural, indigenous and community value.

- 8) Expand public access to the Bay and its tributaries through existing and new local, state and federal parks, refuges, reserves, trails and partner sites.
- 9) Enable every student in the region to graduate with the knowledge and skills to act responsibly to protect and restore their local watershed.
- 10) Increase the resiliency of the Chesapeake Bay watershed, including its living resources, habitats, public infrastructure and communities, to withstand adverse impacts from changing environmental and climate conditions.

Objectives

- a) Implement local TMDL WBPs and CB WIP to reduce nutrients, sediment and fecal coliform to local waters and the Chesapeake Bay.
- b) Continue to work with local governments to incorporate post construction stormwater requirements into constructions projects, source water protection plans, hazard mitigation plans, and local comprehensive planning efforts.
- c) Continue implementation of agriculture BMPs consistent with the WIP and WBPs.
- d) Increase implementation of stream restoration projects in conjunction with livestock exclusion to reduce nonpoint source pollution, improve fish habitat and stabilize streams.
- e) Focus implementation efforts in the Cacapon watershed where local nutrient impairments have been found.

Resources and partners

Partnerships are the key to the success of §319 implementations, planning and overall management. If not for the commitments of the federal and state agencies and the variety of NGOs, nonpoint source pollution abatement would not be accomplished. Note: A list of resources providers and partnerships for the past five years is available upon request.

WIB Program websites

1. In Lieu Fee Program
<http://www.dep.wv.gov/WWE/Programs/Pages/In-Lieu-Fee.aspx>
2. Nonpoint Source Program
<http://www.dep.wv.gov/WWE/Programs/nonptsources/Pages/NPS.aspx>
3. Project WET
<http://www.dep.wv.gov/WWE/getinvolved/WET/Pages/default.aspx>
4. Stream Partners Program
http://www.dep.wv.gov/WWE/getinvolved/WSA_Support/Pages/StreamPartners.aspx
5. WV Save Our Streams
<http://www.dep.wv.gov/WWE/getinvolved/sos/Pages/default.aspx>

Appendix 1 – Watershed tracking

Plan Name	Watershed	Sub Watershed	Sub Watershed	BMP/Action	Unit	Goal	Implemented	TMLD LRs	% Implemented	Pollutant ID	Unit	LR Achieved
Deckers Creek	Deckers Creek	WV Deckers Main	WV M-8	Aggregated BMP Load Reductions								
Deckers Creek	Deckers Creek	WV Deckers Main	WV M-8	Passive Treatment		1.00						
Deckers Creek	Deckers Creek	WV Deep Hollow	WV M-8-A.7	Passive Treatment		1.00						
Deckers Creek	Deckers Creek	WV Dilan Creek	WV M-8-G	Passive Treatment		1.00						
Deckers Creek	Deckers Creek	WV Hartman Run	WV M-8-O.5A	Passive Treatment		2.00						
Deckers Creek	Deckers Creek	WV Kanes Creek	WV M-8-I	Aggregated BMP Load Reductions				9,350.00		Metals (Aluminum)		52,929.00
Deckers Creek	Deckers Creek	WV Kanes Creek	WV M-8-I	Aggregated BMP Load Reductions				45,471.00		Metals (Iron)		72,119.00
Deckers Creek	Deckers Creek	WV Kanes Creek	WV M-8-I	Aggregated BMP Load Reductions						Acidity	LBS/YR	135,800.00
Deckers Creek	Deckers Creek	WV Kanes Creek	WV M-8-I	Constructed Wetland Aerobic	INDIVIDUAL UNITS	3.00	3.00		100			
Deckers Creek	Deckers Creek	WV Kanes Creek	WV M-8-I	Land Reconstruction, Abandoned Mined Land	UNITS	1.00	1.00		100			
Deckers Creek	Deckers Creek	WV Kanes Creek	WV M-8-I	Limestone Doser	UNITS	2.00	2.00		100			
Deckers Creek	Deckers Creek	WV Kanes Creek	WV M-8-I	Limestone Open Channel	UNITS	4.00	4.00		100			
Deckers Creek	Deckers Creek	WV Kanes Creek	WV M-8-I	Sulfate Reducing Bioreactor	UNITS	1.00	1.00		100			
Deckers Creek	Deckers Creek	WV Laurel Run	WV M-8-H	Passive Treatment		1.00						
Deckers Creek	Deckers Creek	WV Slab Camp Run	WV M-8-F	Aggregated BMP Load Reductions				4,974.00		Metals (Manganese)	LBS/YR	
Deckers Creek	Deckers Creek	WV Slab Camp Run	WV M-8-F	Aggregated BMP Load Reductions				192,500.00		Metals (Iron)	LBS/YR	50,300.00
Deckers Creek	Deckers Creek	WV Slab Camp Run	WV M-8-F	Aggregated BMP Load Reductions						Acidity	LBS/YR	82,000.00
Deckers Creek	Deckers Creek	WV Slab Camp Run	WV M-8-F	Aggregated BMP Load Reductions						Metals (Aluminum)	LBS/YR	45,300.00
Deckers Creek	Deckers Creek	WV Slab Camp Run	WV M-8-F	Aggregated BMP Load Reductions						pH	TONS/YR	305.37
Deckers Creek	Deckers Creek	WV Slab Camp Run	WV M-8-F	Constructed Wetland Anaerobic	UNITS	2.00	2.00		100			
Deckers Creek	Deckers Creek	WV Slab Camp Run	WV M-8-F	Limestone Leach Bed/Pond	UNITS	2.00	2.00		100			
Deckers Creek	Deckers Creek	WV Slab Camp Run	WV M-8-F	Limestone Open Channel	UNITS	1.00	1.00		100			
Deckers Creek	Deckers Creek	WV Slab Camp Run	WV M-8-F	Open Channel	FT	2,700.00	2,700.00		100			
Deckers Creek	Deckers Creek	WV Slab Camp Run	WV M-8-F	Vertical Flow Treatment System	UNITS	4.00	4.00		100			

Plan Name	Watershed	Sub Watershed	BMP/Action	Unit	Goal	Implemented	TMDL LR	% Implemented	Impairment ID	Pollutant ID	Unit	LR Achieved
Lamberts Run	Lamberts Run	WVLR1901	Aggregated BMP Load Reductions				2,140.00			Metals (Aluminum)		
Lamberts Run	Lamberts Run	WVLR1901	Aggregated BMP Load Reductions				8,878.00			Metals (Iron)		
Lamberts Run	Lamberts Run	WVLR1901	Aggregated BMP Load Reductions							Acidity	LBS/YR	0.00
Lamberts Run	Lamberts Run	WVLR1901	Constructed Wetland Aerobic	UNITS	3.00	0.00		0				
Lamberts Run	Lamberts Run	WVLR1901	Limestone Open Channel	UNITS	1.00	0.00		0				
Lamberts Run	Lamberts Run	WVLR1901	Lined Waterway or Outlet	UNITS	1.00	0.00		0				
Lamberts Run	Lamberts Run	WVLR1902	Aggregated BMP Load Reductions				273.00			Metals (Aluminum)		
Lamberts Run	Lamberts Run	WVLR1902	Aggregated BMP Load Reductions				1,416.00			Metals (Iron)		
Lamberts Run	Lamberts Run	WVLR1902			0.00	0.00						
Lamberts Run	Lamberts Run	WVLR1902			0.10							
Lamberts Run	Lamberts Run	WVLR1903	Aggregated BMP Load Reductions				735.00			Metals (Manganese)		8,200.00
Lamberts Run	Lamberts Run	WVLR1903	Aggregated BMP Load Reductions				1,937.00			Metals (Aluminum)		2,800.00
Lamberts Run	Lamberts Run	WVLR1903	Aggregated BMP Load Reductions				7,315.00			Metals (Iron)		40,420.00
Lamberts Run	Lamberts Run	WVLR1903	Constructed Wetland Aerobic	UNITS		3.00						
Lamberts Run	Lamberts Run	WVLR1903	Constructed Wetland Anaerobic	UNITS	1.00	1.00		100				
Lamberts Run	Lamberts Run	WVLR1903	Limestone Leach Bed/Pond	UNITS	1.00	1.00		100				
Lamberts Run	Lamberts Run	WVLR1903	Limestone Open Channel	UNITS	1.00	4.00		400				
Lamberts Run	Lamberts Run	WVLR1904	Aggregated BMP Load Reductions				1,067.00			Metals (Manganese)		
Lamberts Run	Lamberts Run	WVLR1904	Aggregated BMP Load Reductions				3,872.00			Metals (Aluminum)		400.00
Lamberts Run	Lamberts Run	WVLR1904	Aggregated BMP Load Reductions				4,153.00			Metals (Iron)		19,200.00
Lamberts Run	Lamberts Run	WVLR1904	Anoxic Limestone Drain	UNITS	4.00	4.00		100				
Lamberts Run	Lamberts Run	WVLR1904	Constructed Wetland Aerobic	UNITS	3.00	1.00		33				
Lamberts Run	Lamberts Run	WVLR1905	Aggregated BMP Load Reductions				659.00			Metals (Aluminum)		34,800.00
Lamberts Run	Lamberts Run	WVLR1905	Aggregated BMP Load Reductions				2,485.00			Metals (Iron)		34,600.00
Lamberts Run	Lamberts Run	WVLR1905	Constructed Wetland Aerobic	UNITS		1.00						
Lamberts Run	Lamberts Run	WVLR1905	Limestone Leach Bed/Pond	UNITS		1.00						
Lamberts Run	Lamberts Run	WVLR1905	Steel Slag Treatment	UNITS		1.00						

Plan Name	Watershed	Sub Watershed	BMP/Action	Unit	Goal	Implemented	Year	% Implemented	Pollutant ID	Target LR	Unit	LR Achieved	% LR Achieved
Lost River	Lost River	WV Lost River	Aggregated BMP Load Reductions		1.00		2011		Nitrogen	29,954.00	LBS/YR	6,738.00	22
Lost River	Lost River	WV Lost River	Aggregated BMP Load Reductions						Pathogens (Coliform)	2.39E+17	CFU	5.29E+18	2212
Lost River	Lost River	WV Lost River	Aggregated BMP Load Reductions						Phosphorus	5,300.00	TONS/YR	44,112.40	832
Lost River	Lost River	WV Lost River	Aggregated BMP Load Reductions						Sedimentation-Siltation	2,700.00	LBS/YR	7,048.00	261
Lost River	Lost River	WV Lost River	Alternative Water Sources		80.00								
Lost River	Lost River	WV Lost River	Barnyard Runoff Management	UNITS	13.00	1.00		8					
Lost River	Lost River	WV Lost River	Feed Management	INDIVIDUAL UNITS		2.00							
Lost River	Lost River	WV Lost River	Fence	FT		6,000.00							
Lost River	Lost River	WV Lost River	Grazing Planned Systems	UNITS		5.00							
Lost River	Lost River	WV Lost River	Natural Channel Restoration		10,000.00								
Lost River	Lost River	WV Lost River	Riparian Buffers - Vegetative	AC		13.80							
Lost River	Lost River	WV Lost River	Riparian Forest Buffer	AC	110.00	3.80		3					
Lost River	Lost River	WV Lost River	Sediment Basin	AC	100.00		2011						
Lost River	Lost River	WV Lost River	Tree/Shrub Establishment	AC	50.00		2011						
Lost River	Lost River	WV Lost River	Watering Facility	UNITS	5.00	0.00		0					
Lost River	Lost River	WV Lost River	Wetland Restoration	AC	10.00		2011						

Appendix 2 - Watershed based plans

Watershed plan	HUC12	HUC12_name	Type	Year	Pollutant	PM	BC-Region	Status
Mill Creek - South Branch	020700010401	South Mill Creek	Restoration	2007	Bacteria	WVCA	Potomac	NA
	020700010402	Johnson Run-Mill Creek	Restoration	2007	Bacteria	WVCA	Potomac	
Anderson Run	020700010602	Anderson Run	Restoration	2019	Bacteria/sediment	WVCA	Potomac	A
Lost River	020700030502	Upper Cove Run - Lost River	Restoration	2006	Bacteria	WVCA	Potomac	NA
	020700030504	Kimsey Run - Lost River	Restoration	2006	Bacteria	WVCA	Potomac	
	020700030501	Cullers Run-Lost River	Restoration	2017	SWP	WVRC	Potomac	A
	020700030503	Baker Run	Restoration	2017	SWP	WVRC	Potomac	
Sleepy Creek	020700040201	Upper Sleepy Creek	Restoration	2008	Bacteria	WVCA	Potomac	A
	020700040202	Middle Fork Sleepy Creek	Restoration	2008	Bacteria	WVCA	Potomac	
	020700040203	Middle Sleepy Creek	Restoration	2008	Bacteria	WVCA	Potomac	
	020700040204	Meadow Branch	Restoration	2008	Bacteria	WVCA	Potomac	
	020700040205	Lower Sleepy Creek	Restoration	2008	Bacteria	WVCA	Potomac	
Back Creek	020700040404	Brush Creek - Back Creek	Protection	2014	None	WVCA	Potomac	A
	020700040405	Babbs Run	Protection	2014	None	WVCA	Potomac	
	020700040406	Warm Springs Hollow - Back Creek	Protection	2014	None	WVCA	Potomac	
	020700040407	Elk Branch - Back Creek	Protection	2014	None	WVCA	Potomac	
	020700040408	Tilhance Creek	Protection	2014	None	WVCA	Potomac	
	020700040409	Outlet Back Creek	Protection	2014	None	WVCA	Potomac	
Mill Creek - Opequon	020700040905	Mill Creek	Restoration	2008	Bacteria	CVI	Potomac	A
Tuscarora Creek	020700040907	Tuscarora Creek	Restoration	2013	Bacteria	CVI	Potomac	A
Elk Run	020700041107	Elk Run	Restoration	2013/17	Bacteria/SWP	WVCA	Potomac	A
South Fork Potts Creek	020802010301	Sweet Springs Creek - Cove Creek	Restoration	2012	Bacteria	WVCA	Southern	NA
	020802010401	South Fork Potts Creek	Restoration	2012	Bacteria	WVCA	Southern	
Upper Buckhannon River	050200010301	Left Fork Buckhannon River	Restoration	2006	Metals/pH	WVU/BRWA	Northern	A
	050200010302	Right Fork Buckhannon River	Restoration	2006	Metals/pH	WVU/BRWA	Northern	
	050200010303	French Creek	Restoration	2006	Metals/pH	WVU/BRWA	Northern	
	050200010304	Tenmile Creek - Buckhannon River	Restoration	2006	Metals/pH	WVU/BRWA	Northern	
Roaring Creek - Tygart Valley	050200010406	Roaring Creek	Restoration	2012	Metals/pH	WVU	Northern	A
Sandy Creek - Tygart Valley	050200010501	Little Sandy Creek	Restoration	2012	Metals/pH	STTWA	Northern	NA
	050200010502	Left Fork-Sandy Creek	Restoration	2012	Metals/pH	STTWA	Northern	
Three Forks Creek	050200010601	Headwaters Three Fork Creek	Restoration	2005	Metals/pH	STTWA	Northern	NA
	050200010602	Outlet Three Fork Creek	Restoration	2005	Metals/pH	STTWA	Northern	
Little Tenmile Creek	050200020502	Headwaters Tenmile Creek	Restoration	2015	Bacteria/Metals	WVU	Northern	A
	050200020503	Little Tenmile Creek	Restoration	2015	Bacteria/Metals	WVU	Northern	
	050200020504	Outlet Tenmile Creek	Restoration	2015	Bacteria/Metals	WVU	Northern	
Lamberts Run	050200020602	Limestone Run - West Fork River	Restoration	2004	Metals/pH	WVU/GWF	Northern	A

Watershed plan	HUC12	HUC12_name	Type	Year	Pollutant	PM	BC-Region	Status
Deckers Creek	050200030201	Headwaters Deckers Creek	Restoration	2015	Metals/pH	FODC	Northern	A
	050200030202	Outlet Deckers Creek	Restoration	2015	Metals/pH	FODC	Northern	
West Run	050200030309	West Run - Monongahela River	Restoration	2008	Metals/pH	WVU	Northern	NA
Beaver Creek	050200040202	Middle Blackwater River	Restoration	2019	Metals/pH	FOB	Northern	A
North Fork Blackwater	050200040203	Lower Blackwater River	Restoration	2016	Metals/pH	FOB	Northern	A
Big Sandy Creek	050200040604	Beaver Creek - Little Sandy Creek	Restoration	2019	Metals/pH	FOC	Northern	A
	050200040604	Middle Big Sandy Creek	Restoration	2019	Metals/pH	FOC	Northern	
	050200040605	Lower Big Sandy Creek	Restoration	2019	Metals/pH	FOC	Northern	
Pringle Run	050200040702	Pringle Run - Cheat River	Restoration	-	Metals/pH	FOC	Northern	
Muddy Creek	050200040703	Muddy Creek	Restoration	-	Metals/pH	FOC	Northern	
North Fork Greens Run	050200040705	Greens Run - Cheat River	Restoration	-	Metals/pH	FOC	Northern	
Indian Creek	050500020701	Burnside Branch	Restoration	2017	Bacteria	WVCA	Southern	A
	050500020702	Rock Camp Creek	Restoration	2017	Bacteria	WVCA	Southern	
	050500020703	Upper Indian Creek	Restoration	2017	Bacteria	WVCA	Southern	
	050500020704	Middle Indian Creek	Restoration	2017	Bacteria	WVCA	Southern	
	050500020705	Lower Indian Creek	Restoration	2017	Bacteria	WVCA	Southern	
Pipestem Creek	050500020909	Little Bluestone River	Restoration	2018	Bacteria	WVCA	Southern	A
Knapp Creek	050500030201	Douthat Creek	Restoration	2013	Bacteria	WVCA	Southern	A
	050500030202	Headwaters Knapp Creek	Restoration	2013	Bacteria	WVCA	Southern	
	050500030203	Outlet Knapp Creek	Restoration	2013	Bacteria	WVCA	Southern	
Beaver Creek	050500030406	Beaver Creek	Restoration	2017	Bacteria	WVCA	Southern	A
Spring Creek	050500030408	Spring Creek	Restoration	2015	Bacteria	WVCA	Southern	A
Anthony Creek	050500030502	North Fork Anthony Creek	Restoration	2019	Bacteria	WVCA	Southern	A
	050500030503	Upper Anthony Creek	Restoration	2019	Bacteria	WVCA	Southern	
	050500030504	Middle Anthony Creek	Restoration	2019	Bacteria	WVCA	Southern	
	050500030505	Lower Anthony Creek	Restoration	2019	Bacteria	WVCA	Southern	
Second Creek	050500030701	Upper Second Creek	Restoration	2008	Bacteria	WVCA	Southern	A
	050500030703	Lower Second Creek	Restoration	2008	Bacteria	WVCA	Southern	
Muddy Creek - Greenbrier	050500030802	Kitchen Creek	Restoration	2009	Bacteria	WVCA	Southern	NA
	050500030803	Mill Creek	Restoration	2009	Bacteria	WVCA	Southern	
	050500030804	Muddy Creek	Restoration	2009	Bacteria	WVCA	Southern	
Milligan Creek/Davis Springs	050500030903	Milligan Creek - Greenbrier River	Restoration	2014	Bacteria	WVCA	Southern	A
Wolf Creek	050500030904	Wolf Creek	Restoration	2009	Metals/pH	PAN	Southern	A
	050500040304	Wolf Creek-New River	Restoration	2009	Metals/pH	PAN	Southern	
Piney Creek	050500040101	Beaver Creek	Restoration	2012	Bacteria/Metals	PCWA	Southern	A
	050500040102	Headwaters Piney Creek	Restoration	2012	Bacteria/Metals	PCWA	Southern	
	050500040103	Outlet Piney Creek	Restoration	2012	Bacteria/Metals	PCWA	Southern	

Watershed plan	HUC12	HUC12_name	Type	Year	Pollutant	PM	BC-Region	Status
Upper Meadow River	050500050601	Little Clear Creek	Restoration	2014	Bacteria/Metals	WVCA	Southern	A
	050500050602	Otter Creek-Meadow River	Restoration	2014	Bacteria/Metals	WVCA	Southern	
	050500050603	Big Clear Creek	Restoration	2014	Bacteria/Metals	WVCA	Southern	
	050500050604	Sewell Creek	Restoration	2014	Bacteria/Metals	WVCA	Southern	
	050500050605	Mill Creek - Meadow River	Restoration	2014	Bacteria/Metals	WVCA	Southern	
Cane Fork	050500060201	Headwaters Cabin Creek	Restoration	2017	Metals/pH	WVU	Western	A
Morris Creek	050500060306	Hughes Creek - Kanawha River	Restoration	2013	Metals/pH	MCWA	Western	A
Elk Headwaters	050500070101	Old Field Fork	Protection	2012	None		Western	NA
	050500070102	Dry Fork - Elk River	Protection	2012	None		Western	
	050500070103	Abb Run - Elk River	Protection	2012	None		Western	
	050500070104	Sugar Creek	Protection	2012	None		Western	
	050500070105	Back Fork Elk River	Protection	2012	None		Western	
	050500070106	Bergoo Creek - Elk River	Protection	2012	None		Western	
Cherry Fork	050500080401	Headwaters Eighteenmile Creek	Restoration	2018	Bacteria	WVCA	Western	A
Lower Coal River	050500090608	Browns Creek - Coal River	Restoration	2014	Bacteria	CRG	Western	A
Upper Guyandotte River	050701010101	Tommy Creek	Restoration	2006	Bacteria/Metals		Southern	NA
	050701010102	Slab Fork	Restoration	2006	Bacteria/Metals		Southern	
	050701010103	Devils Fork - Guyandotte River	Restoration	2006	Bacteria/Metals		Southern	
	050701010301	Barkers Creek	Restoration	2006	Bacteria/Metals		Southern	
	050701010302	Pinnacle Creek	Restoration	2006	Bacteria/Metals		Southern	
	050701010303	Cabin Creek - Guyandotte River	Restoration	2006	Bacteria/Metals		Southern	
North Fork Elkhorn	050702010202	Headwaters Elkhorn Creek	Restoration	2007	Bacteria/Metals		Southern	NA

Status
 UD Under development 
 A Active
 NA Not active
 R Revision

Appendix 3 – AML and OSR project information

AML

PAD#	PAD_NAME	HUC12	HU12_NAME	Status
WV005546	KEMPTON REFUSE REHAB	020700020201	Shields Run-North Branch Potomac River	P
WV006598	PEELTREE RD PORTALS	050200010101	Ralston Run-Tygart Valley River	P
WV006767	BLACK LICK RUN PORTALS	050200010303	French Creek	P
WV006553	TALLMANVILLE PORTALS	050200010304	Tenmile Creek-Buckhannon River	C
WV003182	ED GOWER HIGHWALL #2	050200010306	Fink Run-Buckhannon River	O
WV006924	CAMDEN WILSON LANDSLIDE	050200010404	Leading Creek	P
WV003935	NORTON HIGHWALL 1	050200010406	Roaring Creek	C
WV002190	DONNIE THORN HIGHWALL	050200010601	Headwaters Three Fork Creek	C
WV001744	HOPEWELL CHURCH REFUSE & DRAINAGE	050200010601	Headwaters Three Fork Creek	C
WV005758	SQUIRES CREEK (MOATS) REFUSE & PORTALS	050200010601	Headwaters Three Fork Creek	C
WV002190	DONNIE THORN	050200010601	Headwaters Three Fork Creek	C
WV006859	FORDS RUN DRAINAGE	050200010702	Little Laurel Run-Tygart Valley	P
WV006283	MOATSVILLE (WRIGHT) PORTALS AND DRAINAGE	050200010705	Hackers Creek-Tygart Valley River	C
WV005204	KANO MINE DRAINAGE	050200010705	Hackers Creek-Tygart Valley River	P
WV001725	VALLEY FALLS PORTALS	050200010708	Lost Run-Tygart Valley River	C
WV006829	CORRIDORE H (STONECOAL CREEK) PORTALS	050200020104	Stonecoal Creek	C
WV005057	PEPPER PORTALS AND DRAINAGE	050200020203	Brushy Fork	C
WV006891	GREEN VALLEY LANDSLIDE	050200020203	Brushy Fork	P
WV005057	PEPPER PORTALS	050200020203	Brushy Fork	C
WV000415	GLENN AVE MINE DRAINAGE	050200020204	Outlet Elk Creek	C
WV006622	BRIDGEPORT HILL PORTALS	050200020204	Outlet Elk Creek	P
WV005868	LONGVIEW MINE PORTALS	050200020204	Outlet Elk Creek	P
WV006109	CAMDEN (HARTLEY) DANGEROUS SLIDE	050200020301	Freemans Creek	C
WV006600	ISAACS CREEK DS	050200020305	Issacs Creek-West Fork River	P
WV006676	MOUNT CLARE CSL	050200020306	Sycamore Creek-West Fork	P
WV006603	CLARKSBURG HILL LANDSLIDE	050200020306	Sycamore Creek-West Fork	P
WV002746	GRAFTON #4	050200020401	Headwaters Simpson Creek	C
WV006506	LODGEVILLE (POE) DS	050200020402	Outlet Simpson Creek	C
WV001884	LARRY FREDRICK HIGHWALL & REFUSE	050200020504	Outlet Tenmile Creek	C
WV006828	SARDIS LANDSLIDE	050200020504	Outlet Tenmile Creek	P
WV001884	LARRY FREDERICK	050200020504	Outlet Tenmile Creek	C
WV006719	PINE BLUFF REFUSE	050200020601	Bingamon Creek	P
WV000336	FISHER PORTALS	050200020602	Limestone Run-West Fork River	C
WV000415	GLEN AVENUE MINE DRAINAGE	050200020602	Limestone Run-West Fork River	C

PAD#	PAD_NAME	HUC12	HU12_NAME	Status
WV004801	GORE CLOGGED STREAM	050200020602	Limestone Run-West Fork River	C
WV001675	SHINNS RUN PORTALS	050200020602	Limestone Run-West Fork River	C
WV005916	WEST FORK RIVER OPEN PORTALS	050200020602	Limestone Run-West Fork River	C
WV006273	WILLARD (SNYDER) PORTAL AND AMD	050200020602	Limestone Run-West Fork River	C
WV005289	MCALPIN PORTALS & DRAINAGE	050200020602	Limestone Run-West Fork River	P
WV006508	PERRY HOLLOW POSEY PORTALS	050200020602	Limestone Run-West Fork River	P
WV005577	PHOENIX HOLLOW VO	050200020602	Limestone Run-West Fork River	C
WV006586	BOOTH CREEK (BROWNING FARMS) MINE	050200020603	Booths Creek	C
WV006523	WEST FORK RAIL TRAIL PORTALS	050200020604	Coons Run-West Fork River	C
WV006486	FAIRMONT (JACKSON ADDITION) SUBSIDENCE	050200030103	Outlet Buffalo Creek	C
WV001206	LAUREL RUN #3	050200030103	Outlet Buffalo Creek	C
WV001141	BEULAH CHAPEL PORTAL	050200030202	Outlet Deckers Creek	C
WV006268	TYRONE (STIMMELL) PORTALS	050200030202	Outlet Deckers Creek	C
WV006304	RICHARD (SHAVER) DRAINAGE	050200030202	Outlet Deckers Creek	P
WV006900	RICHARD MINE DRAINAGE	050200030202	Outlet Deckers Creek	P
WV006388	FAIRMONT (DAC) S, CS AND P	050200030305	Little Creek-Monongahela River	C
WV004150	MAURIN MINE FIRE AND PORTALS	050200030305	Little Creek-Monongahela River	C
WV001200	PARKER RUN #1	050200030305	Little Creek-Monongahela River	C
WV006608	FAIRMONT (BENNETT) PORTALS	050200030305	Little Creek-Monongahela River	C
WV004150	MAURIN MINE FIRE	050200030305	Little Creek-Monongahela River	C
WV006729	FAIRMONT GATEWAY PORTALS	050200030305	Little Creek-Monongahela River	P
WV006718	WHITE HALL MINE FIRE PHASE 1	050200030306	Booth Creek	C
WV006718	WHITE HALL MINE FIRE PHASE 2	050200030306	Booth Creek	C
WV001140	OWL CREEK #2 HIGHWALL	050200030306	Booths Creek	P
WV001535	BISHOP PORTALS	050200030307	Cobun Creek-Monongahela River	C
WV002448	HILDERBRAND HIGHWALL	050200030307	Cobun Creek-Monongahela River	C
WV002449	WAITMAN-BARBE HIGHWALL #1	050200030307	Cobun Creek-Monongahela River	C
WV001167	LAUREL POINT STRIP	050200030308	Scotts Run-Monongahela River	C
WV006450	MORGANTOWN (ANDERSON) PORTALS	050200030308	Scotts Run-Monongahela River	C
WV005727	OSAGE MINE COMPLEX SITE 5A	050200030308	Scotts Run-Monongahela River	C
WV001190	CHISLER KNOB PORTALS	050200030308	Scotts Run-Monongahela River	P
WV006513	DAVIDSON HIGHWALL DRAINAGE	050200030309	West Run-Monongahela River	C
WV006561	MOUNT UNION (STUMP)	050200030309	West Run-Monongahela River	C
WV003205	RIDENOUR COMPLEX	050200030309	West Run-Monongahela River	C
WV002128	PENDLETON CREEK STRIP	050200040202	Middle Blackwater River	C
WV002127	CHAFFEY RUN STRIP	050200040202	Middle Blackwater River	P
WV002128	PENDLETON CREEK PHASE 2	050200040202	Middle Blackwater River	P

PAD#	PAD_NAME	HUC12	HU12_NAME	Status
WV001622	ALBERT HIGHWALL #1 Phase II	050200040203	Lower Blackwater River	C
WV000002	DAVIS COAL & COKE	050200040203	Lower Blackwater River	C
WV002279	TUB RUN PHASE 2	050200040203	Lower Blackwater River	C
WV006488	SOVERN RUN REFUSE AND PORTALS	050200040605	Lower Big Sandy Creek	C
WV001820	LICK RUN #4	050200040605	Lower Big Sandy Creek	C
WV001820	LICK RUN PORTAL #4	050200040702	Pringle Run-Cheat River	C
WV001808	MTN VIEW PORTALS	050200040702	Pringle Run-Cheat River	P
WV001062	MORGAN RUN #3	050200040702	Pringle Run-Cheat River	P
WV003007	MORGAN HIGHWALL #46	050200040704	Roaring Creek-Cheat River	C
WV002507	FLATBUSH HIGHWALL	050200040704	Roaring Creek-Cheat River	P
WV005830	ROARING CREEK RESTORATIOPN PHASE II	050200040704	Roaring Creek-Cheat River	P
WV000084	CANYON REFUSE AND DUMP	050200040707	Cheat Lake-Cheat River	C
WV003940	LAKE LYNN COMPLEX	050200040707	Cheat Lake-Cheat River	C
WV003791	FAIRFIELD HIGHWALL	050200040707	Cheat Lake-Cheat River	P
WV002977	SKIDMORE LANDSLIDE PHASE 2	050200040707	Cheat Lake-Cheat River	P
WV005645	COLLIERS SPORTSMAN CLUB HIGHWALL	050301010902	South Fork Cross Creek	C
WV003960	EBENEZER RUN HIGHWALL #9	050301010902	South Fork Cross Creek	C
WV006509	JD MILLER SITE	050301060603	Little Wheeling Creek	P
WV000288	WEST COLUMBIA ""B""	050302020805	Broad Run-Ohio River	C
WV000871	MARSH RUN PORTALS	050302030401	Headwaters Cedar Creek	c
WV000627	FLIPPING HOLLOW COMPLEX	050500020903	Laurel Fork-Bluestone River	C
WV000993	ABNEY REFUSE PILES	050500040102	Headwaters Piney Creek	C
WV005739	CRAB ORCHARD (ACKLIN) PORTALS	050500040102	Headwaters Piney Creek	C
WV003918	MACARTHUR SUBSIDENCE	050500040102	Headwaters Piney Creek	C
WV005637	LITTLE WHITESTICK CREEK REFUSE PILE	050500040103	Outlet Piney Creek	P
	SUMMERLEE WATER TREATMENT PHASE 1	050500040304	Wolf Creek-New River	P
WV002202	BURDETTE COMPLEX	050500050606	Meadow Creek-Meadow River	C
WV000064	CAMBRIA (NICHOLAS CO.) PORTALS	050500050702	Outlet Twentymile Creek	C
WV006236	SUGARCAMP RUN BURNING REFUSE	050500050806	Headwaters Peters Creek	C
WV001981	BIG CREEK COMPLEX	050500050809	Rich Creek-Gauley River	C
WV002272	RED WARRIOR GOB AND SLIDE	050500060201	Headwaters Cabin Creek	C
WV005846	ROBSON (CALES) DRAINAGE	050500060301	Loop Creek	P
WV006037	RT. 60 DRAINAGE	050500060304	Boomer Branch-Kanawha River	C
WV005578	MONTGOMERY (WVUIT) LANDSLIDE PHASE II	050500060306	Hughes Creek-Kanawha River	C
WV006020	WITCHER CREEK PORTALS AND REFUSE	050500060401	Witcher Creek	C
WV002052	BICKMORE REFUSE #2 - SITE 1	050500070901	Leatherwood Creek-Elk River	C
WV006091	BICKMORE AREA COMPLEX	050500070901	Leatherwood Creek-Elk River	P

PAD#	PAD_NAME	HUC12	HU12_NAME	Status
WV006524	INDORE (OSBORNE) PORTALS	050500070902	Sycamore Creek-Elk River	C
WV006492	BROAD RUN PORTALS	050500070906	Morris Creek-Elk River	O
WV006802	SCOTCH HILL PHASE 1	050500070907	Little Sandy Creek	C
WV006802	SCOTCH HILL PHASE 2	050500070907	Little Sandy Creek	O
WV005254	WOLFPEN (CARPENTER) PORTALS	050500080201	Tupper Creek	C
WV002151	JEEP TRAIL PORTALS	050500080204	Heizer Creek	C
WV002287	PIGTAIL BRANCH DRAINAGE	050500090303	Outlet Spruce Fork	C
WV000074	ALKOL PORTALS	050500090501	Big Horse Creek	C
WV005721	MORRISVALE (HOLESTIN) PORTALS	050500090501	Big Horse Creek	C
WV006007	CAMP CREEK (KIRK) PORTALS	050500090502	Upper Little Coal River	C
WV006395	BLOOMINGROSE (MILLER) DRAINAGE	050500090604	Drawdy Creek-Big Coal River	C
WV006349	RIDGEVIEW-DUNLAP PORTALS	050500090604	Drawdy Creek-Big Coal River	C
WV001258	MEADOW FORK OPEN PORTALS	050500090605	Brier Creek	P
WV000932	PIERPONT REFUSE PILE	050701010102	Slab Fork	C
WV006308	AMIGO PORTALS	050701010103	Devils Fork-Guyandotte River	C
WV006584	GLEN ROGERS MINE SHAFTS	050701010201	Laurel Fork	C
WV001897	CRANY MINE DUMP	050701010202	Headwaters Clear Fork	C
WV000939	OLDHOUSE BRANCH REFUSE PILE	050701010203	Outlet Clear Fork	C
WV000647	MILAM RIDGE REFUSE PILE	050701010301	Barkers Creek	C
WV001903	MONTECARLO COMPLEX	050701010301	Barkers Creek	O
WV006286	ITMANN (BURDISS) DRAINAGE	050701010303	Cabin Creek-Guyandotte River	C
WV005088	CONLEY BRANCH (WHITT) LANDSLIDE	050701010402	Island Creek	C
WV006482	COW CREEK PORTALS	050701010402	Island Creek	C
WV006216	SWITZER (ELLIS) DRAINAGE	050701010402	Island Creek	C
WV001111	MUDLICK PORTALS	050701010501	Little Huff Creek	C
WV006165	MALLORY (GIBSON) PORTALS	050701010504	Huff Creek	C
WV005350	BRAEHOLM (EVANS) PORTALS & DRAINAGE	050701010505	Buffalo Creek	C
WV000122	ROBINETTE BRANCH	050701010505	Buffalo Creek	C
WV006242	STOWE REFUSE PILE	050701010505	Buffalo Creek	C
WV006532	LYBURN (MAYNARD) DRAINAGE	050701010507	Rum Creek-Guyandotte River	C
WV005184	STOLLINGS (WHITE) PORTALS	050701010508	Dingess Run-Guyandotte River	C
WV006512	NORTH FORK (SPRY) DRAINAGE	050701020101	Big Creek	C
WV005207	VICKERS BRANCH (BUTCHER) DRAINAGE	050701020101	Big Creek	C
WV005914	WHEATLEY BRANCH (LUTHY) PORTALS	050701020101	Big Creek	C
WV000267	COAL BRANCH	050701020102	Crawley Creek-Guyandotte River	C
WV000600	CUCUMBER AIRSHAFT	050702010102	Jacobs Fork	C
WV006522	CITY OF WAR MINE PORTALS	050702010104	Middle Dry Fork	C

PAD#	PAD_NAME	HUC12	HU12_NAME	Status
	CITY OF WAR WATER TREATMENT	050702010104	Middle Dry Fork	P
WV004927	PAGETON (LAMBERT) PORTALS	050702010201	South Fork Tug Fork-Tug Fork	O
WV000660	INDIAN CREEK REFUSE PILE	050702010204	Sandlick Creek-Tug Fork	C
WV000728	LITTLE DAYCAMP BRANCH REFUSE PILE	050702010205	Spice Creek-Tug Fork	C
WV000841	GLEN ALUM COMPLEX	050702010303	Long Branch-Tug Fork	C
WV004080	LANDO (EDWARDS) DRAINAGE	050702010401	Headwaters Pigeon Creek	C
WV005631	LEFT FORK OF ELK CREEK AIR SHAFT	050702010401	Headwaters Pigeon Creek	C
WV006585	CHATTAROY (KIRK) PORTALS	050702010506	Miller Creek-Tug Fork	C
WV005452	OLDFIELD BRANCH (HALL) DRAINAGE	050702010506	Miller Creek-Tug Fork	C
WV000183	EAST LYNN II	050901020204	Lower East Fork Twelvepole Creek	C
WV006575	EAST LYNN (CLARK) PORTALS	050901020204	Lower East Fork Twelvepole Creek	P

Status: Complete - **C**, On-going - **O**, Planning - **P**, Terminated - **T**

Note: In some cases, rehab and/or planning for rehab is occurring.

OSR (Water)

Company	Permit	Ac	County	HUC12	HU12_Name	Status
BUFFALO COAL COMPANY, INC.	S-122-80	306	Tucker	020700020201	Shields Run-North Branch Potomac River	C
BUFFALO COAL COMPANY, INC.	S-2003-03	266	Grant	020700020202	Mount Storm Lake-Stony River	C
BUFFALO COAL COMPANY, INC.	S-2001-86	595	Grant	020700020202	Mount Storm Lake-Stony River	C
BUFFALO COAL COMPANY, INC.	S-53-80	375	Grant	020700020202	Mount Storm Lake-Stony River	C
BUFFALO COAL COMPANY, INC.	S-2003-88	356	Tucker	020700020202	Mount Storm Lake-Stony River	C
BUFFALO COAL COMPANY, INC.	S-52-80	191	Grant	020700020202	Mount Storm Lake-Stony River	C
GLADE RUN MINING CO.	Mar-72	50	Grant	020700020204	Abram Creek	C
THE MASTELLER COAL COMPANY	S-10-85	142	Mineral	020700020207	Piney Swamp Run-North Branch Potomac River	C
THE MASTELLER COAL COMPANY	S-125-82	49	Mineral	020700020207	Piney Swamp Run-North Branch Potomac River	C
CARSON ONE MINING, LLC	O-4-84	83	Upshur	050200010303	French Creek	C
ENERGY MARKETING COMPANY INC	O-44-83	71	Barbour	050200010307	Pecks Run-Buckhannon River	C
CHEYENNE SALES COMPANY, INC.	O-11-83	22	Upshur	050200010307	Pecks Run-Buckhannon River	C
CHEYENNE SALES CO., INC.	S-2009-96	48	Upshur	050200010307	Pecks Run-Buckhannon River	C
WERNER MINING CO., INC.	S-2003-86	43	Barbour	050200010408	Laurel Run-Tygart Valley River	C
KEISTER COAL COMPANY, INC.	184-77	27	Barbour	050200010408	Laurel Run-Tygart Valley River	C
NATIONAL CONSTRUCTION COMPANY, INC.	S-2004-86	54	Barbour	050200010408	Laurel Run-Tygart Valley River	C
MAURICE JENNINGS	53-78	65	Preston	050200010501	Little Sandy Creek	O
VMS, LTD.	S-1045-87	162	Monongalia	050200010601	Headwaters Three Fork Creek	C
INTER-STATE LUMBER COMPANY, INC.	S-96-82	25	Preston	050200010601	Headwaters Three Fork Creek	C
MAURICE JENNINGS	S-61-83	52	Preston	050200010602	Outlet Three Fork Creek	P

Company	Permit	Ac	County	HUC12	HU12_Name	Status
INTER-STATE LUMBER COMPANY, INC.	S-52-83	48	Preston	050200010602	Outlet Three Fork Creek	C
INTER-STATE LUMBER COMPANY, INC.	S-39-82	31	Preston	050200010602	Outlet Three Fork Creek	P
J. C. B. MINING, INC.	U-2006-88	10	Lewis	050200020105	Polk Creek-West Fork River	C
ENERGY MARKETING CO. INC.	U-72-83	21	Barbour	050200020201	Gnatty Creek	C
ROBLEE COAL COMPANY	U-2001-00	9	Upshur	050200020303	Hackers Creek	C
ROBLEE COAL COMPANY	O-1009-93	51	Upshur	050200020303	Hackers Creek	C
FRUSH ENTERPRISES, INC.	S-1008-89	76	Harrison	050200020401	Headwaters Simpson Creek	C
GLORY COAL CO., INC.	UO-744	3	Harrison	050200020503	Little Tenmile Creek	C
DECONDOR COAL CO.	U-147-82	7	Preston	050200030201	Headwaters Deckers Creek	C
VALLEY MINING CO., INC.	S-17-82	62	Monongalia	050200030202	Outlet Deckers Creek	C
J.A.L. COAL CO., INC.	S-23-82	40	Monongalia	050200030303	Indian Creek	C
Z & F DEVELOPMENT CO.	S-21-84	28	Monongalia	050200030304	Whiteday Creek	C
LAROSA FUEL CO., INC.	S-1051-86	197	Marion	050200030305	Little Creek-Monongahela River	C
S. KELLY INDUSTRIES	51-78	40	Monongalia	050200030306	Booths Creek	C
MOHIGAN MINING CO.	U-109-83	18	Monongalia	050200030307	Cobun Creek-Monongahela River	C
MORGANTOWN ENERGY EXPORT COMPANY	U-8-83	12	Monongalia	050200030308	Scotts Run-Monongahela River	C
A S & K, INC.	S-1011-89	24	Monongalia	050200030308	Scotts Run-Monongahela River	C
STEWARTOWN COAL CORP.	67-78	80	Monongalia	050200030309	West Run-Monongahela River	C
SOUTHERN EAGLE MINING CORPORATION	U-32-84	11	Randolph	050200040303	Taylor Run-Shavers Fork	C
BUFFALO COAL COMPANY, INC.	S-2011-92	59	Preston	050200040501	Horseshoe Run	C
HIDDEN VALLEY COAL CO.	S-60-84	47	Preston	050200040603	Beaver Creek-Little Sandy Creek	C
ZINN COAL CO.	60-79	75	Preston	050200040603	Beaver Creek-Little Sandy Creek	C
JONES COAL INC	S-9-83	46	Preston	050200040604	Middle Big Sandy Creek	C
JONES COAL INC	S-1030-86	23	Preston	050200040604	Middle Big Sandy Creek	C
ROCKVILLE MINING CO.	S-1035-86	120	Preston	050200040605	Lower Big Sandy Creek	C
BJORKMAN MINING CO.	S-37-81	35	Preston	050200040702	Pringle Run-Cheat River	C
J. E. B., INC.	S-1063-86	56	Preston	050200040702	Pringle Run-Cheat River	C
VIKING COAL COMPANY	UO-519	11	Preston	050200040703	Muddy Creek	T
CRANE COAL CO., INC.	S-27-83	8	Preston	050200040703	Muddy Creek	T
T & T FUELS, INC.	U-125-83	14	Preston	050200040703	Muddy Creek	T
ROCKVILLE MINING CO.	S-65-82	475	Preston	050200040703	Muddy Creek	T
ROCKVILLE MINING CO.	65-78	158	Preston	050200040703	Muddy Creek	T
ROCKVILLE MINING CO.	S-91-85	125	Preston	050200040703	Muddy Creek	T
LOBO CAPITOL, INC.	UO-204	6	Preston	050200040703	Muddy Creek	T
INTER-STATE LUMBER COMPANY, INC.	176-77	110	Preston	050200040704	Roaring Creek-Cheat River	C
F & M COAL CO.	46-79	130	Preston	050200040704	Roaring Creek-Cheat River	C
BOLINGREEN MINING COMPANY	S-1024-88	21	Preston	050200040705	Greens Run-Cheat River	C

Company	Permit	Ac	County	HUC12	HU12_Name	Status
DAUGHERTY COAL COMPANY, INC.	65-77	92	Preston	050200040705	Greens Run-Cheat River	C
F & M COAL CO.	S-1026-87	167	Preston	050200040705	Greens Run-Cheat River	C
ROCKVILLE MINING CO.	237-76	50	Preston	050200040705	Greens Run-Cheat River	C
INTER-STATE LUMBER COMPANY, INC.	S-112-80	100	Preston	050200040706	Bull Run-Cheat River	C
WETER CO.	S-71-79	56	Preston	050200040706	Bull Run-Cheat River	C
SHARON COAL CO.	S-1028-87	160	Preston	050200040706	Bull Run-Cheat River	C
LAKEVIEW COAL COMPANY	S-55-84	27	Monongalia	050200040707	Cheat Lake-Cheat River	C
VALLEY MINING CO., INC.	S-64-83	160	Monongalia	050200040707	Cheat Lake-Cheat River	C
FARKAS COAL CO.	34-81	10	Monongalia	050200040707	Cheat Lake-Cheat River	C
EDWARD E. THOMPSON	S-1041-89	26	Monongalia	050200040707	Cheat Lake-Cheat River	C
ALAN BLOSSER	S-1010-87	12	Monongalia	050200040707	Cheat Lake-Cheat River	C
BALDWIN MINING COMPANY	D-75-82	10	Gilmer	050302030308	Stewart Creek-Little Kanawha River	C
SMITH & STOVER	EM-29	25	Raleigh	050500040102	Headwaters Piney Creek	P
E. J. & L. CO., INC.	S-3041-87	50	Raleigh	050500040103	Outlet Piney Creek	C
STAR INDUSTRIES, INC.	R-3-81	38	Raleigh	050500040103	Outlet Piney Creek	C
HARVEY ENERGY CORP.	S-35-81	22	Fayette	050500040204	Meadow Creek	C
RALEIGH COMMERCIAL DEVELOPMENT	149-79	70	Fayette	050500040204	Meadow Creek	C
ROYAL COAL CO.	P-688	57	Fayette	050500040303	Arbuckle Creek-New River	P
ROYAL COAL CO.	R-676	30	Fayette	050500040303	Arbuckle Creek-New River	P
HARVEY ENERGY CORP.	S-11-82	41	Fayette	050500040303	Arbuckle Creek-New River	P
VICKIE ENERGY, INC.	U-53-85	14	Pocahontas	050500050402	South Fork Cherry River	C
FALCON LAND COMPANY, INC.	P-656	132	Nicholas	050500050403	Laurel Creek	C/O
ROYAL SCOT MINERALS, INC.	S-90-82	154	Greenbrier	050500050601	Little Clear Creek	C
ROYAL SCOT MINERALS, INC.	R-3078-86	30	Greenbrier	050500050601	Little Clear Creek	C
ROYAL SCOT MINERALS, INC.	31-72	400	Greenbrier	050500050601	Little Clear Creek	P
ROYAL SCOT MINERALS, INC.	S-65-76	160	Greenbrier	050500050603	Big Clear Creek	P
ROYAL SCOT MINERALS, INC.	56-81	300	Greenbrier	050500050603	Big Clear Creek	P
ROYAL SCOT MINERALS, INC.	S-99-83	11	Greenbrier	050500050603	Big Clear Creek	C
CLASSIC RES., INC.	S-55-81	20	Fayette	050500050604	Sewell Creek	P
ROYAL SCOT MINERALS, INC.	U-3046-88	26	Greenbrier	050500050605	Mill Creek-Meadow River	P
LEVEL LAND MINING CORPORATION	S-3031-90	24	Fayette	050500050609	Glade Creek-Meadow River	C
CHICOPEE COAL COMPANY, INC.	S-3006-99	257	Nicholas	050500050702	Outlet Twentymile Creek	P
CHICOPEE COAL COMPANY, INC.	S-3002-98	125	Nicholas	050500050702	Outlet Twentymile Creek	P
GREENDALE COALS, INC.	S-75-83	224	Clay	050500050702	Outlet Twentymile Creek	O
APPALACHIAN FUELS, LLC	S-3041-88	390	Clay	050500050702	Outlet Twentymile Creek	C
TRIPLE A COALS, INC.	U-3046-87	25	Nicholas	050500050801	Big Beaver Creek	P
TRIPLE A COALS, INC.	S-3028-87	121	Nicholas	050500050801	Big Beaver Creek	P

Company	Permit	Ac	County	HUC12	HU12_Name	Status
W & E LOGGING & COAL	S-20-82	70	Nicholas	050500050801	Big Beaver Creek	C
DUSTY COALS, INC.	S-119-85	71	Nicholas	050500050801	Big Beaver Creek	C
MOUNTAINEER FUELS, INC.	U-3083-87	10	Nicholas	050500050801	Big Beaver Creek	C
TRIPLE A COALS, INC.	S-96-85	262	Nicholas	050500050801	Big Beaver Creek	P
JINKS MINING COMPANY	U-3031-93	15	Nicholas	050500050801	Big Beaver Creek	C/O
B & S CONTRACTING, INC.	R-668	26	Nicholas	050500050802	Headwaters Muddlety Creek	C
LODESTAR ENERGY, INC.	S-3083-86	74	Nicholas	050500050802	Headwaters Muddlety Creek	C/O
B & S CONTRACTING, INC.	U-3055-87	10	Nicholas	050500050803	Outlet Muddlety Creek	P
M & T MINING CO.	S-3026-89	171	Nicholas	050500050803	Outlet Muddlety Creek	C
BLACK DIAMOND MINING CO.	13-79	34	Nicholas	050500050803	Outlet Muddlety Creek	C
SAN SUE COAL CO.	19-75	14	Nicholas	050500050803	Outlet Muddlety Creek	C
KODIAK LAND CO., INC.	S-3052-87	32	Fayette	050500050805	Summersville Lake-Gauley River	C
CRADDOCK & SON COAL CO.	S-68-83	94	Nicholas	050500050806	Headwaters Peters Creek	C
C. C. CONLEY & SONS, INC.	S-3046-91	195	Nicholas	050500050806	Headwaters Peters Creek	C
JOCARR RESOURCES, INC.	U-3059-86	10	Nicholas	050500050806	Headwaters Peters Creek	C
HARVEY ENERGY CORP.	S-3030-89	44	Fayette	050500060101	Packs Branch-Paint Creek	C
PRINCESS CINDY MINING, INC.	30-79	137	Fayette	050500060301	Loop Creek	O
PRINCESS SUSAN COAL CO.	S-6-85	216	Kanawha	050500060305	Kellys Creek	C
PRINCESS SUSAN COAL CO.	S-6033-86	200	Kanawha	050500060305	Kellys Creek	C
PRINCESS SUSAN COAL CO.	S-76-82	67	Kanawha	050500060401	Witcher Creek	C
TEMPLEMAN CONST. CO., INC.	151-75	25	Kanawha	050500060404	Campbells Creek	C
BOOMERANG COAL, INC.	S-2015-06	10	Randolph	050500070104	Sugar Creek	P
SOLITAIRE COAL CORPORATION, INC.	S-87-85	138	Webster	050500070302	Headwaters Right Fork Holly River	C/O
LODESTAR ENERGY, INC.	S-3006-89	123	Nicholas	050500070501	Headwaters Buffalo Creek	P
BRADY CLINE COAL CO.	EM-97	11	Nicholas	050500070501	Headwaters Buffalo Creek	C
ZY COAL CO.	S-30-80	62	Clay	050500070502	Lilly Fork	C
SUMMERSVILLE FIVE BLOCK	S-3051-88	604	Nicholas	050500070502	Lilly Fork	P
ZY COAL CO.	91-79	64	Clay	050500070503	Outlet Buffalo Creek	C
ALPHAINE CORP.	S-6032-86	30	Clay	050500070901	Leatherwood Creek-Elk River	C
CHICOPEE COAL COMPANY, INC.	O-6013-88	125	Clay	050500070902	Sycamore Creek-Elk River	C
EASTERN ENERGY INVEST.	S-6029-86	297	Kanawha	050500070908	Coopers Creek-Elk River	C
BELLE CONTRACTING, INC.	S-6020-87	108	Putnam	050500080204	Heizer Creek	C
BARRETT FUEL CORP.	R-737	175	Raleigh	050500090101	Headwaters Clear Fork	C/P
PUPS CREEK COALS, INC.	S-3006-94	221	Raleigh	050500090201	Stephens Lake	C
J & N PROCESSING COMPANY, LLC	O-58-83	203	Raleigh	050500090202	Upper Marsh Fork	C
LANDMARK CORPORATION	S-5069-88	185	Boone	050500090502	Upper Little Coal River	C
LANDMARK CORPORATION	S-34-82	95	Boone	050500090503	Lower Little Coal River	C

Company	Permit	Ac	County	HUC12	HU12_Name	Status
BENHAM GROUP, LTD.	120-79	180	Boone	050500090604	Drawdy Creek-Big Coal River	C
EASTERN ENERGY INVESTS.	U-6012-88	5	Boone	050500090606	Fork Creek-Big Coal River	C
GREEN MOUNTAIN ENERGY	U-4013-91	15	Wyoming	050701010102	Slab Fork	C
LODESTAR ENERGY, INC.	R-5-84	34	Wyoming	050701010102	Slab Fork	C
LILLYBROOK COAL CO.	S-86-85	34	Raleigh	050701010103	Devils Fork-Guyandotte River	P
PINNACLE CREEK MINING CORP.	R-721	32	Wyoming	050701010302	Pinnacle Creek	C/P
LO-MING COAL CORPORATION	U-5049-87	12	Logan	050701010402	Island Creek	C
HUNT COAL, INC.	U-5071-86	10	Logan	050701010506	Elk Creek-Guyandotte River	C/P
SALYERS LEASING CORP.	U-5066-87	19	Mingo	050701010506	Elk Creek-Guyandotte River	C
JOHN GALT	D-76-82	8	Logan	050701010507	Rum Creek-Guyandotte River	C
WINCHESTER COALS, INC.	O-52-83	5	Logan	050701020105	Fourteenmile Creek-Guyandotte River	C
MERIDAN OF VIRGINIA, INC.	S-4005-89	99	McDowell	050702010105	Lower Dry Fork	P
KEYSTONE COAL, INC.	S-84-83	100	Mingo	050702010310	Blackberry Creek-Tug Fork	C
KEYSTONE COAL, INC.	U-186-83	19	Mingo	050702010311	Mate Creek	C
BORGMAN COAL CO.	EM-32	6	Preston	50200040702	Pringle Run-Cheat River	P

OSR (Land)

Company	Permit	Ac	County	HUC12	HU12_Name	Status
GLADY FORK MINING, INC.	U-60-83	33	Upshur	050200010303	French Creek	P
ENERGY MARKETING CO., INC.	U-16-83	8	Barbour	050200020201	Gnatty Creek	C
ENERGY MARKETING CO. INC.	UO-520	13	Barbour	050200020202	Headwaters Elk Creek	C
ENERGY MARKETING CO. INC.	UO-885	67	Barbour	050200020202	Headwaters Elk Creek	C
KANAWHA DEVELOPMENT CORPORATION	O-14-81	49	Fayette	050500060303	Smithers Creek	P
APPALACHIAN FUELS, LLC.	P-3019-08	10	Fayette	050500060304	Boomer Branch-Kanawha River	C
LANDMARK CORPORATION	S-5047-89	250	Boone	050500090502	Upper Little Coal River	C
BELVA COAL COMPANY	R-591	45	Logan	050701010507	Rum Creek-Guyandotte River	C
KEYSTONE COAL, INC.	S-101-85	99	Mingo	050702010310	Blackberry Creek-Tug Fork	C
KEYSTONE COAL, INC.	U-5045-87	14	Mingo	050702010310	Blackberry Creek-Tug Fork	C
QUINTAIN DEVELOPMENT, LLC	S-5033-96	369	Mingo	050702010602	Jennie Creek-Tug Fork	P

Complete - **C**, On-going - **O**, Planning - **P**, In-stream treatment - **T**

Note: In some cases, rehabilitation is occurring or being planned.

Appendix 4 – TMDL development schedule

Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2019	E	Upper Guyandotte	Guyandotte River	Guyandotte River (Upper)	WVOG-Up			X					X
2019	E	Upper Guyandotte	Island Creek	Island Creek	WVOG-65								X
2019	E	Upper Guyandotte	Island Creek	Coal Branch	WVOG-65-A								X
2019	E	Upper Guyandotte	Island Creek	Copperas Mine Fork	WVOG-65-B			X					X
2019	E	Upper Guyandotte	Island Creek	Mud Fork	WVOG-65-B-1			X					X
2019	E	Upper Guyandotte	Island Creek	Lower Dempsey Branch	WVOG-65-B-1-A			X					X
2019	E	Upper Guyandotte	Island Creek	Ellis Branch	WVOG-65-B-1-B								X
2019	E	Upper Guyandotte	Island Creek	Upper Dempsey Branch	WVOG-65-B-1-E								X
2019	E	Upper Guyandotte	Island Creek	Rockhouse Branch	WVOG-65-B-1-F								X
2019	E	Upper Guyandotte	Island Creek	Whitman Creek	WVOG-65-B-2								X
2019	E	Upper Guyandotte	Island Creek	Left Fork/Whitman Creek	WVOG-65-B-2-A								X
2019	E	Upper Guyandotte	Island Creek	UNT/Whitman Creek RM 3.83 (Skifus Branch)	WVOG-65-B-2-C						X		
2019	E	Upper Guyandotte	Island Creek	Trace Fork	WVOG-65-B-4								X
2019	E	Upper Guyandotte	Island Creek	Curry Branch	WVOG-65-B-5			X					X
2019	E	Upper Guyandotte	Island Creek	Mill Creek	WVOG-65-C								X
2019	E	Upper Guyandotte	Island Creek	Steele Branch	WVOG-65-E								X
2019	E	Upper Guyandotte	Island Creek	Middle Fork/Island Creek	WVOG-65-G			X					X
2019	E	Upper Guyandotte	Island Creek	Pine Creek	WVOG-65-H						X		X
2019	E	Upper Guyandotte	Island Creek	Right Fork/Pine Creek	WVOG-65-H-1						X		
2019	E	Upper Guyandotte	Island Creek	Twin Branch	WVOG-65-H-2						X		
2019	E	Upper Guyandotte	Island Creek	Left Fork/Pine Creek	WVOG-65-H-3						X		
2019	E	Upper Guyandotte	Island Creek	Rockhouse Branch	WVOG-65-I						X		
2019	E	Upper Guyandotte	Island Creek	Cow Creek	WVOG-65-J								X
2019	E	Upper Guyandotte	Island Creek	Left Fork/Cow Creek	WVOG-65-J-3								X
2019	E	Upper Guyandotte	Dingess Run	Dingess Run	WVOG-68						X		X
2019	E	Upper Guyandotte	Dingess Run	Bandmill Hollow	WVOG-68-A						X		
2019	E	Upper Guyandotte	Dingess Run	UNT/Bandmill Hollow RM 1.84	WVOG-68-A-4						X		
2019	E	Upper Guyandotte	Dingess Run	Freeze Fork	WVOG-68-G			X			X		X
2019	E	Upper Guyandotte	Dingess Run	UNT/Freeze Fork RM 1.05	WVOG-68-G-1						X		
2019	E	Upper Guyandotte	Dingess Run	Georges Creek	WVOG-68-H						X		
2019	E	Upper Guyandotte	Dingess Run	UNT/Georges Creek RM 1.07	WVOG-68-H-1						X		
2019	E	Upper Guyandotte	Dingess Run	UNT/Georges Creek RM 1.50	WVOG-68-H-2								
2019	E	Upper Guyandotte	Rum Creek	Rum Creek	WVOG-70						X		X
2019	E	Upper Guyandotte	Rum Creek	Right Hand Fork/Rum Creek	WVOG-70-A						X		

Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2019	E	Upper Guyandotte	Rum Creek	Burgess Branch	WVOG-70-A-1								
2019	E	Upper Guyandotte	Rum Creek	UNT/Rum Creek RM 1.83	WVOG-70-A.2								
2019	E	Upper Guyandotte	Rum Creek	Slab Fork	WVOG-70-B						X		
2019	E	Upper Guyandotte	Rum Creek	Big Lick Branch	WVOG-70-E						X		
2019	E	Upper Guyandotte	Madison Branch	Madison Branch	WVOG-72			X					X
2019	E	Upper Guyandotte	Madison Branch	UNT/Madison Branch RM 0.68	WVOG-72-A			X			X		X
2019	E	Upper Guyandotte	Rich Creek	Left Fork/Rich Creek	WVOG-73-A								
2019	E	Upper Guyandotte	Rich Creek	UNT/Left Fork rm 1.02/Rich Creek	WVOG-73-A-1								
2019	E	Upper Guyandotte	Rich Creek	Laurel Branch	WVOG-73-D								
2019	E	Upper Guyandotte	Buffalo Creek	Buffalo Creek	WVOG-75				X				X
2019	E	Upper Guyandotte	Buffalo Creek	Right Fork/Buffalo Creek	WVOG-75-A								X
2019	E	Upper Guyandotte	Buffalo Creek	Perry Branch	WVOG-75-A-1						X		
2019	E	Upper Guyandotte	Buffalo Creek	Proctor Hollow (Mudlick Branch)	WVOG-75-C.5			X					
2019	E	Upper Guyandotte	Buffalo Creek	UNT/Proctor Hollow RM 0.54	WVOG-75-C.5-1								
2019	E	Upper Guyandotte	Buffalo Creek	Robinette Branch	WVOG-75-D								X
2019	E	Upper Guyandotte	Buffalo Creek	Dingess Branch	WVOG-75-H						X		
2019	E	Upper Guyandotte	Buffalo Creek	Toney Fork	WVOG-75-J								X
2019	E	Upper Guyandotte	Buffalo Creek	Elklick Branch	WVOG-75-K								
2019	E	Upper Guyandotte	Buffalo Creek	UNT/Elklick Branch RM 0.89	WVOG-75-K-1								
2019	E	Upper Guyandotte	Buffalo Creek	Middle Fork/Buffalo Creek	WVOG-75-L-1	X			X			X	
2019	E	Upper Guyandotte	Huff Creek	Huff Creek	WVOG-76								X
2019	E	Upper Guyandotte	Huff Creek	Beech Branch	WVOG-76-K								X
2019	E	Upper Guyandotte	Huff Creek	Toney Fork	WVOG-76-L	X			X				
2019	E	Upper Guyandotte	Huff Creek	Paynter Branch	WVOG-76-M								X
2019	E	Upper Guyandotte	Huff Creek	Road Branch	WVOG-76-O						X		X
2019	E	Upper Guyandotte	Huff Creek	UNT/Road Branch RM 1.79	WVOG-76-O-3						X		
2019	E	Upper Guyandotte	Rockhouse Creek	Rockhouse Creek	WVOG-77								
2019	E	Upper Guyandotte	Rockhouse Creek	Spring Branch	WVOG-77-A								
2019	E	Upper Guyandotte	Rockhouse Creek	UNT/Spring Branch RM 0.56	WVOG-77-A-1								
2019	E	Upper Guyandotte	Rockhouse Creek	Oldhouse Branch	WVOG-77-A.5	X		X	X			X	
2019	E	Upper Guyandotte	Rockhouse Creek	Lick Branch	WVOG-77-B								
2019	E	Upper Guyandotte	Rockhouse Creek	Lefthand Fork/Rockhouse Creek	WVOG-77-D			X					
2019	E	Upper Guyandotte	Sandlick Creek	Sandlick Creek	WVOG-78								X
2019	E	Upper Guyandotte	Spice Creek	Spice Creek	WVOG-82								X
2019	E	Upper Guyandotte	Sylvia Branch	Sylvia Branch	WVOG-84								X
2019	E	Upper Guyandotte	Stafford Branch	Stafford Branch	WVOG-88								X

Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2019	E	Upper Guyandotte	Gilbert Creek	Gilbert Creek	WVOG-89								X
2019	E	Upper Guyandotte	Gilbert Creek	Skillet Creek	WVOG-89-A								X
2019	E	Upper Guyandotte	Gilbert Creek	Horsepen Creek	WVOG-89-B								X
2019	E	Upper Guyandotte	Gilbert Creek	Browning Fork	WVOG-89-B-1								X
2019	E	Upper Guyandotte	Gilbert Creek	Lower Pete Branch	WVOG-89-B-0.3								
2019	E	Upper Guyandotte	Gilbert Creek	Adams Fork	WVOG-89-C.3								
2019	E	Upper Guyandotte	Neds Branch	Neds Branch	WVOG-90								X
2019	E	Upper Guyandotte	Little Huff Creek	Little Huff Creek	WVOG-92			X					X
2019	E	Upper Guyandotte	Little Huff Creek	Little Cub Creek	WVOG-92-B								X
2019	E	Upper Guyandotte	Little Huff Creek	Lizard Creek	WVOG-92-C			X					X
2019	E	Upper Guyandotte	Little Huff Creek	Muzzle Creek	WVOG-92-I								X
2019	E	Upper Guyandotte	Little Huff Creek	Buffalo Creek	WVOG-92-K			X					X
2019	E	Upper Guyandotte	Little Huff Creek	Kezee Fork	WVOG-92-K-1			X					
2019	E	Upper Guyandotte	Little Huff Creek	Suke Creek	WVOG-92-M			X					X
2019	E	Upper Guyandotte	Little Huff Creek	Pad Fork	WVOG-92-Q								X
2019	E	Upper Guyandotte	Big Cub Creek	Big Cub Creek	WVOG-96								X
2019	E	Upper Guyandotte	Big Cub Creek	Road Branch	WVOG-96-B						X		X
2019	E	Upper Guyandotte	Big Cub Creek	UNT/Road Branch RM 1.13	WVOG-96-B-2								X
2019	E	Upper Guyandotte	Big Cub Creek	Toler Hollow	WVOG-96-F						X		X
2019	E	Upper Guyandotte	Long Branch	Long Branch	WVOG-97								X
2019	E	Upper Guyandotte	Reedy Branch	Reedy Branch	WVOG-99						X		X
2019	E	Upper Guyandotte	Clear Fork	Clear Fork	WVOGC								X
2019	E	Upper Guyandotte	Laurel Fork	Laurel Fork	WVOGC-16								X
2019	E	Upper Guyandotte	Laurel Fork	Coon Branch	WVOGC-16-B								X
2019	E	Upper Guyandotte	Laurel Fork	Chestnut Flats Branch	WVOGC-16-B-1								X
2019	E	Upper Guyandotte	Laurel Fork	Cabin Branch	WVOGC-16-C								X
2019	E	Upper Guyandotte	Laurel Fork	Glen Fork	WVOGC-16-J								X
2019	E	Upper Guyandotte	Laurel Fork	Tom Bailey Branch	WVOGC-16-J-1								X
2019	E	Upper Guyandotte	Laurel Fork	Laurel Branch	WVOGC-16-K			X					X
2019	E	Upper Guyandotte	Laurel Fork	Milam Fork	WVOGC-16-M								X
2019	E	Upper Guyandotte	Laurel Fork	Franks Fork	WVOGC-16-U								X
2019	E	Upper Guyandotte	Toney Fork	Toney Fork	WVOGC-19								X
2019	E	Upper Guyandotte	Horse Creek	Horse Creek	WVOG-105								X
2019	E	Upper Guyandotte	Little Cub Creek	Little Cub Creek	WVOG-108								X
2019	E	Upper Guyandotte	Indian Creek	Indian Creek	WVOG-110								X
2019	E	Upper Guyandotte	Indian Creek	Brier Creek	WVOG-110-A			X					X

Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2019	E	Upper Guyandotte	Indian Creek	Marsh Fork	WVOG-110-A-2			X					X
2019	E	Upper Guyandotte	Indian Creek	Wolf Pen Branch	WVOG-110-G								X
2019	E	Upper Guyandotte	Turkey Creek	Turkey Creek	WVOG-118			X					X
2019	E	Upper Guyandotte	Skin Fork	Skin Fork	WVOG-119			X					X
2019	E	Upper Guyandotte	Rockcastle Creek	Rockcastle Creek	WVOG-123								X
2019	E	Upper Guyandotte	Rockcastle Creek	Bearhole Fork	WVOG-123-A			X					X
2019	E	Upper Guyandotte	Rockcastle Creek	Bird Branch	WVOG-123-A-1								X
2019	E	Upper Guyandotte	Pinnacle Creek	Pinnacle Creek	WVOG-124			X					X
2019	E	Upper Guyandotte	Pinnacle Creek	Little White Oak Creek	WVOG-124-E			X					
2019	E	Upper Guyandotte	Pinnacle Creek	Sulphur Branch	WVOG-124-E-0.5			X					
2019	E	Upper Guyandotte	Pinnacle Creek	Spider Creek	WVOG-124-I			X					X
2019	E	Upper Guyandotte	Pinnacle Creek	White Oak Branch	WVOG-124-J								X
2019	E	Upper Guyandotte	Pinnacle Creek	Payne Branch	WVOG-124-J-1								
2019	E	Upper Guyandotte	Pinnacle Creek	UNT/Payne Branch RM1.37	WVOG-124-J-1-C								
2019	E	Upper Guyandotte	Pinnacle Creek	Beartown Fork	WVOG-124-N			X					X
2019	E	Upper Guyandotte	Cabin Creek	Cabin Creek	WVOG-127			X					X
2019	E	Upper Guyandotte	Cabin Creek	Meadow Fork	WVOG-127-B								X
2019	E	Upper Guyandotte	Cabin Creek	Marsh Fork	WVOG-127-D			X					X
2019	E	Upper Guyandotte	Joe Branch	Joe Branch	WVOG-128						X		X
2019	E	Upper Guyandotte	Long Branch	UNT/Still Run RM 1.00	WVOG-130-A.2			X					
2019	E	Upper Guyandotte	Barkers Creek	Barkers Creek	WVOG-131			X					X
2019	E	Upper Guyandotte	Barkers Creek	Hickory Branch	WVOG-131-B						X		
2019	E	Upper Guyandotte	Barkers Creek	Mill Branch	WVOG-131-C								X
2019	E	Upper Guyandotte	Barkers Creek	Gooney Otter Creek	WVOG-131-F			X					X
2019	E	Upper Guyandotte	Barkers Creek	Jims Branch	WVOG-131-F-1								X
2019	E	Upper Guyandotte	Barkers Creek	UNT/Gooney Otter Creek RM 3.64	WVOG-131-F-5								X
2019	E	Upper Guyandotte	Barkers Creek	Milam Fork	WVOG-131-I								X
2019	E	Upper Guyandotte	Slab Fork	Slab Fork	WVOG-134			X	X				X
2019	E	Upper Guyandotte	Slab Fork	Cedar Creek	WVOG-134-B								X
2019	E	Upper Guyandotte	Slab Fork	Marsh Fork	WVOG-134-C								X
2019	E	Upper Guyandotte	Slab Fork	Measle Fork	WVOG-134-D	X		X	X				X
2019	E	Upper Guyandotte	Slab Fork	UNT/Slab Fork RM 7.96	WVOG-134-D.5	X			X				
2019	E	Upper Guyandotte	Slab Fork	Burnt Fork	WVOG-134-H								X
2019	E	Upper Guyandotte	Slab Fork	Low Gap Branch	WVOG-134-I			X					X
2019	E	Upper Guyandotte	Allen Creek	Allen Creek	WVOG-135			X					X
2019	E	Upper Guyandotte	Allen Creek	Left Fork/Allen Creek	WVOG-135-A			X					

Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2019	E	Upper Guyandotte	Big Branch	Big Branch	WVOG-136								X
2019	E	Upper Guyandotte	Devils Fork	Devils Fork	WVOG-137			X					X
2019	E	Upper Guyandotte	Devils Fork	Beetree Branch	WVOG-137-A			X					
2019	E	Upper Guyandotte	Devils Fork	UNT/Bluff Fork RM 0.17	WVOG-137-B-0.1			X					
2019	E	Upper Guyandotte	Devils Fork	Wiley Spring Branch	WVOG-137-C			X					
2019	E	Upper Guyandotte	Winding Gulf	Winding Gulf	WVOG-138			X	X				X
2019	E	Upper Guyandotte	Winding Gulf	Berry Branch	WVOG-138-A								X
2019	E	Upper Guyandotte	Winding Gulf	Mullens Branch	WVOG-138-E			X					
2019	E	Upper Guyandotte	Winding Gulf	West Fork/Winding Gulf	WVOG-138-G	XDMR							
2019	E	Upper Guyandotte	Stonecoal Creek	Stonecoal Creek	WVOG-139			X					X
2019	E	Upper Guyandotte	Stonecoal Creek	Tommy Creek	WVOG-139-A			X	X				X
2019	E	Upper Guyandotte	Stonecoal Creek	Bragg Branch	WVOG-139-A-1			X					
2019	E	Upper Guyandotte	Stonecoal Creek	Lefthand Fork/Tommy Creek	WVOG-139-A-3			X					
2019	E	Upper Guyandotte	Stonecoal Creek	Riffe Branch	WVOG-139-B					X			X
2019	E	Upper Guyandotte	Stonecoal Creek	Pines Creek	WVOG-139-D								X
2020	E	Big Sandy	Miller Creek	Miller Creek	WVBS-1		X	X					X
2020	E	Big Sandy	Miller Creek	UNT/Miller Creek RM 1.85	WVBS-1-B		X						X
2020	E	Big Sandy	Dock Creek	Dock Creek	WVBS-2								X
2020	E	Big Sandy	Dock Creek	UNT/Dock Creek RM 0.63	WVBS-2-A								X
2020	E	Big Sandy	Dock Creek	UNT/Dock Creek RM 1.83	WVBS-2-D								X
2020	E	Big Sandy	Cedar Run	Cedar Run	WVBS-3								X
2020	E	Big Sandy	Sharps Branch	Sharps Branch	WVBS-4								X
2020	E	Big Sandy	Whites Creek	Whites Creek	WVBS-5			X					X
2020	E	Big Sandy	Whites Creek	Sours Run	WVBS-5-A		X						X
2020	E	Big Sandy	Whites Creek	Hensley Branch	WVBS-5-A.3								X
2020	E	Big Sandy	Whites Creek	Merrick Branch	WVBS-5-A.5								X
2020	E	Big Sandy	Whites Creek	Rocklick Branch	WVBS-5-A.7								X
2020	E	Big Sandy	Whites Creek	Balangee Branch	WVBS-5-A.9			X					X
2020	E	Big Sandy	Gragston Creek	Gragston Creek	WVBS-6			X					X
2020	E	Big Sandy	Gragston Creek	Brush Fork	WVBS-6-B								X
2020	E	Big Sandy	Elijah Creek	Elijah Creek	WVBS-7								X
2020	E	Big Sandy	Elijah Creek	Davis Branch	WVBS-7-A								X
2020	E	Big Sandy	Elijah Creek	Gilkerson Branch	WVBS-7-B								X
2020	E	Big Sandy	Hurricane Creek	Hurricane Creek	WVBS-8			X					X
2020	E	Big Sandy	Hurricane Creek	Sugar Branch	WVBS-8-0.7A								X
2020	E	Big Sandy	Hurricane Creek	Left Fork/Hurricane Creek	WVBS-8-B								X

Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2020	E	Big Sandy	Hurricane Creek	Dawson Branch	WVBS-8-E			X					X
2020	E	Big Sandy	Hurricane Creek	Spruce Lick	WVBS-8-F			X					X
2020	E	Big Sandy	Hurricane Creek	Artrip Branch	WVBS-8-G								X
2020	E	Big Sandy	Little Hurricane Creek	Little Hurricane Creek	WVBS-9			X					X
2020	E	Big Sandy	Tabor Creek	Tabor Creek	WVBS-10			X					X
2020	E	Big Sandy	Tabor Creek	Powder Mill Branch	WVBS-10-0.5A								X
2020	E	Big Sandy	Tabor Creek	Wildcat Branch	WVBS-10-0.7A								X
2020	E	Big Sandy	Tabor Creek	Long Branch	WVBS-10-A								X
2020	E	Big Sandy	Lycans Branch	Lycans Branch	WVBS-12								X
2020	E	Big Sandy	Redhead Branch	Redhead Branch	WVBS-13								X
2020	E	Lower Ohio	Sevenmile Creek	Sevenmile Creek	WVO-6								X
2020	E	Lower Ohio	Sevenmile Creek	Little Sevenmile Creek	WVO-6-A								X
2020	E	Lower Ohio	Ninemile Creek	Ninemile Creek	WVO-7								X
2020	E	Lower Ohio	Ninemile Creek	UNT/Ninemile Creek RM 3.94	WVO-7-A								X
2020	E	Lower Ohio	Ninemile Creek	UNT/Ninemile Creek RM 5.75	WVO-7-H								X
2020	E	Lower Ohio	Guyan Creek	Guyan Creek	WVO-9			X					X
2020	E	Lower Ohio	Guyan Creek	Spurlock Creek	WVO-9-A								X
2020	E	Lower Ohio	Guyan Creek	Left Fork/Spurlock Creek	WVO-9-A-2								X
2020	E	Lower Ohio	Guyan Creek	Perry Creek	WVO-9-A-2-A								X
2020	E	Lower Ohio	Guyan Creek	Bryan Creek	WVO-9-C		X						X
2020	E	Lower Ohio	Guyan Creek	UNT/Bryan Creek RM 3.74	WVO-9-C-7								X
2020	E	Lower Ohio	Guyan Creek	Lynn Fork	WVO-9-D-2								X
2020	E	Lower Ohio	Guyan Creek	Knife Branch	WVO-9-E								X
2020	E	Lower Ohio	Guyan Creek	Bear Hollow Creek	WVO-9-F								X
2020	E	Lower Ohio	Guyan Creek	UNT/Bear Hollow Creek RM 1.20	WVO-9-F-2								X
2020	E	Lower Ohio	Guyan Creek	UNT/Guyan Creek RM 13.17	WVO-9-W								X
2020	E	Lower Ohio	Eighteenmile Creek	Eighteenmile Creek	WVO-10			X					X
2020	E	Lower Ohio	Eighteenmile Creek	Rocky Fork	WVO-10-A								X
2020	E	Lower Ohio	Eighteenmile Creek	Fees Branch	WVO-10-C								X
2020	E	Lower Ohio	Eighteenmile Creek	Mud Run	WVO-10-D								X
2020	E	Lower Ohio	Eighteenmile Creek	Right Fork/Eighteenmile Creek	WVO-10-D.5								X
2020	E	Lower Ohio	Eighteenmile Creek	Road Fork	WVO-10-E			X					
2020	E	Lower Ohio	Eighteenmile Creek	Spring Branch	WVO-10-F-1			X					X
2020	E	Lower Ohio	Sixteenmile Creek	Sixteenmile Creek	WVO-11			X					X
2020	E	Lower Ohio	Sixteenmile Creek	UNT/Sixteenmile Creek RM 1.96	WVO-11-0.9A			X					
2020	E	Lower Ohio	Sixteenmile Creek	Jerrys Run	WVO-11-B								X

Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2020	E	Lower Ohio	Sixteenmile Creek	Millstone Creek	WVO-11-D								X
2020	E	Lower Ohio	Sixteenmile Creek	Righthand Fork	WVO-11-E								X
2020	E	Lower Ohio	Sixteenmile Creek	UNT/Righthand Fork RM 2.10	WVO-11-E-4								X
2020	E	Lower Ohio	Sixteenmile Creek	Potts Hollow (Righthand Fork)	WVO-11-F			X					
2020	E	Lower Ohio	Sixteenmile Creek	UNT/Sixteenmile Creek RM 13.56	WVO-11-G.1								X
2020	E	Lower Ohio	Sixteenmile Creek	Willow Branch	WVO-11-H								X
2020	E	Lower Ohio	Sixteenmile Creek	Wolfpen Run	WVO-11-I								X
2020	E	Lower Ohio	Sixteenmile Creek	UNT/Sixteenmile Creek RM 15.47	WVO-11-K			X					X
2020	E	Lower Ohio	Flatfoot Creek	Flatfoot Creek	WVO-12								X
2020	E	Lower Ohio	Flatfoot Creek	UNT/Flatfoot Creek RM 3.42	WVO-12-B			X					X
2020	E	Lower Ohio	Flatfoot Creek	UNT/Flatfoot Creek RM 5.40	WVO-12-D								X
2020	E	Lower Ohio	Crab Creek	Crab Creek	WVO-13		X	X					X
2020	E	Lower Ohio	Crab Creek	Mud Run	WVO-13-A			X					X
2020	E	Lower Ohio	Crab Creek	Sand Fork	WVO-13-B								X
2020	E	Lower Ohio	Crab Creek	Middle Fork/Crab Creek	WVO-13-D								X
2020	E	Lower Ohio	Crab Creek	UNT/Crab Creek RM 7.00	WVO-13-F								X
2020	E	Lower Ohio	Threemile Creek	Threemile Creek	WVO-15								X
2020	E	Lower Ohio	Twomile Creek	Twomile Creek	WVO-16			X					X
2020	E	Lower Ohio	Salt Creek	Salt Creek	WVO-17								X
2020	E	Twelvepole	Twelvepole Creek	Twelvepole Creek	WVO-2			X					X
2020	E	Twelvepole	Twelvepole Creek	Krout Creek	WVO-2-0.1A								X
2020	E	Twelvepole	Twelvepole Creek	Jordans Branch	WVO-2-0.5A								X
2020	E	Twelvepole	Twelvepole Creek	Walker Branch	WVO-2-A								X
2020	E	Twelvepole	Twelvepole Creek	UNT/Twelvepole Creek RM 5.72	WVO-2-A.1								X
2020	E	Twelvepole	Twelvepole Creek	Bobs Branch	WVO-2-B								X
2020	E	Twelvepole	Twelvepole Creek	Buffalo Creek	WVO-2-C								X
2020	E	Twelvepole	Twelvepole Creek	UNT/Buffalo Creek RM 2.21	WVO-2-C-4								X
2020	E	Twelvepole	Twelvepole Creek	UNT/Buffalo Creek RM 3.50	WVO-2-C-6								X
2020	E	Twelvepole	Twelvepole Creek	UNT/Twelvepole Creek RM 11.90	WVO-2-E.6								X
2020	E	Twelvepole	Twelvepole Creek	Camp Creek	WVO-2-G		X						X
2020	E	Twelvepole	Twelvepole Creek	Right Fork/Camp Creek	WVO-2-G-1								X
2020	E	Twelvepole	Twelvepole Creek	UNT/Right Fork RM 0.66/Camp Creek	WVO-2-G-1-B								X
2020	E	Twelvepole	Twelvepole Creek	UNT/Camp Creek RM 1.16	WVO-2-G-1.4								X
2020	E	Twelvepole	Twelvepole Creek	Beech Fork	WVO-2-H		X	X					X
2020	E	Twelvepole	Twelvepole Creek	UNT/Beech Fork RM 2.38	WVO-2-H-0.4								X
2020	E	Twelvepole	Twelvepole Creek	Mays Branch	WVO-2-H-0.5								X

Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2020	E	Twelvepole	Twelvepole Creek	Millers Fork	WVO-2-H-2								X
2020	E	Twelvepole	Twelvepole Creek	Fisher Bowen Branch	WVO-2-H-2-C								X
2020	E	Twelvepole	Twelvepole Creek	Left Fork/Millers Fork	WVO-2-H-2-D								X
2020	E	Twelvepole	Twelvepole Creek	Fraley Fork	WVO-2-H-2-F								X
2020	E	Twelvepole	Twelvepole Creek	Moxley Branch	WVO-2-H-6								X
2020	E	Twelvepole	Twelvepole Creek	Long Branch	WVO-2-H-7								X
2020	E	Twelvepole	Twelvepole Creek	Bowen Creek	WVO-2-H-11								X
2020	E	Twelvepole	Twelvepole Creek	Raccoon Creek	WVO-2-H-12								X
2020	E	Twelvepole	Twelvepole Creek	Right Fork/Beech Fork	WVO-2-H-18								X
2020	E	Twelvepole	Twelvepole Creek	Wolfpen Branch	WVO-2-H-19								X
2020	E	Twelvepole	Twelvepole Creek	Lynn Creek	WVO-2-I								X
2020	E	Twelvepole	Twelvepole Creek	Big Creek	WVO-2-K								X
2020	E	Twelvepole	Twelvepole Creek	Garrett Creek	WVO-2-L								X
2020	E	Twelvepole	Twelvepole Creek	Shoal Branch	WVO-2-M								X
2020	E	Twelvepole	Twelvepole Creek	Wilson Creek	WVO-2-N								X
2020	E	Twelvepole	Twelvepole Creek	Left Fork/Wilson Creek	WVO-2-N-1								X
2020	E	Twelvepole	Twelvepole Creek	Toms Creek	WVO-2-O								X
2020	E	Twelvepole	Twelvepole Creek	West Fork/Twelvepole Creek	WVO-2-P			X					X
2020	E	Twelvepole	Twelvepole Creek	Big Branch	WVO-2-P-1								X
2020	E	Twelvepole	Twelvepole Creek	Patrick Creek	WVO-2-P-2								X
2020	E	Twelvepole	Twelvepole Creek	Trace Fork	WVO-2-P-4								X
2020	E	Twelvepole	Twelvepole Creek	Wolf Creek	WVO-2-P-4-A								X
2020	E	Twelvepole	Twelvepole Creek	Greenbrier Creek	WVO-2-P-4-B								X
2020	E	Twelvepole	Twelvepole Creek	Deephole Branch	WVO-2-P-7								X
2020	E	Twelvepole	Twelvepole Creek	Sycamore Branch	WVO-2-P-8								X
2020	E	Twelvepole	Twelvepole Creek	Flat Branch	WVO-2-P-9								X
2020	E	Twelvepole	Twelvepole Creek	Drift Branch	WVO-2-P-10								X
2020	E	Twelvepole	Twelvepole Creek	Jackson Branch	WVO-2-P-11								X
2020	E	Twelvepole	Twelvepole Creek	Billy Branch	WVO-2-P-12								X
2020	E	Twelvepole	Twelvepole Creek	Martha Noe Branch	WVO-2-P-13								X
2020	E	Twelvepole	Twelvepole Creek	Ferguson Branch	WVO-2-P-15								X
2020	E	Twelvepole	Twelvepole Creek	Matty Ferguson Branch	WVO-2-P-14.5	X			X				
2020	E	Twelvepole	Twelvepole Creek	UNT/West Fork RM 20.26/Twelvepole Creek	WVO-2-P-15.8								X
2020	E	Twelvepole	Twelvepole Creek	Sycamore Branch	WVO-2-P-17								X
2020	E	Twelvepole	Twelvepole Creek	Big Branch	WVO-2-P-18								X
2020	E	Twelvepole	Twelvepole Creek	Wells Branch	WVO-2-P-19								X

Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2020	E	Twelvepole	Twelvepole Creek	Moses Fork	WVO-2-P-21								X
2020	E	Twelvepole	Twelvepole Creek	Right Fork/Moses Fork	WVO-2-P-21-C								X
2020	E	Twelvepole	Twelvepole Creek	Wiley Branch	WVO-2-P-24								X
2020	E	Twelvepole	Twelvepole Creek	Sweetwater Branch	WVO-2-P-25								X
2020	E	Twelvepole	Twelvepole Creek	Turkey Creek	WVO-2-P-29								X
2020	E	Twelvepole	Twelvepole Creek	Jacks Fork	WVO-2-P-29-B								X
2020	E	Twelvepole	Twelvepole Creek	Poor Branch	WVO-2-P-33								X
2020	E	Twelvepole	Twelvepole Creek	UNT/West Fork RM 39.30/Twelvepole Creek	WVO-2-P-35.3								X
2020	E	Twelvepole	Twelvepole Creek	Pumpkin Field Branch	WVO-2-P-35.5								X
2020	E	Twelvepole	Twelvepole Creek	Breeden Creek	WVO-2-P-36			X					X
2020	E	Twelvepole	Twelvepole Creek	UNT/West Fork RM 41.41/Twelvepole Creek	WVO-2-P-36.5								X
2020	E	Twelvepole	Twelvepole Creek	UNT/West Fork RM 42.13/Twelvepole Creek	WVO-2-P-36.8								X
2020	E	Twelvepole	Twelvepole Creek	Openmouth Branch	WVO-2-P-37								
2020	E	Twelvepole	Twelvepole Creek	UNT/West Fork RM 43.91/Twelvepole Creek	WVO-2-P-37.1								X
2020	E	Twelvepole	Twelvepole Creek	Trace Branch	WVO-2-P-38								X
2020	E	Twelvepole	Twelvepole Creek	Big Sang Kill	WVO-2-P-39								X
2020	E	Twelvepole	Twelvepole Creek	Hogger Run	WVO-2-P-40.5			X					X
2020	E	Twelvepole	Twelvepole Creek	Dingess Trace Branch	WVO-2-P-41								X
2020	E	Twelvepole	Twelvepole Creek	Camp Branch	WVO-2-P-42								X
2020	E	Twelvepole	Twelvepole Creek	Moses Fork	WVO-2-P-43								X
2020	E	Twelvepole	Twelvepole Creek	Messenger Branch	WVO-2-P-44	X		X					X
2020	E	Twelvepole	Twelvepole Creek	East Fork/Twelvepole Creek	WVO-2-Q			X					X
2020	E	Twelvepole	Twelvepole Creek	Johnnys Branch	WVO-2-Q-0.5								X
2020	E	Twelvepole	Twelvepole Creek	Newcomb Creek	WVO-2-Q-5								X
2020	E	Twelvepole	Twelvepole Creek	Petercave Branch	WVO-2-Q-6								X
2020	E	Twelvepole	Twelvepole Creek	Camp Creek	WVO-2-Q-8						X		X
2020	E	Twelvepole	Twelvepole Creek	Left Fork/Camp Creek	WVO-2-Q-8-A			X		X			
2020	E	Twelvepole	Twelvepole Creek	Tiger Fork	WVO-2-Q-8-A-1								
2020	E	Twelvepole	Twelvepole Creek	Right Fork/Camp Creek	WVO-2-Q-8-B						X		X
2020	E	Twelvepole	Twelvepole Creek	Lynn Creek	WVO-2-Q-9								X
2020	E	Twelvepole	Twelvepole Creek	Battern Fork	WVO-2-Q-9-A								X
2020	E	Twelvepole	Twelvepole Creek	Left Fork/Lynn Creek	WVO-2-Q-9-C								X
2020	E	Twelvepole	Twelvepole Creek	Right Fork/Lynn Creek	WVO-2-Q-9-D								X
2020	E	Twelvepole	Twelvepole Creek	Laurel Creek/East Fork	WVO-2-Q-10								X
2020	E	Twelvepole	Twelvepole Creek	Rich Creek	WVO-2-Q-14			X					
2020	E	Twelvepole	Twelvepole Creek	Right Fork/Rich Creek	WVO-2-Q-14-A								X

Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2020	E	Twelvepole	Twelvepole Creek	Beechy Branch	WVO-2-Q-15								X
2020	E	Twelvepole	Twelvepole Creek	Cove Creek	WVO-2-Q-17								X
2020	E	Twelvepole	Twelvepole Creek	Trace Fork	WVO-2-Q-17-E								X
2020	E	Twelvepole	Twelvepole Creek	Alum Fork	WVO-2-Q-17.8								X
2020	E	Twelvepole	Twelvepole Creek	Kiah Creek	WVO-2-Q-18								X
2020	E	Twelvepole	Twelvepole Creek	Big Laurel Creek	WVO-2-Q-18-B								X
2020	E	Twelvepole	Twelvepole Creek	Trough Fork	WVO-2-Q-18-C								X
2020	E	Twelvepole	Twelvepole Creek	Tomblin Branch	WVO-2-Q-18-C-2								X
2020	E	Twelvepole	Twelvepole Creek	Frances Creek	WVO-2-Q-18-F								X
2020	E	Twelvepole	Twelvepole Creek	Pretty Branch	WVO-2-Q-18-F-1								X
2020	E	Twelvepole	Twelvepole Creek	Witcher Fork	WVO-2-Q-18-F.2								X
2020	E	Twelvepole	Twelvepole Creek	Copley Trace Branch	WVO-2-Q-18-G						X		X
2020	E	Twelvepole	Twelvepole Creek	Jims Branch	WVO-2-Q-18-H								X
2020	E	Twelvepole	Twelvepole Creek	Devilstrace Branch	WVO-2-Q-21.9			X					
2020	E	Twelvepole	Twelvepole Creek	Maynard Branch	WVO-2-Q-23								X
2020	E	Twelvepole	Twelvepole Creek	McComas Branch	WVO-2-Q-24								X
2020	E	Twelvepole	Twelvepole Creek	Frank Branch	WVO-2-Q-24.2								X
2020	E	Twelvepole	Twelvepole Creek	Bluewater Branch	WVO-2-Q-26								
2020	E	Twelvepole	Twelvepole Creek	UNT/Laurel Branch RM 0.34	WVO-2-Q-30-A								
2020	E	Twelvepole	Twelvepole Creek	Cub Branch	WVO-2-Q-31								X
2020	E	Twelvepole	Twelvepole Creek	Right Fork/Cub Branch	WVO-2-Q-31-A								X
2020	E	Twelvepole	Twelvepole Creek	UNT/East Fork RM 38.31/Twelvepole Creek	WVO-2-Q-31.8								X
2020	E	Twelvepole	Twelvepole Creek	Old House Branch	WVO-2-Q-32.8			X					X
2020	E	Twelvepole	Twelvepole Creek	Caney Fork	WVO-2-Q-33								X
2020	E	Twelvepole	Twelvepole Creek	Pretty Branch	WVO-2-Q-35								X
2020	E	Twelvepole	Twelvepole Creek	Mare Branch	WVO-2-Q-36								X
2020	E	Twelvepole	Twelvepole Creek	Hurricane Branch	WVO-2-Q-40								X
2020	E	Twelvepole	Twelvepole Creek	Hogger Branch	WVO-2-Q-41								X
2020	E	Twelvepole	Twelvepole Creek	Marcum Branch	WVO-2-Q-42.5								X
2020	E	Twelvepole	Twelvepole Creek	UNT/East Fork RM 48.19/Twelvepole Creek	WVO-2-Q-44.6								X
2021	C	Lower Guyandotte	Guyandotte River (Lower)	Guyandotte River (Lower)	WVOG-lo			X					X
2021	C	Lower Guyandotte	Deitz Hollow (Pats Branch)	Deitz Hollow (Pats Branch)	WVOG-0.5								X
2021	C	Lower Guyandotte	Russell Creek	Russell Creek	WVOG-1								X
2021	C	Lower Guyandotte	Russell Creek	UNT/Russell Creek RM 0.20	WVOG-1-A								X
2021	C	Lower Guyandotte	Davis Creek	Davis Creek	WVOG-3								X

Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2021	C	Lower Guyandotte	Davis Creek	Edens Branch	WVOG-3-0.5A								X
2021	C	Lower Guyandotte	Davis Creek	Left Fork/Davis Creek	WVOG-3-A								X
2021	C	Lower Guyandotte	Davis Creek	Right Fork/Davis Creek	WVOG-3-B								X
2021	C	Lower Guyandotte	Mill Creek	Mill Creek	WVOG-6								X
2021	C	Lower Guyandotte	Mill Creek	UNT/Mill Creek RM 0.21	WVOG-6-A								X
2021	C	Lower Guyandotte	Lower Tom Creek	Lower Tom Creek	WVOG-8								X
2021	C	Lower Guyandotte	Heath Creek	Heath Creek	WVOG-9								X
2021	C	Lower Guyandotte	Heath Creek	Upper Heath Creek	WVOG-9-A								X
2021	C	Lower Guyandotte	Merritt Creek	Merritt Creek	WVOG-10								X
2021	C	Lower Guyandotte	Merritt Creek	Right Fork/Merritt Creek	WVOG-10-A								X
2021	C	Lower Guyandotte	Smith Creek	Smith Creek	WVOG-11								X
2021	C	Lower Guyandotte	Cavill Creek	Cavill Creek	WVOG-12								X
2021	C	Lower Guyandotte	Tom Creek	Tom Creek	WVOG-13								X
2021	C	Lower Guyandotte	Trace Creek	Trace Creek	WVOG-14								X
2021	C	Lower Guyandotte	Trace Creek	UNT/Trace Creek RM 2.88	WVOG-14-C								X
2021	C	Lower Guyandotte	Tyler Creek	Tyler Creek	WVOG-15								X
2021	C	Lower Guyandotte	Madison Creek	Madison Creek	WVOG-17			X					X
2021	C	Lower Guyandotte	Bear Creek	Bear Creek	WVOG-18								X
2021	C	Lower Guyandotte	Twomile Creek	Twomile Creek	WVOG-20								X
2021	C	Lower Guyandotte	Onemile Creek	Onemile Creek	WVOG-23								X
2021	C	Lower Guyandotte	Onemile Creek	UNT/Guyandotte River RM 33.39	WVOG-23.8			X					X
2021	C	Lower Guyandotte	Twomile Creek	Twomile Creek	WVOG-24								X
2021	C	Lower Guyandotte	Fourmile Creek	Fourmile Creek	WVOG-27								X
2021	C	Lower Guyandotte	Fourmile Creek	Lowgap Branch	WVOG-27-A								X
2021	C	Lower Guyandotte	Fourmile Creek	Trace Fork	WVOG-27-B								X
2021	C	Lower Guyandotte	Fourmile Creek	Harless Fork	WVOG-27-C			X					X
2021	C	Lower Guyandotte	Fourmile Creek	Kentuck Fork	WVOG-27-D								X
2021	C	Lower Guyandotte	Fourmile Creek	Red River Fork	WVOG-27-G								X
2021	C	Lower Guyandotte	Fourmile Creek	Falls Branch	WVOG-27-H								X
2021	C	Lower Guyandotte	Fourmile Creek	McClarity Branch	WVOG-27-I								X
2021	C	Lower Guyandotte	Ninemile Creek	Ninemile Creek	WVOG-31								X
2021	C	Lower Guyandotte	Ninemile Creek	Hager Fork	WVOG-31-0.5A								X
2021	C	Lower Guyandotte	Tenmile Creek	Tenmile Creek	WVOG-32			X					X
2021	C	Lower Guyandotte	Fourteenmile Creek	Fourteenmile Creek	WVOG-34								X
2021	C	Lower Guyandotte	Fourteenmile Creek	Lick Branch	WVOG-34-A								X
2021	C	Lower Guyandotte	Fourteenmile Creek	East Fork/Fourteenmile Creek	WVOG-34-B								X

Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2021	C	Lower Guyandotte	Fourteenmile Creek	Sulphur Spring Fork	WVOG-34-D								X
2021	C	Lower Guyandotte	Aarons Creek	Aarons Creek	WVOG-35								X
2021	C	Lower Guyandotte	Hamilton Creek	Hamilton Creek	WVOG-36								X
2021	C	Lower Guyandotte	Little Ugly Creek	Little Ugly Creek	WVOG-37								X
2021	C	Lower Guyandotte	Big Ugly Creek	Big Ugly Creek	WVOG-38								X
2021	C	Lower Guyandotte	Big Ugly Creek	Laurel Creek	WVOG-38-D								X
2021	C	Lower Guyandotte	Big Ugly Creek	Sulphur Creek	WVOG-38-G								X
2021	C	Lower Guyandotte	Big Ugly Creek	Broad Branch	WVOG-38-J								X
2021	C	Lower Guyandotte	Big Ugly Creek	Lefthand Creek	WVOG-38-K								X
2021	C	Lower Guyandotte	Big Ugly Creek	Fawn Hollow	WVOG-38-M						X		
2021	C	Lower Guyandotte	Sand Creek	Sand Creek	WVOG-40								X
2021	C	Lower Guyandotte	Dry Run	Dry Run	WVOG-41								X
2021	C	Lower Guyandotte	Little Harts Creek	Little Harts Creek	WVOG-42								X
2021	C	Lower Guyandotte	Little Harts Creek	Short Bend Fork	WVOG-42-A								X
2021	C	Lower Guyandotte	Little Harts Creek	Laurel Fork	WVOG-42-C								X
2021	C	Lower Guyandotte	Little Harts Creek	Mudlick Branch	WVOG-42-D								X
2021	C	Lower Guyandotte	Big Harts Creek	Big Harts Creek	WVOG-44								X
2021	C	Lower Guyandotte	Big Harts Creek	West Fork/Big Harts Creek	WVOG-44-A								X
2021	C	Lower Guyandotte	Big Harts Creek	Piney Fork	WVOG-44-A-1								X
2021	C	Lower Guyandotte	Big Harts Creek	Marsh Fork	WVOG-44-A-2								X
2021	C	Lower Guyandotte	Big Harts Creek	Workman Fork	WVOG-44-A-3								X
2021	C	Lower Guyandotte	Big Harts Creek	Big Branch	WVOG-44-B								X
2021	C	Lower Guyandotte	Big Harts Creek	Caney Branch	WVOG-44-C.3								X
2021	C	Lower Guyandotte	Big Harts Creek	Thompson Branch	WVOG-44-C.7								X
2021	C	Lower Guyandotte	Big Harts Creek	Rockhouse Fork	WVOG-44-D			X					X
2021	C	Lower Guyandotte	Big Harts Creek	Smokehouse Fork	WVOG-44-E								X
2021	C	Lower Guyandotte	Big Harts Creek	Browns Run	WVOG-44-E-1								X
2021	C	Lower Guyandotte	Big Harts Creek	White Oak Branch	WVOG-44-E-2								X
2021	C	Lower Guyandotte	Big Harts Creek	Trace Fork	WVOG-44-F								X
2021	C	Lower Guyandotte	Big Harts Creek	Ivy Branch	WVOG-44-F-3								X
2021	C	Lower Guyandotte	Big Harts Creek	Buck Fork	WVOG-44-G								X
2021	C	Lower Guyandotte	Big Harts Creek	Hoover Fork	WVOG-44-H								X
2021	C	Lower Guyandotte	Big Harts Creek	Henderson Branch	WVOG-44-I								X
2021	C	Lower Guyandotte	Big Harts Creek	Bulwark Branch	WVOG-44-K								X
2021	C	Lower Guyandotte	Green Shoals Branch	Green Shoals Branch	WVOG-45								X
2021	C	Lower Guyandotte	Abbott Branch	Abbott Branch	WVOG-46								X

Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2021	C	Lower Guyandotte	Limestone Branch	Limestone Branch	WVOG-48			X					X
2021	C	Lower Guyandotte	Big Creek	Big Creek	WVOG-49								X
2021	C	Lower Guyandotte	Big Creek	Ed Stone Branch	WVOG-49-A								X
2021	C	Lower Guyandotte	Big Creek	North Branch/Ed Stone Branch	WVOG-49-A-1								X
2021	C	Lower Guyandotte	Big Creek	North Fork/Big Creek	WVOG-49-B								X
2021	C	Lower Guyandotte	Big Creek	Chapman Branch	WVOG-49-B-1								X
2021	C	Lower Guyandotte	Big Creek	Harmon Branch	WVOG-49-B-2								X
2021	C	Lower Guyandotte	Big Creek	Ellis Fork	WVOG-49-B-3								X
2021	C	Lower Guyandotte	Big Creek	UNT/Big Creek RM 3.28	WVOG-49-C.1	X			X				
2021	C	Lower Guyandotte	Big Creek	Trace Fork	WVOG-49-D								X
2021	C	Lower Guyandotte	Big Creek	Hurricane Branch	WVOG-49-D-1								X
2021	C	Lower Guyandotte	Big Creek	Garrett Fork	WVOG-49-E								X
2021	C	Lower Guyandotte	Big Creek	Kanawha Branch	WVOG-49-E-2								X
2021	C	Lower Guyandotte	Big Creek	Hainer Branch	WVOG-49-E-5								X
2021	C	Lower Guyandotte	Crawley Creek	Crawley Creek	WVOG-51			X					X
2021	C	Lower Guyandotte	Crawley Creek	Fowler Branch	WVOG-51.5								X
2021	C	Lower Guyandotte	Crawley Creek	Canoe Fork	WVOG-51-B								X
2021	C	Lower Guyandotte	Crawley Creek	Tims Fork	WVOG-51-F			X					X
2021	C	Lower Guyandotte	Crawley Creek	South Fork/Crawley Creek	WVOG-51-G.5								X
2021	C	Lower Guyandotte	Crawley Creek	Middle Fork/Crawley Creek	WVOG-51-G.5-1								X
2021	C	Lower Guyandotte	Godby Branch	Godby Branch	WVOG-53								X
2021	C	Lower Guyandotte	Caney Branch	Caney Branch	WVOG-54			X					X
2021	C	Lower Guyandotte	WVOG-55	WVOG-55	WVOG-55								X
2021	C	Lower Guyandotte	King Shoal Branch	King Shoal Branch	WVOG-58								X
2021	C	Lower Guyandotte	Mill Creek	Mill Creek	WVOG-59								X
2021	C	Lower Guyandotte	Mill Creek	Long Fork	WVOG-59-C								X
2021	C	Lower Guyandotte	Mill Creek	Butch Fork	WVOG-59-D								X
2021	C	Lower Guyandotte	Big Branch	Big Branch	WVOG-60								X
2021	C	Lower Guyandotte	Buffalo Creek	Buffalo Creek	WVOG-61								X
2021	C	Lower Guyandotte	Snap Creek	Snap Creek	WVOG-62								X
2021	C	Lower Guyandotte	Snap Creek	UNT/Snap Creek RM 0.63	WVOG-62-B			X					X
2021	C	Lower Guyandotte	Crooked Creek	Crooked Creek	WVOG-63								X
2021	C	Lower Guyandotte	Peach Creek	Peach Creek	WVOG-64								X
2021	C	Lower Guyandotte	Mud River	Mud River	WVOGM			X			X		X
2021	C	Lower Guyandotte	Merrick Creek	Merrick Creek	WVOGM-1								X
2021	C	Lower Guyandotte	Merrick Creek	Tanyard Branch	WVOGM-1.5								X

Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2021	C	Lower Guyandotte	Cyrus Creek	Cyrus Creek	WVOGM-2								X
2021	C	Lower Guyandotte	Big Cabell Creek	Big Cabell Creek	WVOGM-4								X
2021	C	Lower Guyandotte	Big Cabell Creek	Big Hill Hollow	WVOGM-4-I								X
2021	C	Lower Guyandotte	Edmonds Branch	Edmonds Branch	WVOGM-5								X
2021	C	Lower Guyandotte	Fudges Creek	Fudges Creek	WVOGM-6								X
2021	C	Lower Guyandotte	Fudges Creek	Wire Branch	WVOGM-6-0.5A								X
2021	C	Lower Guyandotte	Fudges Creek	Little Fudges Creek	WVOGM-6-A								X
2021	C	Lower Guyandotte	Lower Creek	Lower Creek	WVOGM-7								X
2021	C	Lower Guyandotte	Lower Creek	Tony Branch	WVOGM-7-B-1								X
2021	C	Lower Guyandotte	Mill Creek	Mill Creek	WVOGM-8			X					X
2021	C	Lower Guyandotte	Mill Creek	Long Branch	WVOGM-8-A								X
2021	C	Lower Guyandotte	Mill Creek	Right Fork/Mill Creek	WVOGM-8-C								X
2021	C	Lower Guyandotte	Saunders Creek	Saunders Creek	WVOGM-9								X
2021	C	Lower Guyandotte	Dry Creek	Dry Creek	WVOGM-10								X
2021	C	Lower Guyandotte	Johns Branch	Johns Branch	WVOGM-11								X
2021	C	Lower Guyandotte	Kilgore Creek	Kilgore Creek	WVOGM-12								X
2021	C	Lower Guyandotte	Kilgore Creek	Indian Fork	WVOGM-12-A			X					X
2021	C	Lower Guyandotte	Kilgore Creek	Lee Creek	WVOGM-12-B								X
2021	C	Lower Guyandotte	Kilgore Creek	Little Creek	WVOGM-12-C								X
2021	C	Lower Guyandotte	Brush Creek	Brush Creek	WVOGM-13								X
2021	C	Lower Guyandotte	Charley Creek	Charley Creek	WVOGM-14			X					X
2021	C	Lower Guyandotte	Charley Creek	Panther Lick	WVOGM-14-D								X
2021	C	Lower Guyandotte	Little Twomile Creek	Little Twomile Creek	WVOGM-15								X
2021	C	Lower Guyandotte	Trace Fork	Trace Fork	WVOGM-20		X	X					X
2021	C	Lower Guyandotte	Trace Fork	Coon Creek	WVOGM-20-A			X					X
2021	C	Lower Guyandotte	Trace Fork	Big Creek	WVOGM-20-D								X
2021	C	Lower Guyandotte	Trace Fork	Harvey Creek	WVOGM-20-D-1								X
2021	C	Lower Guyandotte	Trace Fork	Sycamore Creek	WVOGM-20-F								X
2021	C	Lower Guyandotte	Trace Fork	Clymer Creek	WVOGM-20-H								X
2021	C	Lower Guyandotte	Trace Fork	Trace Creek	WVOGM-20-I								X
2021	C	Lower Guyandotte	Trace Fork	Kellys Creek	WVOGM-20-I-1								X
2021	C	Lower Guyandotte	Trace Fork	UNT/Kellys Creek RM 1.27	WVOGM-20-I-1-B								X
2021	C	Lower Guyandotte	Trace Fork	Lick Creek	WVOGM-20-J								X
2021	C	Lower Guyandotte	Trace Fork	Turkey Creek	WVOGM-20-K								X
2021	C	Lower Guyandotte	Trace Fork	Lefthand Fork	WVOGM-20-K-1								X
2021	C	Lower Guyandotte	Trace Fork	Bridge Creek	WVOGM-20-M								X

Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2021	C	Lower Guyandotte	Trace Fork	Hayzlett Fork	WVOGM-20-R								X
2021	C	Lower Guyandotte	Trace Fork	Joes Creek	WVOGM-20-T			X					X
2021	C	Lower Guyandotte	Trace Fork	Laurel Fork	WVOGM-20-T-1								X
2021	C	Lower Guyandotte	Trace Fork	Tango Branch	WVOGM-20-T-2								X
2021	C	Lower Guyandotte	Trace Fork	Dry Branch	WVOGM-20-W								X
2021	C	Lower Guyandotte	Little Buffalo Creek	Little Buffalo Creek	WVOGM-21								X
2021	C	Lower Guyandotte	Buffalo Creek	Buffalo Creek	WVOGM-22								X
2021	C	Lower Guyandotte	Buffalo Creek	Straight Fork	WVOGM-22-A								X
2021	C	Lower Guyandotte	Middle Fork/Mud River	Middle Fork/Mud River	WVOGM-25			X					X
2021	C	Lower Guyandotte	Middle Fork/Mud River	Meadow Branch	WVOGM-25-A								X
2021	C	Lower Guyandotte	Middle Fork/Mud River	Trace Creek	WVOGM-25-B								X
2021	C	Lower Guyandotte	Middle Fork/Mud River	Middle Creek	WVOGM-25-C								X
2021	C	Lower Guyandotte	Middle Fork/Mud River	Davis Trace Branch	WVOGM-25-D								X
2021	C	Lower Guyandotte	Middle Fork/Mud River	Scary Creek	WVOGM-25-E								X
2021	C	Lower Guyandotte	Middle Fork/Mud River	Merritt Creek	WVOGM-25-F								X
2021	C	Lower Guyandotte	Middle Fork/Mud River	Straight Fork	WVOGM-25-H			X					X
2021	C	Lower Guyandotte	Middle Fork/Mud River	Valley Fork	WVOGM-25-H-1								X
2021	C	Lower Guyandotte	Middle Fork/Mud River	Sugartree Fork	WVOGM-25-I								X
2021	C	Lower Guyandotte	Middle Fork/Mud River	Big Branch	WVOGM-25-I-1								X
2021	C	Lower Guyandotte	Middle Fork/Mud River	Sycamore Fork	WVOGM-25-I-2								X
2021	C	Lower Guyandotte	Middle Fork/Mud River	Sand Fork	WVOGM-25-I-4			X					
2021	C	Lower Guyandotte	Middle Fork/Mud River	Maul Fork	WVOGM-25-I-6								X
2021	C	Lower Guyandotte	Mahone Creek	Mahone Creek	WVOGM-26								X
2021	C	Lower Guyandotte	Big Creek	Big Creek	WVOGM-28								X
2021	C	Lower Guyandotte	Little Laurel Creek	Little Laurel Creek	WVOGM-30								X
2021	C	Lower Guyandotte	Sandlick Branch	Sandlick Branch	WVOGM-31								X
2021	C	Lower Guyandotte	Big Laurel Creek	Big Laurel Creek	WVOGM-33								X
2021	C	Lower Guyandotte	Fez Creek	Fez Creek	WVOGM-34								X
2021	C	Lower Guyandotte	Big Creek	Big Creek	WVOGM-35								X
2021	C	Lower Guyandotte	Parsner Creek	Parsner Creek	WVOGM-38						X		X
2021	C	Lower Guyandotte	Left Fork/Mud River	Left Fork/Mud River	WVOGM-39	X							X
2021	C	Lower Guyandotte	Left Fork/Mud River	Stinson Branch	WVOGM-39-E								X
2021	C	Lower Guyandotte	Left Fork/Mud River	Sycamore Fork	WVOGM-39-G								X
2021	C	Lower Guyandotte	Left Fork/Mud River	Dogbone Branch	WVOGM-39-H								X
2021	C	Lower Guyandotte	Upton Branch	Upton Branch	WVOGM-40								X
2021	C	Lower Guyandotte	Bear Branch	Bear Branch	WVOGM-41								X

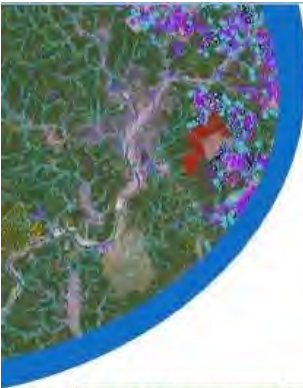
Year	Group	Watershed	Sub-basin	Stream	Code	pH	DO	Fe	Al	Be	Se	Mn	FC
2021	C	Lower Guyandotte	Slab Creek	Slab Creek	WVOGM-42								X
2021	C	Lower Guyandotte	Stonecoal Branch	Stonecoal Branch	WVOGM-43						X		
2021	C	Lower Guyandotte	Berry Branch	Berry Branch	WVOGM-44						X		
2021	C	Lower Guyandotte	Mullins Branch	Mullins Branch	WVOGM-45						X		
2021	C	Lower Guyandotte	Connelly Branch	Connelly Branch	WVOGM-46						X		
2021	C	Lower Guyandotte	Sugartree Branch	Sugartree Branch	WVOGM-47						X		
2021	C	Lower Guyandotte	Stanley Fork	Stanley Fork	WVOGM-48						X		
2021	C	Lower Guyandotte	Lukey Fork	Lukey Fork	WVOGM-50			X			X		



Carpendale, W.V.



Carpendale with prioritization models







WATERSHED RESOURCES REGISTRY

WWW.WATERSHEDRESOURCES.ORG

PRIORITIZATION TOOL

An interactive online mapping tool that prioritizes areas for preservation and restoration of wetlands, riparian zones, terrestrial areas, and stormwater management control across the state.

A Watershed Resources Registry (WRR) scores potential restoration and preservation areas on a scale of one to five stars based on their potential benefits. The WRR allows the user to:

- Display a great variety of mapping information in any given location in a state
- Avoid or minimize impacts to high quality aquatic and terrestrial natural areas
- Find candidate locations for mitigation projects nearby or in the same watershed
- Assess and compare potential mitigation projects and
- Print site maps for field visits

Restoration and Preservation Models

- Stormwater
- Terrestrial Habitat
- Wetland
- Riparian
- Site Visits

Water and Wetlands

- Wetlands
- Flood Hazard Zones
- Land and Soils
- Karst
- Geology

Mining

- Abandoned Mine Lands
- Mining Reclamation

Impairments

- 303d Streams
- 319 Watersheds
- NPDES Outfalls

Boundaries

- Parcels
- Sewer Served Areas
- Protected Lands

This is an interactive online mapping tool that prioritizes areas for preservation and restoration of wetlands, riparian zones, terrestrial areas, and stormwater management control across an entire state. The tool is helpful for a wide variety of purposes but is especially useful for developers, natural resource planners, transportation planners, and others who are required to avoid impacting natural areas or to provide mitigation for any unavoidable impact.



Appendix 6 – Short-term goals (Annual workplan)

WIB's primary goal focuses on planning, development and implementation of comprehensive watershed restoration projects to remove streams from the state's 303(d) list. The difficulty in coordinating a stakeholder driven process to implement voluntary compliance aimed at achieving mandatory water quality objectives is a special challenge. The development of realistic WBPs, effective project proposals, and the implementation of these projects is time consuming. The process requires a great effort and resources from all partners and stakeholders.

The goals and objectives provided below consider a majority of the duties of the Program Coordinators and staff. In order to move our projects, forward WIB will adhere to the stated goals and objectives to the extent possible and use adaptive management techniques to adjust to changes and make appropriate decisions when needed. We will keep USEPA advised of any changes that may need to be made to our goals and objectives. Typically, there is little change from year to year except for the types of watershed projects to which the goals and objectives apply.

1. Provide leadership in managing WIB's Programs

Objectives

- a. Maintain and update USEPA's GRTS database (semi-annually and as needed).
- b. Participate in workshops, meetings and conferences to promote WIB (as needed).
- c. Manage WIB's grant and process funding invoices submitted by the various partners (as needed).
- d. Submit an annual report to USEPA Region III reflecting the milestones met during the past year (annually).
- e. Submit financial status reports to USEPA Region III on the on-going NPS Program grants (annually).

2. Represent the DWWM in multi-agency and stakeholder organizations.

Objectives

- a. Represent the DWWM in or lead PTs for priority watersheds (as needed).
- b. Represent WIB on the SPP review committee (as needed).
- c. Participate in the NRCS Agricultural Technical Advisory Committee (quarterly).
- d. Represent DWWM on the WV State Soil Conservation Committee (quarterly).
- e. Represent WIB on Chesapeake Bay Program committees (quarterly).
- f. Participate in ILF Program's Interagency Review Team (quarterly).

3. Project management of all watershed projects; includes tasks such as technical guidance, support, oversight and compliance management.

Objectives

- a. Coordinate with federal and state agencies partners on all active watershed projects (as needed)
- b. Oversee and work with local project managers, volunteer organizations and other NGOs on all active watershed projects (as needed).
- c. Work with state and federal agencies to leverage funds for specific project match (as needed).
- d. Report on the progress of watershed project proposals, and close-out completed projects (as needed).
- e. Monitor and encourage progress on nonpoint source watershed plans and TMDLs (as needed).

4. Coordinate and oversee grant projects relating to nonpoint source issues in non-priority watersheds to foster a better understanding of NPS pollution and gain more recognition for WIB programs.

Objectives

- a. Oversee existing AGO projects (as needed).
- b. Work with potential applicants for the development of new AGO projects (as needed).

5. Participate and coordinate in the development of workplans and grant proposals in priority watersheds.

Objectives

- a. Participate with Project Teams (PTs) to develop watershed project plans for abating sewage contamination in and acid mine drainage in priority watersheds (as needed).
 - b. Coordinate with local PTs and Project Managers on projects providing guidance and technical assistance during the implementation phases (as needed).
 - c. Coordinate and guide watershed associations and other stakeholders in the development and/or revision of WBPs (as needed).
 - d. Develop and submit one success story to the USEPA (annually).
6. Maximize the use of all funds to achieve water quality standards in NPS impaired streams.

Objectives

- a. Track implementation success and report restored streams and stream segments to the USEPA (annually).
 - b. Leverage funding from other programs to protect and restore streams impacted by NPS pollution (annually).
7. Establish a targeted monitoring approach for NPS Program projects including baseline, pre and post project to better evaluate the effectiveness of BMPs. Work with WAB and local partners to coordinate monitoring efforts.

Objectives

- a. Regional BCs will coordinate, oversee or develop monitoring plans in project areas and potential future project areas (as needed).
 - b. Acquire approved QAPPs for watershed proposals when they are required (as needed).
 - c. Participate in the monitoring required for the NWQI (as needed).
 - d. Support legitimate NPS monitoring efforts in priority watersheds where additional information is needed to determine water quality improvement and to prioritize restoration opportunities (as needed).
8. Participate in and coordinate with the WVVN.

Objectives

- a. Support WCD by participating in its organization and coordination, through financial assistance and through NPS Program outreach at the event (annually).
 - b. Work with volunteers through training and AGO grants to build the capacity of local watershed organizations (annually).
9. Coordinate with appropriate agencies, watershed associations and Public Service Districts (PSDs) to address failing on-site wastewater systems.

Objectives

- a. Facilitate the implementation of project proposals addressing on-site wastewater systems in the priority areas (as needed).
 - b. Coordinate 319 projects where wastewater has been identified as a concern, with the OSLP (annually).
10. Coordinate with PTs to propose additional funding opportunities and activities to conduct streambank stabilization projects in priority watersheds.

Objectives

- a. Coordinate with PTs to develop new proposals for streambank restoration in priority watersheds where WBPs call for sediment reduction (annually).
11. Participate in the Cheat, Monongahela River and other AMD TMDL implementation plans.

Objectives

- a. Coordinate with the WAB, AML, OSM, FODC, FOC and the River of Promise Committee to implement the TMDLs (quarterly).
- b. Continue to monitor the success of completed projects (as needed).
- c. Coordinate the development of new AMD treatment projects (as needed).
- d. Monitor for water quality standards achievement in portions of the Cheat basin and its tributaries. If the data shows submit it as a candidate for removal from the 303(d) list (as needed).

12. Develop guidelines for an urban runoff management program.

Objectives

- a. Regional BCs and the SWS will work with local officials and watershed associations to develop LID and green infrastructure proposals when appropriate and provide guidance and technical assistance (as needed).

13. Coordinate with WVCA and NRCS to implement CREP/EQIP programs in priority watersheds.

Objectives

- a. Act as the DWWM representative on the CREP committee and coordinate with WVCA to provide guidance to NRCS in future National Water Quality Initiative (NWQI) efforts (quarterly).
- b. Work with NRCS, WVCA and local conservation districts to seek diverse funding base for agricultural projects in priority watersheds (as needed).

14. Provide conservation education and information to educators, youth and the public.

Objectives

- a. Conduct eight nonpoint source or aquatic biology related activities, outdoor classrooms or presentations focusing on youth (as needed).
- b. Participate in water festivals, conferences and other activities to present or conduct nonpoint source education for the public (as needed).

15. Increase capacity for watershed associations to actively participate in and provide leadership for NPS watershed projects.

Objectives

- a. Provide training for watershed staff and volunteers to address gaps in team memberships and develop a performance agenda (annually).
- b. Work with BCs and watershed associations to identify shortfalls and offer additional training to increase capacity and project management capabilities (as needed).
- c. Monitor and oversee WPP progress. This may include watershed group staff recruitment, capacity building and the development of financial and project related systems to enable project development and implementation. (annually).

GRTS and watershed plan tracking

Objective

To improve GRTS and the Watershed Plan Tracker (WPT) databases. Work will focus on improving the information in these databases, the structure of the information, and the reports provided through these tracking systems. This work will allow the program to have a more complete, accurate and coordinated program tool to track program expectations and results. The grant amount of \$10,000 will be used to partially fund the work of the USEPA Contractor or Senior Environmental Employee (SEE) working on the GRTS and WPT databases for West Virginia.

Description

A part time Contractor/SEE will work closely with State staff members to enter information into the WPT and GRTS. Specifically, watershed plan/TMDL load reduction goals are calculated from TMDL allocations and key BMP goals are identified from WBPs and entered in the WPT. This step may require a dialogue with the author(s) of the WBPs and state TMDL program to assure that information taken from the WBP is properly interpreted. The next step requires that the implementation data in GRTS be checked to assure that it matches the TMDL boundaries identified in the watershed plan already entered in the WPT. Tracking reports and charts are created in Oracle Business Intelligence (OBI), a companion program.



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

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Nonpoint Source Program Management Plan

<http://www.dep.wv.gov/nonpoint>