

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		A
	050500030202	Headwaters Knapp Creek	2013	Bacteria	
	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		A
	050500030503	Upper Anthony Creek	2019	Bacteria	
	050500030504	Middle Anthony Creek	2019		
	050500030505	Lower Anthony Creek	2019		
Second Creek	050500030701	Upper Second Creek	2008		A
	050500030703	Lower Second Creek	2008	Bacteria	
Muddy Creek - Greenbrier	050500030802	Kitchen Creek	2009		NA
	050500030803	Mill Creek	2009	Bacteria	
	050500030804	Muddy Creek	2009		
Milligan Creek/Davis Springs	050500030903	Milligan Creek - Greenbrier River	2014	Bacteria	A
Upper Meadow River	050500050601	Little Clear Creek	2014		A
	050500050602	Otter Creek-Meadow River	2014		
	050500050603	Big Clear Creek	2014	Bacteria/Metals	
	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 OAMLR 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](#).

**RESTORATION HIGHLIGHT
T&T FUELS MINE SITE**

Over the past year, major progress has been made towards the restoration of lower Muddy Creek. The center of this activity is WVDEP's active treatment system at the T&T Fuels mine site along Route 26 north of Albright. Completed in late 2017, the treatment system combines traditional acid mine drainage neutralization methods with tools from the wastewater treatment world and the latest in remote sensing and telemetry.

The system receives polluted water from four different locations: raw mine water from the vast, underground T&T Fuels complex, water collected from WVDEP's Viking Coal and "Ruthbell #3"/Preston Energy bond forfeitures sites, as well as water emanating from the Fickey Refuse and Portals abandoned mine land. These heavily polluted waters are first treated with a high pH lime slurry, created by mixing hydrated lime with unpolluted water. The lime slurry drastically raises the pH which causes the dissolved iron, aluminum, and manganese to precipitate out of solution. A special polymer is also added to speed up the flocculation of these metals so they stick together, becoming heavier, and settle to the bottom of the large clarifier units. The clean, clear water stays near the surface, moving away from the center of the clarifiers to the outside edge where it is collected. The sludge is swept into the center of the clarifiers where it is pumped back into the T&T mine, or in extreme treatment scenarios, pumped into large perforated bags on site. Clean water, regulated by a NPDES permit, is discharged back into Muddy Creek.

WVDEP is dialing in this new system, working out the challenges that come with a large, complex treatment system and the implementation of new technology. Not surprisingly, significant improvements to Muddy Creek's water chemistry were immediate. However, FOC was surprised to notice water clarity had also improved immediately downstream of Muddy Creek in the Cheat Canyon.

Top: 1 of the 2, 80 foot diameter clarifiers used to collect AMD sludge - a byproduct of treatment

Bottom: The T&T treatment system's NPDES-permitted outlet discharges treated water into Muddy Creek

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 DWWM 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 restorations projects in priority watersheds and statewide.