

Over the next several years regional training will be provided on the use of STORET and WQX so that NPS information is more consistently entered into this database.

Operation and Maintenance

Operation and maintenance (O&M) is 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 in WVDEPs sub-grant awards.

In June of 2014 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

This O&M manual is one of the most comprehensive guidance's on the topic and will be available for download from the NPS Program's website in early 2015.

Chapter 4 – NPS Priority Categories

Agriculture

The NPS Program 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 participates in meetings of the various Soil and Water conservation organizations and committees, the NRCS State Technical Committee, the 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 implement the agriculture components of the 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.

Table 6 – WBPs where WVCA is the lead agency

HUC8 Watershed	WBP/Watershed Project
Cacapon	Lost River
Gauley	Knapp Creek (NWQI)
	Upper Meadow River
Greenbrier	Milligan Creek
	Muddy Creek
	Second Creek/Kitchen Creek
James	Potts Creek
Potomac Direct Drains	Elks Run
	Back Creek Protection Plan
	Sleepy Creek
South Branch Potomac	Mill Creek

Coordination with USDA Programs

The New 2014 Farm Bill has a very strong focus on farmer’s markets and local economic development- i.e. - seasonal high tunnels to extend the growing seasons, organic production, and on-farm energy emphasis. This is somewhat of a shift from past legislation where the focus has been related to concentration on environmental and wildlife issues. These programs are allowing producers to diversify their operations and take advantage of local niche marketing opportunities.

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, the 319 Program 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 the Chesapeake Bay drainage area of West Virginia receives and often additional funding thereby limiting the opportunity for 319 watershed based participation. Contrasting is the Greenbrier and western areas of the State where federal funds are limited and the 319 Program allow additional opportunities to pick up and correct resource concerns.

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 the Conservation Reserve Enhancement Program (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 Division of Mining and Reclamation (DMR) works closely with the NPS Program 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 are being managed by the NPS Program and thus are subject to more stringent review and reporting.

1. Smooth Rock Lick 1&2	\$53,608	2011
2. Sovern – Titchnell Sands	\$202,466	2012
3. West Run Airport Phase 2	\$264,685	2012
4. Roaring Creek Mars Portals	\$215,302	2012
5. Lamberts Run Site 7	\$200,000	2012
6. North Fk Greens Run	\$111,523	2013
7. Muddy Creek improvements	\$12,504	2013
8. Wolf Creek restoration	\$196,307	2013
9. Muddy Creek – Schwab	\$57,605	2014
10. Beaver Creek – Big Bear	\$40,302	2014
11. Winding Gulf restoration	\$35,132	2014

WVDEP’s Office of Abandoned Mine Lands & Reclamation (OAMLR) 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 the NPS Program work closely together in order to develop, fund and implement restoration projects in mining impaired watersheds.

The Office of Special Reclamation (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.

The NPS Program held several meetings with OAMLR 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 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 associations by keeping open lines of communication, providing data request, being open to treatment options during land restoration projects, and providing lime when that option is available. For this document OAMLR’s GIS Specialist provided mapping information of upcoming projects that may be useful for coordinating with restoration efforts

in watersheds with WBPs (See [Appendix 3](#)). More specific OAMLRL and OSR project site and information based on the maps is provided in [Appendix 4](#).

WVDEP's Office of Oil and Gas (OO&G) 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.

The NPS Program 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 OAMLRL 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 recently worked with OO&G to develop a sediment and erosion control manual. During that time, the oil and gas industry boomed with Marcellus shale play. As a result, in 2012 and 2013 the West Virginia Legislature passed new horizontal drilling rules and DEP has developed regulations. Sediment and erosion from access roads and pipeline construction has been significant. The DWWM has developed a state permitting program for stormwater associated with pipeline construction. The DWWM has also added four EE stormwater inspectors to address nonpoint source impacts from oil and gas development activity.

The emerging issue of the development of the Marcellus Shale natural gas plays has led to concerns of stream sedimentation from the well pad sites as well as the construction of pipelines to transport the gas and roads to service the wells. Landowners are expressing concerns in regard to how and what to do to minimize impacts while development activity is occurring as well as to the best methods to stabilize the sites when activities have culminated. Many landowners are leasing or have leased their land for development yet can provide input to the development companies on the BMPs and vegetation establishment, and some have the latitude to make demands on sediment and erosion controls as activities are in progress. These landowners have little information or expertise in the field of erosion and sediment control or site reclamation and are therefore looking for advice to best protect and/or restore their land.

The companies doing well pad site development and pipeline construction are often from out of state, and although they have vast experience preparing well sites and installing pipelines their experience dealing with terrain, geology, soils and watershed drainage systems like those here is non-existent. These companies need an information source to help them deal with the unique problems land disturbance activities in West Virginia can present.

West Virginia University (WVU) Extension is currently providing general educational seminars on the natural gas industry, leasing, land rights and environmental concerns but do not have the ability to provide specialized advice on the many BMPs options available to prevent water quality degradation resulting from land disturbance activities. Recently WVDEP's SOS Coordinator worked with WVU, Trout

Unlimited (TU), WVU Dickenson College ALLARM and others to hold a one-day symposium on shale-gas monitoring procedures that can be adopted region wide. This event also included WVDEP's Environmental Advocate who has been active in assisting local stakeholders, educating watershed groups about permitting, providing important contact information regarding the enforcement of oil and gas regulations, especially as they pertain to Marcellus.

WVCA can also serve as a provider of information and assistance in selection of BMPs available as well provide technical advice with water and land management schemes for landowners, agencies and development companies in order to protect the natural resources of the state while helping provide for the energy needs of our country. Thus far the NPS Program has provided support for outreach and monitoring to better understand the impacts to the local streams and rivers that are being most impacted by the activities in the north central regions of West Virginia.

Urban Stormwater/Developed Lands

West Virginia is a rural state with a population of 1.85 million in 2012, spread across 24,230 square miles. West Virginia's largest cities are Charleston, Huntington, Parkersburg, Morgantown and Wheeling, with a high population of 51,317 in Charleston to 28,486 in Wheeling. West Virginia has no Phase 1 MS4 communities and thus far 47 registered and 7 un-registered Phase 2 MS4s.

Construction Stormwater¹

WVDEPs 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

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.

In WV and the CB TMDLs, wasteload allocations are based upon the total concurrently disturbed area registered under the Construction Stormwater General Permit (CSGP) and are prescribed at the subwatershed or county scale respectively. Implementation is accomplished by maintaining total registered disturbed areas equal to or less than the area provided for each county. This is accomplished

¹ 319 funds are not used to directly implement WV DEP's NPDES construction stormwater program.

by requiring phasing of the total disturbed area in the approved SWPPP. Sites less than one acre are provided technical assistance by the WVCA.

These sites collectively can represent a rather large portion of the total sediment delivered to a receiving water body or stream. WVCA provides assistance to individual landowners, local agencies and industry undertaking construction activities in West Virginia by providing technical assistance with BMP selection – regardless of the size of land disturbance. Additionally, WVCA will write or review for adequacy, erosion and sediment control plans for construction sites less than one acre. Promotion of this program along with cooperation of DEP referrals and education reduces sediment delivered to WV streams.

WVCA adheres to the practice standards set forth in the **West Virginia Erosion and Sediment Control Best Management Practice Manual**. The manual is designed to assist construction site developers, engineers, designers, and contractors in identifying and implementing the most appropriate best management practices for construction activities.

The WV Contractor's Expo is held annually. WVCA attends to present and discuss NPS issues with representatives of the construction industry. WVCA seeks out new technology and develops demonstration projects to educate the public about the ever-changing world of erosion and sediment control.

Municipal Separate Storm Sewer Systems²

Statewide Program

West Virginia's MS4 General Permit required that MS4s develop and submit SWMPs to WVDEP for approval no later than January 22, 2011. 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 runoff from new development and redevelopment, and pollution prevention and good housekeeping for municipal operations. MS4s must be fully implementing their SWMPs by 2015.

EPA has recognized that West Virginia's MS4 General Permit is particularly progressive with regard to its post-construction requirements. The post-construction minimum control of the General Permit directs MS4s to develop ordinances requiring all new development and redevelopment of one acre or greater to capture and manage the first one inch of rainfall by utilizing runoff reduction stormwater practices. Runoff reduction practices include: canopy interception, soil amendments, evaporation, rainfall harvesting, engineered infiltration, extended filtration and/or evapotranspiration and any combination of these practices. The MS4 General Permit also contains a section with strong watershed protection elements that includes non-structural practices to protect water quality. For the remaining, most difficult sites, the permit allows for the MS4 to develop a payment-in-lieu program or offset mitigation to address the runoff reductions.

² 319 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.

Local MS4 Programs

Regulated municipal MS4s in West Virginia have been granted authority by state law to form stormwater utilities in order to finance the implementation of their stormwater programs and the MS4 program. To date, seven of West Virginia's 54 MS4 regulated entities have formed stormwater utilities. This is a positive step toward dedicated funding for program and practice installation.

In other areas, adequate resources and support for MS4 staff is a statewide issue. In many MS4 entities, the public works director or the chief operator of the wastewater treatment plant is tasked with managing stormwater in addition to their existing duties. In addition, the reissued MS4 General Permit requires a certain level of understanding of runoff reduction practices to manage stormwater. Stormwater management is new to most West Virginia communities, and runoff reduction practices are even newer. MS4 operators have little training in the science of stormwater management, much less implementation of effective stormwater practices. In response, WVDEP has been:

- Providing training workshops open to all parties interested in managing stormwater or implementing the MS4 General Permit.
- Developed a compliance spreadsheet tool and provided training for stormwater designers/engineers and MS4s that will ascertain compliance with the one inch capture performance standard. Developed a statewide stormwater management guidance manual that provides design specifications of runoff reduction practices. Runoff reduction practices are the primary method to meet the one inch capture performance standard.
- Filled a position in the NPS Program to provide stormwater and compliance assistance to MS4 communities in the Chesapeake Bay drainage.³ This employee promotes utilization of stormwater practices that encompass green infrastructure including infiltration, extended filtration, canopy interception, soil amendments, evaporation, evapotranspiration, reuse and any other practices that reduce stormwater volume. The employee assists the four existing MS4s, counties and consulting engineers in meeting MS4 permit criteria for stormwater management. He also conducts training, provides technical assistance and review of local stormwater ordinances and plans for BMP implementation, and conducts BMP inspection, verification and tracking.
- Developed a West Virginia Stormwater Management and Design Guidance Manual and provided training. This manual provides design and guidance on designing and implementing stormwater management practices that will manage rainfall on site in accordance with West Virginia's small MS4 general permit. This manual contains stormwater management practices that utilize the Runoff Reduction Method, which is a method that utilizes infiltration, harvesting and evapotranspiration of rainfall on site.

Unregulated Developed Lands

The NPS Program, with regard 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

³ 319 funds are not used to support the activities of the NPS Program Stormwater Specialist.

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 our NPS Program staff including, WVDEPs Basin Coordinators, Stormwater Specialist, Project WET, WVCA Conservation Specialists, and the WV Watershed Resource Center, we 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 other 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 located in the bottomlands of narrow valleys or on hillsides. Homes, businesses, roadways, railroads, and inevitably, streams, are often clustered in close proximity 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. As a result, 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.

The NPS Program 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.

The NPS Program 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.

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. 54% of the NPS Program's active WBPs have fecal coliform as their major impairment, so support from local PSDs and sanitarians is critical in successful implementation of these WBPs.

Most of our current work is in southern West Virginia's Guyandotte, Tug Fork, New and Gauley watersheds however, projects are also occurring in the Greenbrier, Potomac Direct Drains, and Monongahela.

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 unregulated or under-regulated chemicals. The NPS Program's received many calls from concerned citizens and although not directly involved was able to 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 (SWPP);
2. Public Water Supply Protection Act; and
3. Above Ground Storage Tank Act.

Although no specific goals and objectives have been identified at this time SB-373 provides opportunities for § 319 resources to be used, especially to assist WVDHHRs SWAP Program expand their source water assessment and protection efforts, **and** engage citizens, which is a required element of the SWPP. Go to <http://www.wvrivers.org/> to download the Citizen's Guide to SB-373.

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. WV's ILF program and mitigation funds have been brought to bear to complement and enhance nonpoint source projects. Trout Unlimited, Canaan Valley Institute, USFWS and WVDNR have provided project planning and assistance for a variety of nonpoint source projects. Multiple opportunities exists for stream restorations projects in priority watersheds and statewide.

Chapter 5 – Administration and Coordination

The NPS Program 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 insure 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 US EPA project office.