WEST VIRGINIA'S NONPOINT SOURCE PROGRAM

ANNUAL REPORT

FISCAL YEAR 2004

West Virginia's Nonpoint Source Program

Annual Report

Fiscal Year 2004

October 1, 2003 to September 30, 2004

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Mission and Goals

Nonpoint Source Program Mission Statement:

To implement dynamic and effective nonpoint source programs to enhance and preserve the physical, chemical and biological integrity of surface and groundwaters, considering nature and health, safety, recreational and economic needs of humanity, with a focus on a watershed management approach.

Nonpoint Source Management Plan 2000

The Nonpoint Source Program supports the efforts of four WV state agencies to reduce nonpoint source pollution from various land use activities; WV Department of Environmental Protection, WV Conservation Agency, Division of Health and Human Resources and the WV Division of Forestry. The base nonpoint source programs' goals are to:

- Provide technical assistance in the proper installation and maintenance of best management practices (BMPs).
- Educate the public and land users on nonpoint source issues
- Support citizen based watershed organizations
- Support enforcement of nonpoint source water quality laws
- Restore impaired watersheds.

The goals of these programs were spelled out in the *Nonpoint Source Program Management Plan 2000.*

The major goals and objectives for FY 04 included:

- Develop a project to solve on-site wastewater treatment problems.
- Focus more on dirt roads.
- Incorporate and expand volunteer monitoring to assess Program projects.
- Coordinate with the Phase II educational committee to target the urban runoff message to the appropriate audience.
- Complete the projects in the North Fork, Spring Creek, Robinson Run, Paint Creek and the Cheat.
- Implement the projects in the Upper Buckhannon, Lower Elk and Deckers Creek.
- Develop at least five WBPs.

Special projects are being implemented in the Cheat River, North Fork of the South Branch, Spring Creek, Upper Buckhannon River, Robinson Run, Upper Elk River and Deckers Creek as well as projects for the development of watershed based plans.

Executive Summary

Program Highlights: During FY 2004 (October 1, 2003 to September 30, 2004) West Virginia's Non-Point Source Program (NPSP) focused much effort on developing and implementing Clean Water Act Section 319 Incremental projects and Watershed Based Plans (WBPs). The NPSP took the lead in establishing and coordinating watershed project teams, stakeholder committees whose goals are to develop WBPs and design the projects included in the plans. The pace of project development increased significantly. The backlog of pre-FY 04 incremental funds have been obligated to approved projects. The FY 04 incremental funded projects have been submitted to EPA and are under review. Several projects are under development now for the FY 05 incremental funds.

The NPSP has strived to expand its partner base and support alternative approaches to nonpoint source pollution abatement. To that end a request for proposal process was developed. Called an Announcement of Grant Opportunity (AGO) it has received a strong response. Initial proposals have been selected and now approved candidates will submit formal 319 project proposals.

As stated, the mission and goals of the NPSP are to both support efforts to prevent nonpoint source pollution and to restore watersheds impaired by such pollution. This requires a wide range of activities with the base program supporting education, outreach, technical support, volunteer monitoring and support for the statewide watershed management stakeholder process. Activities supported by base grant funds included agricultural workshops, logging workshops, oil and gas workshops, volunteer monitoring training sessions and general nonpoint source education. The NPSP staff supported by the base grant have become an integral part of the entire watershed management effort. WV relies heavily on the base program to foster watershed groups and agencies to prepare them for, and support them through, the challenging process of developing and implementing watershed based plans. In addition the NPSP has used some of the base funding to support special projects in watersheds that are threatened but not part of a TMDL.

In watersheds with a TMDL the NPSP's incremental program focuses its effort on water quality restoration. Some major accomplishments in the incremental program included the completion of the first two phases of projects in the Cheat River restoration effort. This involved a total of eight different AMD source sites. The first project in the effort to restore Deckers Creek, another AMD impaired watershed, has been completed. The North Fork and Spring Creek agricultural projects are nearing completion. The North Fork has been documented as a major success story for the Program and now is in compliance with water quality standards. Monitoring efforts on Spring Creek in 2005 should provide a measure of success in that watershed. In addition three new WBPs have been approved and three more are revising the first drafts to submit the final draft.

As of October 2004 there were 20 active and proposed special projects in WV, 19 incremental and one base.

Table 1

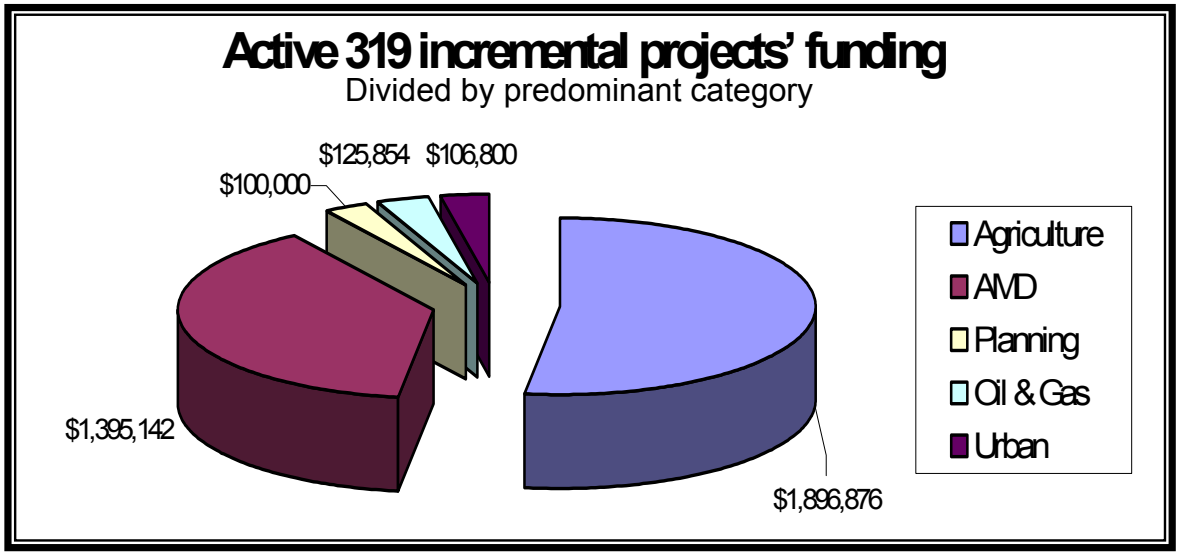
Special Projects

Projects	***319 Funds***	***Construction Status***
North Fork (2 grants)	$565,670	On Schedule
Spring Creek (2 grants)	$300,850	On Schedule
Upper Buckhannon (2 grants)	$820,004	On Schedule
Robinson Run	$80,000	On Schedule
Perennial Grass Buffers	$130,352	Completed
Cheat River II	$420,774	Completed
Blaser AMD	$240,000	Completed
Mudlick Refuse & AMD	$90,000	2005
Long Branch AMD	$116,808	2005
Watershed Based Plans	$100,000	75% Completed
Inwood	$106,800	2005
Lower Elk	$125,854	2005
Upper Elk (Base)	$107,090	On Schedule
Slab Camp #2 AMD	$186,500	Completed
Morris Creek AMD	$341,060	2005
Total 15 projects 18 grants	$3,731,762	

Table 2

New Projects for FY 2004 319 Incremental Funding

Proposal	319 Funding Request
Kanes Creek AMD	$57,808
Lamberts Run AMD	$569,000
Muzzleloader Club AMD	$106,663
Cheat River AMD III	$333,829
Monitoring	$36,000
Total 5 proposals	$1,103,300



The incremental proposals submitted this year obligate 97% to AMD treatment and 3% to monitoring of incremental projects. The trend for West Virginia's NPSP over the last two years has been to focus more on AMD from abandoned mine sources. This is because most of the state's TMDLs are for rivers impacted by past coal mining activity.

The purpose of these incremental projects is to reduce the pollutant load in the rivers. Load reduction estimates can be made for the agricultural and other non-AMD projects based on modeling of BMP efficiency (Table 3). Load reduction estimates are available on those AMD projects that have been completed and monitored (Table 4).

Table 3

Load Reductions for Non-AMD Projects

Project	Nitrogen lbs/yr	Phosphorus lbs/yr	Sediment lbs/yr	Aluminum lbs/yr	Iron lbs/yr
North Fork South Branch	1,056,000	1,276,000			
Upper Buckhannon	484,000	622,000	1,150,000		
Robinson Run	28,894	10,667			
Spring Creek	34,999	10,769	2,479,400	208,272	2,511
Totals	1,603,893	1,919,436	3,629,400	208,272	2,511

The North Fork of the South Branch River has been determined to now be above criteria standards for listing the stream on the state's 303(d) list. The South Branch River itself still has problems. The discovery during the past year of trans-sexual smallmouth bass, male bass that produce eggs, has raised concerns. More studies are being conducted to help pinpoint causes and

sources. The Spring Creek project is in its last year and the WVDEP monitored the watershed in 2004. The results should be available in 2005. The Robinson Run Project is another project in its last year of implementation. Monitoring on it should be conducted in 2005. The Upper Buckhannon, Finks Run & Pecks Run Project was funded from FY 01 and FY 03 grants and is about 50% completed. However it is expected that additional proposals will be submitted.

The completed and monitored AMD projects, so far, have all been in the Lower Cheat River watershed. They have been a part of a multi-agency and stakeholder effort to restore this major river to water quality standards. A continuous pH probe has been placed in the head of Cheat Lake near Morgantown. This lake, which previous monitoring showed pH values ranging from 3 to 4, now has pH values from 6 to 7.

Table 4

Load Reductions for CWA 319 AMD Projects

Pollutant	**Avg. Concentration Pre-treatment mg/l**	**Avg. Concentration Post Treatment mg/l**	**Avg. Load Pre-treatment tons/year**	**Avg. Load Post Treatment tons/year**
	Sovern Run			
Iron	22	6.3	10.5	2.58
Aluminum	19.2	4.4	9.4	7.01
Manganese	5.6	4.4	1.9	1.80
Acid	217.2	156.0	63.5	52.2
	North Fork of Greens Run (NMLRC)			
Iron	309.9	65.3	6.408	1.326
Aluminum	104.3	53.3	2.157	1.079
Manganese	15.1	10.3	0.312	0.208
Acid	1683.5	421	29.5	8.8
	Middle Fork of Greens Run ✱			
Iron	147.7	120.7	60.6	535.78
Aluminum	56.3	48.6	23.09	215.73
Manganese	5.9	4.8	2.42	21.3
Acid	1009.4	1433	254.2	3129.1
	North Fork of Greens Run (AML)			
Iron	227.66	95.36	2.78	0.916
Aluminum	51.46	41.66	0.472	0.398
Manganese	1.25	2.61	0.038	0.025
Acid	930	573	5.12	3.42

✱ Middle Fork of Greens Run: Concentrations of metals have decreased but loads have increased. This is due to a 10.8 fold increase in flow from 186.5 gpm to 2017.7 gpm. The higher acid flow has come from a previously installed failed ALD located within this system that has resumed discharge due to excess precipitation.

The Middle Fork of Greens Run Project is being redesigned to compensate for the higher flows. Upon completion of the new construction at this site, post-construction water data will be compared against the initial pre-construction data. Consideration is being given to moving the stations downstream slightly to give the chemical reactions time to take place. pH values do not rise appreciably at the outfall but pH measurements downstream are showing a marked increase.

West Virginia's NPSP maintains an active outreach, education and technical assistance component. NPS staff presented a wide variety of educational programs to hundreds of individuals and dozens of groups. Through environmental field days at local schools, over 2,000 youth and adults were informed of the importance of conserving their natural resources. The WV Save Our Streams Program (WVSOS), the volunteer monitoring component of the NPSP, held 42 workshops for education and training for citizens. The WVSOS program has expanded its type of trainings to include volunteer monitor assessment of sediment impacts.

In 2004 West Virginia hosted the *Canon Envirothon* for North America. The program was held at West Virginia Wesleyan College July 26 through August 1, 2004. Fifty-one teams, 43 from the U.S. and eight from Canada, competed. The *2004 Canon Envirothon* is North America's largest high school environmental competition. NPS staff helped with planning, logistical support, training and testing during the week and the aquatics section was supported by a 319 grant.

A major focus of the Program in 2004 regarded dirt roads, their construction, maintenance and use. The WVDEP program produced a short introductory video titled "Road to Rivers; Sediment's Journey". This video has been distributed to be viewed at workshops for farmers, loggers and gas well contractors. In addition the Watershed Resource Center introduced a guide for Best Management Practices for Agriculture producers in West Virginia at the 2004 Agriculture Day for the WV Legislature. For timbering and oil and gas extraction activities, NPSP partners conducted 62 workshops for 1248 loggers, ten landowner workshops for 120 people and 12 oil and gas workshops for 766 contractors and students.

The 2004 North American Canon Envirothon hosted by West Virginia at the WV Wesleyan College in Buckhannon. Over 500,000 high school students from Canada and the US compete. The winning teams from each state or province competed in this event

Challenges: As with any endeavor there are challenges to the effort to restore and protect West Virginia's waters from nonpoint source pollution. The major challenge still continues to be bureaucracy. The amount of time and effort needed to overcome bureaucratic obstacles is enormous. Every nonpoint source effort requires the involvement of multiple state and federal agencies, businesses and other stakeholder groups. Each agency and most businesses have its own procedures and rules to follow. Even the simplest of steps can be delayed for weeks or months waiting for one partner to follow its procedures. There have been cases where complying with the rule of one agency creates a violation of a rule at another. A strong effort was made in 2004 to avoid some of the bureaucratic snags that nearly derailed some projects in 2003. For one, getting an early start on complying with agency requirements. Prior to 2003 there was a rush to develop and implement projects, this did not mesh well with bureaucracy. Now it is known and expected to take at least two years to implement the first 319 Incremental project in a new watershed. The improvements seen this year in the NPSP in establishing project teams and coordinating restoration efforts has been due to the new Basin Coordinator system established in WVDEP and project oriented Environmental Specialists in the WVCA. Most of these positions are funded through the CWA 319 Base Grant, which was cut in FY 2005.

One reason for the significant number of AMD projects is the availability of matching funds. Taxes paid by coal companies contribute to the Watershed Cooperative Agreement Program (WCAP) administered by the Office of Surface Mining (OSM). WCAP has been used as a match for CWA 319 to fund AMD projects throughout the state and it is a major component of the effort to restore the Lower Cheat River. Without these funds there would be little or no effort being funded to treat AMD and millions in CWA 319 funds would go unspent. There is a concern that WCAP monies will run out and bring this effort to a halt.

In watersheds without AMD or agriculture finding state matching funds is a difficult challenge and has restricted the NPSP from initiating efforts in these watersheds. There is a need for dedicated state funds to leverage the federal funds to tackle nonpoint source issues. At this time there are no such funds, but some research is being conducted into proposing a mechanism like Pennsylvania's Growing Greener Program for West Virginia.

Asking local landowners to sacrifice their property to install practices to treat pollution sources can be difficult. The fact that many landowners are willing to participate is a testament to their sense of community. However, some treatment options place extra liability on the landowner and have caused several to pull out of projects. A "Good Samaritan Bill" was proposed to the legislature last year but did not pass. It has recently been submitted again for this year's session. This bill to relieve much of the liability from the landowner for structures placed on their land to treat pollution is supported by industry and the environmental community. Its passage would be a valuable asset to the nonpoint source pollution control effort.

Program Overview

NPS Problems

West Virginia topography is generally steep hillsides and narrow valleys with soils of sandy loam or clay. This makes hillside erosion and stream sediment deposition a serious concern in the state. The West Virginia economy has traditionally been heavily dependent on extractive industries such as mining, logging and oil and gas in the central part of the state. In the eastern and western regions agriculture plays a major role. Development has increased through out the state and is causing serious problems in suburban areas and popular vacation areas. All these activities contribute to what is widely considered the number one nonpoint source pollutant of streams; sediment.

In agricultural watersheds runoff with animal wastes can add significant amounts of nutrients and bacteria to the streams. Topography, once again, makes these reductions a challenge. Steep pastures facilitate rapid runoff with enough velocity to quickly carry wastes to the stream. The narrow valleys limit the amount of space any farmer can afford to use for filtration of runoff. Nutrient and bacterial nonpoint source pollution, through out the state, is also due to inadequate residential wastewater treatment. Treating residential sewage is a huge problem especially in older and rural communities. Failing septic systems and straight pipe disposal poses public health risks as well as water quality problems.

One legacy of over one hundred years of coal mining is acid mine drainage (AMD) from abandoned mine lands. AMD is responsible for 488 West Virginia streams being placed on the 303(d) list. Metals and low pH cause the impairment to stream life but treatment of AMD is an expensive and long-term commitment. In some watersheds impairments from metals is due to sediment from runoff as is the Lower Elk River watershed. In some of the state's most pristine headwater streams suspected acid deposition has caused 60 streams to be placed on the 303(d) list.

Changing land use as farms and forest lands are converted to housing developments, malls, logging jobs and valley fill mines exceeds the capability to restore watersheds impaired by such activities. Some preliminary studies have shown that sedimentation from various land use activities do contribute to flooding and the state has suffered some devastating floods in recent years. A greater capacity and political will to prevent the damage as the land is being converted is needed. Usually the first and often the most devastating aspect of changing land use are the roads carved into the steep hillsides. The TMDLs developed for streams impaired by sediment often designate roads from various land uses as the primary source of sediment that needs to be addressed.

Management Partners

The task of the Nonpoint Source Program is to, through voluntary cooperation and financial support, reduce the impacts of runoff pollution due to land use activities on the state's waters. This is accomplished through cooperative working partnerships that support the promotion, planning and implementation of BMPs and other corrective actions.

The West Virginia Department of Environmental Protection (DEP) Division of Water and Waste Management (DWWM) is the designated lead agency in the state for the Nonpoint Source Program (NPSP). As such it is responsible for the administration of the program and reporting requirements including the Grant Reporting Tracking System (GRTS). The management of Program components is managed through the DWWM Program staff to ensure a consistent statewide effort. The Program partners with the Watershed Assessment Branch of DWWM for monitoring and TMDL development.

The West Virginia Conservation Agency (WVCA) is the lead agency for the construction and agriculture components for the Program. The agriculture component of the nonpoint source program partnership consists of the West Virginia Conservation Agency, USDA Natural Resources Conservation Service, and the 14 Conservation Districts. The construction component of the nonpoint source program provides technical assistance and education to landowners, contractors, developers, and local governments in West Virginia.

The West Virginia Division of Forestry (DOF) is the lead management agency for implementation of the silviculture nonpoint source pollution programs. The Division's Water Quality Program addresses training and education, cooperative efforts with associated governmental agencies and monitoring of timber harvesting through licensing, certification, job notification and posting.

The DEP's Office of Oil and Gas (OOG) is the partner whose role is the promotion of proper best management practice design and installation and maintenance on oil and gas drilling sites and access roads. Much of OOG's Program activities are directed towards priority watersheds.

The DWWM NPS Program works cooperatively with DEP's Environmental Enforcement Section (EE) by providing compliance assistance for complaints concerning nonpoint sources and financially supporting nonpoint source enforcement. This is done through reporting complaints and acting as a liaison between EE and technical advisory agencies to achieve compliance.

The Department of Health and Human Services (DHHR) is now participating in the NPSP on the issue of failing septic systems. The delay in FY 04 funding awards delayed the initiation of their project.

Major Accomplishments for FY 2004

In FY 2004 West Virginia's Nonpoint Source Program (NPSP) stepped up its activity level in implementing stream restoration projects. By taking advantage of match funding opportunities with the Watershed Cooperative Agreement Program (WCAP) and the enthusiasm of watershed associations, the Program obligated a large backlog of unspent funds. In doing so the NPSP has expanded its partner base, issues and technological capabilities.

Within the Division of Water and Waste Management (DWWM) the NPSP has been combined with the Stream Partners Program and the Chesapeake Bay Program to more effectively utilize the resources of all three programs. The state was divided into five regions based on watersheds and a basin coordinator was assigned to each region (Appendix A-2). This reorganization has been essential to the success of the Program. The basin coordinators mentor watershed associations and coordinate with stakeholder agencies to guide everyone through the lengthy and complicated 319 process. The basin coordinators have played a key role in the development of the WBPs that have been and are being developed. They also have responsibility to oversee projects in their region and ensure their quality.

Goals for 2004 included:

- Develop a project for testing solutions to solve on-site wastewater treatment problems.
- Focus more on dirt roads, restoring abandoned roads in priority watersheds, promoting BMPs for road building and resolving the issue of multi-use roads.
- Incorporate volunteer monitoring into the assessment of NPSP projects.
- Coordinate with the Phase II educational committee to target the urban runoff message to the appropriate audience.
- Complete the projects in the North Fork, Spring Creek, Robinson Run, Paint Creek and the Cheat then assess the accomplishments to set further actions.
- Implement the projects in the Upper Buckhannon, Lower Elk and Deckers Creek.
- Develop at least five WBPs.

The activities and direction of West Virginia's NPSP are heavily influenced by TMDLs and the Watershed Management Framework. Most of the TMDLs in the state call for most of the pollutant load reductions to come from nonpoint sources. As such, the CWA 319 funds have been requested as a major source of implementation funding. Therefore, the NPSP staff funded under the Base Grant have devoted much of their efforts towards developing and implementing Incremental Grant projects.

WATERSHED BASED PLANS Two NPSP priority watersheds required additional funds and projects to continue implementation. They were the Upper Buckhannon, Finks Run and Pecks Run Project and the Lower Cheat River. Three WBPs were developed, submitted, revised and approved for the three watersheds in the Upper Buckhannon project area. The Lower Cheat River WBP was submitted in December 2004 along with a new priority watershed, Morris Creek. The Deckers Creek WBP has been through the first review by DEP and is being revised. A committee is working on drafting a WBP for the Lost River and the City of Morgantown is planning on developing a plan for two small urban watersheds in that city. The project team for the Lower Elk Project has been re-formed to draft a WBP for that priority watershed. In total West Virginia has four approved WBPs, two submitted to EPA and another four in development.

THE NORTH FORK 319 INCREMENTAL PROJECT

As a part of the North Fork 319 Incremental Project a unique partnership was formed between Columbia Gas, the landowner, the Potomac Valley Conservation District, and the West Virginia Conservation Agency (WVCA). The goal to restore a 1500 foot stretch of the North Fork River. Two thirty-six inch high pressure natural gas pipelines were exposed through extreme stream bank erosion. Since 1997, an estimated 0.6 acres or 19,360 tons of soil have eroded from the site. An estimated 4500 tons of soil was lost from a single storm event in September 2003. The site was 1500 feet in length with 10 foot high banks.

CWA 319 funding was instrumental in funding the project with Columbia Gas and the landowner. This project was completed in September 2004 and is immediately

upstream from a second phase of stabilizing this portion of the river's stream banks. The second site has lost approximately 3 acres since 1985. Construction is slated to begin in late November 2004. These two sites are located immediately downstream of the original North Fork Project site. When all the projects are completed, this would stabilize approximately one mile of the North Fork of the South Branch. The landowners are also required to establish a 35 foot buffer along the current top of the streambank utilizing the CREP Program. This will create approximately 1.5 additional acres of riparian area on the North Fork.

The Agricultural portion of this project, in terms of Best Management Practices (BMPs) installed and dollars spent to date, $507,795.58 of 319 funding has been spent in agricultural practices. The total match for the entire project as of October 19, 2004 is $539,832.96. The BMPs that have been installed are as follows:

- 911 acres in Nutrient Management
- 5,350 Tons of Manure Managed
- 1,056,000 lbs of Nitrogen reduced
- 1,276,000 lbs of Phosphorus reduced
- 16,469 feet of fence
- 5 feeding areas
- 5 alternative water sources
- 1,160 ac of prescribed grazing
- .7 acre of filter strips
- 5,000ft of fence & 15 acres of trees planted in the forestry contract

This photo of a farm with a completed conservation plan shows fencing, roofed feeding area and an alternative water source.

SPRING CREEK 319 INCREMENTAL PROJECT

The Spring Creek Project is entering its final year of funding and so a major effort was made to implement practices and expand the scope of the project beyond agriculture. Restoring dirt roads was the focus of a new project in the watershed. Developing a logging road demonstration site has proven difficult because of landowner issues. However a gas line and road restoration project was completed.

Gandee Farm Gas Road Restoration Project

Improper road and landing construction on abandoned oil and gas site has led to the creation of rills, gullies and increased sheet erosion. Vegetative and Mechanical erosion control structures were needed to prevent further accelerated erosion and resulting sedimentation.

BMPs Installed:

- Road surface out sloped –
- Road surface and upper bank seeded and mulched
- Broad based dips
- Culvert installed to provide needed cross drainage.

- Road surface stabilized with stone creek crossing installed
- High wall above landing graded back, seeded and mulched.

Total area reclaimed was 1.25 acres for an estimated Sediment Reduction of 19.5 tons/year.

Reductions achieved in FY 04 from agricultural BMPs installed were:

- 34,999 lbs/yr of nitrogen
- 10,769 lbs/yr of phosphorus
- 1,240 tons/yr of sediment
- 88,392 lbs/yr of iron
- 208,272 lbs/yr of total aluminum

ROBINSON RUN 319 INCREMENTAL PROJECT

Robinson Run is another agricultural project with one more year of implementation. In FY 04 three of the eight contracts in this small watershed were completed. Three feeding pads, two walkways and the Program's first waste lagoon irrigation system were constructed. The latter was a combined EQIP and 319 project. In this

Waste lagoon irrigation system in Robinson Run

irrigation system for animal waste, the waste comes from a lagoon built by Natural Resource Conservation Agency (NRCS) and the irrigation system is a 319 practice. This allows for even and controlled spreading of the waste over approximately 50 acres of ground on a year round schedule – not a spring and fall application as before. This reduces the possibility of runoff of applied wastes.

A covered feeding area and manure storage practice was another cooperative effort of using EQIP and 319 dollars. The 319 program cost shared on the covering and the manure storage, NRCS paid for the feeding area. This practice has protected 8 acres of pasture from disturbance during feeding activities.

The total estimated load reductions

- 28,894 lbs/yr of nitrogen
- 10,667 lbs/yr of phosphorus.

The total number of practices

- 9050 feet of fencing,
- 4 feeding areas,
- 5 alternative water sources
- 430 acres of nutrient management planning,
- 55 acres of prescribed grazing
- 1 irrigation system.

Upper Buckhannon, Finks, and Pecks Run 319 Incremental Watershed Project

BMPs have been installed on agricultural operations throughout the 3 project watersheds in an effort to improve water quality. With technical assistance from the NRCS 13 contracts have been developed in the project area. Four of those contracts are in the Upper Buckhannon, three in the Finks, five in the Pecks watershed and one has been cancelled. The BMPs that have been installed range from manure storage facilities, winter feeding areas, fencing, alternative water sources and nutrient management. It has been difficult this summer for agricultural producers to install practices due to heavy rainfall.

Watershed based plans were developed for the three watersheds within the project area. This took the cooperation of several agencies and entities to complete. Contributors to the plans included The Highlands Institute for Environmental Research and Education, Buckhannon River Watershed Association, The West Virginia Conservation Agency, and WVDEP. The WBPs have been approved for FY 04.

As a part of the emphasis on controlling erosion and sediment from roads and gas pipelines a complicated project was developed. Situated above the Right Fork of the Upper Buckhannon, an annual mud bog event is held on Coastal Lumber Co property over top of a 20 inch gas line owned by Columbia

Natural Resources. Through this project 319 dollars along with matching dollars from Columbia natural resources will be used to drain the mud bog, fill it and revegetate it. There are also several ATV paths that lead to the mud bog area that will be regarded and revegetated. Each area that is restored will be gated and have barriers installed to prevent further destruction from ATV riders. This project is a pilot project and will be used to educate landowners about what they can do to stop ATV use on their property, as well as water quality impacts of ATV use.

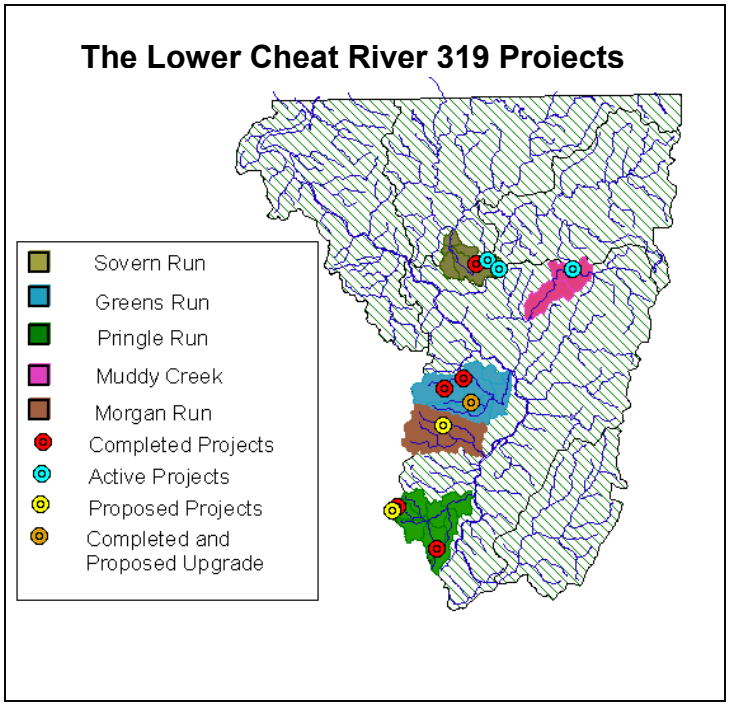
A cameraman from WCHS TV films the first application of limestone fines to the Right Fork of the Upper Buckhannon River.

The WVDEP, WV Department of Natural Resources (DNR) and Dominion Energy, Inc were involved in negotiations that have resulted in a process that will treat one of the most difficult nonpoint source problems in the Upper Buckhannon watershed, acid deposition. A $2 million settlement from Dominion to WVDEP was deposited in DNR's limestone fines program. The interest from this fund will support the application of limestone fines into several acid impaired tributaries of the Upper Buckhannon. The treatment will raise the pH of these streams from the Spring pH pulse of below 4 to a consistent pH of 6 or better.

Two auxiliary projects are a part of the watershed restoration effort in these three watersheds. The first one is a demonstration of perennial grass buffers with winter livestock feeding. During this year the construction was completed and a field day was presented to demonstrate to farmers the benefits of rotational grazing and grass buffers. Data is being collected so results should be available in 2005. The other project was the Mudlick Refuse and AMD Project. This project has developed problems with obtaining a CWA 404 permit from the US Army Corps of Engineers. Demands by the Corps for mitigation by the AML Program were unacceptable to the landowner. Negotiations have resolved most of the differences and construction of the project is expected in 2005.

The Lower Cheat River

In 1995 the National Mine Land Reclamation Center (NMLRC) joined together with Friends of the Cheat (FOC), WV DEP, US Office of Surface Mining



(OSM), DNR and several other public and private organizations to form the River of Promise. The River of Promise (ROP) is a collaborated effort by academia, industries, government agencies and citizens groups to address acid mine drainage problems in the Cheat River Watershed. Since 1999 the NPSP has supported AMD treatment projects in the Lower Cheat through partnerships with FOC, NMLRC and WVDEP's Abandoned Mine Lands Program (AML). The first CWA 319 funded project was with the NMLRC and was called the Passive Treatment of AMD Using Steel Slag – Greens Run and was located on the Middle Fork of Greens Run. Over the next couple of years, discussions within the ROP led to more projects being identified and proposed. Three of the proposals from the FOC and the NMLRC actually contained multiple project sites. In addition AML has constructed two project sites with 319 funds. In total 13 sites were supported by the NPSP, four have been completed and monitored, three are under construction, two were completed after October 2004, three have been proposed for next year and one was dropped when the landowner changed his mind about supporting the project.

Passive Treatment of AMD Using Steel Slag – Greens Run (FY 99 funds)

Constructed in 2002 this site was a massive AMD producing site on the Middle Fork of Greens Run, it was locally infamous as the site of the Blood Lagoon. There is more available data from this site than any of the others. It consists of an open limestone channel that drains Blood Lagoon, a basin filled with steel slag that collects water from a seep and two limestone check dams designed to precipitate metals in the mine effluent. The system has seen a decrease in acid load through the open limestone channel as well as the basin despite significantly higher flows after construction. The system out sample has seen the acid load increase as a result of the additional flow from a failed anoxic limestone drain (ALD) below the treatment system and above the system discharge. Flows at this site increased by more

than ten times since its design stage due to higher than normal precipitation in the last two years.

All pollutant loads have increased since construction completion although metal concentrations have dropped slightly (Table 4). This is indicative of the increased flow of water causing more acid and metals to be discharged from the underground mines. Also the ALD was dry and considered abandoned during the design of the project but has since started discharging untreated water again. One valuable lesson on the design of passive treatment systems was learned from this project. This project was an experiment in the use of highly alkaline steel slag for treating acid water. Steel slag in acidic water quickly clogs but using the slag in non-polluted water boosts the alkalinity. When the highly alkaline water mixes with the AMD the overall treatment is boosted. This project was redesigned to compensate for the higher flows. Upon completion of the new construction at this site, post-construction water data will be compared against the initial pre-construction data.

Project: Design and Installation of Passive AMD Treatment Systems in the Lower Cheat River Watershed (I)

This project had three sites but landowner permission for one was retracted after funding and engineering were completed.

Task: North Fork of Greens Run AMD Treatment Site

The North Fork of Greens Run project was completed in October of 2002 and consists of a limestone leach bed that collects AMD discharging from an open portal. The limestone leach bed then drains into an 860-foot open limestone channel where it discharges into an unnamed tributary of the North Fork of Greens Run. The limestone leach bed has been successful in reducing approximately 17.9% of the acid load emanating from the portal. In the previous year, the leach bed reduced the acid load by 31%. The decline in effectiveness can be attributed to the clogging of the drain by the organic material. The open limestone channel directly below the limestone leach bed has further reduced the acid load by another 52.3%, thus reducing the total acid load by 70.2%. The system has reduced the iron load by 79.4%, aluminum by 50%, and manganese by 32.3% (Table 4).

Task: Upgrading of the Existing System at Sovern Run #62 Site

The Sovern Run re-working done in September of 2003 continues to perform well. Construction consisted of lining the upstream side of the dam with steel slag in an effort to precipitate some of the metals in the large retention pond. Limestone in the channel was agitated in an effort to knock the iron precipitate off maximizing treatment of the acid impaired water. Fresh limestone was also added to the upper portion of the channel to re charge the channels'

ability to add alkalinity to the water. Acid was reduced by 11.3 tons/yr, the results for metals are below:

Metal	Metal Load TOLC tons/yr	Metal Load BOLC tons/yr	Difference tons/yr	% Reduction
Fe	10.5	2.6	7.9	75.4
Al	9.4	7.0	2.4	25.4
Mn	1.9	1.8	0.1	4.0

Design and Installation of Passive AMD Treatment Systems in the Lower Cheat River Watershed (II)

Task: Pringle Run AMD Treatment Site (Pase Property)

Pringle Run, an 8-mile acid-impacted stream entering the Cheat approximately 12 miles upstream of Albright, WV, adds over 700 tons of acid per year to the Cheat River. Several acid seeps have been identified in the Pringle Run Watershed. The Pase Property site was completed in October. Monitoring and analysis for load reductions has not been completed yet. However preliminary field tests shows an improvement in the pH values from 2.9 to 6. A second project site, called the Jessop Site, was part of the *Design and Installation of Passive AMD Treatment Systems in the Lower Cheat River Watershed (III)* proposal submitted for FY 04 incremental funds. Pringle Run is considered the most upstream of the serious AMD threats to the lower Cheat River watershed. This project was designed and constructed by the NMLRC.

The final touches on the liner for the composting pond on the Pase Property. This upper compost pond strips out any dissolved oxygen before it enters the limestone reactor

Project: Blaser Refuse and Portals Reclamation Project

A large complex of highwalls, refuse piles and portals was located in a different branch of Pringle Run, the Blaser Site. The AML Program designed a large land reclamation project and sought CWA 319 funds for the AMD treatment component of the project. Originally the proposal involved the collection and treatment of six discharging portals. However, high rainfall levels had caused other seeps to emerge. These were also collected and piped to the treatment structure. Construction of the project was completed in September of 2004 and consisted of two open stone-filled cells (leach beds) constructed in series. Each leach bed was filled with limestone. One emergency spillway serves as a safety device to prevent a breach of the system. Pipes from two wet seals transport the

discharge from the portals into the first cell. A pipe connects the two cells with water entering the second pond from the bottom. Water seeps up through the limestone to increase contact time. The water leaves the system through a 60-foot open limestone channel.

The first in a series of leach beds, during construction, for treating AMD at the Blaser site.

Monitoring will be conducted beginning in 2005 for analysis of results. The predicted load reduction for this treatment system is 25,988 lbs/year of acid and 12,994 lbs/year of iron.

Blaser Site, shortly after becoming operational. Brady Gutta of the NMLRC conducts a field test for pH from the discharge of the second leach bed. Source water had a pH of 2.8. The pH at the discharge pipe was 7.

Project: Greens Run AMD and Refuse Reclamation Project

This project site is located on the North Fork of Greens Run, which also has another 319 project site being implemented by the NMLRC and a bond forfeiture site. The combination of these three pollution sources causes the North Fork of Greens Run to be devoid of aquatic life. The sites consists of open portals from mines that discharges water from the Freeport coal seam and refuse piles from abandoned mining activities. This site consisted of two mine portals draining AMD with a pH of 3.4 and about 10 acres of exposed mine refuse.

AML installed two wet seals on the mine portals reducing the contact time between the water and acid producing rock. The wet seals direct the portal discharge into a grouted channel. A one time application of soda ash briquettes temporarily neutralized acidity during the construction phase. A 380 foot OLC with crusher run limestone at the bottom of the project site will neutralize acidity after construction. The refuse area was regraded to eliminate gullies and achieve a stable slope. The refuse was covered with 12 inches of topsoil and revegetated.

Initial monitoring has shown a reduction of acid and iron due to aeration of the discharge. Calculated load reductions for iron are 3738 lbs/yr and for acid 3400 lbs/yr. However the reduction in aluminum is minimal. The monitoring of the site is only checking the discharge from the portals and needs to be moved downstream to include the effect of covering the refuse pile. AML is now conducting a study of the site to explore if other techniques can be added to reduce aluminum. A lack of space and landowner issues are a challenge at this site.

This hillside was a large coal refuse pile. Water seeping through it put aluminum, iron and acid into the North Fork of Greens Run. Iron is dropping out as evidenced by the red water and acid is being reduced. Aluminum is still a problem that is being investigated to determine appropriate upgrades to the system.

The Future in the Lower Cheat

There are three more sites involved in the *Design and Installation of Passive AMD Treatment Systems in the Lower Cheat River Watershed (II)* project including the first venture by the Program into Morgan's Run just upstream from Greens Run. The *Design and Installation of Passive AMD Treatment Systems in the Lower Cheat River Watershed (III)* project has been submitted to EPA, it includes an upgrade to the Middle Fork of Greens Run site, another Pringle Run site and a project on Muddy Creek intended to restore an additional three miles of trout stream.

The effort in the Lower Cheat is massive but the problems are even more so. Hundreds of AMD sources exist in this large watershed. But the first evidence of improvements in the mainstem and major tributaries is starting to show. Preliminary field tests in Pringle Run have shown a rise in pH. A constant pH meter was installed in Cheat Lake at the lower end of the watershed. This once dead lake now has a pH that ranges between 6.6 and 7.6 and now supports bass. Determining the cumulative effect of all the projects has become part of a new monitoring strategy. Sub-grantees were monitoring their projects at the outfall of the individual projects. This strategy ignores effects of covering acid producing refuse and rock strata. These measurements also fail to capture the result of the completed chemical reaction. The NPSP is supporting the expanded monitoring of this watershed.

The impacts of past coal mining will affect the Cheat River for generations. The recently completed watershed based plan served as a reminder to everyone involved the enormous nature of the restoration task. Despite the best intentions and efforts of those involved in the River of Promise (ROP) this effort faces many challenges besides the size of the effort needed. The AML Program has only received temporary reauthorization. AML is a major player in the ROP and has started taking a position of holistic, both land and water, reclamation. A failure to reauthorize AML or a reauthorization that prohibits water quality treatment will have serious consequences in West Virginia.

Another serious concern is the future of the Watershed Cooperative Agreement Program (WCAP). WCAP funds from coal taxes are given to watershed associations through the Office of Surface Mining. These funds are used as a 40% match to leverage CWA 319 funds. WCAP was not funded in FY 05 and may not be funded in FY 06. Without WCAP CWA 319 funds can not be used despite the need and their availability. The effort in the Lower Cheat and elsewhere will come to a halt and the NPSP will find it more difficult to commit to its annual CWA 319 allotment. This will undermine support for the CWA 319 grant. For the entire state nearly $1.7 million of WCAP funds have been approved or requested. This amount would match approximately $2.5 million of 319 funds. Without WCAP funding the state of West Virginia would have lost $4.2 million in funds to treat AMD.

SLAB CAMP RUN #2 RECLAMATION PROJECT

The open limestone channel (OLC) at the Slab Camp #2 site.

Just over the ridge from the North Fork of Greens Run are the headwaters of Kanes Creek, a tributary of Deckers Creek. The reclamation of Kanes Creek is the focus of a NPSP project proposed for 2005. The NPSP has funded the effort by the Friends of Deckers Creek (FODC) in developing a watershed based plan. The plan is being revised from its first draft and should be submitted in early 2005. A previously CWA 319 funded project, the Slab Camp #2 Reclamation Project, was completed in September to become the first NPSP effort in Deckers Creek.

The Slab Camp Run #2 Reclamation Project contains five sites over a total area of approximately five acres of exposed coal mine refuse, AMD, vertical highwalls and collapsed underground mine portals. This project should reduce acid loading by nearly 100% as well as provide a net alkaline buffer to neutralize acid production from additional AMD sources located further downstream. This project is part of a comprehensive effort to meet TMDL limitations for the Monongahela River. It involved the collective efforts of various state and federal agencies, academia, and a watershed association.

This 319 Grant request covered part of the construction costs for passive treatment systems and land reclamation. The systems will treat flows ranging from 12 to 33 gallons/minute with a mean pH of 2.75, a total acid load of 501.3 tons/yr, an aluminum load of 4,015 lbs/yr, and an iron load of approximately 2,555 lbs/yr. It is anticipated that limestone sand treatment will eliminate 100% of the acid load and nearly totally precipitate all of the iron within the system. Overall, the predicted load reductions for these treatment systems are 2,295.5 lbs/yr of iron, and 2,007.5 lbs/yr of aluminum.

An issue concerning the possible use of a mine portal by bats was not resolved. The AML did not receive approval from the US Fish and Wildlife Service for a proposed design of a portal seal that would allow continued use by bats. AML therefore removed this from the work requirements for the contractor on this project.

URBAN RUNOFF

The NPSP still pursues a vital role in reducing impacts from development, highways and urban areas. There were three ways the Program tried to become involved: as a part of the Phase II Outreach and Education Committee, compliance assistance and the development of projects. Booklets and brochures produced by the NPSP have been distributed and used by the Outreach and Education Committee. As a part of the Committee the NPSP has been trying to find a means for developing a "Green Contractors Program". This could be especially useful in non-urban developing areas where vacation homes are increasing. So far, the lack of resources and a state construction BMP manual are delaying this effort.

At the end of September the NPSP offered small grants from the Base Grant through a newly developed process called an "Announcement of Grant Opportunity" (AGO). One grant was awarded to the Friends of Deckers Creek to conduct a workshop on urban runoff in Morgantown. They will utilize the NPSP publication *Urban Runoff, From Problems to Solutions* for the workshop.

The NPSP has been discussing participation in urban stream restoration projects with the Morgantown Utility Board (MUB). MUB is gearing up to develop a watershed based plan and discussions for projects are focusing on how to blend CWA 319 with required activities to deal with both water quality and flooding. It is hoped that this effort will lead to urban projects being submitted in 2005.

An educational tool developed in 2003 was distributed in 2004. It was a paper tablemat for restaurants with games and information aimed at children to educate them about urban runoff and nonpoint source pollution. Watershed associations were offered this as an educational tool, if they distributed them their logo would be placed on the mat. Ten watershed associations participated by distributing 5,000 tablemats.

CONSTRUCTION

Since the implementation of Phase II regulations for stormwater the involvement of the NPSP in construction has declined because much of these activities are covered under a permit. The number of erosion and sediment control plans that come through the WVCA and the WVDEP are about a third of what they once were. However education, outreach, technical assistance and compliance assistance activities concerning construction and development still occur. One area of concern has been the Snowshoe resort area in Pocahontas County. This is one of the fastest growing areas in the state for resort and vacation homes. Snowshoe Mountain contains the headwaters of the Elk, Shavers Fork of the Cheat and Tygart rivers, drains into the Greenbrier and is adjacent to the Gauley River. In 2004 the NPSP staff of the DWWM investigated, documented and reported on the construction activities that were operating without required permits. Because of the NPSP involvement in the Upper Elk watershed the Program is working with the Stormwater Permits Program to establish an effort to encourage developers to abide by BMPs. Training workshops and the establishment of a "Green Contractors" program are being discussed.

In an effort to recognize the contractors and developers who are effectively planning and implementing soil and water conservation practices, the West Virginia Contractors Association, the West Virginia Conservation District Supervisors Association, and the WVDEP co-sponsor the *West Virginia Conservation Contractor and Developer Awards Program.* The Watershed Resource Center coordinates this annual recognition to highlight and recognize the use of BMPs for construction.

AGRICULTURE

In agriculture activities that did not involve incremental grants the following farm conservation activities were reported: developed 2 state certified nutrient management plans, 8 conservation plans, reviewed and updated 5 Agriculture nutrient management plans. Assisted Conservation Districts with 15 forage testing samples, provided BMP technical assistance to 34 agriculture producers, 35 farmers were provided educational assistance concerning buffer strips on farmland, riparian areas and soils and grassland management and assisted DEP

with 2 agricultural producers for CAFO identification. Advised 5 landowners on riparian plantings and established over 5 acres of riparian area on natural stream restoration projects.

The Watershed Resource Center introduced a guide for Best Management Practices for Agriculture producers in West Virginia at the 2004 Agriculture Day for the WV Legislatures. *"WV Best Management Practices of Conservation Practice Standards"* provides guidance on how the application of that practice will affect the resources (soil, water, air, plants, animals and human) and the resource concerns associated with each of those resources. This guide is available to landowners to reduce nonpoint source impacts on water quality through the Watershed Resource Center.

West Virginia has fully established its Chesapeake Bay Program component. The tributary strategies for the Potomac drainage is now posted on the web www.wvnet.org. As an effort to implement this strategy the WVCA, WVDEP and the Cacapon Institute have formed a committee to develop a watershed based plan for the Lost River watershed.

The Agriculture Water Quality Loan Program (AWQLP) offers low interest loans to farmers, which can be used as match for federal grant programs. The total for AWQLP in FY 2005 was $145,993 with $96,394 involved in PL 534 projects, $42,479 involved in EQIP projects and $7,120 in CWA 319 projects (Appendix A-9). Recently there has been a reluctance by banks to participate in the program, this is causing a decline in loans being awarded.

SILVICULTURE

The Division of Forestry (DOF) foresters have made 4,160 random checks of 3,250 active logging operations for 2004. Approximately 78 percent of the operations were found to be in compliance with the Logging Sediment Control Act. Of the 22 percent out of compliance, 53 percent were due to administrative problems, 35 percent were to avoid potential problems and 12 percent for water quality problems. The DOF received 629 complaints on logging operations, when operators are found to be in violation of the law, orders are issued detailing the corrective actions necessary to bring the operation back into compliance. For the year, over 200 corrective actions were taken immediately by the operator and 589 compliance orders were issued. Compliance orders allow the operator to continue to harvest timber while environmental problems are corrected within a specified amount of time not to exceed 10 days. For the more serious violations or for lack of following compliance orders, suspension orders are issued which terminates the logging operation activity until all violations are corrected. 372 of these orders were issued in 2004 by Division foresters. 62 criminal citations were issued to loggers for violations of the LSCA in 2004. In total the DOF conducted 4,853 complaint and compliance inspections of logging operations.

The Division also conducted workshops for the logger certification program, which is part of the Logging Sediment Control Act. A certified logger must supervise each logging operation conducted in West Virginia. Sixty two workshops were held across the state training 1,248 loggers in the best management practices for controlling soil erosion and water siltation from logging operations. In cooperation with the West Virginia Forestry Association the DOF assisted and/or conducted 10 landowner workshops. Forest management planning, water quality, tax issues and selling timber were the main topics discussed. 120 people attended the spring and fall workshops. A continued effort to educate and train the nonindustrial private landowner about nonpoint source pollution, importance of water quality and how their role is essential in furthering the growth of the silvicultural nonpoint source program.

Through a cooperative agreement with forest industry representatives sponsoring the Sustainable Forestry Initiative(SFI) for certified forest landholders, a new logger training module was developed that incorporated silvaculture and aesthetics into the training. The road design and reclamation modules are scheduled to be revised during the upcoming year. The NPSP developed "Roads to Rivers, Sediments' Journey" video has been incorporated into the training workshop curriculum.

Under separate funding, the DOF continues with the Upper Elk Watershed project. This project is a forest resource stewardship program that will institutionalize the forest resource management and conservation aspect of the watershed. To coordinate this project the DOF has employed a forester that will provide technical assistance, education, monitoring and workshops for landowners in the Upper Elk watershed. Also, during the year, a new "Aggressive Seeding of Roads..", funded by 319 funds through the WVDEP, has started. The contacts were made and cooperation on water quality efforts in the watershed has been excellent among the private non-industrial and the corporate landowners. Also, mapping has been conducted to plot the locations of the logging operations in the watershed and the landowners have been identified on the private non-industrial holdings.

NATURAL STREAM BANK RESTORATION

In addition to the incremental program projects that have involved natural stream bank restoration, this component of the NPSP has been active in other watersheds. Work was completed on the first section of the Knapps Creek project in early August. The design has been completed for the second site with construction anticipated in Spring 2005. A conceptual design has also been completed for a third site currently under consideration. Natural stream channel design incorporates the interaction of the stream with land use practices, vegetation, and topography in order to create a stable system. This project transformed 2,643 ft. of eroded stream bank into a functioning riparian area. Two

wetlands were also constructed, which will function as overflow ponds and provide extensive wildlife habitat. Seven in-stream structures were constructed, and are designed to re-establish stream banks as well as aid in fish habitat. This project was completed with assistance, both technical and financial, from the Natural Resources Conservation Service (NRCS), the Greenbrier Valley Conservation District (GVCD), the West Virginia Conservation Agency (WVCA), the Canaan Valley Institute (CVI), the United States Forest Service (USFS), and the Upper Knapps Creek Watershed Association (UKCWA).

2004 was another wet year for West Virginia leading to more flooding and the erosion problems that come with it. This led to WVCA field staff working on many sites throughout the state. Some work consisted of restoring channels filled with depositional material while other work involved bank stabilization practices such as j-hooks, rock vanes, and sometimes traditional methods such as rip rap. Several projects have been completed. Over 3,000 feet of streams were restored to step-pool or riffle-pool sequences in Mingo and Logan counties after the June Flood. Another project has been designed on Dry Fork in Randolph, County. This site is just over 3,000 feet long and will restore the meandering channel, create floodplains within an incised channel and stabilize eroding stream banks contributing approximately 1,200 tons of sediment per year. Construction is anticipated for this project in late fall and will be funded cooperatively by WVCA and the US Fish and Wildlife Service.

Despite the need and the popularity of this component of the NPSP it is not likely to be continued in 2005. Lacey Parsons, who ran this part of the Program has left the WVCA to go to a private consulting firm. Considering the anticipated budget cuts for FY 2005 this position will not be refilled. Natural stream bank designs will now have to be contracted out.

OUTREACH AND EDUCATION

Public outreach and education is a major component of the Base Program as well as being incorporated into most of the incremental projects. The NPSP decided in 2003 to focus educational efforts on dirt roads. WVDEP produced a video introducing the nonpoint source issues concerning dirt roads. The video entitled "Roads to Rivers, Sediments' Journey" is a brief outline of the problems associated with poor dirt road design, construction and maintenance. It also features a brief discussion of the solutions to these problems. This video was distributed to all the Program's partners for use in workshops and other educational workshops.

The Elk River plume is a common site in Charleston. An aerial view of the plume (taken on a sunnier day) is a compelling shot in the "Roads to Rivers, Sediments' Journey" video produced by the WVDEP NPSP. The major source of this sediment is from dirt roads in the Blue Creek and Little Sandy Creek watersheds, the focus of an incremental project.

In addition, the WVDEP NPSP produced radio ads on a variety of nonpoint source issues and provided advice. Radio ads were developed for grass planting tips, planting trees and shrubs along riparian areas, dirt roads, septic tank tips, Stream Partners Grants and forming a watershed association. They were aired from August 2003 – March 2004 for a total of 212, 30-second spots. Also, the Basin Coordinators are continuing to distribute to local radio networks to air.

Gretchen Cremann (center) teaches with a stream table at the WV Conservation Camp Watershed Management Class

WVCA works with many outreach organizations to provide educational material. Through environmental field days at local schools, over 2,000 youth and adults were informed of the importance of conserving their natural resources. Through the "Save Our Streams" program, twenty youth have monitored a stream in the Lost River Watershed for the past four years. The West Virginia Conservation Camp allowed for WVCA staff to interact and inform over 150 youth on the importance of watershed conservation. The weeklong class focused on

people's impact to a watershed and how each of the participants can lessen their impact.

With agriculture as the prevalent land use in the Potomac Valley, a "Manure Composting" brochure was revised. This brochure was distributed to the Pilgrim's Pride poultry growers. Over 1000 brochures were printed, with 500 going to the poultry producers. This brochure is available for Potomac Valley Conservation District Cooperators, as well as interested citizens.

The Canon Envirothon – North American program was held at West Virginia Wesleyan College July 26 through August 1, 2004. Fifty-one teams, 43 from the U.S. and eight from Canada, competed in the *2004 Canon Envirothon*, which is North America's largest high school environmental competition. NPS staff helped with planning, logistical support, training and testing during the week. WVCA NPSP program staff helped in the training of over 20 of the 37 teams that participated in the WV Envirothon. A CWA 319 grant helped support the event.

Organized through the National Association of Conservation Districts in the U.S. and The Canadian Forestry Associations, the *Canon Envirothon* is the final competition in a series of contests beginning each spring that involves more than 500,000 teenagers throughout North America. NPSP staff arranged a tour for advisors and guests to visit BMPs installed as part of the North Fork of the South Branch Incremental 319 project. Over 60 adults took advantage of this offering to view a watershed where conservation practices have significantly improved water quality.

VOLUNTEER MONITORING

The WV Save Our Streams (WVSOS) Program continues to expand by adding program components, working with a wide variety of partners and participating in numerous types of activities related to the protection and preservation of our state waters. Stream monitoring workshops at all levels continue to be a program priority. In addition to the standard beginning, intermediate and advanced protocols, workshops were also provided on lake and wetland monitoring and sedimentation. The focus of much of this effort is on assisting watershed associations participating with the NPSP in watershed restoration or protection efforts. The goal is to enable citizens to contribute qualified data for documenting pollution sources and restoration success.

The WVSOS has developed and incorporated new sediment monitoring procedures designed to assist volunteer monitors in tracking changes to their stream channels that may occur as a result of sedimentation. The new procedures combine methods of fluvial geomorphology and stream habitat assessment modified for use by volunteer monitors. The procedures can be adapted to a wide variety of stream channel situations and additional methods

can easily be incorporated into the approach depending upon the group's goals and objectives. The procedure has gone through peer review by resource specialists and biologist within the WVDEP, Canaan Valley Institute (CVI), Cacapon Institute (CI), WV Division of Natural Resources (WVDNR), US Forest Service (USFS) and the WVCA.

Several workshops and follow-up instruction have been provided in the Potomac drainage and additional efforts are planned for groups that are planning sediment monitoring as an integral part of their watershed base plan. At this time, WVSOS has produced simple documents and made available additional reference materials, as well as provided training. Minimum equipment is available such as millimeter rulers, tape measures, sand gauges etc. The program hopes to expand the equipment available for volunteer groups in the near future.

WVSOS is working with a variety of agency and professional organizations in order to expand program opportunities and use the techniques to assist these other agencies in their activities related to stream monitoring and assessment. One example is a working group consisting of representatives from WVDEP, United States Fish and Wildlife Service (USFWS) and the Army Corps of Engineers (Corp) to develop simple assessment methods for certain types of stream projects and permits. The group has been introduced to the program's advanced habitat assessment methods and is strongly considering their use for these projects. Other partnerships have been formed through continuous discussions with DEP's nonpoint and watershed assessment staff and training provided to resource specialists within the WVCA, WVDNR, CVI, CI and even the WV Division of Tourism.

WVSOS continues to expand into all levels of school programs by providing teacher certification and continuing education credits approved by the WV Department of Education. WVSOS has worked with the Kanawha Forest Foundation to develop a summer teacher workshop and has become a partner and advisor for the Mountain Institute's (TMI) Potomac Stream Sampler (PSS) Program. PSS is an effort in the Potomac drainage that provides tools, training and certification to teachers and students using WVSOS protocols and a web page component with interactive data entry capabilities, which is still under development.

WVSOS has been an integral part of the state Envirothon Competition since its inception and continues to support the program by acting as an

educator, test writing, station leader and trainer of the aquatics portion. This year the WV Envirothon gained additional exposure by hosting the national competition and WVSOS provided training and materials to high school students from all across the country.

Areas of Concern & Future Actions

Major Program Goals for FY 2005

- Complete the first Upper Buckhannon project and assess the results to update the WBP.
- Begin the implementation of the Lamberts Run WBP.
- Expand the techniques used by the NPSP for passive treatment of AMD, including exploring the possibility of a mix of active and passive treatments.
- Obtain approval for the Lower Cheat and Morris Creek WBPs and develop two new WBPs.
- Implement volunteer monitoring for sediment impacts and coordinate its use in a project watershed.
- Improve project monitoring to better quantify environmental results.
- Hold a "Getting in Step" workshop to build capacity in NPS outreach.
- Complete the Spring Creek, North Fork of South Branch, Long Branch and Robinson Run projects.

Program Concerns and Recommendations

In many ways the program concerns listed in the FY 2003 Annual Report could be repeated for this year, little has changed. Bureaucracy still is one of the main obstacles to success. There has been some improvement in the "paper flow" involved in taking a project from planning to implementation but this is due only to gained experience from past projects. The level of bureaucratic requirements has not decreased. This is particularly true when there are multiple agencies involved in any large scale project.

This fact of life has made progress slow when going into a new watershed. It seems to take about two years from the selection of a new priority watershed to the first project proposals being submitted. Implementation usually occurs the next year but as we have seen in the Upper Buckhannon it may be delayed more by permits, mitigation, etc. Another situation that has not changed is that the NPSP is held to achieving mandatory water quality goals through a voluntary compliance system. Even under the best of scenarios a watershed restoration effort involves as many as a dozen partners. This requires someone to coordinate the partners to a successful effort. This is both labor and resource intensive. In most of the priority watersheds the NPSP has taken on that role as well as project oversight in all the project watersheds. Even before learning that the Base Program was to be cut by 15 to 20% for FY 2005 the NPSP was straining to effectively coordinate and manage watershed restoration efforts under the present system. The loss of one Basin Coordinator and the Natural Stream Design Specialist has further diminished that capacity.

While the strain of resource limitations is being felt the NPSP did increase its active projects in FY 2004. The Basin Coordinator system established this year and the involvement of watershed associations has aided the organization of watershed restoration efforts. Another factor that helped this new system settle into place was the stability of EPA's guidelines for the program for at least one year. The annual change in how the Program would operate was creating chaos and frustration. West Virginia would like to recommend that EPA maintain this stability for the near future. Even the rumor that EPA was considering new guidelines for FY 2005 caused anxiety amongst the various partners and personnel in the Program.

There are a dozen priority watersheds designated by West Virginia's Watershed Management Framework (WMF). The NPSP is working in ten of those watersheds with an additional four non-priority watershed restoration efforts as well. The NPSP also maintains some involvement in other watershed efforts funded through non-CWA 319 sources such as the Chesapeake Bay. At the last meeting of the WMF representatives from the various NPSP partner agencies expressed to the Committee that the Program had reached its limit under the present system and resources. Other agencies declined to take a lead role in any new priority watersheds, so no new ones were selected. Part of

the problem was that the major watersheds up for priority selection during this cycle already had projects or were in areas where NPSP resources are limited. It is generally felt that the focus needs to be on finishing the older priority watershed projects. By September 2005 the North Fork, Spring Creek and Robinson Run projects will be completed. Preparations are being made to replace those watersheds with watershed efforts in the Lost River, Potomac Direct Drains and the Monongahela basins.

A serious concern for the Program is the lack of non-federal funds to use as a match for the 319 funds. In watersheds affected by AMD the Program uses the Watershed Cooperative Agreement Program (WCAP) to match 319. However, WCAP was not funded in FY 2005 and may not be funded in FY 2006. Competition for the remaining WCAP funds is high with Pennsylvania taking most of them. If the WCAP funds run out then the majority of CWA 319 Incremental projects will have difficulty in finding match and implementing AMD TMDLs. In agricultural watersheds the WVCA contributes some match but farmers must contribute about 25%. Many family farmers cannot afford this. This factor along with weather has delayed the implementation of BMPs in some projects. In some TMDL watersheds gas drilling, logging, failing septic systems and development are the primary land uses causing impairment. For these activities there is no readily available state matching funds. This severely limits the NPSP's ability to implement a watershed restoration effort in these watersheds.

A committee was formed to draft a proposal to seek from the state Legislature a special fund to work on nonpoint source problems. This will be a long, slow process with no guarantee of success. However the issue is out there and the public and politicians are becoming aware of it. Recently, the US. Army Corps of Engineers submitted to the Legislature a report on flooding in West Virginia. Some of the recommendations of the report called for the control of runoff from nonpoint sources.

Finally, a serious concern for the NPSP is maintaining a qualified and experienced field and office staff. Over the last two years there has been some major personnel changes in the partner agencies especially at the WVCA. Many factors have been involved including better positions in other agencies and the private sector, uncertainty about the future of the CWA 319 funds and the ponderous nature of organizing any NPSP effort. The loss of one project coordinator has caused a one year delay in one project and the loss of the Natural Stream Design Specialist will cause delays in several projects. As the requirements for using CWA 319 funds becomes more cumbersome and complicated and as the number of TMDLs continues to grow, keeping qualified and experienced people will become critical for success.

Appendix

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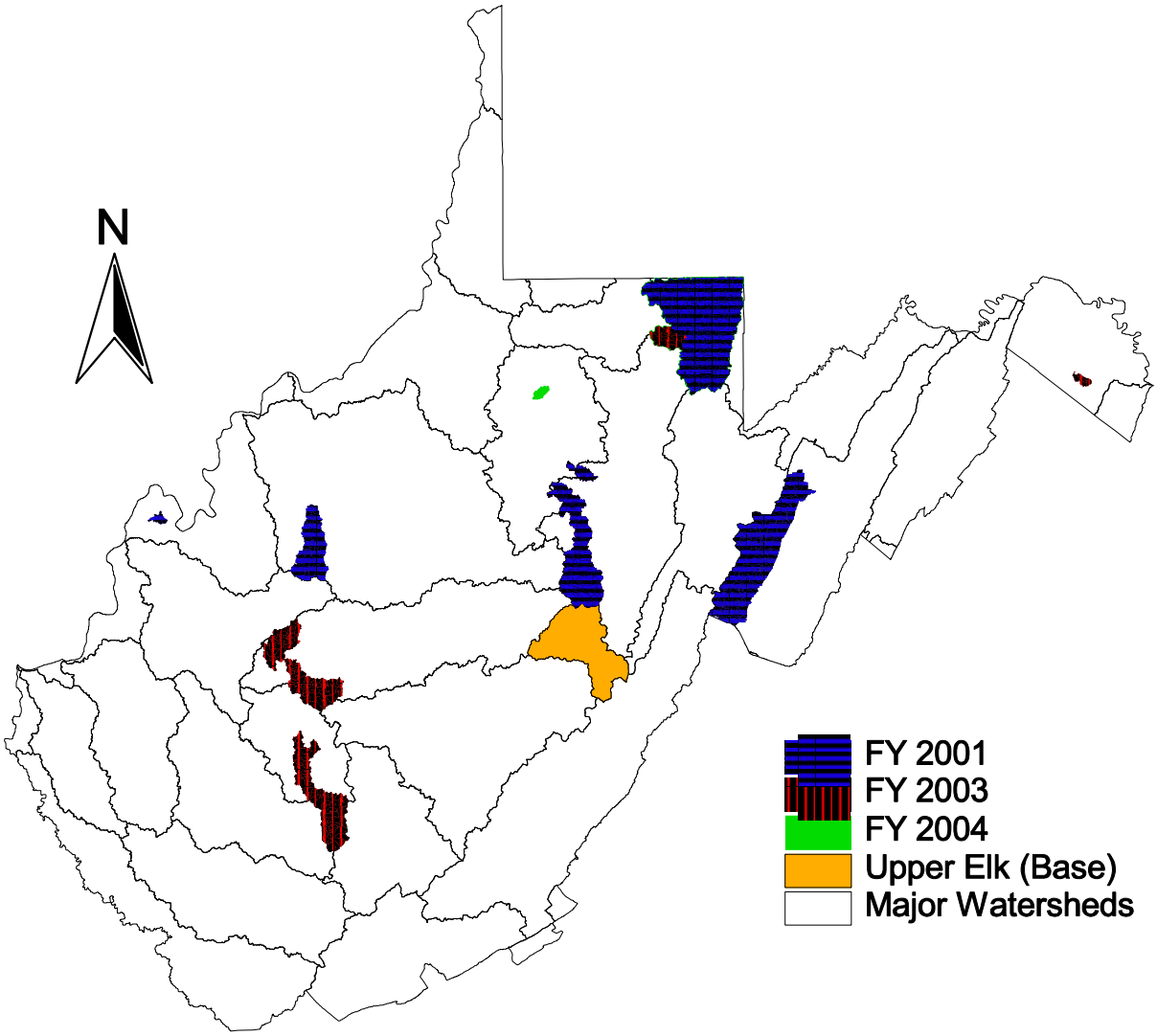
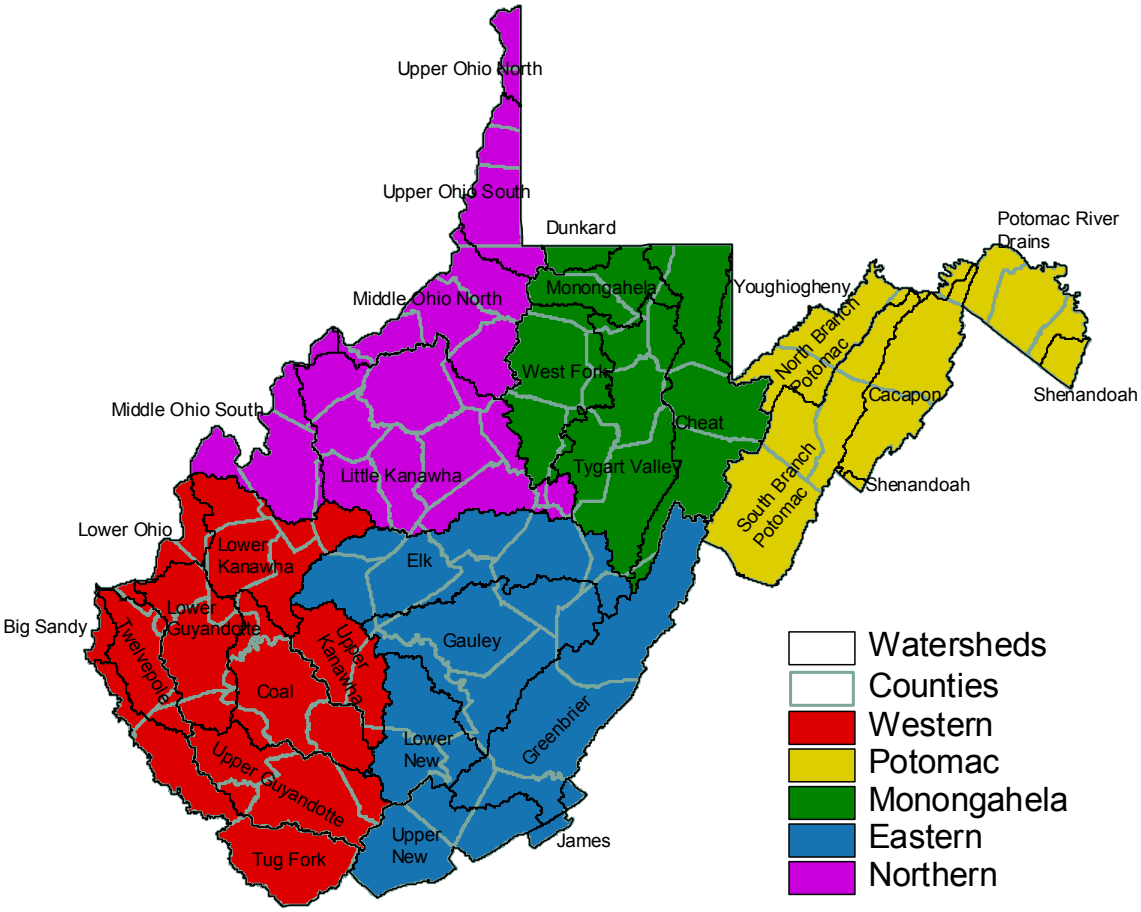
Nonpoint Source Program Special Projects



The flollowing watershed projects are funded out of multiple years: The Lower Cheat (FY 01 & 04), Upper Buckhannon, Finks Run and Pecks Run (FY 01 & 03) and Deckers Creek (FY 03 & 04)

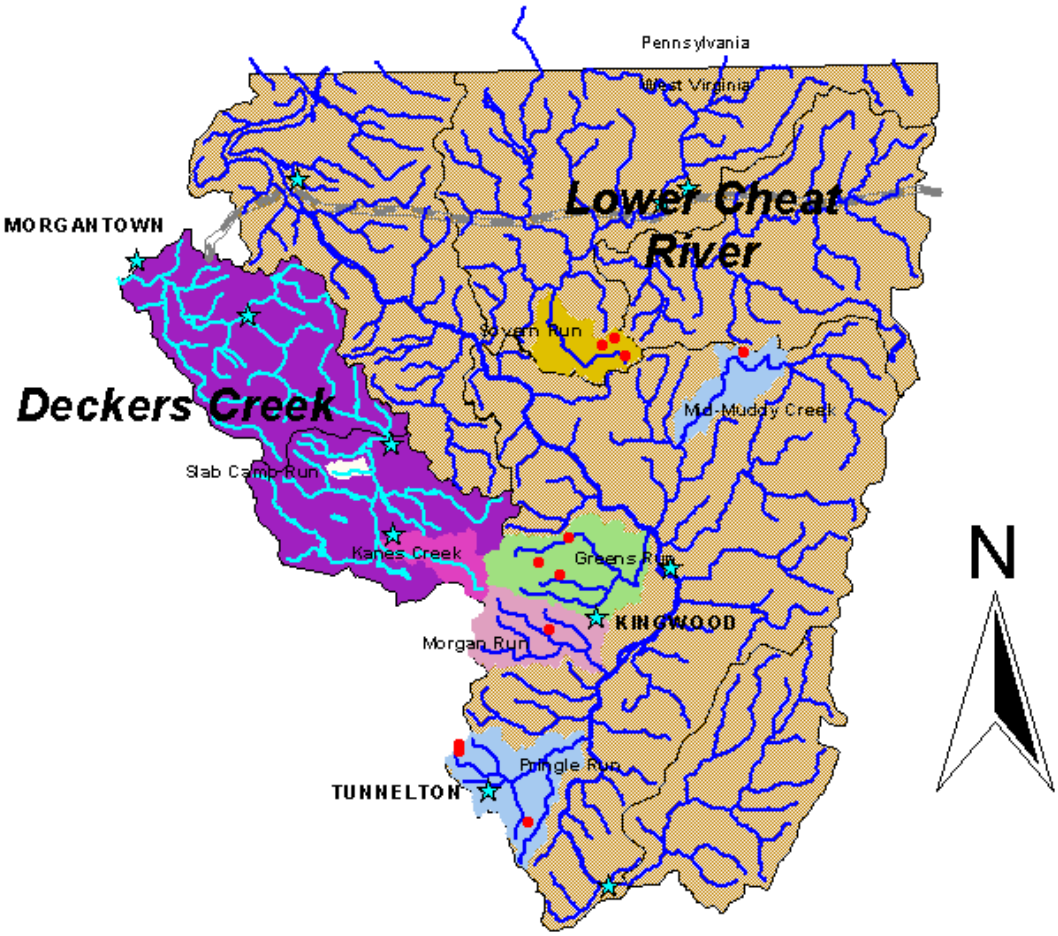
West Virginia SPP & NPS Programs Regional Divisions



Regional Coordinators

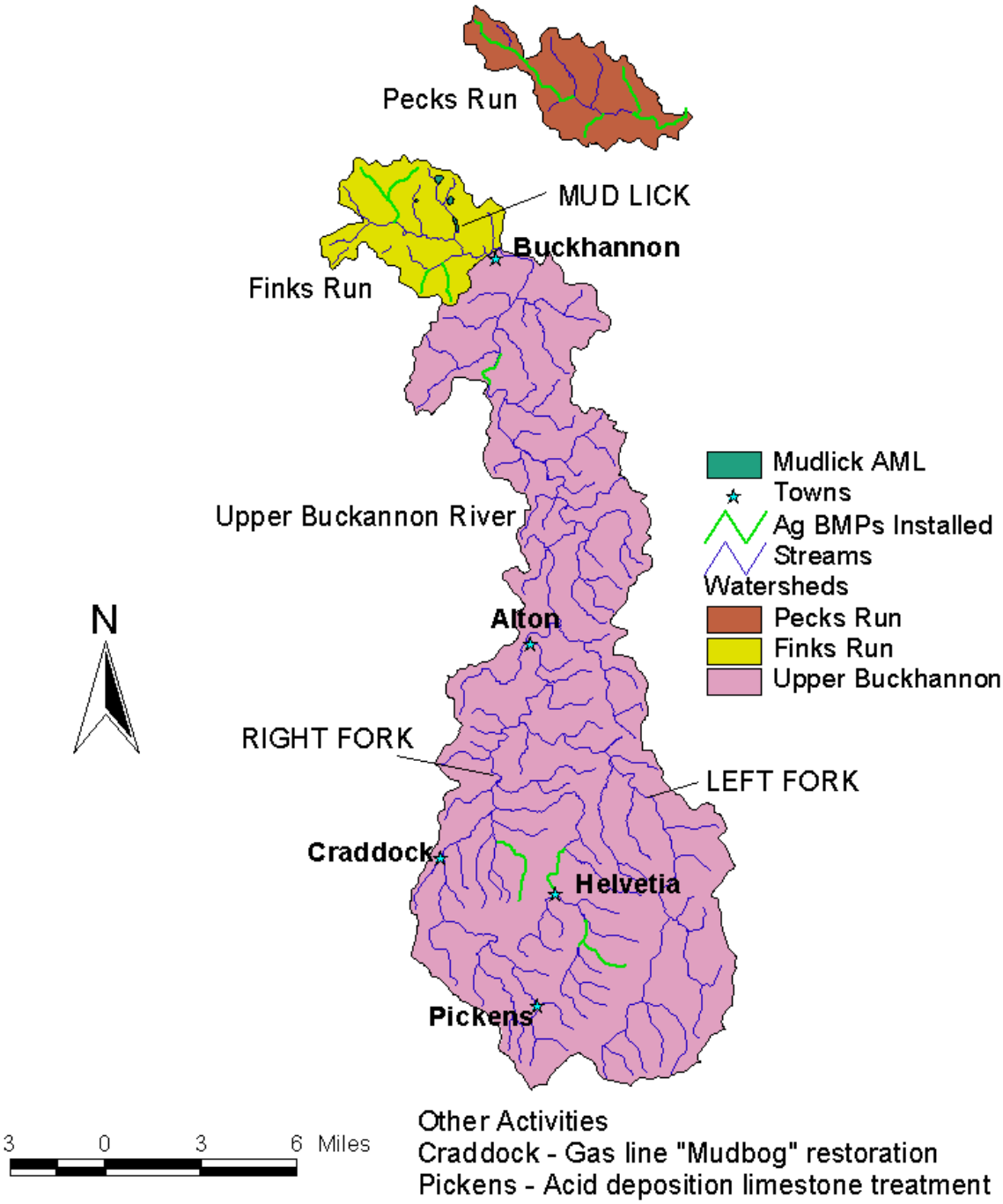
Western - vacant
Eastern - LL Gilbert llgilbert@hotmail.com 465-0034
Potomac - Alana Hartman ahartman@wvdep.org 822-7266
Monongahela - Lou Schmidt lschmidtiolinc.net 783-4935
Northern - Ben Walls bwalls@wvdep.org 420-4635

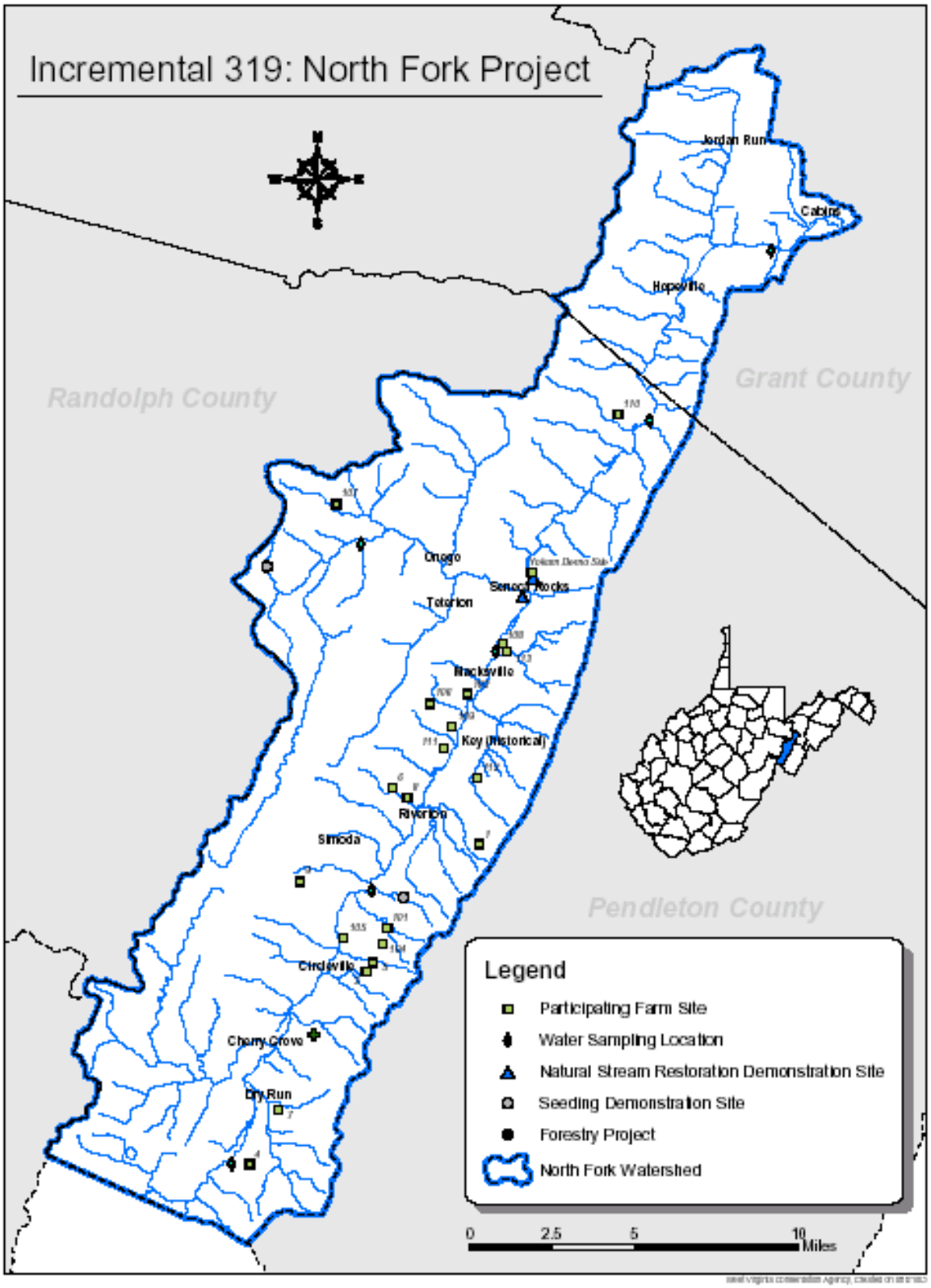
Lower Cheat River and Deckers Creek AMD CWA 319 Project Watersheds

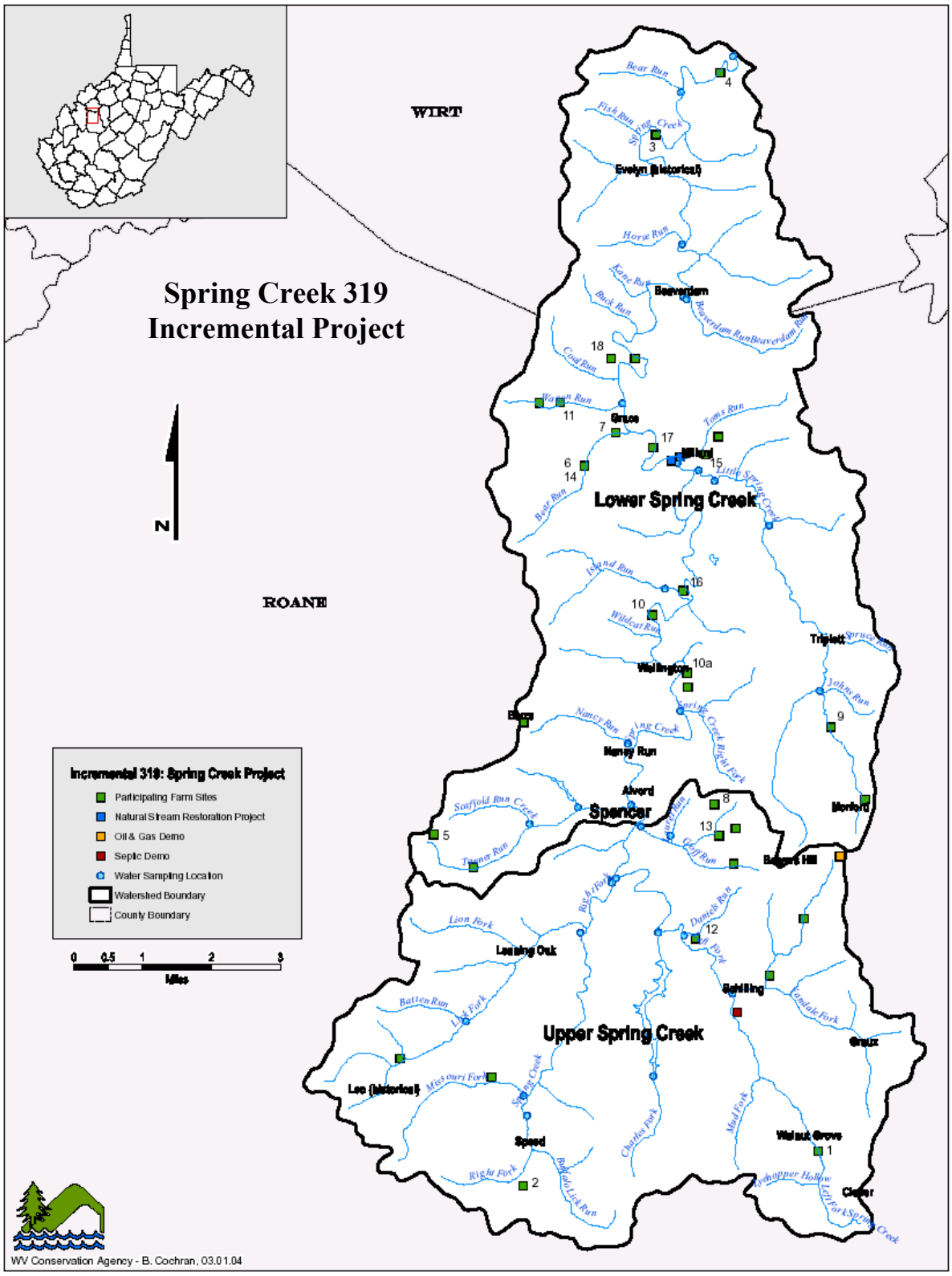


● Project Sites

Upper Buckhannon, Finks Run and Pecks Run Project




Incremental 319: North Fork Project
Jordan Run
Cabins
Hopeville
Grant County
Randolph County
Onego
Seneca Rocks
Totonton
Blacksville
Key (Historical)
Riverton
Simoda
Pendleton County
Circleville
Cherry Grove
Dry Run
Legend
Participating Farm Site
Water Sampling Location
Natural Stream Restoration Demonstration Site
Seeding Demonstration Site
Forestry Project
North Fork Watershed
0
2.5
5
10
Miles


Spring Creek 319
Incremental Project
WIRT
ROANE
N
Lower Spring Creek
Upper Spring Creek
Spencer
Incremental 319: Spring Creek Project
Participating Farm Sites
Natural Stream Restoration Project
Oil & Gas Demo
Septic Demo
Water Sampling Location
Watershed Boundary
County Boundary
0 0.5 1 2 3
Miles
WV Conservation Agency - B. Cochran, 03.01.04

FY 2004 BASE PROGRAM FUNDING

Project	*319 Funding*	*State Funding*	*Total*
DEP DWWM Administration and Coordination	**$621,100**	**$414,067**	**$1,035,167**
DEP OO&G	**$75,000**	**$51,930**	**$126,930**
DOF Silviculture NPS Program	**$140,000**	**$93,3324**	**$233,332**
WVCA Statewide NPS Program	**$550,000**	**$368,292**	**$918,292**
DHHR On-site Wastewater Program	**$75,000**	**$50,000**	**$125,000**
Totals	**$1,461,100**	**$977,621**	**$2,438,721**

Summary of Incremental 319 Projects

Grant Year	Project	Subject	319 Funds	State Match	Total Funds	Status
00	Blaser (Sovern Run)	AMD	$240,000	$504,193	$744,193	On schedule
00	Greens Run Refuse (Johnson Knob)	AMD	$90,000	$60,000	$150,000	On schedule
00	Lower Mudlick (Johnson Knob)	AMD	$90,000	$60,000	$150,000	On schedule
00	Northern Basin Coordinator	Planning	$125,960	$83,973	$209,933	On schedule
01	North Fork South Branch	Ag, SR, forestry	$212,000	$141,350	$353,350	On schedule
01	Spring Creek	Ag, SR, septic	$150,750	$98,800	$249,550	On schedule
01	Upper Buckhannon	Ag	$400,675	$266,520	$667,195	On schedule
01	Grass Buffers	Ag	$130,352	$90,235	$220,587	On schedule
01	Robinson Run	Ag	$80,000	$53,334	$133,334	On schedule
01	DNA Testing	Research	$25,375	$16,917	$42,292	Completed
02	2nd Cheat River	AMD	$420,773	$280,541	$701,314	On schedule
02	Long Branch	AMD	$176,807	$117,197	$294,004	On schedule
02	Morris Creek	AMD	$341,060	$539,557	$880,617	On schedule
02	Slab Camp	AMD	$186,500	$124,406	$310,906	On schedule
02	Inwood Wetlands	Urban	$106,800	$71,200	$178,000	On schedule
03	Lower Elk	Ag, SR, septic	$125,854	$114,090	$239,944	Behind Schedule
03	Upper Buckhannon	Ag	$419,329	$279,554	$698,883	On schedule
03	WBPs	Planning	$100,000	$67,000	$167,000	On schedule
04	Kanes Creek	AMD	$57,808	$38,539	$96,347	EPA
04	Lamberts Run	AMD	$569,000	$387,000	$956,000	EPA
04	Muzzleloader Club	AMD	$106,663	$78,489	$185,152	EPA
04	Cheat River III	AMD	$333,829	$222,552	$556,381	EPA
04	Monitoring	Monitoring	$36,000	$24,000	$60,000	EPA
04	Lower Elk Proj Manager	Implementation	$86,928	$57,952	$144,880	DEP
04	Upper Buckhannon Proj Manager	Implementation	$99,287	$66,191	$165,478	DEP
	Totals		**$4,711,750**	**$3,843,590**	**$8,555,340**	

Key
Ag = Agriculture
SR = Stream restoration
AMD = Acid mine drainage
EPA = awaitng final approval from EPA
DEP = awaiting submittal to EPA
( ) = Unintiated project where funds were originially intended

West Virginia Agriculture Water Quality Loan Program 2004

Potomac Headwater Land Treatment Project – PL 534

Number of applications received	4
Number of loans funded	4
Total loan expenditure	$96,394.00

Environmental Quality Incentive Program

Number of applications received	3
Number of loans funded	3
Total Loan expenditure	$42,479.00

319 Projects

Number of Applications received	1
Number of loans funded	1
Total loan expenditure	7,120.00
Total Loan Expenditure	**145,993.00**

Non-Point Source Program Cooperators

West Virginia Department of Environmental Protection

Division of Water and Waste Management

Contact: Alvan D. Gale
601 57th St. SE
Charleston, WV. 25304-2345
(304) 926-0495

Office of Oil & Gas

Contact: Jerry Tephaboch
601 57th St. SE
Charleston, WV. 25304-2345
(304) 926-0495

Abandoned Mine Lands Program

Contact: Charles Miller
601 57th St. SE
Charleston, WV. 25304-2345
(304) 926-0495

West Virginia Division of Forestry

Contact: Dave Lilly
1900 Kanawha Blvd. E.
Charleston, WV. 25305
(304) 558-2788

West Virginia Conservation Agency

Contact: Pam Russell
1900 Kanawha Blvd. E.
Charleston, WV. 25305
(304) 558-2204

U.S. Environmental Protection Agency

Region III Non-Point Source Program
Contact: Leo Essenthier
1650 Arch St.
Philadelphia, Pa. 19103-2029
(215) 814-5749

West Virginia Water Research Institute
National Mine Lands Reclamation Center

Contact: Dr. Paul Ziemkiewcz
PO Box 6064 Rm. 202
Morgantown, WV. 26506-6064
(304) 293-2867

STATEMENT OF POLICY REGARDING THE EQUAL OPPORTUNITY TO USE AND PARTICIPATE IN PROGRAMS

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Complaints should be directed to:

Director
WV Department of Environmental Protection
601 57th St. SE
Charleston, WV. 25304-2345

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West Virginia's Nonpoint Source Program is funded by a Clean Water Act Section 319 Grant administered by the U.S. Environmental Protection Agency.