PENNSYLVANIA'S ENVIRONMENTAL GOOD SAMARITAN PROGRAM[1]

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Abstract. Pennsylvania enacted an Environmental Good Samaritan Act (PA EGSA) in 1999. The law is intended to encourage landowners and others to reclaim abandoned mineral extraction lands and abate water pollution caused by abandoned mines or orphaned oil and gas wells. The law protects landowners, groups and individuals who volunteer to do such projects from civil and environmental liability under Pennsylvania law. Prior to the PA EGSA, anyone who voluntarily reclaimed abandoned lands or treated water pollution for which they were not liable could be held responsible for treating the residual pollution under Pennsylvania law. This dissuaded people and groups from pursuing these types of projects.

Only projects approved by the Pennsylvania Department of Environmental Protection (PA DEP) prior to construction are eligible for protections under the PA EGSA. PA DEP has developed a project proposal form for participants and landowners. Each proposal must identify the project participants and landowners, describe the location of the project and the environmental problems that will be addressed, and establish a work plan for the proposed project. The PA DEP evaluates each proposal to determine if the project is capable of reclaiming the land or improving water quality. The PA DEP will also advise participants on any permits that may be required. Once the project is approved, PA DEP will maintain a permanent record of the participants and landowners who are protected under the PA EGSA.

Pennsylvanians have undertaken and completed 86 Good Samaritan projects as of December 2019. These 86 projects have been undertaken by 44 different groups/participants and have included local governments, individuals, watershed groups and associations, corporations, municipal authorities, and conservancies. This paper discusses key aspects of the EGSA Program and highlights several successful EGSA projects that have been completed in Pennsylvania.

Additional Key Words: Mine Drainage, Abandoned Mine Reclamation, Oil and Gas Wells

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Introduction

In 1999, Pennsylvania enacted the Environmental Good Samaritan Act (EGSA) to encourage volunteers to improve land and water adversely affected by mineral extraction by limiting the Good Samaritan's potential liability. Prior to the Pennsylvania's EGSA, anyone who voluntarily reclaimed abandoned lands or treated water pollution for which they were not liable could be held responsible for treating the residual pollution. Projects must meet certain criteria to be covered by the EGSA. The project must be reviewed and approved by the Pennsylvania Department of Environmental Protection (PA DEP). The proposed project must restore mineral extraction lands that have been abandoned or not completely reclaimed, or it must be a water pollution abatement project that will treat or stop water pollution coming from abandoned mine lands or abandoned oil or gas wells.

Discussion

The law contains protections for both landowners and for the people who do the work. Pennsylvania's EGSA provides that a landowner who provides access to the land without charge or compensation to allow a reclamation or water pollution abatement project is eligible for protection.

The Act also provides that a person, corporation, nonprofit organization, or government entity that participates in a Good Samaritan project is eligible for protection if they:

- Provide equipment, materials or services for the project at cost or less than cost.
- Are not legally liable for the land or water pollution associated with past mineral extraction.
- Are or were not ordered by the state or federal government to do the work.
- Are not performing the work under a contract for profit, such as a competitively bid reclamation contract.
- Are not the surety that issued the bond for the site.

Landowners who provide free access to the project area are not responsible for:

- Injury or damage to a person who is restoring the land or treating the water while the person is on the project area.
- Injury or damage to someone else that is caused by the people restoring the land or treating the water.
- Any pollution caused by the project.
- The continued and ongoing operation and maintenance of any water pollution treatment facility constructed on the land, unless the landowner damages or destroys the facility or refuses to allow the facility to be operated or repaired.

Landowners are not protected from liability if they:

- Cause injury or damage through the landowner's acts that are reckless, or that constitute gross negligence or willful misconduct.
- Charge a fee or receive compensation for access to the land.
- Violate the law.
- Fail to warn those working on the project of any hidden dangerous conditions of which they are aware within the project area.

Additionally, participants are not protected under the Act if the project damages adjacent or downstream landowners, or if written or public notice of the proposed project was not provided. Proof of public notice must be provided to PA DEP as part of the project proposal.

In addition to being crafted to address potential legal liabilities that deter Good Samaritans from acting, Pennsylvania's EGSA was also crafted to address potential financial hurdles that could impede a Good Samaritan project. So, one question might be, can anyone profit from a Good Samaritan project? People (including landowners, contractors, or material suppliers) who profit as a result of any project undertaken by Good Samaritans are not eligible for the immunities and protections available under Pennsylvania's EGSA. This approach was taken to encourage more people to donate their goods and services or provide their goods and services at or below cost to allow Good Samaritans to accomplish more with their resources.

So why does Pennsylvania need a Good Samaritan Act? First and foremost, Pennsylvania has over 5,500 miles (8,851 kilometers) of abandoned or acid mine drainage (AMD) impaired streams. Figure 1 shows the location of these AMD impaired streams within Pennsylvania. Figure 2 is a photograph of an AMD impaired stream (Millers Run) in Allegheny County, PA just west of the City of Pittsburgh. Additionally, Pennsylvania has thousands of abandoned mine discharges. These discharges range, on average, from a few gallons per minute (GPM) to nearly 45,000 GPM (170,344 liters/minute (LPM)). In fact, Pennsylvania's top 100 orphaned abandoned mine discharges alone have a combined average flow rate of over 455,000 GPM (1,722,362 LPM) which equates to more than 656 million gallons per day (MGD) (2,480 million liters/day (MLD)) of untreated AMD entering Pennsylvania rivers and streams. In addition to abandoned mine drainage problems, Pennsylvania has over 100,000 acres (40,469 hectares) of unreclaimed abandoned mine land (AML). Figure 3 shows the location of unreclaimed AML in Pennsylvania, and Fig. 4 shows several examples of unreclaimed AML features.

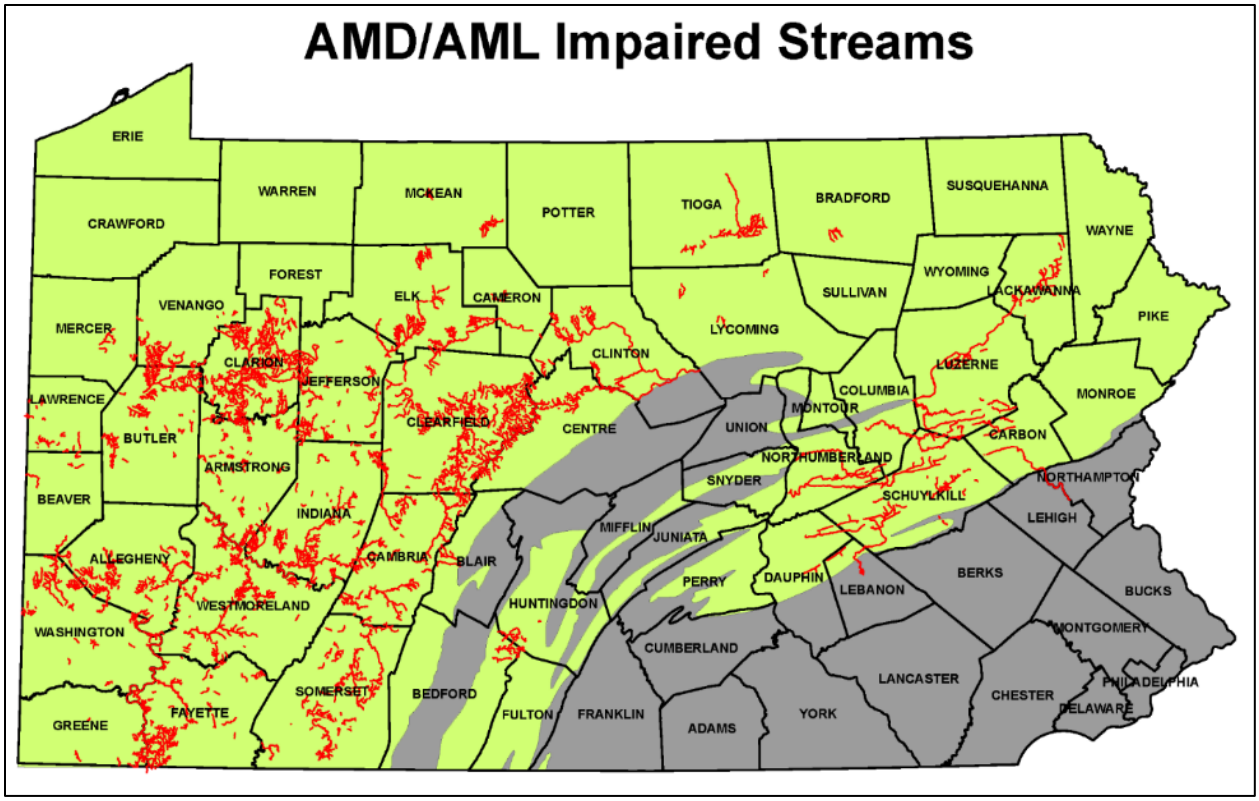

Figure 1. Location of streams impaired by abandoned mine drainage in Pennsylvania.


Figure 2. AMD impaired stream, Millers Run, Allegheny County, PA.

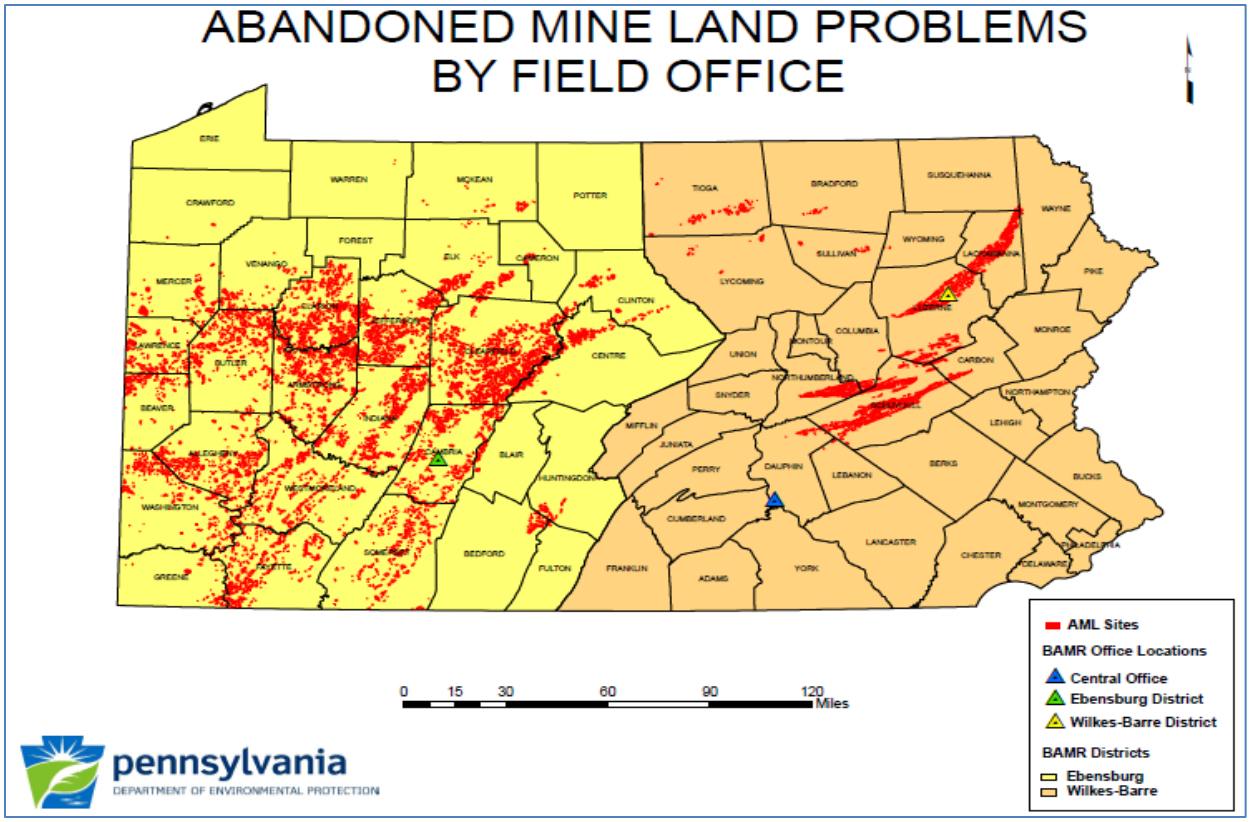

Figure 3. Location of unreclaimed abandoned mine land in Pennsylvania.

Figure 4. Examples of unreclaimed abandoned mine land in Pennsylvania.

In order to obtain protection under PA EGSA, applicants must submit an application prior to construction. PA DEP has developed a project proposal form for participants and landowners. Proposals must identify the project participants and landowners, describe the location of the project and the environmental problems that will be addressed, and establish a work plan for the proposed project. The PA DEP will evaluate each proposal and determine if the project is capable of reclaiming the land or improving water quality. The PA DEP will also advise participants on any permits that may be required. Once the project is approved, PA DEP will maintain a permanent record of the participants and landowners who are protected under the EGSA.

So how many EGSA projects have been undertaken in Pennsylvania? Pennsylvanians have obtained protection and completed 86 Good Samaritan projects as of December 31, 2019. These 86 projects have been undertaken by 44 different groups/participants and have included local governments, individuals, watershed groups and associations, corporations, municipal authorities and conservancies. Figure 5 shows the number of EGSA projects approved each year and Fig. 6 shows the number of EGSA projects approved by county. Figure 7 show a map with the location of the approved EGSA projects in PA.

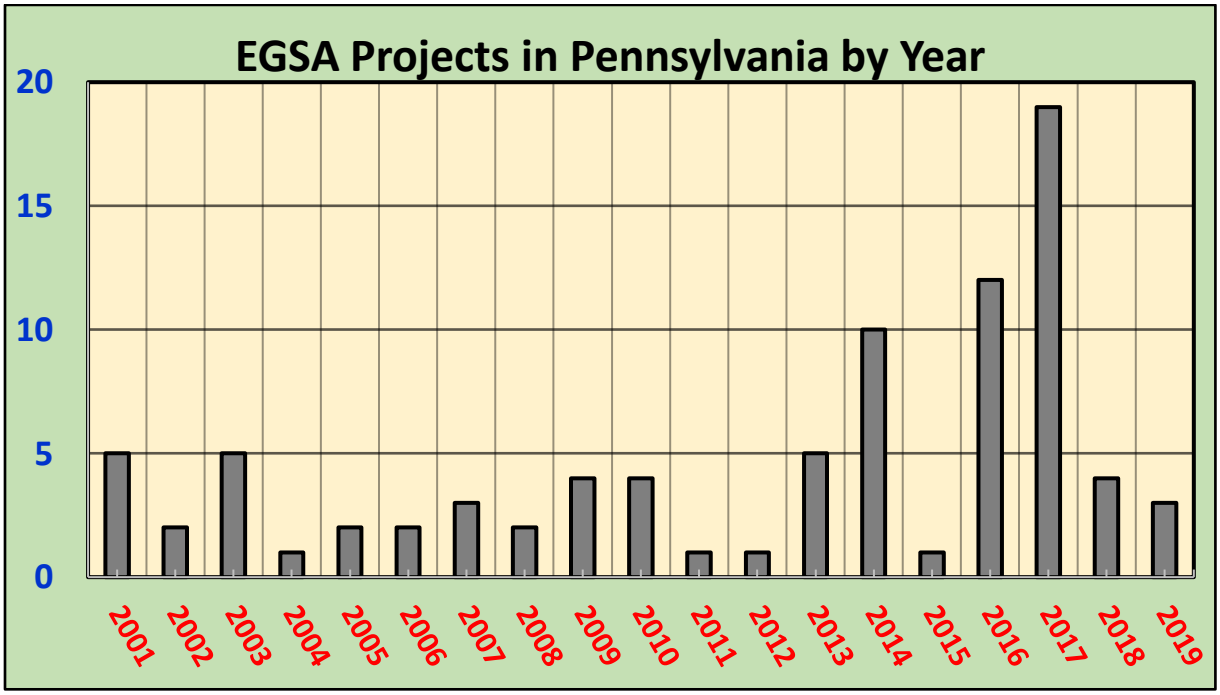

Figure 5. EGSA projects approved in Pennsylvania by year.

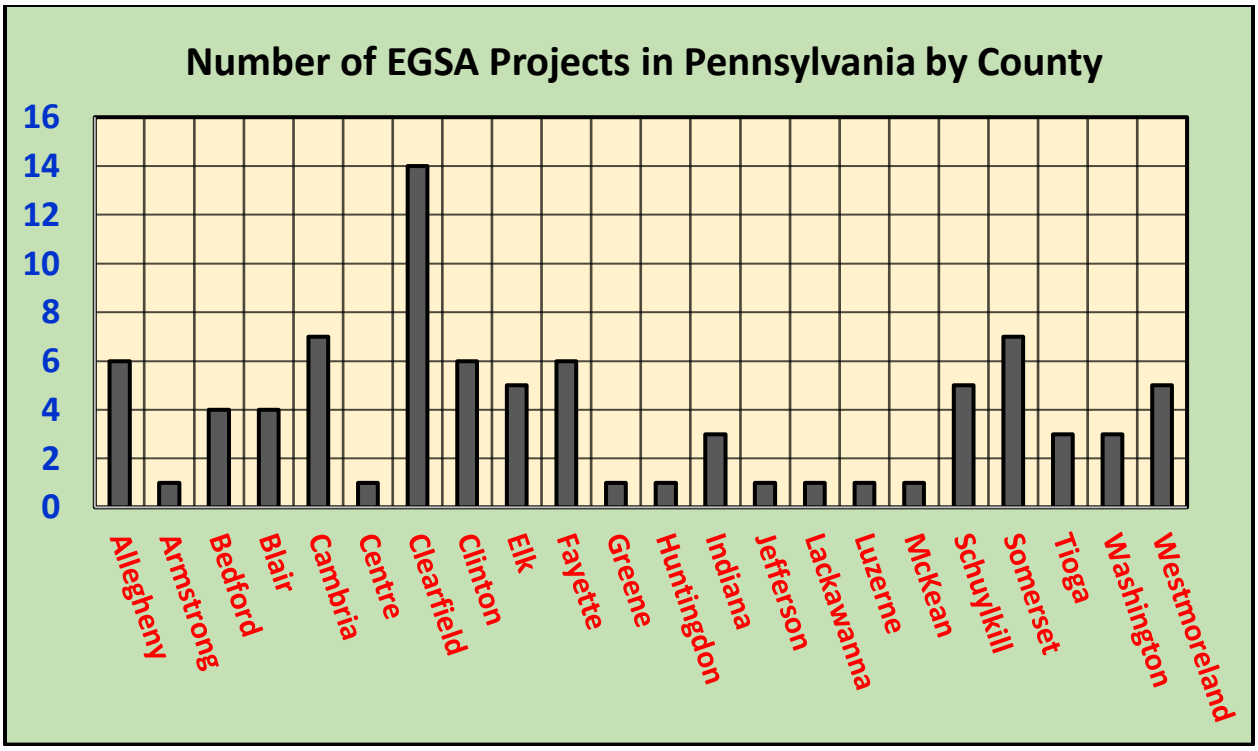

Figure 6. EGSA projects approved in Pennsylvania by county.

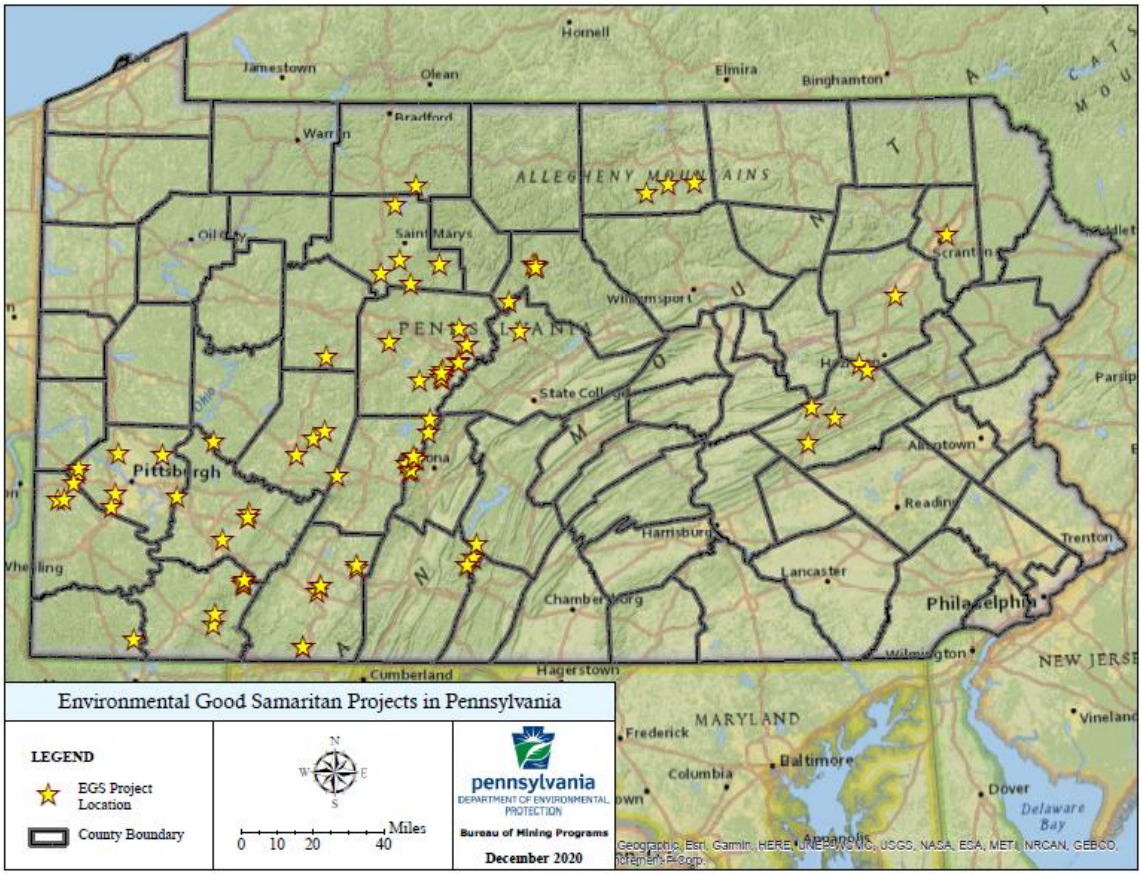

Figure 7. Map of Pennsylvania showing the location of approved EGSA projects.

More Information about Pennsylvania's Environmental Good Samaritan Act and Projects can be found on the PA DEP website at:

https://www.dep.pa.gov/Citizens/GrantsLoansRebates/Growing-Greener/Pages/Environmental-Good-Samaritan-Act.aspx.

Information on the website includes:

- Environmental Good Samaritan Fact Sheet
- Environmental Good Samaritan Project Proposal
- Mine Drainage Treatment Facility Consent to Right of Entry
- Environmental Good Samaritan Technical Guidance
- Information on Approved EGSA Projects

Or at:

https://www.dep.pa.gov/Business/Land/Mining/BureauofMiningPrograms/Pages/GoodSamaritanAct.aspx

Information on the website includes:

- EGSA Program Fact Sheet
- Environmental Good Samaritan Act Project Proposal Instructions
- Environmental Good Samaritan Act Project Proposal
- Listing of Environmental Good Samaritan Act Projects (Excel)
- Statewide Map Showing Environmental Good Samaritan Act Project Sites (PDF)

Pennsylvania EGSA Case Study Examples

Some representative examples (case studies) of successful EGSA projects completed in Pennsylvania include the Indian Creek Restoration Project located in Fayette County, PA, which is a project completed on private property; the Bennett Branch Restoration Project located in Clearfield and Elk Counties, PA, which is a project completed mostly on state-owned property; and the Fall Brook AMD Treatment System Project located in Tioga County, PA, which is a project completed entirely with private funding. These three projects were selected to highlight because they represent some of the diversity in the projects and entities undertaking the work and they geographically cover the state with one project located in southwestern PA, one in central PA, and one in northeast PA. A common theme illustrated by these examples and the numerous watershed restoration projects that have been implemented in Pennsylvania is that remarkable successes have been achieved in the absence of strict adherence to numeric water quality effluent criteria. EGSA has in many respects provided the flexibility to design cost effect restoration plans that have restored the intended uses of the targeted water resources.

Indian Creek Restoration Project, Fayette County, PA

Over the last twenty-two years, the PA-DEP, Bureau of Abandoned Mine Reclamation (BAMR) and the USDA Natural Resource Conservation Service (NRCS) worked with the Mountain Watershed Association (MWA) and several other partners to restore water quality and reclaim abandoned mines in the Indian Creek Watershed in southwestern Pennsylvania. Indian Creek is a 125 square mile (324 square kilometers) watershed which is very sparsely populated (<10,000 residents) and contains significant publicly owned land (approximately 60% of the watershed). Indian Creek is a tributary to the Youghiogheny River, which flows into the Monongahela River, which flows into the Ohio River in downtown Pittsburgh.

The MWA completed a watershed assessment of the Indian Creek Watershed in 1998. The study revealed that mine drainage from abandoned surface and underground mines was the biggest source of impairment in the watershed and was degrading the quality and quantity of 17.4 miles (28 kilometers) of Indian Creek and its tributaries. Unregulated mining began in the watershed in the late 1800s and continued into the 1960s. One hundred and nineteen (119) mine drainage discharges were documented in the watershed. An analysis of those discharges revealed that the 10 most significant discharges in the watershed accounted for 94% of the total acid load, 90% of the iron load, and 94% of the aluminum load in the watershed. MWA worked with the NRCS to develop a Watershed Restoration Plan (completed in October 2000) to address the most severe discharges and restore water quality in the Indian Creek Watershed. Since that time, MWA, NRCS and PA-DEP-BAMR have constructed six passive mine drainage treatment systems to treat the worst discharges in the watershed. Figure 8 shows an aerial view of one of the passive treatment systems constructed in the Indian Creek Watershed.

Early in the project, it was clear that most of the treatment systems necessary to restore water quality in the watershed would need to be constructed on private property. The private landowners and the MWA were both extremely concerned about liability. The MWA along with each of the private landowners applied for and received approval for PA Good Samaritan protections for their involvement in the project. Without this protection, these projects never would have been undertaken or completed. As a result of remediation work undertaken, the stream has made a dramatic recovery and now supports a healthy fish and macroinvertebrate community. Once an eyesore and a liability to the local area, Indian Creek is now a community asset and a source of

community pride. A walking trail was incorporated into one of the passive treatment system designs which ties to the Indian Creek Trail which will one day be a part of the Yough Trail Network. Figure 9 shows Indian Creek after restoration.

The PA DEP developed a short video showcasing the Melcroft passive mine drainage treatment system and the Indian Creek restoration. A link to the video posted on the PA DEP's YouTube channel is as follows: https://www.youtube.com/watch?v=GGNilkqCFdM.

Figure 8. Aerial view of the Melcroft passive mine drainage treatment system.

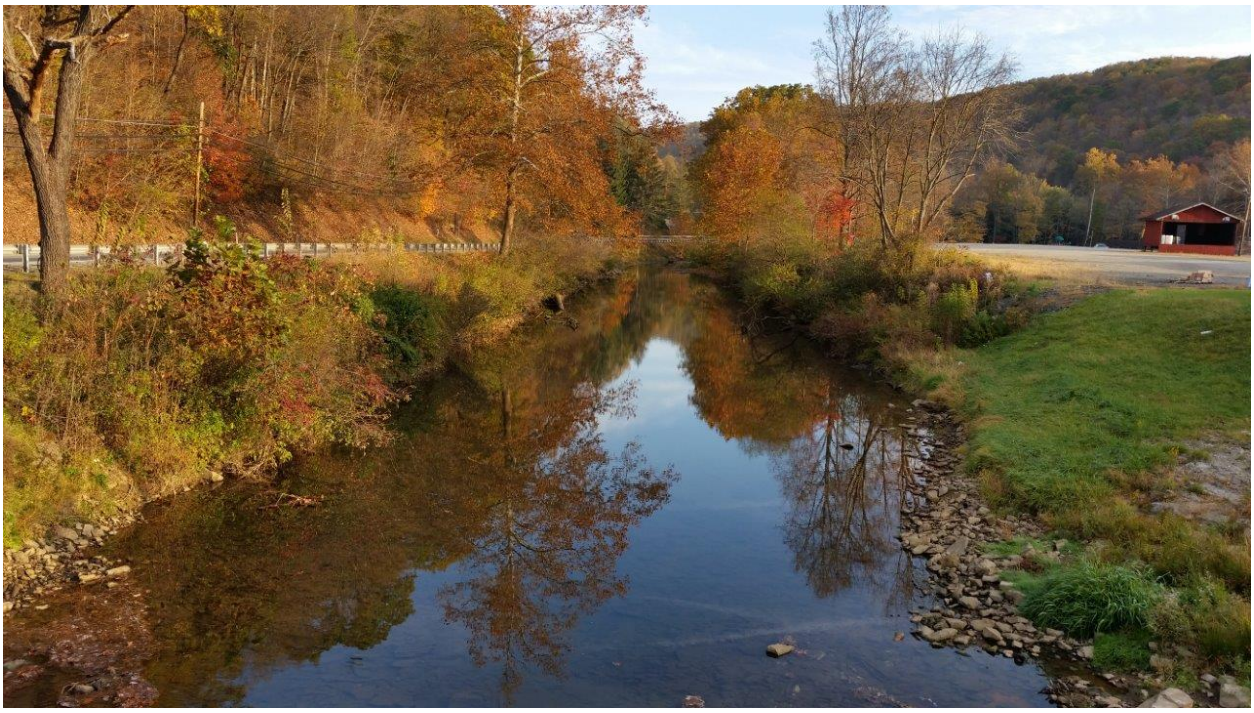

Figure 9. View of Indian Creek following restoration.

Bennett Branch Restoration Project, Clearfield and Elk Counties, PA

Beginning in 2004, the PA-DEP, BAMR worked with multiple partners to restore water quality and reclaim abandoned mines in the Bennett Branch Sinnemahoning Creek Watershed in northcentral Pennsylvania. The Bennett Branch is a tributary to the Susquehanna River which flows to the Chesapeake Bay in Maryland. Over 70% of the land in the watershed is publicly owned in the form of state park land, state forest land, or state game lands. The primary water quality problems in the watershed were the result of uncontrolled and untreated discharges of AMD from AML that severely degraded the water quality in the lower 33 miles (53 kilometers) of the Bennett Branch and many of its tributaries, rendering those 33 miles (53 kilometers) of stream devoid of aquatic life. Figure 10 shows the AMD impaired main stem of the Bennett Branch prior to restoration. Figure 11 shows some unreclaimed AML located on State Game Lands in the Dents Run Watershed which is a significant tributary to the Bennett Branch.

The primary objective of the Bennett Branch Restoration Project was to develop and implement a detailed mine drainage abatement and abandoned mine reclamation plan. The goals of the plan were to restore water quality in the main stem of the Bennett Branch, improve water quality in the AMD impacted tributaries, and maximize the reclamation of AML throughout the watershed. The plan included a combination of surface reclamation and both active and passive

mine drainage treatment. Limestone reserves within the project area provided an opportunity to incorporate alkaline addition in the surface reclamation. Mineable reserves of Upper and Middle Kittanning Coal within the limestone extraction area provided an opportunity to partner with the mining industry in project implementation. The remining was conducted under a demonstration permit authorized under Project XL, an experimental permitting process cooperatively developed by EPA, OSM, and the PA DEP to both facilitate remining and highlight its benefits. The restoration work was also pursued in conjunction with the PA Wilds Initiative which advocates economic development and tourism throughout north-central Pennsylvania. Figure 12 shows an aerial view of remining operation that provided limestone for other reclamation sites in the Bennett Branch Watershed.

Figure 10. AMD impacted main stem of the Bennett Branch prior to restoration.

Figure 11. Unreclaimed AML site with dangerous highwalls located on State Game Lands in the Bennett Branch Watershed prior to restoration.

Figure 12 – Aerial view of the remining operation that provided limestone for alkaline addition for surface mine reclamation sites in the Bennett Branch.

The project included reclamation of over 800 acres (324 hectares) of AML, much of which was restored to rangeland for PA's growing elk herd. Figure 13 shows elk grazing on one of the reclaimed surface mine sites. Additionally, five passive mine drainage treatment systems and two tipping bucket lime dozers were constructed to treat abandoned mine discharges throughout the watershed. Work on the project was completed in 2012 with the Hollywood AMD Treatment Plant, which treats an average of 2,000 GPM (7,571 LPM) or 2.9 MGD (10.9 million LPD) of AMD, being the single biggest project. The Hollywood Plant treats 21 separate AMD discharges at a centralized location which originate from four separate abandoned underground coal mine complexes. Figure 14 shows an aerial view of the Hollywood AMD Treatment Plant. The number and severity of the AMD discharges located within the watershed made a "total clean up" to federal CWA standards cost prohibitive. The level of treatment was designed to allow for the biological recovery of the Bennett Branch to support a sport fishery. The project costs for this public-private partnership, which approached $45 million, were split with industry bearing approximately 15% of the total project cost, federal agencies providing approximately 10%, and state/local sources providing the remaining 75%. Water quality has been significantly improved to the point where, beginning in 2013, fish are now being stocked in the main stem of the Bennett Branch and fish have returned to the Dents Run tributary for the first time in roughly 100 years. In addition to restoration of the main stem of the Bennett Branch, the project allowed for the reconnection of numerous high-quality tributaries which facilitated that rapid biological recovery of the watershed. Figure 15 shows the main stem of the Bennett Branch following restoration. One of the project's primary partners, the Bennett Branch Watershed Association, applied for and received EGSA approval for several of the passive mine drainage treatment systems constructed as part of the overall watershed restoration effort. The PA DEP developed a short documentary about the project which is posted on the Department's YouTube channel and can be viewed at the following web link: https://www.youtube.com/watch?v=xERv4sYgyLY.

Figure 13. Elk grazing on a reclaimed AML site in the Bennett Branch.

Figure 14. Aerial view of the Hollywood AMD Treatment Plant.

Figure 15. Main stem of the Bennett Branch following restoration.

Fall Brook AMD Treatment System Project, Tioga County, PA

As recently as 2015, the Tioga River from the confluence of the Fall Brook tributary did not support aquatic life. The devastation of the river's water quality is the direct result of AMD pollution. Some of the more heavily polluted tributaries have pH levels similar to battery acid. *The Watershed Assessment and Remediation Strategy for Abandoned Mine Drainage in the Upper Tioga River Watershed*, compiled by the Susquehanna River Basin Commission (SRBC), documented the AMD pollution and provided recommendations for corrective action. The Upper Tioga River Watershed, which encompasses 280 square miles (725 square kilometers) in northcentral Pennsylvania, is part of the Susquehanna River and Chesapeake Bay watersheds. The Tioga River begins as a small stream on Armenia Mountain in Bradford County. It flows southwesterly until it reaches the Blossburg area where it turns north, ultimately flowing into New York State where it joins the Cohocton River to form the Chemung River. The Chemung River crosses back into Pennsylvania and joins the Susquehanna River near Sayre, PA.

From its confluence with the Fall Brook tributary to the US Army Corps of Engineer's Tioga/Hammond Dam Complex, the Tioga River is acidic with excessive concentrations of iron,

manganese and aluminum with little to no aquatic life. The Fall Brook tributary was listed by the PA DEP as a regional watershed priority because of the severe impacts from AMD, and its location in the Susquehanna River Basin, which serves as a major water source for the Chesapeake Bay. Fall Brook is the first of four major tributaries contributing to AMD pollution in the Tioga River that has left approximately 13 miles (21 kilometers) of the river void of aquatic life. Treatment of the Fall Brook discharge resulted in approximately two miles (3.2 kilometers) of Fall Brook and three miles (4.8 kilometers) of the Tioga River being restored to a condition that can support stocked trout populations. It also reduces AMD pollution loads in the mainstem of the river all the way to the Tioga/Hammond Dam complex and lays the groundwork for future reclamation projects. Figure 16 shows the Fallbrook AMD discharge, and Figure 17 shows the AMD impacted main stem of the Tioga River upstream of the Tioga/Hammond Dam complex.

Figure 16. Fallbrook AMD Discharge – Ward Township, Tioga County.

Figure 17. Iron-stained rocks in the AMD impacted main stem of the Tioga River downstream of Fallbrook Run prior to restoration.

A coalition of state agencies and non-profit organizations enlisted the help of Southwestern Energy Company (SWN), the fourth largest producer of natural gas in the continental U.S. (at the time they became involved in the project), to treat AMD in the Fall Brook tributary of the Tioga River. The coalition includes the Tioga County Concerned Citizens Committee (TCCCC), Hillside Rod and Gun Club, Tioga County Conservation District, PA Department of Conservation and Natural Resources, PA Bureau of Forestry-Tioga State Forest, PA DEP, SRBC, Trout Unlimited, Ward Township and Blossburg Municipal Authority. In 2014, SWN, through their Energy Conserving Water (ECH2O) initiative agreed to fully-fund and oversee the construction of two separate passive treatment systems in the vicinity of River and Welch Mountain Roads in Ward Township on behalf of the coalition. Funds were also contributed by SWN to establish a trust dedicated to funding ongoing operation and maintenance of the treatment systems. Southwestern Energy was comfortable enough with PA's EGSA that they provided all the funding needed for the design, permitting, construction, and long-term O&M trust fund for a passive treatment system.

The treatment systems went on-line in November of 2015, restoring approximately two miles (3.2 kilometers) of Fall Brook and three miles (4.8 kilometers) of the Tioga River to conditions that support stocked trout populations. Wild Brook Trout have been seen in this section of the river as well. Two separate passive AMD treatment systems were constructed. One system addresses three smaller AMD discharges on the north side of River Road and the other treatment system treats a single large AMD discharge on the south side of River Road. Figure 18 shows photos of the Fallbrook passive AMD treatment system.

The approximate cost of this project (including establishment of the O&M trust fund) was $2.7 million. These treatment systems consist of drainable limestone beds and polishing ponds. A solar powered automatic flushing system was installed to automatically flush the limestone beds and remove contaminants that build-up over time. The treated water is ultimately discharged back into Fall Brook above the Fall Brook Falls. Water samples taken below the falls indicate a significant increase in pH from 3.6 to 7. Increasing the pH is only one component of the water chemistry that impacts the ability of fish and macroinvertebrates to survive. Aluminum, iron, and manganese levels are also critical and have been reduced as a result of the treatment project. The treatment systems are situated on PA-Bureau of Forestry property; the Tioga County Conservation District oversees the Trust; and the Blossburg Municipal Authority has been contracted to perform the O&M work. The Tioga County Concerned Citizens Committee (TCCCC), on behalf of all of their partners, received the 2016 PA Governor's Award for Environmental Excellence for this project.

Southwestern Energy developed a short documentary about the Fallbrook AMD Treatment System project which is posted on YouTube and can be viewed at the following web link:

https://www.youtube.com/watch?v=Z6PGvr1sL_s.

TCCCC also developed a video which is posted on their organization's website and can be viewed at the following link:

http://tcccc-inc.org/tioga-river-video-2/.

Figure 18. The Fallbrook Passive Treatment System.

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