Eastern PA Coalition for
Abandoned Mine Reclamation

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RE: *Legislative Hearing- "Abandoned Mine Land Reclamation: Innovative Approaches & Economic Development Opportunities" before the Subcommittee on Energy and Mineral Resources*

Chairman Raul M. Grijalva of Arizona
Ranking Majority Member Rob Bishop from Utah
Ranking Minority Member Paul Gozar from Arizona
Representative Alan S. Lowenthal, Chair of the Subcommittee on Energy and Mineral Resources
Members of the US House of Representatives Committee on Natural Resources

Good morning, my name is Robert E. Hughes, Executive Director, of the Eastern Pennsylvania Coalition for Abandoned Mine Reclamation (EPCAMR). I am accompanied here today by my very close colleague and Program Manager, Michael A. Hewitt. I appreciate the opportunity to testify before the Subcommittee this morning.

On behalf of EPCAMR, I would like to thank you all for allowing me, a native son of the City of Wilkes-Barre, located in the Wyoming Valley, working primarily in the heart of the Anthracite Coalfields, to speak before the Committee. It is an honor and a privilege to be a grassroots representative and community organizer from the Anthracite Coal Region and the "Valley with a Heart". I have spent my entire professional career, in the field of abandoned mine reclamation and coalition building, and am honored and humbled to present before the Subcommittee some of my thoughts at this legislative hearing focused on *"Abandoned Mine Land Reclamation: Innovative Approaches and Economic Development Opportunities".*

EPCAMR

EPCAMR is a regional, environmental educational, scientific, technical and non-profit, organization whose mission is to encourage the reclamation and redevelopment of land and remediation of polluted mine water affected by past mining practices. This includes reducing hazards to health and safety, elimination of soil erosion, improvement of water quality, and returning land to productive use, thereby improving the economy of our region. EPCAMR has more than 20 years of experience in working on abandoned mine reclamation issues throughout an area in northcentral and northeastern PA. We serve an area with a population of nearly 1 million people throughout the coalfields of Northern Appalachia. We have 114 underserved, poverty-stricken school districts in our service area. Throughout Appalachia, an estimated 5.5 million people and at least 2.7 million people in PA live within 1 mile of an abandoned mine land.[1]

Northern Appalachian AML Legacy Impacts from Past Mining Practices

Not everyone realizes that PA is a part of northern Appalachia. Northern Appalachia, including the Bituminous Coal Region that stretches from the far southwestern corner of PA to the Marcellus Shale region of northcentral PA and contains the largest Anthracite deposits in four major coalfields that encompass a 484 sq. mile area. Since coal was first discovered in the Anthracite Region over 250 years ago, approximately 18 billion tons were extracted from the Earth. Our coal regions are scattered with health and safety hazards, environmental degradation, polluted mine water, and poverty-stricken environmental justice communities. Significant damage to our region is often not clearly visible until you fly over the region in an airplane and take a look out the window. It's just different in contrast in many ways to our Central Appalachian partners who are dealing with mountaintop mines, valley fills, and long wall mining issues. However, all of our communities are in need of more diversified economic, social, environmental, and recreational opportunities.

Mine fires, abandoned mine drainage (AMD), mine subsidence, hazardous abandoned vertical shafts and slope openings, flooded mine pools, contaminated water supplies, water-filled stripping pits, contaminated soils, ash piles, culm banks and coal refuse mountains--not just piles, vertical high walls, waste coal silt basins, and abandoned colliery grounds and foundations, are some examples of the legacy of past mining practices that have hindered economic development opportunities. Our culm banks or gob piles, are often mistaken by those who pass through the region as mountains because they have birch or poplar trees growing on them in the acidic soil conditions and don't really comprehend the scale of the problem that we face. The projected costs of reclamation, abatement, and remediation are substantial and many of our smaller municipal communities lack the capital financial resources, ability to leverage multiple sources of funding, and infrastructure investment opportunities. Simply put, are looking for better opportunities, jobs, workforce development, and reclamation funding to significantly improve our quality of life and our surrounding environment.

I should know. I have lived in the center of the Northern Coalfields for the majority of my entire life among the shadows of all of these abandoned mine features. In 2018, I had the opportunity to co-author *Chapter 4. Returning Orange Waters to Blue: Creating a Culture of Civic Engagement through Learning Experiences* in a Cornell University Press book, entitled *Grassroots to Global: Broader Impacts to Civic Ecology*[2]. It highlights an international group of scholars and stewards exploring the broad impacts of civic engagement with the environment discussed and addressed participatory, transdisciplinary approaches to local stewardship of the environment. I was invited to participate and tell my story of what led me to my career path and how my life experiences growing up in the coalfields impacted my decisions to pursue my passion for the protection, restoration, and uplifting of our past mining impacted communities that have wicked problems.

EPCAMR and many of my colleagues, have dedicated our professional lives to making a difference focusing deeply on reclamation, remediation, education, and watershed restoration projects. We explore every opportunity for creative projects, ideas, collaborations, public-private partnerships, investment opportunities, and environmental action. Thousands of community volunteers and leaders work alongside of us. We are also determined not to let the deleterious impacts of abandoned mine-scarred lands and water pollution continue to degrade our quality of life. We've come up with innovative solutions from within our communities, yet we are at an extreme disadvantage in not having access to the resources and financial means to fully implement our ideas with enthusiasm and confidence. We don't deserve to have to wait any longer for clean streams,

green spaces, vibrant and diversified regional economies, and communities in which our children can safely recreate, live, work, and play. We want to continue to revitalize and revive our communities so that people want to stay and raise their families.

The Need for Reclamation is Bipartisan When It Comes to the Unreclaimed AML Inventory

For example, PA's 8th Congressional District, represented by the Honorable Matt Cartwright, is in the heart of the Northern Anthracite Coalfields of Luzerne County. It is plagued by 322 unreclaimed sites, 44 reclaimed sites, 1 active reclamation project, 1,615 unreclaimed features (63.9%), 913 reclaimed features (36.1%), for a total of 14,267 unreclaimed acres, 6,414 reclaimed acres, and 192 miles of AMD-impacted streams according to EPCAMR's PA Congressional District AML Inventory GIS Map[3]. Some of the most notable unreclaimed AML features of PA's 8th Congressional District include Old Forge Borehole and the Jeddo Mine Tunnel, (2 of the largest discharges in PA by flow volume), Duryea Breach, Plainsville Borehole, Solomon Boreholes, Askam AMD.

PA's 15th Congressional District, represented by the Honorable Glenn Thompson, is in central and western PA's Bituminous Coalfields. It is plagued by 2,649 unreclaimed sites, 75 reclaimed sites, 5 active reclamation projects, 13,673 unreclaimed features (83.8%), 2,637 reclaimed features (16.2%), for a total of 91,387 unreclaimed acres, 17,568 reclaimed acres, and 2,706 miles of AMD-impacted streams according to EPCAMR's PA Congressional District AML Inventory GIS Map[4]

PA is effectively riddled with abandoned mine lands and AMD sites that need to be cleaned up with continued bipartisan support since these landscapes and waterways show no concern for Congressional or municipal boundaries. In Northeastern PA, where the majority of the reclamation and AMD remediation needs to occur, we have to address the Chesapeake Bay restoration goal deficiencies, it is even more dire to work with PA partners at all levels to reclaim 14,562 acres of mining impacted areas by 2025, under the Chesapeake Bay Watershed Implementation Plan. There are an estimated 1,900 AML Problem Areas, 10,400 unreclaimed features totaling 73,080 acres and 2,290 reclaimed AML features totaling 13,140 acres, along with an estimated 1,920 stream miles impacted by AMD in the Chesapeake Bay Watershed. EPCAMR would like to thank both Honorable Congressmen for their bipartisan leadership over the years because we know they have seen witnessed, first-hand, the effects and impacts that these environmental scars have caused within their old and new Congressional Districts.

Benefits of Reclamation of AML

Perhaps most visibly, reclamation of abandoned mine lands can add to the economies of many of our regions by creating jobs, which generates increased tax revenue for the local municipalities, school districts, and county tax departments. But there are many ancillary benefits of AML reclamation including the increase of property values, increase in the sense of community pride, providing buildable sites for commercial, industrial, warehouse distribution, recreational, or residential development, increasing public health and safety by removing hazards, and providing stream-based recreation opportunities which may decrease stress-related health concerns.

Diverse Partnerships in the EPCAMR Region Lead to Successful Reclamation

EPCAMR works closely with the Earth Conservancy (EC) on their mission and accomplishments. They are another regional reclamation partner in Northeastern PA. They have processed waste culm

materials from 1995-2016 in the amount of 8,053,000 Tons that were recovered for electricity usage that improved 570 acres on 7 projects alone. At a 40% recovery rate, 20 million Tons of culm and coal waste have been processed. Future work on the West End Bank, near Mocanaqua, PA, will reclaim another 3,500,000 Tons on 300 acres of abandoned mine lands , in the southern tip of the Northern Coal Fields. EC has reclaimed AML lands that have been recently sold to private companies that have come in to the area and sold the properties to major warehouse distribution companies like Chewy, Adidas, DHL Supply Chain Logistics to bring thousands of jobs to the area.

EC has promoted the redevelopment of our Valley in Northeastern PA where the existing infrastructure was already in place, such as sewer, water, gas, electric, telecommunications, wireless technology, fiber optics, and rail access. They have extended them into these former abandoned mine lands to create economic development and job opportunities. They have planted trees, created job opportunities, supported the incorporation of green infrastructure landscaping designs that controls stormwater runoff and incorporates it into on-site water conservation practices on the abandoned mines as a part of the reclamation process, built from within the abandoned mines. EPCAMR supports EC applications for grants and works with them to introduce new businesses who come to the region to locate about the opportunities and possibilities to collaborate on local environmental stewardship and restoration projects.

ARIPPA Facilities' Contribution to Reclamation

In PA's inventory of waste coal piles sites maintained by the PA DEP's Bureau of Abandoned Mine Reclamation (BAMR), approximately 820 waste coal banks covering 9,500 acres still remain unreclaimed. 50 of them are actively burning, like the well-known mine fire in Centralia, PA. The estimated volume of waste coal in these banks is over 224,000,000 cubic yards of material, suitable for burning in a co-generation plant, like those of the ARIPPA trade association. Over 5,000 acres of mine-scarred lands were reclaimed by the ARIPPA plants across PA, at no cost to PA taxpayers. Through ARIPPA's reclamation efforts, streams recover, property values increase, and the reclaimed land is available for higher uses and can often become taxable parcels, bringing in much needed, local taxes to coalfield communities with a stagnant tax base.

Circulating Fluidized Bed (CFB) technology allows ARIPPA member plants to convert low BTU coal refuse into electricity, thereby abating AMD from coal refuse stockpiles. By converting coal refuse into alternative energy, ARIPPA members are removing one of the principal sources of contamination to surface and groundwater in legacy coal mining regions. Further, an alkaline-rich by-product of CFB is used, as a soil amendment, as well as in concrete and asphalt, at no cost to taxpayers. Through soil amendments, trees, grasses, and wildflowers, are reestablished, reducing sediment and erosion into the local waterways.

ARIPPA's member facilities constitute the overwhelming majority of the coal refuse power production industry in the world generating approximately 10% of the total electricity in the PA/West Virginia region. The unique nature of ARIPPA's environmental efforts combined with the desire to coordinate these efforts with "hands on" environmentally oriented groups, like EPCAMR, and governmental agencies symbolizes its commitment to improving our Commonwealth's landscape and environment at no expense to the taxpayer.

To date several hundred million tons of coal refuse have been converted into alternative energy by member ARIPPA plants. Circulating Fluidized Bed (CFB) technology, one of the cleanest methods

available today, has been used to convert coal refuse into electricity and an alkaline-rich ash by-product utilized for decades in a highly regulated, safe, and beneficial manner to fill and reclaim unsafe, abandoned mine lands; to remediate streams damaged by AMD; amend soil at mining sites, and serve as an additive in concrete/asphalt for construction and roadways.

ARIPPA's 2016 Economic and Environmental Analysis of PA's Coal Refuse Industry Final Report[5], analyzed the economic and environmental benefits of the 14 plants comprising the PA coal refuse energy industry and showcases the value and public benefits of the waste coal industry.

A Seat at the Table with Private Partners to Leverage AML Funds & Accelerate Development

EPCAMR believes that there is a definite need to coordinate with county level economic development and redevelopment authorities, Utility companies, Alternative Energy companies, Industrial water users, Chambers of Commerce, Industrial Development Authorities, Small Business Development Centers, and private sector investors to leverage State and Federal abandoned mine land funds. These partnerships can lead to a reduction in the overall project costs coming from one source of funding and can spur economic development of the re-use of the AMD, the flows from the underground mine pool complexes, and the reclamation of the abandoned mine lands surrounding these non-point source discharges of water pollution. In order to accelerate the reclamation of these abandoned mine lands, we need to be sitting at the table more often with these entities to share with them the funding opportunities that are available to make the development of the lands more attractive and economically feasible.

Multiple Sectors Identified as Areas of Economic Improvement

EPCAMR sees the following sectors as areas of economic improvement: agriculture, alternative energy, recreational tourism, community recreational use, solar panel farms, hemp farms, bee-keeping, silviculture, greenhouses, electrical generation from wind farms, hydroelectric potential, geothermal energy, resource recovery of metals, consumptive use, and low-flow augmentation. EPCAMR encourages private, public, and entrepreneurial partnerships to look closely into these business sectors that have the potential to lead to a complete diversification of the local economies historically built around coal.

AMD Remediation, Infrastructure, and Economic Development

EPCAMR believes that we need to talk about remediation and the improvements to water quality from abandoned mine discharges (AMD) in a different light and opportunity, aside from land reclamation. AMD remediation is like comparing apples to oranges when it comes to calculating expenses. It is not determined the same way as abandoned mine land reclamation costs. Active treatment versus passive treatment cost scenarios for cleaning up polluted mine water are very different (See *AMDTreat software*). We need to have the foresight to build into the development of water-related economic development projects, the operation, maintenance, rehabilitation, and repair costs over the life of the treatment system infrastructure. We have found this out the hard way in PA.

Economic development focused on alternative productive and profitable uses of AMD need to be a part of our discussions. We need to highlight what the alternative economic development opportunities can be when the private sector funding can complement State, Federal, County, Corporate, Municipal, and or Foundation support. For example, under the leadership of former

Chairman Bishop, under this Subcommittee, the RECLAIM Act, as it was reported from this Committee, Priority 3 (AMD) and other associated environmental problems would have benefitted from an increased amount of AML funding that could be used to address these lower priorities in our States, with the term “lower” being subjective. Uncertified states like PA, could have used up to 30% of their State or Tribal Share and Historic coal share distributions for AMD remediation and abatement work.

AMD, Mine Pool Reuse, and Alternative Energy Projects

There are many innovative remediation ideas that investment for further development include: Alternative energy projects that reuse AMD, consumptive use, low-flow augmentation, low-head hydroelectric generation, pump storage, geothermal systems, aquacultures, greenhouses, heating, ventilation, air conditioning, resource recovery of rare earth metals, resource recovery of trace metals (iron, aluminum, manganese, etc.), pigment manufacturing, pottery glaze additives, additives as a co-product in permeable pavers additives, concrete additives, and iron oxide uses in other markets with high-end commodity values).

EPCAMR Iron Oxide and Art Resource Recovery Efforts

EPCAMR has been recovering iron oxides for nearly 20 years in small 5 gallon buckets to dry, process, for use as a pigment in multiple artistic mediums such as water colors, wood stains, fabric dyes, paints, oils, chalk, and pottery glazes. We’ve had entire art shows with regional art galleries like the Wyoming Valley Art League, Verve Vertu, and the Artist for Arts (AfA) Gallery. We have environmental groups, artists, potters, and teachers from 8 states from across the country to utilize our iron oxides in positive ways that we dry, package, and ship. We have dyed over 25,000 t-shirts with youth of all ages in our coalfield communities as a part of our environmental education and outreach programs. Iron oxide resource recovery is central to our outreach and awareness efforts throughout our region.

EPCAMR has also worked with the International Hexagon Project to develop an Iron Oxide & Art Education Curriculum that is being provided to many school districts within our region.

EPCAMR MOU with the OSMRE Technical Innovation & Professional Services (TIPS) Program

EPCAMR is one of the only, non-profit partners in the Anthracite Region to have a long-standing Memorandum of Understanding with the OSMRE TIPS Program. This partnership allows us to be trained by the OSMRE Staff. We are developing innovative 3D Mine Modeling of Eastern Pennsylvania Anthracite Mine Pools in earthVision to improve water quality restoration and AMD Treatment in the Susquehanna River Basin and Chesapeake Bay watershed. Our partnership allows us to utilize ArcGIS, 3D earthVision, and Global Mapper software tools to perform this work. Other states should consider building a similar partnerships with their leading community non-profits to help to create innovative mapping of their coalfields, surface, and underground mine workings to gain more localized knowledge and a more comprehensive hydrogeological understanding of the interconnection between land and water.

Water Quantity, Quality, and Potential Usage from Underground Mines in the Western Middle & Southern Anthracite Coal Fields of Eastern PA

EPCAMR and a team of experts from the PA Department of Environmental Protection's (PA DEP) Pottsville District Mining Office and Bureau of Abandoned Mine Reclamation (BAMR), the United States Geological Survey (USGS) Pennsylvania Water Science Center, and the Office of Surface Mining Reclamation and Enforcement (OSMRE) Appalachian Regional Office completed a 4-year in 2011 of the study of water quantity, quality, and potential usage from underground mines in the Anthracite Coal Region. A majority of this report[6] was funded by a Growing Greener grant from PA DEP and a grant from the Foundation for Pennsylvania Watersheds. The objective determined the immediate and long-term availability (quantity and quality) of mine water resources in the Western Middle and Southern Anthracite Coal Fields of Eastern PA.

The project involved the compilation, evaluation, and synthesis of data on the hydrogeology of flooded underground coal mines. Information maintained in paper files by State and Federal authorities was digitized and combined with other available data to develop a comprehensive Geographic Information System (GIS) database, containing the locations, topographic elevations, water-level elevations, flow rates, and water quality in wells, boreholes, AMD sources, and associated stream reaches throughout the region. Additional data on the locations of coal outcrops, barrier pillars, and mine boundaries were included in the GIS database. This data was used to evaluate and delineate horizontal and vertical boundaries in order to estimate corresponding current flooded volumes for the major mine pools, also known as Multi-Colliery Hydrogeologic Units (MCHUs). The associated recharge area(s) and primary discharge points for each of the major mine pools were identified using digital topographic and underground mine maps and aerial photography.

Anthracite Mine Pool Mapping for the Southern and Northern Coalfields

In 2014, EPCAMR, along with the Susquehanna River Basin Commission, began the challenging process of trying to map in 3D the underground mine pool complexes of the Northern and Southern Anthracite Coal Fields.

18 Billion Tons of Anthracite coal have been removed from our region. This volume, not including surrounding rock to get to the coal, represents empty voids that now exist above and below groundwater level. If these voids existed below the groundwater level, they began to flood producing vast reservoirs of water held under the ground of varying chemistry. Coal companies would pump water from the mines to continue to mine deeper into the ground. Although there were many factors that lead to the demise of underground coal mining in the Anthracite Region, one important factor was tied to simple economics: the cost to pump versus the market value of coal. Pumping of the water was costly. Eventually, deep mines were abandoned and the water began to fill up and discharge to the surface.

EPCAMR has built on previous investigations to locate and quantify large volumes of water existing in underground mine voids, known as mine pools, in the Southern and Northern Anthracite Coal Fields of Eastern PA. When pairing mine water treatment with the ability to control the amount of water coming out of the mines, large flushes of stormwater that would normally escape untreated, could be retained, later treated and released in times of low water or drought conditions.

The complex geologic setting and historical mining of the Anthracite mine pools creates a challenge to calculate the volume of water stored within the underground mines. This mapping effort has reasonably found that an estimated 9 Billion gallons reside in storage in 10 mines in the Southern

Field and approximately 435 Billion gallons in all the Northern Field. These mine pool water volumes are an untapped in PA and it's about time we start looking at it as resource and not a pollutant.

Anthracite Region AMD Remediation Strategy with the Susquehanna River Basin Commission (SRBC) & Lackawanna River Conservation Association (LRCA)

EPCAMR worked with the SRBC and the Lackawanna River Conservation Association (LRCA) to focus on the lower Lackawanna River watershed, particularly at the Old Forge AMD Borehole and the Scranton-Metro Mine Pool complex in the Northern Anthracite Coal Field. The Old Forge Borehole is the largest AMD discharge in the Susquehanna River and Chesapeake Bay Watershed and quite possibly the largest AMD source in the Eastern U.S. by volume. 100+/- cubic feet per second.

Through our combined efforts, the discharge flow has been quantified and the iron loading was calculated, and a Lower Lackawanna Watershed Assessment and Restoration Plan[7] was completed in 2012. In 2011, we completed the Anthracite Region AMD Remediation Strategy[8].

The mine pools are viewed as both a blessing and a curse. The blessing is the potential availability of the billions of gallons of water and high volumes of AMD in the mine pools as resources for present and future use. The metal precipitates, such as iron oxide and aluminum oxide, have a potential market, once separated from the water. A cost/benefit analysis can be run on individual mines to determine feasibility and possible profit-potential for private sector investment. General framework concepts related to future economic redevelopment opportunities include mine pool re-use, underground storage, water withdrawal requests, AMD treatment, industrial water usage, hydroelectric potential, resource recovery of metals, and fisheries recovery. Extensive groundwater pollution and 5,567 miles of streams degraded by AMD are the curse of more than 250 years of coal mining. It is unknown how long it will take for all the pyritic material to leach and drop out from any given underground mine.

A Decade of Progress for the West Branch Susquehanna River Initiative: TU Eastern Abandoned Mine Program

I have referenced a 10-year report[9] (2004-2014) that Trout Unlimited's Eastern Abandoned Mine Program authored covering AMD remediation success for the West Branch Susquehanna River basin that includes multiple success stories from a number of different entities across the watershed. TU's Eastern Abandoned Mine Program also produced another valuable report entitled, Cleaning Up Abandoned Mine Drainage in the West Branch Susquehanna Watershed Program Summary: Why It Makes Economic Sense[10], in 2008.

AML Reclamation and Off-site Job Generation Report

The Foundation for PA Watersheds AML Reclamation and Off-site Job Generation Report[11] from 2017 provides some insight to the jobs multiplier that occurs when reclamation projects occur that are not often counted. These are just the jobs created in our small non-profit office. The jobs created through abandoned mine land reclamation and AMD remediation are incredibly diverse and include the construction industry, equipment and materials, suppliers, academia and research institutions, engineering, land surveying, legal consultants, recreation outfitters, and the community businesses such as restaurants and gas stations that support it all. For those not directly involved in reclamation, it may be easy to view the process as strictly environmental. In actuality, many additional sectors,

project services and categories are involved in abandoned mine reclamation and AMD remediation projects, that are off-site. In fact, a PA Department of Environmental Protection Bureau of Abandoned Mine Reclamation (DEP BAMR) Contractors' List of vendors expressing interest in reclamation or associated with reclamation totaled more than 600 companies.

Trout Unlimited's Eastern Abandoned Mine Program also created a report[12] in 2016 prepared by () Downstream Strategies and West Virginia University on the retention of jobs regarding operation and maintenance at AMD passive treatment systems across PA.

Job Creation Opportunities

There are job creation and workforce development opportunities in the coalfields that are directly related to AML and AMD remediation. EPCAMR has many examples of job opportunities in place with our existing Staff. They include: Field Technicians who assess and monitor rivers and streams and sample AMD; Water Pollution Biologists who sample and survey rivers and streams for aquatic ecosystem health and fishery value; Visual Habitat Assessors of rivers and stream corridors for determining impacts to land prior to designing and implementing a watershed restoration plan; Culvert assessors for aquatic organism passage and stream restoration on abandoned mine lands (); Technical Assistance Providers to local governments and municipalities to navigate for municipal stormwater under MS4 Permits that lack resources; Environmental Educators; Urban Outreach Coordinators to build capacity from within the coalfield communities; 3D Surface and Underground Mine Mapping Modelers and Developers; Watershed GIS Outreach Technicians and Specialists that can catalog, scan, geo-reference, digitize, map, and interpret surface and underground mine; Community Development Organizers and Grant Researchers to seek additional funds and funders to pull viable projects together within the coalfield communities; Program Managers to oversee reclamation, dam removal, natural stream channel design, and habitat restoration projects; and Green Infrastructure Planners for aiding municipal officials on the best management practices to reduce flooding, control runoff, and soil erosion from abandoned mine lands.

Earth Conservancy's Environmental Workforce Development Training Program Partnership Success Story

One of our partners, the Earth Conservancy, has just received the PA Governor's Award for Environmental Excellence for their Environmental Workforce Training (EWT) Program helping to secure jobs in several public and private sectors that are related to abandoned mine land reclamation and AMD remediation.

The EWT Program provides a comprehensive and realistic 205 hour curriculum to participants seeking to enter an environmentally-oriented career in the Wyoming Valley, Luzerne County, PA. The curriculum, designed by a team at Penn-State Wilkes-Barre.

Strong partnerships are the cornerstone of the EWT Program, chief among them are Penn State Wilkes-Barre's Surveying Engineering Department and Office of Continuing Education. As a project partner for the last 2 years, EPCAMR Staff taught two dozen students to interpret surface and underground mine maps and aerial and topographic maps, practice orientation skills, perform basic environmental assessments, and operation of field equipment for AMD monitoring and flow monitoring. All the students were either unemployed, displaced workers, veterans, not currently

working in their field of interest, lacked internship experiences, or were looking to increase their technical skill sets and certifications to increase employability.

Other partners include the Luzerne/Schuylkill Workforce Investment Board, Lackawanna County and Pocono County Workforce Development Boards, Northern Tier Regional Planning Development Commission, Outreach (formerly EOTC), and EPCAMR. Many local engineering firms also contributed to the grant proposal, offering program comments, and agreeing to participate in coursework and interviewing of program graduates. In 2019, the PPL Foundation awarded EC a sustaining grant to support the EWT Program.

Upon graduation, participants will have skills and certificates that can lead to careers in engineering, construction, remediation, environmental cleanup, GIS, and more. Students obtain 3 federal certificates (HAZWOPER 40, OSHA 10, and First-Aid), a professional resume, references and/or letter of recommendation, job placement assistance, and an opportunity to become an EPCAMR volunteer that could lead to an internship or future employment opportunities.

AML Pilot Program and Success Stories

Congress authorized AML Pilot Program funding for PA for FY 2017 and FY 2018. The 2017 AML Pilot Program was authorized by Congress under the Consolidated Appropriations Act, 2017 (Public Law 115-31) and provided an additional $25 million of US Treasury Funds to PA's AML Program. The 2018 AML Pilot Program was authorized by Congress under the Consolidated Appropriations Act, 2018 (Public Law 115-141) and provided an additional $25 million of US Treasury Funds to PA's AML Program for reclamation of AML in conjunction with economic development and community revitalization.

The successes of the two previous years are found on the PA DEP Bureau of Abandoned Mine Reclamation's webpage, many of which are from PA. EPCAMR would like to see an increase in the AML Pilot Program for FY19-20. EPCAMR would also like to thank Congress for including the funds for the AML Pilot Program over the past 4 years. Congress' leadership together with the flexibility given to the States to be creative with their local partners have provided a great number of examples of successfully completed economic development projects on abandoned mine lands. EPCAMR believes that PA has proven that AML reclamation immediately created jobs for many, including coal miners in transition from that lost their jobs within the industry, and created long-term economic opportunities as coal in PA has taken a downturn with mines that have closed.

EPCAMR's Swoyersville Refuse Reclamation & Community Athletic Area AML Pilot Project

EPCAMR was awarded a $4 million PA AML Pilot Program project for the reclamation of the former Harry E. Colliery Swoyersville Refuse Reclamation in July 2018, which is leveraging an additional $8 million from Keystone Reclamation Fuels Management, LLC and Olympus Power. EPCAMR prepared the application and assisted in bringing together a coalition of partners from the private sector, two Co-Generation Plants, a local Coal Company, the local State Representative (Aaron Kaufer) and State Senator (John Yudichak) who were both in support of the projects, the Governor's Office, several municipalities (Swoyersville Borough and Forty-Fort Borough) within the Abraham Creek watershed, where we had completed a Coldwater Conservation watershed assessment Plan that recommended the abandoned mine lands be reclaimed.

Phase 1 of the project will include the reclamation of 15 acres of an abandoned mine land problem area. 500,000 Tons of waste culm will be removed and used in electricity generation. The pile is one of the largest remaining waste culm piles in the Wyoming Valley with an additional 3.5 million Tons of waste culm at material that is being proposed to be reclaimed in future phases of reclamation should funding become available and allocated. (*See drone aerial video footage of the site -Harry E Bank Reclamation PA AML Pilot Project Video, Swoyersville Borough, Luzerne County, PA*). The pile is one of the largest remaining waste culm piles in the Wyoming Valley with an additional 3.5 Million Tons of waste culm material that is being proposed to be reclaimed in future phases of reclamation should future funding be allocated. 7 acres will be converted into a recreational community athletic area and greenspace. The area will be donated by the Coal Company to Swoyersville Borough, to be utilized by the Swoyersville Borough community and surrounding youth sports leagues.

SMCRA Statistics for PA

Statistics on PA's Surface Mining Control and Reclamation Act (SMCRA) Title IV funded Abandoned Mine Land (AML) Program[13] are attached. As of September 30, 2018, PA's AML Inventory includes 5,597 Problem Areas with 33,965 abandoned mine land features. An estimated $5 Billion worth of unfunded problems still remain, while $670 Million worth of problems have been completed.

EPCAMR Support for the Reauthorization of SMCRA and the Extension of the AML Trust Fund through 2036

The scope of the abandoned mine land and water problems continue to exhaust available resources, and the Abandoned Mine Land (AML) Trust Fund has been impacted over the years by sequestration, leading to even less funding being distributed for reclamation and water restoration to PA and other States and Tribes across the country. PA has the highest number of abandoned mine lands and AMD impacts nation-wide remaining in the e-AMLIS Inventory. Public health and welfare, restoration of the land, and cleaning of polluted streams require Congressional action. As the sunset of SMCRA is just a few years away, EPCAMR is fully supportive of an extension of the AML Trust Fund through 2036 and does not want to see it end in 2021. We respectfully ask that Congress acts now and begins thinking about reauthorizing the Abandoned Mine Land Reclamation Trust Fund fee collection.

EPCAMR would like to see the fees restructured to 1977 historic levels for both underground and surface coal mining. EPCAMR supports increasing the Minimum Program State funds to $5 Million annually since it doesn't impact the payouts to other States. These states could use the funding to speed up their progress because they are required to also use the funds for emergency projects. Historic problems from underground mines account for more damage than from past surface mining. EPCAMR would also like to have the Title IV grants under SMCRA exempt from sequestration. The only way to end sequestration of these funds is to include it in legislation. The SMCRA Title IV AML Trust Fund Program is funded through fee collections, not tax dollars. They are dedicated funds which can only be used for AML reclamation and thus will not accomplish deficit reduction. We'd like to see all the SMCRA Title IV sequestered funds be given back to the States, retroactive to FY 2013.

We urge Congress to approve direct line-item in OSMRE's budget specifically to fund emergency projects thereby allowing the States to utilize their annual AML grants to fund high Priority 1/2 health and safety projects. The current priorities should be maintained, including the ability to fund water-

related projects dealing with AMD under Priority 2/3 projects. We support the continuation of mandatory distribution of the funds so that PA can receive the most funding possible in a given year. It is also important to maintain the 30% Set-Aside provision to maintain flexibility for use of the funds for AMD treatment. We support the continuation of the transfer of the interest to the Combined Benefit Fund to defray health care costs for retired miners and their dependents whose companies have gone bankrupt or are no longer in business. We support a continuation of the Non-Profit AMD Watershed Cooperative Agreement Program.

The premise for the formerly introduced RECLAIM Act, as it was reported out from this Committee in the last Congress, under the leadership of former Chairman Bishop, is interconnected with the extension of the SMCRA Reauthorization. They are integral to one another because they are eliminating the health and safety hazards and creating jobs and infrastructure at the same time. Including similar language in SMCRA, should it be amended and extended in 2021, would ensure that short-term economic development projects funded under a RECLAIM bill for reclamation would continue to happen seamlessly upon Reauthorization over the long-term.

Examples of Support Letters from PA Businesses and Industry for Reauthorization of SMCRA

EPCAMR submits to you with my written testimony, for the record, several letters of support for the Reauthorization of the collection of the fees to continue to support the AML Trust Fund. These letters of support emphasize job creation, economic investment, the importance of environmental cleanup, the protection of home ownership and businesses from mine subsidence, and public health and safety. The diversity of the types of entities that were able to provide me with a letter showing each of their support include, one from Frank M. Howard, III, Treasurer of Howard Concrete Pumping Company, Inc.[14], located in Cuddy, PA. A second support letter from R.J. Shaffer, General Manager of Scrubgrass Generating Company L.P.[15], located in Kennerdell, PA. A third support letter is from Timothy P. Danehy, QEP and President of BioMost, Inc., Mining and Reclamation Services[16]. A fourth letter of support comes from David L. Holman, Airport Manager of Zelienople Airport Authority[17], located in Zelienople, PA. Finally, a fifth letter of support comes from Jaret Gibbons, Executive Director of the Co-Generation Facility Trade Association, known as ARIPPA.[18]

EPCAMR Support for the Reintroduction of an Act Similar to RECLAIM in this Congress

EPCAMR is also supportive of last year's proposed RECLAIM Act's intentions to release unspent funds within the AML Trust Fund to compensate for reduced funding caused by sequestration to spur job creation, improve economic conditions of our coalfield communities and will be only used for reclamation. We want to see these funds leveraged and not utilized alone in a vacuum. $1 Billion of the unappropriated balance would be used for reclamation work in the near term. $2.4 Billion of the AML Trust Fund remains unappropriated. Other Federal agencies are authorized to supplement the AML funds to cover non-reclamation economic development costs. It will create ancillary job opportunities to facilitate the reclamation, redevelopment, and remediation of abandoned mine lands throughout Appalachia. EPCAMR passed a Resolution[19] urging the passage of the RECLAIM Act of 2017, which was HR 1731 in the last Congress on February 15, 2018. PA would receive $253 Million over the next 5 years to accelerate the creation of new jobs in abandoned mine land reclamation areas to clean up impacted land and water, if an Act similar to RECLAIM becomes law. Additional public outreach is required and each project must be vetted and approved by the Secretary of the US Department of the Interior to ensure compliance.

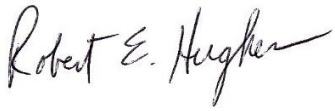
EPCAMR would like to see that a bill similar to last session's RECLAIM, is written and implemented in a way that most benefits coalfield communities and ensures the offset for isn't counterproductive to the affected communities. EPCAMR, along with the Foundation for PA Watersheds, and 55 other coalfield organizations, throughout Appalachia, and others from around the country, have signed on to a March 25th, 2019 letter[20] to all the members of the Committee on Appropriations, to urge them to support critical investments in the coalfield communities and working families most affected by America's declining demand for coal in the FY 2020 (FY20) Appropriations bills. Certified States and Tribes are able to apply for an additional annual $5 Million for which they would otherwise be ineligible for.

Appalachian Region Commission (ARC) Study: Economic Impacts and Effects of Coal Mining on Northeastern PA produced by the Institute's for Public Policy

Lastly, it is an exciting opportunity for our region to receive an opportunity to apply for funding that can be used to help us address the challenges we face from a declining coal region economy. Several regional partners are putting forward grants to the ARC in this round of upcoming funding. The Institute for Public Policy has released a 2019 economic impact study[21] that EPCAMR is currently referencing to see if we can secure ARC funding for additional technical assistance and organizational capacity building within our coalfield communities.

Thank you for the opportunity to provide you with a look into new ideas for innovative approaches to reclamation of abandoned mine lands and the restoration of our watersheds in ways that will take into the consideration economic development and future job opportunities for our coalfield communities. EPCAMR looks forward to working with Congress to further our goals and those of our Nation, in some of the hardest hit areas of our country that ironically helped to build our country.

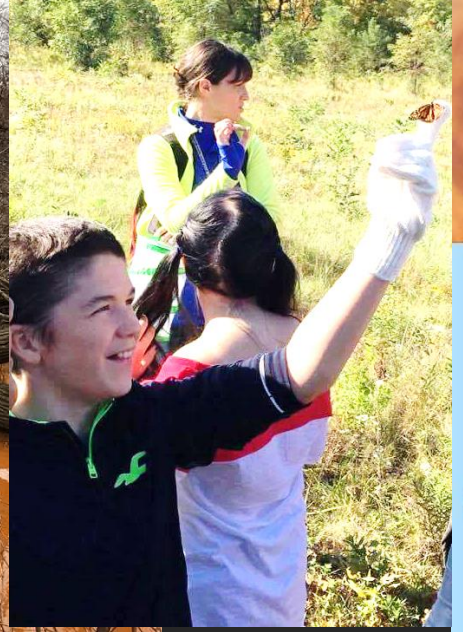
Respectfully submitted,



Robert E. Hughes
EPCAMR Executive Director

Resources Cited and Letters of Support:

[1] C.M. Mayne, OSMRE/AmeriCorps, May 2016 Report, Sources: US Census Bureau (2010 Census); OSMRE e-AMLIS;
[2] *Grassroots to Global: Broader Impacts to Civic Ecology*, Cornell University Press, Foreword by Tidball, Keith G., and edited by Krasny, Dr. Marianne E., and Afterword by Maddox, David (2018)
[3] EPCAMR's PA Reclaimed Abandoned Mine Land Inventory System (RAMLIS) 2019 8th Congressional District GIS Map
[4] EPCAMR's PA Reclaimed Abandoned Mine Land Inventory System (RAMLIS) 2019 15th Congressional District GIS Map
[5] Economic and Environmental Analysis of PA's Coal Refuse Industry Final Report, prepared by Econsult Solutions (2016)
[6] Water Quantity, Quality, and Potential Usage from Underground Mines in the Western Middle and Southern Anthracite Coal Fields of Eastern Pennsylvania, prepared by EPCAMR (2011)
[7] Lower Lackawanna Watershed Assessment and Restoration Plan, prepared by EPCAMR, LRCA, and SRBC (2012)
[8] Anthracite Region AMD Remediation Strategy, prepared by SRBC, with technical assistance from EPCAMR (2011)
[9] A Decade of Progress for the West Branch Susquehanna River Initiative: TU's Eastern Abandoned Mine Program, prepared by Trout Unlimited's Eastern Abandoned Mine Program (2014)
[10] Cleaning Up Abandoned Mine Drainage in the West Branch Susquehanna Watershed Program Summary: Why It Makes Economic Sense, prepared by Trout Unlimited's Eastern Abandoned Mine Program (2008)
[11] Foundation for PA Watersheds AML Reclamation and Off-site Job Generation Report, prepared by Diehl, B. (2017)
[12] Abandoned Mine Drainage Treatment Systems Jobs Analysis: PA Abandoned Mine Lands Report, prepared by Downstream Strategies, LLC and West Virginia University for Trout Unlimited's Eastern Abandoned Mine Program (2016)
[13] Pennsylvania's Surface Mining Control and Reclamation Act Funded Abandoned Mine Lands Program: Past, Present, and Future, PA DEP Fact Sheet
[14] Howard Concrete Pumping Company Inc. Letter of Support for the Reauthorization of the Collection Fees Supporting the Abandoned Mine Land Trust Fund
[15] Scrubgrass Generating Company L.P. Letter of Support for the Reauthorization of the Collection Fees Supporting the Abandoned Mine Land Trust Fund
[16] BioMost, Inc., Mining and Reclamation Services Letter of Support for the Reauthorization of the Collection Fees Supporting the Abandoned Mine Land Trust Fund
[17] Zelienople Airport Authority Letter of Support for the Reauthorization of the Collection Fees Supporting the Abandoned Mine Land Trust Fund
[18] ARIPPA Letter of Support for the Reauthorization of the Collection Fees Supporting the Abandoned Mine Land Trust Fund
[19] EPCAMR Resolution Urging the Passage of RECLAIM (Revitalizing the Economy of Coal Communities by Leveraging Local Activities and Investing More Act of 2017- HR 1731)
[20] Sign on Letter to the Committee on Appropriations Urging the Support for Critical Investments in the Coalfield Communities and Working Families most affected by America's Declining Demand for Coal in the FY 2020 Appropriations Bills
[21] Appalachian Region Commission Study: Economic Impacts and Effects of Coal Mining on Northeastern PA, produced by the Institute's for Public Policy (2019)



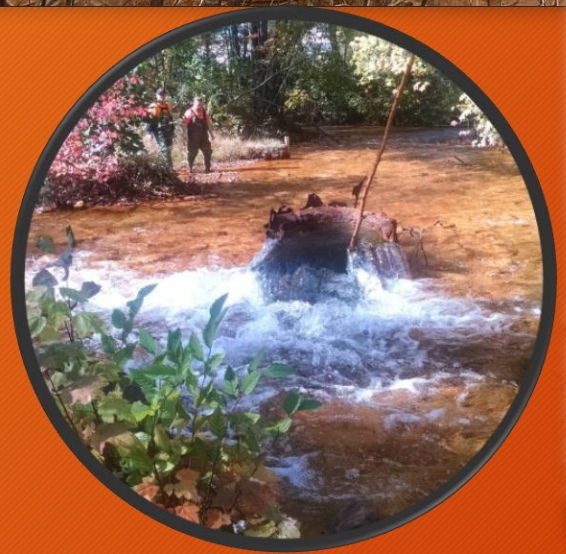
There are currently **5,500 miles** of **dead streams and rivers** in Pennsylvania, due to **abandoned mines.**

*source: pagrowinggreener.org

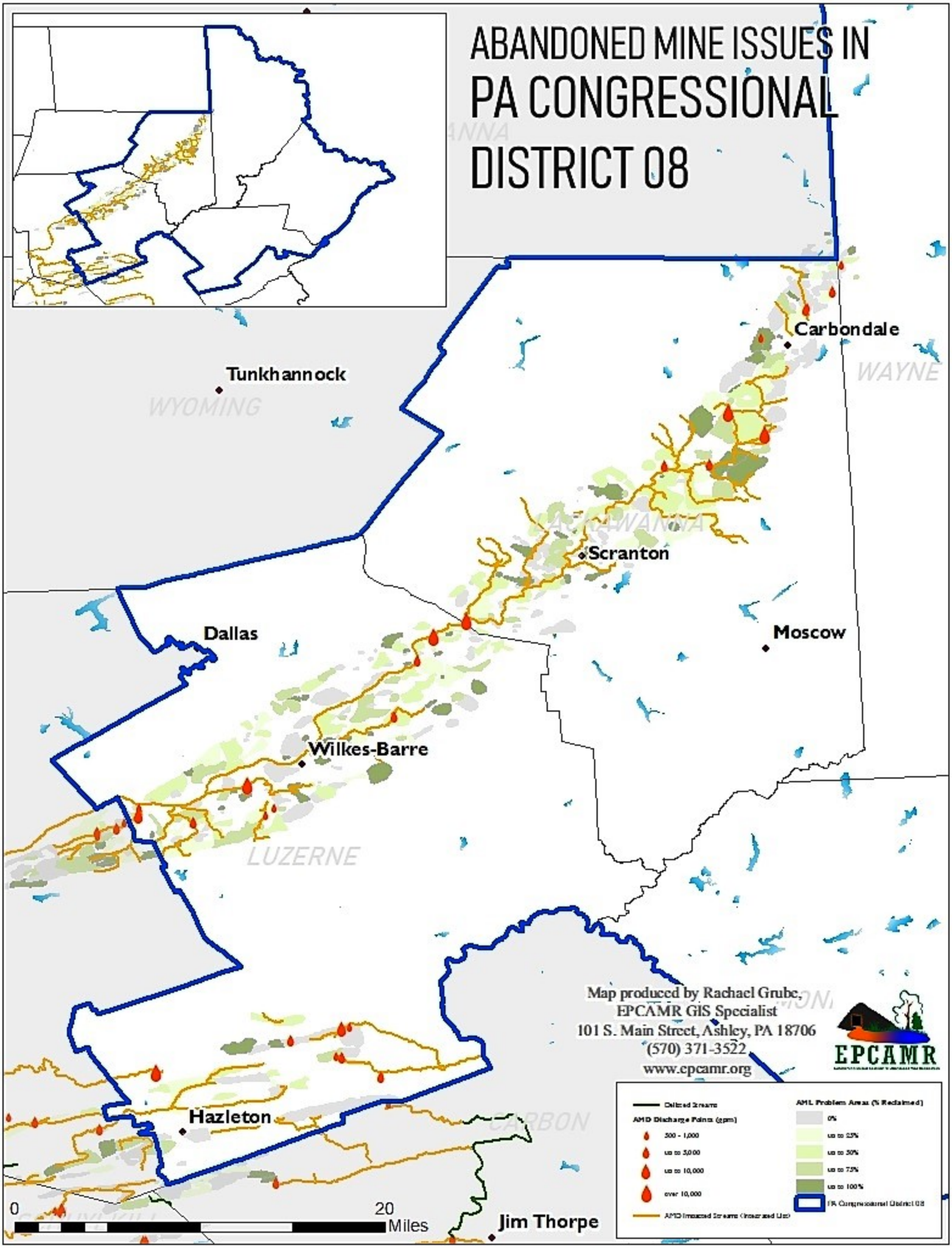
This distance is roughly equivalent to traveling **from** Pennsylvania **to** California **and back.**

Iron Oxide

from pollutant to pigment

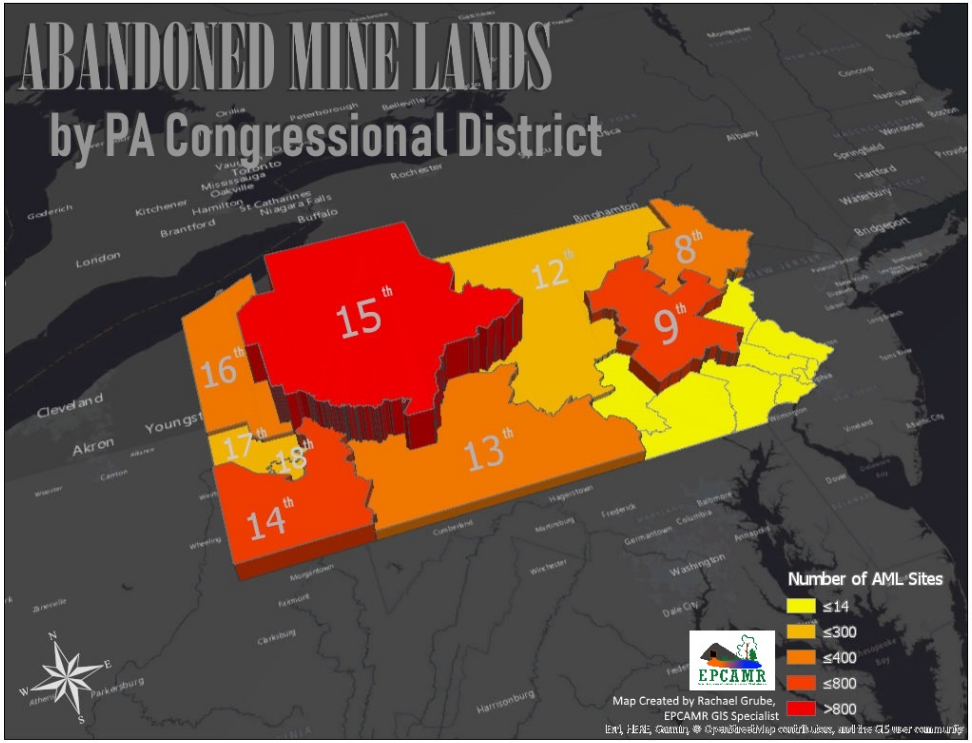



500ml
400
300
200


ABANDONED MINE ISSUES IN
PA CONGRESSIONAL
DISTRICT 08
Carbondale
Tunkhannock
Scranton
Dallas
Moscow
Wilkes-Barre
Hazleton
Jim Thorpe
WYOMING
WAYNE
LUZERNE
CARBON
Map produced by Rachael Grube,
EPCAMR GIS Specialist
101 S. Main Street, Ashley, PA 18706
(570) 371-3522
www.epcamr.org
EPCAMR
Delisted Streams
AMD Discharge Points (gpm)
500 - 1,000
up to 5,000
up to 10,000
over 10,000
AMD Impacted Streams (Impaired List)
AML Problem Areas (% Reclaimed)
0%
up to 25%
up to 50%
up to 75%
up to 100%
PA Congressional District 08
0
20
Miles

District 8 Inventory	# of AML Sites	# of Features	% of AML Features	Acres	Cost $8k/Acre	Cost $10k/Acre
Unreclaimed	322	1,615	63.9%	14,267	$ 114,132,800	$ 142,666,000
Reclaimed	44	913	36.1%	6,414	$ 51,308,800	$ 64,136,000
Active	1					
Total	**367**	**2,528**		**20,680**	**$ 165,441,600**	**$ 206,802,000**

AMD Streams 192 miles



Statewide PA Inventory	# of AML Sites	# of Features	% of AML Features	Acres	Cost @ $8k/Acre	Cost @ $10k/Acre
Unreclaimed	5,300	27,379	81.4%	178,598	$ 1,428,787,280	$ 1,785,984,100
Reclaimed	262	6,276	18.6%	37,091	$ 296,726,960	$ 370,908,700
Active	14					
Total	**5,576**	**33,655**		**215,689**	**$ 1,725,514,320**	**$ 2,156,892,900**

AMD Streams 5,621 miles

Delisted Streams '08-'18 246 miles

Abandoned Mine Issues in PA Congressional District 15

Map produced by Rachael Grube,
EPCAMR GIS Specialist
101 S. Main Street, Ashley, PA 18706
(570) 371-3522
www.epcamr.org

EPCAMR

Wesleyville
North East
Waterford
Corry
Union City
Youngsville
Warren
Bradford
Smethport
Coudersport
Galeton
Mount Jewett
Kane
Titusville
Johnsonburg
Saint Marys
Oil City
Polk
Renovo
Knox
Brookville
Lock Haven
Chicora
Punxsutawney
Philipsburg
Butler
State College
Saxonburg
Ford City
McClure
West View
Altoona
Delmont
Baldwin
Hollidays
Lincoln
Johnstown
Greensburg

ERIE
WARREN
MCKEAN
POTTER
TIOGA
CRAWFORD
FOREST
ELK
CAMERON
LYCOMING
VENANGO
MERCER
CLINTON
JEFFERSON
CENTRE
BUTLER
ARMSTRONG
INDIANA
UNION
SNYDER
MIFFLIN
ALLEGHENY
CAMBRIA
BLAIR
WESTMORELAND
SOMERSET
BEDFORD

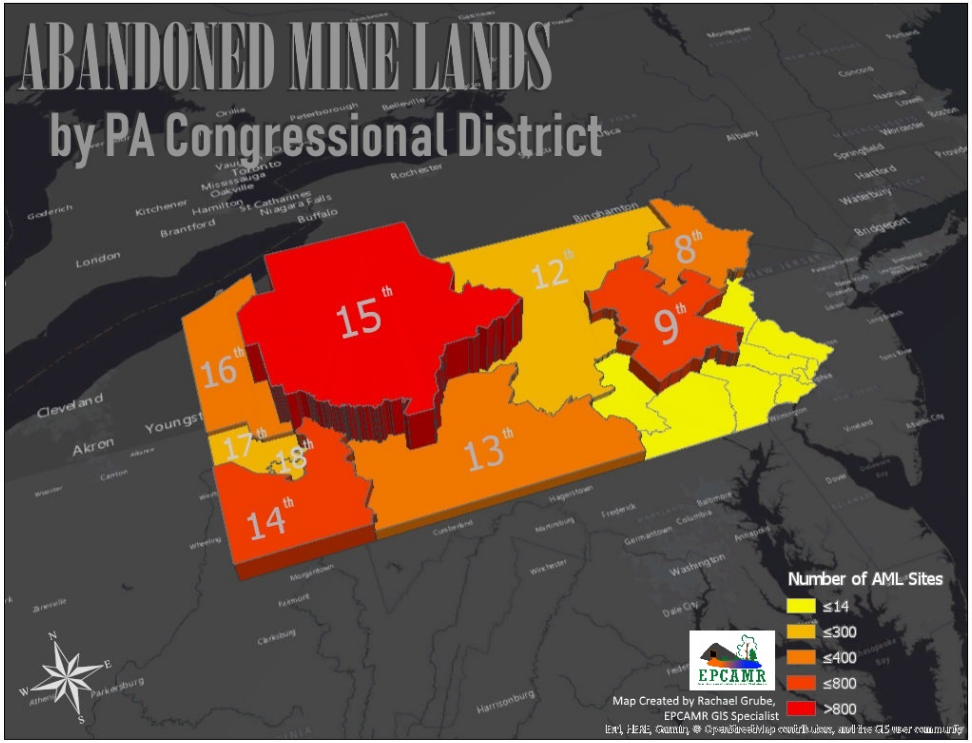
0 40 Miles

Delisted Streams
AMD Discharge Points (gpm)
500 - 1,000
up to 5,000
up to 10,000
over 10,000
AMD Impacted Streams (Integrated List)

AML Problem Areas (% Reclaimed)
0%
up to 25%
up to 50%
up to 75%
up to 100%
PA Congressional District 15

District 15 Inventory	# of AML Sites	# of Features	% of AML Features	Acres	Cost @ $8k/Acre	Cost @ $10k/Acre
Unreclaimed	2,649	13,673	83.8%	91,387	$ 731,093,280	$ 913,866,600
Reclaimed	75	2,637	16.2%	17,568	$ 140,546,480	$ 175,683,100
Active	5					
Total	**2,729**	**16,310**		**108,955**	**$ 871,639,760**	**$ 1,089,549,700**

AMD Streams 2,706 miles



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Delisted Streams '08-'18 246 miles