

**NEWSLETTER**

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**INSIDE**

President's Message  
 Dave Bucknam Award ..... 2  
 Stan Barnard Award ..... 2  
 NAAML P 2011 Conference ..... 3  
 OSM National Award - PA ..... 4  
 Appalachian Award - WV ..... 5  
 Western Award - WY ..... 5  
 Mid-Continent Award - IA ..... 6  
 Small Project Award - OH ..... 6  
 NAAML P Scholarships ..... 7  
 Computer Mapping - MT ..... 8  
 Moore Street Drainage, KY ..... 9  
 Self-Flushing Pond, KY ..... 10  
 AMD To Economic Benefit ..... 11  
 AML Update in New Mexico .. 12  
 Habitat Award - ND ..... 13  
 Hiring In Montana ..... 13

**UPCOMING MEETINGS**

**2012 Winter Business Meeting**  
 St. George, UT Feb. 28 - Mar. 1

**MISSION STATEMENT**

1. To provide a forum to address current issues, discuss common problems and share new technologies regarding abandoned mine land reclamation;
2. To foster positive and productive relationships between the states and tribes represented by the Association and the federal government;
3. To serve as an effective, unified voice when presenting the states'/tribes' common viewpoints; and
4. To coordinate, cooperate and communicate with the Interstate Mining Compact Commission, Western Interstate Energy Board and all other organizations dedicated to wise use and restoration of our natural resources.

**Dear Colleagues of NAAML P,**

It is an honor to serve as the President of the NAAML P, and as a team leader, we will continue working together on Abandoned Mine Lands (AML) initiatives; particularly, on our most crucial funding issue.

As you are aware, U.S. Department of Interior (DOI) and Office of Surface Mining (OSM) drafted a legislative proposal that will terminate payments from U.S. Treasury to the Tribes/States certified with completion of abandoned coal mine land reclamation and to reallocate AML funds, through a competitive grant process, to the States with high priority abandoned coal mine problems. This proposal has been submitted to the Joint Select Committee on Deficit Reduction (Super Committee). Unfortunately, we are faced with more challenges to address our funding issue. I know you have been communicating with your leaders on our core issue. However, we need to go beyond our effort: ample communication, by writing letter, sending emails, and making phone calls, with our constituents is a must at this time on the importance of funding to ensure the mandates of SMCRA continue to be fulfilled.

Another suggestion is to obtain support from environmental groups and local leaders of our communities. State and Congressional leaders must be adequately educated on our accomplishments and program goals. We must emphasize what the impacts would be if our program ends, and inform them that major AML problems still exist in our nation requiring reclamation to protect the public health and safety. For certified States and Tribes, we must ensure funding is maintained for non-coal reclamation and associated community SMCRA projects.

Another initiative that we must continue is partnership work with respective entities, stakeholders, and federal agencies to address AML and SMCRA issues. Recently we learned that President Obama issued an Executive Order to merge OSM with the Bureau of Land Management (BLM). We must emphasize to DOI and OSM to collaborate with us on their reorganization plan and give us an opportunity to provide recommendations on their new organizational goals and efforts.

Our bottom-line goal is to address on-the-ground AML problems and physical hazards thus ensuring the protection and safety of the public. Your dedication to support this goal has resulted in reclaiming numerous AML sites in a most cost effective manner; thus, I express my deep appreciation to you all for a job well done in completing projects.

I would like to further say thank you to Nevada and California for hosting the 2011 Conference at Lake Tahoe, CA. The conference was a success. All technical sessions including site tours and pre-conference tour were very informational and educational. I received great compliments about the pre-conference tour as well. We had an opportunity to network throughout the conference, primarily at the receptions, evening outing, and banquet dinner. I also congratulate all State winners of AML awards and AML representatives who received special awards.

I am available for further discussion on our AML issues and let's continue to work together to implement strategies to address our hard issues.

Please feel free to contact me at (928)871-6982, via email at [mroanhorse@frontiernet.net](mailto:mroanhorse@frontiernet.net).

**Madeline Roanhorse,  
 President**



## NAAMLPL Loses Dave Bucknam Award Winner and Veteran Colleague, Vann Weaver



Hugh Vann Weaver, head of the Federal Reclamation Division for Office of Surface Mining (OSM) and longtime NAAMLPL friend, passed away after a short illness on November 14, 2011, in Pittsburgh, PA. At the recent NAAMLPL Annual Conference in California, Vann received the Dave Bucknam Award in honor of his outstanding contributions to the OSM National Technical Training Program (NTTP). He was 54 years old.

Vann had 33 years of government service, working for the Commonwealth of Kentucky and OSM. He became involved with the NTTP in the early development of the program in the 1980s. He helped develop the Field Inspector Training series and was an instructor for the OSM Instructor Training course. Vann also led the development of the Wetlands Training course and became one of its first instructors. Throughout his career, Vann led the charge for better, more specific technical training for abandoned mine lands personnel and advocated the “workshop” approach to deliver the training.

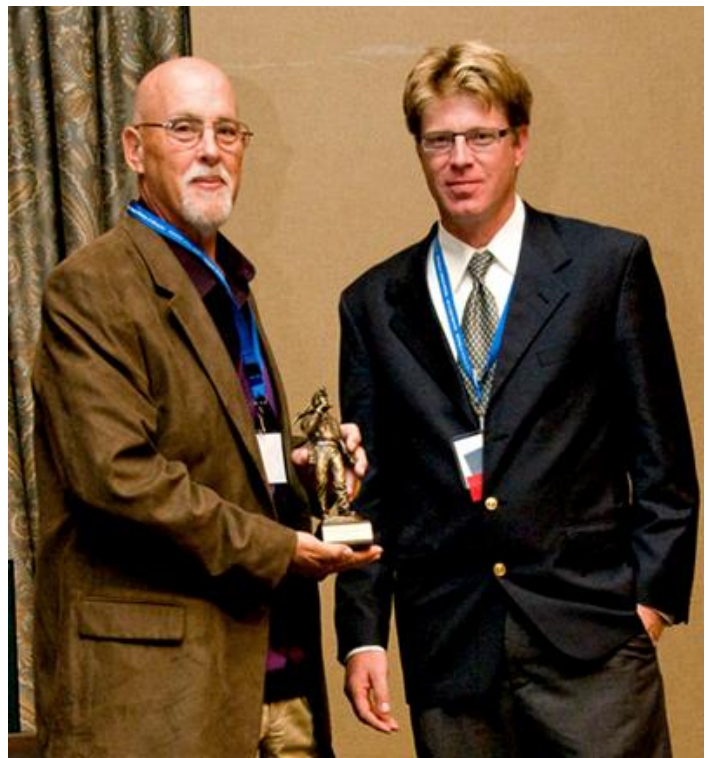
Vann was a lifelong, ardent University of Kentucky basketball fan. He was always passionate when talking about his favorite team. Vann was an avid biker, scuba diver, volunteer for the Montour Trail, and enjoyed yard work and the outdoors. He will be dearly missed by all who knew him. Vann is survived by his wife, Debbie, and his son, Dustin.

## Kansas' Murray Balk Wins Stan Barnard Award

Murray Balk, surface mining reclamation chief for the state of Kansas, is this year's recipient of the prestigious Stan Barnard Award for his outstanding contributions to the NAAMLPL and the Abandoned Mine Land (AML) program. Mike Garner, President of the NAAMLPL, presented the award to Murray at the awards banquet during the annual NAAMLPL conference in Squaw Valley, California.

Balk has served as an officer for the Association holding twice the position of Secretary/Treasurer, and also as Vice President and President. He has also been very active in committees serving on the Minimum Program, Finance, Grants, Hard Rock, and Scholarship Committees (to name a few). Balk introduced the concept of awarding NAAMLPL scholarships and has been the driving force behind this successful outreach program. Additionally, Balk annually prepares and submits, on behalf of the Association, the required tax statements to maintain the tax status of our Association. He also worked as co-host on behalf of Kansas for the 2009 NAAMLPL Annual Conference.

The Stan Barnard Award is given each year, in memory of the former Wyoming AML Director, to the person who exemplifies Barnard's legacy of dedication, commitment, and hard work to the AML program.





## 2011 NAAML P Conference

The California and Nevada AML Programs would like to thank the participants of the 2011 NAAML P Annual Conference held at the Resort at Squaw Creek (Lake Tahoe), California during the first week of October. Conference sponsors arranged for a perfect mix of weather conditions, including a light dusting of scenic snow covered peaks just before the conference, rain on Monday (which encouraged participants to stay indoors and enjoy the technical sessions), and then bright sunshine for the Tuesday technical tours. Despite travel bans and decreased budgets, the conference garnered over 270 attendees. Attendees participated in a full program of technical sessions on topics such as: coal, mercury, water issues, AML Program management, radiation, and GIS. Attendees also participated in technical field trips to interesting hard rock 49'er Gold Rush and Comstock Lode (and Virginia City, Nevada) gold and silver mines dating back to the mid-to-late 1800s and a pre-conference tour of Bodie Ghost Town and Yosemite National Park in the Sierra Nevada mountains. Attendees also mingled with the many sponsors and exhibitors throughout the conference, including a Meet and Greet session on the shores of Lake Tahoe, the Annual Banquet/Awards Ceremony and an evening BBQ with Mark Twain. Thanks again to everyone who participated, and don't forget the 2012 NAAML P Conference in Iowa!!!





## Pennsylvania's Newport North Wins OSM National Award

Pennsylvania's abandoned mine reclamation project, Contract No. OSM 40(2152)101.1, Newport North, in Newport Township, Luzerne County, won OSM's National Abandoned Mine Land Reclamation Award for 2011.

The project was implemented by the Pennsylvania Department of Environmental Protection's (DEP) Bureau of Abandoned Mine Reclamation's (BAMR) Wilkes-Barre office. This is the sixth year in a row a Pennsylvania project has won the Appalachian Regional or National AML Reclamation Award, and is the third National Award the Wilkes-Barre office has received since the recognition was initiated in 1992.

Stay Out-Stay Alive programs throughout the country often emphasize that abandoned mine lands are not playgrounds. The ultimate example of the truth of that slogan has to be the Newport North site. Over the years, the remote site became a popular location for off-road recreation. Numerous dirt roads and trails traverse very close to dangerous features left behind by mining. In 1998, a small waterbody, less than a half-acre in size and about two miles into the woods, was the location of a vehicle accident that claimed five lives. This was followed by a second vehicle accident in 2004 which claimed yet another life.

The mountainside had hundreds of acres of abandoned mines, but BAMR opted to reclaim only about 36 acres immediately surrounding the fatality-causing pit in a phased based attack to avoid potential problems that a larger project might experience and thus delay the design process. Earth Conservancy, the project site's property owner has been an active partner in reclamation with BAMR and was very receptive to the reclamation plans.

The project's remote location dictated the need for a very long access road through rough terrain. The project's design entailed eliminating more than 3,000 feet of highwall during the backfilling of a number of strip pits, including the waterbody that was the scene of the two accidents. The material to fill the pits originated from a large on-site spoil pile. The design called for grading approximately 370,000 cubic yards of on-site material with slopes less than a three-to-one ratio to resemble the pre-mining condition. In addition, the proposed project included installing more than 1,800 feet of rock-lined ditch to control storm runoff and a mine discharge that fed the water-filled pit. The project was completed in fall of 2009 at a final cost of \$673,000.

*Project Team*



*Water Filled Pit*



*Newport North 2010*

During the project's construction, the 2009 kickoff of the Stay Out, Stay Alive program was held at the site by DEP and the Mine Safety and Health Administration. The event, attended by the DEP Secretary, state politicians, and local television and print media, gave good publicity to the AML program and the Stay Out-Stay Alive message.



## West Virginia Wins Appalachian Regional Award

The 2011 Appalachian Regional Award recipient is the Kempton Refuse and Acid Mine Drainage Project, located in Tucker County, West Virginia. Submitted by the West Virginia Department of Environmental Protection's Office of Abandoned Mine Lands and Reclamation, the Kempton Project addressed approximately 60 acres of land that was underground and surface mined from the late 1880s through the 1950s. The project was completed at a cost of \$2.3 million and involved backfilling, re-grading and vegetating a dangerous highwall, installing seals on two partially collapsed mine portals, and removing two surface impoundments. Water quality issues on site also were addressed by reseeding and reforestation, adding limestone to tributaries, implementing natural stream channel design techniques, and installing a passive water treatment system.



## Wyoming Wins Western Regional Award

The Wyoming Abandoned Mine Land Division was awarded the 2011 Western Regional Abandoned Mine Land Reclamation Award for work completed at the Kleenburn Coal Mine Project in Sheridan County, Wyoming.

The Kleenburn Coal Mine AML Project focused on eliminating the hazards on a parcel of Sheridan County Government land heavily used by the public. AML efforts concentrated on eliminating the hazards associated with steep waste rock piles located adjacent to deep, water-filled coal strip pits.

A total of 73,000 cubic yards of mine waste rock material was graded away from the margins of the pit ponds and the corresponding 17.9 acres of land was revegetated to minimize further erosion. A channel was constructed between the two ponds to enable fish movement and minimize the potential for winter fish kills.

Planning and cost-share funding partnerships with Sheridan County Government and the Wyoming Game and Fish Department enabled the Kleenburn Project to incorporate the development of recreation facilities into AML's hazard mitigation design.

This partnership resulted in the dedication of the Sheridan County Kleenburn Recreation

Area. This 80-acre recreation area along the Tongue River now offers the public fishing opportunities, one-and-a-half miles of ADA-accessible walking paths, parking facilities, picnic tables, and a restroom facility.

Additional community support from the Sheridan County Conservation District, Big Horn Audubon Society, and Sheridan County School Districts has resulted in considerable citizen ownership in the Kleenburn Recreation Area.

"Kleenburn offers an excellent example of how partnerships among agencies, groups, and citizens can result in a project that achieves a wide range of goals no single entity could have accomplished alone," said Jack Smith, Wyoming AML Project Manager.

The total cost of the Kleenburn Coal Mine Project was \$482,000. AML funds utilized to mitigate the hazards at this site were \$410,000. Funds for additional recreation facilities (\$72,000) came from grants and direct funds secured by Sheridan County Government and the Wyoming Game and Fish Department. Engineering design and construction management were conducted by Respec Water and Natural Resources of Cheyenne, Wyoming and Trihydro Corporation of Laramie, Wyoming. Construction was completed by Weeden Construction of Banner, Wyoming.



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## Iowa Wins NAAML P Mid-Continent Award

The Westercamp Abandoned Mine Land (AML) Reclamation Project eliminated hazards to the health and safety of local citizens and the environment. It brought the local community together in support and awareness of hazardous conditions on AML sites and what reclamation through the AML program does. The project also utilized unique and innovative reclamation techniques and design elements that are refinements from past reclamation work and new concepts that act as models for future projects.

The Westercamp AML Reclamation Project is located just 0.1 miles from the city of Beacon. It was a Priority Two site consisting of approximately 80 acres, surface mined in the 1960s and underground mined much earlier. Priority Two features included 55 acres of actively eroding clogged stream land, 0.7 miles of clogged stream, and 13 polluted ponds (six with pH less than 5.5). There were 26,000 feet of dangerous highwalls and approximately ten acres of industrial/residential waste.

The site was long and narrow, located in the lower portion of a 672-acre watershed, with a stream flowing northwest to southeast through the center. Pit ponds were below highwalls on either side of the stream and scattered among steep spoil piles. Industrial and residential waste was strewn in several areas and partially buried by eroded spoil. The site had areas of eroding bare spoil and scattered thin stands of trees.

The scope of project included two incoming streams consisting of deep eroded channels which were stabilized to slow existing velocities, improve existing stream erosion conditions,

oxygenate water, and improve stream habitat. Due to the proximity of the degraded Muchakinock Creek, the amount of acidic water on site, and the number of landowners involved, community support and partnerships were a natural outcome. Acid water run-off and acidic sediment delivery to off-site areas, combined with the frequent flooding of Muchakinock Creek, were a primary community concern.

The Mahaska Soil and Water Conservation District designated the Muchakinock Creek Watershed as a priority watershed and received grants to address water quality improvement, and as a result a partnership between Pathfinders Resource Conservation (RC&D), Mahaska Soil and Water Conservation District (SWCD), and the Division of Soil Conservation began. These alliances brought together additional stakeholders including: the Natural Resource Conservation Service assisting the SWCD, the Mahaska Secondary Roads Department providing extra county road maintenance and dust control, and the city of Beacon supporting the project's concern for flood and water quality protection.



The Westercamp AML Reclamation Project improved water quality exiting the site and entering Muchakinock Creek by filtering and neutralizing acid soil and water, stabilized soil to greatly reduce erosion, mitigated impacted jurisdictional waters of the U.S. by more than required, and eliminated the priority features that were hazards to human health and safety, and the environment. Reclamation of the area restored the land to aesthetically fit into the surrounding landscape and began the process of restoring the land to its natural functions.

## Ohio Wins NAAML P Small Project Award

The Thomas AMD Reclamation Project in Carroll County was established to address acid mine drainage and sediment problems in the Huff Run Watershed and revert the conditions of the area to pre-mining conditions. The intent of the project was to eliminate eight acid pits, capture and treat water from deep mines and surface impoundments, and eliminate exposed acid forming mine spoils, gobs, underclay, and refuse spanning approximately 14 acres. Treatment of the acid water from the deep mines and surface impoundments included capturing the water through the use of underdrains and steep open limestone channels, precipitate

metals through the process of oxidation and hydrolysis, and collect the precipitated metals in metals retention ponds which also allow for further oxidation.

Construction, which commenced on July 28 2009, involved approximately 75,000 cubic yards of earthwork. The project captured drainage from two abandoned deep mines and reclaimed a series of surface impoundments during the process. Approximately 5.05 million gallons of acidic water were treated and released. Approximately 220 linear feet of 12" perforated



HDPE interceptor underdrains, two HDPE manholes, and 470 linear feet of solid wall HDPE outlet pipe were installed to capture and transfer the deep mine drainage to open limestone channels and metal precipitation ponds.

Earthwork operations encountered an unknown abandoned mineshaft discharging approximately 50 gallons of water per minute, which proved detrimental to reaching the original project goals. A series of graded gravel layers was placed in the shaft along with perforated HDPE interceptor pipe to capture and transfer this water to the open limestone channels and metals precipitation pond. This area was capped with filter fabric and backfilled.

Construction was completed on June 10, 2010, by Red Malcuit, Inc. of Strasburg, Ohio at a total cost of \$499,973.83. This nearly 100 year old environmental problem that included barren mine spoil, coal refuse piles, and impoundments was transformed into a rolling vegetated landscape with potential for tree planting to provide improved wildlife habitat.

Initial water quality sample results indicate a dramatic improvement in the quality of the water leaving the site and entering Huff Run. An increase in alkalinity and pH, a decrease in acidity, and reduction of metals and sediment discharges should prove beneficial to the aquatic qualities of Huff Run for years to come. Unique engineering applications can now be employed at other abandoned mine sites where capturing deep mine water for treatment proves difficult.

Prior to Division of Mineral Resources Management's (DMRM) involvement in the Huff Run Watershed an inventory of fish species found only the pollution tolerant Green Sunfish in the stream's most environmentally degraded reaches. Due to this and other similar DMRM projects, these same nearly lifeless sections now contain 19 fish species including the moderately pollutant intolerant cold water taxa Mottled Sculpin. The DMRM just recently confirmed that previously non-existent Northern Pike are now found in the lower reaches of Huff Run.

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**<https://www.ohiodnr.gov/>**



## NAAML P Awards Scholarships

Each year at the Annual Conference the Association awards two scholarships to college students who are pursuing educational goals and careers focusing on reclamation of abandoned mines. The Association congratulates Ms. Thomas and Mr. Brill on their outstanding achievements.



The eastern recipient of the 2011 NAAML P Scholarship was Calene Thomas. Ms. Thomas is a graduate of Frost State University with a B.S.(Cum Laude) in Environmental Analysis and Planning. Presently she is working on obtaining her M.S. in Agronomy with a focus on Mine Land Reclamation and Restoration Ecology. She expects to graduate this December. A part of Ms. Thomas master's studies,

she is researching the effect of microbial communities on the newly developing ecosystems of reclaimed mine lands. Following graduation, Ms. Thomas plans to work with watershed groups in their efforts to restore watersheds severely impacted by past mining practices.

The western recipient of the 2011 NAAML P Scholarship was Everett Brill. Mr. Brill is in his fourth year of studies at the South Dakota School of Mines and Technology in Rapid City, South Dakota. He is majoring in geology and would like to pursue a career in reclamation or mining upon graduation. He has interned on two separate occasions for Barrick Gold of North America, once at their Cortez Hills Underground Mine and then at their Goldstrike Underground Mine. During his internship his duties ranged from mapping to several rock mechanics projects. Mr. Brill has also served as a tour guide at Rushmore Cave.



## Computer Mapping Of Historic Coal Mines In Red Lodge, Montana

The Montana Abandoned Mine Program (AML) plans to use new digital mapping information created by students at Montana State University Billings-College of Technology (MSUB-COT) to enhance its investigation and mitigation of subsidence in the town of Red Lodge, Montana.



*Shoring inserted between foundation and floor joist to keep house level due to subsidence.*

AML plans to use the students' computerized map and convert it to GIS layers. "We will be able to integrate information from the past with the present and create a whole new layer of data for future use," said AML Data Control Specialist Kim Wells.

"The Red Lodge underground workings are hugely complex and extend to at least seven coal seams," said AML Program Manager John Koerth. "With geo-referencing, we have the potential to examine all seven layers of coal mining to pinpoint specific problem locations."

Under the guidance of MSUB-COT instructor Timothy Urbaniak, students Nick Andrews, Chris Grubbs, Daniel Kamp, and James Duggins spent more than 1,000 hours conducting the "Red Lodge Legacy Mine Project." Using historic survey maps of coal mines obtained from the Carbon County Historical Society, the students created a 3D model of the town's extensive underground mine workings.

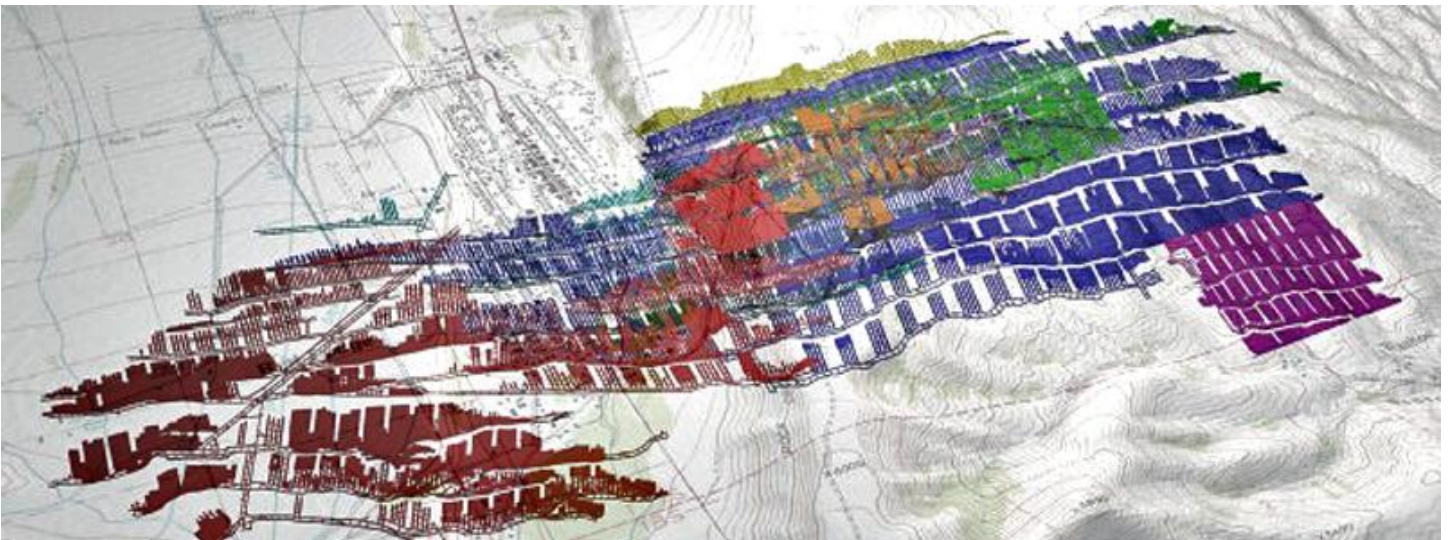
In 1866, rich coal deposits were found in Red Lodge. Coal mining defined the town and surrounding area from 1889 through the 1980s. In the 1990s, the AML program mitigated some of the town's subsidence from the underground mine workings. The AML program continues to receive subsidence complaints, which it is addressing. In one instance, an estimated 200 feet deep vertical mine shaft, located in the backyard of a private residence, was grouted and backfilled by the AML program in the late 1990s. An area of approximately 25 feet in diameter has continued to subside at a rate of approximately one inch per year. Over the years, the landowner has had to continually jack up and add support to the southernmost three posts supporting his roof.

AML Program Reclamation Specialist Pebbles Clark, who manages the Red Lodge subsidence mitigation project, says the problem of subsidence is not unique to Red Lodge. "In Montana, the AML program has received numerous complaints from the Eastern part of the state of holes randomly opening up that are 30 feet deep or deeper," said Clark. "The complaints in Red Lodge, which is located in South Central Montana, focus more on backyards sinking with time and cracks in the foundations of houses."

Red Lodge covers an area of less than three square miles. With all the coal mining in its early days, the town's population reached 5,000 by 1911. Today, known as the "Gateway to Yellowstone Park" via the famous Beartooth Highway, Red Lodge is a popular tourist destination enjoyed for its outdoor recreation. Its population stands at about 2,100. With approximately one-third of the town undermined, there are varying degrees of subsidence potential. Currently there is no access to the Red Lodge mines which are flooded.

For more information about the mines in Red Lodge or to report subsidence or cave-ins, people are encouraged to contact Pebbles Clark at (406) 841-5028 or [pclark2@mt.gov](mailto:pclark2@mt.gov).

*Digital reconstruction of coal mines beneath the town of Red Lodge created by Montana State University Billings College of Technology students.*





## AML Alleviates Drainage Problems For Moore Street Residents

The steep hillside located above Jordan Street in the downtown community of Hazard had been gradually sliding for several years. Residents living in the area were concerned for their families' safety and frustrated with property damage, and that prompted 37-year resident of Moore Street, Anita Smith, to contact the Division of Abandoned Mine Lands (AML) for help. Prior to the July completion of the Anita Smith AML Project, the neighborhood endured constant mine drainage flowing down from the hillside above causing the earth to slide and property to become unstable. Large cracks also formed in the foundation of the Smith's home from ground movement caused by the mine drainage.

According to residents, during winter months the mine drainage would form a 3-inch-thick slab of ice inside the Smith's garage that then iced over onto Moore Street, raising safety concerns among the neighbors.

AML reclamation to abate these mine-related problems included construction of reinforced concrete and gabion retaining walls and associated drainage controls behind and around the Smith's primary residence and the adjacent rental property. Smith Brothers Excavating of Manchester, Ky., was awarded the contract and began construction in September 2010.

Months later, heavy spring rains resulted in an increase of mine drainage causing the hillside to slide and a 4-inch waterline to break. AML's design team worked quickly to change the original project plans to include placement of 48 feet of 18-inch concrete pipe at the end of the new gravity wall so rainwater drainage would properly exit the area and prevent flooding.

Once a steep slope, the Smith's yard was leveled and reseeded, and a safety fence was constructed at the front of property. Additionally, Smith Brothers Excavating replaced four unsafe wooden staircases, providing the landowners and their guests with safe access to and from their property.

*Prior to reclamation—Bottom of hillside adjacent to Smith residence.*



*Landowner Anita Smith (left) and AML project inspector Stefanie Crow stand on Smith's reclaimed property.*

Recently, Smith expressed her gratitude for AML's work saying, "I am just so thankful for everyone's hard work. Our hillside was a complete mess with water running everywhere, the mosquitoes and mold were a nightmare and our basement was constantly flooding. I am so pleased with the work AML has done for us."

AML inspector Stefanie Crowe is just as pleased with the positive outcome. "I look back on the project and I am very proud of what we were able to accomplish with the guidance from my superiors, the expertise from Smith Brothers and the patience of the landowners. I take great pride in my job knowing that at the end of the day we were able to help someone, actually several, in need."

*After reclamation—Concrete wall (behind residence) and gabion retaining wall (in front of property) with safety fence.*





“When you spend 10 months with someone, pretty much day in and day out, you really get to know that person,” said Smith. “Stefanie has become like family to us. It is evident she truly cares about the work she does, and I am so blessed that she and the rest of AML came along when they did. My grandson now has a safe place to play, and my neighbors don’t have to have their guests meet them at the end of the street anymore.”

That is why AML staff work to protect the public from health and safety hazards caused by mining prior to 1982. Information about AML is available at <http://aml.ky.gov>.

**Corey Ann Howard**  
**Ky. Division of Abandoned Mine Lands**

## Self-Flushing Limestone Pond Used On Acid Mine Drainage Project

Lower Rock Creek Phase III Abatement Project in McCreary County is the first of the Division of Abandoned Mine Lands’ acid mine drainage (AMD) projects to utilize a self-flushing limestone pond as a part of one of its abatement projects. The Paint Cliff site of the project included several mine portals and acid producing coal processing refuse. Abandoned mines coal waste contaminated Lower Rock Creek with metal-laden and highly acidic water that negatively affected aquatic life living in, and terrestrial species living around, the watershed. Lower Rock Creek ultimately flows into the Upper Cumberland River.

A self-flushing limestone pond (SFLP) was constructed to treat AMD discharge from a mine portal. The SFLP is a buried basin of limestone that uses the water that discharges directly from the deep mine. Mine water flows into the system, dissolves the limestone, and then leaves the system, degassing the carbon dioxide and raising the pH of the water. Prior to work on the project, Paint Cliff had a median pH level of 3.0. Post construction of the SFLP, the water at Paint Cliff now has a median pH of 5.5 after exiting the SFLP and the acidity was reduced by 12 percent. As Lower Rock Creek is currently being restored, the local watershed is once again an environment conducive for several kinds of small fish to thrive and for recreational fishing, wading and swimming by local residents.

**Corey Ann Howard, Ky. Division of Abandoned Mine Lands**





## AMD Remediation Produces Significant Economic Benefit

After decades of impairment, a successful AMD remediation program carried out for almost 20 years, currently managed by the Abandoned Mine Lands Division of the Maryland Department of the Environment, has transformed the North Branch Potomac River into a popular recreational river and a driver of local economic development. The initial capital investment of \$1M in treatment structures and agency commitment to ongoing treatment with an annual cost of \$321K have resulted in a remarkable and inspiring story of success for groups carrying out environmental restoration work. A recent study titled “The Benefits of Acid Mine Drainage Remediation on the North Branch Potomac River” (NBP Benefits Study) was accomplished by Downstream Strategies, Morgantown, WV, at the request of the Maryland State Water Quality Advisory Committee, that documented the environmental and economic benefits of acid mine drainage (AMD) remediation. The lead contracting agency was the Garrett County, Maryland Economic Development Office, with grant funding from the Appalachian Regional Commission and some additional funding from the Maryland Departments of the Environment and Natural Resources.

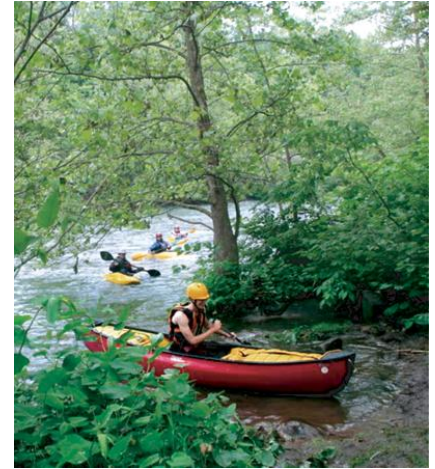


*North Branch Potomac Limestone Doser Lostland Run.*

The ongoing AMD remediation program consists of eight dosers that add high calcium content alkaline material daily to the river and its tributaries to neutralize the metal laden low pH water that flows from several pre-law abandoned coal mines in the watershed. The Benefits Study confirmed, what was known anecdotally, that with the operation of the doser program, fishing and boating opportunities had increased. The river has become known as a high quality fishery with about 20 miles stocked and managed by the Maryland Department of Natural Resources. Naturally producing trout and smallmouth bass populations have returned to a river once scorned and labeled dead. The Benefits Study found that high cliffs, interesting rock outcroppings, and a western feel have made this river a highly desired destination for anglers, boaters, and vacation goers looking for a memorable experience in the outdoors. Not only has quality of life improved for local residents, but this study showed that a sustainable economic foundation has also developed around this newly rejuvenated resource.

Boating and fishing are two key recreational activities that are now common on the NBP and some of its tributaries. The NBP from Gormanian to Kitzmiller boasts rapids up to Class IV, and has been described as one of the best stretches of intermediate water in the region. Each spring, whitewater canoeists gather for

the NBP Annual Armada (AW, 2009). Private and commercial boaters also enjoy the scheduled whitewater releases to the Barnum section of the NBP from the Jennings Randolph Lake during four weekends in the spring (Donnellan, 2010). The Savage River above the Savage River Reservoir has been described by a boater as “a beautiful run through one of the prettiest gorges I’ve seen. It’s isolated, lush, and unspoiled. There are high cliffs, beautiful waterfalls, and interesting rock outcroppings.” The Savage has also hosted Olympic trials for the United States Whitewater Slalom Canoe and Kayak team, as well as the International Canoe Federation Slalom World Championships in 1989. The NBP and the Savage are very popular trout fishing destinations. Above Jennings Randolph Lake, the NBP is now a high quality fishery with about 14 miles stocked and managed under put-and-take regulations, and another seven miles managed under delayed harvest regulations. A popular stocked trout fishery is also found below the Jennings Randolph dam; naturally reproducing trout are found here. Further downstream, reproducing smallmouth bass were reestablished by 1997, and trout are also present (MDNR, undated).



*Kayakers on the North Branch Potomac.*

In summary, this study quantified the value of the diverse recreational uses of the NBP, primarily through an original survey of boaters and anglers. The study found that spending on supplies, guides, accommodations, food, and other items results in an economic output of about \$3M per year in Garrett and Allegany Counties. Roughly 40 full-time equivalent jobs are tied to these expenditures, as well as \$266K in state and local taxes.

*North Branch Potomac River Fly Fisherman and New Page Paper Mill.*



However, these expenditures paint only part of the picture of the local economic benefits of a restored NBP. According to survey results, anglers and boaters receive a higher value from their recreational experiences than they already pay. In fact, they are willing to pay an additional \$4.1 million per year for their angling and boating experiences. Over and above this amount, recreational users are willing to pay even more to preserve the quality of the NBP to keep the improved water quality. The economic output generated in Garrett and Allegany Counties alone is about ten times higher than the annual cost to operate and maintain the

dosers, while the state and local tax dollars generated from the use of the NBP are close but not quite equal to this annual cost. The willingness of recreational users to pay additional costs for their trips—and for preservation of the NBP—points to the value of this recreational asset and to possibilities for securing long-term funding.

**Constance Loucks, Frostburg Field Office, AML**  
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The report is available at:  
<http://www.downstreamstrategies.com/projects.html>

## New Mexico Initiates AML Inventory Update With Gallup Coal Field

In the 1980s and 1990s, the New Mexico Abandoned Mine Land (NMAML) Program documented and inventoried abandoned coal mines throughout New Mexico. Over the past 25 years, many of these openings and some gob piles have been safeguarded and reclaimed by the NMAML Program, landowners, or operators.

The NMAML Program is in the process of updating the state-wide coal AML feature inventory and wanted to start with a current, accurate assessment of the number of coal mines in the Gallup, Zuni, and Crownpoint Coal Fields (excluding features on Indian lands) in northwestern New Mexico. The inventory will provide location information for mine features in a standardized format, describe the condition of both reclaimed and unreclaimed abandoned mine lands, and identify reclamation-related problems that require maintenance. During the earlier inventories, it was not uncommon for only the actual mine openings to be recorded. Gob piles, historic structures, subsidences, and other mine-related features now also need to be documented. Legacy sketch maps of mine sites need to be updated with GPS location information to create higher accuracy maps.

NMAML contracted with Tetra Tech for \$125,000 to conduct an inventory and assessment of abandoned coal mines in the Gallup Coal Field as part of a statewide inventory. The first task was to review all known maps, project files, and documentation regarding the Gallup Coal Field. The inventory located 357 known

*The inventory identified unreclaimed mine features such as this highwall.*



or suspected AML-related features, which were grouped into 38 sites. The second task was to perform field reconnaissance of the documented features at the 38 sites, including areas that had been previously

safeguarded and reclaimed. A more thorough investigation of the areas adjacent to completed NMAML projects identified features that were either missed in the original reconnaissance, or have opened over time. Tetra Tech ranked sites based on the OSMRE priority system. The field work assessed the level of hazard posed by the open features and assessed the level of environmental detriments at all sites. Of the 357 features inventoried, 18 are considered a Priority 1 or 2.



*Unreclaimed adit at the Laguna Circle site.*

Some of the backfilled mine features may have since opened or subsided and need to be safeguarded once again. Reclaimed gob piles and sites may be experiencing erosion or the vegetation density and diversity may be less than desirable. The NMAML Program's closure methods have evolved over time. This inventory helped NMAML determine which safeguarding practices need more improvement or can withstand both the test of time and tenacity of vandals. Based on the field work, features were classified as no maintenance required or recommended for maintenance. This evaluation allows for a more efficient method of future safeguarding that saves both time and money by focusing on best management practices.

Since the OSMRE prioritization criteria were used as the model for prioritization, NMAML can easily translate this information into both the NMAML database and the OSMRE AMLIS database with minimal effort. This allows the NMAML Program to concentrate its efforts on priority coal sites.

**Zoe R. Isaacson, Reclamation Specialist**  
**Susan A. Lucas Kamat, Geologist**  
**New Mexico Mining and Minerals Division**



## Mark Knell Wins The 2011 North Dakota Wildlife Society Habitat Award

The North Dakota Chapter of the Wildlife Society presented its 2011 Habitat Award to Mark Knell, Environmental Engineer and Project Manager with the North Dakota Public Service Commission's AML Division. This award is presented annually to an individual or group that has made a substantial contribution toward preserving and establishing high quality wildlife habitat in North Dakota.

The North Dakota Game and Fish Department nominated Knell for this award for his dedication to enhancing wildlife habitat as part of the design and management of abandoned mine land reclamation projects. Knell designed and managed a series of projects at the Custer Mine, near Garrison, ND, which included formation of a shoreline around an 8-acre trout pond so anglers can now fish about 95% of this pond from shore.



*Mark designed and managed this 1999 AML Project at the Custer Mine, near Garrison, ND, that included backfilling a dangerous surface mine highwall and forming a shoreline around an 8-acre trout pond and wetland.*

Knell also designed and managed AML projects within the North Beulah Mine and Harris M. Baukol Wildlife Management Areas near Beulah and Noonan. His work on these projects resulted in the construction of ponds, diversions, and wetlands that enhance wildlife habitat and sporting and recreational opportunities for North Dakota residents and visitors. Many of these wetlands were designed in cooperation with Ducks Unlimited. Reclamation designs also included tree planting and seeding of dense nesting cover.



*Mark Knell receiving the 2011 Wildlife Society's Habitat Award for North Dakota*

During his 30-year career, Knell has designed and managed the reclamation of more than 15 miles of dangerous surface mine highwalls. This work was accomplished by moving 10 million cubic yards of spoil material to reclaim and revegetate more than 3000 acres of dangerous abandoned mine lands. Knell's exemplary AML work has included the construction of approximately 50 wetlands and planting more than 58,000 trees. Knell is appreciated and congratulated for this well-deserved award and his excellent AML work.

**Bill Dodd, Assistant Director, AML Division,  
North Dakota Public Service Commission**

## Assistant Professor of Soil Science Position Available

The Department of Land Resources and Environmental Sciences (LRES) and Montana State University (MSU)-Bozeman announce a new tenure-track faculty position (70% teaching/20% research/10% service) to complement a strong multi-disciplinary department. For this position, we seek an individual dedicated to strong teaching performance in the soil sciences, who has experience in the area of Land Rehabilitation/Reclamation/Restoration. This academic year position is available beginning August 2012. Screening will begin January 10 and continue until a suitable applicant is found. Applicants must obtain a copy of the official vacancy announcement at the MSU website: <http://www.montana.edu/jobs/faculty>. Please see our departmental website: <http://landresources.montana.edu/> for information about LRES and the opportunity to join this vibrant department. MSU is an ADA/EO/AA/Veteran's Preference employer.

### NEWSLETTER ARTICLE SPECIFICATIONS

400 - 500 words. Articles subject to editing. Submit in e-mail or hard copy. 2 photo limit. Include author's name, title of article, captions for photos. Submit photos in TIF (preferred) or JPG format, 300 DPI, and original photo size. E-mail photos as individual files, not embedded.

**Deadline for Spring Edition is April 15, 2012.**

Email articles to [steve.hohmann@ky.gov](mailto:steve.hohmann@ky.gov) or mail articles to:

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