

# NAAML P

NATIONAL ASSOCIATION OF ABANDONED MINE LAND PROGRAMS

## NEWSLETTER

Spring 2016 Vol. 38 No. 1

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### UPCOMING MEETINGS

**2016 NAAML P CONFERENCE**  
Bozeman, MT September 25 - 28

### 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 Membership,

In the life of the AML Reclamation Program, election years have historically proven to be unusually busy for the Association, and so far it appears this year won't be an exception. With all of the interest and maneuvering on the Hill since our 2015 conference, the Winter Business Meeting in Sacramento proved to be just as packed and productive as anticipated. Seems like we did greatly benefit from adding the additional day ahead of the scheduled Winter Business Meeting and it may be something to consider again as Reauthorization inches closer. Our thanks go out to Glenda Marsh and her staff from the California AML Program for the hard work and excellent coordination in organizing the meetings. Hopefully, our California comrades will eventually be able to attend out-of-state Association meetings as well.

There were a number of Federal legislative initiatives with potential AML Programmatic impacts presented by Greg Conrad, Executive Director of the IMCC. Ryan Ellis developed an excellent and comprehensive synopsis of all of the AML-related bills which were discussed at the first day's meeting. The most pressing was the status of the RECLAIM Act of 2016 (H.R. 4456) and the need for an NAAML P response. We also discussed the status of the Economic Revitalization Pilot Program for Appalachia (H.R. 2029) which is allegedly being implemented, but seemingly stalled due to a number of unresolved questions pertaining to definitions and unanswered implementation details. The entire economic revitalization issue was discussed in detail including those items which we felt were the most critical and without amenable fixes we likely could not support.

Other issues discussed included SMCRA Reauthorization, Good Samaritan bills, the interest in (or lack thereof) a Hardrock AML bill similar to SMCRA, status of the Gold King Mine Spill response and an Association statement to be submitted on OSM's proposed FY17 budget request.

The afternoon was filled with a wrap up session followed by committee meetings. This included discussion of a new conference planning initiative to enable us to conduct more effective and inclusive conferences. The primary objective is to make sure that the many "outsider" participants feel more involved, and that the Association comes across as the impactful and professional organization that we know we are.

*President, Chuck Williams*



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During the all-day Business Meeting there were a number of priority programmatic and pressing budget items covered, along with all of the previous day's Federal legislative issues. OSMRE's Sterling Rideout, Assistant Director, and Yolande Norman, Chief PSD, Division of Reclamation Support, traveled from Washington DC to provide the Association with updates on several legislative proposals and rulemakings, MSHA jurisdiction of AML sites and the status of the \$90M Pilot Project for three Appalachian States. They also addressed both the FY16 AML Grant Distributions and OSM's FY17 proposed budget request.

Greg Conrad and Ryan Ellis provided IMCC's usual excellent updates and much appreciated perspectives on a number of issues involving the 2016 Omnibus Appropriations Bill, OSM's FY17 proposed budget and several key OSMRE Rulemakings. Their analysis included a comprehensive summary of all of the previous day's discussions on significant Federal legislative issues and a lively round-table of Association perspectives on H.R. 4456. The Business Meeting also included open discussions on a new NAAML P Hardrock/Non-Coal Awards Program, the development of an NAAML P/IMCC public relations poster, the OIG Audit of AML Programs, and the status of updating our website and transferring webmaster responsibilities from Oklahoma to Utah.

We also heard updates from all of the standing NAAML P Committees. Our committees contribute a tremendous amount to our cause and as I've mentioned before, shoulder much of the weight of our common workload. My sincere appreciation goes out to all serving on these committees. I encourage everyone to join and contribute! We have been given an awesome responsibility - no, a "charge" - to help heal past mining scars on this beautiful land with which God has so graciously blessed us. Let's all participate and move forward!

**Note: RECLAIM Act update** – Following our meetings in Sacramento, IMCC prepared an updated marked up version of H.R. 4456 along with a narrative overview of our proposed revisions. These were presented to Hal Rogers' (D-KY) staff during a March 4, 2016 meeting with NAAML P members from PA, KY, KS and MT participating via conference call. Our revisions were well-received and the congressman's staff expressed sincere appreciation to the States and Tribes for such a comprehensive and well-thought out approach. These documents were also shared with the House Energy and Mineral Resources Subcommittee, and during a subsequent oversight hearing, comments were made both in support of and in opposition to the bill. As of March 29, there had been no companion bill introduced in the Senate. Prospects for passage remain highly uncertain amid pushes from several Appalachian alliance organizations and political support from 3 Appalachian states.

Progress is moving forward for the 38th Annual NAAML P Conference which is being held this year jointly with the National Association of State Land Reclamationists (NASLR). The conference is being hosted by the Montana and Wyoming AML Programs from September 25-29, 2016 in beautiful Bozeman Montana at the Gran Tree Inn. They have planned an incredible pre-conference tour including iconic historic sites in Wyoming, Mammoth Hot Springs and Yellowstone National Park. There are also five technical tour options, along with a full schedule of events and slate of exhibitors. I would like to thank all of the staff from both AML Programs for the hard work and dedicated commitment to ensure this year's conference will not only be highly successful but memorable as well.

In closing, I'd like to recognize the many years of service and dedicated contributions of a veteran member who says he will be retiring (sort of) at the end of this month. Bruce Stover is the longtime leader of the Colorado Inactive Mine Reclamation Program, and is considered a friend not only by those in Colorado who have worked closely with him over the years, but also by the many of us who have had the pleasure to work and serve with him in our Association. Bruce has been involved in or has led the AML charge for over three decades and will be sincerely missed. We wish him a joyful retirement as he embarks on climbing yet one more mountain (after another) or trekking on some biker road trip with Lisa for many years to come!



Looking forward to seeing everyone (including Bruce) in Bozeman in September!  
**Best Regards**  
**Chuck Williams**

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## 2016 NAAMLPL Conference - September 25-28

The 38th annual NAAMLPL conference will be hosted by the Montana AML program in Bozeman, MT September 25th through the 28th. This year's conference will be one of the best ever with exciting preconference and conference tours, high caliber technical sessions, and a great evening at the Museum of the Rockies.



Activities will start with the preconference tour that is being hosted by the Wyoming AML program. The tour will leave Bozeman on September 23rd and return on the evening of the 25th. You will get to visit exciting places like the Pryor Mountain Wild Mustang Center, Big Horn Mountain Medicine Wheel, the Heart Mountain WWII Internment Camp Interpretive Center, Buffalo Bill Center of the American West and Yellowstone Park. The opportunity to take a tour of this caliber only comes along once in a great while. Don't miss this opportunity. For more information visit the NAAMLPL 2016 website ([www.naamlp2016.com](http://www.naamlp2016.com)) or call Don Newton at 307-335-6965.

On Sunday September 25th the conference officially kicks off with a reception at the GranTree Inn. Monday is the first day of technical presentations. There are some new sessions this year that are sure to be interesting such as: "Epic Fails", "Mining Cultural History", and "Large Lateral Leaps in Logic."

We are welcoming abstracts for presentations but the May 2nd deadline is rapidly approaching. All we need now are 300 words or less about the topic you would like to present and the session you think is the best fit. Email your abstract to [naamlp2016@mt.gov](mailto:naamlp2016@mt.gov). Our technical session committee will review your abstract and get back to you quickly.



### Tuesday is tour day with four great choices from which to pick:

**Tour 1:** This tour will go the McLaren Tailings Project via Yellowstone National Park. You will get to visit what we feel is one of the finest reclamation projects in the country and visit Mammoth Hot Springs, scenic Cooke City and the Lamar Valley.

**Tour 2:** Who doesn't like Yellowstone? This tour will go to Old Faithful, Norris Geyser Basin, and Mammoth Hot Springs. This will be a fun filled day.

**Tour 3:** Visit Butte America and see the historic Berkley Pit, the World Museum of Mining, have lunch at one of Butte's fine distilleries and tour Montana Resource International's current copper mining operation. This tour has something for everyone.

**Tour 4:** For the history lover this tour will visit the ghost towns of Virginia and Nevada City. Virginia City is famous for its vigilantes who kept the peace by hanging the bad guys. The tour will also visit Garnet USA's active mining operations.

Tuesday evening's event will be at the world famous Museum of the Rockies with special presentations by the Crow Tribe. Dinner will be provided and word is that buffalo and elk are on the menu. The museum and planetarium will be open to explore with its outstanding dinosaur exhibits. During the conference the traveling exhibit will be The Villas Oplontis near Pompey. As a plus to all conference goers you will be able to bring your plus one at no additional charge.



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Sunday, Monday, and Tuesday evenings there will be a hosted hospitality suite featuring Beers of Montana. This will be a tremendous opportunity to sample the wares of many of Montana's fine microbreweries and visit with friends.

The conference will be held at the GranTree Inn in Bozeman. Unfortunately, the GranTree is completely booked already. On the positive side we have rooms for the conference set aside at the Holiday Inn, Days Inn, Comfort Inn and the Hampton Inn. These are all fine establishments and are within walking distance of the GranTree. While we do have lots of rooms reserved, there is a good chance that attendance at this year's conference will be bigger than ever so get your rooms reserved early. See the [conference web site](#) for hotel information.

September and October is the best time to see Montana. We hope you will come early and stay a few extra days exploring Big Sky Country. There is plenty to see and do from fishing, camping and hiking to shopping, good restaurants and museums. Don't miss the chance to see all Montana has to offer.



## Welcome to Montana Autumn Coleman

### Bozeman Montana and Hotels

Bozeman is Montana's 4th largest city and a great place to stay while seeing some of the great things that Montana has to offer. It's a gateway to [Yellowstone National Park](#), home to [Montana State University](#), [Museum of the Rockies](#), the [American Computer Museum](#), incomparable scenery, opportunities to hike, camp, and fish, lots of great shopping and much more.

The Montana AML Program is so excited for you to join us! We encourage everyone to come early and stay late to explore our beautiful state! Any one of our tours will highlight a small portion of the fourth largest state, but there is so much more to do! [Visitmt.com](#) can help you plan a Montana vacation! [Glacier National Park](#) in the fall is stunning. Bozeman is right on the doorstep of [Yellowstone National Park](#). We all love visiting [Red Lodge](#) (don't forget to stop in the [Park County Historical Society](#) and ask to see the coal mining exhibit) and don't miss driving over the [Beartooth Pass](#). [Flathead Lake](#) is the largest natural freshwater lake west of the Mississippi near Kalispell or Polson. Do you love to fly fish? Ennis, Wolf Creek, Bozeman, Missoula and Livingston are world renowned for [fly-fishing](#). Montana boasts exceptional State Parks that afford camping, hiking, fishing and caving opportunities. Montana is ripe with opportunities to visit National Forests or other public lands. Make sure to order an Elk Burger, a Bison Steak or wild caught trout for dinner while you are here. Montana has over 50 breweries and several craft distilleries to visit.

### Hotel Information

To be sure you receive the conference rate, we suggest you call the hotel of your choice directly and not use the chain's general reservation phone number. Rooms are available at all locations for shoulder dates should you want to arrive early and stay late.

**Best Western GranTree Inn:** 1325 N 7th Ave, Bozeman, MT 59715 - (406) 587-5261

**Days Inn & Suites Bozeman:** Address: 1321 North 7th Ave, Bozeman, MT 59715 - (406) 587-5251

**Holiday Inn Bozeman:** 5 East Baxter Lane Bozeman, MT 59715 - (406) 587-4561

**Comfort Inn:** 1370 N. 7th Ave., Bozeman, MT, 59715 - (406) 587-2322

Each of the hotels offers a free shuttle service from the Bozeman airport to their facility. They all ask that you make a reservation 24 hours in advance.

Southwest Montana's [Bozeman Yellowstone International Airport \(BZN\)](#) is located in the heart of the beautiful Gallatin Valley. BZN is the only airport serving as a year-round gateway for two [Yellowstone National Park](#) entrances. BZN also serves the recreation areas of [Big Sky Resort](#) and the [Bridger Bowl Ski Area](#) as well as the business centers of Bozeman, Belgrade and Livingston .

For more information on the things to see and do visit the [Bozeman Area Chamber of Commerce](#).

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## Call For Papers/Presentations

Please submit abstracts for consideration under one of the session headings listed below. Abstracts should be not greater than 300 words. Please email your abstract to [NAAML2016@mt.gov](mailto:NAAML2016@mt.gov) no later than May 2nd 2016. You will receive an email acknowledgement when your abstract is received. You will also be notified if your paper is accepted for presentation at the conference. All presentations accepted by the technical sessions committee must be delivered to the IT personnel at the conference Sunday, September 25th in PowerPoint format so they may be loaded onto computers. A ready room will be provided for speakers to practice their presentations. As in past years everyone presenting at the conference is expected to register for the full conference. We have designed the technical sessions to enable participants to share ideas and promote meaningful conversations about the future of mine reclamation.



### Topics For Discussion

**Technical Applications in Mine Reclamation:** Developments in information technology, mapping, and software, and how they are aiding abandoned mine land reclamation.

**SMCRA and Economic Development:** Discuss the interaction of abandoned mine land reclamation with communities and the potential for economic development enhanced reclamation projects.

**Water Quality and Treatment:** Investigation and implementation of technologies for the treatment of mine impacted water.

**Subsidence and Geophysical Methods:** Subsidence related issues including methods for assessment of subsidence risk, subsidence mitigation work, and measures enacted to prevent future problems.

**SMCRA Policy Issues & Community Outreach:** Issues related to current and future SMCRA funding, potential impacts to state and tribal programs, and community involvement efforts throughout the mine reclamation process.

**Mine Reclamation:** Chaired by National Association of State Land Reclamationists and will focus on mine reclamation practices including mine closures, fire abatement work, revegetation, and future land uses.

**Epic Fails and What We Learned:** An opportunity to discuss lessons learned in the challenging field of mine reclamation with a positive focus on how our experience is valuable to the success of future projects.

**Mining Cultural History:** The colorful and fascinating cultural history of coal and hardrock mining across the country.

**International Issues in Mining and Reclamation:** Expanding the scope of mine reclamation to environmental and mine reclamation issues outside the United States building on the informative discussions from the 2015 NAAML2016 conference.

**Wildlife & Valuable/Endangered Species:** A look at what is new, exciting and changing in respect to managing wildlife and valuable, threatened, or endangered species at reclamation sites.

**Hydrologic Basin and Stream Restoration:** Best practices, innovative approaches, project work conducted to restore waterways impacted by mining to a useful and productive state will be presented.

**Large Lateral Leaps in Logic:** An opportunity to present new and innovative ideas in abandoned mine reclamation. This session will emphasize out of the box thinking and audience interaction.

**New Developments in Mine Reclamation:** Cover current knowledge and evolving practices employed to facilitate all aspects of effective mine reclamation.

**Hard Rock Reclamation & Certifiable Problems:** Abandoned hard rock mines present a unique set of reclamation and restoration issues. This session provides a forum to discuss methods for addressing and mitigating problems posed by hardrock mines.

## Explore Wyoming Pre-Conference Tour

**September 23, 2016** - Bozeman to Pryor Mountain Wild Mustang Center: Wild horses still roam freely in the Pryor Mountains outside of Lovell, Wyoming. This herd of horses is very special because of its Colonial Spanish American heritage. This tough little horse, derived from the horses of Portugal and Spain, has been present in this rugged mountain area for nearly 200 years. If lost, the herd cannot be restored; and so its biological viability, together with its history, must be preserved.



**Big Horn Mountain Medicine Wheel:** The Medicine Wheel is located in the Bighorn National Forest on the western peak of Medicine Mountain at an elevation of 9642 feet in the Bighorn Range east of Lovell, Wyoming. The 75-foot diameter Medicine Wheel is a roughly circular alignment of rocks and associated cairns enclosing 28 radial rows of rock extending out from a central cairn. This feature is part of a much larger complex of interrelated archeological sites and traditional use areas that express 7000 years of Native American adaptation to and use of the alpine landscape that surrounds Medicine Mountain.

**Heart Mountain Interpretive Center WWII Japanese Internment Camp:** In August of 2011, the Heart Mountain Wyoming Foundation opened its doors to the Heart Mountain Interpretive Center, a world-class museum dedicated to passing on the Heart Mountain story to future generations. Through photographs, artifacts, oral histories and the interactive exhibits, guests to the Center experience life at Heart Mountain through the eyes of those Japanese and Japanese Americans that were confined here during WWII.



Stay in Cody, WY at the [Cody Cowboy Village](#)



**September 24, 2016** - **Buffalo Bill Center of the American West Tour:** Tracing its roots to 1917, the Buffalo Bill Museum is the flagship museum of the Buffalo Bill Center of the West. First opening its doors to the public in 1927 in a log cabin in downtown Cody—modeled after Bill Cody’s house at his “TE Ranch”—southwest of town, the museum remained in that location until 1969 when it was relocated to a newly-built wing of the then Buffalo Bill Historical Center. Here, as in its original incarnation, the Buffalo Bill Museum’s focus is on the life and times of William F. “Buffalo Bill” Cody (1846 – 1917), the noted guide, scout, frontiersman, showman, actor, entrepreneur, town founder, and American icon.

**Yellowstone National Park Tour:** America’s First National Park - Since 1872, Yellowstone National Park has been thrilling visitors with spectacular geysers, prismatic springs, thundering waterfalls, vast mountain vistas, bugling elk, majestic swans, grazing bison and powerful grizzly bears. Whether you are a first timer or a Yellowstone super volcano veteran, the Park always holds new sites to re-energize your respect for and wonder of nature.



Stay at [Lake Village Cabins](#) in Yellowstone National Park



**September 25, 2016** - **Yellowstone National Park Tour** and Return to Bozeman, MT

Tour Fee - estimate \$250 (covers transportation, YNP/Buffalo Bill/Heart Mountain entrance fees, two lunches and Friday’s dinner)

Hosted by [Wyoming Abandoned Mine Lands Program](#)

Contact Don Newton at [don.newton@wyo.gov](mailto:don.newton@wyo.gov) or 307.335.6965

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## Tour 1 - Top of Yellowstone to Cooke City

This tour will travel through the geologically and ecologically diverse area along the northern portion of [Yellowstone National Park](#). The scenery is spectacular and includes Paradise Valley, Mammoth Hot Springs, Lamar Valley, the Yellowstone Canyon, Tower Falls, and the alpine community of Cooke City. The geology is equally spectacular including geothermal and volcanic activity associated with Yellowstone, ore deposits of the New World Mining District near Cooke City, and well preserved glacial features. The tour will include a stop at the McLaren Tailings reclamation project, a five year 22 million dollar project completed by the Montana AML program to remove a potentially unstable mine tailings impoundment from the floodplain of Soda Butte five miles upstream of the Park.

### [Paradise Valley and Mammoth Hot Springs](#)

Leaving Bozeman, the tour travels along the Yellowstone River through Paradise Valley. The valley is flanked by 10,000-foot peaks of the Absaroka and Gallatin Ranges and is one of Montana's most scenic valleys. The tour continues to Yellowstone National Park through Gardiner and the iconic Roosevelt Arch. The first planned stop is at the Mammoth Hot Springs area which includes the Albright Visitor Center, Fort Yellowstone, and Mammoth Hot Springs. The travertine terraces of Mammoth Hot Springs are rare and recognized as one of the Park's most beautiful and unique features.

### [Lamar Valley, Soda Butte Creek, New World Mining District](#)

The tour continues on through the Lamar Valley. This wide, expansive valley is home to bison, elk, coyote, grizzly and wolf and is the single best place to watch the wildlife in Yellowstone. Bison, elk, and coyotes can often be spotted.

The tour travels up the Lamar River and along Soda Butte Creek to Cooke City. Although scenic, Soda Butte Creek has been recognized as the most contaminated creek entering Yellowstone since the 1960s.

Extensive mine reclamation work completed by Montana AML program and the US Forest Service has resulted in significant improvements in water quality and efforts are currently underway to restore the creek as a stronghold for native Yellowstone Cutthroat trout. Lunch will be provided along the headwaters of Clarks Fork of the Yellowstone River. The site includes a waterfall and a view of the Beartooth Mountains including Granite Peak, at the highest mountain in Montana.

### **What to Bring for Tour 1:**

The tour will begin at approximately 7:00 AM in the morning and return to Bozeman around 5:30 PM. There is limited cell phone coverage along much of the route, and there is no cell phone coverage in the Cooke City area. Attendees are encouraged to bring warm clothes, comfortable shoes, and some cash as at least one restaurant in Cooke City does not accept credit cards.

An overview of an innovative and challenging project to install a hydraulic seal in a discharging adit in the New World Mining District will be provided over lunch.

### [Cooke City, McLaren Tailings, and Tower Falls](#)

Following lunch, the tour will visit the McLaren Tailings reclamation project completed in 2014 by the Montana AML program. The project included extensive construction dewatering, water treatment, and soil stabilization work to remove one half million tons of water saturated tailings from the Soda Butte Creek floodplain. A stop in Cooke City for shopping, site seeing, or a trip to the mining history museum is also scheduled.

The tour will return through the Lamar Valley and include a final stop at the Tower Falls scenic area. This location provides a dramatic overview of the waterfall, the Yellowstone canyon below, as well as excellent exposures of columnar jointing in the volcanic deposits.



## Tour 2 - Old Faithful, Grand Prismatic Springs, and Mammoth Hot Springs

Watching Old Faithful erupt is a Yellowstone National Park tradition. People from all over the world have journeyed here to watch this famous geyser. The park's wildlife and scenery might be as well-known today, but it was the unique thermal features that inspired the establishment of Yellowstone as the world's first national park in 1872.

Old Faithful is one of nearly 500 geysers in Yellowstone and one of six that park rangers can currently predict. It is uncommon to be able to predict geyser eruptions with regularity and Old Faithful has lived up to its name, only lengthening the time between eruptions by about 30 minutes in the last 30 years. The reliability of Old Faithful inspired early developers to build special viewing areas, lodging, and concessions for visitors to watch eruptions.

**Grand Prismatic Spring** - Grand Prismatic Spring, located in Midway Geyser Basin, has the distinction of being the Park's largest hot spring. It measures approximately 370 feet in diameter and is more than 121 feet deep. A description of this spring by fur trapper Osborne Russell in 1839 also makes it the earliest described thermal feature in Yellowstone that is definitely identifiable. Watch the Inside Yellowstone episode about Midway Geyser Basin.



**Mammoth Hot Springs Terraces** - As one early visitor described the Mammoth Hot Springs terraces, "No human architect ever designed such intricate fountains as these. The water trickles over the edges from one to another, blending them together with the effect of a frozen waterfall." The hot springs were an early commercialized attraction for those seeking relief from ailments in the mineral waters. Mammoth Hot Springs are a surface expression of the deep volcanic forces at work in Yellowstone. Although these springs lie outside the caldera boundary, scientists surmise that the heat from the hot springs comes from the same magmatic system that fuels other Yellowstone thermal areas. A large fault system runs between Norris Geyser Basin and Mammoth, which may allow thermal water to flow between the two. Also, multiple basalt eruptions have occurred in this area. Thus, basalt may be a heat source for the Mammoth area.

### What to Bring for Tour 2:

This tour will last approximately 7 hours, early morning to late afternoon. Weather can be on the cool side in the early morning and late afternoons in Montana especially in late September so bring along a light jacket and wear comfortable sneakers (AKA tennis shoes) or hiking boots. The sun will be bright and intense so sun screen, a hat, and sunglasses are also recommended. Those of you who are afflicted with cell-phone deficit disorder should know that there is often limited cell service in portions of the Tour. Finally, we recommend that you bring some folding money, credit/debit cards are not always accepted in local shops and restaurants.

## Tour 3 - Butte, America! Streamside Tailings

**World Museum of Mining** - The World Museum of Mining was founded in 1963 when the close of Butte's mining heyday was less than two decades away. In the end, Butte experienced a century of hard-rock mining and earned the reputation of being home to one of the world's most productive copper mines of all time. The Museum exists to preserve the enduring history of Butte and the legacy of its rich mining and cultural heritage.

By walking the streets of **Hell Roarin' Gulch** and venturing to the depths of the Orphan Girl Mine, you can almost see their blackened faces and hear their exhausted sighs at the conclusion of the workday.

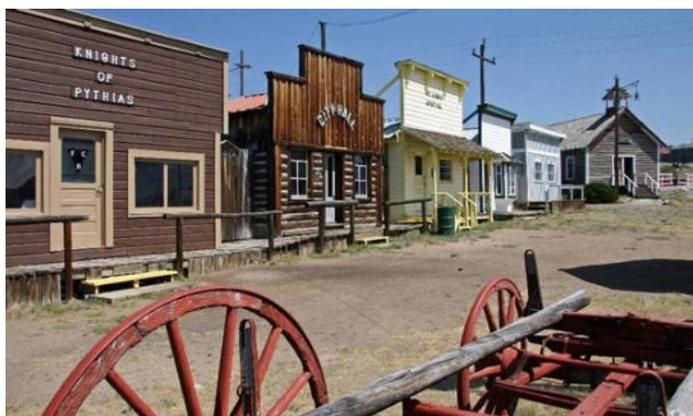
**Orphan Girl Underground Mine Tour** - See the equipment, touch the rock and hear the stories of miners who worked the Orphan Girl Mine. This underground tour is like no tour you've taken before. At the peak of Butte's mining boom, thousands of men worked in the veins below the city of Butte. The tour guides will lead you through the drift sharing stories as you venture 65 feet into the 2700-foot deep Orphan Girl Mine. The World Museum of Mining's Underground Mine Tour may be the most realistic you'll ever experience.

**Berkeley Pit** - The Berkeley Pit, started in 1955, was a large truck-operated open-pit copper mine until mining ceased in 1982. By 1980 nearly 1.5 billion tons of material had been removed from the Pit, including more than 290 million tons of copper ore. The pit enabled Butte to claim the title The Richest Hill on Earth. Two communities and much of Butte's previously crowded East Side were consumed by land purchases to create



the pit. The Anaconda Mining Company bought the homes, businesses and school of the working-class communities of Meaderville and McQueen, east of the pit site. The pit is 7,000 feet long, 5,600 feet wide and 1,600 feet deep from the high wall on the north side just below the Kelley mine. Present day visitors can view the mine from a platform located above it. The viewing stand offers a look at the Berkeley Pit, which is filling with water.

**Granite Mountain Memorial** - The greatest loss of life in hardrock mining history occurred in Butte on June 8, 1917, when 168 men died in the tragic Speculator Fire Disaster. The Granite Mountain Memorial offers the visitor an unforgettable panoramic view of the 10,000-foot Highland Mountains, the Continental Divide and the remnants of a once booming mining industry. Interpretive plaques tell the story of the people, events and turbulent times that surrounded this catastrophe.



**Streamside Tailings Project** - Silver Bow Creek originates in Butte, Montana at the confluence of the Metro Storm Drain and Blacktail Creek and flows to the Warm Springs Ponds, the headwaters of the Clark Fork River. Starting in the late 1880s, tailings and other mine wastes containing high concentrations of metals were discharged directly to Silver Bow Creek and redistributed through flood events, including a massive flood in 1908. These toxic discharges impacted the stream and floodplain with heavy metals and virtually eliminated aquatic life in the stream. Tailing deposits resulted in a floodplain that was largely devoid of vegetation and generally incapable of supporting wildlife.

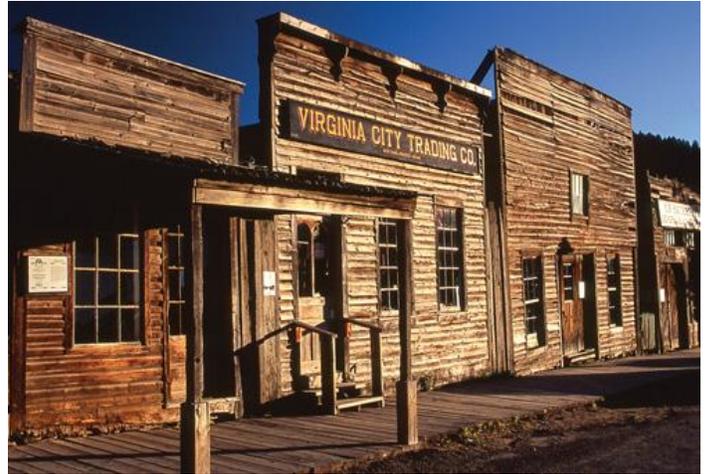
### What to Bring for Tour 3:

This tour will last approximately 7 hours. Weather can be on the cool side in the early morning and late afternoons in late September so bring along a light jacket and wear comfortable sneakers (AKA tennis shoes) or hiking boots. The sun will be bright and intense so sun screen, a hat, and sunglasses are also recommended. Those of you who are afflicted with cell-phone deficit disorder should know that there is often limited cell service in portions of the Tour. Finally, we recommend that you bring some folding money; credit/debit cards are not always accepted in local shops and restaurants. Hard hats and other safety equipment will be provided for the mine tour.

## Tour 4 - Virginia City, Nevada, Garnet USA

**Virginia City** - Virginia City is the number one state owned tourist attraction and the town that literally has resisted change since 1863! View what history has left behind with hundreds of historic buildings complete with one of the largest Americana artifact sites in the United States.....Here's why.....

It was about four o'clock in the afternoon on May 26, 1863, when a ragged, trail-weary party of six men decided to make camp beside a mountain stream whose course they had been following since early morning. The men knew they were only a few days away from the gold camp of Bannack, they had experienced a series of ill-fated adventures; including their failure to rendezvous with a larger party of prospectors led by James Stuart, and being captured by warriors of the Crow Nation. After selecting their campsite, four of the men walked back upstream to do some gold prospecting before dinner. Bill Fairweather and Henry Edgar remained behind to take their turn at "camp duty" Bill walked a short way downstream to look for a good spot to picket the party's horses for the night. Bill soon returned to camp and told Henry he had noticed a site where a piece of bedrock was exposed along the creek bank. Fairweather asked Edgar to help him prospect the site and, as Edgar recalled, "Bill got the pick and shovel and I the pan and went over." Fairweather led the way to the site, shoveled some dirt into the pan Edgar was holding, and told him: "Now go he says, 'and wash that pan and see if you can get enough to buy some tobacco when we get to town.'" What Bill discovered would prove to be one of the richest gold deposits in North America, and would be the seminal event in the history of Montana.



**Nevada City** - Discovery of gold also drew Road Agents to the area. Openly led by George Ives they robbed miners at will and returned to Virginia City flaunting their ill-gotten gains. Ives was run to ground by Vigilantes after one of his victims was identified. After a two-day trial in Nevada City the jury deliberated and found him guilty. Ives was hanged minutes later.

**Garnet USA** - Garnet USA, located in the Ruby Valley, produces several thousand tons of industrial quality garnet per year for the water-jet cutting and sand blasting markets in North America. GUSA has perfected an advanced mining and processing operation to strategically meet the growing global demand for quality garnet abrasives. During this portion of the tour, visitors will be allowed to walk through the currently mined section of the quarry and collect specimens.



### What to Bring for Tour 4:

This tour will last approximately 7 hours, early morning to late afternoon. Weather can be on the cool side in the early morning and late afternoons in Montana especially in late September so bring along a light jacket and wear comfortable sneakers (AKA tennis shoes) or hiking boots. The sun will be bright and intense so sun screen, a hat, and sunglasses are also recommended. Those of you who are afflicted with cell-phone deficit disorder should know that there is often limited cell service in portions of the Tour. Finally, we recommend that you bring some folding money; credit/debit cards are not always accepted in local shops and restaurants.

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# Hardrock AML Reclamation Award Program

This award program aims to recognize exemplary projects in two categories:

**1. Remediation of Contamination Impacting the Environment or Human Health.**

**2. Remediation of Physical Safety Hazards at legacy abandoned hard rock mines in the United States.**

Mining and other mineral resource development have occurred in many areas throughout the country. Commodities extracted include precious and base metals such as gold, silver, platinum, lead, copper, and zinc, and industrial minerals such as clays, limestone, and borates. In addition, other commodities included energy-related uranium, and construction-related building stone and aggregate material.

Many mines were in operation prior to the adoption of laws at the state and federal levels requiring reclamation. Hundreds of thousands of features from these legacy abandoned mines are found in every type of landscape. Many pose serious safety issues and impact air and water resources, and communities.

Abandoned mines can harm the environment and endanger the lives and health of those living or recreating nearby. Today, thousands of dangerous health, safety, and environmental problems exist as the result of abandoned mine lands. Eliminating these problems through remediation or reclamation requires specialized skills, innovative thinking, and dedication.

Initiated in 2016, NAAML P recognizes those responsible for the nation's highest achievements in hardrock abandoned mine land reclamation. The annual Hardrock Abandoned Mine Land Remediation Awards Program publicly recognizes outstanding hardrock abandoned mine land remediation or reclamation and publicizes exemplary reclamation techniques.

What projects are eligible for an award?

Projects to remediate hard rock mines left unreclaimed prior to reclamation requirements of state or federal law, and funded wholly or in part and completed by federal, state, non-profit, or tribal programs, and/or private parties are eligible for an award. Projects nominated in the same year for another award are not eligible.

This includes all types of remediation or reclamation in two categories of risks stemming from abandoned hard rock mines: physical safety hazards or contamination impacting the environment or human health. One project for each of the two categories may be submitted by eligible programs each year.

Each nomination package must be submitted electronically to [NAAMLPhardrock@utah.gov](mailto:NAAMLPhardrock@utah.gov), Nominations due June 10, 2016. Packages will be posted on the web in Adobe Acrobat format; they may be submitted as one file in Acrobat (containing text and photos), or as a Word file containing text and separate files containing photographs (or graphics) in .jpg format. All nominations must include the cover photo in .jpg format in a separate file. Files are limited to 25 MB and can be submitted in .zip format.

Organizations Eligible to Submit Nominations: State, Tribal, or Federal agencies, or non-profit organizations with the authority to address hazards from abandoned mine lands.

*Leviathan Mine Alpine County, California*



For further information, go to: [NAAML P.net](http://NAAML P.net) or send an email with your question to: [NAAMLPhardrock@utah.gov](mailto:NAAMLPhardrock@utah.gov)

2016 Awards will be presented at the [NAAML P Annual Conference](#) in Bozeman, Montana on September 26, 2016

## 2015 Emergency Coal Fire Reclamation In North Dakota

Two emergency coal fires were extinguished by the North Dakota AML Division in 2015. The first fire was burning on an area of about 2.3 acres near the City of Haynes in southwestern North Dakota. It was reported on April 15, 2015.

This coal fire was ignited by a wildfire that burned approximately 100 acres a couple weeks earlier. The wildfire ignited coal screenings deposited near the entry of the Stevenson Coal Mine which operated from about 1911-1936. The property owner, Adams County, and the Hettinger Fire District had been working to contain the coal refuse fire. They were concerned it could ignite another wildfire that would threaten an occupied residence and traffic along a nearby county road and state highway. The coal fire was a hazard to public safety and property. The Adams County Emergency Manager requested assistance to extinguish it as soon as possible.



*Haynes Coal Fire Emergency, April 23, 2015: Personnel from the Hettinger Fire Protection District were on hand during the entire time the Haynes Coal Fire was being extinguished. This shows two firemen spraying the edges of the coal fire to keep it from spreading.*

The North Dakota AML Division contracted with Earthworm Excavating of Tolna, ND, and coal fire reclamation began April 22, approximately a week after the initial report. The contractor excavated a large burial trench across the north and west sides of the fire. This trench was approximately 200 feet long, 25 feet wide and 15 feet deep. The contractor began pushing the burning coal fines into the trench with a bulldozer and mixing them with wet soil removed from the trench. As burning coal was exposed to air, it heated to temperatures over 900°F. Smoke could be seen from miles away. The Hettinger Fire Protection District was on hand during the entire project to keep the fire from spreading. After all burning materials were extinguished and buried; the entire area was graded, tilled and seeded to a native grass seed mix. This project was completed May 1, 2015, and the contract cost was \$18,020.

The second coal fire was reported May 13, 2015, by the property owner and the Williston Rural Fire District. It was burning near Williston in northwestern North Dakota. It was within a quarter-mile of an occupied residence and less than a mile from an active oil well. According to the property owner, this fire was ignited by a spark from the railroad that started a grass fire and eventually ignited exposed coal refuse near the entry of the historic Avoca Mine, which operated from 1913-1947.

Earthworm Excavating was also the contractor for this project. The contractor began by moving historical mining equipment off the site. The project was difficult because of steep unstable slopes above the coal fire and a stock pond directly below the fire. Work began June 3 and was completed June 10, 2015. The average thickness of burning coal refuse was 3-5 feet and burial trenches were excavated about 8-10 feet deep. After reclamation, topsoil was respread on the one-acre disturbed area and it was tilled and seeded to native grasses. About 1800 cubic yards of excavation was required for this project and the contract cost was \$18,110.

These two emergency projects protected landowners and the public from imminent hazards of abandoned mine lands.

**Bill Dodd**  
**Assistant Director**  
**North Dakota Public Service Commission**  
**Abandoned Mine Lands Division**

*Lovejoy Avoca Coal Fire Emergency, June 3, 2015: Earthworm Excavating was uncovering burning coal fines with a Cat D-6 bulldozer and excavating a burial trench with a Cat 316 Excavator for the burning materials. Note the sinkholes in the background.*



# Abandoned Underground Coal Mine Reclamation on The ND Prairie

Lignite coal mining played a vital role in North Dakota's history. Hundreds of coal mines operated between the late 1800s and 1940s. These mines were abandoned for cheaper alternative fuels or increased government involvement. Abandoned mines have caused public hazards including deep sinkholes, as underground mines collapsed, and steep highwalls at the final pits of surface mines.

The Halleck Underground Mine operated five miles north of Bowman, in southwestern North Dakota, from 1919 until 1944. Halleck provided coal to heat homes in the area. The top of the 30-40 foot thick coal seam is less than 50 feet below surface in mostly soft overburden. Several huge sinkholes have opened at this abandoned mine site.

Local authorities reported several large and dangerous sinkholes in January 2014 within 70 feet of two well-travelled roads and 90 feet of the TransCanada Bison Pipeline, a 30-inch interstate natural gas transmission pipeline. The sinkholes also severed a fiber optic telecommunication cable. The North Dakota AML Division conducted an emergency project to fill these dangerous sinkholes with more than 1200 cubic yards of waste concrete and dirt.

In consultation and meetings with the City of Bowman, Bowman County and TransCanada, the AML Division planned and conducted a 2015 drilling and grouting project to stabilize the roads and pipeline threatened by mine collapse. The Bison Pipeline was located above the entry tunnel of the Halleck Mine as it passed near the Farm to Market road. This increased the difficulty of the project. Safety was a prime concern when working around this high-pressure pipeline. TransCanada was active both in the planning and execution of this work.

Drilling near the pipeline revealed tightly packed rubble 16-24 feet below surface, which was the expected depth of the entry tunnel. This verified anecdotal reports that the entry tunnel was excavated when the Farm to Market Road was improved and paved. No drilling or grouting was conducted within the 50-foot pipeline easement. Grout injection within 75 feet of the pipeline was conducted carefully without pumping pressure and was monitored closely.

*2015 Google Earth image of the Halleck Mine site during the drilling and grouting project with mine map, drill holes and Bison pipeline overlays. The cluster of equipment in the center is an onsite batch operation. Blue dots represent void holes that were filled with grout. Toward the bottom center is where the pipeline, Farm to Market road and entry tunnel all merge.*

The Halleck mine entry passed directly under 81st Street (see map). We used a borehole camera to determine the tunnel was open but supporting timbers were failing. Grout was pumped into this tunnel through a hole drilled on the 81st Street until it "blew out" and broke through the ground surface in the south ditch. Using the borehole camera, we could also see the west ditch of 146th Avenue was significantly undermined with large open mine voids 60 feet or less below surface.

A total of 4500 cubic yards - about 500 truckloads - of cementitious grout were pumped into underground mine voids at the Bowman Site. We believe our goal of stabilizing these undermined public roads and areas near the Bison Pipeline were met. This successful project was a collaborative effort between the North Dakota AML Division and many interested shareholders.

**Joan Breiner**  
**Environmental Scientist**  
**North Dakota Public Service Commission**  
**Abandoned Mine Lands Division**



## Rethinking Reclamation In Iowa

The Iowa Abandoned Mine Land (AML) program has been successfully implemented through the Iowa Department of Agriculture & Land Stewardship, Division of Soil Conservation & Water Quality since the early 1980's. Over 300 sites, totaling over 13,000 acres, are inventoried. Typical and proven reclamation in Iowa consists of mass grading, spoil neutralization, and permanent seeding to mitigate the specified hazards while stabilizing the area long-term. A combination of better management practices including tile outlet terraces, sediment basins, constructed wetlands, and eventually permanent seeding with warm and cool season grasses have been replicated on roughly one hundred of Iowa's known abandoned mine sites.

Borrowed from conservation practices on working lands, design and construction of the aforementioned practices have been refined and adjusted over the years as new and better materials and/or methods have emerged. Matching practices that eliminate site hazards with ever differing landowner interests is attempted. Every effort is made to balance the need to address priority features, stabilize and protect the site, while minimizing



repairs and maintenance long-term. More recent efforts to build and strengthen local conservation partnerships that encourage and educate landowners with post-reclamation land management are evolving.

Although the traditional reclamation techniques are mostly successful, new and better methods are continually considered by the Iowa AML staff. Finding efficiencies for a minimum program state is paramount to stretching program dollars. One new design strategy gaining credence in Iowa is Natural Regrade and land form planning. High tech construction equipment is making such projects more practical to construct and the results are promising. A presentation at the 2016 NAAMLP annual conference will discuss Iowa's traditional methods vs. natural regrade landform reclamation techniques in humid continental climates. Plan to attend that session if you are at the conference.



**Iowa Department of Agriculture  
Mines and Minerals Bureau**



## Oriole Mines Reclamation - Hopkins County, KY

The Oriole Mine and associated waste coal existed alongside several reclaimed mine areas and consisted of an 87 acre barren, eroding, acidic stain on the otherwise green, stable, and productive broader landscape. The project reclaimed 42 acres of barren acidic refuse, 38 acres of slurry and outwash from the refuse piles, 7 acres of highly acidic impoundments, and 29.5 acres of borrow. The site was the Oriole Mine's processing and load out facility used by other adjacent mines through the 1960's. All operations had ceased and the tipple and railroad tracks were removed by the early 1970's leaving behind the barren refuse piles, slurry, and acidic impoundments.

The site presented hazards to public health, safety, and welfare due to barren acidic refuse piles and impoundments. Sediment from the site collected in ditches around an existing private company's office and shop adjacent to the site, forcing them to excavate the ditches to prevent drainage from the site inundating the shop area. During dry and windy periods the exposed refuse and fine slurry material were susceptible to wind erosion and accumulation onto the company's equipment. Exposed iron sulfide minerals in the refuse materials oxidized producing secondary sulfate salts that created instant highly acidic and metal laden drainage during precipitation events that readily washed offsite. Further, the exposed refuse piles posed an open fire risk as the area is easily accessible by road, off road trail vehicle, and foot.

In 2012, the Kentucky Division of Abandoned Mine Lands (KYDAML) began to develop reclamation plans for the project site. Background water samples were collected and aerial photogrammetry information was collected. Because the site was essentially an island in a sea of post-SMCRA mine land, the availability of cover material was a problem. The only available source of suitable material that did not risk the exposure of reclaimed refuse was in an adjacent permitted overburden disposal area. Fortunately, the area had passed its second phase

*The natural design channels are stable despite several high volume storm events that have occurred in the region, including within 3 months of vegetation establishment.*



*The entire site was reclaimed with a soil/spoil cover of at least 2.5 feet over the graded refuse. Approximately 35 acres were developed into FRA tree planting areas. One slope shaft was located and properly closed.*

of bond release and was owned by the major project area landowner, Alliance Coal. KYDAML was able to coordinate an agreement between Alliance Coal, KY Division of Mine Permits, KY Division of Mine Reclamation and Enforcement, and the KY Department for Natural Resources Commissioner's office to obtain the necessary increment revisions and early release of the necessary borrow area.

Tree plantings in the FRA areas have shown some initial surface dieback but their root structures have grown. They are beginning to show above ground growth as spring is approaching. The ground cover on all reclamation areas has spread and stabilized the site. In a winter 2016 review, KYDAML personnel did not find any areas of concern or erosion patterns across the entire site. Existing tree areas were left around the site where possible, to serve as natural seed bank sources. These trees are expected to provide volunteer plants across the entire site.

**Mark Meade, Assistant Director  
Kentucky Division of Abandoned Mine Lands**

*The wetland is providing a polishing water treatment step and has raised the outflow pH from a pre-project average of about 3.0 to a current average of near 6.3. The wetland has also captured sediment, and provided much needed wildlife habitat.*



## Volunteers Plant 1,020 trees at the Andrew's Run AMLRP

On March 26, 2016, more than 50 volunteers from the Muhlenberg County Boy Scout troop 3241, Pack 40, Girl Scout troop 4641 and Muhlenberg County 4H donned their boots and work gloves to take part in an Arbor Day event with the help from State and Federal environmental agencies. After receiving a crash course in tree planting given by Patrick Angel, senior forester and soil scientist for the U.S. Department of Interior's Office of Surface Mining and Enforcement, the volunteers partnered up, grabbed their planting tools and buckets of trees, and started planting the 1.5 acre plot.



The focus of the tree planting was to plant and establish native oak and hickory species on reclaimed lands utilizing the Forest Reclamation Approach. The planting area was prepared by end dumping cover material in a manner that established 4-6' of uncompacted growth medium. The FRA method creates an environment that will allow the trees to grow and mature much faster than planting in traditional compacted soils.

The KY Division of Abandoned Mined Lands partnered with the Office of Surface Mining, KY Fish and Wildlife, Green Forest Works, and Appalachian Regional Reforestation Initiative to provide trees, tools and leadership needed to hold a successful Arbor Day event.



**Kentucky Division of Abandoned Mine Lands**

### NEWSLETTER ARTICLE SPECIFICATIONS

400 - 500 words. Articles subject to editing. Submit in e-mail or hard copy. Include author's name, title of article, captions for photos. Submit photos in TIF (preferred) or JPG format, and original photo size.

E-mail photos as individual files, not embedded.

**Deadline for Fall Edition is November 15, 2016.**

Email articles to **Bob Scott** ([bobf.scott@ky.gov](mailto:bobf.scott@ky.gov)) or mail articles to: Bob Scott, Director  
Division of Abandoned Mine Lands  
Department for Natural Resources  
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For more information call **Bob Scott, Mark Meade** or **Ben Enzweiler** at 502-564-2141.