

MONTANA MINING 2024



Moving into the

FUTURE OF MINING

Elementary students learn about mining at “Montana Mining Day”

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Focusing on exploration and growth

Dear Members and Guests,
Welcome to the 2024 Annual Meeting of the Montana Mining Association!

It does not seem like a year since we last spoke, yet neither time nor the pace of

our industry ever seems to slow down. Overall, the past year has been an extremely positive one for the association, highlighted by the advancement of Sandfire Resources America's Black Butte Copper Project, a resurgence in advanced



Ben Raffety

exploration projects, continued legislative efforts and several strategic growth opportunities for the organization.

Black Butte continues to pave the way for new metal mining in Montana as it truly is a model for responsible and viable 21st century mining methods and outcomes. Black Butte now has all its necessary permits to proceed with the project and we all look forward to the beginnings of Montana's newest mine!

The theme of this year's annual meeting is focused upon exploration and growth in rare earth and critical minerals. We are very excited to showcase several exploration companies including Ivanhoe Electric, Stillwater Critical Materials and WRH Nevada, to name a few. MMA will also talk about its active appropriations request for federal funding to help develop the start of what we hope will be a Montana-based extraction and processing supply chain for rare earths and critical minerals.

We are very excited to welcome Mark Compton, Executive Director of the American Exploration and Mining Association (AEMA), Taylor Melvin, CEO of Ivanhoe Electric, and Dr. Alex Philp of The Mitre Corporation as our keynote

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PHOTO BY CHAD OKRUSCH

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ON THE COVER: During the Montana Mining Day event for elementary school students in Butte on March 20, a Montana Tech student demonstrates the many tricks of SPOT the Dog, the Orediggers' high-tech robot. A group of Montana Tech students have been programing SPOT to search for critical minerals in abandoned mines. **PHOTO BY** JESS SCANLAN, MINELIFE MEDIA

MONTANA MINING

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Our “Treasure State” is a big contributor to our nation’s prosperity and security

Montana Mining Association executive director’s message to a U.S. House committee

Montana Mining Association Executive Director Matt Vincent was asked to provide testimony as a witness to the U.S. House Energy and Commerce subcommittee on Environment, Manufacturing and Critical Materials on June 13 in Washington, D.C. The title of the hearing was “Securing America’s Critical Materials Supply Chains and Economic Leadership.”

This was his verbal opening statement to the 22-member subcommittee:

Good morning, Chairman Carter, Ranking Member Tonko and members of the committee. Thank you for your invitation. It’s my pleasure to be here today.

My name is Matt Vincent, executive director of the Montana Mining Association, representing the responsible mining of hard rock metals and minerals in Montana.

Our “Treasure State” nickname probably tells you everything you need to know about our heritage, but to be clear, MINING and also agriculture are the industries that founded our state, and which have contributed greatly—and still do—to America’s prosperity and security for the last going-on 150 years.

Gold and silver—those two are actually listed on our State Seal—copper, lead, platinum, palladium

... from aluminum to zinc, our mineral resources are astounding. The mines, smelters and refineries of Montana helped build and electrify this nation during industrial expansion, protected our democracy and our allies through two world wars, and have ensured our technology and manufacturing have advanced to give us the quality of life we enjoy today.

Montana is doubly blessed to have a robust outdoor recreation economy under our famous Big Sky, which many opine is our state’s new “treasure,” alongside a burgeoning mining industry poised for growth.

WE CAN HAVE BOTH. And this reality didn’t happen by accident.

Montana has some of the world’s most protective environmental laws — our proactive tailings dam regulations adopted in 2015 were the industry’s first of their kind and have helped inform the global standards for tailings storage management. Our comprehensive bonding review, minerals taxing structure, and Hard Rock Mining Impact Act ensure that our environments are safe and our communities enjoy the benefits of a mining economy beyond just those who work and serve in it.



Montana Mining Association Executive Director Matt Vincent talks to the U.S. House Energy and Commerce subcommittee on Environment, Manufacturing and Critical Materials on June 13 in Washington, D.C.

We know how to do things right, in large part because of our lessons learned along the way, not the least of which is one of our nation’s largest federal Superfund sites—now in its final stages of cleanup and long-term management. Part of that management in Butte is looking to be the key to unlocking more of the resources left in our wastes.

Rare earths and critical minerals for which we currently rely too heavily on China, Russia and others, are waiting to be processed from our historic wastes. With help from the Department of Defense, Department of Energy, and our friends at Montana Tech and its Bureau of Mines and Geology,

our next treasures may come from what we thought up until now were simply waste.

This innovative reuse and reprocessing is a quick route to meeting some of our most pressing mineral needs. Much quicker than the 14 years it’s taken to receive our first major mine permit in 30 years!

In order to truly secure our mineral supply chains, we need to keep mining, and we need to do more to responsibly develop new resources. Our nation’s only Platinum Group Metals mine just received an expansion after four years of rigorous permitting, and we’re okay with that. Other exploration projects in the state are looking at graphite, copper, gold, antimony, and even rare earths specifically.

The discussions leading up to today and many important programs developed over the past several years are a good start. That said, many of these have yet to be realized or need substantive improvements. And the fact that we are still talking about it is a stark reminder we have a long ways to go and, more alarmingly, a limited amount of time.

I thank you again for the opportunity to be here and am happy to answer questions. **M**

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speakers. This powerhouse trio is sure to bring an exciting tone and lots of energy to our meeting.

Shifting to the state of the association, I am happy to report we are on a positive path in terms of association management, non-profit status, and financial growth. Our executive team in Matt Vincent, Executive Director, and Jon Sonju, Chief Lobbyist, continue to

serve our industry at the highest levels and are strong advocates in Helena and beyond.

While I am certainly excited to see our association grow over the next year, I would be remiss if I did not acknowledge the challenges our industry is continuing to face, including but certainly not limited to complexity in permitting for evolving standards, inconsistencies across federal agencies, and the ever-present and growing need to educate the broader public about

modern mining so we can continue to operate and grow in our great Treasure State. We will continue to embrace practical improvements and proven solutions to improve our industry’s interactions with our communities’ and neighbors’ needs.

Wishing you a successful 2024 and looking forward to seeing you soon,

Ben Raffety

President

Montana Mining Association

M

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Montana Technological University hosted this year's 46th annual International Intercollegiate Mining Competition, and fielded four men's teams and a women's team to participate in the competition. "The Original" men's team took first place and the Sunshine Trophy by placing first in jackleg drilling, hand steel, and survey; and second in track stand and swede saw. The "Badgers" men's team took third place overall, and the "Orphan Girl" women's team, consisting entirely of first-time freshman competitors, took fifth overall. Montana Tech had two alumni teams compete. One took home first place overall in the alumni division, after taking first in mucking, swede saw, jackleg drilling, track stand, and hand steel; plus third place in gold panning and survey. The second alumni team took third place overall.

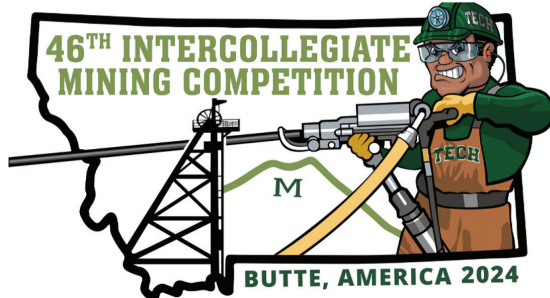
Mining competition & camaraderie

Dozens of teams gather in Butte, Montana for the 46th annual International Intercollegiate Mining Competition

TIM BURMEISTER
MINING EDITOR

How fast can you shovel ore into a one-ton ore cart? How deep can you drill into a concrete wall with a jackleg drill in three minutes?

Fun competitions that honor the history of mining kept the action rolling in Butte, Montana this spring when Montana Technological University hosted the 46th annual International Intercollegiate Mining Competition March 21-23. Three dozen teams from the United States, Australia, the United Kingdom, and Canada competed.



The teams compete in seven events. Most of the events are scored based on time, and the team with the lowest score wins. There are three categories of student teams – men, women, and co-ed, which have men and at

least three women. There is also an alumni division.

In Butte this year, March 21 was a practice day. March 22 was the alumni, co-ed, and women's competition day, and March 23 was the men's competition day.

The intense days of competition wrapped up Saturday night with an awards banquet, where the top three teams in each division were awarded medals and plaques.

In Butte this year, all the first-place trophies in the student division went to U.S. teams. The first-place teams were Montana Tech's men's team, "The Original," a Colorado School of Mines women's team, and the University of Nevada, Reno co-ed team.

All the Montana Tech teams, by the way, are named after historic mines in Butte.

“The Original” team at Montana Tech received the traveling Sunshine trophy, which was first provided to the competition by the Sunshine Mining Company in 1981. The trophy was designed and built by Sunshine Mine Supervisor Ken Lonn. Each year the winning team adds a brass plate to the trophy displaying their school and the year.

Montana Tech had two alumni teams compete this year, and they took first and third place in the alumni division.

For many students the competition is a highlight of their college years. The practice and competition are times of camaraderie and teamwork, and since the competitions are held in different places around the world each year, they get to travel and experience a variety of different places and mining communities.

The majority of the years the competition is held in the United States, but is also often held in Australia and the U.K. Last year the event was hosted by the Western Australia School of Mines, and next year it will be hosted by the Camborne School of Mines in Cornwall, in the U.K.’s South West Peninsula.

“Having a team that is very tight knit and enjoyable to be around has been one of the best experiences I have had during my college journey,” Rafael Echeverria, who is in his second year on the University of Nevada, Reno’s Mackay Muckers team, said after this year’s competition in Butte. “We are a team that gets to travel farther than any other club or sports team at UNR, and it is an honor to carry on the mining games tradition all around the world.”

“This was my first competition,” said Mackay Mucker Sterling Ferguson. “I could tell the nerves were high in each and every member of the Muckers arriving at the competition, with the anticipation of what to expect and the pressure of

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Montana Tech’s “The Original” men’s team took first place in the men’s division at the 46th annual Intercollegiate Mining Competition held in Butte in March. From left are Brent Kelley, Logan McQuinn, Gabe Cogley, Jace Maynard, Nick Warman, and McKoy Gebhardt.



The Colorado School of Mines women’s mining team took first place at the 2024 Intercollegiate Mining Games in Butte, Montana in March. The team took first in jack legging; second in mucking, hand steeling, and swede sawing; and third in surveying and track set. The members of the team are Jennifer Kinch, Bella Williams, Emilee Sloan, Taylor Henry, Chloe Locke, and Sasha Stephens. This is the first women’s team the school has had in four years.



The University of Nevada, Reno Mackay Muckers co-ed team took first place at the 2024 Intercollegiate Mining Games in Butte, Montana in March. The team placed first in gold pan, swede saw and hand steel; second in jackleg and drilling; and third in track stand. From left are John Leland (advisor), James Woods, Tate West, Sean Morton, Rafael Echeverria, Gabrielle Azeved, Duncan Brown, and Marc and Craig Leedy (alumni), with team president Natalie Rubio in front.



Montana Tech's "Orphan Girl" women's team, consisting entirely of freshman first-time competitors, took fifth place in the competition in Butte in March, and are looking forward to being seasoned competitors in the competition in the U.K. next year. From left, in front are Courtney Hoerner, Logan Ruegsegger, and Callie Lombardi, and in back are Skyler Fox, Jordan Niggemyer, and Kylie Acord



The University of Nevada, Reno sent two five-person teams, a co-ed team and a men's team, to the 2024 Intercollegiate Mining Games in Butte. From left are Tate West, Sean Morton, Duncan Brown, Luke Andersen, Sterling Ferguson, Rafael Echeverria, Natalie Rubio, and James Woods.

not wanting to be the weak link in the chain.

"I enjoyed meeting people from all over the world and talking about their life, and what brought them to the competition," Ferguson said.

"Being able to compete for a third year has been such an experience," said Natalie Rubio, the president of the Mackay Muckers team. "From traveling the states to traveling internationally and meeting so many cool people that have the same interests as me has made my college experience so awesome!"

"After sitting in school all day, you get to let off all your steam and clear your head at practice," said Jennifer Kinch, the vice president of the competition team at the Colorado School of Mines. "And you get to do it with a close-knit group of friends."

Kinch said she came to the Colorado School of Mines to study chemical engineering, but changed her major to mining engineering after joining the mining team her freshman year.

"This team showed me how great a community mining is, especially here at Mines. The department is so inclusive," she said. "Even if students don't major in mining, this team gives them the chance to learn, and pursue their interests in it."

Scott Rosenthal, an associate professor and department head of mining engineering at Montana Tech, said he sees how much the students value their experience on the competition team.

"The students that have done it more than a year, they love the travel, they love the networking. And obviously there are bragging rights."

Rosenthal said the Montana Tech students enjoy both traveling to other places and hosting the students who travel to Butte for the competition.

"A few kids were in Australia

last year, and then they were just over the moon being able to share things about Butte with especially our overseas visitors this year, showing them around and sharing this location with them.”

Rosenthal commented that hosting a big event like this is made possible thanks to a lot of community support.

“We had great alumni and industry support, both financially as well as time,” he said. “Because you’ve got to provide judges for all these events. Without people donating some money to pay for concrete and things like that, as well as the people to put in the time to do the judging, it just couldn’t happen.”

Some alumni came from as far away as Quebec to help with and enjoy the mining competition.

SOME COMPETITION HISTORY

The first Intercollegiate Mining Competition, which was called the “First Annual Intercollegiate Mining and Mucking Contest and The

Idaho Jackleg Drilling Championship,” was held at the University of Idaho on April 21, 1979. The event had 16 sponsors, mostly mining companies.

The schools that participated in that first competition were the

University of Utah, South Dakota Tech, New Mexico Tech, Eastern Washington University, Montana Tech, the University of Arizona, Michigan Tech, and the University of Idaho.

Montana Tech says it is the only

school which has participated in the competition every year since it began.

Rosenthal said the University of Arizona won the first year, so then

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After two days of mining games at the Intercollegiate Mining Competition in Butte, it was time to celebrate with the tradition of jumping into the gold panning tank.

Butte grew as an early urban industrial center in the Rocky Mountain West to become legend as The Mining City. Montana Resources, one of The Washington Companies, has operated in Butte since 1985, continuing the mining tradition here.

We are proud to be a Montana company and accordingly value our beautiful environment and our friendly communities.



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Montana Tech's Gabe Cogley cheers on teammates competing in the hand steel drilling event during the second day of the 46th Annual Intercollegiate Mining Competition on Saturday, March 23, 2024 hosted by Montana Tech.

Competition *continued from page 11*

they hosted the competition the second year. Records show Montana Tech won the competition in 1980 and the next three years. Rosenthal was on the first place Montana Tech men's team in 1982.

Most stories on the Intercollegiate Mining Competition say that the event was created in honor of the 91 miners who died in the Sunshine Mine disaster in Idaho



Montana Tech's McKoy Gebhardt hammers down on a drilling rod while competing in the hand steel drilling event during the second day of the 46th annual Intercollegiate Mining Competition on March 23 in Butte.

in May 1972. Rosenthal, who has looked into the origins of the event, says that is not actually how it started.

"Some students at the University of Idaho wanted to have some

fun, and so they came up with the idea of the original mining games," Rosenthal said. He said the mining competition was patterned after logging competitions which were popular in the area.

In any case, the mining competition today is seen as both a fun event and an event that honors the miners of the past and their hard work and sacrifice.

"All of these events have a



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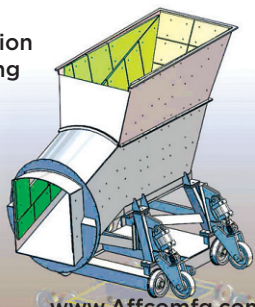


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historic component and they have been contested by miners as long as there has been mining,” Danny Taylor, an associate professor at UNR’s department of Mining Engineering said in a 2015 interview. “We still have these competitions to honor the historic traditions of the industry.”

The contest events at the first Intercollegiate Mining Competition in Idaho in 1979 were hand drilling, jackleg drilling, spike driving, and hand mucking, and the day ended with a tug-o-war between the mining students and the foresters. The miners pulled the foresters into the log birling pond.

The night before the competition, the festivities kicked off with a beer chugging contest and a dance. The beer chugging event at the mining competitions was discontinued when the minimum legal drinking age changed.

The list of contest events has occasionally been modified over the years. Spike driving, which involved pounding a nail with a hatchet or a single-bit axe, got dropped because “it was kind of dangerous,” Rosenthal said.

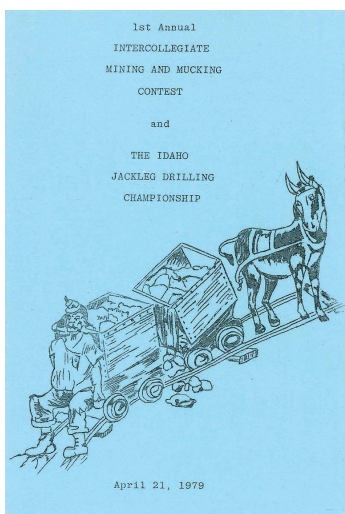
Women’s teams were added to the mining competition in 1982.

For a number of years now the contest events have been:

- Jackleg drilling: drill into a vertical rock or concrete face using a pneumatic jackleg drill.
- Hand steel: drill into a block of concrete using a four-pound sledgehammer and a 7/8-inch-wide steel chisel.
- Survey: given a starting point, report the coordinates of a finishing point using an old-fashioned vernier transit.
- Gold pan: find five flattened lead ball bearings in a pan full of dirt and rock.
- Swede saw: saw through a 6 by 6 piece of pine timber with a 36-inch bow saw.
- Track setting: set up and tear down a 15-foot section of track, including sleepers, rail, connecting plates, and bolts.
- Mucking: run an ore cart



University of Arizona student Kalra Togawa saws away at a 6x6 timber in the Swede saw event at the 46th annual Intercollegiate Mining Competition.



The cover of the program for the 1st Annual Mining and Mucking Contest, which was held at the University of Idaho on April 21, 1979. Teams from eight schools competed in four events, followed by the Idaho Jackleg Drilling Championship and a tug-o-war. The sponsors of the event included Hecla Mining, Asarco, the Sunshine Mining Company, the Bunker Hill Company, Day Mines, and the Anaconda Company.

down a section of track and fill it with muck using shovels.

The competition varies a bit from year to year depending on what the host has set up. The mucking, especially, can be different, because the hosts have different kinds of ore carts and different materials to shovel into the carts.

Montana Tech has a permanent competition site which was built



Missouri University of Science and Technology’s Jacob Lenz, in red, competes in the gold panning event during the second day of the 46th Annual Intercollegiate Mining Competition on Saturday, March 23, 2024 hosted by Montana Tech.

around 2014. Even with that permanent site, though, the Montana Tech team members put in time preparing the site for this year’s big event.

“I don’t care what some people say, the kids today are really good,” Rosenthal said. “They were organized, they had concrete poured back in August. They were really motivated to have it prepped before the last minute.”

The only other university which currently has a dedicated site for the mining competition is the Missouri University of Science and Technology, which has hosted the

competition in 2008, 2014, and 2022.

Since 1995, Montana Tech has been the most frequent host of Intercollegiate Mining Competition, having hosted the event six times, in 1996, 2000, 2004, 2009, 2016, and 2024. The UNR/Mackay School of Mines and the Western Australian School of Mines have each hosted the event five times since 1995.

After hosting the competition once in those years in 2013, the Colorado School of Mines was

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Montana Tech's Trent Mortensen, right, and Luke Hooten of the "MonMuckingtana" alumni team compete in the survey event during the second day of the 46th annual Intercollegiate Mining Competition.



Western Australian's School of Mines students rest after competing in the ore muck event during the first day of competition in the 46th Annual Intercollegiate Mining Competition on Friday, March 22, 2024 hosted by Montana Tech.

Competition *continued from page 13*

getting ready to host again in 2020, but that event was canceled due to the COVID-19 pandemic. There were remote competitions in 2021. The mining competition teams have been in a rebuilding phase since then.

"We started out from scratch my first year trying to build the club back up after the pandemic,"

Mackay Mucker Natalie Rubio said. "The competition started out small in 2022, and then over the past two years it has grown into so much more. More and more people from around the world are becoming more interested in the games."

Chris Roos, a mining engineering assistant professor at Montana Tech, said their success at this year's competition was the culmination of rebuilding the team

following the pandemic.

"In March 2020, we had 36 students, six teams of six, ready to head to Colorado and repeat our win from 2019," Roos said. "Unfortunately, the shutdown prevented that competition from happening and we've been rebuilding since. With hosting this year, we were able to field four men's teams and a women's team, and we look strong for next year."

GETTING READY FOR THE COMPETITION

The students put in a lot of practice time to get ready for the competition as they strive to be a strong team and aim toward earning a first-place trophy.

"There is a lot of time and energy that has been put into preparing for the mining games," Rubio said. "We are out on our field every Saturday morning

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Montana Tech students cheer on jackleg drilling competitors Kylie Acord and Jordan Niggemyer during the first day of the 46th annual Intercollegiate Mining Competition on March 22.

from August to March, with a few practices throughout the week. We have alumni come out to help us practice and help correct us on certain events as needed.”

Rosenthal said the students at Montana Tech say they practice two days a week for about an hour. He said they generally focus on one event at each practice.

“We actually have an underground mine on campus, so for

things like jackleg drilling, they can practice all year round,” Rosenthal said.

The teams are now looking forward to next year’s competition in the U.K.

The Montana Tech men’s team that took first place at the competition in Butte this year took second in Australia last year, “so they’ve been together a while, and that makes a big difference,” Rosenthal



University of British Columbia students haul a section of rail while competing in the track stand event during the first day of competition in the 46th Annual Intercollegiate Mining Competition on Friday, March 22, 2024 hosted by Montana Tech.

said. “So next year they ought to be strong as well.”

This year’s “Orphan Girl” women’s team at Montana Tech is made up of six freshmen engineering students. After getting some good experience at this year’s competition they are ready to gear up for next year’s event in the U.K.

“We think they’ll be really strong as well,” Rosenthal said. “They’re really excited to try

harder for next year.”

Luke Andersen, who is in his second year as a UNR Mackay Mucker, said, “We have had tremendous improvement from last year to this, and we are looking for greater improvement in the upcoming years.”

“I am excited to see what our teams can do next year in England,” Mackay Mucker Sterling Ferguson said. **M**



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Montana Mining Association 2024 Annual Meeting



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START	END	DURATION	SESSION - REGISTRATION OPENS, EXHIBITOR SET-UP AND KICK-OFF SOCIAL	SPONSOR
3:00 PM	6:00 PM	3:00:00	Registration & Exhibitor Set-Up	
1:00 PM	4:00 PM	3:00:00	Berkley Pit/Horseshoe Bend Water Treatment Plant – REE/CM Extraction Demonstration (Elective Tour; *Limited Space – Must Pre-register)	Montana Resources
5:30 PM	8:00 PM	2:30:00	Meeting Kick-off Social & Exhibitor Showcase; Music by Chisholm Christensen	Montana Resources



PHOTO: JONATHAN EYESTONE

TUESDAY, JULY 9

START	END	DURATION	SESSION - REGISTRATION OPENS, EXHIBITOR SET-UP AND KICK-OFF SOCIAL	SPONSOR
7:00 AM	7:40 AM	0:15:00	Breakfast and Registration Opens	
7:40 AM	7:45 AM	0:15:00	Welcoming Remarks: JP Gallagher, CEO, Butte-Silver Bow City-County	
7:45 AM	8:15 AM	0:30:00	Call to Order: MMA Annual Business & President's Address	
8:15 AM	8:45 AM	0:30:00	Morning Keynote: Mark Compton, Executive Director, AEMA	Crowley Fleck PLPP Attorneys
8:45 AM	10:30 AM	1:45:00	Large Producer Updates: Sibanye-Stillwater, Montana Resources, Barretts, GSM-Barrick, Graymont, GCC, Magris, Ash Grove	
10:30 AM	11:00 AM	0:30:00	Break & Exhibitor Visits	
11:00 AM	11:40 AM	0:40:00	Morning Break-Out Session Exploration: King Ballroom: Ivanhoe Electric, Graham Boyd, SVP of Exploration, Hog Heaven Project; WRH Nevada Properties, Casey Ross, Montana projects update Regulatory: Copper 1: Vicki Marquis, Crowley Fleck, Water Quality Standards and Regulatory Updates Security: Copper 4, Brian Dutze, DHS, Threats to Economic Security	
11:40 AM	12:20 PM	0:40:00	Lunch Buffet & Exhibitor Visits	
12:20 PM	12:50 PM	0:30:00	Lunch Keynote: Taylor Melvin, CEO, Ivanhoe Electric	Barrick Gold
12:50 PM	1:10 PM	0:20:00	Developer Update: Hecla Mining Company	
1:10 PM	1:50 PM	0:40:00	Western Mining Associations Panel Discussion: State Issues & Collaboration	
1:50 PM	2:45 PM	0:55:00	Nuclear Energy and the Future of Energy in Montana: Dr. Steve Aumeier, INL; Dr. Glen Murrel, INL; Frontier Consortium Membership	
2:45 PM	3:20 PM	0:35:00	The Long View – Mine Planning during Resource Definition: Greg Bryce, Hydrometrics; Fess Foster, Geologist; Nancy Schlepp, Sandfire-Black Butte Copper; and Doug Stiles, DA Stiles, LLC.	
3:20 PM	3:40 PM	0:20:00	Break & Exhibitor Visit	
3:40 PM	4:20 PM	0:40:00	Afternoon Break-Out Session Exploration: King Ballroom (John Childs, Beaverhead Graphite Project; Michael Rowley, Stillwater Critical Minerals Project) Technical: Copper 4 (Cat, Graymont Graybond Product) Regulatory: Copper 1: Outlook for Legislature 2025, Panel – Jon Sonju, MMA Chief Lobbyist; Mark Blasdel, Governor's Office; Sonja Nowakowski, DEQ; Kendall Cotton, Montana Frontier Institute	
4:20 PM	5:00 PM	0:40:00	Mary Katherine Kirlin, National Mining Association – Mining Work Force and Trends	
5:00 PM	6:00 PM	1:00:00	Banquet Prep- Cocktail Hour: Music and Association Talk by Chisholm Christensen	General Distributing
5:30 PM	6:00 PM	0:30:00	Dinner Buffet	
6:00 PM	7:00 PM	1:00:00	Annual Banquet Keynote: Dr. Alex Philp, The Mitre Corporation	Hecla Mining Company
7:00 PM	9:00 PM	2:00:00	A Special Champagne Toast; Evening Live Auction, Raffle, Calcutta	Sandfire Resources America

WEDNESDAY, JULY 10

START	END	DURATION	SESSION - REGISTRATION OPENS, EXHIBITOR SET-UP AND KICK-OFF SOCIAL	SPONSOR
7:00 AM	11:00 AM	4:00:00	Exhibitor Tear Down	
7:30 AM	8:15 AM	0:45:00	Golf Registration	
8:15 AM	1:00 PM	4:45:00	Golf Tournament: Butte Country Club	Western States Equipment
8:30 AM	8:45 AM	0:30:00	Trap Registration	
9:00 AM	12:30 PM	3:30:00	Trap Shoot: Butte Trap Club	The Archibald Company
12:30 PM	2:30 PM	2:00:00	Lunch and Awards @ Butte Country Club	



PHOTOS: JONATHAN LEYSTONE AND MONTANA MINING ASSOCIATION

MMA 2024 Annual Meeting Speakers



Mark Compton

Mark Compton, *American Exploration & Mining Association*

Mark Compton is the executive director of the American Exploration & Mining Association (AEMA), based in Spokane Valley, Washington. Mark rejoined AEMA in 2019 after serving seven years as president of the Utah Mining Association. Mark previously worked at AEMA (then known as the Northwest Mining Association) as government affairs manager and he possesses nearly 30 years of government affairs experience. Prior to joining the mining industry in 2008 he served as a congressional and gubernatorial aide, and he also has worked as a forester and public affairs specialist in the forest products industry in Montana, Idaho and Washington. A graduate of the University of Montana, he resides with his wife Kelley on the outskirts of Coeur d'Alene, Idaho.

Taylor Melvin, *Ivanhoe Electric*

Taylor Melvin has served as Ivanhoe Electric's President, Chief Executive Officer, and member of the Board of Directors since November 2022. Mr. Melvin has over 20 years of experience in the natural resources sector as



Taylor Melvin

a senior corporate development professional and investment banker. He was President and Chief Executive Officer of Battery Metals Streaming Corp. from March 2022 to August 2022. Prior to that he was Vice President, Corporate Development for Freeport-McMoRan Inc. from 2018—2022 after having first served as its Director of Finance & Business Development. Before joining Freeport in 2008, Mr. Melvin was an Executive Director in J.P. Morgan's Natural Resources investment banking group in New York. Mr. Melvin received his Bachelor of Science in Business Administration and his MBA from the University of North Carolina at Chapel Hill.

Dr. Alex Philp, *The Mitre Corporation*

Dr. Alex Philp is currently the Senior Principal, Strategic Outreach for The Mitre Corporation, Public Sector and is an interdisciplinary leader with 30 years of professional management experience in advanced technology, application development and integrated solutions to complex problems for a broad range of customers. This experience spans academia, federal, state, local, and tribal



Dr. Alex Philp

governments, and the private sector. Recognized internationally for blending technical innovation and project execution, Alex has delivered various award-winning applications across national security, environmental policy, health science, and applied research domains.

Alex began his career engaged in field-based natural resource management service for the National Park Service and the U.S. Forest Service. Alex combined his academic strengths in historical geography and biogeography of watersheds through space-time into award-winning Earth systems science technical applications for the U.S. Government, NASA, NOAA, USGS, and Army Corps. He remains a Senior Research Fellow for the University of Montana.

Having founded six cascading businesses over 20 years, Alex is a serial entrepreneur dedicated to active collaboration, successful outcomes, and a high standard of excellence. Through his extensive business networks, he served two Montana governors in agricultural information systems and applied science,

► see *Speakers*, page 20

supported US transpacific diplomatic and business exchanges as a U.S. Trade Delegate to APEC, a broad range of intersecting commercial and government programs for PEEC, various areas of innovation in geospatial applications and platforms for world-leading organizations including the U.S. government cyber security capabilities. Dr. Philp has

received the highest awards in innovation from the State of Montana, the University of Montana, IBM, Esri, PNNL, MITRE, and various U.S. government patents.

At Mitre's Public Sector, Dr. Philp currently supports a cross-cutting portfolio involving climate change security, global natural resource illicit networks and strategic competition, innovation in sensor systems, undersea autonomous AI-ML driven physics-based

simulation and modeling environments and pre-detection of destabilizing national and international threats. Dr. Philp's active sponsor base includes NOAA, Dept. of State, USAID, U.S. Navy NAVSEA, USASOC, and various other agencies. Dr. Philp leads technical innovation implementation with the NVIDIA Omniverse Team, Esri National Security Team, and various other Non-Governmental Organizations.

SESSION SPEAKERS



Graham Boyd

Graham Boyd, *Ivanhoe Electric, Senior Vice President, Exploration*

Mr. Boyd is a geologist with over 17 years of base and precious metals experience, having worked principally in Australia, North America and South America. Prior to joining the company, Mr. Boyd held various roles within HPX, Ivanhoe Electric's predecessor company, including Principal and Senior Geologist since 2013, and has been responsible for identification of new opportunities and the United States portfolio projects, guiding acquisition through execution of the company's technical programs.

Vicki Marquis, *Crowley Fleck PLLP*

Vicki Marquis is an environmental litigator with a successful track record in both federal and state courts, including the Montana Supreme Court. A large part of her practice is advocating for industrial clients before the Montana Board of Environmental Review and the Montana Department of Environmental Quality, primarily related to water quality and environmental review (MEPA) issues. She is adept at reaching creative, workable solutions short of full litigation, as well as litigating and winning the important issues.

Vicki assists clients in obtaining federal and state environmental permits, responding to



Vicki Marquis

compliance and enforcement actions, and completing due diligence assessments. Vicki has worked with legislators, agencies, and industry groups on water quality issues, including new legislation and administrative rulemaking. She has presented legal education seminars on water quality regulation and the challenges facing natural resource permittees in Montana.

In addition to water quality and MEPA, Vicki has expertise in hard rock mining, coal mining, air quality, and endangered species issues. Her first job out of college was as a chemist for Sandvik Special Metals, where she was responsible for sampling, analyzing, and reporting compliance with their water discharge permit. She later worked as an environmental enforcement specialist for the Montana Department of Environmental Quality and then as coordinator for a local government watershed group.

In 2021, she retired from the Montana Army National Guard after more than 20 years of military service, including several years in the Judge Advocate General's Corps.

Brian Dutze, *Department of Homeland Security*

Brian is the Montana Intelligence Officer of the Field Intelligence Directorate for the Department of Homeland Security's Office of

Intelligence and Analysis. Brian has served at DHS I&A for 11 years and has had a variety of roles within the organization, including Team Chief at the Intelligence Watch and Warning Center and Team Lead for the DHS I&A Leadership Briefing Team.

Steven Aumeier, *Ph.D., Idaho National Laboratory, Senior Advisor, Nuclear Energy Programs*

Dr. Aumeier serves as Senior Advisor for nuclear energy programs at Idaho National Laboratory. In this role, his focus is to develop strategies, programs, and partnerships to advance U.S. energy security and U.S. competitiveness in global nuclear energy markets. Throughout 25 years of service in the national laboratory system, Dr. Aumeier has provided leadership in a variety of roles spanning national and homeland security, clean energy and systems research, nuclear technology, and university research partnerships. His research contributions have emphasized multi-component systems diagnostics, advanced signal processing techniques for radiological signatures assessments, statistical analysis techniques for nuclear data and experiment analyses, integrated energy systems architecture design, and recently global nuclear energy market strategies.

He was named to his current post in 2016 after serving for over five years as Associate Laboratory Director for Energy and Environment and Director of the Center for Advanced Energy Studies. Prior to this, he served as Director of Energy Systems and Technologies Division, Director of the Energy Security Initiative, and Director of Nuclear Nonproliferation at Idaho National Laboratory.

Before joining INL, Dr. Aumeier served for 10 years (1995-2005) with Argonne National Laboratory, where he served in various research and leadership positions in nuclear energy and national security research and management, including serving

as Deputy Associate Laboratory Director. He also served a special assignment (2002-2003) with the National Nuclear Security Administration in Washington, D.C. as a technical advisor on counterterrorism issues. He has served on or led numerous academic and regional leadership boards and committees, including Idaho's Leadership in Nuclear Energy Commission, Idaho Global Entrepreneurial Mission, and Idaho Strategic Energy Alliance. Dr. Aumeier holds a Ph.D. in Nuclear Engineering from The University of Michigan (1994) and an MBA from The University of Chicago (2002).



Dr. Glen Murrell

Dr. Glen Murrell, *Idaho National Laboratory, Director; Community and Regional Engagement*

Dr. Glen Murrell has worked in energy research and development during a career spanning over two decades. Before coming to Idaho National Laboratory, he served as executive director of the Wyoming Energy Authority. He worked with the University of Wyoming Enhanced Oil Recovery Institute to develop reservoir data programs and carbon dioxide analyses. Murrell has also served in a variety of leadership roles aimed at advancing projects and technologies in the oil and gas industry for General Electric and Baker Hughes.

An active participant in regional initiatives, Murrell has been a key figure in the Western Inter-State Hydrogen Hub coalition and the Western Green Hydrogen Initiative. Recognized as an authority in the energy domain, Murrell has testified before the U.S. Senate Energy and Natural Resources Committee, as well as numerous Wyoming state government committees. His insights have helped shape energy transition policies and strategies.

Murrell holds a doctorate in geology from Vrije Universiteit Amsterdam (2003), along with bachelor's and master's degrees in geology from University of Waikato (1995 & 1997).

Michael Rowley, *Stillwater Critical Minerals, President & CEO*

Michael Rowley has over 30 years executive experience in the exploration, mineral testing, and mine environmental industries, including capital markets, corporate development, and exploration operations. One of Stillwater Critical Mineral's founding shareholders and directors, Mr. Rowley is active in additional publicly-traded companies via the Metallic Group of Companies, and has past experience in mine water treatment and recycling technologies based on mining industry techniques.



John Childs

John Childs, *Childs Geoscience, Inc.*

John Childs is the founder and president of Childs Geoscience, Inc., a diversified mineral exploration group with underground and open pit expertise. He is a Registered Geologist with more than 40 years of experience in exploration and property evaluation for metals, industrial minerals, and gemstones. His management experience and project generation in the Americas, Europe, and Asia has contributed to the discovery of significant precious metal and industrial mineral resources. His responsibilities have included all aspects of exploration and property evaluation, from regional reconnaissance to resource estimation. He also has a strong background in permitting and community outreach.

John has a Ph.D. from the University of California, Santa Cruz.

Mary Katherine (MK) Kirlin, *National Mining Association*

MK works at the National Mining Association



Mary Katherine (MK) Kirlin

(NMA) as a Manager of Government and Political Affairs. At NMA, she primarily handles energy and labor and workforce issues.

The NMA recently established a Mining Workforce Working Group which MK is leading to help address the workforce needs of the mining industry. Prior to working at NMA, MK interned for Congressman Pete Sessions (R-Texas) in Washington, D.C.

MK graduated from Southern Methodist University (SMU) with a degree in finance from SMU's Cox School of Business. She is currently a J.D. candidate at American University Washington College of Law, focusing on energy and environment law.

MK will speak on the current state of the mining workforce and the need to build out a more robust domestic mining workforce. Specifically, she will speak to the work the National Mining Association is doing in the workforce space, prioritizing addressing the mining workforce shortage through federal policy and communications efforts.



Chisholm Christensen,

Chisholm Christensen, *Montana rancher*
Chisholm Christensen is a Hinsdale,

➤ see *Speakers*, page 22

Montana rancher on Montana's Hi-Line, a member of the REAL Montana Class V, a rural electric co-op board member, and also an aspiring country music star. Christensen has released one country music album, the prisoner, and has a valuable talk about his perspective on why it's important to become a member of an association.



Deantha Skibinski

Deantha Skibinski, *Alaska Miners Association, Executive Director*

Deantha was born and raised in Anchorage and Big Lake, Alaska and has been the Executive Director of AMA for 11 years. Previously she served on the staff of the Resource Development Council, where she advocated for the mining and tourism industries and managed efforts on the cruise ship head tax and mining shutdown ballot initiative campaigns, and administered the Alaska Alliance for Cruise Travel, an organization promoting tourism businesses benefitting from visitors to Alaska.

Deantha serves on the Board of the Armed Services YMCA of Alaska, an organization dedicated to supporting military members and their families. She has served on past Governors' Transition Teams, is a recipient of the Top 40 Under 40 award, and was a delegate to the first-ever Conference of Young Alaskans.

Deantha is married to Mark, an Alaska Airlines pilot, and in their spare time they can be found involved in kids' sports or at their family home in Big Lake.

Benjamin Davenport, *Idaho Mining Association, Executive Vice President*

Benjamin has been the Executive V.P. of the Idaho Mining Association for eight years. Ben is responsible for overseeing the day-to-day functions of the association and is the



Benjamin Davenport

primary point of contact for both public and member needs.

He was previously the President of the Associated Taxpayers of Idaho as Idaho's taxpayer advocate. Ben has 20 years of policy, advocacy and campaign experience in Idaho at the state and local levels. Currently Ben serves on the Board of Directors for the Idaho Legislative Advisors Association as well as the Associated Taxpayers of Idaho.

Ben is a fourth generation Idahoan and proud graduate of Boise State University. Ben and his wife Amanda have three little boys at home. They enjoy hiking, camping and spending time in Idaho's vast outdoors as a family.



Julie Lucas

Julie Lucas, *MiningMinnesota, Executive Director*

As the Executive Director of MiningMinnesota, Julie Lucas advocates for responsible mining of mineral resources in Minnesota that will "keep the lights on" as our nation undergoes a clean energy transformation. She earned her mining experience serving as the Director of Water Resources for Twin Metals Minnesota, a proposed copper-nickel mine near Ely, Minnesota and as the Environmental

Manager of Hibbing Taconite Company, a Cleveland-Cliffs iron ore mine in Hibbing, Minnesota.

Through education and collaboration opportunities, Julie engages with a broad audience of interested parties and was the 2023 recipient of the Society of Mining, Metallurgy, and Exploration's Cindy Moore Courageous Impact Award in recognition of that work.

She attended the University of Minnesota-Duluth and has a B.S. in Biochemistry and Molecular Biology and an M.S. in Water Resources Science.



Travis Deti

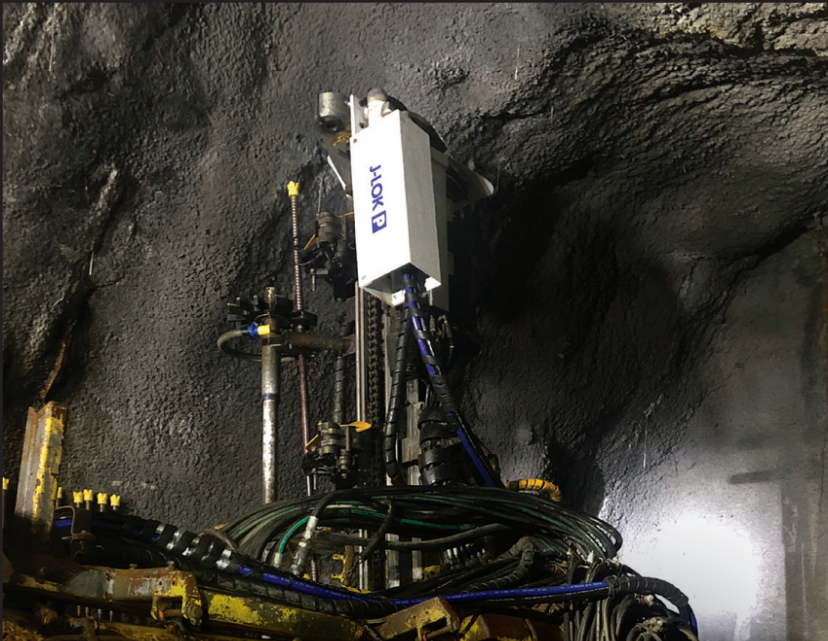
Travis Deti, *Wyoming Mining Association, Executive Director*

Travis Deti (DEE-tie) is the Executive Director of the Wyoming Mining Association (WMA). A native of Laramie, Deti holds a degree in Political Science from the University of Wyoming. Prior to joining WMA in 2011, he worked as legislative assistant and field representative to U.S. Senators Craig Thomas and John Barrasso in both Washington, D.C. and Cheyenne, focusing on national defense and veterans issues, foreign affairs, immigration, and governmental affairs.

Deti is a former sergeant in the United States Marine Corps and is a veteran of Operation Iraqi Freedom. Appointed to the Wyoming Veterans Commission by Governor Matt Mead, he served 10 years, ending his term as Chairman in 2021. Deti serves on the advisory board of the University of Wyoming Nuclear Energy Research Center and is a 2016 graduate of Leadership Wyoming.

He and his wife Kim live in Cheyenne and have two sons, John and Brendan.

► see *Speakers*, page 24



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Mark Blasdel

Mark Blasdel, *Office of Economic Development, Director, Legislative Affairs*

Mark Blasdel is a fourth generation Flathead Valley resident and owner of Vista Linda Restaurant and Catering, which has been a family business since 1981. In October of 2021, Mark accepted a position within Governor Gianforte's administration as Director of the Governor's Office of Economic Development, and as a liaison between the Governor's Office and the legislative branch.

Mark has served in the Montana State House of Representatives from 2007-2014 and the Montana State Senate from 2015-2022. In 2011, he served as the chairman of the House Taxation Committee, and in 2013 he was elected Montana's 52nd Speaker of the House. In the Senate, Mark has served as Chairman of Senate Taxation, Majority Whip, President Pro Tempore, and as Senate President. Mark has also served on Education, Federal Energy and Communications, Finance & Claims, Local Government, Judiciary, and Rules.

Graduating with a bachelor's degree in hospitality management from the University of Nevada Las Vegas in 1997, Mark moved back to Montana to work in the family business. Married for 20 years to his wife Renae, they have two children – Elizabeth, age 18, and Isaac, age 14.

Sonja Nowakowski, *Director, Montana Department of Environmental Quality*

Sonja Nowakowski serves as the Director of the Montana Department of Environmental Quality (DEQ). Under Sonja's leadership, DEQ continues to protect Montana's environment and to work toward a healthy and thriving way of life for all Montanans today and into the future. For the last three years, Sonja served as the Administrator for the Air, Energy, and Mining Division at DEQ.

Prior to joining the DEQ team, Sonja worked

for the Montana legislature for 15 years. She served as a nonpartisan research analyst in the Legislative Environmental Policy Office and as the Research Director for the Office of Research and Policy. Sonja's nonpartisan work for the legislature focused on environment and energy policy. She staffed Energy and Natural Resources standing committees, and in the interim assisted both the Environmental Quality Council and the Energy and Telecommunications Interim Committee.



Kendall Cotton

Kendall Cotton, *Montana Frontier Institute*

Kendall Cotton is the President & CEO of Montana's Frontier Institute, a think tank he founded in 2020. Kendall developed his passion for serving his community while growing up in rural Florence, Montana along the banks of the Bitterroot River. He graduated from Florence High School and later earned a degree in political science from Montana State University. Kendall is a government relations professional with 10+ years of experience helping to shape Montana public policy, most recently serving as the Policy Advisor for Montana's Insurance Commissioner.

Greg Bryce, *Hydrometrics*

Greg is a hydrogeologist who has been focused on mining hydrogeology for the past 20 years. An MMA Board member, Greg got his BS in chemistry from Carroll College and his Masters in Geological Engineering – Hydrogeology from Montana Tech.

Greg is a Senior Hydrogeologist and Sciences Manager at Hydrometrics in Helena, Montana. His more than two decades of experience is in hydrogeology, water permitting and assisting mining clients in baseline characterization, mine dewatering, water management, groundwater modeling, discharge permitting, and water rights.

Nancy Schlepp, *Sandfire Resources America*
As Sandfire's VP of Communications and



Nancy Schlepp

Government Relations, Nancy has over 25 years of business experience in the private and publicly traded sectors as well as in legislative relations and policy formation at the local, state and federal levels. She is also currently the president of the board for Montana Chamber of Commerce and is a volunteer board member with Women Leading Montana, Montana Taxpayers Association, Meagher County Community Foundation and was previously the national affairs director for Montana Farm Bureau Federation.

Nancy grew up on a cattle ranch in Ringling, Montana, has a BS from Montana State University. She and her husband Chris still own and operate the family ranch with their three children. Nancy is also an MMA board member.

Fess Foster, *Geologist*

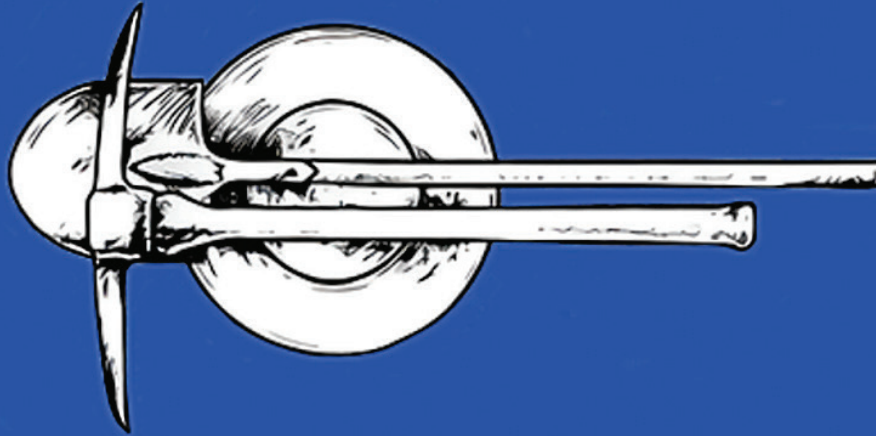
Fess is an independent geological consultant in Whitehall, Montana. He specializes in generative exploration, mine permitting, and governmental/community affairs. Much of his 45-year career has been in Montana, with lesser work in the Great Basin and overseas. He has completed a number of regional geological assessments of metal occurrences to identify areas with strong exploration potential.

Fess has a Ph.D. from the University of Montana, and has been a Montana Mining Association board member for 20 years.

Doug Stiles, *Consultant*

Also an MMA Board member, Doug is an independent consultant providing services to the mining industry focused on complex, multi-jurisdictional permitting, stakeholder engagement and project management. Previously working as a manager with Hecla, Revett and Coeur d'Alene Mines Corporation, he has over 25 years of experience, notably on environmental compliance and permitting on multiple projects in North and South America. He has a B.S. in Environmental Engineering from Montana Tech and MBA from Washington State University. **M**

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Andy Johnson
Ted Antonioli
Courtney Young- Montana Tech
Dave Stratton, WET
David Galt
David L. Armstrong, Sr.
Dennis Morelock
Doug Stiles, DA Stiles LLC
Ember Flagg- Sibanye-Stillwater
Fess Foster
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Montana Mining Association

2024 ANNUAL MEETING AUCTION ITEMS



1. ONE-OF-A-KIND, HAND-CRAFTED "INFINITY MINE SHAFT TABLE," imagined and constructed by renowned artist, Mike Hamblin

(see feature story in this issue of Montana Mining magazine and <https://www.facebook.com/hamblinart/>).

This truly original creation can be described but must be experienced to fully appreciate its ingenuity and craftsmanship. Standing at approximately 42 inches high with a top that measures 31½-inches square, this table would be a perfect and memorable centerpiece for a private home, bar or corporate office.

Utilizing the art of illusion, it will appear as if you're looking down into a mine shaft of unknown depth. The

echoing sounds of dripping water add to the experience. (Note: when not playing the water sounds, the table can play your favorite music or podcast and has charging ports for your portable electronics.)

Own this uniquely conceived and constructed work of functional art by The Mining City's living artistic legend. This is only the fourth one of these table types ever built by Hamblin, and the last one donated at a Montana Tech function sold to the highest bidder for over \$10,000!

Commissioned by the Montana Mining Association.

2. TWO-DAY PRIVATE BIRD HUNT AND LODGE STAY for four individuals at the Snowy Mountain Pheasant Company ranch, Judith River Basin.

Snowy Mountain Pheasant Company is located in the heart of Montana's Judith Basin. It is aptly named for the majestic mountain range found just to the south which provides the headwaters to the Ross Fork River where the ranch property is situated. Snowy Mountain is the perfect recreational getaway with plenty of action for upland bird hunting enthusiasts seeking the classic Montana outdoor experience.

Further details:

- 2 days, 2 nights during a workweek coordinated with ranch owners.
- Up to four self-guided hunters.
- Dog handlers available if participants do not have own.
- Depending on time of year, waterfowl hunting available (migratory bird license and stamp required).
- Good food/beverage options located in Lewistown, located ~15 miles east of the ranch.
- Lodging: use of new 4-suite lodge on the ranch.

Value: \$10,000. Graciously donated by Mark Taylor, Taylor Luther Group and Hecla Mining. Proceeds for this auction item go to the MMA Mining Scholarship Fund.

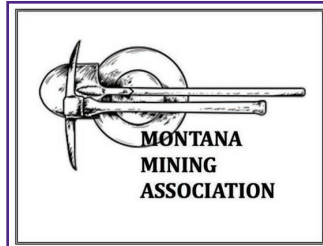




3. ONE DAY OF GOPHER HUNTING AND A BBQ STEAK DINNER for up to six guests on The Higgins Brothers Ranch, Ringling, Montana.

Enjoy a day of gopher hunting followed by a steak dinner for up to six guests at the sprawling Higgins Brothers Ranch near Ringling. An authentic Montana experience; bring lots of ammunition, as this is some of the most prime varmint-hunting habitat under the Big Sky!

Access and dinner graciously donated by MMA Board member Nancy Schlepp, Sandfire Resources America, Black Butte Copper and family.



4. HAND-CRAFTED CUSTOM-MADE MMA LOGO HUNTING KNIFE with leather sheath by Brad Watkins Knives.

A Montana Tech engineering alumni, fifth-generation Montanan and currently a manager at Barretts Minerals, Brad started making knives in 2010 and has mentored under accomplished bladesmiths.

The design and construction of each knife combines his years of experience in the outdoors with his background in mechanical engineering. His knives have been developed through extensive field testing, blending the hardcore outdoorsman's requirements with heirloom-quality craftsmanship. He takes pride in building each knife by hand with all materials procured from fellow small businesses.

Knife details: 8-3/4" length x 0.125" thickness MagnaCut stainless steel at 63 HRC. Flat ground blade with tapered tang, 416 stainless bolsters and pins. Double dyed and stabilized box elder handle, green handle liners with stainless accent spacers; hand-carved leather sheath.

Commissioned by the Montana Mining Association.



➤ see Auction, page 30

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5. FULL-DAY HOSTED SIGHT-FISHING FOR CARP AND/OR NORTHERN PIKE ON THE MISSOURI RIVER.

Sight fishing for Montana's hardest fighting and most difficult target on the fly! Mark Mariano, our own local carp nut, will pole you across the shallow flats of the Missouri River in a small skiff in search of hard fighting fish that can top 20 pounds! Get ready to see your backing when these smart, hard fighting fish take you for the ride of your life. This trip also allows for the opportunity to target pike on fly or gear.

Start practicing your salt-water casting now, because *this is as close to redfishing/bonefishing as you'll get in fresh water!*

When: Any warm, sunny, low-wind day in July or early August 2024 that works for both host and donor. These specific conditions are extremely important for success, because we will need to see these bruisers from afar, before they see us!

Where: Missouri River above Toston Dam (no pike), Missouri River above

Canyon Ferry (no pike), Missouri River below Cascade (ample opportunity for both carp and pike).

Guided by host with lunch, NA drinks, and fishing gear supplied.

Donated by Rampart Solutions' Mark Mariano, one of Montana's premier carp fishing experts.



6. R.L. WINSTON AIR 2 9-FOOT, 4 PC 5-WEIGHT FLY ROD PLUS TWO NIGHTS STAY for up to five guests at The Stony Creek Cabin on Rock Creek near Philipsburg, Montana.

A top-quality fly rod by a world-renowned rod maker and two nights of high-class riverside accommodations at a top-rated Airbnb facility for five with a hot tub overlooking the banks of a blue-ribbon trout stream – this auction item is a combination you can't beat!

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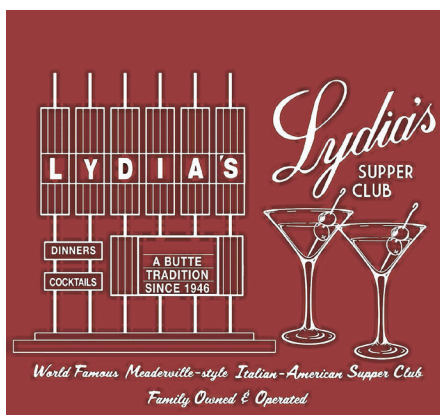
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is a beautiful log cabin facility overlooking world-famous trout stream Rock Creek, approximately 30 minutes from Philipsburg. There's no better way to break in your new rod than on one of Rock Creek's browns, rainbows or native westslope cutthroat trout.

Rod donated by MMA Past President, Mark Thompson, Montana Resources, and Lodging donated by Eric and Christi Jacobsen (cleaning fees covered by MMA).



7. DINNER AND DRINKS WITH THE MONTANA MINING ASSOCIATION'S EXECUTIVE BOARD MEMBERS AND MANAGEMENT TEAM at Lydia's Supper Club in Butte, Montana for up to six guests.

Enjoy a Mining City-style dinner at Butte's famous Lydia's Supper Club with the Montana Mining Association's Executive Board members and Management Team as your hosts! Lydia's is a well-known Butte eating establishment specializing in its Italian, steaks and seafood for over 75 years.

Members of the MMA Executive Board (Ben Raffety, Barretts Minerals; Mark Thompson, Montana Resources; Paul Liner,

Graymont; Tina Nolevanko, Pacific Steel & Recycling; Chuck Buus, Barrick-Golden Sunlight Mine) and Management Team (Matt Vincent, Executive Director; and Jon Sonju, Chief Lobbyist) will be your group's (up to six) hosts, so look forward to a fun evening of industry-related conversation and getting to know our association up close and personal!

Hosted by the Montana Mining Association. **M**



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Mining City Artist

From portraits to infinity tables, Mike Hamblin works his magic to create the illusion of reality

MATT VINCENT

BUTTE, Montana – In the morning, when Mike Hamblin looks to the east out from his home in Walkerville, the most prominent thing on the immediate horizon above the steam rising from his cup of coffee is the towering, steel headframe of the Lexington Mine. In the evening, maybe over a glass of whiskey, the sun's rays bask the same angular industrial hulk, only from a different angle, in a different light.

As a native of The Mining City, who is undeniably one of its best known and talented artists – ever – it's no surprise "Lexington Light" would end up being one of his works on canvas. "I remember it was New Year's Eve and it was just beautiful, glowing in that golden light. I took a picture because I knew right then I had to paint it."

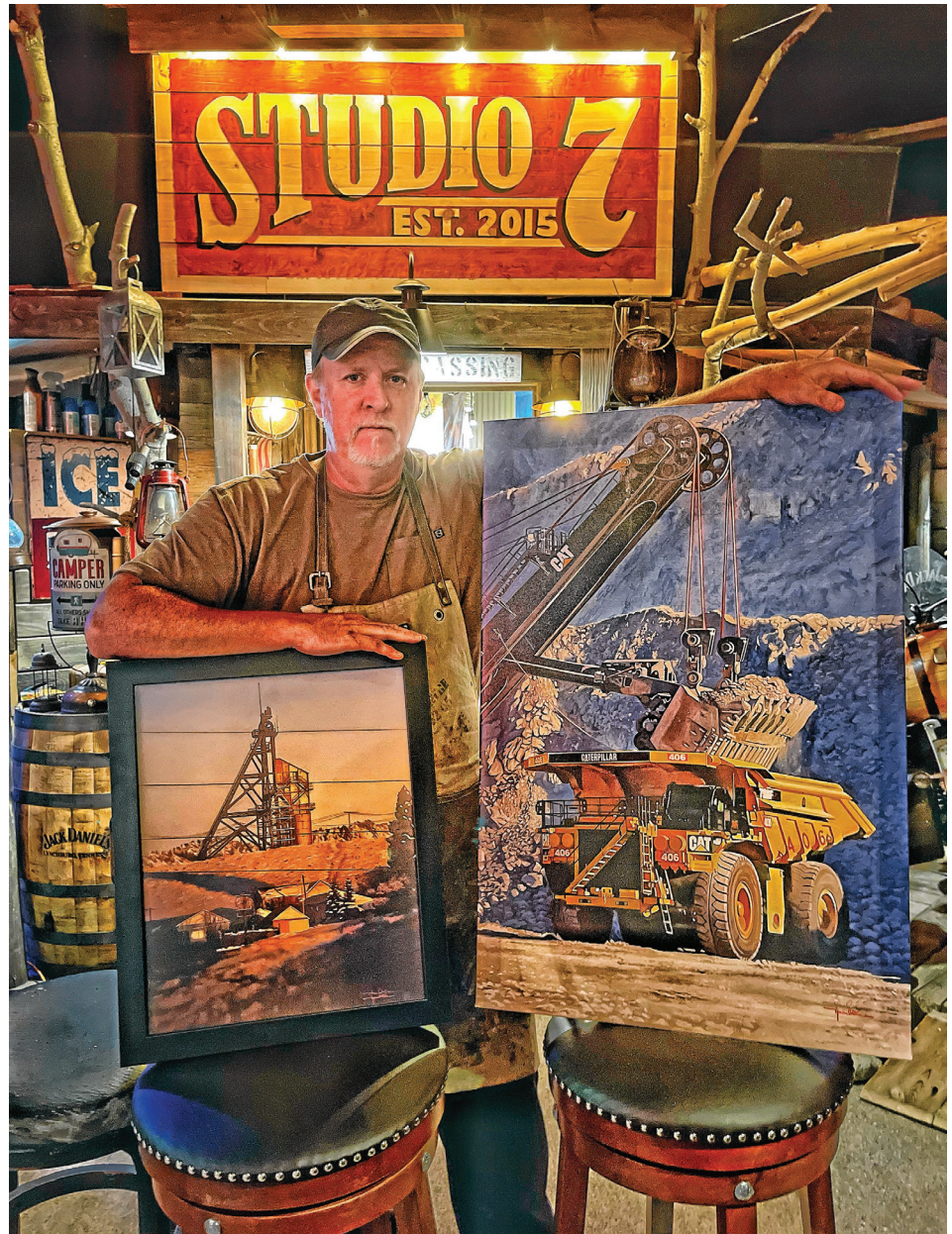
An artistic painter for going on 50 years now, Hamblin is clearly a master of the brush and palette when it comes to his portraits. Copper King William Clark. Legendary Montana Tech former head football coach Bob Green. U.S. Senator and Ambassador to Japan Mike Mansfield. Athletes, firefighters, police officers. He's painted nearly every famous, semi famous – even some infamous or unfamous characters from his home of Butte and far beyond. Portraits are his thing.

"I've always liked the sense of accomplishment," he explains. "To do a face and have someone recognize it."

In honing his skills over the decades, Hamblin has grown to be able to do much more and much better than that, and he still proclaims it's a work in progress.

Likening painting to a video game, as the levels of difficulty increase, "the more I learn about painting the harder it gets," he explains. "When people get to that level, most of them are satisfied with the results. For me, you strive to be better today than you were yesterday. Otherwise, what's the point?"

"If I live to be 100, when I die there will be an unfinished painting on my easel, and I'll have learned something new that day."



MATT VINCENT

Artist Mike Hamblin stands in his studio in Walkerville holding up two of his mining-themed paintings that he donated to the Montana Mining Association in 2023.

It is this belief and spirit that has solidified Hamblin as a sought-after painter for portraits – and not just people. His abilities that have allowed him to master bringing people to life

with his paintbrush have expanded his horizons limitlessly, with his eye for observation always keener.

"It just branches out to everything," he

said of his skills he uses to paint people to life. “An old truck, a motorcycle, a pair of shoes ... a gallows frame. It’s creating an illusion that something is real. Magicians do it all the time.”

Hamblin started drawing when he was three years old, recalling the first time he became obsessed with capturing the perfection of a simple five-point star, filling pages of a yellow legal pad until he’d gotten it right.

He continued his training under great teachers in the Butte school system, Mike Kujawa and Brad Loewen, who helped stoke his passion. He then went to the University of Montana-Western in Dillon, where he credits professor Jim Corr for teaching him how to master fundamentals and then the confidence to use them in his own way.

“That was very pivotal for me,” Hamblin said. “‘These are the tools, now go figure them out,’ was his philosophy, and that gave me everything I ever needed.”

He finished his formal training at the Art Institute in Seattle and lived in Missoula for a time before moving back to Butte in 2015 and buying his century-plus old home in Walkerville, about which he said, “he had a good feeling.”

In the decade since he’s moved home, Hamblin has built a studio that is truly awe inspiring. In addition to displaying many of his works and providing him a workspace,

the entire place is a throwback to Butte’s and the Frontier West’s heyday, sort of a saloon room, dance hall, art studio, mining and western memorabilia museum all wrapped into one location. And Hamblin has created all of it—“functional wood sculpture,” he calls it.

“It’s nice not having to just paint and draw all the time,” he chuckles. “If you pull back far enough, artists – no matter what kind: musicians, painters, writers – we are all creators.”

It was during his immersion on his studio that he built his first mine infinity table, which has since been added to a private collection. He’s built three others, one of which

was donated to the Montana Tech annual foundation live auction. He knew they were a special hit with people when that one fetched over \$10,000.

Describing his paintings as having the illusion of great depth, it’s the illusion of depth in his tables that draws people in. Built in the style of a high top or buddy bar table, the tables feature a glass top into which one can look down into what appears to be a shaft with no bottom. The illusion of infinite depth is created by two-way mirrors and is made all the more convincing by the sound of dripping water.

Each of the previous four have been unique to themselves, and Hamblin promises that the one he’s currently building for the Montana Mining Association’s annual meeting auction “is going to be a show-stopper.”

When asked about past clients for whom he’s done commission work, or awards or accolades he’s achieved in his career to give a reader an idea of his notoriety, Hamblin shows his modest, matter-of-fact side, which no doubt comes from being born and bred in the reality of a town like Butte.

“I don’t speak for the work,” he says. “The work speaks for me. I’m not a salesman and I’m not here to tell anybody how good I am.”

One can figure that out for him or herself – although they’ll likely be wondering, “how’d he do it?” **M**



“Lexington Light” is a painting of the historic Lexington underground mine’s iron headframe basked in the waning light of New Year’s Eve. The headframe is the dominant feature capturing the view to the east from Hamblin’s home studio.



John Whiteaker, Regional Engagement Principal with NSIN (foreground), moderates a panel titled “Scaling our Competitive Advantages” at the Critical Resource Summit 2.0 in Washington, D.C.

Critical Resource Summit focuses on supply chain strategies

MATT VINCENT

The National Security Innovation Network (NSIN) and MITRE Strategic Outreach hosted the Critical Resource Summit 2.0 in Washington D.C. on April 10 and 11 at Duke University in D.C. on Pennsylvania Avenue. The same partners hosted the inaugural summit over three days in Montana last year, when over 200 participants showed up from around the U.S.

Roughly half of the around 100 attendees at the 2024 event were returnees from the first summit, including a good contingent from Montana, including those from Montana Technological

University, University of Montana, Montana State University, the Montana Mining Association and the private sector.

This year’s summit focused on critical minerals and the strategies our nation must take to secure our supply chains and to better position ourselves globally by leveraging our competitive advantages. Panel discussions included representatives from branches of the U.S. Armed Forces and Department of Defense, Department of State, USGS, academia, research, and the non-profit and private sectors.

Initial plans for a third summit

were discussed, with the location being the Democratic Republic of the Congo because of its global position as a hotbed of

competition for the mining and production of cobalt, a key critical mineral for battery technology and renewable energy. **M**



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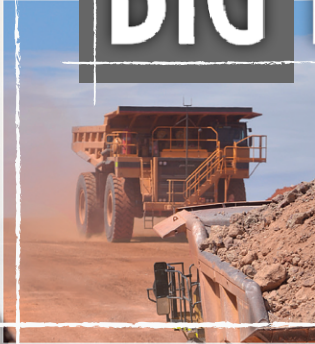
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See SPOT Explore

Mining researchers train robot to search for critical minerals in abandoned mines

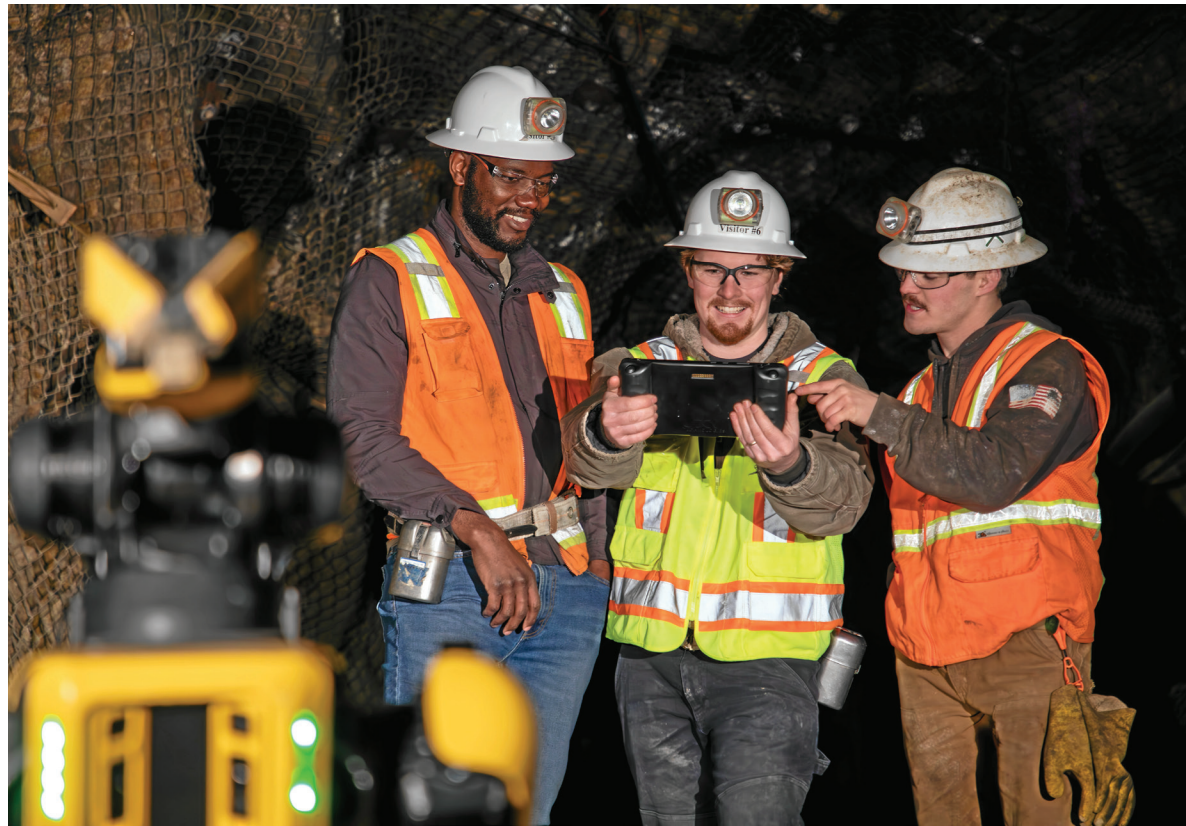
MEGAN STRICKLAND
MONTANA TECHNOLOGICAL UNIVERSITY

The Interior Department estimates there are as many as 500,000 abandoned mine sites on federal land, and researchers at Montana Technological University's Mining Engineering department are using novel robotic technology to see if any of those already disturbed sites might hold critical minerals.

"The United States at this moment does not have access to near the amount of critical minerals that are needed for the next stage of advanced electronics," Associate Professor of Mining Engineering Abhishek Choudhury said. "China has about 60% of critical and rare earth mineral production and 85% of the processing capacity. The U.S. hasn't even explored what exists within its boundaries, and in a lot of mines in the mountain west, they historically did not look for these critical minerals. We might have many of these mines around that have these minerals."

Choudhury and his students are training a \$295,000 "SPOT" robot from Boston Dynamics to go where it is unsafe for humans to explore in these abandoned mines. The project is funded through a Cooperative Agreement with the DEVCOM Army Research Laboratory, which has supported over a dozen projects on Montana Tech's campus in pursuit of building a domestic supply chain of critical minerals.

The funding has been made possible through the efforts of Sen. Jon Tester, chairman of the Senate Defense Appropriations Subcommittee, who has championed Montana Tech's



Students at Montana Technological University in Butte are working with Mining Engineering Associate Professor Abhishek Choudhury to train a robot from Boston Dynamics to explore abandoned mines in search of critical minerals. Working with the robot in the Underground Mine Education Center at Montana Tech are, from left, graduate mining engineering student Alan Arthur from Accra, Ghana; mining engineering junior Arlo Eades from McArthur, California; and mining engineering junior Kodis Campbell from Spring Creek, Nevada.

collaboration with military organizations in recent years. That collaboration has facilitated access to cutting edge equipment, facilities, and research that would not otherwise have been possible.

The robot arrived on campus in November 2023. SPOT has four legs, and is about the size of a large dog. It can sense and avoid obstacles, climb stairs and open doors. It has found a home on factory floors and warehouses, but Choudhury wants to take it underground, where travel is much more difficult.



Kodis Campbell of Spring Creek, Nevada, a mining engineering junior at Montana Technological University, holds a unit which guides the actions of SPOT, a robot which the students have been programming to explore abandoned mines and search for critical minerals. Mining engineering junior Arlo Eades of McArthur, California is on the right.

► see *Robot*, page 36

PHOTOS: LOU MASON/MONTANA TECHNOLOGICAL UNIVERSITY



Robot *continued from page 35*

“If your robot can survive an underground mine, it can survive anywhere, possibly with the exception of Mars,” Choudhury said.

Choudhury’s students traveled to Boston Dynamics’ facilities in Massachusetts to be trained in operating SPOT. Mining engineering junior Arlo Eades, of McArthur, California, said it was an incredible experience.

“It isn’t every day that you get to see the very place where cutting-edge technology is being developed and tested,” Eades said. “Bringing that very same technology to an underground environment is an exceptional opportunity to push it to its limits.”

Choudhury’s team must teach the robot to do a task more complicated than walking or opening a door. They are working to program SPOT to walk into the mine and drop a series of radio transmitters that will extend the robot’s range to communicate

below the earth’s surface. They then want the robot to collect samples of rock within the mine. One challenge is integrating software that will tell the operator exactly where samples were collected.

“If you collect a sample that has critical minerals in it, it is equally important to know exactly where in that mine you picked the rock up,” Choudhury said.

Alan Arthur is a graduate mining engineering student from Accra, Ghana, who says training the robot to autonomously document a sample’s location has been the most challenging part of the project so far. The team is utilizing the Underground Mine Education Center. The UMEC is a hands-on, interdisciplinary educational space consisting of the former Orphan Boy and Orphan Girl Mines immediately west of campus.

“The biggest accomplishment so far is being able to autonomously walk the robot to the



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SPOT, a four-legged robot about the size of a large dog, reaches to grab a rock in the Underground Mine Education Center at Montana Tech. Mining Engineering Associate Professor Abhishek Choudhury and a group of students have been working with SPOT to see if the robot can travel through abandoned mines which might be unsafe for humans and gather samples in the search for critical minerals.

portal of the UMEC,” Arthur said. “The next step is to autonomously walk it all the way into the mine and perform simple tasks.”

Kodis Campbell is a mining

engineering junior from Spring Creek, Nevada.

“This project has helped me better understand project planning and the ability to balance

other outside factors,” Campbell said. “Another great feature of this project is the coding that will be required in future development. The world is becoming

increasingly digitized and the ability to code is becoming more valuable.”

Choudhury says the rise of artificial intelligence and robotics makes it even more important for students to understand the “why?” behind their engineering, since machines are currently trained to answer the more straightforward questions.

“It’s a far more fundamental level of query,” Choudhury said.

For this particular project, a mining background is invaluable.

“You need to know what problems might come up in a mine,” Choudhury said.

If Choudhury’s research team is successful, and SPOT can find critical minerals in abandoned mines, it could mean big business for southwestern Montana, where ghost towns of abandoned mining communities are numerous.

For now, Choudhury is focused on training SPOT, and building a research group with more members. **M**

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A group of 125 students and teachers from Emerson Elementary and Ramsay School took part in Montana Mining Day March 20 at the World Museum of Mining and Montana Tech mining campus in Butte.

A great day to learn about mining

MATT VINCENT

A group of elementary students in Butte recently had a fun, action-packed day learning about mining.

“The kids couldn’t stop talking about how great (the day was),” said Emerson Elementary School teacher Jennifer Lynch. “We couldn’t have had a better day for the weather.”

The Montana Mining

Association, in cooperation with the Montana Technological University (Montana Tech) Mining Engineering Department and the World Museum of Mining (WMM) hosted its inaugural “Montana Mining Day” educational event for 125 fifth, sixth and seventh graders from Butte’s Emerson Elementary School and Ramsay School Wednesday,

March 20 at the WMM and Montana Tech mining grounds.

The event was organized to take advantage of Montana Tech’s hosting of the 46th Annual International Collegiate Mining Competition, and engaged the younger students in a variety of mining-related activities to increase their understanding of and interest in mining in Montana. Part of the

students’ day was spent interacting with the international students from Australia, U.K. and Canada, as well as with their home-state Orediggers, to learn about the events in which the college students were competing.

In addition to being mentored through some of the international mining competition events, the students also got a surface



Students pick garnets under the silhouette of the Orphan Girl headframe during the Montana Mining Day activities for elementary students in Butte.

tour of the historic Orphan Girl underground mine, picked for garnets, and got to see some of the technology used in modern day mining through demonstrations of aerial drones and a “SPOT the Dog” robot. The aerial drones were piloted by Montana Tech graduates now working

for the Butte-based Water and Environmental Technologies, and “SPOT,” Montana Tech’s cyborg-like four-legged robot, is being programmed by a group of Montana Tech students to look for minerals in underground mines.

Lunchtime involved a pasty lunch and a lesson about how the



Students learn gold panning techniques during the Montana Mining Association’s inaugural Montana Mining Day. The gold panning activity was set up as one of the events college students participated in at the International Collegiate Mining Competition hosted by Montana Tech the same week as the kids day.

Cornish staple was a product of its mining heritage and was eventually brought to the U.S. by miners immigrating to places like Butte.

The event was proudly

sponsored by GCC Trident, Barrick Gold, WMM, Montana Tech Mining, and the Montana Mining Association. Lunch was provided by the Pasty Place in Butte. **M**



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Black Butte Copper Project “looking really good” following Supreme Court decision

TIM BURMEISTER
MINING EDITOR

The Black Butte Copper Project north of White Sulphur Springs, Montana got a green light to proceed on Feb. 26 when the Montana Supreme Court issued a decision reinstating the mine’s operating permit.

“We were thrilled,” Nancy Schlepp, the vice president of communications and government relations for Sandfire Resources America, said recently. “We were thrilled to have the five to two decision, and that meant that we can go forward.”

“I thought it was a really great decision that said that the Montana DEQ did a good job, and that mining can happen in the future in Montana.”

Since the decision, the Black Butte Copper Project has been ramping up, Schlepp said, but there is still a lot of work to complete, including a feasibility study, a bonding plan, and trade-off studies.

“So a best case scenario for us would probably be getting into construction by the end of next year,” Schlepp said.

“But it’s looking really good. Everything’s going in the right direction. Copper prices are amazing, and it’s a good time to be building a mine.”

The trade-off studies include looking at



Two of the ponds which were built as part of the phase one construction work at the Black Butte Copper Project.

variety of possible updates to plans for the mine, such going with hybrid or electric vehicles rather than diesel for the mine’s underground fleet.

“It’s been 10 years since we put in for the permit,” Schlepp said. “So there are definitely some new technologies out there right now, and that’s changing quickly.”

Schlepp also commented that Sandfire is continuing to do a lot of work with the people in the surrounding communities.

“We’re finalizing a community benefits agreement with the Meagher County Stewardship Council,” Schlepp said. “We love that model, and it’s going very well.”

“And with the Meagher County Stewardship

Council, we’re looking at and working on housing, to make sure that the community is ready for people to move there.”

EXPLORATION

Sandfire is conducting a 2024 drill program focused on upgrading and expanding the project’s Johnny Lee Lower Copper Zone Resource. From December 2023 through April 2024 the company drilled about 14,500 feet of a planned 65,600 drill program.

On April 29, Sandfire announced the initial results from its winter exploration drilling program, which included a hole which intercepted 17.6 feet of 10.2% copper and a hole which intercepted 20.5 feet of 10.7% copper.

Jerry Zieg, Sandfire Resources America’s senior vice president, said in a press release that “We’re very pleased with these results, which continue to show that additional exploration drilling has the potential to increase our mineral resource and extend the projected mine life of the Black Butte Copper Project.”

“We’re really thrilled to be expanding that lower resource because of the high-grade copper down there,” Schlepp said. “That adds to the total that we can mine under the current permit, which is fabulous.”

THE MINE OPERATING PERMIT DECISION

The proposed underground copper mine has been in the works for more than 10 years, and more than 90,000 pages of documents on the project have been put into the public record.

“Lots of scientists, lots of hydrologists, lots of engineers have looked at this from every angle,” Schlepp said last summer.



Nancy Schlepp, the vice president of communications and government relations for Sandfire Resources America, talks to a group of visitors at the Black Butte Copper Project site. Black Butte is in the background.

The Montana Department of Environmental Quality issued a Mine Operating Permit for Black Butte on April 9, 2020 – the first MOP issued in Montana in 26 years.

On June 4, 2020, Montana Trout Unlimited, Trout Unlimited, the Montana Environmental Information Center, Earthworks and American Rivers filed a challenge to the Montana DEQ, saying they did not properly or sufficiently evaluate the risks of the mine.

Environmental groups have been arguing that the mine should not proceed because it is by Sheep Creek in the watershed of the Smith River, an iconic recreational river in central Montana. The proposed mine is about 12 air miles and 19 stream miles from the Smith.

Schlepp said the district court judge who looked at the challenge to the Mine Operating Permit adopted the language of the conservation groups as her own, deciding against the DEQ and Sandfire on every issue.

The case then went to Montana Supreme Court, which held a hearing on the case on June 21, 2023.

At that hearing Dale Schowengerdt, an attorney representing Sandfire, said that the role of the district court and the Supreme Court in a case like this is to simply to determine whether



Jerry Zieg, senior vice president of Sandfire Resources America, looks through core samples drilled from the project site.

the DEQ's process was appropriate, not to make their own decisions about the merits of the scientific analysis.

Schowengerdt argued that the "DEQ gave the mine the most extensive analysis of any mine in Montana's history."

The opinion issued by the Montana Supreme Court in February agreed that Meagher County

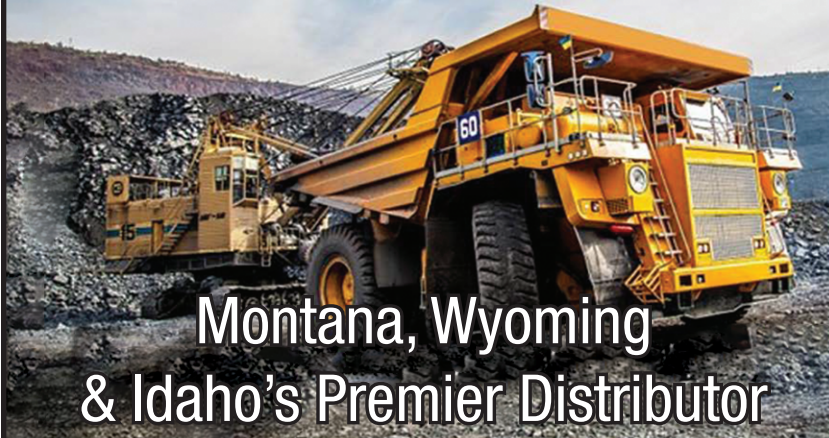
Judge Katherine Bidegaray had incorrectly substituted her judgment, instead of deciding whether the Montana DEQ had taken sufficient steps to arrive at a sound judgment.

"Courts should not substitute their own judgment for that of the agency by asking whether

► see *COPPER*, page 42



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whether the agency's decision was the 'correct' one scientifically, morally or politically," the opinion said. "Courts instead interpret the law and determine if the agency made its decision with sufficient information or if 'the decision was so at odds with the information gathered that it could be characterized as arbitrary or the product of caprice.'"

A major point of contention for the environmental groups has been whether the cemented tailings planned for the mine will adequately protect the area from potential seepage or failures. The Supreme Court decision said the record shows that the plans for the tailings meet standards that are higher than those set by the United Nations.

"The binder selection and amount are site-specific," the court said. "And that surface cemented paste tailings posed an extremely low-to-no-risk of catastrophic failure."

"Given the ... evidence, we disagree with the district court's characterization of DEQ's review of the issue of oxidation as random and unreasonable," the majority opinion continued. "Again, DEQ balanced various concerns—ensuring that tailings would have time to set into a non-flowable mass and covering tailings in a timely matter to prevent exposure and oxidation."

"The agency's decision was 'scientifically driven,' informed by 'substantial agency expertise,' and is entitled to considerable deference."

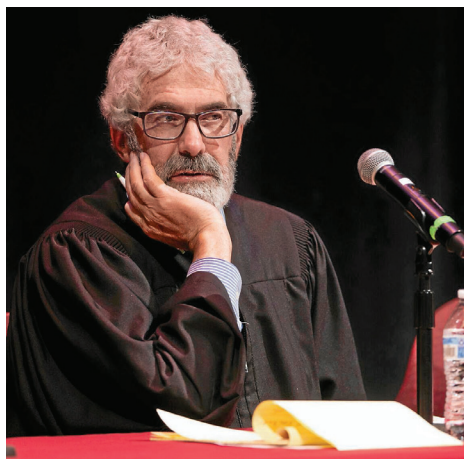
More than half of the 65-page majority opinion was devoted to technical aspects of the project and its anticipated water quality impacts.

Supreme Court Justice Beth Baker wrote the majority opinion, and was joined by concurring justices Mike McGrath, James Shea, Jim Rice and Dirk Sandefur.

In the dissenting opinion, Justices Ingrid Gustafson and Laurie McKinnon said the DEQ generated an "inadequate analysis unsupported by the record" by failing to thoroughly examine the benefits of alternatives.

"We would affirm the District Court's determination that DEQ's issuance of the mine permit was arbitrary, capricious, and unlawful, and remand to DEQ," Gustafson and McKinnon wrote.

In a statement following the Supreme Court ruling, David Brooks, the executive director of Montana Trout Unlimited, said, "This marks another sad example of Montana's lenient mining and permitting laws allowing for the development of a large-scale, high-risk mine to be



Montana Supreme Court Chief Justice Mike McGrath listens to oral arguments by the plaintiffs in the case of Montana Trout Unlimited v. Montana DNRC at the Montana Theatre on March 29.

built without proper regard for the other values of a place, including its water quality, quantity, fishery, wildlife, recreational opportunities, and cultural heritage."

"Fortunately, our fight to protect the Smith is not over," Brooks said. "We will continue to pursue our coalition's claims of illegal water use by the mine, as well as moving forward with our effort to protect the surrounding public lands from the perils of mining."

Lincoln Greenidge, CEO of Sandfire America, said the Montana Supreme Court's decision was "a validation of the thoughtful and deliberate efforts of the Sandfire America team to design a world-class, environmentally safe mining project from the beginning."

"Now, we look forward to progressing the project in a safe, responsible, and sustainable manner," Greenidge said.

Jerry Zieg said Black Butte "is a fantastic, well-designed project with a plan centered around safety, which is why we were successful today. Over a decade ago, we set out to design a state of the art, environmentally protective underground mining project, and this decision is proof we've been successful."

WATER PERMIT CHALLENGE

On March 29 the Montana Supreme Court held a hearing on another challenge to the Black Butte Copper Project filed by the same environmental organizations that challenged the Mine Operating Permit issued by the DEQ. The lawsuit discussed at the March hearing focuses on the mine's water permits issued by the Department of Natural Resources and Conservation.

The DNRC says that dewatering an underground mine and returning the water into the groundwater at a different location is not considered a "beneficial use" of the water and does not require a permit. The environmental groups



Sean Helle, an attorney for the plaintiffs challenging the DNRC's water permitting process for the Black Butte Copper Project, presents oral arguments in the case of Montana Trout Unlimited v. Montana DNRC on March 29.

say that dewatering a mine is essential to the mining operation and is therefore a "beneficial use" of the water and should require a permit.

Sandfire has received a permit from the DNRC for the 350 acre-feet (114 million gallons) of water it plans to use for industrial purposes, but did not apply for a permit for the approximately 457 acre-feet (149 million gallons) of water pulled out of the ground for dewatering, since that will be going back into the ground.

Sandfire had to acquire junior water rights to mitigate the 350 acre-feet it will use under the permit.

The water pulled out for dewatering at Black Butte will sometimes be stored for months and treated to meet DEQ requirements before being returned into the ground.

The conservation groups have argued that some of the water pumped out for dewatering will be lost to evaporation or leaks, and this would constitute a waste of water.

A DNRC hearing officer and a district court both agreed with the DNRC's interpretation of the Water Use Act, that there are uses of water that are neither a "beneficial use" or a waste of water. The plaintiffs then appealed to the Montana Supreme Court.

The environmental groups which filed the lawsuit have said that a decision siding with their interpretation of the law could stop the development of the Black Butte mine.

"If the court strikes down Sandfire's water rights, the company cannot proceed with mining," Earthjustice said in a Feb. 26 press release.

"We remain committed to protecting the Smith River with the coalition's lawsuit against the mine's nefarious dewatering plans," said Bonnie Gestring, the northwest program director at Earthworks.

Schlepp said, however, that the outcome of

the water permit case “does not change whether we can go forward or not.” She said if the DNRC and Sandfire lose the case, that would change the schedule for the water permitting, “but we would be fine either way.”

“The bigger issue, I think, is for the entire state of Montana,” Schlepp said. “It would change water law for everyone in Montana.”

If the court decides that diverting water does qualify as “beneficial use” of the water and require permitting, this could have major implications for mine permitting as well as for agricultural operations and for cities and towns that divert water from one place to another, Schlepp said.

During the hearing in March, those arguing both sides of the case said the justices’ decision will have important impacts on future permitting for mines, and how the Water Use Act is interpreted when it comes to water rights.

Montana Supreme Court Chief Justice Mike McGrath said this was an “extremely important and interesting case.”

The Montana Supreme Court listened to a little more than an hour of oral arguments during the March 29 hearing. Schlepp said it will probably take at least four to six months for the court

to issue a decision on the water permit case.

PUBLIC LAND PETITION

In another front in the battle against the Black Butte mine, a coalition of environmental organizations held a news conference in front of the U.S. Forest Service office on May 21 asking the Forest Service to prohibit mining claims on public lands in the Smith River watershed. The environmental coalition delivered copies of a petition signed by around 10,000 people asking the Forest Service to withdraw mineral leases granted in the area around the Smith River.

The Black Butte Copper Project is on private land, but Sandfire Resources has also filed around 700 mining claims on public lands in the area.

“Withdrawing these mineral leases would protect the Smith River watershed and the surrounding public lands from a potential environmental disaster,” Montana Wildlife Federation Conservation Director Jeff Lukas said during the news conference.

American Rivers’ Northern Rockies Regional Director Scott Bosse said, “Time is running short for the Forest Service to initiate a mineral

withdrawal to prevent industrial scale mining from permanently degrading this cherished watershed. It’s now or never.”

“The Forest Service remains committed to listening to concerns and understanding the values we share with partners and the public in managing our public land resources,” a spokesperson with the Forest Service’s Northern Region said in response to the petition. “We understand that the lands and resources we manage hold great value for many people and we are always happy to receive input from the public.”

Sandfire Resources America Senior Vice President Jerry Zieg said the company is focused on its private land mining at the moment.

“Any projects considered in the future will be held to the same high company standard of ‘doing it right from the beginning,’” Zieg said in a written statement. “Together, we face the important challenge of providing domestic critical materials for North American security and a sustainable world, while fully protecting environmental and cultural resources. We must all rise to this challenge by working together toward solutions that protect our cherished waterways and support our local communities.”

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Mineral Museum reopens after renovations

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The Mineral Museum at Montana Technological University in Butte is home to many geological wonders. There's a gigantic 27,496-ounce gold nugget, forearm-sized quartz crystals, large amethyst geodes that sparkle, a mammoth tusk and rhinoceros jaws that have been fossilized, and a whole collection of rocks that phosphoresce under ultraviolet light.

Approximately 5,000 visitors tour the Mineral Museum every year, and renovations recently completed will improve the visitor experience. The museum was closed for five months, from December 1, 2023 until April 25, 2024 to remove old asbestos-containing floors. The original maple hardwood floors

underneath were refinished and now shine.

Historic specimen cases were brought down from the museum's upper level, and are being refit with aluminum fittings improving lighting and security. Taller cases were moved to the periphery of the museum.

"It's much brighter now," Director Steve Quane said. "Sight lines are better. We also took cases off the stage and made the stage back into a usable space. We have a new projector and screen up to have presentations."

The mineral collection at Montana Tech originated in the university's first year of existence, 1901. At the time, 177 mineral specimens were purchased for teaching at the Montana School of Mines. Today's collection includes more than 15,000 specimens, with

1,300 on display. Quane recently traveled to Miles City to pick up a donation of 6,800 specimens from Montana geologist Larry French. Most of the new specimens are microminerals.

Reorganization of what's on display is an ongoing task. The museum is working to bring back one of its most popular past exhibits.

"One of our favorite exhibits was the ultraviolet room," Quane said. "We will be reconstituting our ultraviolet room in a new space behind the stage. Some rocks get excited by different frequencies of light. There's long-wave radiation and shortwave radiation. Depending on the mineral in the rock, it will be excited, and then when you turn the lights off and turn these lights on, they will show up green or orange or pink, cool different colors.





It's always a favorite."

The team at the museum is working on a map that can help guide visitors, and a mobile app that will offer an audio tour. In the fall, the Mineral Museum plans to start having events again.

"A lot of great work was done in the past, and we want to continue that," Quane said.

Most of the museum is located on the first level, and is accessible via elevator. Admission is free. It is open 7 days a week from 9 a.m. to 5 p.m. from June 15-September 15. The rest of the year, it is open Monday-Friday, from 9 a.m. to 4 p.m.



For more information, go to mbmg.mtech.edu/MineralMuseum. The Mineral Museum posts updates on upcoming events on the



Montana Bureau of Mines and Geology's social media pages. Follow them on Facebook, Instagram, and LinkedIn. **M**



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► BUTTE'S ORIGINAL HEADFRAME



The Travona's newly replaced lights shine brightly into a blustery, snowy Tuesday night on May 7, 2024 in Butte.

Butte's Original headframe will soon beam even brighter

TRACY THORNTON
TRACY.THORNTON@MTSTANDARD.COM

The remaining headframes that stand tall on the Butte Hill have become lasting symbols of the hard work and determination of its underground miners.

Now remnants of bygone days, some of these steel landmarks are being readied for an illuminating upgrade. Late last year, new lights adorned the Travona Mine. At a press conference on May 6, it was announced that additional new lights would soon shine bright at the Original, with the Steward to follow, all with major support from the Town Pump Foundation and Markovich Construction.

A new upgrade is sorely needed at the Original as its current lights are nearly 20 years old. The soon-to-be installed LED system should last another 20 years, but this time around, the headframe's color palette will not just include red, but, depending on the mood, a rainbow of other colors, including green, white, purple, blue and more.

George Everett, director of Mainstreet Uptown Butte, said he can't wait to see the Original completed, and the Steward, too, so both headframes will be ready before the start of Butte's summer festival season.

"It's all thanks to the generosity of the Town Pump Foundation and Markovich

Construction," said Everett. "We are so grateful for their support and making sure this happens."

Everett said the headframes are an integral part of Butte's history.

"We have always tried to honor the sacrifice of the underground miners and the wealth they created with their hard work," said Everett.

Tyler Jarvis and Ryker Bair, partners in High Country Lighting of Helena, are overseeing the project, which is a six- to eight-person job.

This is not their first crack at such a project, as the company supplied and handled the lighting of the Travona as well.

“We will be working on this from start to finish,” said Jarvis.

Both men seem unfazed at the height of the Original’s headframe, which is 127 feet from the platform. It’s a slight difference from the Travona, which is 112 feet.

“Yeah, it’s a bit scary, but we’re completely safe,” said Bair. “We know what we are doing.”

The new lighting for the Travona cost \$37,000, and the bill for the Original and the Steward will be an additional \$90,000.

Bill McGladdery, director of corporate communications at Town Pump, said the foundation was happy to foot the bill for all three headframes because the company understands that these headframes are part of what made Butte the richest hill on earth.

“This is our home,” said McGladdery. “We are committed to Butte and its heritage and want to participate as part of the community in maintaining them and lighting them.”

Markovich Construction has donated essential equipment to complete the job, including a manlift, crane and an operator.

It’s not that big of a deal to Corey Markovich, who is a bit boastful about his hometown.



Ryker Bair, with High Country Lighting, works his way up the Original headframe installing new lights on May 8 in Butte.

“The heritage and history of this town is unmatched,” said Markovich.

He also has a fondness for not just the Original, where his wedding reception was held in 2012, but the Steward, where his mom once worked.

The businessman also likes to help when

needed. “If it’s good for Butte, it’s good for us,” he said.

It’s not hard to figure out why the Original was so named, given the fact that it was

► see *Headframe*, page 50



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reputedly Butte's first patented mine 160 years ago. Located near the Irish neighborhoods of Corktown and Dublin Gulch, ownership changed hands many times throughout its 112-year history.

The tradition of lighting the headframes can be traced back to as early as Christmas Eve 1936, when the Anselmo Mine boasted a tree with green and red lights, along with the Star of Bethlehem.

As for the Original Mine, it has been, for the most part, continuously lit since 2005. By



The Original headframe's old tube lighting is seen taped together on the right next to the new replacement lighting being installed by Ryker Bair with High Country Lighting on May 8 in Butte. The new lights are LED, Bair said, can display over 16 million colors, run animations, and draw a low amount of power, given that they are a 12-volt system.



Ryker Bair, with High Country Lighting, installs new LED lighting onto the Original headframe on May 8 in Butte.

2008, it would become a popular venue for the National Folk Festival and then the Montana Folk Festival, and later, the Irish festival An Ri Ra.

According to Everett, the headframes represent the resilience of a town that stands tall

and strong and straight against the onslaught of time and the elements.

"There is no more important symbol of Butte than its headframes that stand over the Hill's now silent underground copper mine yards," said Everett. **M**



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