MINING THE WEST

FALL 2025

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Growing the flow of critical minerals

WSP looking at pit lakes and other mineral sources

Page 44

INSIDE THIS EDITION

- IDEAS FOR GROWING THE MINING WORKFORCE, 4
- AN EXTRAORDINARY TIME FOR RARE EARTHS, 5
- RECRUITMENT ADVERTISING SECTION, 13-20
- ARTIFICIAL INTELLIGENCE IN MINING, 57

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TABLE OF CONTENTS

COVER STORY

44 Researching sources of critical minerals
WSP engineers work to advance modern mining

TOP STORIES

12 Integra, tribes sign unique agreement for gold project

24 Nevada Gold Mines' Heritage Fund reaches $5 million milestone

32 P&C Recruiting focuses on mining jobs for professionals

63 A history of the early days of mining education









ON THE COVER: Devin Castendyk stands by a pit lake in the Midwest. Castendyk, who is based in the Denver area, is a vice president and a geochemistry technical fellow for WSP, a global engineering and technical services firm. His specialty is mine pit lakes, and he has been finding that it is cost effective to extract minerals from some of the pit lakes he has analyzed. *Submitted photo*

MINING THE WEST

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➤ **LETTER FROM THE EDITOR**

We're going to need more miners

We are going to need to inspire a lot more people to consider a career in mining.

On July 23 the Mining Minds podcast, which is based in Spring Creek, Nevada, hosted a panel discussion on workforce development.


Tim Burmeister

"In the United States, nearly half the mining industry's workforce is expected to reach retirement age by 2029. So that's more than 200,000 people that are needing to be replaced," podcast host Derek Grover said at the start of the discussion.

And we could need more new miners than that if a lot of the companies that are working toward developing new mines to help ramp up domestic mineral production are successful in getting their mines started up in the years ahead.

Grover and podcast co-host Dino Brunson talked with a panel of six people in the mining industry about how we can work toward changing the public's outdated perceptions of mining, and reach out to young people to let them know about the opportunities in mining, and how we can help people to advance and stay in their mining careers.

You can go to your favorite podcast platform and look for Mining Minds to listen to the whole discussion.

During the discussion, Nikita Grover, an HR strategist for Kinross Nevada, said that one way to help more people learn about the career opportunities in mining would be to improve the mining industry's marketing on social media. She said there are some companies and organizations that are doing a good job on social media, and there are some video campaigns that show the many types of careers that are available in mining and "humanize mining and make it attractive

➤ *see* ***Workforce,*** *page 54*

An extraordinary time for rare earths

Defense Department's partnership with MP Materials shows strong support for domestic rare earth production

TIM BURMEISTER

"Obviously, this was an extraordinary quarter," James Litinsky, the founder, chairman and chief executive officer of MP Materials, said at the close of the company's second quarter earnings call in August.



Litinsky

MP Materials owns the Mountain Pass Mine in California about 55 miles south of Las Vegas, Nevada, which is the only producing rare earth mine in the United States. The company is also ramping up its Independence Magnet Manufacturing Facility in Fort Worth, Texas.

There were some good business metrics during the quarter—revenue increased 84% year over year to $57.4 million, and Mountain Pass had record neodymium praseodymium production of 597 metric tons, a 119% increase year over year; and the second best quarterly rare earth oxides production of 13,145 metric tons, a 45% increase year over year—but what really set the recent months apart were a partnership and massive investment agreement with the U.S. Department of Defense to expand MP Materials' rare earths production and processing capacity, along with a recycling partnership with Apple. Both agreements were announced in July.

MP Materials said the multibillion-dollar Defense Department commitment to the company to catalyze the domestic production of rare earths was "transformational."

As part of the partnership, the Defense Department agreed to purchase $400 million of newly-created MP Materials stock, an investment that will make the DoD the company's largest shareholder.

With an investment package in place and with long-term commitments from the DoD, MP Materials is now planning to construct a second domestic magnet manufacturing facility, called the 10X Facility, at a soon-to-be chosen location. MP Materials has a commitment letter from JPMorgan Chase and Goldman Sachs to provide $1 billion of financing for the construction and development of the 10X Facility. The Defense Department has agreed to ensure that 100% of the magnets produced at the 10X Facility for its first 10 years will be purchased by defense and commercial customers.



MP Materials' Mountain Pass Rare Earth Mine is near Interstate 15 in California a few miles south of the Nevada border.

Also, the DoD has entered into a 10-year agreement establishing a price floor commitment of $110 per kilogram for MP Materials' NdPr products stockpiled or sold. This will insulate MP Materials from price swings which could be caused by other countries' attempts at market manipulation.

Alice Wu, a senior associate at the Federation of American Scientists, wrote in an analysis of the MP – DoD partnership that at the mid-July NdPr market price of $60 per kilogram, the price floor would cost the DoD about $300 million per year.

"When the market price is above the floor, DoD will in turn receive 30% of the amount above the floor, though given how high the price floor is, the expected amount of upside is low unless there is another supply crunch in the future," Wu wrote.

In the announcement of the DoD partnership, MP Materials also said it expects to add additional heavy rare earth separation capabilities at its Mountain Pass Mine. Mountain Pass is primarily rich in light rare earths, but does have some heavy rare earths such as dysprosium and terbium.

Wu wrote that the MP – DoD partnership is notable "not only for the sheer amount of funding that DoD is committing," but also for its use of both supply-side tools – an equity investment and loan – along with demand-side tools – a price-floor commitment and offtake commitment.

"These policy tools have never been used in tandem like this before, marking a new development in U.S. industrial policy," Wu wrote.

Wu commented that the Defense Production Act funding which is being used to fund the commitments in the MP – DoD partnership is

PHOTO MP MATERIALS



The Mountain Pass Mine's roasting circuit, where rare earth concentrate is thermally treated prior to leach.

currently capped at $750 million.

"The estimated annual cost of the MP Materials partnership once the 10X facility is in operation will take up at least 60% of the cap," Wu wrote. "Unless Congress decides to raise or remove the cap during the next DPA reauthorization, this partnership will limit the amount of funds available for other industries crucial to national security."

Tom Moerenhout, a professor at Columbia University's School of International and Public Affairs, wrote for Columbia's Center on Global Energy Policy that the MP – DoD partnership represents "one of the most consequential federal efforts to build a secure, end-to-end domestic rare earths supply chain to date. In scope, structure, and strategic intent, this deal sets a precedent for how the U.S. government could approach critical mineral security in the years ahead."

The partnership with the Defense Department was announced on July 10. Five days later, MP Materials announced a long-term, $500 million partnership with Apple to supply Apple with rare earth magnets manufactured in the United States from 100 percent recycled materials.

MP plans to produce the magnets at its Independence Magnet Manufacturing Facility in Fort Worth using recycled rare earth feedstock processed at Mountain Pass. The feedstock will be sourced from post-industrial and end-of-life magnets, which MP Materials said will mark "a major milestone in both companies' longstanding efforts to create sustainable, domestic supply chains."

To fulfill the agreement with Apple, MP Materials plans to significantly expand the capacity at the Independence facility.

MP Materials said that for nearly five years it has been working with Apple on piloting advanced recycling technology "that enables recycled rare earth magnets to be processed into material that meets Apple's exacting standards for performance and design."



Rows of 1,000 kg slings of NdPr oxide produced at the Mountain Pass Mine.

The company plans to construct a commercial-scale, dedicated recycling line at Mountain Pass that will process a range of inputs.

"Apple is one of the world's most sophisticated supply chain managers and one of the largest and most experienced users of rare earth magnets, making it an ideal customer and a powerful validation of MP's capabilities," Litinsky said during the second quarter earnings call.

"Rare earth materials are essential for making advanced technology, and this partnership will help strengthen the supply of these vital materials here in the United States," Apple CEO Tim Cook said in a statement.

MP Materials' stock price shot up with the partnership announcements. When the Defense Department partnership was announced on July 10, MP Materials' share price went up from about $30.03 to $45.23. When the Apple partnership was announced on July 15, MP's share price went up from about $48.52 to $58.22. On Aug. 14, MP's share price reached $76.58. From July 9 to Aug. 14, MP's share price increased about 155%.

MP'S STORY

At this point, MP Materials certainly seems like the story of an underdog makes good. When Molycorp declared bankruptcy in 2015, there were people who thought that it was not feasible to revive the Mountain Pass Mine, and that a rare earth mine in California could not compete with the world dominance of the Chinese rare earth industry.

After a bidding process in 2017, Litinsky, Michael Rosenthal and their group of investors acquired the Mountain Pass Mine for $20.5 million. Then they set out toward realizing their vision of building up the mine and building a business that would handle the entire rare earth supply chain.

Now with world tensions and a shaky trading relationship with China, there is an intense focus in the U.S. on reviving and expanding the domestic production and processing of critical minerals, and many people are grateful that MP Materials is producing rare earths and is able to ramp up their production and processing.

"When we gathered on the first quarter call in May, I said we had reached an inflection point," Litinsky said at the start of MP Materials' second quarter earnings call. "The rare earth supply chain long built on a single point of failure had cracked. I said that Humpty Dumpty was not getting put back together again and that this moment would be transformational and remembered.

"Today, it is clear that what has emerged in its place is something fundamentally new, and MP is squarely at the center of it."

Litinsky said that when they introduced the company to the markets in July 2020, "MP was a rare earth concentrate business with a bold and important vision to restore the full rare earth supply chain to the United States of America. We laid out a road map, first to build refining capacity and eventually, one day, to enter the magnetics business. We were clear-eyed about the scale of the challenge."

"Through years of relentless execution, this team has transformed a bankrupted and abandoned mine site into a vertically integrated American national champion with a strategic and economic platform that matters," Litinsky said. "Not only for national security, but for the most promising business of our time, the rise of physical AI."

Rare earth elements and the magnets made from them play many important roles in artificial intelligence hardware and robotics.

Litinsky said that through the years of developing the Mountain Pass Mine and MP Materials, "There have been ups and downs along the way. And yes, plenty of skeptics, critics and naysayers."

The years ahead have the potential to be at

➤ *see **MP,** page 10*

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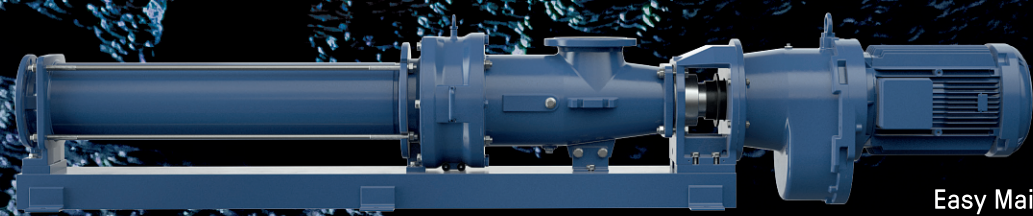

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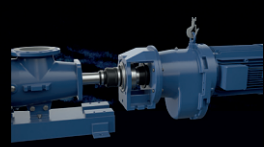

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MP *continued from page 6*

least as transformative for the company as the past five years have been, Litinsky said.

"As we look ahead to the next five years, I see a familiar set up, a bold vision, a clear strategy and obsessive focus on execution and a platform with the potential to evolve far beyond what most can imagine today."

Litinsky said none of the achievements of the past five years would have been possible "without the extraordinary people of MP—our team on the ground, in the plants and across the company. Their dedication, talent and belief in our mission are what turned vision into reality."



Geological technician Sydney Magann takes core samples from the deep core drill at Ramaco Resources' Brook Mine in Ranchester, Wyoming in 2023. These samples are from about 430 feet below surface. Ramaco says that the rare earth elements at the Brook Mine are comingled in coal, making the deposit easier to mine and process than hard-rock rare earth deposits.

OTHER RARE EARTHS PROJECTS

MP Materials has a big head start, but some other companies are also working toward developing rare earth mines in the U.S.

When MP Materials announced the partnership with the Defense Department, showing the government's strong support for domestic rare earth mining and processing, some other companies with rare earth projects in the U.S. also saw boosts to their stock price.

Ramaco Resources saw its share price go up from about $12.70 to $16.63 on July 10, and on August 14 the company's share price was up to $26.95. American Rare Earths' share price went up from about 16 cents to 18 cents on July 10, and the share price climbed to 32 cents on July 16.

Ramaco Resources is a coal company headquartered in Kentucky which discovered in 2023 that its Brook coal mine in Wyoming which it had purchased for $2 million has substantial amounts of rare earth elements and critical minerals comingled with the coal.

On July 9 of this year the company released a Preliminary Economic Assessment of the Brook Mine Rare Earth Project. Fluor Enterprises conducted the PEA, and concluded that the rare earth project "is both technically and economically viable." Flour estimated that the proposed

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rare earth processing facility would cost about $533.1 million.

The rare earths at the Brook Mine are comingled with coal and related clay and shale strata, which Ramaco says is "a significantly softer material compared to conventional hard rock deposits. This unique geology positions the deposit for more efficient, non-radioactive and cost-effective development."

During the Ramaco first quarter earnings call, CEO Randall Atkins said the Brook Mine "has the potential to help address what is an acute national strategic supply shortfall of precisely the rare earths and critical minerals which we happen to possess."

Ramaco says that federal and independent researchers have called the Brook Mine "a potentially 'world-class' discovery of essential elements."

The mine is permitted, and full-scale coal mining is underway. Ramaco says construction of a pilot processing oxide facility will begin this year. The company hopes to start operating the pilot plant in 2026, and to possibly begin constructing a commercial facility in late 2026, so that rare earth processing could begin in 2028.

American Rare Earths' projects include Halleck Creek in Wyoming and La Paz in Arizona. The company hopes to be able to begin mining and processing at the Halleck Creek Project's Cowboy State Mine as soon as 2029, but Joe Evers, the president of American Rare Earths' Wyoming project, told the Wall Street Journal in late July that "the financing piece is a big question mark."

American Rare Earths announced on July 24 that it had raised $15 million Australian through the sale of shares, and it would use the capital from share sales to fund a demonstration plant at Halleck Creek, in-fill drilling at the Cowboy State Mine, and engineering work.

On Aug. 18 American Rare Earths announced it had begun the construction of a test mine to extract ore for a demonstration plant.

BROAD SUPPORT FOR RARE EARTHS

An Aug. 21 Reuters story on the administration's attempts to find creative ways to help fund the critical minerals sector said that the announcement about the Defense Department's partnership with MP Materials caused some consternation among companies with U.S. rare earth projects who wondered how the support which the government was showing for MP might apply to their companies.

"The Pentagon's multibillion-dollar investment in MP Materials and its move to extend a price support mechanism—a deal negotiated by Deputy Defense Secretary Steve Feinberg—was seen by White House Chief of Staff Susie Wiles as uncoordinated as it sparked confusion over whether Washington would guarantee a price floor for all miners and forced the administration to clarify that it does not intend for MP to have a rare earths monopoly," according to two sources who spoke to Reuters.

The story said that two weeks after the announcement of the Defense Department's partnership with MP Materials, "administration officials rushed to meet at the White House with rare earths firms and their customers to underscore broad support for the entire sector."

The sources said that Commerce Secretary Howard Lutnick will now be taking the lead in coordinating the administration's decisions on funding critical minerals projects.M

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Integra, tribes sign unique agreement for gold project

ADELLA HARDING
Mining Correspondent

An agreement that Integra Resources Corp. and the Shoshone and Paiute tribes on the Nevada-Idaho border signed regarding the DeLamar Mining Project in Idaho is more than the usual scholarship and donation provisions between mining companies and tribes.

The tribes at the Duck Valley Reservation in northern Elko County and Vancouver-based Integra agreed the agreement is groundbreaking, providing for a partnership designed to last throughout the life of the proposed gold and silver mine.



Members of the Shoshone-Paiute Business Council and Integra Resources leadership gathered on August 15 for the signing of a partnership agreement for the DeLamar Mining Project in Idaho. The tribal leadership and Integra say this is a groundbreaking agreement, creating a partnership that will last throughout the life of the mine.

What's different is that the tribes will have a seat at the table for project development, and they will have "direct revenue and ownership opportunities," said Emily Hendrickson, manager of external affairs U.S. for Integra.

She said the agreement is not "one size fits all," and the pact is fashioned after agreements in Canada with First Nation tribes.

Hendrickson was part of a delegation that included Integra President and Chief Executive Officer George Salamis, tribal Chairman Brian Mason and tribal Vice Chairman Arnold Thomas that visited British Columbia last September.

They went to Newmont Corp.'s Red Chris Mine and met with the Tahltan leaders and British Columbia regulatory officials to understand how Integra could apply what they learned there to an agreement with the Shoshone-Paiute tribes, she said.

The agreement allows for joint



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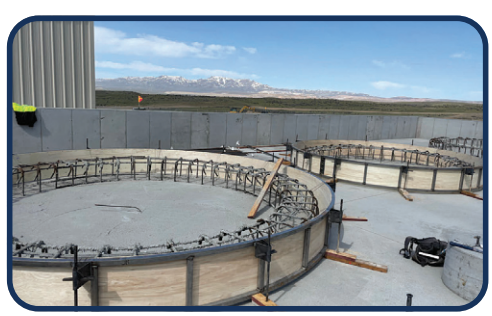

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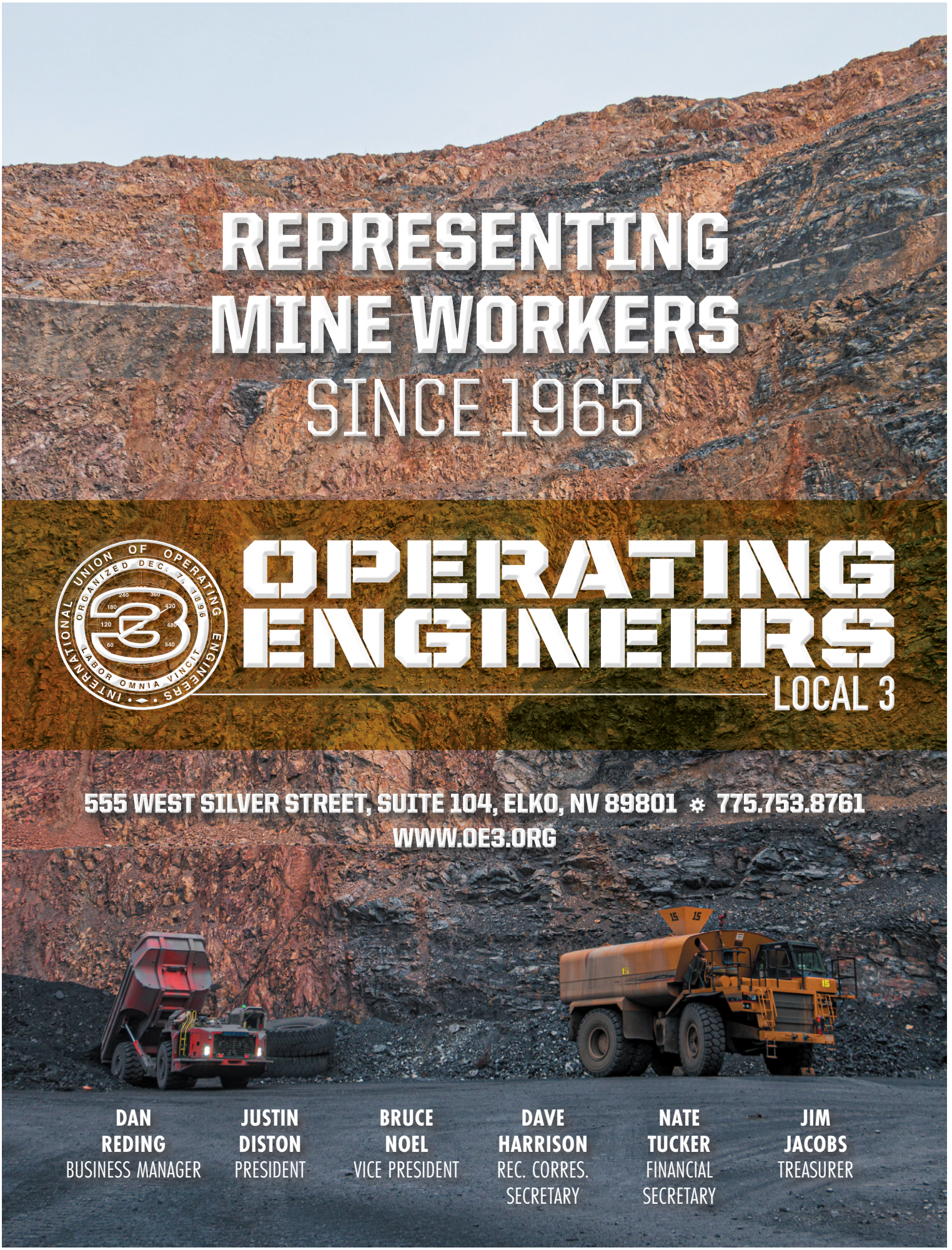
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decision-making in the development of DeLamar, Hendrickson said in a joint phone interview with Marco Ovando, public affairs officer for the Shoshone-Paiute tribes.

DeLamar, a former gold and silver mine that Integra is permitting to revive, is in southwestern Idaho. Kinross Gold Corp. operated the mine until 1998. Integra acquired the project in 2017.

The project site is roughly a four-hour drive from Duck Valley in Elko County, so it is not part of Duck Valley Reservation, but the mine project and the Duck Valley offices are both in Owyhee County, Idaho.

"Traditionally, Shoshone and Paiute bands roamed the region from time immemorial and then all were rounded up and put on reservations," said Ovando. He reported that the aboriginal territory extended almost to McCall and Stanley, Idaho, and the south end of the Salmon River and involved the Bannock tribes, too.



Shoshone-Paiute Tribal Chairman Brian Mason, left, and George Salamis, president and chief executive officer of Integra Resources Corp., shake hands at the signing event for the DeLamar Mining Project on August 15 in the tribal business council chambers. Mason said the agreement is the first of its kind in the Lower 48 states.

He said the tribes have worked with Barrick Mining Corp., Newmont Corp. and now the Nevada Gold Mines joint venture over the years, but "this was the first time a resource company reached out to us. We were usually an afterthought. They caught us off guard, and we were more than ready to engage."

Barrick is 61.5% owner and operator of Nevada Gold Mines, and Newmont holds 38.5%.

Integra is working with the U.S. Bureau of Land Management to permit the DeLamar Project, and the company said in its second quarter earnings update that the BLM is expected to release a notice of intent to begin the environmental impact statement process in the second half of this year.

In addition to owning the DeLamar gold and silver project, Integra owns and operates the Florida Canyon gold mine in Pershing County, Nevada, and owns the Nevada North exploration project, which is about 40 miles west of Florida Canyon. Integra acquired Florida Canyon, its first producing mine, in November 2024.

The work with Duck Valley serves as part of what the BLM requires in tribal consultations. Integra stated that the company is

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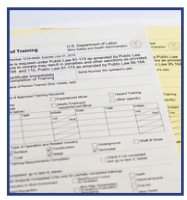

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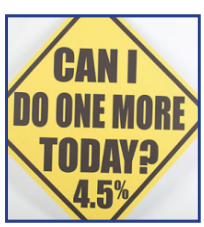




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Integra Resources and Shoshone-Paiute leadership and the deputy assistant secretary for land and minerals management under the Biden administration, Dr. Steve Feldgus, traveled to northern British Columbia in September to meet with First Nation leaders and British Columbia government officials. They visited Newmont Corp.'s Red Chris Mine and met with Newmont representatives to discuss how the approach taken at Red Chris could be applied to an agreement between Integra and the Shoshone-Paiute tribes.

PHOTO INTEGRA RESOURCES

also working to explore the development of similar relationships with traditional lands within the DeLamar footprint.

Hendrickson said the agreement "supports and parallels" the government consultation requirements, but Integra started conversations with the Shoshone-Paiute Tribes five years ago. The framework of the agreement calls for different committees, including a regulatory collaboration committee, a cultural advisory group and a business advisory committee.

"We both hope the agreement serves as a model for other mining companies and corporations to utilize, because as a tribe we're tired of being an afterthought in business dealings. We want to get a seat at the table and help guide them, because they are extracting resources off our traditional or treaty lands, and we want fair compensation for that," Ovando said.

"Our tribes recognize mining is crucial in this current environment, and we want to help, to be that model to say there is a healthy balance when it comes to mining and preserving cultural heritage and tribal sovereignty as a whole," he said.

Idaho's congressional delegation said in their comments about the Integra agreement with the Shoshone-Paiute tribes that the DeLamar Project will create jobs, but Hendrickson said there are no job quotas in the agreement.

She said that though DeLamar is a long driving distance from Duck Valley, there will be job opportunities for tribal members when the mine is in operation and employing roughly 320 workers, including opportunities to start businesses that would do business with Integra.

Ovando said Duck Valley currently grows sagebrush seedlings for the U.S. Bureau of Land Management for reclamation of fire-damaged land, but could also do this for mine reclamation projects, for example.

Duck Valley Reservation has about 900 enrolled tribal members living within the borders, and there are 2,200 enrolled members total, with about 700 living in the Treasure Valley region of Idaho.

"I'm optimistic we can get valley members employed," Ovando said.

Hendrickson said Integra is a "pretty innovative company," and the company is "really rooted in integrity and caring for our neighbors." She said Integra believes that getting started early on the groundwork for a project – including working on agreements with the tribes – makes better business sense.

"We see companies and projects all around us" that end up in conflicts or litigation, Hendrickson said, but "we believe that at the end of the day this will save costs by investing more up front in a positive way."

In the announcement about the agreement, the tribal chairman, Brian Mason, who worked for



Since acquiring the DeLamar Project in 2017, Integra Resources has published a Preliminary Economic Assessment in 2019, a Preliminary Feasibility Study in 2022, and a technical report for the updated Mineral Resource Estimate in 2023. The project is currently being advanced through permitting with the U.S. Bureau of Land Management.

years in the mining industry, said that "the Shoshone-Paiute Business Council is pleased to enter into this relationship agreement for the DeLamar Project, located in the northern portion of Shoshone-Paiute traditional territory."

He said the agreement "is the first of its kind in the Lower 48 States, and something that tribal nations surrounded by the mining industry have been working towards for many years. We are excited to start the work to implement the agreement immediately, collaborating in partnership with Integra to develop plans that will put the benefits of the future mine to work for the long-term vision of the tribe and to accountably manage potential impacts."

Following the signing in the front of the Shoshone-Paiute Business Council and Integra leadership at the council chambers in Owyhee County, Idaho, across the state border from the town of Owyhee, Mason said the agreement "supports the right to a seat at the table to help direct how things happen in our territory."

Integra's president, chief executive officer and director, George Salamis, said that "through this partnership we are establishing durable and long-term predictability, while providing the foundational platform for local and regional economic opportunities to thrive."

He said that over the past five years, the company and tribes "have worked together to build an understanding of our respective identifies, values, rights and interests. We are incredibly honored to be partners with the Shoshone-Paiute and together establish this first-of-its-kind agreement, which will enable us to create sustainable value for our shareholders and communities through responsible mining practices."

The agreement also received support from Idaho's two Republican senators, Mike Crapo and Jim Risch, and U.S. Rep. Russ Fulcher, R-Idaho.

Crapo said the agreement "represents a collaborative commitment to responsibly advancing natural resource development in Idaho and supporting the creation of high-paying, quality jobs for generations to come. This move will help foster a more secure and efficient domestic mineral supply chain as America strives for increased energy and technology independence."

Risch said the agreement is a "great example of the innovative collaboration we value in Idaho. The DeLamar Project will support domestic production of the resources we use every day and create high-paying jobs and workforce development opportunities for Idahoans."

Fulcher said "Idaho has been blessed with the vast natural resources we need to be self-sufficient and prosperous," and the agreement "marks a significant milestone for economic development ..." **M**

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Employees at Nevada Gold Mines' Phoenix Mine celebrate the milestone of the Heritage Fund surpassing $5 million in total contributions to local nonprofit organizations.

Making a meaningful DIFFERENCE

Nevada Gold Mines' Heritage Fund reaches $5 million milestone

TIM BURMEISTER

The Nevada Gold Mines Heritage Fund employee giving program reached a big milestone in July when it surpassed $5 million in total contributions to local nonprofit organizations. That $5 million total included donations from employees, and matching donations from Nevada Gold Mines.

Barrick Mining and Newmont Corp. formed the NGM joint venture in 2019, and after discussions and planning, the Heritage Fund was established in December 2020. Since then, thanks to the generosity of NGM employees, an average of over $1 million a year has been going to local nonprofits. That's been an important lifeline for many local organizations that provide all kinds of services to the people and communities of Northeastern Nevada.

Mikayla Bowers, who is a geotechnical superintendent for NGM's Phoenix open pit operations and serves as the Heritage Fund board president, said the intent of the fund since it was established has been "to build healthy and sustainable communities across Northern Nevada and allow our employees to be able to give to the nonprofit organizations that are important to them."

The Heritage Fund is overseen by a nine-person board which is made up of employees from across all of NGM's operations.

Sarah Edgar, who heads up the Heritage Fund program as NGM's manager of community engagement and development, said she gets to work closely with the Heritage Fund's board of directors and serve as the link between the employees and local nonprofits that they support.

"Our employees' generosity has been incredibly inspiring since I started in this role," Edgar said. "Combined with the company match, it's driving a meaningful impact in our region."

"We've helped fund critical programs in education, healthcare, environmental initiatives, and local economic development, making a difference where we live and work."

Edgar said that reaching the milestone of $5 million in donations "speaks volumes about the heart of our workforce and what we can achieve when we unite around a shared purpose."

NGM employees can go online to ngmheritagefund.benevity.org to select the nonprofits they want to donate to, and the donations can be made directly to the organizations of their choice through payroll deductions. Employees can set up their giving as a recurring donation to the nonprofit they select. NGM matches the employee donations at 120%.

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The Heritage Fund board of directors presented a donation of $710,000 to the Igloo Recreation Center in late 2024. The funding will be used to build a roof over the center's outdoor ice rink.

The employee giving program has been set up to provide a lot of funding to local organizations today, while also preparing for the community's future. If an employee chooses to give to any of the many approved local nonprofits, NGM's 120% match goes to that nonprofit. If an employee selects a nonprofit that does not qualify for the company match, NGM's match goes into the Endowment Fund, which will collect donations for years to create a large endowment which will be available to help support the community after mining comes to an end.

Bowers said that with the Endowment Fund "we are setting ourselves up for when our region is no longer a mining-based economy. That way we can continue to build sustainable communities."

The Endowment Fund is currently just over $14 million. NGM originally established the Endowment Fund with a $500,000 contribution. When Anthem Broadband committed in 2021 to bring high quality internet service to Elko and the surrounding areas, NGM helped to support bringing this important technological boost to the area by giving Anthem a $30 million loan. But this loan is not being paid back to NGM – two thirds of the loan payments are going into the Endowment Fund, and one third of the payments are going into the I-80 Fund which was set up to help support local businesses. The I-80 Fund was founded in 2020 by NGM and is managed by Rural Nevada Development Corporation to assist businesses in Humboldt, Lander, Eureka, and Elko counties with fixed, low-interest small business and commercial lending.

The majority of the NGM employees who donate through the Heritage Fund program donate to local nonprofit organizations. Edgar said NGM encourages local giving when they bring in new hires, "because that's truly where we would like the focus to be sustained, is where our employees are living and operating."

"To everyone who has donated, thank you," Edgar said. "The generosity is making a lasting impact and shaping the future of our community."

NGM has around 7,000 employees, and around 15% of them give recurring donations to nonprofit organizations through the Heritage Fund program. Edgar said they would love to see the number of employees who give through the Heritage Fund grow, so that local organizations could get even more funding as they

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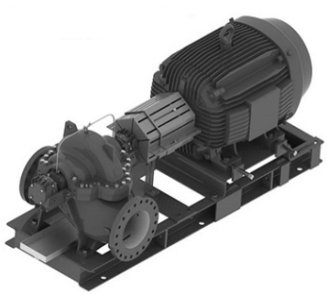



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work to help meet a range of needs in their local communities.

The Heritage Fund recently transitioned to a private foundation and is now required to make minimal distributions of the fund's balance for charitable purposes each year. In 2024, the Heritage Fund board chose to invest in the Kinross Nevada Igloo Recreation Center's "Raise the Roof" project with a $710,000 donation to fully fund the construction of a roof over the ice rink.

The Igloo Rec Center in Elko and the Elko Hockey Association are nonprofit organizations that have no paid employees, and they have been able to build impressive recreational facilities with a lot of support from the community and from Kinross Gold's Nevada mines and NGM. An outdoor ice rink was built in 2023, with some of the funding coming from NGM employees donating through the Heritage Fund.

NGM said, "The Igloo is a vital community space, providing indoor facilities for various local groups. The new roof will protect the ice from unpredictable weather, preventing cancellations and extending the skating season. Additionally, it will reduce operational costs, making the rink more sustainable and accessible for the region's athletes, families, and community members."

SHARING HERITAGE FUND STORIES

As the Heritage Fund was approaching the $5 million milestone, NGM shared a series of short videos showcasing how the employee giving program is making a difference. Each video highlights one organization and the work they do in the community, and one NGM employee talks about the Heritage Fund program, and why they selected the highlighted nonprofit for their donations.

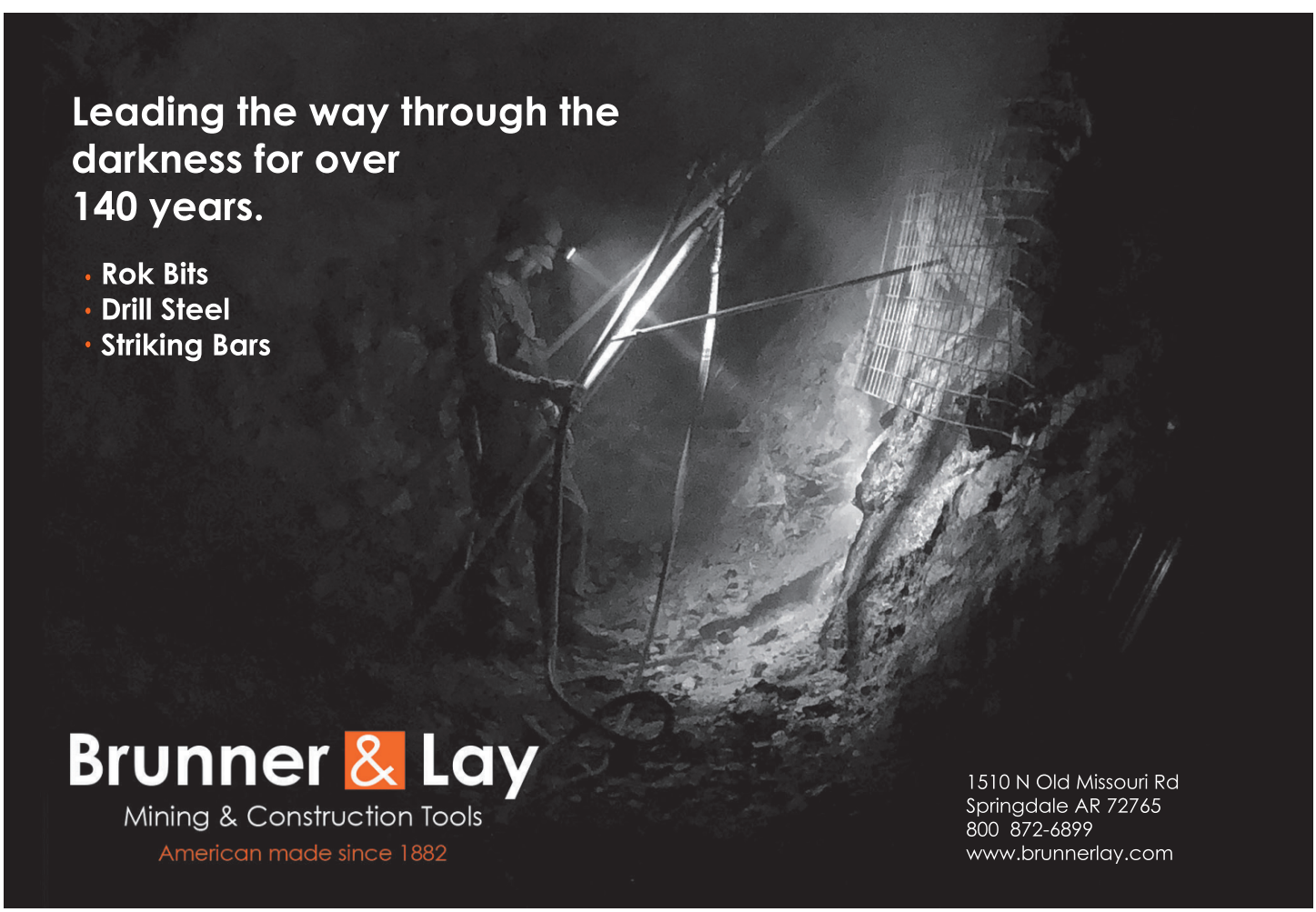


Vanessa Galway, the plant manager at NGM's Gold Quarry roaster, talks about the Heritage Fund and why she selected the Elko Hockey Association for her recurring donations.

In the video on the Elko Hockey Association and Igloo Rec Center, Vanessa Galway, the plant manager at NGM's Gold Quarry roaster, says, "That 120% match is huge. I've never heard of an organization like NGM that gives back this much when an employee donates, so I know that my dollars go way further than just my donation."

"Partnerships and also building a sustainable legacy is part of our DNA here at NGM."

Two of the six videos focus on local fire departments – the Crescent Valley Volunteer Fire Department and the Winnemucca Rural Fire Department.



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Don Strong, an operations general supervisor at Cortez Hills underground, talks about the Heritage Fund and why he gives to the Crescent Valley Volunteer Fire Department.



Juan Mercardo, an electrical and instrumentation supervisor at NGM's TS Power Plant, donates to and is a member of the Winnemucca Rural Fire Department. He encourages NGM employees to "look at all the organizations and see which one of them speaks to you, and do some research and donate" through the Heritage Fund.

In the video on the fire department in Crescent Valley, Don Strong, an operations general supervisor at Cortez Hills underground, says, "I live in Crescent Valley, and I may need them someday. I want to make sure that they have the opportunity to get the right equipment, the right products and whatever they need to be successful."

In the Winnemucca video, Juan Mercardo, an electrical and instrumentation supervisor at NGM's TS Power Plant, says that along with selecting the Winnemucca Rural Fire Department for his Heritage Fund donations, he is also a member of the fire department, so he gets to see firsthand how the funding is used.

Mercardo advises NGM employees to "look at all the organizations and see which one of them speaks to you, and do some research and donate."

The Pray for Life Foundation was formed in memory of Jeston Pray, who died in a tragic accident in 2017 at the age of 23. The foundation says its purpose "is to assist organ donor families with various forms of comfort, counseling, and housing support needs which they may have during their journey through losing a loved one and the unfamiliar territory of navigating the emotions and logistics of transplantation and the aftermath of such a difficult experience. Funds from the foundation also support the Jeston Pray Memorial Sports Scholarship at Elko High School."

In the Heritage Fund video on



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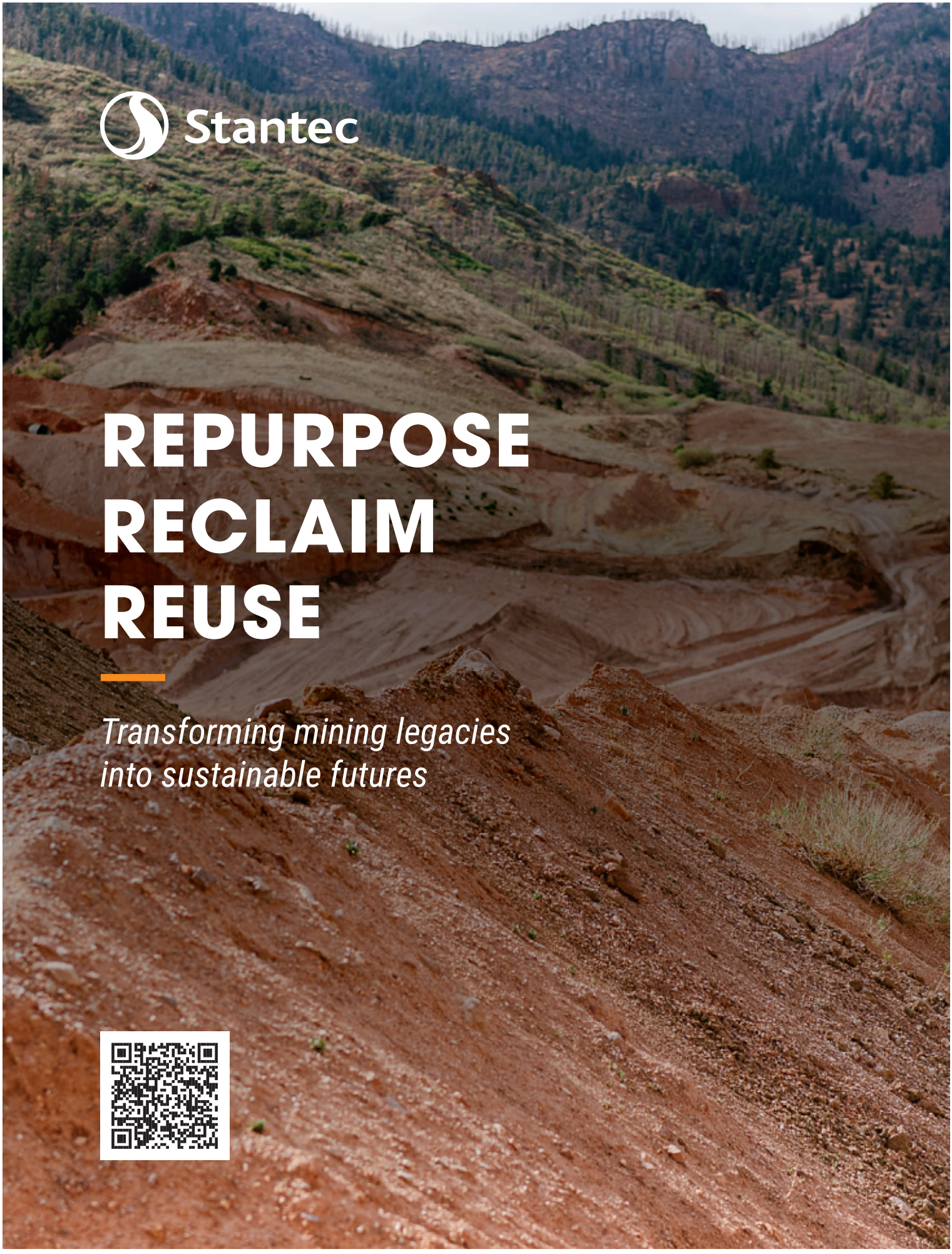
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Jerry Lynch, a general supervisor at NGM's Turquoise Ridge mine, donates to the Humbolt Volunteer Hospice through the Heritage Fund. He says the Heritage Fund is a great way to donate because of the NGM match and because once you set up the recurring donation it happens automatically, and you don't have to worry about it anymore.



Amy Hall, a haul truck driver frontline engagement team lead at NGM's Phoenix Mine, donates to the Lander County Committee Against Domestic Violence. She says donating through the Heritage Fund is a good way to help make sure local nonprofits survive so that people get the help or support they need.

the Pray for Life Foundation, Mike Sena, a survey analyst at NGM who selected Pray for Life as the organization he wanted to donate to, encourages NGM employees to "just donate." He explains that there are a lot of different nonprofit organizations for people to choose from, and if they don't see the organization they are interested in, there is an option to add a different organization to contribute to through the Heritage Fund.

In the video on Humbolt Volunteer Hospice, Jerry Lynch, a general supervisor at NGM's Turquoise Ridge mine, says, "I'm one that always wants to give to other people and help people out. The Heritage Fund is a great way to do it. I know that NGM, they match my contribution to 120%, and I know, every paycheck, something will be going to somebody to help them out, and I don't even have to worry about it."

In the video on the Lander County Committee Against Domestic Violence, Brenda Thomas, the chairperson for the organization, says that funding from the Heritage Fund "has made a huge difference. We're able to help more people."

Amy Hall, a haul truck driver frontline engagement team lead at NGM's Phoenix Mine, says, "I think donating to the Heritage Fund is good, because it helps us make a lasting change to the community."

She says she would tell other NGM employees "to pick a nonprofit that they're passionate about. That's the only way that we can make sure that the nonprofits survive and that people get the help or the support that they need." **M**

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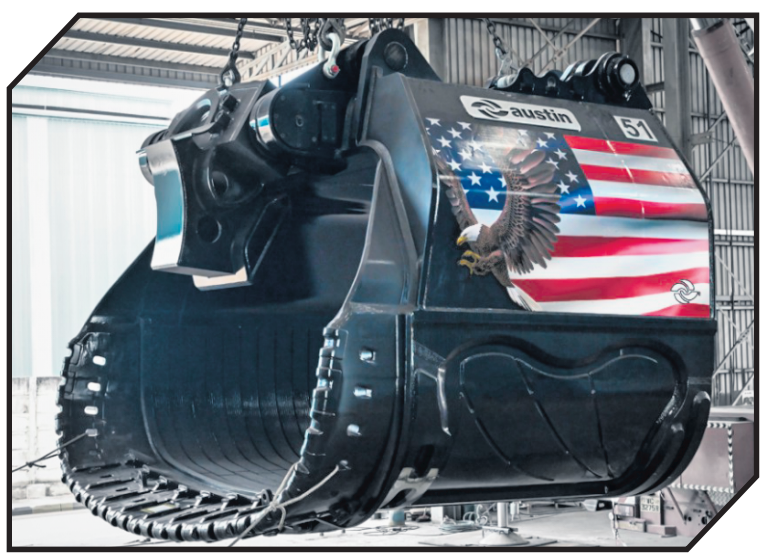

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Industry expertise

P&C Recruiting focuses on mining jobs for professionals

ADELLA HARDING
Mining Correspondent



P&C Recruiting and HR staff include, from left, in the front row, Mikeala Basso, co-founders Rhonda Zuraff and Dana Pray, and Emily Hagenah, and in the back row, DeDe Barker, Pamela Smith and Nichole Rusheen.

P&C Recruiting and HR puts people and companies together for executive level and professional positions, but P&C can also provide contractors to fill professional spots for companies in the short term.

The company calls the executive level recruitment the "C-Suite," with an eye on chief executive officers, chief operating officers and chief financial officers, said one of the principals and co-founders, Rhonda Zuraff.

She said P&C also recruits for professionals in the technical, science, geology and geotechnical fields and "all facets of engineering." They are all salary-level positions.

The company started by Zuraff and Dana Pray roughly eight years ago is geared to the mining industry in the West, elsewhere in the United States, the Americas and internationally. Pray said about 90% of P&C's clients are in mining, and the remainder are in construction.

"The construction may take place at a mine site," she said.

The company states on its website that "our client commitment is simple: industry expertise, tailored solutions, and a people-first approach that transforms workplaces and business results. For jobseekers, we offer a personalized experience which includes insights on employers and their culture – to ensure the company is the best match for what you are seeking."

Zuraff said P&C has seen a "huge uptick" in jobs to be filled that has led to "more diverse job recruiting and interim contract employees we make available to our clients for a specific scope of work."

Pray said P&C doesn't recruit for skilled trades jobs at the mines because "we can only do so much," but she and Zuraff keep an eye on the changes in the employment scene beyond their scope to advise clients.

"We help direct employers to where they should go for skilled trades," Zuraff said.

"Once in a while we help a client put on a job fair," Pray said in a joint interview with Zuraff. Pray said that P&C's skills are used mainly to find the right people for the right jobs, however.

When P&C is helping fill positions, Zuraff said that "we lean heavily on our networks in the industry. We are boots on the ground involved with most industry trade associations that support mining, whether it be an alumni association, a state mining association, an international or national trade association, as well as all of the higher education institutions in mining."

She said that "we give our time to these entities, and we provide financial help, as well."

Additionally, P&C "has a really robust software program that houses candidate profiles across the industry by discipline, and that is another big resource for us," Zuraff said, reporting that there are roughly 25,000 professionals in the database.

"Underscoring all of it, our team of employees for the most part comes from the industry, and they know a lot of people. They pick up the phone and call them. That's first and foremost," she said.

The P&C website provides a link to job openings mainly in the mining industry from Alaska to Minnesota and including Nevada.

HIRING MARKET

P&C Recruiting also helps employers navigate the current hiring market.

"The generation coming out of school now is much different from the baby boomers and gen Xers," so P&C helps employers understand how to recruit and retain the younger people who "are more interested in time off perhaps than base pay," Pray said.

"We need to look at what

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Rhonda Zuraff, co-founder and principal with P&C Recruiting and HR, third from left, with University of Utah students at the Society for Mining, Metallurgy & Exploration conference earlier this year.

motivates the younger generation, so culture is a huge part of that, and appreciation of them for wanting a work-life balance," she said.

The labor market continues to tighten, so P&C works hard at cross-industry hires, as well, such as a chemical engineer crossing over to metallurgy in the mining industry, Pray said.

She also said that if she were going to tell a company starting a new mine what to look for in employees, she would say they should concentrate on the culture of the younger people and what they look for in jobs and "think about bringing other disciplines into mining roles."

Pray said 19 months is the average time on a job for Generation Z, so "we have to deal with that as an industry, or we won't be able to get the younger generations."

Zuraff said young people expect competitive wages, but pay is often not the deciding factor when they look for work or look for new job opportunities.

"They expect it to be good, but it's the culture, the work-life balance, the vacation availability, the breadth of job responsibilities you are going to expose them to, the learning opportunities and the growing opportunities," she said.

JOB MARKET

Zuraff said that those in the job market look at the percentile of how pay offered stacks up with pay elsewhere, such as whether it is in the 70 percentiles or the 90 percentiles.

Rich Nolan, president and chief

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executive officer of the National Mining Association, said in a column that modern mining needs young people.

"Thanks to data centers, semiconductors, batteries and electric vehicles, America's mineral and electricity demand is soaring. Meeting that demand – and doing so responsibly – requires more American production. It also requires more American mining and the people to make it happen."

The contractors P&C provides to clients "bridge leadership gaps with experienced professionals," the company's website states, and human resources specialists can manage audits, transitions and compliance needs.

The website also says that contract technical and industry specialists fill highly technical and niche functions in the mining sector.

"It's really a strong growth area," Zuraff said.

She said that P&C has been fortunate to be able to "vet" employers to be sure they treat their employees well, and Pray said that they want to be sure employer offerings "are consistent with the market."

The company additionally offers human resources help, including providing presentations and coaching for employers.

"We still do a fair amount of training as our clients need it," Zuraff said.

P&C Recruiting has seven full-time employees, including Zuraff and Pray, and two part-time employees "working directly for us and not including contractors," Pray said.

"We're very proud that we've built a strong reputation. We're boots on the ground, and that really continues to open doors for us," Zuraff said.

The employees beyond Zuraff and Pray are recruiting specialists, and one is a human resources specialist, too.

P&C keeps its pulse on the mining industry through memberships and sponsorships with mining associations and universities with mining degree offerings, according to the co-founders.



Dana Pray, co-founder and principal of P&C Recruiting and HR, second from left, with students and alumni from Montana Tech.

"We serve on committees and sponsor a lot of things and speak at a lot of events," Zuraff said, reporting that the company provides support and time because networking is important to the business.

Work entails travel, and the company's geographic spread has grown. As an example, Zuraff said they were in Australia a few months ago, and they do a lot of work in Canada.

Pray said P&C must work within work visa parameters, however. A lot of work is virtual, as well.

P&C also keeps tabs on universities that offer mining programs and efforts to encourage young people to look at careers in the mining industry.

Pray said it's a challenge to convince young people to look at jobs in the mining industry, which is still a "financially attractive field."

Applied Analysis reported in a 2024 study for the Nevada Mining Association the average pay in Nevada in 2023 in the gold and silver mining industry was $118,000, while the average pay in lithium mining was $97,000, and the average pay for all private industries was $63,000.

Nolan said in his column that the average wage for U.S. miners is $98,971 a year, 30% above the national average.

Zuraff said that "people often don't understand what it means to work for mining companies" or how important mining is to the end products that require mined materials, "so it is an education process."

"It's a matter of getting the word out," she said, pointing out that trade associations are also trying to recruit students to the mining schools. Instructors also are hard to find and retain in higher education.

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P&C Recruiting and HR staff pose with an I Am Mining frame. Clockwise from top left are Dana Pray, Pamela Smith, Emily Hagenah, Nichole Rusheen, Mikeala Basso, and Rhonda Zuraff, and DeDe Barker in the middle. I Am Mining is the American Exploration & Mining Association's campaign which helps people get a better understanding of today's mining by inviting people in the mining industry to create short videos in which they share a little bit about their lives, their interests, and how they got into mining.

Zuraff also said that a lot of employers "have really opened up to flexibility. It's almost like job sharing. People work on site and some are remote workers, especially those who work in finance and the supply chain."

Artificial intelligence is also a growing topic within the industry. Zuraff said the industry is looking at how AI will impact the industry, as well as how the industry can use AI. The industry is already using autonomous haul trucks and underground mining equipment that require a different skill set to operate.

Although there are jobs to fill, Zuraff said, there also have been cutbacks in the mining industry, such as Rio Tinto, which "did a sizeable layoff this year," and steelmaker Cleveland Cliffs, which recently laid off more than 2,000 workers. Zuraff said the American Exploration and Mining Association can help provide guidance as companies downsize and work with people who are losing their jobs.

P&C HISTORY

P&C Recruiting and HR started out in 2017 as Pray Solutions and was originally focused on Nevada and precious metals. P&C now works with companies that produce a wide range of minerals, including copper, lithium, trona, uranium and rare earths, as well as coal.

Zuraff serves on the University of Utah Mining Engineering Advisory Board and is involved in several mining trade associations as well as the Society for Mining, Metallurgy, and Exploration and the NAATBatt trade association, which is focused on the emerging sector of advanced battery technology in North America.

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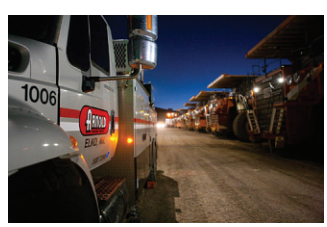



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P&C Recruiting and HR was on hand for the University of Utah Careers in Mining Summit as part of the company's effort to point young people to careers in mining.



Rhonda Zuraff, co-founder and principal of P&C Recruiting and HR, speaks at the American Exploration & Mining Association Summer Summit in Spokane, Washington, in June.

She also is a former publisher of the Elko Daily Free Press and worked for Newmont Corp. Zuraff also holds a trainer certification from Crucial Learning.

Pray worked for Barrick Mining Corp. and she has 15 years of experience in the mining industry accounting and 15-plus years in leadership roles for a staffing firm.

The list of the organizations P&C works with or belongs to includes the Alaska Miners Association, American Exploration and Mining Association, Colorado Mining Association, Idaho Mining Association, Michigan Technological University, Mining Minnesota, Missouri University of Science and Technology, and Montana Technological University.

In addition, the list includes NAATBatt, Nevada Mining Association, Penn State University College of Earth and Mineral Sciences, Prospectors and Developments Association of Canada (PDAC), Protected At Work, Society for Human Resource Management, Society for Mining, Metallurgy and Exploration; South Dakota Mines School of Mines & Technology, University of Arizona, University of Nevada, Reno; the Department of Mining Engineering at the University of Utah, the Wyoming Mining Association, and Women in Mining USA. **M**

PHOTOS P&C RECRUITING



Gold demand shines in second quarter

ADELLA HARDING
MINING CORRESPONDENT

Gold Demands Trends published by the World Gold Council for the second quarter of this year reports that quarterly demand reached 1,249 metric tons of gold, up 3% over the second quarter of 2024 as high gold prices and the geopolitical environment fueled strong gold investment.

The value of total gold demand was up 45% over the second quarter of last year to $132 billion, according to Gold Demand Trends for the quarter.

"Global markets have navigated a volatile start to the year marked by trade tensions, unpredictable U.S. policy shifts and frequent geopolitical flashpoints," said Louise Street, senior markets analyst at the World Gold Council.

"The robust investment activity we have seen in the first half of 2025 underscores gold's role as a hedge against economic and geopolitical risks," she said.



> "Gold recorded a remarkable 26% appreciation in the first half of the year in dollar terms, outperforming many major asset classes."
>
> **LOUISE STREET,** SENIOR MARKETS ANALYST AT THE WORLD GOLD COUNCIL

The report released by the World Gold Council finds that gold exchange-traded fund investment continued to be a key driver to total demand, with inflows at 170 metric tons, compared with small outflows in the 2024 quarter.

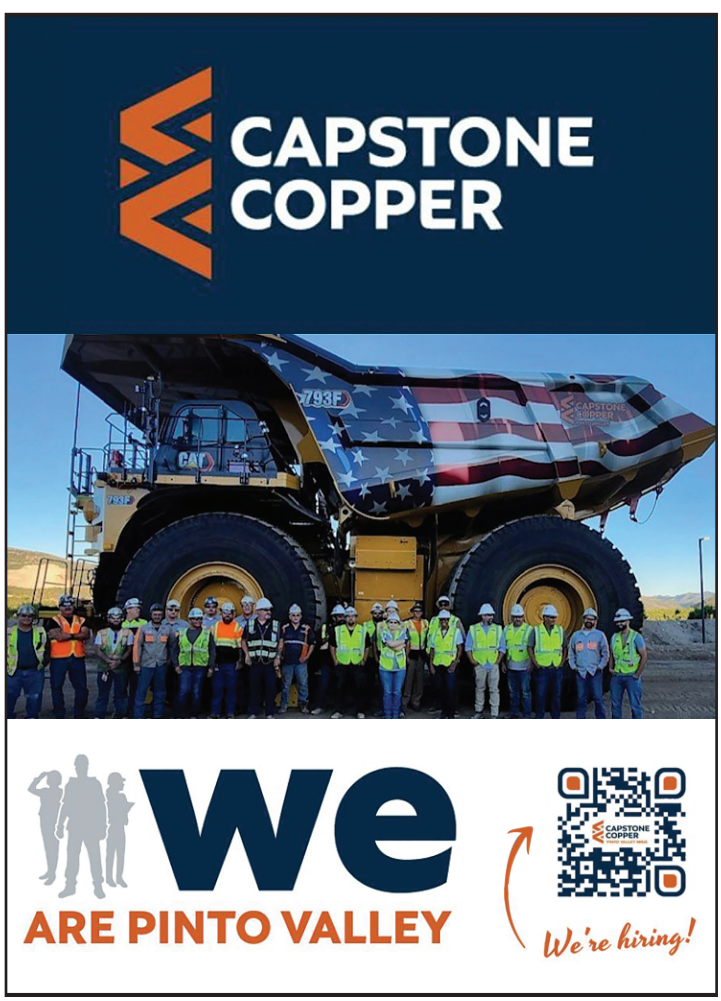
"Ongoing market volatility, coupled with gold's impressive price performance in recent months, has also generated significant momentum, drawing capital from investors around the globe," Street said.

The London Bullion Market Association's average gold price for the second quarter was a record $3,280 per ounce, up 40% over the 2024 quarter, according to Gold Demand Trends.

Kitco's gold price fixes for the second quarter show the highest spot price was $3,430.49 per ounce on June 12-June 13.

"Gold recorded a remarkable 26% appreciation in the first half of the year in dollar terms, outperforming many major asset classes,"

PHOTO WORLD GOLD COUNCIL





Street said, predicting that "with such an impressive start to the year, it is possible that gold could trade within a relatively narrow range in the latter half of 2025."

She said that "on the other hand, the macroeconomic environment remains highly unpredictable, which may underpin further gains for gold. Any material deterioration in global economic or geopolitical conditions could further amplify gold's safe-haven appeal, potentially pushing prices higher still."

According to Gold Demand Trends, total bar and coin investment increased 11% over the second quarter of last year, adding 307 metric tons, with Chinese investors leading the way with a 44% increase over the 2024 quarter to 115 metric tons. Indian investors also added to their holdings at 46 metric tons in the second quarter.

The report states that divergent trends emerged in Western markets as European net investment more than doubled to 28 metric tons in bar and coin investments while U.S. bar and coin demand dropped. Charts with Gold Demand Trends show that total bar and coin investment was 306.8 metric tons, compared with 275.2 metric tons in the 2024 quarter.

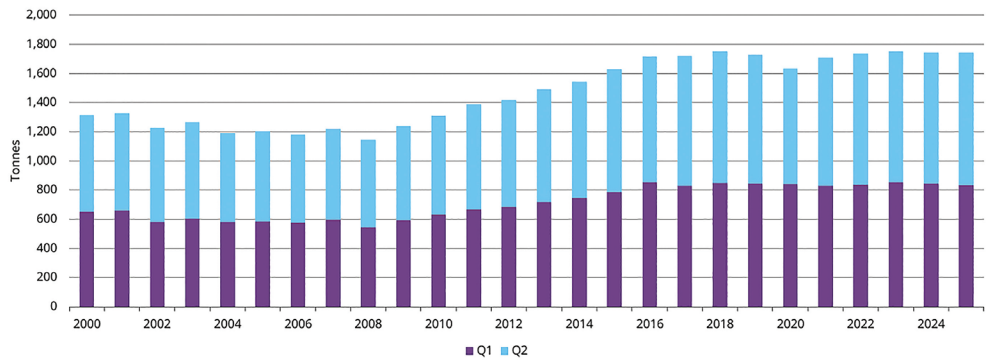
The World Gold Council said that two consecutive quarters in 2025 generated the strongest first half of a year for bar and coin investment since 2013.

Central banks continued to buy gold, adding 166.5 metric tons to official global reserves in the second quarter, but that was down from 211.5 metric tons in the 2024 quarter.

Despite this deceleration, central bank buying remains at significantly elevated levels due

Global mine production up 1% y/y on broad-based growth across regions

H1 mine production by year, tonnes



Note: Data as of 30 June 2025. For an explanation of mine production, please see the Notes and definitions download: https://www.gold.org/goldhub/research/gold-demand-trends/gold-demand-trends-q2-2025/notes-and-definitions
Source: Metals Focus, Refinitiv GFMS, World Gold Council

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Investment drives gold demand in Q2

Total Q2 gold demand (incl. OTC) increased by 3% y/y to 1,249t. In value terms, total gold demand jumped 45% y/y to US$132bn.

- Gold ETFs: Second consecutive quarter of hefty global gold ETF demand
- Bar and coin: The strongest first half for bar and coin investment since 2013
- Central banks: Healthy demand in Q2, but pace of buying moderated
- Jewellery: Demand volumes and value continued to diverge
- Technology: Under pressure from US tariffs
- Supply: Record mine production but subdued recycling

H1 total total gold demand by sector, tonnes and value

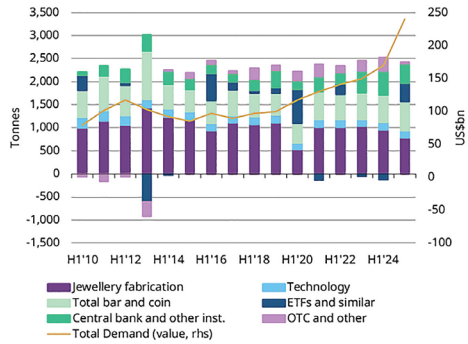

Chart note: Data as of 30 June 2025. For an explanation of gold market sectors, please see the Notes and definitions download: https://www.gold.org/goldhub/research/gold-demand-trends/gold-demand-trends-q2-2025/notes-and-definitions
Source: ICE Benchmark Administration, Metals Focus, World Gold Council

July 2025

to ongoing economic and political uncertainty, according to the World Gold Council, which reported that its central bank survey shows that 95% of reserve managers believe that global bank gold reserves will increase over the next 12 months.

The Financial Times quoted John Reade, senior market strategist at the World Gold Council, as saying that "to be really bearish on gold you have to think we'll get an outbreak of sanity and cooperation from major geopolitical leaders. And the world seems too polarized to me for that."

Looking at jewelry demand, Gold Demand Trends found that demand continued to slip, down 14% and nearing low levels last seen in 2020 during the COVID-19 pandemic, while gold prices are high. The report said jewelry demand was down 20% in China and 17% down in India.

In terms of value, however, the global jewelry market increased to a total of $36 billion, the World Gold Council reported.

Total gold supply in the second quarter rose 3% to 1,249 metric tons, with mine production slightly up to a new second quarter record. Initial estimates for mine production alone suggest a record in the second quarter of 909 metric tons, according to report highlights.

Gold recycling increased 4% over the 2024 quarter, but stayed relatively subdued considering high gold prices, Gold Demand Trends found, stating that consumers in India increasingly opted to exchange old jewelry for new or to pledge it as collateral against loans.

Gold Demand Trends also found that gold used in technology came under pressure from the potential impact of U.S. tariffs, although growing demand for artificial intelligence-related applications remains an area of strength. M

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Growing the flow of critical minerals

Researching the extraction of minerals from pit lakes is one of the many ways WSP engineers are working to advance modern mining

TIM BURMEISTER

With advancing technologies demanding growing supplies of critical minerals and other mined materials, there are plenty of projects for engineers to work on. WSP, a global engineering and professional services firm with about 73,000 employees worldwide working on about 200,000 active projects, has about 5,200 mining professionals working with mining companies on every phase of the mining journey, from initial planning, geology, water, infrastructure, processing, and waste management on through the entire closure process.

Devin Castendyk is a vice president and a geochemistry technical fellow for WSP, and his specialty is mining pit lakes. He works out of the company's Lakewood, Colorado office, which is the home base for a lot of WSP mining professionals, but he analyzes and works on pit lakes around the world.



Devin Castendyk

He gets involved with mining companies in the initial planning stages for a mine, analyzing and predicting what will happen with the site's future pit lakes, and when mines enter the closure phase, he analyzes how to manage their pit lakes.

Almost 10 years ago, WSP started using aerial drones to collect pit lake water samples. More recently, Castendyk has been working on using artificial intelligence to synthesize and analyze all the data that can be collected on future and existing pit lakes. And now pit lakes specialists are taking a closer look at options for recovering metals from pit lakes.



CONTRIBUTED
Devin Castendyk says it is exciting to see the potential for a positive return on investment from recovering minerals such as copper from pit lakes.

The effort to find ways to extract metals from pit lakes fits in with the emphasis that a lot of mining companies as well as the U.S. government are now putting on recovering minerals from mine waste and wastewater.

GOVERNMENT EFFORTS

On Nov. 21, 2024, the Advanced Research Projects Agency-Energy (ARPA-E), which identifies itself as "the disruption wing of the Department of Energy," announced its Realize Energy-rich Compound Opportunities Valorizing Extraction from Refuse waters (RECOVER) program. The agency said "technologies supported by the RECOVER program will focus on developing new materials and processes to make extraction of ammonia and critical metals from wastewater energy-efficient, selective, and durable. … The goal of the program is to replace 50% of domestic ammonia supplies, and 100% of key critical metal supplies, by recovery from wastewater sources."

"RECOVER is an ambitious program focused on retrieving high-value materials from wastewater, a largely untapped resource," ARPA-E Director Evelyn N. Wang said in the announcement of the start of the

PHOTOS CONTRIBUTED



WSP engineers use drones to collect pit lake water samples.

program. "RECOVER technologies will transform waste streams into critical materials sources that commoditize the vast volumes of wastewater flowing through our systems and strengthen our energy security."

ARPA-E has said it plans to announce project selections totaling $40 million for its RECOVER program early this fall.

The U.S. Department of the Interior announced on July 24 that the agency was launching an effort to unlock critical minerals from mine waste. The Interior Department said it would "streamline federal regulations on the recovery of critical minerals from mine waste, while updating guidance to make mine waste recovery projects eligible for federal funding." The agency said its new directive "also prioritizes review of plans to recover uranium and other minerals from abandoned mines and directs the U.S. Geological Survey, or USGS, to map and inventory federal mine waste sites."

"By unlocking the potential of our mine waste, we are not only recovering valuable critical minerals essential for our economy and national security, but we are also leveraging groundbreaking research from the U.S. Geological Survey that identifies promising sources of these minerals," Interior Secretary Doug Burgum said in a press release. "This initiative reflects our unwavering commitment to achieving mineral independence and ensuring that America leads the way in advanced technologies that power our future while turning environmental challenges into opportunities for growth and innovation."



The Lone Tree pit lake in Nevada's Humboldt County in 2015. Newmont's Lone Tree Mine began production in 1991, and after mine closure, dewatering was stopped in 2006 and the pit began filling with groundwater. Geochemical modeling at that time which predicted neutral pit lake chemistry turned out to be incorrect, and there has been analysis through the years of ways to neutralize the acidic water. It was predicted that the pit lake would reach about 90% of its maximum depth of 865 feet in 2026. With all its mining history, Nevada is home to many pit lakes.

The Interior Department said it would work to promote the recovery of critical minerals from "mine waste, coal refuse, tailings and abandoned uranium mines." However, the list did not mention mine pit lakes.

RECOVERING COPPER

Talking about his work with mine pit lakes, Castendyk said that recently when they collected water from a pit lake with an aerial drone, "we found high levels of copper in the water of one of these pit lakes. We mentioned it to our client, and they came back and said, 'Oh yeah, we knew it was high, but gosh, that is really high.'

The WSP engineers asked if they had considered recovering the copper, and the client responded, "Well, what would that look like?"

"So we went through a desk scale study looking at various costs of recovery and how much value was stored in the lake," Castendyk said, "and we came up with a possible method that at the first level looked cost effective, and then we moved on to doing a bench scale study.

"Then we had the data that said, it's quite possible to get a positive return on investment after two or three years of recovery.

"I got really excited about that," Castendyk said.

A peer-reviewed paper which Castendyk authorized was recently presented at the International Mine Water Association Conference in Portugal and shows how a tool developed by WSP was used to analyze copper recovery options for a pit lake in Spain. An analysis of the water showed the pit lake contained about $22 million worth of copper in September 2024. The tool analyzed the return on investment over 15 years for four methods of recovering the copper – biological sulfide precipitation, chemical sulfide precipitation, solvent extraction and electrowinning, and copper cementation. It turned out that in this case, the copper cementation, which may be the simplest method of copper recovery, gave a positive return on investment. The tool showed the copper recovery would break even after about two years and would result in a total profit of about $2.6 million after about five years.

"The returns are positive, but they're not huge," Castendyk said. "But when you consider the cost of care and maintenance for a lot of these sites, and the fact that you're taking wastewater and recovering copper from it, those are pretty exciting attributes.

TOP PHOTO WSP; **BOTTOM PHOTO** BRUCE GORDON



Devin Castendyk talks about a graph which shows the return on investment over 15 years for four different methods of copper recovery from one of the pit lakes WSP has studied.

"WSP now has this tool, and we're looking at other mines and saying, 'Hey, how much revenue could we capture out of that pit lake?' And some would not generate a profit, but others are looking pretty interesting."

The tool shows that the peak return on investment from extracting copper from the pit lake in Spain would come at about 5.3 years, and after that the amount of copper in the pit lake would be low enough that the cost of extracting the copper would be higher than the value of the copper recovered. If the company continued to extract copper from the pit lake they would be back to break even after a total of about 12 years, and they would be about $3 million in the red after about 15 years.

Castendyk said that in some situations, companies might decide to continue recovering metals from the pit lake even when the operational costs exceed the profits.

"Maybe for some big clients break-even is really good enough," Castendyk said. "They may find that it's such a positive community relations boon that they say, 'Let's just keep it running.'"

Also, the numbers might change and more value might flow into the pit lake as time goes by, making it profitable to continue extracting copper for a longer time.

"Our analysis is conservative in that we're only looking at the water stored in the lake," Castendyk said. "But some of these open pit mines intersect an extensive network of historic tunnels and workings. If you're pulling water from the pit, you're also pulling water from a 'mine aquifer' that extends in various directions."

That water coming into the pit could keep the copper concentration high.

AI ANALYSIS

Analyzing existing pit lakes for metals recovery options comes after mine closure, but Castendyk is also involved in analyzing options for future pit lakes during the initial mine planning process. His team is developing an AI tool to analyze various data including the groundwater, geology and climate of an area to predict concentrations in a future pit lake. The AI tool has been fed lots of data from pit lakes and from published literature and surveys, and it uses all this data to crunch the numbers.

The AI tool is still in development, Castendyk said, and in the future it is expected to get better and better at predicting details about pit lakes and the potential for metal recovery.

"The more data you have with an AI tool, the better the results. We're gathering more data every day and adding it to the tool."

As the AI grows its database and capabilities, it could soon get to the point where engineers will be able to sit down with clients and quickly provide quite accurate predictions about pit lakes in various locations and the costs of water treatment and the options for metal recovery.

"We're at the early stages, so any of this has to be checked and rechecked, until we validate that it's coming up with a real number, because sometimes AI can come up with a bogus answer," Castendyk said. "So we need to check that, but if we can get that down, I think this is going to be a really helpful approach for our clients."

One source of data that has been fed into the AI is the database of pit lakes from around the world that Castendyk and WSP have built and managed for the International Network for Acid Prevention, an organization which includes environmental leads from many of the major mining companies, and which publishes the Global Acid Rock Drainage best practices guide.

There is currently data from around 300 pit lakes in the INAP database. Castendyk said he looked through the data and found that about 140 of the pit lakes have copper values, and about a dozen of them, including at least one in the U.S., have copper concentrations which are similar to the pit lake in Spain which Castendyk found could return a profit through copper extraction.

"It's really interesting, looking at that data, to find 12 pit lakes that make you go, 'Hey, wait a minute, is anyone asking this question in the post-closure setting? Could we pull value out, and either make some revenue, or maybe offset some of our costs, or demonstrate that we're meeting corporate goals in terms of environmental social governance?

"There are a whole bunch of wins that could come out of this. In some cases it might be driven by the revenue, and in other cases the big driver is, 'We want to demonstrate to shareholders that we're using this resource and we're continuing to get value out of the post mining environment.'"

DON'T OVERLOOK THE POTENTIAL OF PIT LAKES

Castendyk said that often when people think of extracting metals from mine waste, they think about tailings, but for a lot of people,

PHOTO TIM BURMEISTER

extracting metals from pit lakes has been off their radar. He said he had recently talked with people at the U.S. Geological Survey about the opportunities for extracting metals from pit lakes, and they wanted to learn more.

"They have done a lot of critical minerals research and looking at mine wastes, and they're just very excited to hear about this, as well."

Castendyk said it makes sense to work on extracting metals from tailings, since the tailings were placed there many years ago when the extraction technology wasn't as sophisticated as it is today, and there may be a lot of value left in those tailings. But people sometimes overlook the possibility of extracting metals from pit lakes, which might actually be easier than extracting metals from tailings.

With tailings, Castendyk said, "there's a lot more processing cost to excavating, hauling and processing solids as opposed to, we've already got this here in liquid form—what can we do to this liquid to pull out this metal?"

"That's something we've been thinking a lot about."

For now, Castendyk said, pit lakes at copper deposits are the "low hanging fruit," since those pit lakes tend to be acidic and have acid rock drainage which can fill the pit lake with metals to extract.

Nevada has a lot of pit lakes, but a lot of those are in Carlin-type trend areas, and the water is often quite neutral. There are some copper areas of the state, however, such as around Ely, where there could be pit lakes that could be good targets for metal extraction.

Castendyk said that as science advances and extracting metals from pit lakes at copper deposits becomes more common, they may move on to looking at the possibilities for pit lakes at other types of deposits.

In the Western United States, probably the most famous pit lake is the Berkeley Pit at Butte, Montana. The large lake that filled a copper mine open pit is filled with lots of metals, and over 5,000 gallons of acid mine drainage continues to flow into the Berkeley Pit every minute, so water continuously needs to be treated and discharged.

Montana Resources, which operates a copper mine next to the Berkeley Pit, has been extracting copper from the Berkeley Pit water for years. Since receiving funding from the U.S. Department of Defense in 2023, West Virginia University has been working with BP and Montana Resources on researching options for extracting rare earths from the pit lake. WSP has also been looking at options for extracting metals from the Berkeley Pit.

Castendyk said that although for most mine sites, looking at metal recovery from pit lakes and acid mine drainage is a relatively new idea, the copper mine in Butte has been a leader of the pack in this type of technology. He said that in the early days of copper mining in Butte, acidic water flowed over old railroad ties underground, and the railroad ties extracted copper from the water, since a chemical reaction caused the copper in the water and the iron in the railroad ties to trade places. The mine didn't let this copper extracted from acid mine drainage go to waste—they had crews gather the copper-rich railroad ties to take them to the mill.

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THE NEED FOR MORE DOMESTIC MINERAL PRODUCTION

In Helena, Montana, Randal Huffsmith and Robert Kimball are two of the more than 1,000 WSP employees based in Montana and Idaho who are working on a wide range of projects. Huffsmith and Kimball are both WSP senior vice presidents and are both involved in mining. Huffsmith is a U.S. mining sector leader for WSP and Kimball is an industrial process water sector leader.



Randal Huffsmith



Robert Kimball

As mining companies are working toward more domestic mining and processing of the critical minerals and other materials that the U.S. has not been focusing on for many years, Huffsmith, Kimball and others on the WSP mining team have been working with mining companies on developing the extraction and processing methods that are right for the geology at each mine site, as well as working on looking at options for extracting minerals from mine waste and pit lakes.

Kimball and Huffsmith wrote a short report for Global Business Reports on the work which WSP is doing toward recovering metals from pit lakes and mine waste in the Western U.S.

"Today, many mining companies are implementing processes for the extraction of energy transition elements like lithium, copper and cobalt from traditional acid mine drainage sources and from mine waste," Kimball and Huffsmith wrote. "In addition, REEs (rare earth elements), such as neodymium, a common metal used in mobile phones and wind turbines; lanthanum, used in lithium-ion batteries; praseodymium, used in EV magnets; and other critical minerals, are also being evaluated for removal from mine water and mine waste. This creates a domestic supply of these raw materials as well as a valuable revenue source."



U.S. Geological Survey scientists examine mine waste at Tar Creek near Picher, Oklahoma. The USGS, in partnership with state geological surveys, is researching potential sources of strategic minerals like zinc, germanium, tellurium and rare earth elements in legacy and ongoing mining operations.

Talking about the need to develop more domestic sources for critical minerals, Huffsmith said, "I think we all understand that some of these strategic metals are in short supply in the U.S., and that's primarily supply chain driven. The other thing we're seeing a lot is a tendency for various countries to nationalize these metal mining projects and keep them close to home. And the result is this supply chain disruption, and it's a complex situation now with tariffs and with everything that's going on."

With some minerals, Huffsmith said, there has been market manipulation. With minerals such as lithium, cobalt and nickel, China or other countries have flooded the market.

"That drives the price down, and when it drives the price down, these new startup companies have a hard time making it, because they're dealing with these low prices."

DEALING WITH CHALLENGES

Huffsmith said each of the minerals that we want to begin producing more of in the U.S. have been facing different kinds of supply chain issues and challenges. With rare earths, only a small percentage of the world's supply has been mined and processed in the U.S., and until recently rare earths mined in the U.S. were shipped to China for processing, and the U.S. imported magnets made with rare earths.

"The magnets are used in things like our radar systems and the screens for our fighter jets and all that sort of thing. And now calling China and asking them for magnets for our fighter jets is not working well," Huffsmith said.

Antimony, which is used in munitions made for the U.S. military, as well as in high tech materials and as an industrial fire retardant, has not been mined recently in the U.S., and now China has cut off its antimony supply from being exported to the U.S. WSP has been working with United States Antimony Corporation, which Huffsmith said "is working very hard on a plan to increase their mining and processing so that they can create a more sustainable U.S. source of antimony."

On April 30 of this year US Antimony announced that it had executed a contract with WSP to complete engineering and construction services to significantly expand its smelting operations in Thompson Falls, Montana.

"This new working relationship for these services is complementary to USAC's existing internal antimony processing knowledge and experience," US Antimony said in its announcement. "Combined with WSP's overall metals processing and environmental experience, the company has put together a first-rate team."

US Antimony said it expected to complete the Thompson Falls smelter expansion by the end of 2025, and the project would increase the smelter's production output from around 50 tons to 300 tons per month.

"We acknowledge the critical importance of enhancing production capacity while maintaining our industry standard of environmental compliance and operational efficiency," Huffsmith said in the announcement of the contract with

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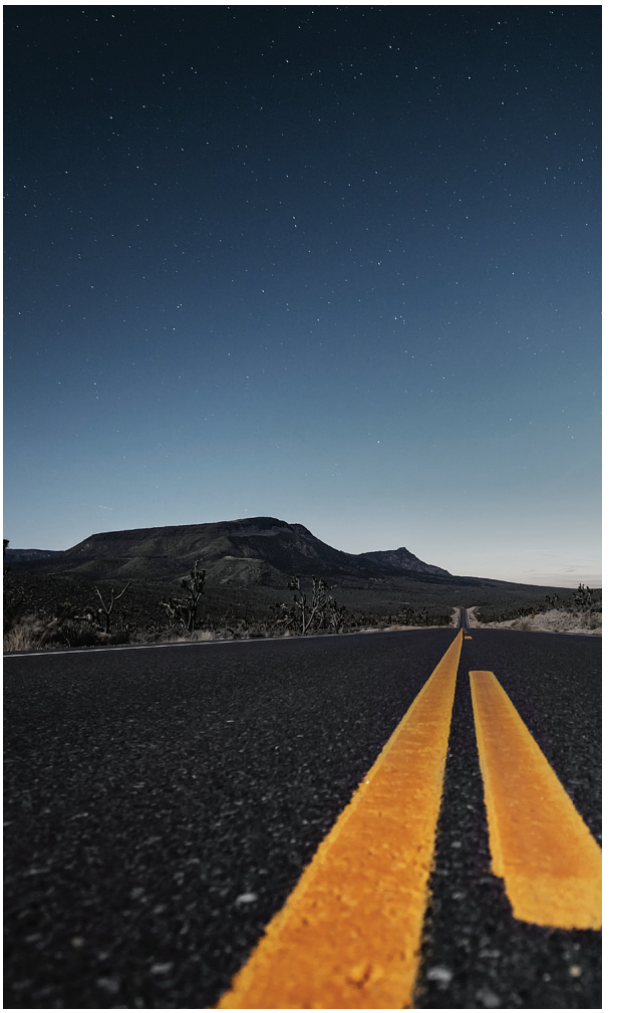

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Ted Duaime, senior hydrogeologist with the Montana Bureau of Mines and Geology, speaks to a group during a Critical Resource Summit in 2023 about the geochemistry and rare earth minerals potential of the Berkeley Pit in Butte. The pit holds over 50 billion gallons of metals-rich water. Montana Resources, which owns and operates an open pit copper mine next to the Berkeley Pit, has been extracting copper from the Berkeley Pit water, and West Virginia University has been working with BP and Montana Resources on researching options for extracting rare earths from the pit lake.

US Antimony. "We are excited about this opportunity to partner with US Antimony on these expansion plans with our experienced Montana team."

Huffsmith said several of the top copper companies in the world are now looking into options for producing more copper by processing refractory and low-grade primary sulfide ores, notably chalcopyrite, which have been dismissed in the past as not really economically viable.

"If you look at the world supply of copper, there's a huge amount that's in that category," Huffsmith said. "So, they're looking at new leaching and processing solutions to try to recover copper that can't be floated or leached easily or that they haven't been able to process economically. They're all working on technologies to get that copper out."

During MINExpo International in Las Vegas last September, Freeport-McMoRan presented their annual innovation award to the WSP mining and metals team. Huffsmith said on LinkedIn that this was "a real honor coming from one of the most innovative and progressive mining companies in the world!"



Freeport-McMoRan presented their 2024 innovation award to the WSP mining and metals team at MINExpo International in Las Vegas in September. From left are Jesus Romero, a WSP vice president and civil engineer; Omar Smith, a WSP assistant vice president and senior civil engineer; and Randy Huffsmith, a senior vice president and U.S. mining sector leader.

Huffsmith commented that the WSP mining team are "big fans" of Sandfire Resources' Black Butte Copper Project north of White Sulphur Springs, Montana.

"They're a great example of new technology being applied in the mining space for copper," Huffsmith said. "The types of technologies they're using, such as paste underground backfill, advanced water management, water treatment and tailings management, and numerous other environmentally protective measures they will implement, these are very robust and impressive environmental solutions."

LITHIUM SOURCES

Lithium is a critical mineral that has been getting a lot of attention as many companies work toward developing mines in the United States to produce lithium for electric vehicle batteries. WSP is doing a lot of work with many companies in helping them look at ways to extract lithium and develop their mines.

Huffsmith said there are three potential sources of lithium. One is lithium brine, "and that's what classically has been the lithium production stream for a long time." The primary producing lithium mine in the U.S. is Albemarle's Silver Peak, which is a lithium brine operation. One of WSP's clients is Standard Lithium, which is developing the South West Arkansas Project and the Phase 1A Project to extract lithium from the Smackover Formation lithium brine resource.

"They're looking at building probably one of the very largest lithium projects in the U.S.," Huffsmith said.

Another source of lithium is the hard ore spodumene.

"That needs to be crushed and ground and it's got a very complex flow sheet to extract the lithium for battery grade material," Huffsmith said.

There is also lithium in soft rock clay deposits.

"They leach those with an acid and then they take that acidified solution and they run it through various different types of water treatment to ultimately extract the battery grade lithium."

A lot of companies are working on developing Direct Lithium Extraction, which basically collects lithium onto something that it has an affinity for.

"There are probably a half dozen suppliers or more out there that have a DLE system," Huffsmith said. "And they're pushing on those systems and trying to refine them and hoping that they can be applied at a full scale, large facility."

Many brine operations use large ponds and evaporation to collect lithium, but Standard Lithium is working on a Direct Lithium Extraction process for its lithium brine project in Arkansas. The company says it is leading the way in DLE with North America's only large-scale, continuously operating DLE demonstration plant, which was commissioned in 2020.

TOP PHOTO MATT VINCENT; **BOTTOM PHOTO** CONTRIBUTED



Standard Lithium says it is leading the way in Direct Lithium Extraction with North America's only large-scale, continuously operating DLE demonstration plant, which was commissioned in 2020. The company says its flagship South West Arkansas Project, developed in partnership with Equinor, has one of the highest-grade lithium brine resources in the country.

A lot of companies are working on proprietary methods for extracting and processing lithium in a way that is optimal for their project location, and WSP is helping companies with this research and development.

"We're doing quite a bit of work in the lithium space," Huffsmith said.

Kimball said the WSP mining team gets to work on a lot of interesting challenges as they work on processes that really haven't been done before, such as extracting lithium from particular types of clays, or extracting particular minerals from pit lakes.

"These are different sources than your conventional sources, and that's what makes it more challenging," Kimball said. "It's not that these technologies aren't around, it's just finding the right way to apply them to recover the metals that nobody's really done before.

"I would call it applied research – that's really what it is. We're using existing technologies, but we're implementing them in a way that nobody has really done before. We end up spending time doing the research in the lab to make it happen and to test and evaluate it."

PROMOTING MODERN MINING

The extensive research that goes into a mining project as it is being developed not only focuses on ways to extract and process minerals as efficiently as possible, but also focuses on how to make the whole process as protective of the environment as possible—and that is a story that Huffsmith says the mining world needs to do a better job of getting out to the public.

"I'd love to see our kids understand that mining is not the same as it was 70, 80, or 100 years ago," Huffsmith said. "The technologies we have to recover the metals and to provide much safer environmental controls and management are just orders of magnitude better than they used to be.

"You can't compare mining in 2025 to mining in 1825; it's completely different. It's like saying, 'I don't like to ride in a car because I rode in a Model T today and it was rough and it was noisy and didn't have air conditioning.'"

Modern mining, Huffsmith said, is like riding in a new Cadillac.

"The objective is the same, to get you from point A to point B, but the technology is completely different, and much safter and more environmentally protective." M



PHOTO STANDARD LITHIUM

for everyday people, and urban people, as well. So, I think that's coming. But as of right now, I would say that we're not doing very well there."

Nikita Grover also commented that getting the word out to young people with classroom presentations can be helpful, but if the presentation just involves someone talking, it might not be very engaging. With children it's a lot more effective to get their attention with activities like cookie mining, and heap leaching with Kool-Aid.

Also, Nikita Grover said she really likes mine tours, "to get folks of any walk of life out to the mines to show them what we do, to break the bias of that old traditional mindset of pickaxe mining."

Victor Ortiz, a safety director for i-80 Gold, said there are some outreach programs he sees flourishing in Northern Nevada, but it's important to reach out to other communities as well, "talking to them from an early age, re-educating our communities to understand that mining is done at a scope and at a technological leading edge that the rest of the world can't really imagine."

Alexia Carver, a metallurgical engineering student at the University of Nevada, Reno, said that working with national news media to try to get good coverage of what mining is doing can be a good way to get the message out.

Toward the end of the discussion Carver made a suggestion that she thought was kind of outside the box. She said that when people come home from work, they're tired and they sit down to watch some television, and she suggested that "we need like a Letterkenny TV show for mining."

Letterkenny was a sitcom that followed the adventures of two siblings and their friends who ran a small farm.

She said that having a show about miners that showed their camaraderie in the show's humor could be a powerful cultural influence.

"Maybe AngloGold needs to produce a TV show. That's all I'm saying," Carver said.

"I think you touched on something there, that mining is a fantastic career," Nikita Grover said. "And of course we say that because we're in it. But it's fun. It's so fun to work in mining. And so, some way to celebrate that and to showcase that, is just one more avenue that we can take to attract different people."

"It really comes down to, when are we going to as a whole culture realize that mining is really important, and we need to put this on the front



Chat GPT's concept for pitching a show like Letterkenny that features miners.



burner," Carver asked earlier in the conversation. "We really need to be vocal about how much of a doomsday situation we could get ourselves into—and how do we convince kids to have careers in mining, and make them feel like this is the place to be?"

Don Dwyer, a general manger for Orla Mining, said that now is a good time to work on getting the message out, because currently there is a lot of emphasis on the need to boost American mineral production.

"Hopefully we can maintain this momentum, and keep the excitement around American mining," Dwyer said.

Asked early in the conversation what she would do to attract people to the mining workforce, Carver said, "Best case scenario would be plopping mines in the middle of cities, but that's frowned upon."

She said young people in cities like Las Vegas and Reno may look down on the idea of moving to a rural area, and they see mining as "not something that I would do." However, Carver said, we are currently in a job bottleneck, and some of the people who have graduated and are looking to enter the job market are feeling a sense of desperation.

"Do we always want the desperate candidates? No, but sometimes the people that you wouldn't expect to work in mining or go to school in mining end up doing really well."

Carver also commented that for some graduates, the big factor in their job decision is money.

"You graduate and you've got your engineering degree, they put a little 'Eng' behind your name and you're invincible, and you want to get paid invincible kind of money.

"So a lot of fresh grads are like, I'm going to go anywhere, I will take any position, give me the most amount of money so that I can go be a cool young person," and have the finances to go out and do things in their spare time.

NEVADA DATA

Looking at the statistics in Nevada right now, several of the factors that Carver talked about in the Mining Minds podcast could be in play to help inspire more people in Nevada – even people in the cities – to consider a career in mining.

The money in mining can be attractive. According to the U.S. Bureau of Labor Statistics, in 2024 the mining wages in Nevada were higher than any other state in the country. Usually Alaska is in first place for mining wages, but from 2023 to 2024 the annual mining wages in Nevada shot up 5.5%, from $113,853 in 2023 to $120,156 in 2024. North Dakota was in second place with annual mining wages of $113,559 in 2024, followed by Colorado, West Virginia, North Carolina, Montana, Hawaii, Minnesota, Wyoming, and Alabama, and Alaska was in 11th place with the state's annual mining wages in 2024 at $105,404.

Nationwide, in 2024 the average mining wage was $98,971, which was 30% higher than then average wage for all U.S. workers, which was $75,878. But in Nevada, the average mining wage in 2024 of $120,156 was 83% higher than the average wage for all Nevada workers, which was $65,730. The only states with a bigger difference between the mining wages and overall statewide wages in 2024 were West Virginia, where the average mining wage of $110,555 was 92% than the overall average wage of $57,616, and Montana, where the average mining wage of $110,107 was 85% higher than that overall average wage of $59,628.

While the number of mining jobs in Nevada may be going up in the years ahead, the number of jobs in the hospitality industry could be going down. That could lead to some of the "desperation" job seeking that Carver talked about.

According to the Bureau of Labor Statistics, from July 2023 to July 2024, the number of mining and logging jobs in Nevada grew by 8.1%, while the number of leisure and hospitality jobs grew by just 2.7%.

Also according to the Bureau of Labor Statistics, Nevada consistently has one of the highest unemployment rates in the country. With a lot

➤ *see* ***Workforce,*** *page 56*

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of the state's economy dependent on the leisure and hospitality industry, during the pandemic in 2020 Nevada's unemployment rate shot up to 16.7%, and spiked at 30.5% in April of that year. The unemployment rate has of course dropped since then, but for the past four years, Nevada had the highest unemployment rate in the country in 2022 at 5.1%, in 2023 at 5%, and in 2024 at 5.6%, and from July 2024 to July 2025, Nevada's unemployment rate of 5.4% was in second place only to California's unemployment rate of 5.5%.

Now, there are reports that a variety of factors are dealing blows to Las Vegas' tourism industry in 2025.

In August, the Nevada Independent reported that international visitation through Harry Reid International Airport in Las Vegas had declined in each of the previous five months, culminating with a nearly 10% decline in international travelers in June.

An August 15 story by Melissa Lawford in the Telegraph said that international travelers make up only 12% of Las Vegas' visitors, but the story quoted Steve Hill, the chief executive of the Las Vegas Convention and Visitors Authority, saying, "The reduction that we've seen is largely domestic, and at its core is a concern that consumers have about the economy, about their financial situation and their jobs."

Ted Pappageorge, secretary-treasurer of Las Vegas' Culinary Workers Union, told Lawford, "Unless there's a course correction here, we could be in for some significant layoffs."

So there may be more people in Nevada looking for jobs in the months and years ahead – and maybe some of them who have not considered mining as an option in the past may give this career path a look.

Many companies and organizations are working on getting the word out to people who are considering their career options that there are a lot of great career opportunities in mining.

Asked about what the Nevada Mining Association is doing to help more people learn about mining, NVMA President Amanda Hilton provided this overview –

"Developing Nevada's future mining workforce is a top priority for the Nevada Mining Association and operators across the state. With many professionals nearing retirement, the industry is working to showcase the wide range of rewarding careers in mining.

"This work begins at the K-12 level, including our brand new, school curriculum-approved mining activities for students, and two annual teacher workshops that provide educators with information and resources to share with their students.

"These efforts, along with partnerships with organizations like the Boys & Girls Club, Jobs for Nevada's Graduates, and Junior Achievement, help young people explore career paths and understand how mining connects to their everyday lives. In addition, mine operators maintain a strong presence at career fairs from K-12 through the university level, as well as community career events for current professionals.

"The NVMA and its members will continue to build on this work and are preparing to launch exciting new initiatives in the near future."

Mining the West will be reporting on these new initiatives as they develop. And we'll let you know if anyone is working on a mining version of Letterkenny. **M**

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➤ COLUMN

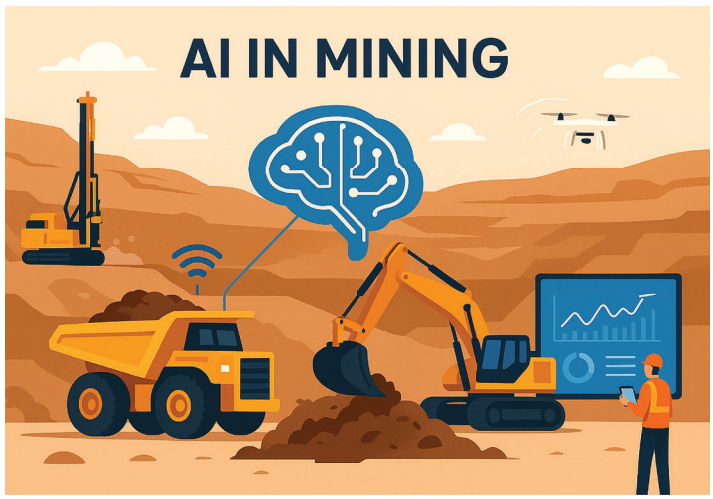
Artificial Intelligence in mining

An illusion or a revolution?



ED LOMAS

Corporations in all industries are rushing to adopt AI (Artificial Intelligence) in any form on their fear of missing out on new cost savings, efficiency improvements, and competitive advantages. Business schools are similarly preoccupied with applying AI to fields like marketing, strategic planning and accounting.



A ChatGPT AI-generated image illustrating the use of AI in mining.

The mining industry is likewise along for the ride and getting caught up in the imminent revolution, but metals mining produces commodities, where innovation doesn't lead to a bigger market share, and where new cost saving methods rapidly spread through an industry unimpeded by patents.

Thus the mining industry focuses on AI where it may lower costs, improve training, and develop more ore bodies. In most industrial cases, AI's potential is based on imagination. Whether the AI revolution will meet these expectations is yet to be seen.

HISTORY OF AI

"Artificial Intelligence" was coined in 1955, and has been in use among the technically-inclined since the early 1970s. The term "AI" recently expanded to include sophisticated simulations, but recent heightened interest is in "Generative AI," which means a computer program that will respond like a human mind, mimic learning, and change itself



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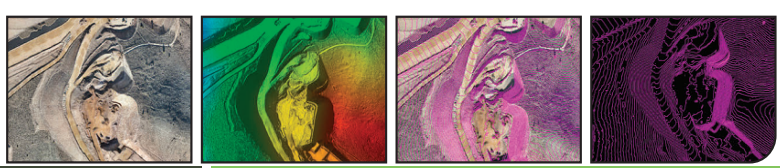


WOOD RODGERS ADVANCED TECHNOLOGY

PHOTOGRAMMETRY & AERIAL MAPPING

based on information it gleans on its own from outside sources. This is AI's original meaning, since it simulates intelligence.

"Generative AI" came about as computing speed and power increased to enable programs to search the internet for content. This gave computers an artificial ability to learn and modify earlier results, meaning that the computer will acquire knowledge without human input.

Technocrats foresee that AI will replace human judgement with unbiased computers that learn from others' documented experience and will not make mistakes. Innovations and skills that humans learn through experience will be replaced by science, so processes will be consistent and more reliable.

AI IN MINING

Several major mining companies are pursuing advanced automation. In underground mining, the first remotely-controlled underground loaders or LHDs were introduced over 25 years ago, about 10 years before automatic drill boom positioning entered the market. In surface mining, the focus has been on automating entire drilling systems, from GPS-guided hole positioning through drilling to depth without an operator in the cab. Driverless haul trucks are now being adopted in several major mines around the world.

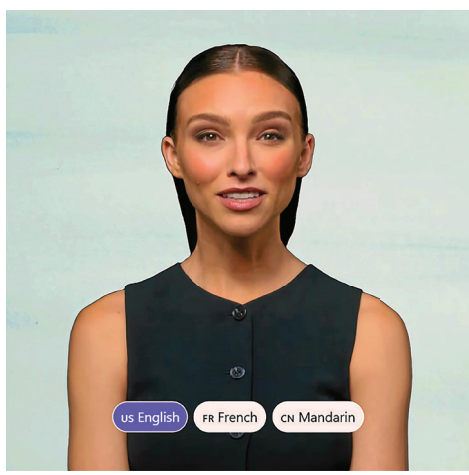
Minerals processing is likewise more sophisticated than it was a generation ago, with arrays of sensors that determine feed rates and make adjustments to compensate for the ore entering the system. Some of these innovations have been in development for years, but they were only recently attributed to AI.

Safety training simulations have advanced to the point where specific underground shops are created in virtual reality where students can practice getting on the cage to go underground, or properly secure a motor, or put out a small fire using a simulated extinguisher. Those examples were all demonstrated during the recent Elko Mining Show by a training company working out of Great Basin College.

However, sophisticated automations don't quite qualify as Generative AI. While automation may have self-correcting mechanisms guided by sensors, the "generative" function is absent. Companies want to constantly assure their investors that they are leading their industry, so it's not unusual for technical revolutions such as AI to get credited for improvements that were well underway before the AI concept went viral.



Simulation technology is now playing an important role in many types of training. Nevada's Center of Excellence for Safety Training was established in 2022 for all new Nevada Gold Mines hires to experience safety hazards in a controlled environment under the direction of experienced trainers. The facility trained about 590 hires in 2024.



HeyGen, an AI video translator, has many potential business applications. At mine sites, for example, instructional videos could be translated into the native language of any viewer.

Millions of people were recently introduced to AI through the internet with the introduction of free software "chatbots" that search the internet for information to automatically 'write papers' based on a few queries. Some of the most popular sites are ChatGBT, Grok, and OpenAI. Teachers and professors have had to learn to recognize when their students' assignments were generated by AI, since anyone with access to the internet can direct those programs to write a paper on practically any subject.

Advanced automations are promising, but there are other genuine Generative AI opportunities for mining. Mine staffs don't write many research papers for internal use, but other low-cost generative AI programs have greater potential, especially for international companies.

HeyGen is an "online video translator" that will instantly translate and simulate a speech or an instructional video into any of over 70 languages and 175 dialects mimicking the speaker's voice, and altering their mouth movement to fit the language. This program was demonstrated in a recent seminar by Harvard Business School professor Karim Lakhani, who showed a video of him giving a short speech in English, followed by him giving the same speech in Chinese. He then explained to his audience that he didn't give the speech in English, he only inputted the text and another video of him speaking on another subject, and that he doesn't speak Chinese, either. A Chinese-speaking member of the audience attested that the professor's Chinese was "actually pretty good." HeyGen's program fee is only $39/month for individual use.

Thus the CEO of an international company can send the same speech to investors all over the world in local languages. This program can also be used for the mine sites to produce safety instructions, technical training, and maintenance or repair videos for specific equipment in the native language of any viewer, ensuring consistent training standards throughout the corporation.

The possibilities go even further. Mining regulations differ by country and even within

PHOTOS TOP PHOTO BARRICK MINING BOTTOM PHOTO HEYGEN

the same country. In the USA, sixteen states have regulations for certifying miners, supervisors, and other jobs. AI can search out those regulations and training materials and tailor training videos for each certification in each state.

Mines may produce videos for MSHA training plans that are specific to their operations, and individual mine sites may have separate plans for new miners, experienced miners transferring from other operations, annual refresher training, and visitor training. AI can also seek those out, and integrate portions about each mine's maps, escapeways, ventilation plans, and site-specific hazards into the training videos.

Like many safety measures, it's difficult to forecast results caused by improvements in training and communication. These initiatives may also improve the corporate image and employee morale, and their cost is low. However, AI's potential downsides should also be considered.

POTENTIAL DRAWBACKS IN AI

Language translation is not always literally word for word. Some languages are more symbolic than others and are imbedded with cultural issues. For instance, Japanese managers tend to make subtle suggestions that American managers often miss, and they rarely say "no," though they have many ways of not saying "yes." A literal translation of an American CEO's presentation may seem crude to people in another country. Thus translated material has to be vetted by someone who is fluent in both languages and cultures. However, cultural translation is less of an issue with technical training.

Generative AI enables mediocre performers to perform at a higher level by presenting them with information that only high performers master. While this may seem beneficial, some managers fear that generative AI will achieve "superintelligence," and that will lead to problems with the workforce variously described as "deskilling" (workforce atrophy), or "skill erosion" (complacency), "cognitive offloading" (less intelligent employees), and "cognitive debt" (deferring mental effort). However, a more optimistic view is that employees are more likely to perform at a higher level given better information, rather than become lazy and complacent.

Another concern is that technology will lead to widespread unemployment. In the early 80's, fewer secretaries and clerks were needed as spreadsheet and word processing programs came into common use, but jobs were created in related activities because staffers ended up creating and revising more spreadsheets and documents than they did when everything had to be done using pencils, typewriters, and adding machines. AI will shift skills from tedious research and compilation to proofreading and source-checking. Some of the AI's flaws have gone viral in the form of absurd images or mistaken words. However, those types of flaws are less common as they are corrected with use. According to Christopher Stanton, another Harvard professor, it's too soon to tell whether AI will lead to significant job losses.

Perhaps the greatest complication is that 70% of current AI initiatives fail, per a recent study. The mining industry tends to be harsh on individuals whose projects fail, while less capital-intensive industries tend to be more



tolerant and accept as a business risk that some high-tech initiatives will fail.

THE FUTURE OF AI

The fear of superintelligent computers going rampant and running mankind into the ground has been expressed in science fiction stories for 50 years. Just recently, two independent AI systems were turned loose in a sealed simulated trading platform at Wharton Business School. The two programs colluded on prices and formed a cartel to maximize their joint profit at the expense of the other traders. This merely demonstrates that AI is still a work in progress, and that more adjustments are needed. A software expert observed that: "If we don't control AI's applications, we will end up with a dead internet and AI that is training itself on its own detritus."

A new version of AI, known as "Agentic AI," supersedes Generative AI by making decisions and changing plans on its own, as a mine supervisor would during a shift. However, Agentic AI is still incapable of making moral or ethical choices or assessing others' morale or emotions. A software architect dismissed Agentic AI as "smoke and mirrors with a control loop," indicating that it's not a "disruptive technology" that leads to monumental improvements.

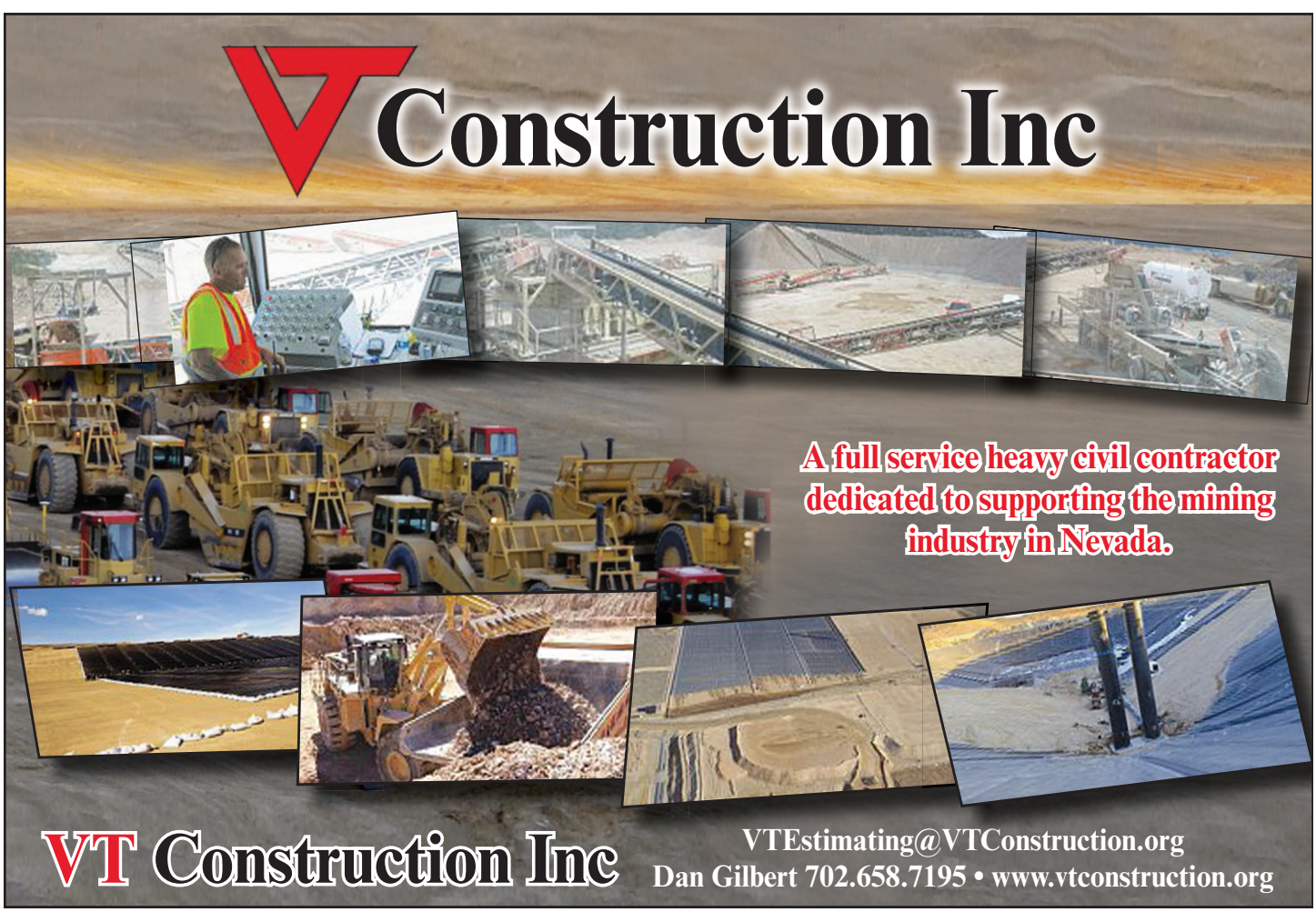
No one can predict whether Agentic AI will run out of control somewhere and do more damage than good, or whether some future form of AI will lead to widespread unemployment in the mining industry and in other business sectors. However, that shouldn't prevent mines from adopting some of Generative AI's immediate benefits where their cost is low, the risks are low, and the returns are potentially high. **M**



Driverless haul trucks are being adopted at some of the major mines around the world. In August Nevada Gold Mines announced a partnership with Komatsu to deploy Komatsu's FrontRunner Autonomous Haulage System to automate NGM's open pit mine haul truck fleet.

PHOTO NEVADA GOLD MINES

Ed Lomas of Elko has a degree in mining engineering from the University of Idaho and an MBA from Harvard University. He has worked as a mine and plant engineer, underground mine superintendent, vice president of operations, and in strategic planning and business analysis.





Nevada Mining Association President Amanda Hilton speaks at the 2025 Mining Day at the Legislature on March 27.

A session of unified strength and progress for Nevada mining

When it comes to politics in Carson City, a single voice can easily be drowned out. But when an entire industry speaks as one, we can make a real difference.



AMANDA HILTON

Representing that united voice is a core part of the Nevada Mining Association's mission, and it is a responsibility we take seriously.

The 83rd session of the Nevada State Legislature wrapped up in June with no headline-grabbing bills directly affecting mining. However, that calm did not happen by accident. In the 18 months between the 2023 and 2025 sessions, our legislative team, led by Vice President of Government and External Affairs Nikki Bailey-Lundahl, met with candidates, hosted them on mine tours, and built understanding of the industry's importance to Nevada's economy and communities, as well as its role in developing more than 20 minerals that modern life depends on. That groundwork created open doors with elected officials on both sides of the aisle once the session began, allowing for constructive conversations and shared understanding about Nevada's mining industry.

Our legislative work also included reviewing more than 1,200 bills introduced during the session. We identified which ones could positively, negatively, or even unintentionally affect mining, and tracked their progress from start to finish. This process took us to several



PHOTO PINYON PUBLIC AFFAIRS



Over 100 mining representatives gathered for Nevada Mining Day at the Legislature on March 27.

committee hearings, meetings with lawmakers, and discussions with other stakeholders to ensure our community had a voice in shaping solutions that benefit both mining and Nevada. It also led to several important wins during the session on key bills. Here are four we worked hard on and what they achieve:

• On Assembly Bill 40, our industry's collective expertise helped the Division of Environmental Protection craft smarter, fairer regulations that protect our natural resources without punishing responsible operators.

• On Assembly Bill 104, we ensured mining's unified perspective was integral to the two-year process of modernizing Nevada's water laws, helping create a program that is both voluntary and forward-thinking.

• On Assembly Bill 277, we championed the successful effort to restore public access to the Net Proceeds of Minerals report. As an industry, we are proud of our contributions, and we believe transparency is essential for public trust.

• On Senate Bill 464, our advocacy secured Nevada's membership in the Interstate Mining Compact Commission, ensuring our state's and our industry's leadership is recognized on the national stage.

These successes show what is possible when Nevada's mining community stands together. The industry stepped up in many ways, from hosting educational mine tours to turning out in force for Mining Day at the Legislature, and by providing the support that made it possible to carry out our work in Carson City.

However, the work does not stop for the NVMA. Nevada's economy continues to face challenges, and we are preparing for the possibility of a special session to ensure no harmful legislation impacts mining. Between now and the 2027 session, the legislature will also hold interim committees to discuss issues and shape proposals for the future. We will be there every step of the way, making sure mining's perspective is part of those conversations from day one.

Looking ahead to 2026, all of Nevada's executive offices will be on the ballot, and several high-ranking legislators have already announced they will not seek reelection. These changes will bring many new faces to Carson City when the legislature reconvenes in 2027. Just as Nikki spent the 18 months before the last session meeting with candidates, hosting mine tours, and building understanding of the industry's importance, she and our legislative team will take the same approach this cycle. This ongoing work helps ensure that whoever is serving in Carson City understands the essential role mining plays in Nevada's success.

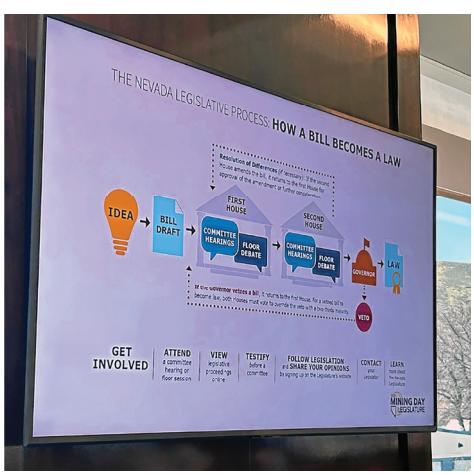
We are proud to serve as the voice of Nevada's mining industry in Carson City, but that voice is only strong because of the people and companies who make up this community. Thank you for your continued support and trust. Together, we can make sure Nevada's mining industry is not just heard, but respected, understood, and positioned for a strong future. **M**

Amanda Hilton is the President of the Nevada Mining Association. She lives in Ely.





LEFT: Nikki Bailey-Lundahl, Nevada Mining Association's vice president of government and external affairs, left, and Christina Erling, Barrick Mining vice president, government affairs, North America, at the NVMA's Mining Day at the Legislature on March 27. **RIGHT:** KGHM Robinson Mine team members Cristian Gonzalez, Daisia Shedd and Stacy Johnson, from left, at Nevada Mining Day at the Legislature in March.



A graphic about "How a bill becomes a law" which was shared at the Mining Day at the Legislature on March 27.

PHOTOS KGHM ROBINSON MINE / PINYON PUBLIC AFFAIRS / PINYON PUBLIC AFFAIRS

Going back to school

A history of mining education, part 1

As I write these words, the air is abuzz with the sounds of back-to-school preparations. Back-to-school clothes are being purchased at back-to-school sales, and relieved parents are looking forward to getting back to school schedules, but not before one last little family vacation, before everyone goes back to school!



ERIC C. NYSTROM

In this spirit I want to explore the history of mining schools. Here at the University of Nevada, Reno, we have the Mackay School of Mines, a small but mighty program with a record of more than a century of distinguished service to the people and mining industry of the Silver State (and well beyond). Having an active and historic mining school makes UNR a fantastic place to be a mining historian, too.

In order to understand the history and context of the Mackay School of Mines, it is necessary to look farther back in time, before it was created. Mackay was by no means the first mining school, and by the time it emerged in full form, there were a number of other mining schools that demonstrated a wide range of possibilities.

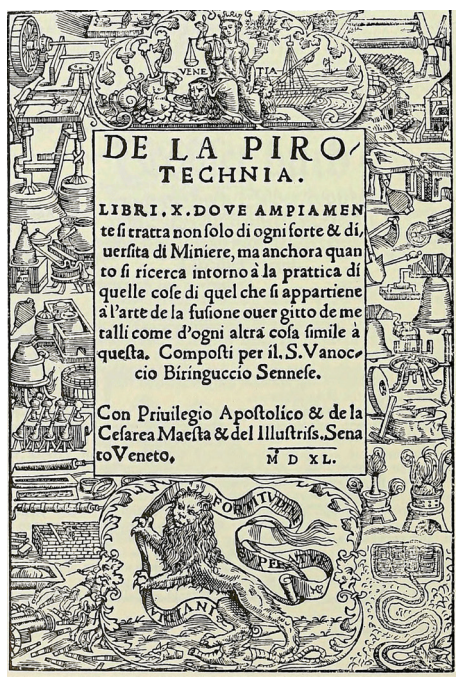
In this column and a few to follow, I will explore this history – including false starts and dead-ends – because knowledge of this path might be helpful to some of the questions and challenges faced by Nevada in the present and future. Plus, I firmly believe that anyone involved directly or tangentially in the mining industry could benefit from knowing more of its history.

WHY ARE THERE MINING SCHOOLS?

Let's first ask ourselves a provocative question: why, in history, would a mining school exist? At what point does someone say to themselves, let's start a school to teach about a thing that no one has ever learned in school before?

People certainly knew about mining, of course. Mining goes back to the times of the ancients. Less-skilled people learned from more-skilled people, on and on, down the line. Only a handful of people might need to know about the difficult parts of mining, since all of the labor was done by hand, and slowly. Fresh unskilled laborers could gradually learn what they needed to know by working with miners who knew what they were doing.

Two forces gradually placed pressure upon this status quo. One was management. Mines the world over belonged to the rulers of the country. Typically, the king's people would not directly do the work, but instead a person, firm, or corporation would be given the opportunity to work one of the king's valuable deposits in exchange for a cut of the proceeds, usually one fifth of the total value. That's where the mining term royalty comes from.



Title page of Biringuccio's De La Pirotechnica (1540)

But here's the problem – what if the one leasing the mine didn't know what they were doing? Or worse, what if they tried to cheat the king? (Dangerous move!)

The king clearly needed a mining expert of his own, both to protect the value of the mine, for example by making sure that it was properly supported so that it wouldn't collapse and become unusable, and to make sure that the actual value was being recovered from the deposit and passed on to the king as a royalty. Therefore, one of the earliest factors driving the emergence of mining experts was the demand by mine owners, often governments, for managerial experts who could act as a check against potentially unscrupulous or incompetent mining personnel.

The other force pressuring the status quo was the ongoing ballet between technology and mineral deposits. Ore is, and always was, the mineralized rock that could be mined and made into something useful at a profit. If you can change your mining methods so that the total cost of retrieving mineralized rock is less than the monetary benefit you get from mining that rock, well then, there's a strong incentive to do so, as long as the cost of making that change doesn't outweigh the savings you'd earn.

Therefore, from Roman times forward, technology was gradually applied to make mining more efficient, especially by allowing miners to go deeper into the earth, and to capture more of the minerals they found when they processed the ore on the surface. This also had the fortunate side effect of expanding society's access to minerals, as the rich, easy to extract, close to the surface deposits are truly few and far between and were easily exhausted.

FOUNDATIONAL BOOKS

OK then, we've established why it might be valuable for kings and governments to cultivate mining experts, and that this need for expertise was an important step in laying the groundwork for the formation of mining schools. But before full-blown mining schools were launched, first arrived a handful of important and influential treatises, books by experts who wrote, and often illustrated, important books describing their craft to the next generation of experts. I'll briefly discuss two of the most important ones.

The earliest was De La Pirotechnica, by Vannoccio Biringuccio, written in Italian and published in Venice in 1540, the year after the author's death. This was the world's first real book about metallurgy, written by an Italian

expert from Siena who had traveled widely. De La Pirotechnica was also very well illustrated with meaningful pictures that helped explain the tools of miner and metallurgist – indeed, it was among an early and important movement in publishing to utilize both text and pictures to convey technical information. The Science History Institute has digitized its copy of the 1540 edition, and you can explore the impressive illustrations yourself. Recognizing its importance, in 1943 De La Pirotechnica was translated into English by a team composed of a metallurgist and an Italian linguist, and published by the American Institute of Mining and Metallurgical Engineers, as an essential part of the history of mining.

The next, and arguably the most important of all, was De Re Metallica, written by Georgius Agricola and published in 1556. De Re Metallica became the standard work on mining technology and practice for several centuries and was translated into a number of languages. It described the state of the art as mining was practiced in Saxony and other German mining states. It, too, was heavily illustrated, and it is easy to imagine that the illustrations were perhaps just as important as the text itself.



In a world without blasting explosives, miners depicted in De Re Metallica (1556) set fires underground against the working face, which weakened the rock. When the smoke and fumes cleared, the rock would fracture easily. The miner underground seems to recognize the unpleasantness of his job.

Agricola, whose real name was Georg Bauer, chose to write De Re Metallica in Latin, rather than in German, and this choice had some important consequences. Latin was definitely not the language of miners. You'd be hard-pressed to find any miner, anywhere, who spoke Latin. But Latin (especially in its written form) was the language of kings, queens, courts, and science. In other words, by writing in Latin, Agricola was explicitly trying to put this knowledge within the grasp of scientists and governing elites. He wanted to make advanced knowledge into expert knowledge.

One funny side-effect of Agricola's use of Latin is that it made things much more confusing for anyone who tried to use



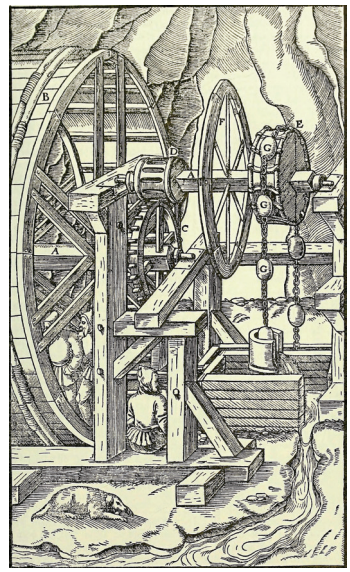


the book. The problem was that there were quite a lot of German mining words that had no Latin translations, or equivalents. So Agricola just did his best to make them sound as Latin as he could. That meant that anyone who really knew Latin would find words they could not translate; and anyone who knew mining found things described by words that they'd never heard before, or since!

The first English translation of this important work was published in 1912. It was painstakingly translated through the efforts of a husband and wife team, who were a mining engineer and a linguist/geologist, respectively – Herbert Hoover and Lou Henry Hoover. (Herbert Hoover's greatest achievement and worldwide fame came as a mining engineer, but he later took on a less pleasant job, for which he is better known outside of the mining world: President of the United States.)



De Re Metallica (1556) depicts several ways that miners could get to work undergound. Clockwise from top left: climb a ladder, descend riding "a stick" between the legs attached to a rope, slide on your rear through the dirt, or descend down steps hewn in the rock. The last version clearly worked for horses, too.



One of several water pump designs shown in De Re Metallica (1556), this one is powered by two men walking forward inside the giant wheel, known as a treadle. The water was carried over sixty vertical feet by the actions of the balls mounted on the chain, operating within the pipe. Even more than 400 years ago, miners loved Very Good Dogs.

Both De La Pirotechnica and De Re Metallica – especially the latter – served as textbooks of a sort to generations of mining experts, especially those who were closely allied to governments whose revenue depended on mining. Biringuccio was closely allied to one of the ruling families of Siena, who relied on him to help advise them, and Agricola was for a time a burgomaster, or mayor, of the mining town where he lived. Both books also rooted technical mining expertise firmly on the grounds of observation, calculation, and deduction – in other words, to use a term not invented until later, science.

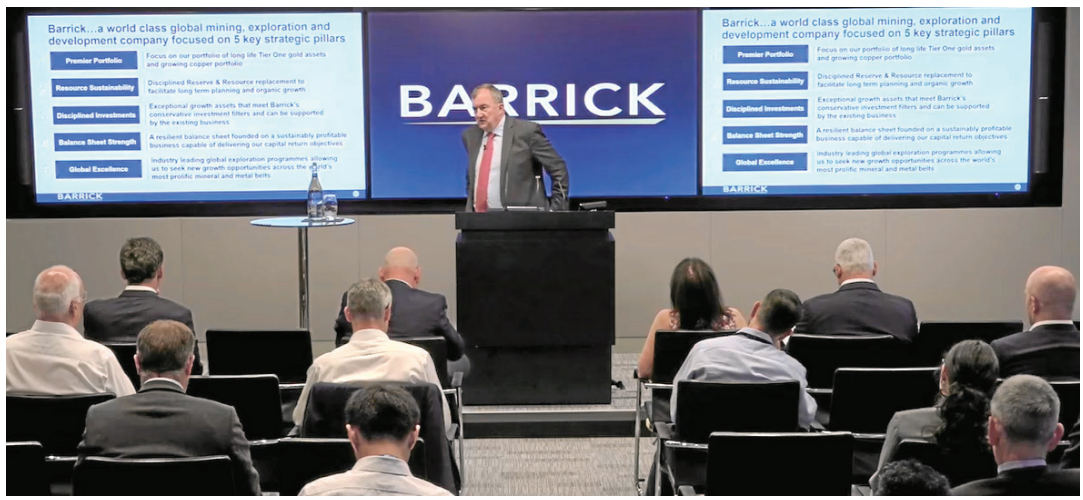
Experts, technical treatises, and science – but still no mining schools. Not yet, that is—but stay tuned. **M**

Dr. Eric C. Nystrom is an associate professor at the University of Nevada, Reno, where he researches and teaches about mining history, the history of science and technology, public history, and the history of Nevada and the West.



Mining companies report Q2 results

ADELLA HARDING
Elko Daily Correspondent



Barrick CEO Mark Bristow reviews the company's earnings report in London.

BARRICK MINING

Barrick Mining Corp. announced adjusted net earnings of $800 million, or 47 cents per share, in the second quarter, helped by high gold prices. The company also reported golden potential in Nevada.

At the Cortez Complex roughly 63 miles southwest of Elko, NGM's new underground Goldrush Mine is continuing to ramp up production, and "we're super excited" about the nearby Fourmile site, "which is effectively an extension of the Goldrush ore body except better," President and Chief Executive Officer Mark Bristow said.

He said Fourmile could be the largest gold find in a century, and "all indications are to double resources there this year."

Bristow also said that Fourmile has the potential to be a world-class operation with "tens of millions" of gold ounces, and "it's in the middle of infrastructure" rather in a remote location in another part of the world.

Fourmile is 100% owned by Barrick but can become part of NGM if Newmont Corp. buys into the project. Barrick is the 61.5% owner and operator, and Newmont owns 38.5% of NGM.

"We work well with Newmont and will continue to do so," Bristow said in the earnings webcast.

Barrick's earnings report states that there has already been 34 kilometers (111,550 feet) of exploration drilling this year at Fourmile.

Bristow also said NGM is "very active" in brownfield and greenfield exploration in Nevada to add to the NGM portfolio, and "over the rest of the year we will point to more opportunities to expand our portfolio in the United States."

Companywide, "Q2 was a productive quarter for Barrick" Bristow said in the webcast from London, during which he said Barrick is continuing to perform well in a "global environment that remains uncertain and sometimes uneven ...."

He said the third quarter is "stepping up to be even better" for the company, and he reported that Nevada Gold Mines "delivered solid results." NGM produced 620,000 ounces for joint venture partners Barrick and Newmont Corp. together, and 381,000 ounces for Barrick's share.

NGM gold production was 653,000 ounces in the second quarter of last year on a 100% basis.

The benefit from high gold prices showed in the average realized price. Barrick's average realized price for the second quarter was $3,295 per ounce, compared with $2,344 per ounce in the second quarter of last year.

Barrick's net adjusted earnings of 47 cents per share beat analysts' forecasts for the quarter, according to Reuters. The average expected was 45 cents per share, according to data from LSEG.

Toronto-based Barrick's adjusted net earnings in the second quarter compared with $557 million, or 21 cents per share, in the second quarter of last year. Barrick also reported record cash flow of $395 million in the 2025 quarter, up from $340 million in the 2024 quarter.

The company wrote off $1.04 billion in the quarter for loss of production at the mine in Mali taken over by the government, but Graham Shuttleworth, senior executive vice president and chief financial officer, said Barrick also made $745 billion after taxes on the sale of its 50% share of Donlin Gold in Alaska.

Barrick sold Donlin Gold to Novagold Resources and Paulson Affiliates LLC.

The Loulo-Gounkoto gold mining complex in Mali was operated by Barrick for years, but as part of an ongoing dispute, the government took over control of the mine in June. Bristow said the company continues to manage the situation in a measured and constructive manner, with arbitration as it works to find a path forward.

The Mali mine is under a temporary provisional administration, and Barrick has lost control of operations, although it still owns 80% of the mine. Mali owns 20%.

Barrick produced 797,000 ounces of gold in the second quarter from all operations, down from 948,000 ounces in the 2024 quarter, and 59,000 metric tons of copper. Barrick is expecting to produce 3.15 million to 3.5 million ounces of gold this year.

All-in sustaining costs companywide for gold production were $1,684 per ounce in the second quarter, compared with $1,498 per ounce in the 2024 quarter.

In Nevada, Carlin operations produced 277,000 ounces of gold in the second quarter for both NGM partners combined, compared with 327,000 ounces in the 2024 quarter, and the Cortez Complex in Lander and Eureka counties produced 176,000 ounces on a 100% basis, compared with 166,000 ounces in the 2024 quarter.

Turquoise Ridge in Humboldt County produced 123,000 ounces on a 100% basis, compared with 118,000 ounces in the second quarter of last year, and the Phoenix Mine south of Battle Mountain produced 41,000 ounces for NGM, compared with 42,000 ounces in the 2024 quarter.

Bristow said NGM was using

PHOTO BARRICK MINING

contract labor at the Cortez Hills underground operations at the Cortez Complex but has converted to all NGM employees.

Bristow's presentation also pointed to the new houses Barrick has built for people being displaced by a tailings project at Pueblo Viejo in the Dominican Republic. The New Horizons housing estate also features schools. Newmont is 40% owner of the gold mine.

In addition, the Barrick board approved a 15-cent dividend per share for the second quarter, which includes a 5-cent performance dividend, and Barrick repurchased $268 million of its shares in the quarter, bringing total buybacks for the first half of this year to $411 million.

Bristow said Barrick has returned $753 million to shareholders from dividends and buybacks in the first half of this year.

Barrick additionally stated in its slide presentation that sales of its Hemlo gold mine in Canada and the Tongon Mine in Cote d'Ivoire are progressing. Bristow said there's "a lot of appetite" in the marketplace for mines like Hemlo.

Separately, Barrick announced that Ben van Beurden has been appointed lead independent director of the Barrick Mining Board of Directors, succeeding Brett Harvey, who has been on the board since 2005 and lead director since 2013. Harvey will remain a director.


van Beurden

Barrick Chairman John Thorton said that van Beurden has already brought valuable insights to the board's deliberations and his appointment as lead director would build on that contribution.

COEUR MINING™

COEUR MINING

Coeur Mining Inc. announced a record adjusted net income of $127.4 million, or 20 cents per share, for the second quarter, helped by strong production, especially from the expanded Rochester Mine in Nevada, and from high gold and silver prices.

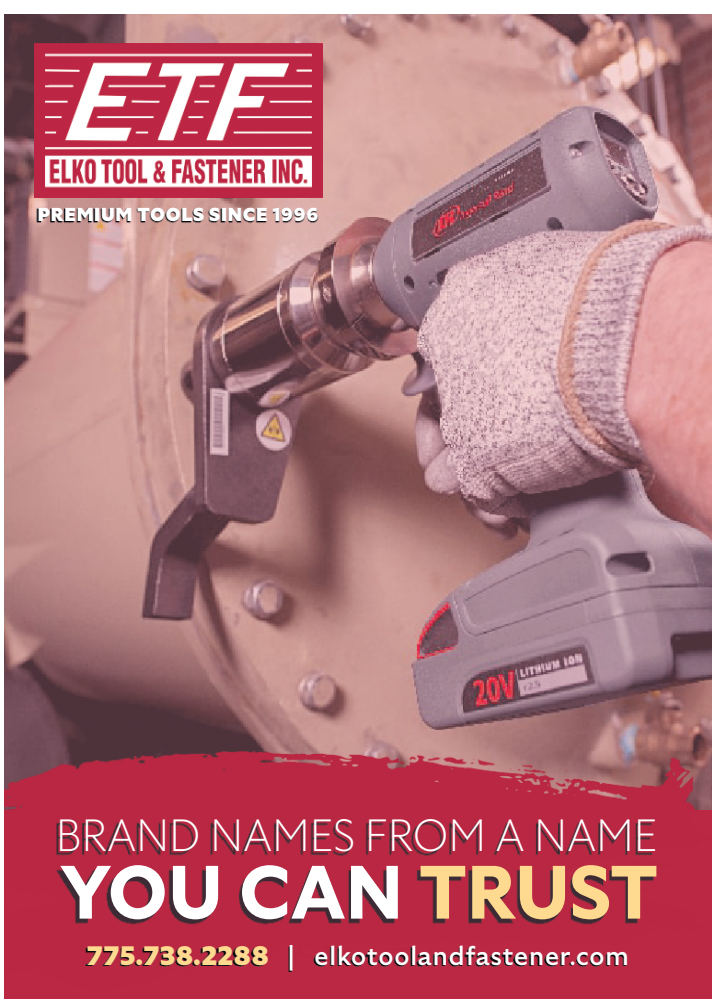
Gold production of 108,487 ounces rose 38% over the second quarter of last year, and silver production of 4.7 million ounces rose 79% over the 2024 quarter, according to Chicago-based Coeur.

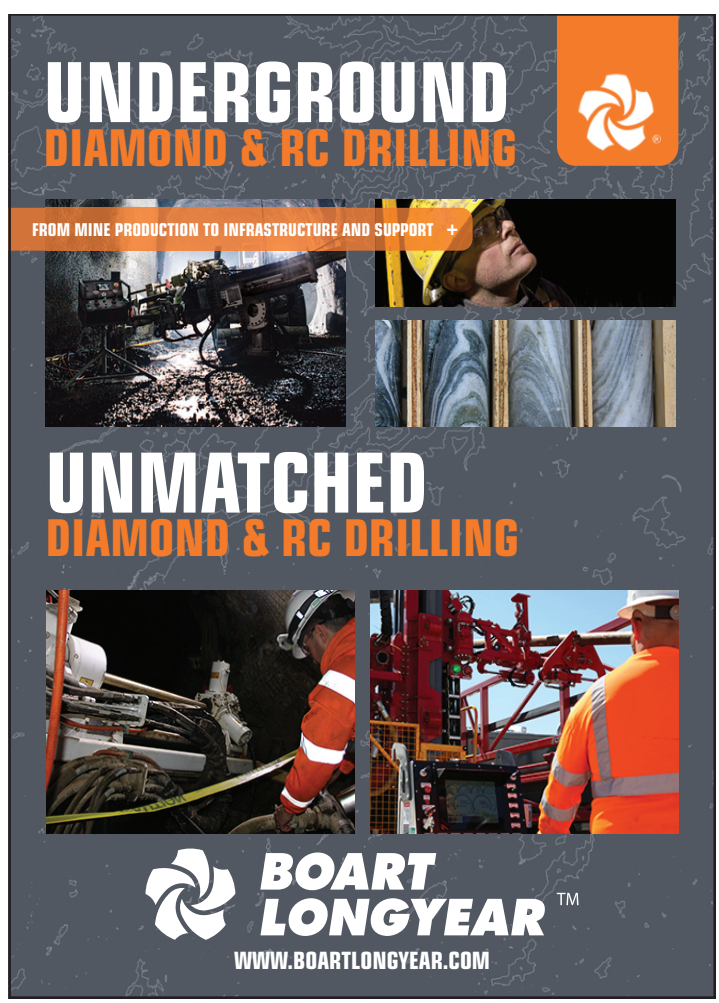
"Coeur's record second quarter reflects strong contributions from all five of our North American gold and silver operations, including the first full quarter from the recently acquired Las Chispas mine," said Mitchell Krebs, chairman, president and chief executive officer of Coeur.

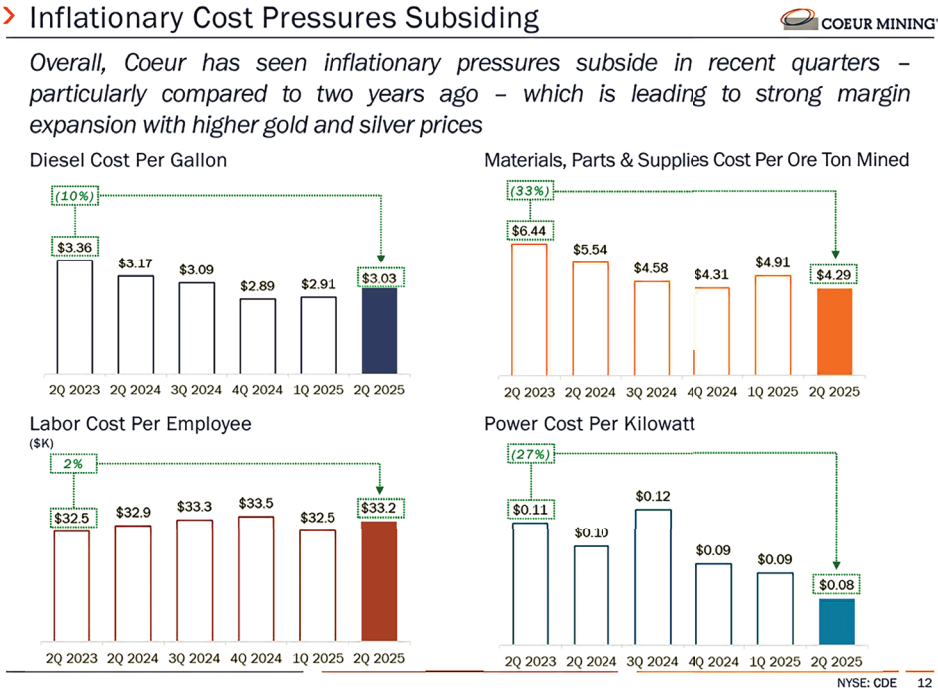
"Together with the benefit of higher gold and silver prices, we saw a step-change in our financial results in the quarter, including an impressive $146 million of free cash flow, while we eliminated the remaining balance on our RCF (revolving credit facility) and began buying back shares," he said in the earnings report.

In the earnings webcast, Krebs said the company had a "terrific quarter" and he thanked the Coeur team for the "heavy lifting" that brought Coeur to this point. The company posted losses while the Rochester expansion was underway.

Senior Vice President and Chief Financial Officer Thomas Whelan said in the webcast that higher gold and silver prices allowed the company to repay the $110 million remaining in its revolving credit facility and total debt is below







$400 million, a drop of $250 million from last year.

He also said inflationary cost pressures are easing. A chart shows, for example, that diesel costs $3.03 per gallon in the second quarter, down from $3.36 in the second quarter of 2023.



Coeur's average realized gold price was $3,021 per ounce in the second quarter, compared with $2,003 per ounce in the 2024 quarter, and the average realized silver price was $33.72 per ounce, up from $26.20 per ounce in the second quarter of 2024.

Coeur earnings share price beat analysts' predictions. The average estimate of four analysts surveyed by Zacks Investment Research was for earnings of 18 cents per share, according to the Associated Press.

Krebs said in the earnings announcement that in the second half of this year "we expect even higher gold and silver production levels consistent with our reaffirmed 2025 production and cost guidance," and he predicted over $400 million in free cash flow this year.

Coeur expects to produce 380,000 to 444,000 ounces of gold in 2025, up 20% over last year, and 16.7 million to 20.3 million ounces of silver, up 62% over last year.

Rochester silver and gold operations in Pershing County produced 1.46 million ounces of silver and 14,032 ounces of gold in the second quarter, compared with 973,000 silver ounces and 8,006 gold ounces produced in the 2024 quarter.

Michael "Mick" Routledge, senior vice president and chief operating officer, said in the webcast that the "good news continues at Rochester."

The mine is expected to produce 7 million to 8.3 million ounces of silver and 60,000 to 75,000 ounces of gold this year, and capital expenditures are predicted at $57 million to $70 million.

Krebs said he expects a stronger second half of the year at Rochester, which he described as the largest silver source in the country.

The costs at Rochester reflect the mine's eight-million-ton stripping campaign for removal of Stage I and Stage II legacy leach pads to access ore zones in the eastern portion of the open pit, modifications after startup of the crusher corridor, and a final negotiated payment with a key contractor for the expansion, according to the earnings report.

Kensington Mine in Alaska produced 26,555 ounces of gold in the second quarter, compared with 23,202 ounces in the 2024 quarter. Coeur reported the stronger production was driven by higher tons milled and higher average gold grades offset by lower recoveries.

The Wharf Mine in South Dakota produced 24,087 ounces of gold and 36,000 ounces of silver in the second quarter, compared with 22,021 gold ounces and 69,000 silver ounces in the second quarter of last year.

Las Chispas in Mexico, which Coeur acquired from SilverCrest in February, produced nearly 1.5 million ounces of silver and 16,271 ounces of gold in its first full quarter with Coeur. Krebs said integration of Las Chispas into Coeur has been "nearly seamless."

Palmarejo in Mexico produced 27,272 ounces of gold and 1.74 million ounces of silver in the second quarter, compared with 25,467 gold ounces and 1.6 million

silver ounces in the 2024 quarter, according to the earnings report.

Aoife McGrath, senior vice president for exploration, reported in the webcast that Coeur has "up to 27 rigs drilling across the portfolio."

The exploration includes up to eight rigs at Las Chispas for surface and underground drilling, up to eight rigs at Palmarejo to expand mining potential, and drilling at Kensington, Wharf and Rochester.

The company stated that up to two rigs were active in the second quarter at Rochester, where the target areas are East Rochester, Lincoln Hill, and the corridor between Rochester and Nevada Packard.

In addition to exploration at the operating properties, Coeur is continuing to drill at the Silvertip property in Canada. Krebs said the five-year timeframe for development could be reduced a little, "but I still think it's out there a few more years, for sure."

Coeur expects to spend between $67 million and $77 million for expansion drilling this year at mine sites and $10 million to $16 million for infill drilling at the sites, the company reported.

Coeur also reported that during the second quarter it repurchased 216,500 shares at an average price of $9.24 per share as part of the $75 million buyback program approved on May 27.

EQUINOX GOLD

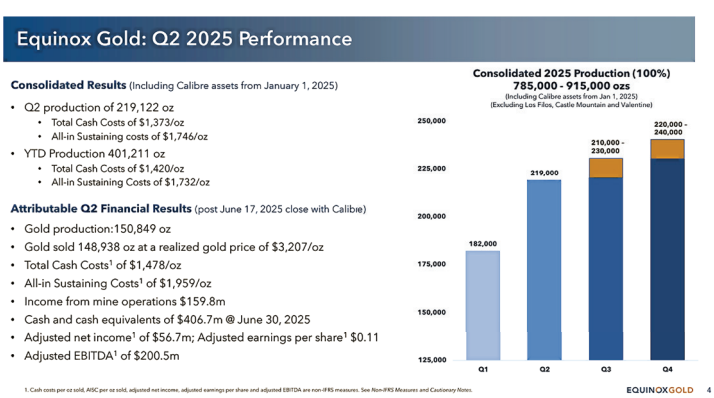
Equinox Gold Corp. reported adjusted net income of $56.7 million, or 11 cents per share, and produced 219,122 ounces of gold in the second quarter as the company continued to absorb Calibre Mining operations while also reaching an agreement to sell Calibre's Nevada properties.

"This is an exciting time as we build Equinox," said Darren Hall, chief executive officer of Equinox and former CEO of Calibre, who said in the earnings webcast that the "third quarter is off to a strong start."

He said in the earnings report that Equinox expects "a strong second half of the year, with production on track to meet our full-year consolidated guidance of 785,000 to 915,000 ounces," and the company anticipates "continued growth in both production and cash flow into 2026."

In the webcast, he said that "we'll see an increase in production as we benefit from a full quarter from Calibre assets, an improvement performance at Greenstone, and first gold from Valentine."

Hall also said the Vancouver-based company is entering into a "pivotal growth phase" after solid results in the second quarter for Equinox, which acquired



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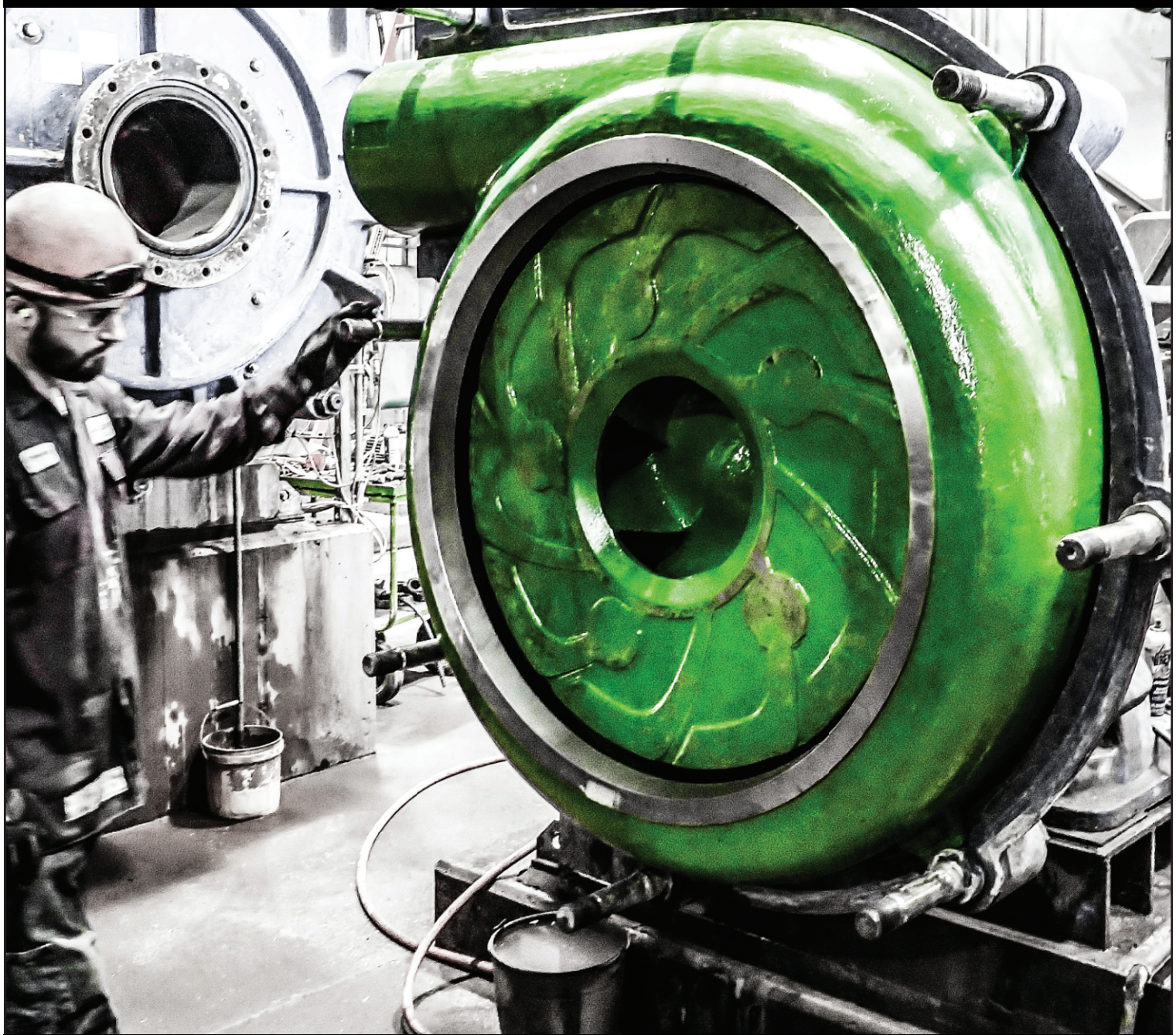

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Calibre on June 17.

The production of 219,122 gold ounces in the second quarter included 72,823 ounces from the former Calibre mines in Nicaragua and from the Pan Mine in Nevada, along with production from Greenstone in Canada, mines in Brazil, and the Mesquite Mine in California.

All-in sustaining costs companywide were $1,959 per ounce in the second quarter, and the average realized gold price was $3,207 per ounce, up from $2,328 per ounce in the 2024 quarter.

"Our strategy is clear – quality over quantity, focus on production that moves the needle in terms of cash flow and valuation ... rationalize and streamline, advance high organic growth and continue to assess our portfolio," Hall said in the webcast, pointing to the sale of Pan as an example.

Equinox is selling the Pan Mine, the nearby Gold Rock Project and the Illipah property, all in White Pine County, to Minera Alamos Inc. for $115 million. Hall said in early August that the sale is an example of portfolio optimization and disciplined capital allocation.

Pan is a small open pit, heap leach operation about 17 miles southeast of Eureka that generally produces roughly 40,000 gold ounces a year. The mine produced 8,271 ounces in the second quarter.

The deal is expected to close in the fourth quarter of this year.

Hall also said that "we love all our children," but if potential sales of smaller operations come up, "we will move agilely" to determine their value and determine if a sale would be good for the share price.

Additionally, Hall mentioned that Equinox's Castle Mountain Phase Two Project in California has been accepted into the federal government's Permitting Improvement Steering Council's FAST-41 program to streamline federal permitting of mining projects.

Castle Mountain is expected to produce roughly 200,000 ounces of gold per year for a 14-year mine life. The project is in San Bernardino County about 200 miles north of the company's Mesquite Mine. A decision is expected in December 2026.

Equinox operated a small heap leach mine there from the fourth quarter of 2020 to the third quarter of 2024, according to the company, which said re-leaching procedures are underway while the permitting for the second stage continues.

Greenstone produced 51,274 ounces in the second quarter, and the company's new chief operating officer, Dave Schummer, said he has moved quickly to "put more horsepower behind Greenstone."

His efforts have included such changes as incorporating "hot changes" between shifts for haul trucks, so they aren't sitting idle, and shovel availability and reliability improvements, for example.

The other big producer for the company in Canada will be the Valentine gold mine in Newfoundland and Labrador that Hall said will be a "second cornerstone" for the company. The mine is expected to pour its first gold in September and ramp up into the first quarter of 2026.

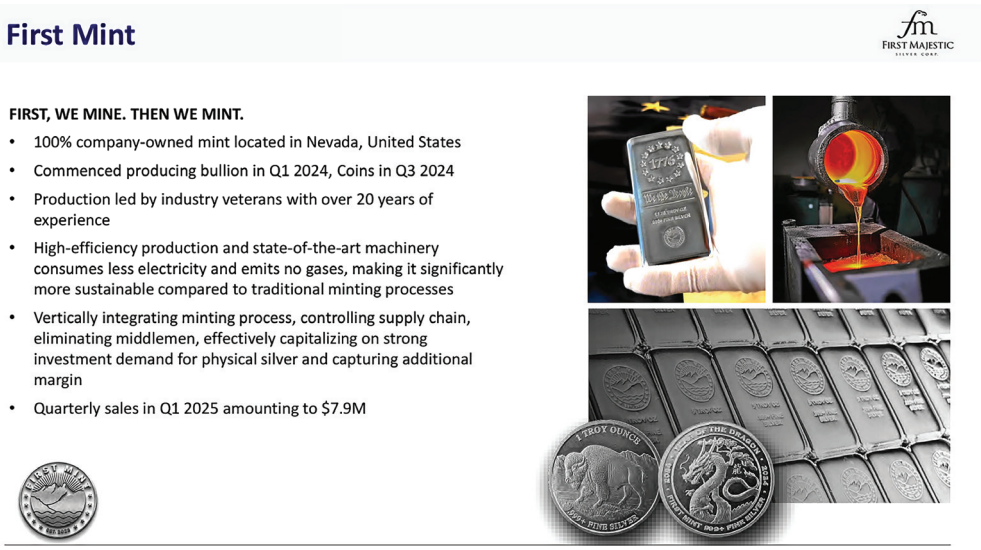
Looking at exploration, Hall said the company continues to explore in Nicaragua, where there have been good results, and at Valentine, as "we generate cash," the company will explore more, such as at Mesquite.

He said Mesquite has been "low on the food chain in terms of capital for exploration," so that is an





example of where exploration will increase.



FIRST MAJESTIC

First Majestic Silver Corp. had record revenue and adjusted net earnings of $18.4 million, or 4 cents per share, in the second quarter, according to the company, which also reported drilling rigs are busy at Jerritt Canyon in Nevada.

"It was a super quarter, the best quarter in the company's history," Keith Neumeyer, president and chief executive officer of the Vancouver-based company, said in an earnings webcast.

He said revenue was up 94% over the second quarter of last year to a record $264.2 million, and First Majestic is in line to post $1 billion in revenue for this year, which "is a good place to be."

High gold and silver prices in the quarter aided the increase in revenue, and the company reported a 24% increase in the average realized price of silver equivalent ounces in the second quarter to $34.62, compared with $27.81 per ounce in the 2024 quarter.

Seeking Alpha reported the market consensus was 5 cents per share in adjusted net earnings, which is a penny more than the adjusted earnings for the quarter.

First Majestic also ended the quarter with $510 million in cash, and "there are no plans on spending that money anytime soon. We're going to continue with our current budget," Neumeyer said.

He also said there are 28 active drilling rigs across the company, including at Jerritt Canyon. "We just had our team down at Jerritt Canyon watching the drilling going on there, and it's looking quite exciting."

Chief Operating Officer Steve Holmes said in an email that there are "two rigs at Jerritt Canyon Gold. JCG will see 15,000 meters (49,210 feet) of drilling on select targets in the next few months out of 255,000 meters total within First Majestic for 2025."

First Majestic suspended mining at Jerritt Canyon about 50 miles north of Elko in March 2023 but continued exploration on the large land package, which totals about 119 square miles.

Holmes said that work at Jerritt Canyon includes "environmental system management and enhancements (water mostly), reclamation work, technical studies on key issues like hydrogeology (mine dewatering), reviewing mine planning options, and maintaining the site in excellent condition."

"Matt Chenault, who is the on-site leader of JCG, and his staff of 37 (excludes our exploration group/contractors) has done a nice job making needed repairs, optimization of facilities, on a care-and-maintenance basis for First Majestic," Holmes wrote.

"We consider JCG an important advanced project and are working diligently to understand and optimize the asset so that a future decision on restart can be made with confidence," he said.

Holmes also reported that the site completed two years without any injuries, and the company continues "some key community sponsorship programs" in Elko County.

Companywide, First Majestic produced 7.9 million silver equivalent ounces in the second quarter, including 3.7 million ounces of silver, up 48% over production of 5.3 million silver equivalent ounces in the second quarter of last year. Gold production in the quarter totaled 33,865 ounces, down from 39,339 ounces in the 2024 quarter.

All-in sustaining costs in the second quarter were $21.02 per ounce, a little less than the $21.64 per ounce in the second quarter of 2024.

Of the $264.2 million in revenue in the second quarter, 54% came from silver sales. Neumeyer said the company is "really the purest silver company in the business," with the goal of 50% of production coming from silver, rather than gold.

The adjusted net income compared with a loss of $20.4 million last year. First Majestic reported net income without adjustments was $56.6 million, or 11 cents per share in the second quarter, compared with a loss of $48.3 million, or 17 cents per share, in the 2024 quarter.

The higher production for the 2025 quarter was mainly the result of the 70% share of the Cerro Los Gatos Silver Mine the company gained with acquisition of Gatos Silver Inc. in January.

Cerro Los Gatos produced nearly 2.44 million silver equivalent ounces in the second quarter for First Majestic's share.

Neumeyer said integration of the two companies has "been extremely smooth. It's got to be one of the smoothest in the 23-year history of the company."

Holmes said in the webcast that there have been numerous synergies since the merger, and efforts are underway to match mining rates to plant capacity at Cerro Los Gatos.

Neumeyer additionally said in the webcast that First Majestic has had a "great first half of the year and is on track to meet guidance, so everything's working as scheduled and on time and as expected."

First Majestic expects to produce between 30.6 million and 32.6 million ounces of silver this year.

Along with production from Cerro Los Gatos, production from First Majestic's other mines in Mexico included 306,224 ounces of silver and 20,637 ounces of gold from the Santa Elena Mine, 1.24 million ounces of silver and 12,472 ounces of gold from San Dimas, and 632,942 silver equivalent ounces from La Encantada, where production consists almost entirely of silver.

Neumeyer said that at La Encantada, "we bought our own fleet, and we're going to be doing self-haulage."

First Majestic also owns a silver



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mint in Las Vegas, and the CEO said the goal is for the new mint First Mint to produce 100,000 silver ounces a month, or 10% of production, but the mint is "just shy of 6%." He said it is still a startup business.

First Mint sells silver coins, medallions and bars online.

The company's board declared a dividend of $0.0048 per share in the second quarter.



Hecla's Midas property in Elko County includes an underground mine, a processing facility, related support infrastructure, and mining and milling equipment.

HECLA MINING

Hecla Mining Co. posted net income of $57.57 million, or 9 cents per share, for the second quarter of this year, announced strong production and reported on the growing potential to restart the Midas Mine in Elko County.

"Historically, Midas produced 2.2 million ounces of gold and 27 million ounces of silver at exceptional grades, and with a fully permitted mill, ample tailings capacity and 30,000 acres barely explored, Midas offers potentially transformative upside," said Kurt Allen, vice president of exploration for Hecla.

He said in Hecla's earnings webcast that seven of 12 drill holes completed "have yielded two new gold-bearing structures with visible gold."

The drill holes were at the Pogo, Sinter Offset and Little Opal targets.

Findings are in an area two miles from the existing underground development and underground drilling, Allen said, stating that "these potential emerging discoveries, combined with widespread mineralization indicators throughout the area, support the potential for significant new deposits."

An engineering study also shows that the Midas mill in northwestern Elko County is in good shape, with only modest capital needed to restart the facility, Allen said in the Aug. 7 webcast.

The Hecla earnings report states that assays are pending and follow-up drill holes are being evaluated on the Midas property, which Hecla acquired from Klondex in 2018 when the underground mine was still in operation. Production ended in 2019.

Midas is a historic mining district with production recorded in the early 1900s. The town of Midas





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is near the present mine that Franco-Nevada developed. Normandy, Newmont and Klondex were the later owners before Hecla.

Allen also said the Hollister property, which was a high-grade underground mine and has exploration potential, is within driving distance of the Midas mill.

Companywide, Coeur d'Alene, Idaho-based Hecla produced 4.5 million ounces of silver and 45,895 ounces of gold in the second quarter. The net income applicable to shareholders of $57.57 million compared with $27.73 million in the second quarter of last year.

Adjusted net income was $50.2 million, or 8 cents per share, according to the earnings report.

Hecla President and Chief Executive Officer Rob Krcmarov said the second quarter results "demonstrate exceptional execution across all facets of the business," pointing out that Hecla generated record free cash flow of $103.8 million in the second quarter.

"Our mines delivered outstanding operational performance, with silver production up 10% quarter-over-quarter and gold production up 34% quarter-over-quarter, and Lucky Friday achieving a new milling record."

Silver production was up from nearly 4.46 million ounces in the 2024 quarter, and gold production was up from 37,324 ounces in the 2024 quarter. The all-in sustaining costs for silver were a negative $5.46, while the AISC for gold was $1,669 in the quarter. The negative figure was due to higher byproduct credits.

Russell Lawlar, senior vice president and chief financial officer, said silver made up 41% of the revenue in the second quarter and gold 42%, because of high gold prices and higher production from the Greens Creek Mine in Alaska and Casa Berardi in Canada. The remainder was from base metals revenue.

The average realized gold price in the quarter was $3,314 per ounce, compared with $2,338 per ounce in the second quarter of last year. The average realized silver price was $34.82 per ounce, compared with $29.77 per ounce in the 2024 quarter.

Looking at operations, Krcmarov said the strategy at Keno Hill in Canada for optimization now calls for 440 metric tons per day as part of "systematic derisking." The target was up to 600 tons per day.

"The key here is building Keno Hill with the long-term future in mind rather than rushing the ramp up," he said in the webcast.

Greens Creek, which Carl Aguia, senior vice president and chief operating officer, called Hecla's flagship operation, produced 2.42 million ounces of silver and 17,750 ounces of gold in the second quarter, compared with 2.24 million ounces of silver and 14,137 ounces of gold in the 2024 quarter.

Lucky Friday in Idaho produced 1.34 million ounces of silver in the second quarter, compared with nearly 1.31 million ounces in the same quarter last year, but the mine's new quarterly milling record was 114,475 tons.

Aguia said the third quarter is expected to be the lowest production quarter for Lucky Friday this year. There is planned impact on hoist availability because of a surface cooling project in the quarter.

Keno Hill in the Yukon Territory produced 750,712 ounces of silver in the second quarter, compared with 900,440 ounces in the 2024 quarter, as the mine continues to ramp up production. Hecla acquired Keno Hill from Alexco Resource Corp. in 2022.

Casa Berardi in Quebec produced 28,145 ounces of gold in the quarter, up from 23,187 ounces in second quarter of last year, with production coming from both open pit and underground operations.

Costs were down at Casa Berardi over $600 per ounce from the first quarter, with the all-in sustaining costs for the second quarter at $1,669 per ounce after byproduct credits, Krcmarov said.

He also said higher gold prices are helping extend the underground mining to the end of this year.

The mine is transitioning from underground to open pit and will produce gold from the 160 pit and stockpiles before a five-year gap opens between production and development of new pits unless there is an extension of underground mining, according to the earnings report.

Krcmarov said that with "Casa Berardi's strategic review progressing and our portfolio optimization continuing, we're well-positioned to achieve our 2025 guidance and beyond."

Hecla is expecting to produce between 15.5 million and 17 million ounces of silver and 126,000 to 137,000 ounces of gold this year. The gold forecast was revised upward from 120,000 to 130,000 ounces because of good gold production figures.

The CEO also said in the webcast that while the company will continue to look at early-stage asset acquisition possibilities, "at this time I see more compelling valuable opportunities within our robust pipeline."

HYCROFT MINING

Hycroft Mining Holding Corp. reported that the company ended the second quarter with

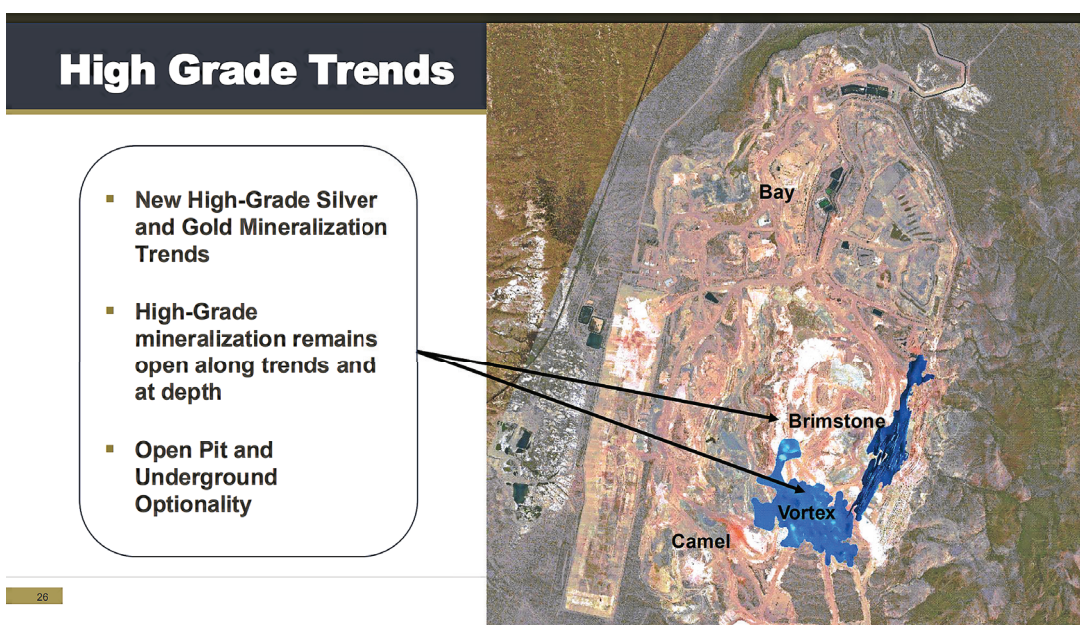

PHOTO HYCROFT MINING HOLDING CORP.

Alex Davidson, vice president of exploration for Hycroft, said that "the multiple overlapping mineralization events at both Brimstone and Vortex bringing significant metal into these deposits is what has shaped our 2025-2026 drill program."

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unrestricted cash of $68.8 million, $30 million in restricted cash and a $131 million debt as the company began a new season of exploration drilling at the Hycroft Mine in Nevada.

In its second quarter update, the Winnemucca-based company reported that Hycroft strengthened its balance sheet in a public offering that raised $40.7 million in cash, with an over-allotment option increasing those proceeds to $45 million.

Hycroft stated that because of that offering, Eric Sprott's 2176423 Ontario Ltd., a holding company which Sprott beneficially owns, increased its ownership in the company from 7% to 22%, and about 15 new institutions came into the shareholder registry. The new cash helps Hycroft's 2025-2026 exploration program.

The company planned to begin exploration drilling in August at Hycroft Mine 54 miles west of Winnemucca, with two rigs booked for roughly 47,570 feet of core drilling.

The company stated that the exploration drilling for the new season is designed to expand and advance high-grade opportunities at the Brimstone and Vortex targets and support new targets, such as Manganese.

"Data from 2023 and 2024 drill programs has provided multiple target horizons in both Brimstone and Vortex," said Alex Davidson, vice president of exploration for Hycroft. "The multiple overlapping mineralization events at both Brimstone and Vortex bringing significant metal into these deposits is what has shaped our 2025-2026 drill program."

Hycroft is continuing exploration for gold and silver on the large Hycroft land package while looking at options for the resumption of mining and processing at the site, where Hycroft continues to maintain the property.

Hycroft Mine produced silver and gold from heap leach operations from the 1980s to 2021.

"In addition to our exploration and development activities, we maintain a full mine site with heavy machinery, numerous on-site contractors as well as daily monitoring and maintenance activities," said Hycroft President and Chief Executive Director Diane Garrett in an announcement on drilling plans.

She also said the company will continue to build on "spectacular results we achieved in 2023 and 2024" and the growth potential for Brimstone and Vortex.

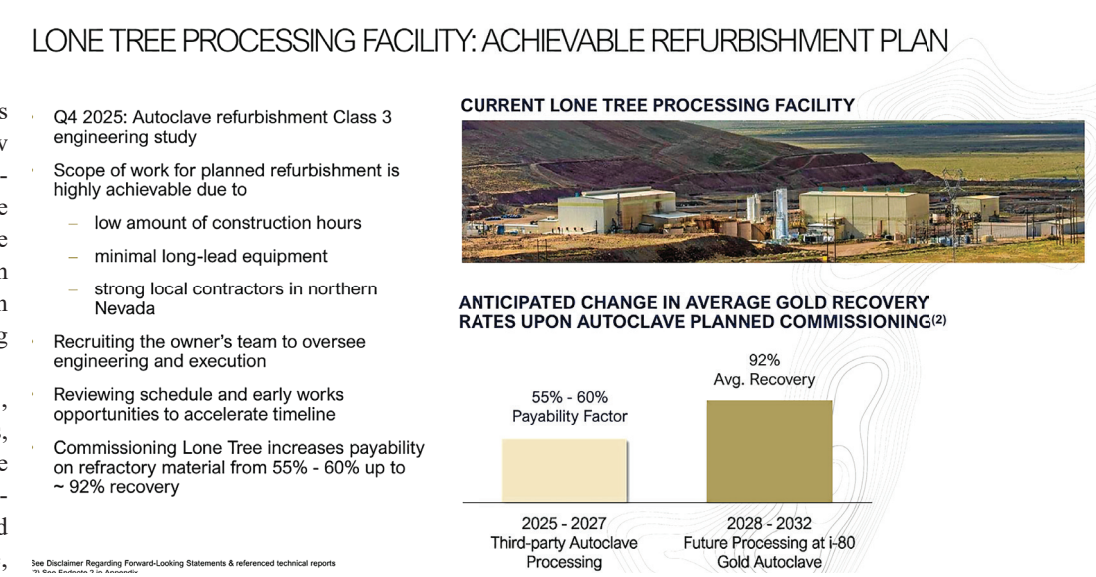
"We believe the significance and importance of silver at Hycroft was previously overlooked, as silver represents a substantial and previously underappreciated source of potential future revenue at the Hycroft Mine," Garrett said in the July 30 announcement.

Davidson said that from "the data we learned that the high-grade silver at Brimstone is the result of an intermediate sulfidation system, which is uniquely different from the rest of the Hycroft mineralization."

Hycroft said the 2023 and 2024 drilling delivered two of the best holes ever in Hycroft's more than 40-year history, demonstrating significant high-grade silver mineralization.

The company also reported in its corporate update that Hycroft continued metallurgical and variability test work in the second quarter for pressure oxidation and roasting sulfide concentrate, with results expected in mid-summer that will be incorporated into the next technical report later this year.





Hycroft additionally continues to evaluate the potential for a new heap leach operation as an early-stage development ahead of the planned milling operation because new oxide target areas have been discovered and because of high gold and silver prices, according to the company.

With over 64,000 acres, expanding high-grade discoveries, existing infrastructure, existence of an experienced core development and operating team, and major permits already in place, Hycroft is significantly ahead of many development-stage companies and well positioned to capture future growth in a robust market environment, Hycroft said in the financial update.

Less than 10% of the land package has been explored, Hycroft said.

In the report on planned drilling, Garrett said she wanted to recognize the team at Hycroft for "their incredible commitment to ensuring the health and safety of our employees and anyone who comes to the mine site," and she said the site has gone over two and a half years with no reportable injuries.

Hycroft won a first-place safety award from the Nevada Mining Association for small surface operations with one to 99 employees, and that award will be presented at the association's convention at Lake Tahoe on Sept. 5.

I-80 GOLD CORP.

As i-80 Gold Corp. looks at producing 30,000 to 40,000 ounces of gold this year and continuing project development in Nevada, the company reported a net loss of nearly $30.22 million

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in the second quarter, or 5 cents per share.

Reno-based i-80 Gold's recent loss was better than the $41 million loss, or 11 cents per share, in the second quarter of last year, however, as the company pursues a recapitalization strategy to pay for projects that will come online in phases.

"The second quarter was pivotal for the company," i-80 Gold's president and chief executive officer, Richard Young, said in the earnings webcast as he reported recent financing is allowing the company to move ahead on key points.

He said i-80 Gold can finance project studies, such as a feasibility study for the Lone Tree autoclave work, cover costs for underground development at Archimedes in Eureka County, pay for infill drilling programs and "continue permitting work across all five gold projects in the portfolio."

Young said that i-80 Gold's pipeline of assets provides "a clear path to establishing i-80 Gold as a mid-tier producer," reporting the plan is gold production of 600,000 ounces a year by the early 2030s.

He outlined the planned phases, with phase one estimated to include production of 150,000 to 200,000 ounces of gold in 2028-2029 from Granite Creek Underground and Archimedes, with completion of the refurbishment of the autoclave at Lone Tree in 2028.

In 2030-2031, the planned Cove underground mine south of Battle Mountain and the Granite Creek open pit in Humboldt County would be in production for the second phase, and total production would be 300,000 to 400,000 ounces of gold per year.

In the third phase, the Mineral Point open pit at Ruby Hill in Eureka County would be in production, and the company's total annual production would reach 600,000 or more as of 2032.

In the near term, the company outlined a three-phase development plan that prioritizes its high-grade underground refractory deposits and refurbishes the autoclave that once operating would process gold ore from i-80 Gold mines.

In the meantime, i-80 Gold sulfide ore from Granite Creek is processed under a new agreement with a third party, and Chief Financial Officer Ryan Snow said the third party has 120 days to process the ore, but "we've seen faster turnaround times than that thus far, and we're planning on approximately 90 days."

The catalysts include starting underground development at Archimedes in the current quarter and initiating infill drilling in the fourth quarter at the underground project, as well as completing feasibility studies.

"Overall, I expect the next 12 to 18 months to be transformative for the company," Young said in the webcast.

According to a slide in the presentation, the Lone Tree engineering study would be completed in the fourth quarter of this year, the Granite Creek underground study, first quarter of 2026, the Cove underground study, first quarter 2026, the Granite Creek open pit study, mid-2026, and the Archimedes study, first quarter 2027.

Snow said the revenue of $27.84 million, up from $7.18 million in the 2024 quarter, was the result of higher gold sales and higher gold prices. The company's average realized gold price in the second quarter was $3,301 per ounce, up from $2,337 per ounce



in the second quarter of last year.

Snow attributed the second quarter loss to the ramp-up of production and project development at the company's sites.

The earnings report shows that the adjusted earnings for the second quarter totaled $40.16 million, or 7 cents per share, compared with $38.82 million, or 11 cents per share, in the 2024 quarter.

The company sold 8,400 gold ounces in the second quarter, up from 3,445 ounces in the 2024 quarter, according to the earnings report, and the 30,000 to 40,000 ounces expected this year are estimated to include 20,000 to 30,000 ounces of gold from Granite Creek and 10,000 from heap leach pads.

Granite Creek is currently a fully permitted and operating mine, with refractory ore processed by the third party and oxide ore going to a heap leach pad at Lone Tree. According to i-80 Gold, roughly 28,000 metric tons of sulfide mineralized material had been delivered as of June 30.

Chief Operating Officer Paul Chawrun said in the webcast that tons mined this year at Granite Creek aren't affected by dewatering. The company is developing two new dewatering wells and an expanded treatment plant that will be needed next year, however.

The autoclave facility at Lone Tree was in operation back when Newmont Corp. was in full gold production at the mine, so the autoclave must be refurbished to operate again. Work could cost $350 million to $400 million, i-80 Gold estimated.

Hatch Ltd. is collaborating with i-80 Gold on the feasibility-engineering study for Lone Tree, according to the earnings report.

In the earnings report, Chawrun said that "given that i-80's core assets are brownfield projects with a well understood and sizeable mineral base, we continue to advance steadily with relatively low technical and permitting risk due to their historical mining footprints and existing infrastructure."

He also said that the i-80 Gold team "remains focused on the infill drill programs in support of the upcoming feasibility studies, permitting, and development activities across all core assets as we progress toward achieving our staged production goals and continue to optimize the value and timing of each project within the broader development plan."

From now to mid-2026, i-80 Gold plans to spend roughly $92 million on construction, drilling, permitting and technical studies across five gold projects, as well as on the Lone Tree autoclave, according to the company.

The five projects are Cove at the McCoy Cove former mine, the Archimedes underground project off a wall of the open pit at the Ruby Hill Mine, the Mineral Point deposit at Ruby Hill that i-80 expects to be a major open pit operation, the Granite Creek underground operation, and reviving open pit mining at Granite Creek.

The company reported that at Cove, i-80 Gold is actively advancing major permit applications and anticipating an environmental impact statement with the U.S. Bureau of Land Management, with the goal of production by mid-2029.

INTEGRA RESOURCES

INTEGRA RESOURCES

Integra Resources Corp. reported adjusted net earnings of $11.8 million, or 7 cents per share, in the second quarter, with all the gold production coming from the Florida Canyon Mine in Nevada and the revenue from gold sales supporting the company's projects.

Integra also reported that the Shoshone and Paiute tribes on the Nevada-Idaho border signed a ground-breaking partnership agreement for Integra's DeLamar Mining Project in Idaho that gives the tribe a seat at the table for planning operations.

"The Shoshone-Paiute Business Council is pleased to enter into this relationship agreement for the DeLamar Project, located in the northern portion of Shoshone-Paiute territory," said Brian Mason, chairman of the tribes.

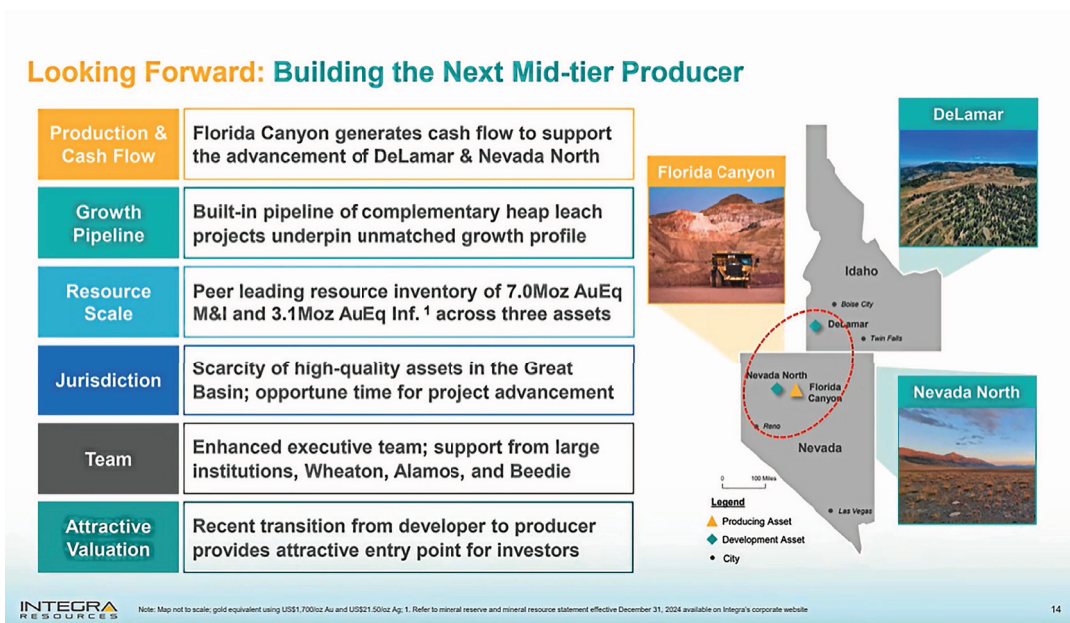
Integra is working with the U.S. Bureau of Land Management to permit the DeLamar Project. The company said in the earnings update that the BLM is expected to release a notice of intent to begin the environmental impact statement process in the second half of this year.

In the meantime, Integra has gold production from Florida Canyon in Pershing County to provide cash flow to advance DeLamar and the Nevada North exploration projects, Integra's president, chief executive officer and director, George Salamis, said in the earnings webcast.

"The focus for the remainder of 2025 continues to be capital investment and growth at Florida Canyon, permitting advancement and a feasibility study for DeLamar, and continued de-risking activities and advanced study work at Nevada North," Salamis said.

Florida Canyon Mine produced 18,087 ounces of gold in the second quarter, and the company sold 18,194 ounces of gold in the quarter at a record average realized price of $3,332 per ounce.

Florida Canyon produced 72,229 gold ounces in all of 2024, representing the highest production from Florida Canyon



in the past 21 years, but Integra didn't acquire the mine until last November.

While there is cash for DeLamar and Nevada North, Integra is spending money at Florida Canyon exploring for more gold mineralization to extend the mine life and to complete an extension of the current heap leach pad.

Salamis said the company plans to invest over $55 million into Florida Canyon this year "aimed at near-term improvements and positioning the mine for long-term growth and profitability."

He said the company is addressing "historic under investment" at Florida Canyon, which is "doing its job and performing as expected."

Along with exploration around the open pits, Integra is exploring the old waste rock dumps on the Florida Canyon site for potential processing of remaining gold that was considered waste when gold prices were low, Salamis said.

"It's an immediate opportunity to expand reserves and resources," he said, reporting that intercepts from drilling have exceeded the current cutoff ore grade for leaching. The company said it intends to release an updated mineral reserve and resource estimate and updated life-of-mine plan for Florida Canyon in the first half of 2026.

Chief Operating Officer Clifford Lafleur said in the webcast that the leach pad expansion should be commissioned late this year. Production guidance for the year is 70,000 to 75,000 ounces at all-in sustaining costs of $2,450 to $2,550 per ounce.

Integra also stated that mining rates at Florida Canyon increased over the first quarter because of improved availability of haul trucks, including rental units, and due to optimized haul routes.

The Nevada North Project is a combination of the Wildcat exploration project and the Mountain View deposit. Integra has received a record of decision to go ahead with a larger drilling campaign at Wildcat.

Integra's presentation states that hydrogeological drilling at Wildcat about 40 miles west of Florida Canyon should be completed in the second half of this year, and environmental analysis has been completed for Wildcat and Mountain View.

Mountain View is about 15 miles north of Gerlach in Washoe County.

Integra ended the second quarter with cash and cash equivalents totaling $63.03 million, according to the earnings report.

Integra acquired Florida Canyon to become the company's first producing operation. Alamos Gold acquired Argonaut Gold last year and spun off Florida Canyon and mines in Mexico, forming Florida Canyon Gold Inc. Integra bought Florida Canyon from Florida Canyon Gold Inc., and the mines in Mexico were sold separately.

KINROSS

KINROSS GOLD

Kinross Gold Corp. reported adjusted net income of $541 million, or 44 cents per share, for the second quarter with help from high gold prices and the production of 512,574 gold equivalent ounces in the quarter, including higher production from Bald Mountain in Nevada.

The adjusted net income was more than triple the adjusted net income of $174.7 million, or 14



cents per share, in the second quarter of last year, and Kinross posted record free cash flow for the 2025 quarter of $646.6 million.

Gold equivalent production was down from 535,338 ounces in the 2024 quarter, but the Toronto-based company said production at Bald Mountain was up because of strong gold grades and timing of ounces recovered from heap leach pads.

Bald Mountain produced 53,704 gold equivalent ounces in the second quarter, up from 45,929 ounces in the 2024 quarter, while the other producing Kinross mine in Nevada, Round Mountain, produced 38,664 ounces, down from 61,787 ounces in the second quarter of last year.

Kinross Chief Executive Officer J. Paul Rollinson said in the second quarter earnings webcast that production from Round Mountain's open pit Phase S "has begun and is expected to ramp up throughout the year."

He also said that "we delivered another strong quarter in Q2, establishing an excellent first half and positioning us to achieve full-year guidance," and he said that "in the current gold price environment we see value-generating investment opportunities throughout our profile."

US Operations

Strong Production in Q2 – On Track to Meet FY Guidance



Fort Knox, Alaska[1]



Bald Mountain, Nevada



Round Mountain, Nevada

United States Total	Q2/25	H1/25	FY25 Guidance[2]
Attributable[3] production (Au eq. oz.)	189,930	365,435	685,000
Production cost of sales ($/oz.)[4]	$1,231	$1,236	-
Attributable[3] production cost of sales ($/oz.)[5]	$1,229	$1,237	$1,420

(1) The Fort Knox segment is composed of Fort Knox and Manh Choh.
(2) Refer to endnote #1. 2025 Guidance reflects a range of +/- 5%.
(3) "Attributable" includes Kinross' 70% share of Manh Choh production and costs, as applicable.
(4) Refer to endnote #2.
(5) This is a non-GAAP financial ratio with no standardized meaning under IFRS and therefore, may not be comparable to similar measures presented by other issuers. Refer to endnote #3.

KINROSS



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Kinross expects to produce two million ounces of gold this year at an all-in sustaining cost of $1,500 per ounce.

The average realized gold price for Kinross in the second quarter was $3,284 per ounce, compared with $2,342 per ounce in the 2024 quarter.

Kinross Executive Vice President and Chief Financial Officer Andrea Freeborough said that with the average gold price at $3,284 per ounce, Kinross had "record margins of just over $2,200 per ounce and ended the quarter with $1.1 billion in cash."

Investing.com stated that the adjusted earnings of 44 cents per share beat analysts' estimate of 32 cents per share, and Kinross' revenue rose to $1.73 billion, well above the consensus of $1.47 billion, up from $1.22 billion in the 2024 quarter.

The company board declared a dividend of 3 cents per share on July 30. Freeborough also said that Kinross expects to provide $650 million in total capital returns for 2025, including dividends and share buybacks.

"Since reactivating our share buyback program earlier this year, we have repurchased $225 million in shares of the $500 million planned for this year while maintaining our quarterly dividend and significantly strengthening our investment-grade balance sheet," Rollinson said in the earnings report.

In the webcast, he said the share buybacks are gold price dependent, but plans are to continue buying shares this year and next year.

Rollinson additionally stated in the earnings report that Kinross is "excited about our pipeline of high-quality development and exploration projects, all of which progressed well during the quarter."

Kinross listed Redbird at Bald Mountain as one of its projects, stating that studies and detailed engineering related to the potential second-phase extension of Redbird are progressing well, including engineering for a heap leach expansion and mine plan optimization.

Exploration drilling and technical studies are also progressing, targeting satellite pit opportunities on the large Bald Mountain property that could potentially augment the production profile from Redbird Phase II, according to William Dunford, senior vice president for technical services.

He said Bald Mountain has "strong targets for mine life extensions," and remarked that the mine has more than 40 historic pits on the property.

The second phase of Redbird will bring 680,000 ounces and estimated production would continue to 2031, Dunsford also said in the webcast.

Claude Schimper, executive vice president and chief operating officer, said that while Bald Mountain had a "very strong first half" of this year, production will be slightly lower in the second half because there won't be the high grades from the LBM Pit, where mining has ended.

At Round Mountain, production was down from the 2024 quarter because of lower mill grades and fewer ounces recovered from the heap leach pads as the site transitions from Phase W to Phase S in open pit mining.

At Phase X, the underground project at Round Mountain, there has been over 14,760 feet of development and extensive drilling completed in both the upper zone and lower zones, according to Kinross.

The company reported that exploration is continuing to intersect strong widths and grades of mineralization, and extension drilling indicates continuation of mineralization down dip outside the original exploration target.

At the other operation in the United States – Fort Knox in Alaska – production increased over 2024 because of the contribution of the Manh Choh's higher-grade, higher-recovery ore that began in the second half of last year. Manh Choh is a new mine that sends its ore to Fort Knox and is considered a part of Fort Knox.

Schimper said U.S. operations—Bald Mountain, Round Mountain and Fort Knox—collectively produced nearly 195,000 ounces in the second quarter.

Other production for the second quarter included 119,241 gold equivalent ounces from Tasiast in Mauritania, down from 161,629 ounces in the 2024 quarter, partially because of planned lower grades, and 149,264 ounces from Paracatu in Brazil, up from 130,228 ounces in the second quarter of last year.

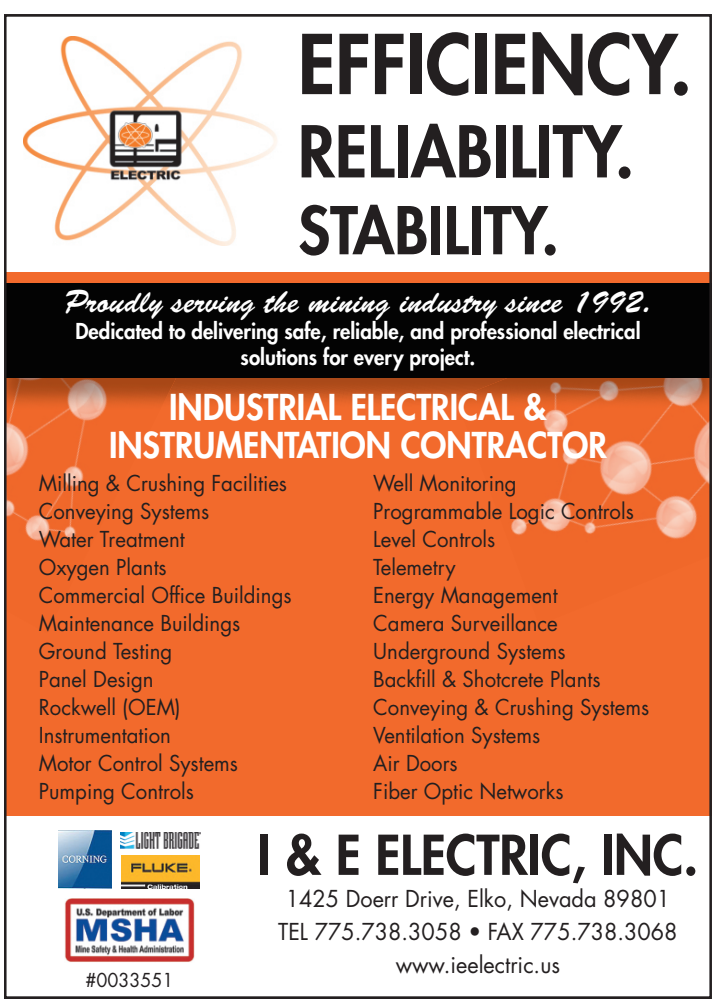
La Coipa in Chile produced 54,139 ounces, down from 65,851 in the 2024 quarter, due to lower grades with higher feed from low-grade stockpiles, but production is expected to increase in the second half of this year as the mine transitions to higher ore grades from Phase 7.

All-in sustaining costs in the second quarter companywide were $1,493 per ounce, up from $1,387 per ounce in the second quarter of 2024.

Kinross additionally said that permitting and detailed engineering are continuing for the Main Project at the Great Bear property in Red Lake, Ontario, where construction began in the fourth quarter of last year on the Advanced Exploration Program (AEX) and the site camp is nearing completion.

Kinross expects work on the AEX exploration decline to start later this year.

Dunsford also said the exploration at Curlew in Washington





McEwen Inc. says the Gold Bar Mine northwest of Eureka produced 8,406 gold equivalent ounces in the second quarter of 2025, down from 12,297 GEOs in the 2024 quarter, but the company says that as accelerated stripping activity nears completion, it expects production to increase and costs to go down.

State is continuing to show mineralization growth and the potential to restart the underground mine. Curlew is tied to the K2 underground mine that operated from 1996 until 2005.

Rollinson said in the webcast that he is "excited about Curlew and Phase X" for their potential.

"They could be a contributor around 2028. They are growing in size and getting good grades and widths."

MCEWEN INC.

McEwen Inc. announced net income for the second quarter of $3 million, or 6 cents per share, compared with a loss of $13 million, or 26 cents per share, in the second quarter of last year, and the company reported it is working to extend the life of the Gold



PHOTO MCEWEN MINING

Bar Mine in Nevada.

"The higher gold price, while expected, had a welcome positive impact on our cash flow and net income," said Rob McEwen, chief executive officer and chief owner of the Toronto-based company.

The average realized gold price was $3,298 per gold equivalent ounce in the second quarter, compared with $2,355 per ounce in the second quarter of last year.

McEwen Inc., which recently changed its name from McEwen Mining, said the company spent $1.2 million at Gold Bar in Eureka Couty to increase mine life beyond 2029 and spent $1.3 million at the Lookout Mountain and Windfall projects for potential production. The Gold Bar Mine is about 35 miles northwest of the town of Eureka, and the Lookout Mountain and Windfall projects are near Eureka.

Chief Operating Officer William Shaver said in the earnings webcast that permitting generally takes two to three years with federal agencies, and "we are working diligently to get those projects up and running as soon as possible."

He said the project sites are a mix of U.S. Bureau of Land Management-managed land and private land, and development on private land would be relatively easy.

The plan calls for leaching on site and processing at the Gold Bar Mine or at Ruby Hill Mine, also in Eureka County and owned by i-80 Gold. Shaver said McEwen Inc. is in talks with i-80 Gold to use their processing plant, and there will be "news to come."

"The next step is to put together some kind of study, but there are no plans to build a big plant," he said.

McEwen acquired Timberline Resources and its Windfall and Lookout Mountain properties last year. The earnings release states that a resource update for Windfall and Lookout Mountain is expected in the fourth quarter.

Gold Bar produced 8,406 gold equivalent ounces in the second quarter at all-in sustaining costs of $1,792 per ounce, compared with 12,297 GEOs in the 2024 quarter. McEwen Inc. wrote that as accelerated stripping activity nears completion, the company expects production to increase and costs to go down.

McEwen Inc. said the accelerated open pit stripping was initiated to take advantage of higher gold prices.

The Fox Complex in Ontario produced 5,429 gold equivalent ounces in the second quarter from mining in the lower-grade zones at the bottom of the Froome Mine, according to McEwen Inc. That is down from 8,297 GEOs in the second quarter of last year.

"We are proud of the teams at Fox Complex and Gold Bar for upholding safety standards with zero lost-time incidents and for driving progress on critical development milestones," Shaver said in the announcement. "These accomplishments reinforce our momentum and strengthen our path toward achieving full-year guidance."

The San Jose Mine in Argentina that is 49% owned by McEwen Inc. produced 13,719 gold equivalent ounces for McEwen's share in the second quarter, down because of lower grades and recovery rates. Production of McEwen's share was 14,672 GEOs in the 2024 quarter.

Full-year guidance for Gold Bar, Fox Complex and San Jose Mine is between 120,000 and 140,000 gold equivalent ounces of production.

The company also reported that its goal is to double current production to a total production of 250,000 to 300,000 gold equivalent ounces by 2030. The acquisition of Canadian Gold that should be final by early 2026 could help with reaching that goal.

McEwen announced in late July that it reached an agreement with Canadian Gold Corp. to acquire that company and its 100% interest in the Tartan Mine in Manitoba. The Tartan Mine is a former producing mine with existing infrastructure and high exploration potential.

Shaver said Tartan Mine would be a "really good fit into our operations," and the project is in a mining friendly jurisdiction. Chief Financial Officer Peggy Ing said Tartan can be brought into production with a "modest budget."

Michael Swistun, president and CEO of Manitoba-based Canadian Gold, said Tartan is a "very interesting property," and he said the mine could be restarted in two to three years.

As guest speaker in McEwen's webcast, he said the ramp to the underground mine is flooded and would need to be dewatered, and the mill and crushing circuit are obsolete and would need to be replaced, but the road and power to the project are intact, and the tailings site is in good shape.

He said the mine can restart within the current footprint and the site is near enough to communities that a camp for workers won't be needed.

Additionally, the company is looking at starting production at Stock Mine at the Fox Complex by mid-2026, and is hoping for a dividend from the San Jose Mine in the future.

Looking to copper, McEwen Inc. reported that McEwen Copper invested $7 million in the Los Azules copper project in the second quarter, representing McEwen Inc.'s 46.5% share of ongoing feasibility study costs.

Once the study is published, "McEwen Copper will be able to capitalize the majority of the development costs going forward. Year-to-date, this expense was $15.6 million," Rob McEwen said in the earnings report.

NEWMONT CORP.

Newmont Corp. reported adjusted net income of $1.6 billion, or $1.43 per share, for the second quarter and record free cash flow of $1.7 billion with help from high gold prices, but gold production was down from the second quarter of 2024.

Newmont Chief Executive Officer Tom Palmer said in the second-quarter earnings webcast that although he was "shattered" by the accident at Newmont's Red Chris Mine in Canada, "Newmont delivered another strong operating performance in the second quarter, keeping us firmly on track to achieve our 2025 guidance."

The workers at an underground project at the mine in British Columbia safely reached a rescue chamber on July 22 after a first underground fall of ground and before a second one trapped them, and they were rescued late July 24.

Palmer said in the July 24 webcast before the employees were rescued that there will be a thorough investigation of the accident, and the results will be shared with all Newmont operations and industrywide.

Reporting on the company's second quarter finances and production, Palmer said Newmont "delivered another solid quarter," and Nevada Gold Mines is expected to have a stronger second half of the year.

Nevada Gold Mines produced 239,000 ounces of gold for Newmont's share in the second quarter, compared with 253,000 ounces in the 2024 quarter. Newmont owns 38.5% of the NGM joint venture, while Barrick Mining Corp. is the operator and 61.5% owner.

Denver-based Newmont's forecast companywide is production of 5.9 million ounces of gold this year, with total production in the

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second quarter of 1.48 million ounces going toward that goal. The company produced 1.61 million ounces of gold in the second quarter of last year.

The company's earnings report states that production from Yanacocha in Peru increased from improved injection leaching, Peñasquito in Mexico benefited from higher gold grades, and Nevada Gold Mines and Boddington in Australia increased production from more tons of ore processed following planned maintenance.

Palmer said the gold production generated "an all-time record quarterly free cash flow of $1.7 billion," and he said in the webcast that Newmont has a strong finance team to carry on since the recent resignation of Chief Financial Officer Karyn Ovelmen.

The adjusted net income was nearly double the adjusted net income for the second quarter of last year, $834 million, or 72 cents per share. Net income attributable to shareholders totaled $2.06 billion, compared with $853 million in the 2024 second quarter.

High gold prices helped boost earnings. The average realized gold price for Newmont was $3,320 per ounce in the second quarter, compared with $2,347 per ounce in the second quarter of last year.

Newmont's adjusted earnings of $1.43 per share surpassed analysts' predictions of $1.16 per share, according to the Wall Street Journal. Barron's reported that Newmont shares had gone up 65% so far this year.

Newmont posted $5.32 billion in revenue, up from $4.4 billion the year prior. Analysts were expecting revenue of $4.85 billion, the Wall Street Journal stated.

The company's board also declared a dividend for the second quarter of 25 cents per share.

Newmont reported costs per ounce that include byproducts, with the all-in sustaining costs at $1,375 per ounce in the second quarter, compared with $1,412 per ounce in the 2024 quarter. The byproducts include copper, silver, lead and zinc.

Copper production totaled 36,000 metric tons in the second quarter, compared with 38,000 metric tons in the 2024 quarter.

The company said in its earnings commentary that attributable gold production from its major producing mines is expected to be approximately 50 percent weighted to the second half of this year.

Production from Cadia in Australia and Peñasquito has been slightly stronger than expected in the first half of the year and is expected to decline in the second half, Newmont said. Increased production to offset those declines is expected in the second half of the year primarily from Nevada Gold Mines, Yanacocha in Peru, and the addition of production from Ahafo North in Ghana in the fourth quarter.

Palmer said in the webcast that he has three priorities that "remain clear and unchanged," and these include strengthening the company's safety culture, stabilizing Newmont's 11 managed operations, and executing on capital returns.

Newmont is enhancing capital returns with its share buyback program. The company returned $1 billion of capital to shareholders through share repurchases and dividend payments in the second quarter, and the board has authorized an additional $3 billion in share repurchases to be executed at the company's discretion. The total repurchase program is authorized at $6 billion.

Newmont President and Chief Operating Officer Natascha Viljoen said in the webcast that there have been improvements at the Lihir Mine in Papua New Guinea with a more efficient design that allows "the fleet to run faster," and as a result "we parked nine trucks and generated costs savings."

The company also reported that its sales of six operations and two projects in Colorado, Canada, Australia and Ghana in 2024 and 2025 is expected to provide gross proceeds of up to $4.3 billion, including $2.5 billion of net cash proceeds received year to date in 2025.

In addition, Newmont stated that it sold half of its equity stake in Greatland Resources and its entire equity stake in Discovery Silver for $470 million after net taxes and commissions.

Newmont reported after the earnings release that the Ghana government ratified the renewal of Newmont's Akyem East Mining Lease, clearing the way for a $100 million payment from Zijin Mining Group Co. Ltd. that brings the total after-tax proceeds from the sale of Akyem to $770 million.

Additionally, Newmont reported that the company spent $280 million in the first half of this year on reclamation activities, including $167 million on the construction of water treatment plants at Yanacocha, and plans to spend $800 million for reclamation in all of 2025. That includes $600 million allocated to Yanacocha.

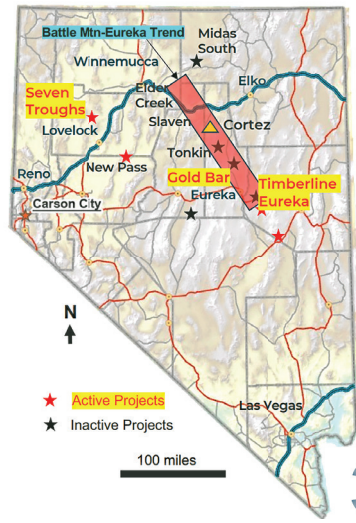
Nevada Exploration Projects| Location Map

Projects in Northern Nevada

- 2025 Exploration Budget **US$7 M**
- **36,000 m drilling** planned for 2025

Active Projects

- Carlin-Type Deposits On Battle Mountain-Eureka Trend, South of Cortez:
  - **Gold Bar**
  - **Timberline Eureka**
- In High-Grade Epithermal Vein District, North of Lovelock:
  - **Seven Troughs**



A map of McEwen Inc. exploration projects.

35

ORLA MINING

ORLA MINING

Orla Mining Ltd.'s South Railroad Project has reached another step on its climb to becoming a gold mine in Elko County with the U.S. Bureau of Land Management beginning the permitting process on the proposed mine and gathering public comment in early September on the project. The BLM published the Notice of Intent for the South Railroad Project in the











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EXPLORATION UPDATE

H2 exploration activities

Musselwhite:

- UG and surface exploration programs active throughout Q2
- UG assay results being received; under review and interpretation.
- Near-mine surface drill program – first assays expected in Q3
- Deep directional drill program - expected to reach target zones in H2; assay results planned for H2 and early 2026.

South Carlin Complex (including the South Railroad project):

- Three (3) drill rigs turning during Q2, testing extensions of known deposits and new targets
- Continue testing deposit extensions and new targets with four (4) drill rigs

Camino Rojo:

- Zone 22 infill and regional program

10



ORLA MINING

Federal Register on Aug. 13.

"The publication of the Notice of Intent marks a significant milestone for our South Railroad Project, continuing the process towards receipt of final permits," said Orla's president and chief executive officer, Jason Simpson.

"South Railroad is the next pillar in Orla's organic growth strategy toward annual gold production of 500,000 ounces," he said as the company also released its second quarter earnings report.

Orla posted adjusted net earnings for the second quarter totaling $64.2 million, or 15 cents per share.

The company said it is continuing to integrate the Musselwhite Mine in Canada into the fold after acquiring the mine from Newmont Corp. Simpson said "the second quarter was the first full quarter of gold production from Musselwhite following the closing of the acquisition at the end of February."

Orla also reported it is remediating a pit wall slide a its Camino Rojo gold mine in Mexico.

Regarding the South Railroad Project, Simpson said "we will work with our cooperating agencies to fast-track the timeline to onsite construction start, and ultimately first gold production."

Don Dwyer, general manager of the South Railroad Project, said in an email that the BLM action "brings us one step closer to receiving final permits for construction to start. South Railroad will create jobs, strengthen the local economy and uphold environmental stewardship in Elko County and the surrounding region."

Work toward developing the South Railroad Project has been progressing for many years. Gold Standard Ventures, the previous owner of the project, started in 2010 and acquired over 9,000 acres in Elko County's Pinon Mountains that year. The company completed a pre-feasibility study of the project in September 2019. Orla acquired Gold Standard Ventures in August 2022.

Orla Mining is planning an open pit heap leach operation 25 miles southwest of Elko. The project would be accessed from South Fork. The BLM said the mine would cost roughly $200 million and employ up to 600 people during construction and 300 workers when in operation. The mine is expected to produce around 124,000 gold ounces per year.

The gold and silver mine would be located on 8,548 acres of land, including 4,624 acres of public land and 3,924 private acres, with 1,267 acres of temporary surface disturbance and 503 acres of permanent surface disturbance, according to BLM. The agency also reported that one option is the partial backfill of the Dark Star open pit.

Plans call for four open pits, two of which would result in pit lakes and dewatering. The BLM also said the life of the proposed mine is approximately 16.5 years and includes about 1.5 years for construction, 10 years for operations, and five years for reclamation.

Orla Mining Chief Operating Officer Andrew Cormier said in the webcast for the second quarter earnings report that gold production could begin at South Railroad in 2028, following BLM's record of decision and project construction.

The BLM estimates that the draft EIS will be published Dec. 19 of this year, and the final EIS will be published on May 22, 2026, with a decision record issued on June 25, 2026.

Sylvain Guerard, senior vice president of exploration for Orla, said in the earnings webcast that there were "three rigs turning during the quarter with four expected in the second half of the year" on the South Carlin Complex that includes the South Railroad Project site.

He also said the South Railroad Project team is talking with community officials in advance of the start of the BLM's public scoping process for the environmental study on the project.

Orla's record production totaled 77,811 ounces of gold in the second quarter, including 52,318 ounces from Musselwhite and 25,145 ounces of gold from Camino Rojo, which was the consistent lone producer for Orla before the Musselwhite acquisition.

Simpson said in the webcast that Orla suffered a setback, however, on July 23 when the north pit wall collapsed at Camino Rojo and mining was temporarily paused. He said the collapse involved roughly 39 million tons of material.

"Most importantly, no one was injured, in part because of the early monitoring systems and critical decision making" by mine employees, and there was no equipment damaged and no environmental damage, Simpson said.

Orla revised production figures for the year, however, because of the incident.

The updated guidance is for 265,000 to 285,000 ounces of gold production in 2025 at an all-in sustaining cost of $1,350 to $1,550 per ounce. The original guidance was 280,000 to 300,000 ounces of gold in the year.

Work has started on the action plan to remediate the slide, including a pushback of the north wall with a redesigned slope and continuous monitoring, according to Orla. The plan calls for removing roughly 9 million metric tons of mainly oxide material to the heap leach pad.

"All the ore will be crushed and stacked," Simpson said in the webcast, also stating that the 9 million metric tons to be removed equates to about 250,000 ounces of gold.

He said the plan is to mine from the surface downwards to push back and stabilize the north wall and create "a shallower pit wall angle."

Orla will continue stacking low-grade material on the leach

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pad because it doesn't need crushing, since the crushers will be needed for materials from the slide, according to Simpson.

He also said no gold mineralized material has been lost because of the slide, and Mexican law allows emergency stacking. The emergency permit is separate from the permitting sought for a large layback at Camino Rojo.

"The team worked extremely hard over the past three weeks," said Cormier.

Chief Financial Officer Etienne Morin said Orla ended the second quarter with a strong cash position of $215 million and a net debt position of $205 million. He said the net cash will help with future construction costs at South Railroad.

The average realized gold price was $3,251 per ounce in the second quarter, compared with $2,332 per ounce in the 2024 quarter. Adjusted net earnings in the second quarter of last year before the Musselwhite purchase were $39.85 million, or 13 cents per share.

On the exploration front, the South Carlin Complex is focused on increasing resources at Dark Star, Pinion and satellite deposits, as well as discovering new zones of mineralization, according to the Orla earnings report.

Drilling activities resumed in May at South Carlin at the new Spike target south of Pod-Sweet Hollow and at the North Bullion target. Drilling was started in June at the Dark Star and Bowl areas, Orla reported.

Exploration also continues at Camino Rojo, including at Zone 22. Drilling has consistently returned high gold grades, Sylvain said.

Additionally, exploration drilling continues at Musselwhite to define a critical mass of additional reserves and resources to support expansion of the operation and significantly increase mine life, the company reported.



The process plant at SSR's Marigold Mine a few miles south of Valmy.

PHOTO SSR MINING

SSR MINING

SSR Mining Inc. reported adjusted net income for the second quarter was $110.1 million, or a market-surprising 51 cents per share, and the company produced 120,191 gold equivalent ounces, including its first full quarter of production from the Cripple Creek & Victor Mine in Colorado.

The adjusted earnings per share surged well beyond the second quarter of last year, when SSR Mining posted adjusted net income of $7.49 million, or 4 cents per share.

SSR Mining's adjusted net earnings per share of 51 cents far exceeded analyst predictions. The Zacks Consensus Estimate for SSR Mining's earnings for the quarter was 23 cents per share, and GuruFocus estimated 31 cents per share.

At the other SSR Mining operation in the United States, the Marigold Mine in Nevada produced 35,906 gold equivalent ounces, up from 25,691 ounces in the second quarter of 2024.

CC&V produced 44,062 ounces of gold in the quarter.

"It's pleasing to report a really good quarter that progressed as planned," Executive Chairman Rodney Antal said in the earnings webcast, pointing to free cash flow of nearly $100 million dollars generated despite production delays because of forest fires near the Seabee Mine in Saskatchewan.

"We're in a good position to meet our full-year targets," he said.

SSR Mining expects to produce between 410,000 and 480,000 gold equivalent ounces this year, including between 320,000 and 380,000 gold ounces and between 8 million and 8.5 million silver ounces.

High gold prices helped SSR Mining's bottom line. The average realized gold price in the second quarter was $3,336 per ounce, compared with $2,378 per ounce in the second quarter of last year.

Michael Sparks, executive vice president and chief financial officer of Denver-based SSR Mining, said in the webcast that the 51 cents per share for net adjusted earnings includes costs for the Çöpler Mine in Turkey that remains shut down after a fatal slide of the heap leach pad on Feb. 13, 2024.

"We're firmly committed to a restart at Çöpler," Antal said, reporting that $29 million has been spent on the project so far. "Clearly, we want to be sure everything is in place before we seek approval for the restart."

The company recorded an adjustment of reclamation and remediation costs related to the Çöpler accident of $62.9 million, and the revised estimate for total costs is $312.9 million, up $12.9 million from the earlier estimate.

The gold equivalent production of 120,191 gold equivalent ounces in the second quarter compared with 76,102 ounces in the 2024 quarter, and all-in sustaining costs were $2,068 per ounce, or $1,858 per ounce if the Çöpler Mine remediation work isn't included.

Bill MacNevin, executive vice president for operations and sustainability, said production at the Marigold Mine in Nevada will be weighted toward the second half of the year, especially the fourth

quarter, and work is continuing for potential production from Buffalo Valley and New Millenium.

The Marigold Mine south of Interstate 80 in Lander and Humboldt counties has royalties that impact costs when the gold price is high, MacNevin also said.

At CC&V, which SSR Mining acquired from Newmont Corp. in February, MacNevin said the strong production is "paying back initial upfront costs in just four months." SSR Mining paid Newmont $100 million cash up front for CC&V, and another $175 million is to be paid based on completion of milestone conditions.

Antal said CC&V has generated about $85 million in asset-level free cash flow in the four months since its acquisition, which is "a remarkable outcome."

The mine is in the Rocky Mountains about 20 miles west of Colorado Springs, or 45 miles by road, and is located near the historic mining towns of Cripple Creek and Victor.

MacNevin said a technical report at CC&V is being done and they "expect this document will represent a first step in our longer-term plans to delineate meaningful growth and upside for the asset in the future." Antal said the report will be released in the second half of this year.

"Things have gone really well down there," Antal said of CC&V. "I couldn't be more pleased with the team down there."

The Seabee underground operations produced 10,988 ounces of gold in the second quarter, down from 16,709 ounces in the 2024 quarter, because of power interruptions caused by forest fires to the north of the mine. Power was restored on June 13, and there was no damage at the mine site.

"This was a particularly damaging fire season in the region," MacNevin said.

He said SSR Mining's thoughts go out to all those affected by wildfires in Saskatchewan and Manitoba, and reported the company donated money to the Canadian Red Cross that was matched by the Canadian government.

Due to suspension of operations in the second quarter and prioritization of underground mine development over the remainder of the year, SSR Mining now expects Seabee production to be at the low end of the guidance of 70,000 to 80,000 ounces for the year, according to the earnings report.

MacNevin said the Puna Mine in Argentina had excellent results for the second quarter, and SSR Mining is "keen to see its production and growth for years to come," as the company reported Puna produced 2.85 million ounces of silver in the second quarter, compared with 2.73 million ounces in the 2024 quarter.

SSR Mining stated that the company continues to advance laybacks at the Chinchillas Pit at Puna, process stockpiles and advance exploration and engineering work at Cortaderas.

Based on work completed at Chinchillas, the company expects silver production at the mine next year to be between 7 million and 8 million ounces. Production in 2027 and 2028 is forecast at 4 million silver ounces, however, but SSR Mining said it will continue to look at opportunities to extend the mine life.

MacNevin additionally said SSR Mining continues to advance toward an investment decision for the Hod Maden gold project in Turkey. **M**








ORLA MINING

Orla Mining is developing the South Railroad project, located 16 miles south of Carlin. Orla is committed to Nevada and Elko County and looks forward to building Nevada's next operating gold mine, creating new jobs and benefits for Elko and its surrounding communities.

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IN & AROUND ELKO 94-95

AAMCOR COMPANIES 39

AMES CONSTRUCTION 28

ARNOLD MACHINERY 36-37

AUSTIN ENGINEERING 30

BOART LONGYEAR DRILLING SERVICES 19, 67

BOSS TANKS 64

BRIAN ERBIS, CONSULTING LLC 69

BROADBENT & ASSOCIATES 71

BRUNNER & LAY 27

CAPSTONE COPPER 19, 39

CARLIN TREND 35

CEMENTATION USA 55

CH SPENCER & COMPANY 26

COASTLINE EQUIPMENT 47

COMANCO 40

DUKES DIESEL REPAIR 64

AMPLIFIED DIGITAL 50-51

ELKO TOOL AND FASTENER 67

ELKO WIRE ROPE & MINING SUPPLY 99

EMPIRE SOUTHWEST 2

FLOW CONTROL EQUIPMENT 53

FLSMIDTH INC 91

FORD STEEL 78

GRANITE CONSTRUCTION 20

GRAYMONT WESTERN US INC. 10

GREAT BASIN INDUSTRIAL 59

HARDROK EQUIPMENT 34

HEAVY METAL EQUIPMENT 3

HIGH MARK CONSTRUCTION 16

HOME 2 SUITES 11

I & E ELECTRIC INC. 84

INDUSTRIAL SUPPLY 75

JENNMAR CORP. 15, 89

JH FLETCHER & CO 77

JOSEPH T. RYERSON & SONS, INC 25

KENWORTH SALES ELKO 83

KINROSS 40

LEDCOR CMI INC 14, 82

MIDTOWN MOTEL 61

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MY RIDE TO WORK 100

N. A. DEGERSTROM 65

NEVADA COPPER, INC 68

NEVADA GOLD MINE 43

NEVADA MINING ASSOCIATIONS 87

NEWFIELDS 9

OPEN LOOP ENERGY INC 21

OPERATING ENGINEERS, LOCAL 3 18

ORLA MINING 93

PILOT THOMAS LOGISTICS 20

PORT OF SUBS 95

P&C RECRUITING AND HR 71

PREMIER DRILLING 42

PNCC 22

RECRUITMENT SECTION 13-20

REDPATH CORPORATION 23

RED WING SHOES 79

RENO FORKLIFT 56

RURAL NEVADA DEVELOPMENT CORP ... 31,33

S&G ELECTRIC MOTOR REPAIR 56

SACRISON ENGINEERING 35

SANDVIK MINING AND ROCK SOLUTIONS . 15, 41

SEEPEX 8

SCHURCO SLURRY 70

SMALL MINE DEVELOPMENT 14, 85

SNYDER MECHANICAL 49

SRK CONSULTING 80

STANTEC CONSULTING SERVICES 29

STEAM STORE EQUIPMENT & SUPPLY 74

STRUCTURAL STEEL & PLATE FABRICATION .. 12

SURGE BATTERY METALS 74

THUNDERBIRD MOTEL 73

TIC - THE INDUSTRIAL COMPANY 7

TONATEC EXPLORATION 38

VT CONSTRUCTION 60

WOOD RODGERS 57

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