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June 2023 Volume 51, Number 6



ALASKA MINERS ASSOCIATION

THE ALASKA MINER

Journal of the Alaska Miners Association

Celebrate A Summer Of Mining in Alaska!



Complete list of summer mining festivals and events inside

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Dear AMA Members and Friends,

Welcome to summer!

Or what it looks like is going to pass for a wet, cool impersonation of summer for 2023.

The good news is we're back in the field and even with 22 hours of daylight, it's going to be hard to squeeze in work and play and filling the freezers!

Elsewhere in this Journal you'll see a list of the many events and fairs we'll be participating in on behalf of AMA.

We don't talk often enough about the importance of meeting in person with regular Alaskans at all these fun events.

True, nobody comes to a state fair just to learn more about mining. Personally, I think it's all about the fair food! But when we've got tens of thousands of regular hardworking Alaska families together, it's a perfect time to tell our story and gently remind them of the huge economic benefits that mining delivers in Alaska, at truly little cost to the state. Compared to other industries, which generate little revenue at an excessive cost for the state.

These Alaska families appreciate that mining contributes not just jobs but lessens the taxes and fees they have to pay for everything else.

Here are some key factors about Alaska mining that we can proudly share. In 2022, Alaska's \$4.5 billion mining industry provided:

- 11,400 total direct and indirect jobs attributed to Alaska mining industry.



- Charitable contributions to more than 280 Alaska non-profits.
 - \$4.5 million in contributions.
 - \$800,000 to civic, business, and industry organizations in Alaska through sponsorship and membership fees.
 - Over \$2.7 million contributed to the University of Alaska and vocational schools to support education in Alaska.
 - 73 percent of workers at the six large mines are Alaska residents.
 - Mining employees live in about 90 communities throughout Alaska.
- And the potential to grow those employment numbers with exploration and new mines being considered is incredible:
- The Graphite Creek project, north of Nome, is expected to create 370 production jobs.
 - Livengood, just north of Fairbanks, will also create about 330 mining jobs.
 - Donlin Gold in Southwest Alaska is expected to require about 1,000

workers during its operations.

- Pebble in Southwest Alaska would require an operations labor force of about 850.

- Arctic, in Northwest Alaska, is expected to employ about 450 people during its operations.

For our newest excellent and compelling report on Economics Benefits of Mining in Alaska, look online at www.alaskaminers.org/economic-benefits.

So, join us this summer at any (or all) of these great events:

- **July 27-30:** Southeast Alaska State Fair in Haines

- **July 28:** Mining Day at Tanana Valley Fair

- **Aug. 19:** Mining Day at Alaska State Fair

Speaking of social media, never underestimate the power of a positive story shared online. So, as you are working and playing this summer in the field, please snap some photos and share them, along with the details, with us at AMA.

Thanks to all our member companies and mines, who do a fantastic job sharing your own stories already. Please keep sharing! And we especially love to show Alaska miners enjoying wild adventures outside—send us your favorite fishing, flying, hiking, adventure photos from this summer!

A handwritten signature in blue ink, appearing to read 'D Skibinski'.

**Deantha Skibinski,
Executive Director**

The Alaska Miner is the official journal of the Alaska Miners Association, published eight times a year exclusively to our members.

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We actively seek contributions from our members and the mining industry. Please email story ideas and photos to Lee Leschper.

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Research Reveals Geologic History of Critical Alaska Graphite Deposit



Photos Courtesy University of Alaska Fairbanks

By Rod Boyce

A University of Alaska Fairbanks researcher is among the scientists who have revealed the metamorphic history of a high-grade graphite deposit on the Seward Peninsula. The Graphite Creek deposit is among the largest known of its kind in the United States.

Graphite is used in lithium-ion batteries, which power modern portable electronics, electric vehicles and renewable energy storage systems.

“This gives us a better understanding of how the rock evolved and how the processes affected the rocks’ texture and mineralogy over time,” said petrologist Sean Regan, an assistant professor of geology at the UAF Geophysical Institute and at the UAF College of Natural Science and Mathematics.

“Knowing that can help with exploration,” he said.

The United States extracts no graphite of its own. The nation imports one-third of its graphite from China, with Canada and Mexico among other suppliers.

The federal government has listed graphite as a critical mineral.

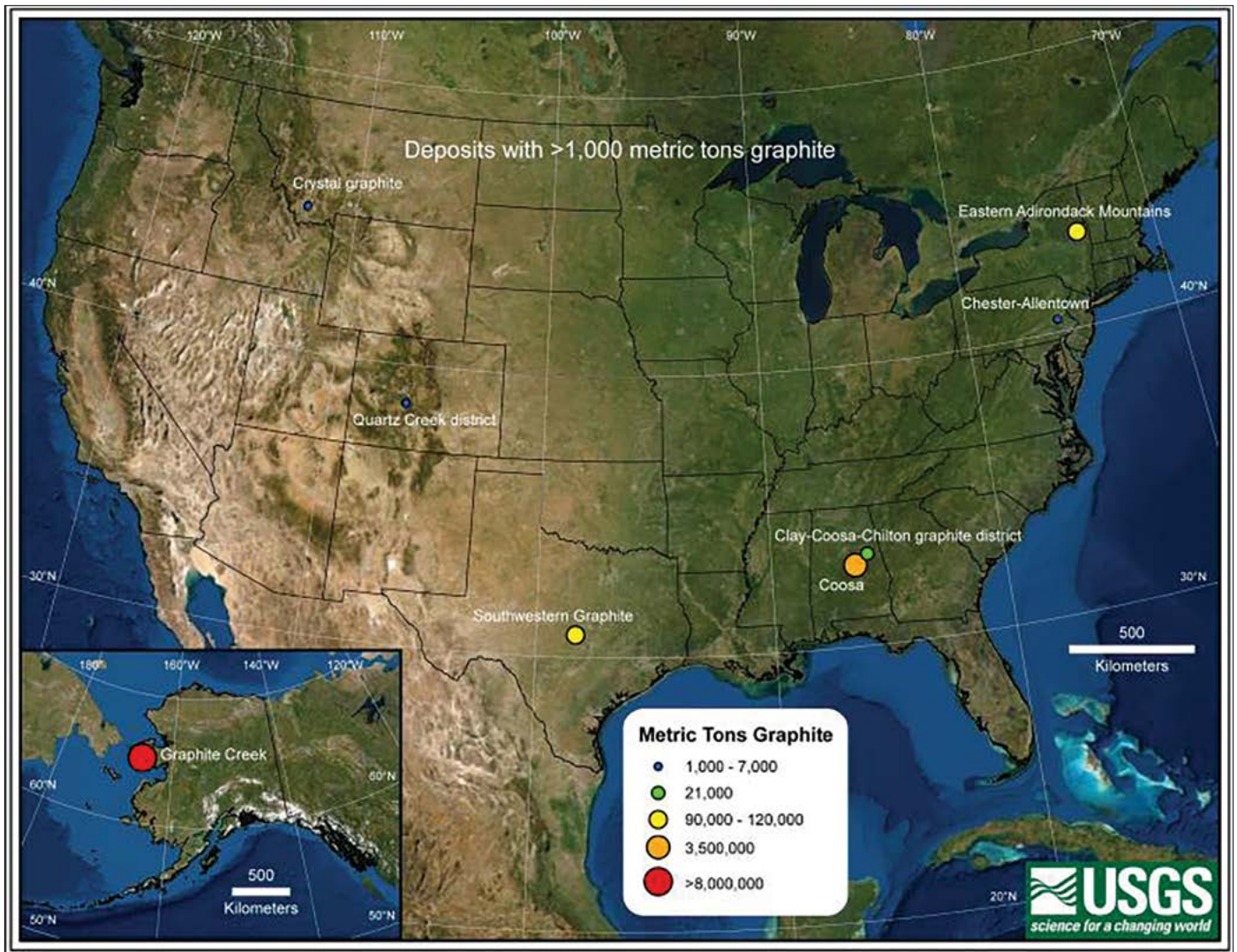
The researchers’ findings can guide development of Graphite Creek by Graphite One, the company behind the mining project. The Federal Permitting Improvement Steering Council in January 2021 designated Graphite Creek as a high-priority infrastructure project.

A research paper published Feb. 27 in the journal *Mineralium Deposita* defines the age and characteristics of the deposit and provides information geologists can use to understand other potential graphite sites.

George Case of the U.S. Geological Survey in Anchorage is the paper’s lead author. Regan is among the eight co-authors.

Geologists have had little understanding of the processes that lead to creation of high-grade flake graphite. That lack of understanding has been a barrier to evaluating such deposits for exploration and development.

“To really understand the system, you need to



understand everything that's going on. You need to incorporate tectonics, timing, petrology and structural geology," Regan said. "All of those things need to make sense together because it's a system."

The Graphite Creek deposit is 37 miles north of Nome in the Kigluaik Mountains and is approximately 3 miles long and one-tenth of a mile wide. The Kigluaik Mountains formed in the Late Cretaceous Period, 100 million to 66 million years ago. They include the Kigluaik gneiss dome.

To reach their current graphite-rich state, the deposit's rocks partially melted between 92 million and 97 million years ago in a process called biotite dehydration melting. The process removes up to 30 percent of a rock's material as liquid, leaving a graphite-heavy solid along with other solids formed during the partial melt reaction. The liquid flows away.

Through analysis of core samples provided by Graphite One, the researchers established the first criteria for determining the likely presence of concentrated flake graphite. These criteria can now be used to evaluate other regions suspected of holding graphite:

- The presence of original carbon-rich sedimentary rock deposited in water that didn't contain dissolved oxygen.

- Evidence of high-temperature metamorphism such as the presence of potassium feldspar and sillimanite.
- Evidence of partial melting such as through the presence of migmatites, which are rocks containing metamorphic rock and igneous or igneous-appearing rock.

"The key here is this anatexis, or partial melting, which has removed silicate material and thereby concentrated the graphite," said Case, the research paper's lead author.

The Graphite Creek deposit, and the Seward Peninsula, are within the Arctic Alaska-Chukotka microplate. That region also includes Alaska's Brooks Range and Russia's Chukotka, where the presence of similar geologic characteristics could indicate additional flake graphite deposits.

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Department of Interior Again Delays Decision on Ambler Road Project

The U.S. Department of Interior has once again delayed the release of the record of decision for the Ambler road project, which will give access to untouched deposits of copper, zinc, lead, silver and gold in north-western Alaska.

The resolution on Trilogy Metals' (TSX: TMQ; NYSE: TMQ) and South32's (LSE: S32; ASX: S32; JSE: S32) proposed 340-km road from the Upper Kobuk Mineral Projects (UKMP) to the Dalton Highway is now expected on the second quarter of 2024.

The DOI was promising a decision by the end of the year.

The need for an industrial access road has been recognized by U.S. lawmakers for decades, but it wasn't until 2020 that the Bureau of Land Management (BLM) the Army Corps of Engineers, and the National Park Service issued a joint decision providing the federal authorizations needed to build it.

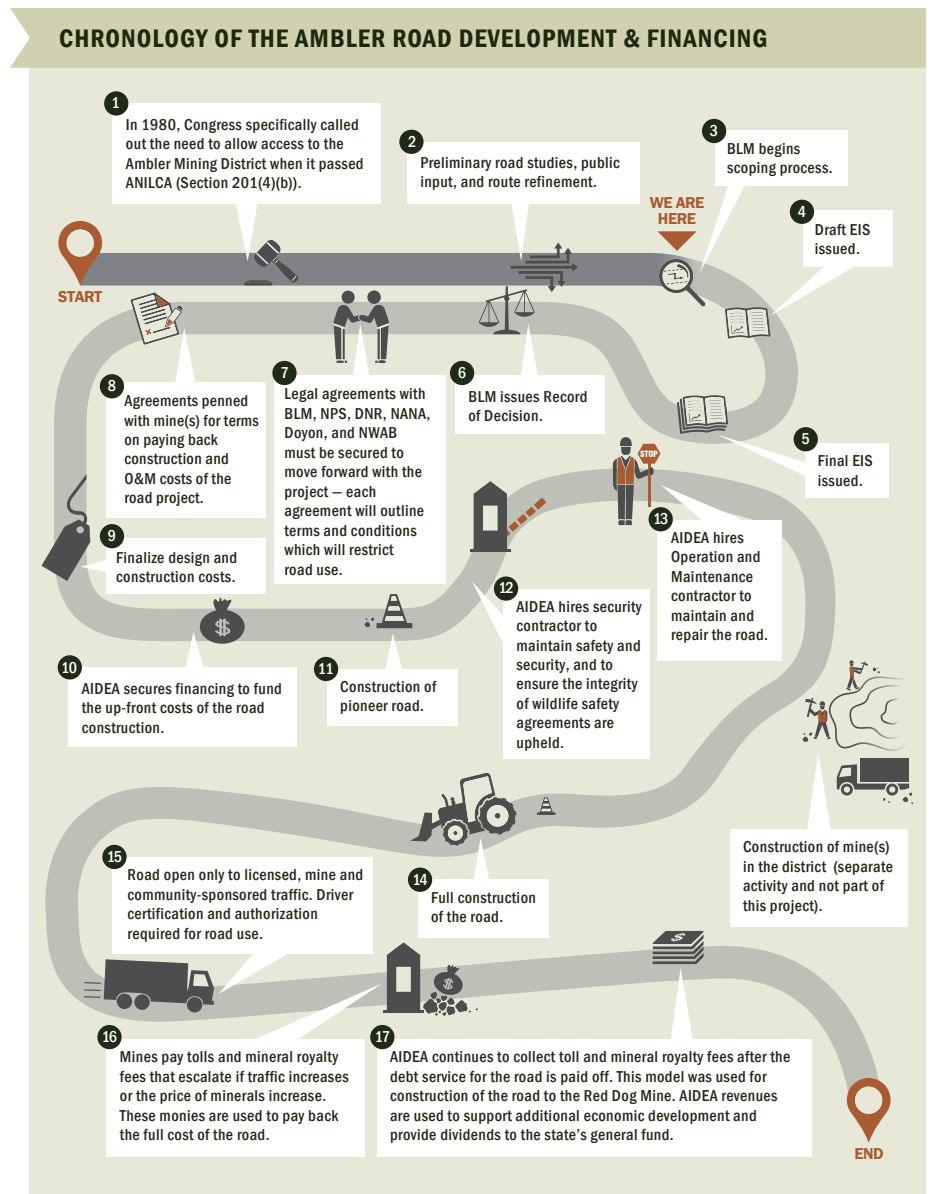
Last year, however, BLM suspended the permits issued under the Trump administration, citing a lack of adequate consultation with Alaska tribes and evaluation of the road potential impacts on fish and caribou habitats.

The Biden administration suspended at the time the issuing of permits for all projects that cross federal lands. The Ambler access road would cut through gates of the Arctic National Park and Preserve, crossing 11 major rivers and thousands of streams.

Ambler Metals, formed in 2019 by Trilogy Metals and South32, said the fresh "unnecessary" delay threatened a project that will provide much-needed jobs and economic growth for Alaskans.

"We are obviously disappointed to hear the latest status update from the DOI," president and CEO Ramzi Fawaz said in the statement.

"It has been a year since the court granted DOI's request for a voluntary



remand of the permit, providing ample time for the department to conduct the needed supplemental work on the EIS", Fawaz added.

The UKMP projects, consisting of Arctic and earlier-stage Bornite copper assets, have a combined resource of 8 billion lb. of copper, 3 billion lb. of zinc and 1 million oz. of gold equivalent.

The proposed mine is expected to produce more than 159 million lb. of copper, 199 million lb. of zinc, 33 million lb. of lead, 30,600 oz. of gold and 3.3 million oz. of silver annually over a 12-year mine life.

Based on studies conducted by

the world's largest copper miner, Chile's Codelco, the world's energy transition to stop climate change will take demand for the metal from 25 million tonnes per year now to just over 31 million tonnes in 2032.

This means the world would need to build eight projects the size of BHP's Escondida in Chile, the world's largest copper mine, over the next eight years.

In terms of investment, experts estimate the industry needs more than US\$100 billion to build mines able to close what could be an annual supply deficit of 4.7 million tonnes expected by 2030.

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Summer is fair season in Alaska! We love to meet, show, share and celebrate life in Alaska.

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Join us to help tell our Alaska mining story to our fellow Alaskans. It's fun, and it really helps you appreciate the Alaskans we work for every day.

To volunteer, email Jennifer Luiten, jennifer@alaskaminers.org.

Here's a list of fairs that will have an AMA/mining industry presence in 2023:

- **July 27-30:** Southeast Alaska State Fair in Haines
- **July 28:** Mining Day at Tanana Valley Fair
- **Aug. 19:** Mining Day at Alaska State Fair

And speaking of big events, plan now for our 2023 AMA Annual Convention, Nov. 6-9 in Anchorage.

Watch for registration information and sponsorship details at AlaskaMiners.org.



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Alaska Resource Development Council Announces New Leadership



The Alaska Resource Development Council works closely with AMA in supporting Alaska mining and Alaska miners are well represented among the new RDC leadership announced in June. New RDC Officers (from left to right): Mike Satre, Treasurer (Hecla Greens Creek); Scott Habberstad, Senior Vice President; Lance Miller, President (NANA); Anna Atchison, Vice President (Kinross Alaska); Joe Balash, Secretary; Lori Nelson, Immediate Past President.



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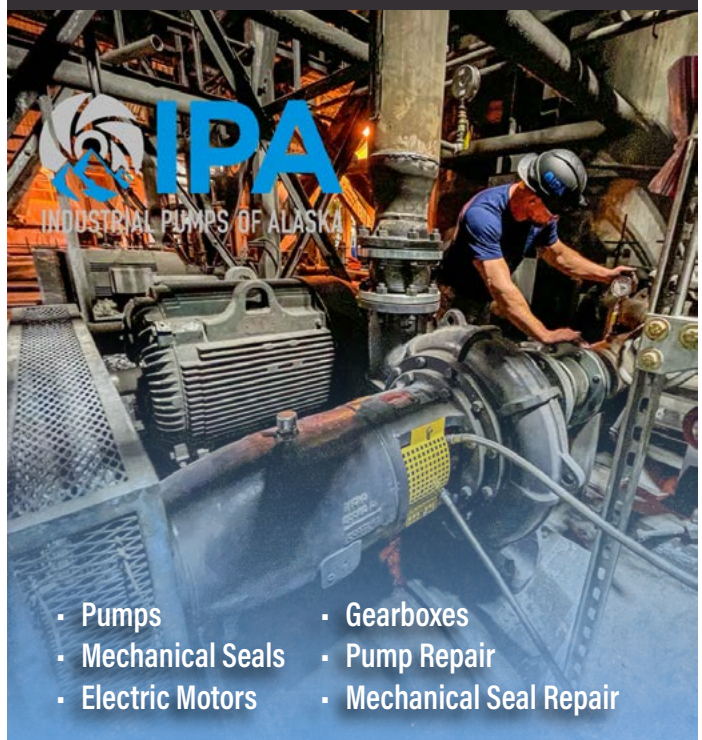


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Doyon Names Dr. Molly Redilla Vice President of Lands

Doyon has announced that Dr. Molly Redilla is Doyon's new Vice President of Lands.

"Dr. Molly Redilla has been working in this field for 12 years and has devoted much of her time and career thus far to understanding the land we live on and determining ways we can help manage it," the release stated.

"We are excited to promote Molly into this role," said Aaron Schutt, Doyon President and Chief Executive Officer. "As Doyon is the largest private landowner in Alaska and the largest indigenous landowner in the nation. This role is critical to Doyon's mission of strengthening our way of life and protecting and enhancing our land and resources."



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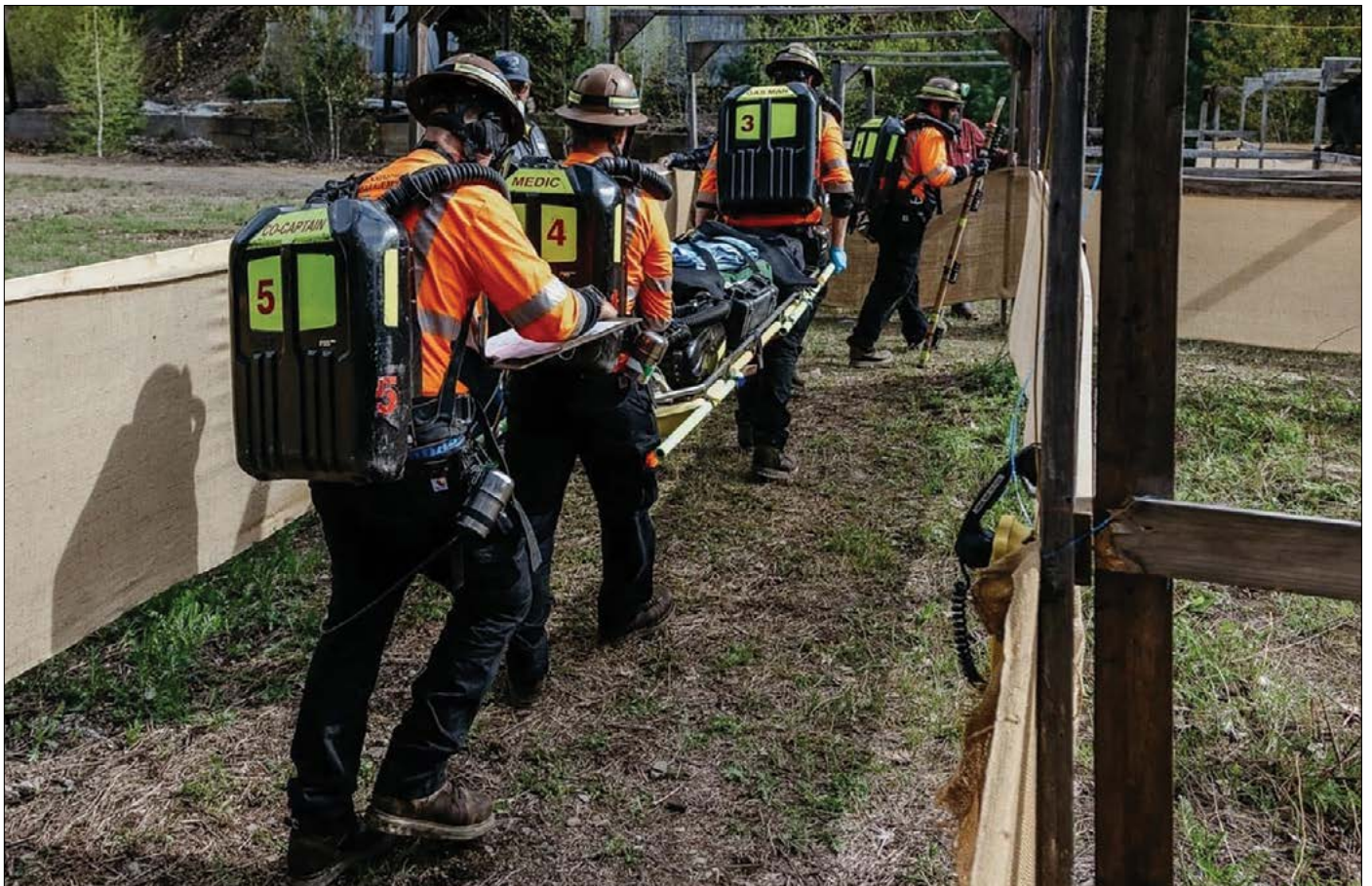
Coeur Alaska Kensington Mine Earns Honors in Rescue Competition



Photos Courtesy Coeur Alaska Kensington Mine

The Mine Rescue Team from Coeur Alaska's Kensington Mine recently won honors in several divisions of the Central Mine Rescue Annual Competition in Idaho. The Kensington team won second place overall, as well as first place in the Medical Division; second in Field; and third in Ropes. Great job and teamwork and always Safety First!





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American Pacific Mining Corp. Announces Palmer Project Program

By North of 60 Mining News

American Pacific Mining Corp. in June announced the start of a 9,000-meter resource upgrade and expansion drill program at Palmer, a high-grade volcanogenic massive sulfide project in Southeast Alaska enriched with zinc, copper, silver and gold.

American Pacific gained a roughly 45% interest in this advanced-stage polymetallic mine project through the acquisition of Constantine Metal Resources Ltd. in October of last year. Dowa Metals & Mining Company Ltd. owns the remaining 55% of Constantine Mining LLC, the joint venture advancing exploration, permitting, development, and production at Palmer.

A preliminary economic assessment that was updated prior to American Pacific's acquisition outlines plans for an underground mine and a 3,500-metric-ton-per-day mill at Palmer that would produce 1.07 billion pounds of zinc, 196 million lb of copper, 18 million ounces of silver, and 91,000 oz of gold over an initial 11-year mine life.

According to a 2018 calculation, the Southwall and RW zones that make up the main deposit at Palmer host 4.68 million metric tons of indicated resource averaging 5.23% (539 million lb) zinc, 1.49% (154 million lb) copper, 30.8 grams per metric ton (4.6 million oz) silver, and 0.3 g/t (451,000 oz) gold; plus 5.34 million metric tons of inferred resource averaging 5.2% (612 million lb) zinc, 0.96% (113 million lb) copper, 29.2 g/t (5 million oz) silver, and 0.28 g/t (48,100 oz) gold.

This year's drilling is focused on upgrading inferred resources in the Palmer deposit to the higher confidence

measured and indicated categories.

"Our drill program this year has been designed with two primary goals: to delineate the high-grade portion of the deposit to further define the mineral resource estimation methodology as we look to convert mineral resources into mineral reserves in future feasibility studies; and to expand our mineral resource base with step-out and directional drilling in the Southwall Zone," said Peter Mercer, senior vice president of advanced projects at American Pacific Mining.

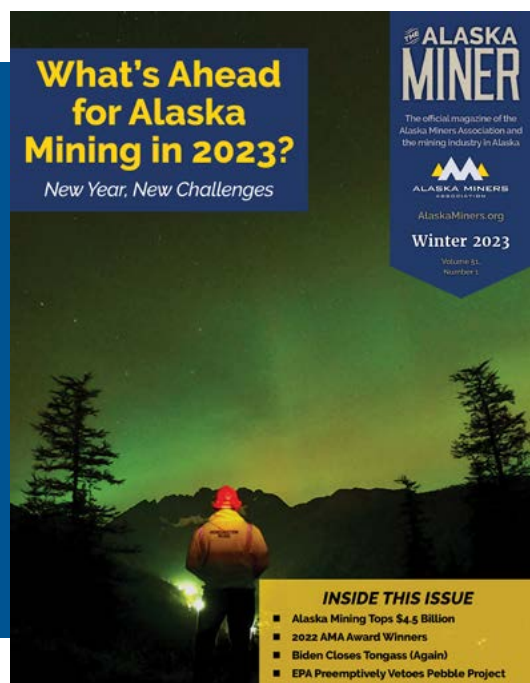
In addition to the resource drilling, the 2023 programs at Palmer are expected to include 2,500 meters of geotechnical drilling, camp construction, ongoing baseline environmental studies, and site engineering work.

"This year's programs will lay the foundation for the engineering and evaluation work ahead," said Mercer. "In addition, the knowledge gained from these programs will provide new insights into the potential for new high-grade discoveries throughout the mineralized district."

The \$25.5 million program budgeted for Palmer this year is being funded by Dowa Metals & Mining.

American Pacific has the option to pay a portion or all of its share of the expenses by the end of October to minimize or eliminate dilution of its interest in the Constantine Mining JV.

As operator of the Palmer project, American Pacific will receive 7% of program expenditures for managing the 2023 work program.



Looking for a past issue?

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Felix Gold Expanding Alaska Plans

By North of 60 Mining News

Since emerging on the Alaska mineral exploration scene in 2021, Felix Gold Ltd. has amassed more than 150 square miles of gold-enriched properties in the Fairbanks Mining District and is working toward establishing an inaugural resource at one of the most prospective gold targets discovered so far on this enormous land package.

As Felix carries out systematic drilling to outline an at-surface resource within the million-ounce-plus NW Array gold target on its Treasure Creek property about 12 miles west of Kinross Gold Corp.'s Fort Knox Mine, the Australia-based team behind the Alaska gold explorer is investigating the incredible and underexplored metals potential America's Last Frontier has to offer.

The brainchild of a group of renowned geologists and mine builders with more than 200 years of combined experience, Mine Discovery Fund was formed to identify Tier 1 mineral assets in favorable jurisdictions around the globe and spin these prospective projects into junior exploration companies purpose-built based on the jurisdiction and commodity being pursued.

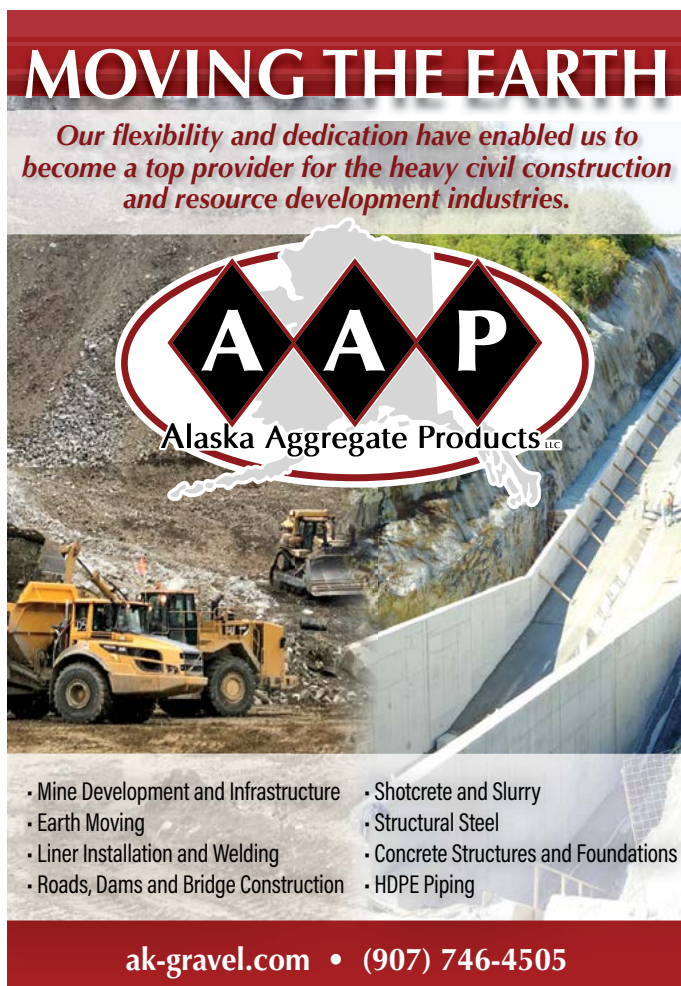
While the scope of MDF is global, the junior exploration company incubator keeps coming back to Alaska due to the largely untapped potential for precious, base, and critical metals found across the northern state.

"We love Alaska, we think it is an extraordinary minerals belt and we think it is totally underexplored," Mine Discovery Fund Managing Director Joe Webb said. "We think it has potential for all the critical minerals in the world — it hasn't been known as a big copper jurisdiction yet, we think it will be."

Seeing copper as the "main game in this world," MDF formed Wiseman Metals to explore for copper, rare earths, and associated metals on three land packages owned by Doyon Ltd., the Alaska Native corporation for Interior Alaska.


"At Wiseman East there is a potential to unlock a new copper porphyry district and the REE project is a carbonatite with evidence of niobium and heavy rare earths," Webb told Mining News.

Mine Discovery Fund's foray into Alaska began with Felix Gold, which is a tip of the hat to Felix Pedro, the Italian



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prospector who made the 1902 placer gold discovery that put Fairbanks on the map.

Today, Felix Gold is delineating a maiden resource for the NW Array target on the Treasure Creek gold-antimony project near the Pedro discovery about 20 miles north of Fairbanks, a mining city that is the Alaska equivalent of Kalgoorlie in the Goldfields–Esperance region of Western Australia.

There are two main differences between these two mining districts — the gold-rich area around Alaska’s Golden Heart City is far less explored than its Western Australia counterpart, and Kinross is actively seeking ore from nearby sources to feed through its mill at Fort Knox.

“It was a bit of a shock for us. If this was Kalgoorlie, next to a Tier 1 mine, the whole district would be plastered with drill holes,” Webb told Mining News.

Recognizing the underexplored gold potential around Fairbanks and the hungry Kinross Alaska mill, Felix Gold picked up a large land package that was assembled by Millrock Resources Inc., a longtime Alaska mineral project generator. Building off this already substantial land position, Felix amassed additional properties covering some of the most prospective lode sources for the nearly 10 million ounces of placer gold recovered so far from the streams in the Fairbanks District.

Less than three years later, the explorer is delineating a

near-surface gold deposit that could offer a source of ore for the Kinross Alaska mill or support a standalone mine at a highway-accessible project less than a 30-minute drive north of Fairbanks.

“Felix’s objective is the discovery of a multi-million-ounce gold resource in the infrastructure rich Fairbanks district and I am extremely pleased with the progress our team is making towards fulfilling this goal,” Felix Gold Managing Director and CEO Anthony Reilly said at the mid-June launch of an infill drill program at NW Array.

Felix Gold began its exploration of the Fairbanks District with a compilation of historical data followed by comprehensive mapping, sampling, and prospecting across its newly assembled properties during the summer of 2021. This work revealed NW Array at Treasure Creek as a promising target to begin building a multi-million-ounce gold resource.

Toward the objective of building a near-surface resource that could offer feedstock for the Kinross Alaska mill at Fort Knox or support a standalone operation at Treasure Creek, Felix is in the midst of a roughly 3,500-meter in-fill drill program that is slated to include 30 to 40 RC holes drilled to an average depth of around 100 meters.

This drilling will focus on the NW Array Southern Zone, a subset of the larger exploration target that hosts about one-quarter of the potential resource.



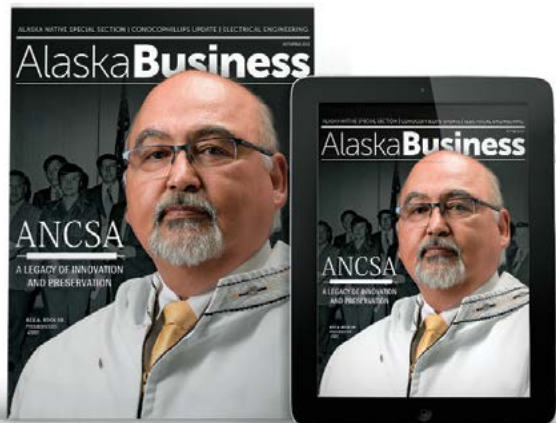
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By North of 60 Mining News

As it enters into an accelerated period of growth, Blackwolf Copper and Gold Ltd. has made an offer to buy out Northern British Columbia-focused gold and silver exploration company Optimum Ventures Ltd. and is shifting management positions to better facilitate the surplus of properties it has accumulated in recent years.

Initially exploring its flagship historic Niblack copper-gold-silver-zinc project located on the southern end of Prince of Wales Island in Southeast Alaska, Blackwolf expanded its holdings by staking and optioning several new properties near Hyder, Alaska, just across the border from Stewart, British Columbia.

During the past two years, Blackwolf has expanded its portfolio with five projects near Hyder, Alaska, on the Alaska-Canada border — Casey, Cantoo, Texas Creek, Mineral Hill and Rooster — that host several highly prospective gold-silver targets with very limited modern exploration and virtually none in the last 25 years.

Due to the predicted growth of the company,

Blackwolf felt it necessary to readjust its management positions to better suit the exploration and development of its swelling portfolio.

This bolstering of expertise includes bringing on Morgan Lekstrom to replace Rob McLeod as CEO of Blackwolf.

With 17 years of mining and industry experience in progressively senior roles of executive management, project management, operations, and engineering management, Lekstrom is well suited to fill the executive position at Blackwolf.

Most recently, Lekstrom served as CEO of Tearlach Resources Ltd., a lithium company he helped grow from grassroots to a multi-asset company. Prior to Tearlach, Lekstrom was President and CEO of Silver Hammer Mining Corp. and a co-founder of a publicly traded uranium company.

As executive chairman, McLeod will be responsible for guiding the board, directing exploration programs, co-developing the strategic direction, and working closely with the new CEO on transformational growth opportunities.



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Alaska Mining Calendar

- **July 13:** Alaska Resource Education golf tournament, Fairbanks
- **July 24-25:** ARE Fairbanks summer STEM camp, Pipeline Training Center
- **July 27-30:** Southeast Alaska State Fair, Haines
- **July 28:** Mining Day at Tanana Valley Fair
- **Aug. 19:** Mining Day at Alaska State Fair
- **Oct. 2-5:** Mine Closure Conference. ACG's Mine Closure 2023 Conference. Reno, Nevada, USA at the Nugget Resort Casino in collaboration with the University of Nevada Reno; www.acgmineclosure.com
- **Nov. 6-9:** AMA Annual Convention, Anchorage


AMA Branch Meetings

- AMA Statewide Branch meetings are not held during the summer season. They will resume in September and are scheduled bi-monthly. These meetings are hosted on Zoom and take place at 7 a.m. on Fridays.
- Visit www.alaskaminers.org/ama-member-branches for next dates in the fall.
- AMA Branch meetings are also on hold for the summer, but in-person meetings should resume in September.
- For your local branch schedule, please visit www.alaskaminers.org/ama-member-branches or contact Jennifer at jennifer@alaskaminers.org.

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