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NANA REGIONAL CORP.

Red Dog, which accounts for roughly 5 percent of the global zinc mine production, is located on lands owned by NANA Regional Corp., the regional Alaska Native corporation Northwest Arctic.

An Alaska Native claims primer for miners

The path to developing a mine in Alaska goes through its First People; understanding the ANCSA landscape is key

By SHANE LASLEY
Mining News

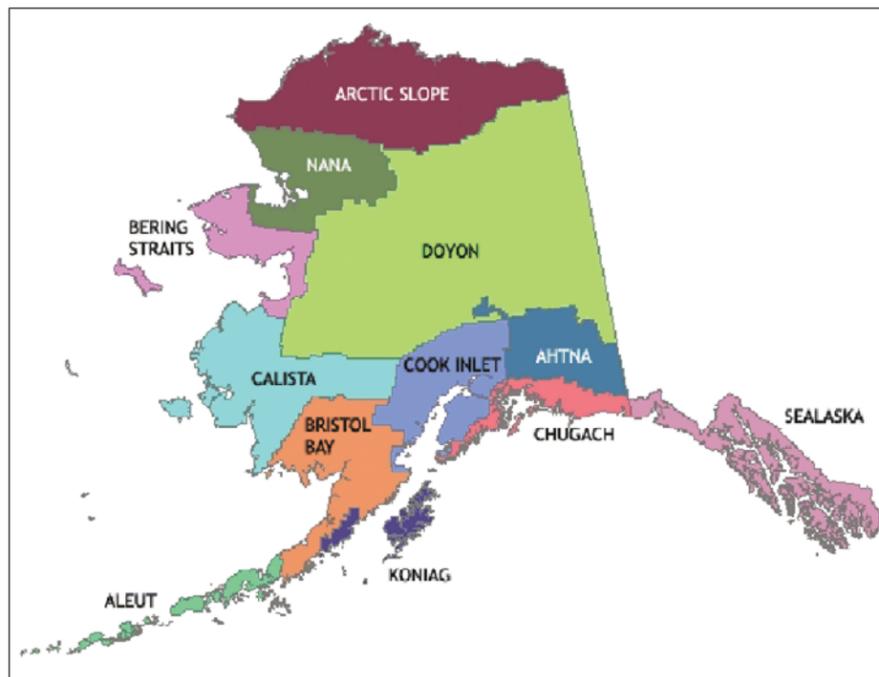
Alaska boasts what many consider the most successful Aboriginal land claims settlement on Earth – a solution that has not only turned out to be a cultural success, but a brilliant business move for the more than 140,000 Alaska Natives and an economic boon for the state that covers the resource-rich lands these industrious and innovative peoples have called home for millennia.

Signed into law by U.S. President Richard Nixon in 1971, the Alaska Native Claims Settlement Act, commonly referred to as ANCSA, involved a unique plan to organize Alaska Natives into 12 regional corporations, with each of these corporations having its own geographical regions based largely on heritage and shared interests.

A thirteenth regional corporation was established for those Alaska Natives residing outside the state.

More than 240 village corporations were also established under ANCSA. Some village corporations within regions have merged to form stronger business entities with shared interests and in at least one instance the village and regional corporations have merged to provide a consolidated body for doing business.

Eligible Alaska Natives had the opportunity to be issued shares in both a regional and village corporation at the time ANCSA was formed, shares that cannot be sold.



ANCSA involved a unique plan to create 12 Alaska Native regional corporations, with each having its own geographical area of the state based largely on heritage and shared interests.

While placing aboriginal peoples who put more value in a successful whale hunt in Utqiagvik (formerly Barrow) than being a wolf on Wall Street into a western corporate boardroom may not seem like a good fit, a look back from 47 years later proves otherwise.

Alaska Native regional and village corporations make up 17 of the top 20 Alaska-owned businesses listed on the Top 49ers, an annual list published each year by the Alaska Business magazine that ranks

Alaska-owned businesses by gross revenue.

The Alaska Native-owned business titans that now dominate the top of this list have achieved much of their corporate success off the natural resources found on the 44.7 million acres of lands they will own once all lands guaranteed under ANCSA are conveyed, an area about the size of Oklahoma.

While they have title to just over 10 percent of Alaska, their regions, or traditional

territories cover every square inch of the Far North State.

These corporations also own a wide range of businesses, both at home and globally, many of which provide the services vital to mineral exploration, mine development and mining in Alaska.

This makes ANCSA corporations important partners to mining companies seeking to explore and develop Alaska's vast mineral potential.

Prime mineral real estate

Aside from being a good neighbor to the peoples that have called Alaska home for some 15,000 years, one of the primary reasons mining companies want to build solid relationships with the ANCSA corporations is that these major landholders have some of the prime mineral real estate across the Last Frontier.

Red Dog, which accounts for roughly 5 percent of the global zinc mine production, for example, is located on lands owned by NANA Regional Corp., the regional Alaska Native corporation for Northwest Arctic.

Donlin Gold, a 39-million-ounce gold mine project situated on lands owned by Calista Corp. and The Kuskokwim Corp., is another example of the rich mineral tenures ANCSA corporations identified and selected for ownership.

The regional-village co-ownership at Donlin brings up an important point that any mining company planning to do busi-

see **ANCSA PRIMER** page 10



NEWS NUGGETS

Compiled by Shane Lasley



SHANE LASLEY

The tonnage of ore fed through the mill at Pogo increased 33 percent during the first three months since Northern Star Resources' acquisition of the high-grade gold mine in Interior Alaska.

Big investments push up Pogo gold costs

Northern Star Resources Ltd. Jan. 23 reported that it produced 59,219 ounces of gold at Pogo during the Australian company's first three months of ownership of the underground Alaska mine.

Since taking over the operations of Pogo at the end of September, Northern Star has focused on ramping up mill throughput.

The Perth-based mid-tier miner said it is already recording strong productivity gains at the mine, with a 22 percent increase in mined tonnages and a 33 percent rise in mill throughput. As a result, the cost per metric ton of ore has dropped 23 percent during Northern Star's first quarter at Pogo.

"Pogo is still very much a work in progress," said Northern Star Executive Chairman Bill Beament. "We didn't take management control until Sept. 28 and already we have generated enormous productivity gains."

The new Pogo owner said the productivity gains and lower costs bode well for an updated reserve estimate for the high-grade underground gold mine, which will be calculated in mid-2019.

While the cost per ton of ore has come down, the cost per ounce of gold sold is higher than the company originally calculated.

Northern Star sold 57,534 oz of gold produced at Pogo at all-in sustaining costs of US\$1,210/oz over the final three months of 2019.

Given these costs and the other timing considerations associated with the transition process, Northern Star has increased its cost guidance for Pogo from US\$880/oz to US\$950-1,025/oz for fiscal year 2019, which ends on June 30.

"The timing of this cross-over, combined with the increased upfront investment in development, drilling and mobile fleet, has led to the spike in costs," said Beament. "While much of this is of a temporary nature, we believe it is prudent to revise Pogo's costs guidance for this financial year."

Northern Star's gradual transition to a more bulk mining approach and the mine sequence at Pogo resulted in the average grade of ore fed to the mill during the quarter ending on Dec. 31 to average 8.2 grams per metric ton, a 27 percent drop from the 11.2 g/t during the previous three months.

However, Northern Star is still in the process of implementing its widespread operational changes at Pogo and while this new approach can be seen in the lower grade, further increases in tonnages and cost reductions are expected to continue through the second half of the company's fiscal year.

Northern Star said the drilling results and related mining opportunities that

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What if they closed the government?

Mr. Trump and Mrs. Pelosi have a difference of opinion which may alter the national conversation about the role of the states

By **J. P. TANGEN**
Special to Mining News

As you have heard by now, a large segment of the federal government has been furloughed over some sort of a squabble between the Leader of the Free World and the newly-elected Speaker of the House of Representatives. If one were to read the Amazon (aka Washington) Post, one would infer that the sky was falling on top of the rising seas, and that in about a thousand years it will make a big splash.

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On the other hand, since we always send our brightest and best to the District of Columbia, certainly the way will be found to reconcile the inscrutable differences between the left and the right, to unscramble the eggs of government and to bring everything back to equipoise, if not normalcy.

For miners on federal land in Alaska, there undoubtedly will be delays in getting routine paperwork processed. Those delays will result in difficult decisions having to be made – to operate this season without permission or to wait for the government to do its thing. Likewise, for State of Alaska claim-holders, if there are permits which require some level of federal consent, there will also be interruptions.

The crystal ball consensus is that the federal shut-down may last for months or even years. If that proves to be the case, most people won't have the patience, or the wherewithal, to hang on. Instead, it is quite likely that some folks will intentionally violate the law.

The test is whether the White House acknowledges that it is under siege. If that reality happens to sink in, perhaps POTUS will consider an Executive Order extending all permits that were active and in good standing when the various permitting agencies were shuttered to be automatically extended on the same terms and conditions for one year beyond when the various offices re-open.

Without intending to understate the seriousness of the shutdown – an immense number of people are dependent on the government for salaries and contracts, not to mention direct support for medical services, food and shelter – it is reasonably clear that like a leaky bucket, when the government is out to lunch it cannot be effective for very long. Numerous security matters must be attended to. The Coast Guard cannot operate long without funds; the secret service, airport security and the border patrol are all working without pay. The federal courts are not even considering civil matters to which the United States is a party. The National Park service isn't even getting its trash collected.

It is said that in every crisis, there is an opportunity, and I do not think that this crisis is an exception, at least for Alaska. Perhaps we have a real opportunity to build on this interregnum in a

Mining & the law

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"Now would be an ideal time for our State leaders to identify the functions that Alaska could do as well as, if not better than, the federal government and start the process of inserting ourselves into that picture."

~J. P. Tangen

beneficial way.

Many Alaskans have long groaned under the burden of federal oversight, especially in the world of resource development. Now would be an ideal time for our State leaders to identify the functions that Alaska could do as well as, if not better than, the federal government and start the process of inserting ourselves into that picture.

I think first of land management. Of the two hundred million acres of land in the State of Alaska now under federal oversight, wouldn't it make much more sense to simply demand jurisdiction over the public domain, the forests, the parks and the refuges, make the federal land managers state employees, and put them back to work at their existing desks implementing policies developed in Juneau?

Financial considerations to the contrary notwithstanding, Alaska is a resource province and the unfettered ability to develop our own resources on our own schedule would represent a huge financial opportunity. Our governor has declared the State to be open for business and the bickering in the nation's capital posits the opportunity to convert opportunity into reality.

Presumably most federal employees would prefer to work for the State if the alternative is not working at all. Surely, we have the resources to look after the large preponderance, if not all, of those who now depend on the federal government for direct services.

My guess is that there are proponents of shaking off the federal mantle across the West, if not throughout the entire nation. Alaska has the greatest land mass at stake; but many of our state's problems are shared at some level by our sister states. Revolution does not have to be confrontational. All it takes is two strong-willed leaders with opposing points of view to make a national revolution into a broadly beneficial evolution and a State that is willing to pick up the big pieces. ●

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Keeping the main thing, the main thing

Rising costs debuts at No. 5 on EY Global Mining's risk radar; isn't how risks affect costs the main thing?

By **CURT FREEMAN**
Special to Mining News

I for one, feel vindicated, relieved and ready to face the New Year! How so, you ask? Please let me explain.

For those of you who remember my column in November, I noted that EY Global Mining and Metals publishes an annual "risk radar" for mining and metals, outlining what mining companies perceive as the top ten risks facing them in the near future. This publication was for the years 2017-2018 and stated that "Our number one risk this year is digital effectiveness." If you recall the above, you will also recall my asking what in tarnation is "digital effectiveness"? And that brings me to vindication, relief and readiness to push on into 2019.

EY Global Mining and Metals' most recent edition of the risk radar, for 2019-2020, is out and digital effectiveness has fallen to the No. 2 position behind this coming year's biggest perceived risk, "Social license to operate", itself, rocketing up to first place from seventh in the previous survey. I have no issues with social license to operate being number one for 2019-2020, after all, without it, all the other concerns are moot.

Rounding out the top 5 are maximizing portfolio returns at No. 3, cyber concerns at No. 4 and rising costs at No. 5. Risks 3 and 4 swapped places from last year's survey but concerns of rising costs is considered "new" to the top ten risks.

Wait, what?

Forgive me for being the capitalist that I am, but isn't every risk concern directly linked to its potential to increase or decrease costs? Depending on how an entity handles the risks it faces, its bottom line will be affected.

Earning and maintaining its social license to operate improves an entity's ability to stay in business. Becoming more digitally efficient, improving stakeholder returns, minimizing cyber disruptions, et cetera, all impact an entity's ability to control costs and, in the end, either stay in business or become a footnote in mining history.

EY Global Mining and Metals is wisely and politely telling us to manage the risks we face and keep our eye on the prize. As educator, author, and speaker Steven Covey liked to say: "The main thing is to keep the main thing the main thing."

Western Alaska

Partners **NOVAGOLD RESOURCES** and **BARRICK GOLD** have signed a wetlands mitigation agreement affecting their Donlin gold deposit. The project is on land owned by mineral estate owner **CALISTA CORP.** and surface estate owner **THE KUSKOKWIM CORPORATION.** The Donlin project is expecting to impact approximately 2,800 acres of wetlands. Such impacts must either be reclaimed or replaced, so the agreement was signed with the Alaska Mental Health Trust Authority to protect some of the Trust's wetlands in the Cook Inlet area. Under terms of the agreement, the Donlin project operators would purchase the conservation easement on a portion of the Chuitna River, covering approximately 2,000 acres, protecting that habitat and restricting its future use from development. Under the agreement, Donlin agreed to pay \$200,000 to the Trust, plus additional money each year

The author

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for 10 years. That buys Donlin an option, giving it time to decide whether or not to construct a mine. If mine development proceeds, Donlin will pay \$1.3 million to the Trust to protect those 2,000 acres for 99 years. Donlin also signed an agreement with the Tyonek Native Corp. for a conservation easement on 4,000 acres of land and it plans to sign another agreement with the Great Land Trust to purchase nine credits, the equivalent of nine acres, to protect 4.5 acres of wetlands in the Mat-Su Borough.

Interior Alaska

FREEGOLD VENTURES LTD. announced results from holes SC 18-01 and SC 18-02 drilled at their Shorty Creek copper-gold project during their 2018 program. A total of 1,166 meters were drilled in two holes within the magnetic high at Hill 1835. Both holes intersected consistent mineralization over broad widths. To date, 12 widely spaced holes with average hole depths of 500 meters have been drilled at the Hill 1835 target, all of which intersected significant and consistent copper, gold, silver and tungsten mineralization over broad widths from the base of oxide material (average 90 meters). Significant results from the 2018 drilling include 442.2 meters grading 0.24 percent copper, 0.09 grams per metric ton gold, 4.74 g/t silver and 0.02 percent tungsten trioxide in hole SC18-01, including 121.15 meters grading 0.45 percent copper, 0.15 g/t gold, 10.5 g/t silver and 0.045 percent tungsten trioxide. Hole SC18-02 intersected 442.4 meters grading 0.22 percent copper, 0.13 g/t gold, 4.03 g/t silver and 0.02 percent tungsten trioxide including 126 meters grading 0.36 percent copper, 0.09 g/t gold, 6.3 g/t silver and 0.018 percent tungsten trioxide. Drilling has expanded the mineralized zone to an area of more than 750 by 300 meters. The target remains open both laterally and to depth

Alaska Range

WHITE ROCK MINERALS LTD. announced that Australia-based Sandfire Resources NL has exercised its option to enter into a joint venture agreement with White Rock on its 117,000-acre Red Mountain volcanogenic massive sulfide project in the eastern Bonifield District. Under terms of the agreement, Sandfire must fund a total of AU\$20 million over four years to earn 51 percent, with a minimum expenditure by Sandfire of AU\$6 million in year one. Sandfire must then fund a further AU\$10 million and deliver a pre-feasibility study over an additional two years to earn 70 percent, which may be extended by Sandfire for a further year in certain circumstances. White Rock may elect to contribute to

COMMENT

the joint venture. At that point, if White Rock elects not to contribute, Sandfire can sole fund activities to earn 80 percent by completion of a definitive feasibility study. After completion of the feasibility study, White Rock may elect to contribute to the joint venture. If White Rock elects not to contribute, Sandfire will earn 90 percent and White Rock's 10 percent interest will be earned from project cash flow. White Rock is entitled to continue managing the project for at least the first year of the earn-in and to be paid a management fee equal to 10 percent above all project expenses, with 50 percent of the fee to be paid on signing of the Joint Venture and the balance to be paid in 3 equal installments on a quarterly basis thereafter. Ongoing management responsibility of the project will be subject to annual review and after the first year will be at Sandfire's election. Although Sandfire funded some of the past work on the project, it's conversion to an active explorer earns it "Alaska newcomer" status. So, welcome to **ALASKA SANDFIRE RESOURCES NL!**

POLARX LTD. announced plans for 2019 exploration at its Alaska Range project. Following release of the final analytical data from its 2018 exploration programs and prior to the 2019 field season, the company plans to conduct interpretation and 3D modelling of its magnetic data, commence preliminary metallurgical test-work results for Zackly skarn, and finalize plans for its 2019

drilling, geophysical and geochemical sampling programs. Once field operations begin, work will include induced polarization geophysical surveys at Zackly SE porphyry target; 3,000 meters of core drilling to expand Zackly resource, focused on thick, high-grade gold-copper zones at eastern end of the skarn prospect; and an additional 3,000 meters of core drilling to test Mars and Zackly SE porphyry targets. By October the company is hoping to commence a preliminary economic assessment or a preliminary feasibility study.

Southeast Alaska

HECLA MINING COMPANY announced final 2018 production results at its Greens Creek mine. For 2018, the mine produced 7,953,003 ounces of silver and 51,493 oz of gold, representing a 5 percent decrease and 1 percent increase, respectively, over 2017 production figures. For the fourth quarter of 2018, production was 2,163,563 oz of silver and 13,097 oz of gold, representing a 1 percent increase and 13 percent increase, respectively, over 2017 production figures. Lower annual silver production, when compared to 2017, was due to the expected lower grades. The mill operated at an average of 2,316 tons per day in 2018, a record for the mine.

COEUR MINING INC. announced year-end 2018 production and exploration results from its Kensington mine. The mine produced 113,778 ounces gold during the year, a slight year-over-year

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Explorers aim to resume gold hunt in 2019

Interest in early stage exploration prospects surges in Kivalliq region where two new gold projects plan production starts by fall

By ROSE RAGSDALE
For Mining News

With the startup of two new gold mining operations scheduled for the first half of this year and recent regulatory approvals for development of at least three other gold deposits in the territory, there's little question that Nunavut is coming into its own as a gold mining center in Canada. Nearly one and one-half times the size of Alaska, the northern jurisdiction has seen little gold production since it was separated from Northwestern Territories 20 years ago.

NUNAVUT

But as production at Meadowbank, Nunavut's first gold mine developed in the 21st Century, winds down after nine years in operation, the territory is quietly witnessing an upsurge in exploration with more than a half-dozen early-stage gold projects making strides toward delivering more gold output in the future.

Most of the gold properties that explorers have targeted recently in Nunavut are located in the central Kivalliq region, relatively near Agnico Eagle Mines Ltd.'s Meadowbank Mine, and Meliadine and Amaruq projects, which are both set to go into production in the second and third quarters of 2019, respectively.

Some of the new explorers opted to focus on projects in other jurisdictions last year, but at least two companies mounted successful exploration programs that advanced their understanding and piqued their interest in returning to Nunavut in 2019. Based on work completed in 2017, the others have indicated recently a desire to resume the hunt for gold in Nunavut during the coming field season.

Agnico Eagle leads the way

Though Agnico Eagle expects to cease gold production from Meadowbank in the third quarter of 2019, the company is busier than ever in Nunavut, gearing up to begin production at two gold projects, Meliadine and Amaruq.

Construction is nearing completion at the high-grade Meliadine property, which hosts the miner's largest mineral deposit with 3.7 million ounces of gold in proven and probable reserves (16.1 million metric tons at 7.12 grams per metric ton) and a sizable mineral resource as of Dec. 31, 2017, while underground development is proceeding as planned.

The company's other Nunavut project, Amaruq, is being developed as a satellite deposit of Meadowbank Mine. Agnico Eagle is advancing toward mining first ore at Amaruq early in the second quarter of 2019 and producing first gold from the Whale Tail deposit in the Meadowbank process plant in the third quarter.

Auryn leads the pack

Explorers actively seeking gold in the highly prospective terrain of the Kivalliq region not far from Meliadine and Amaruq include Auryn Resources Inc., Solstice Gold Corp., Nord Gold, Cache Exploration Inc. and NxGold Ltd.

At its 380,000-hectare (939,000 acres) Committee Bay gold project, Auryn Resources identified a second highly prospective area of gold mineralization in 2018. Situated along the Committee Bay Greenstone Belt, about 180 kilometers (110 miles) northeast of Meadowbank, the project hosts the Three Bluffs gold deposit with an indicated resource of 524,000 oz grading 7.85 g/t gold and an inferred resource of 720,000 ounces grading 7.64 g/t gold. In 2018 exploration, Auryn discovered three separate gold-bearing systems at Committee Bay in the Aiviq, Kalulik and Shamrock targets that have generated a new round of anticipation among observers.

Russell Starr, Auryn's senior vice president corporate finance, said, "We think we have what the big boys (majors) are looking for at Committee Bay."

Observing that major mining companies tend to sit up and take notice when juniors identify 3 million to 5 million oz gold in a project, Starr recently said, "We've already identified a 1.3 million oz asset at 8 g/t (gold) at Three Bluffs. Now our job is to find another one of these, and we think we have that in Aiviq," he added.

Auryn is currently finalizing 2019 exploration plans for Committee Bay, but the explorer has said the scope of the work this season is contingent on 2018 exploration



The discovery hole at the Aiviq target on the Committee Bay property cut 12.2 meters averaging 4.7 grams per metric ton gold, including 3.05 meters of 18.09 g/t gold.

"We think we have what the big boys (majors) are looking for at Committee Bay ... 'We've already identified a 1.3 million oz asset at 8 g/t (gold) at Three Bluffs. Now our job is to find another one of these, and we think we have that in Aiviq.'"

~Russell Starr, senior vice president corporate finance, Auryn Resources Inc.

results at its Gibson MacQuoid gold project farther south in the Kivalliq region, Homestake Ridge project in British Columbia and the highly active Sombrero copper project in Peru.

More gold at Kahuna

Solstice Gold, a junior formed recently by diamond hunter Dunnedin Ventures, to explore the 920-square-kilometer (355 square miles) district-scale Kahuna project and an adjacent 805-square kilometer (311 square miles) parcel, reported results of its 2018 exploration program in November. Kahuna is located 26 kilometers (16.5 miles) from Rankin Inlet and about 7 kilometers (3.5 miles) from Meliadine, which surrounds the Kahuna property on the north, west and south.

Dunnedin found gold in 2015 adjacent to diamond-bearing kimberlites at its diamond project at Kahuna. So far, four gold belts, including the Kannaqa belt, have been discovered on the property.

Solstice said Nov. 27 that it identified three more areas of elevated gold mineralization in 2,050 till samples collected in a high-resolution till survey of the property last summer over the central part of the Westeros Fold, an 85-square-kilometer (33 square miles) area. The survey area lies southwest of the previously identified Qaiqtuq target area, which contains abundant elevated gold in boulders and, locally, gold in outcrop.

"On Nov. 13, we summarized positive results from our detailed boulder and outcrop sampling programs in the Qaiqtuq area, which represents an eight-kilometer-(five miles) long target now set up for drilling," said Solstice Executive Chairman David Adamson in a statement. "Our focused exploration strategy has confirmed new targets in prospective parts of the Westeros fold. It is worth bearing in mind that this fold has an impressive 40-kilometer (25 miles) unfolded strike length. Taken together with our recently announced regional sampling programs, we believe that we have demonstrated gold prospectivity over a large part of our extensive property position in what we consider to be the emerging Meliadine gold district."

Explorers plan 2019 work

Several gold explorers opted not to mount programs in 2018 at their early stage projects in the Kivalliq region.

One notable absentee, Nord Gold, indicated recently that it plans to return to the territory in 2019. The Moscow-based company boasts nine operating mines in four countries – Russia, Kazakhstan, Burkina Faso and Guinea – and a number of development and exploration projects, including the early stage Pistol Bay gold project in Nunavut.

The 860-square-kilometer (332 square miles) Pistol Bay property is located on the northwestern coast of Hudson Bay in the underexplored Rankin-Ennadai greenstone belt southwest of Meliadine and 10 kilometers (six miles) from the hamlet of Whale Cove.

In 2017 Nord Gold completed 4,205 meters of drilling, concentrating on new targets on its large license area, including Howitzer, which returned highly anomalous drilling intercepts. Best intersections include 156 meters averaging 8.2 g/t gold and 163 meters at 5.6 g/t gold. The explorer published a JORC-compliant resource estimate for Pistol Bay in December 2017 that tallied 742,000 oz of measured, indicated and inferred gold resources grading 2.94 g/t gold.

Another junior, Cache Exploration, is exploring the Kiyuk Lake gold project located in the Kivalliq region about 50 kilometers (31 miles) from Nunavut's southern border with Manitoba. Cache's most recent exploration campaign in 2017 at Kiyuk Lake yielded the discovery of the East Gold Point zone, confirmed that mineralization extends to 200 meters below surface at the Rusty zone and intersected a previously unknown high-grade phase of eight meters of 26.4 g/t gold. The best intercept at the East Gold Point zone cut 64 meters of 1.5 g/t gold.

For 2019, Cache said it expects to complete a survey on the property in the second quarter.

NxGold is one explorer that sat out the 2018 field season in Nunavut, awaiting renewal of existing land use licenses, the only permits needed to conduct a proposed exploration program at its 4,174-hectare (10,314 acres) Kuulu project. Held under a 2016 option agreement to earn up to 70 percent interest in the Kuulu project from Meliadine Gold Ltd., the Kuulu project is located some 40 kilometers (25 miles) northwest of Rankin Inlet and less than 20 kilometers (12 miles) along trend from the Meliadine project.

The continued delay in renewal of necessary permits has forestalled further work at the Kuulu project. As of Sept. 30, land use licenses for Kuulu had yet to be renewed. ●

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decrease due primarily to lower than expected grades in the first half of the year before higher grade production from the Jualin deposit began to impact mine production figures. Higher grade Jualin feed helped push fourth quarter gold production up to 35,335 oz, a 32 percent quarter-over-quarter increase. Approximately 23,000 tons of development ore and 3,000 tons of stope ore were mined from Jualin during the fourth quarter, yielding production (inclusive of pre-commercial) of nearly 10,500 oz of gold at a grade of 0.40 oz per ton. Jualin reached commercial production status as of Dec. 1, 2018. For 2017 the operation milled 661,731 tons of ore grading 0.19 oz/t gold, with a gold recovery of 93 percent. The company also provided an exploration update for the operation which indicated continued expansion of resources. Infill and expansion drilling continued on Kensington's upper Zone 30 and Upper Raven zones, while a district-wide exploration program was initiated to identify and map new vein targets in the district. As a result, the company completed 27,430 meters of exploration drilling in 2018. Positive exploration drilling results were received at the Elmira and Ophir prospects. Recent drill results at the Elmira vein, located 366 meters east of the Kensington Mine, include 4.4 meters of 34.5 grams of gold per ton and 3.9 meters at 35.9 g/t gold. Drilling has confirmed that the Elmira vein remains open to expansion in all directions. Drilling results from the new Ophir vein, located approximately 1,219 meters west of the Kensington Mine, returned 0.7 meters of 29.5 grams of gold per tonne. Due to their proximity to existing underground infrastructure, the Elmira and Ophir veins represent potential high-grade gold mineralization. At Seward prospect, two of four holes drilled intercepted gold-bearing structures 579 meters below the surface. The Orval Shear, a major regional structural control, was intercepted in the two holes where veins were not encountered, indicating the vein may have been offset by a shear, or structural discontinuity. Exploration plans for 2019 include expansion and infill of Elmira, Raven, Ophir and Seward veins, as well as continuation of the infill programs at Kensington Main and Jualin

CONSTANTINE METAL RESOURCES LTD. and joint venture partner **DOWA METALS & MINING COMPANY LTD.** announced its first resource estimate at the AG zone at its Palmer volcanogenic massive sulfide deposit. Using a 5 percent zinc-equivalent cut-off, the new inferred resource at AG came in at 4,256,000 metric tons grading 4.64 percent zinc, 0.12 percent copper, 0.96 percent lead, 119.5 grams of silver per metric ton, 0.53 g/t gold and 34.8 percent barite, equal to 9.04 percent zinc-equivalent grade. The AG resource was built using data from twenty-nine exploration diamond drill holes for 10,766 meters. Drilling data, supplemented by geological surface mapping, were used to generate the geological and structural model for the AG Zone. Twenty of the twenty-nine holes intersected the interpreted mineralized solids. Outlier assays were capped and all assays within the mineralized zones were composited to 1.5-meter lengths. Metal grades were estimated using inverse distance cubed interpolation into a three-dimensional block model with block dimensions of six by six by

"Becoming more digitally efficient, improving stakeholder returns, minimizing cyber disruptions, et cetera, all impact an entity's ability to control costs and, in the end, either stay in business or become a footnote in mining history."

~Curt Freeman

six meters, which is consistent with the main Palmer deposit. Using the new AG zone resources, combined total indicated resources at Palmer now stand at 4,677,000 metric tons grading 5.23 percent zinc, 1.49 percent copper, nil lead, 30.8 g/t silver, 0.30 g/t gold and 23.9 percent barite, equal to 10.21 percent zinc-equivalent grade; and total inferred resources of 9,594,000 metric tons grading 4.95 percent zinc, 0.59 percent copper, 0.43 percent lead, 69.3 g/t silver, 0.39 g/t gold and 27.7 percent barite, equal to 9.87 percent zinc-equivalent grade.

GRANDE PORTAGE RESOURCES LTD. announced additional drilling results from its Herbert gold project near Juneau. Drill holes 18M-1 and 2 were the first ever core holes testing the outcropping North Vein located about 300 meters north of the gold bearing Goat Vein structure. The North Vein occupies an east-west trending fault which dips steeply to the north and is similar in attitude to the Goat, Main Vein, Deep Trench and the Floyd Veins. Two reconnaissance samples taken in 2007 included a grab sample that returned 11.6 grams per metric ton gold and a four-foot chip sample that returned 3.57 g/t gold across a hydrothermally altered shear zone near the east end of the vein. Drilling in 2018 confirmed the existence of the structure at a depth of 100 meters below surface and combined with surface exposures, indicates a strike length of at least 260 meters for the vein. Hole 18M-1 intercepted several strands of the fault in a zone about eight meters true-width. The two best intercepts have about five meters separation with the footwall strand returning a 0.41-meter intercept with 27.8 g/t gold and had visible gold in the core. The hanging wall strand returned a 0.37-meter intercept containing 8.33 g/t gold. Hole 18M-2 intercepted weak alteration in the projected location of the vein with the best intercept showing 0.64 meters grading 0.304 g/t gold. The company also announced the discovery of a new mineralized zone directly underneath its 2018 M Pad location. Seven of the eleven holes drilled from M Pad hit shallow mineralization. The character of the mineralization is a series of fractures with pervasive alteration of the quartz diorite host rock. Alteration consists of chlorite and sericite replacement of original mafic minerals along with iron carbonate and arsenopyrite enrichment with minimal quartz. Arsenopyrite is closely associated with gold in the other veins known at the Herbert prospect. Hole 18M-10 encountered 8.4 meters of 1.65 g/t gold from a depth of 14 meters depth with the strongest being 0.94 meters of 3.94 g/t gold. Hole 18M-13 intersected 4.62 meters of 3.77 g/t gold from 9.1 meters, with the strongest being 1.14 meters of 9.33 g/t gold. The new discovery under Pad M could be a fault offset portion of the vein that extends between the Goat Vein and the North Vein, a distance of about 250 meters. Additional drilling is planned in this area.●

NORTHERN NEIGHBORS

Compiled by Shane Lasley



An aerial view of the mill facilities at Keno Hill, which Alexco Resources operated from 2011 until 2013, when the company chose to suspend operations due to weak silver prices. Alexco is now gearing up to resume operations at this high-grade silver project in the Yukon.

High-grade silver, gold discoveries at Keno

Alexco Resource Corp. Jan. 21 reported that a 26-hole reconnaissance drill has discovered deeper and fault offset extensions of the high-grade silver mineralization at Bermingham, as well as strong gold mineralization across the company's wider Keno Hill Silver District in Canada's Yukon.

"Our late season reconnaissance drilling program answered a number of long standing questions, most importantly confirming the presence of the Bermingham deposit structural framework down plunge of the existing deposit (Bermingham deep) and the inferred presence of the Bermingham structure more than two kilometers (1.25 miles) to the west on the heavily covered slopes southwest of the post-mineral Brefalt Fault," said Alexco Chairman and CEO Clynt Nauman.

Bermingham hosts 1.65 million metric tons of indicated resource averaging 628 grams per metric ton (33.35 million ounces) silver, 1.3 percent (48.69 million pounds) zinc, 1.6 percent (57.89 million lb) lead and 0.12 g/t (6,120 oz) gold.

In addition, this deposit hosts 616,550 metric tons of inferred resource averaging 526 g/t (10.44 million oz) silver, 0.9 percent (11.62 million lb) zinc, 1.1 percent (14.41 million lb) lead and 0.12 g/t (2,300 oz) gold.

Alexco's 2018 reconnaissance drilling at the Bermingham Northeast zone has resulted in expansion of the Bermingham deposit into a broad area that remains untested along strike and at depth.

Highlights from this drilling include:

- K-18-0711 cut two meters grading 1,453 grams per metric ton (46.7 ounces per metric ton) silver in the Bear Vein, and 2.82 meters of 418 g/t (13.43 oz/t) silver in the Bermingham Main Vein; and
- K-18-0706, drilled roughly 200 meters down-plunge from K-18-0711, cut a 60-meter-wide altered and mineralized structural zone that included 0.33 meters of 1,675 g/t (53.85 oz/t) silver, and 1.01 meters of 309 g/t (9.93 oz/t) silver.

Alexco said resource extension drilling will continue in this area in 2019 with the aim of further expanding the current Bermingham resource.

Drilling carried out roughly 2,000 meters west of the Bermingham deposit targeted an inferred fault offset of the mineralized Hector-Calumet and Bermingham structures across the northwest trending post-mineral Brefalt Fault. This fault is interpreted to offset numerous mineralized systems on the Keno Hill property by up to approximately 1,000 meters, including two that have historically produced 148 million oz of silver.

Alexco said one of its 2018 holes, K-18-0730, has intersected what is interpreted as a mineralized offset portion of the Hector-Calumet and Bermingham vein system, indicating an unexplored southwest extension of the high-grade silver mineralization this system is known for.

K-18-0730, drilled about 2,000 meters west of the Bermingham deposit, cut 1.87 meters averaging 234 g/t (7.52 oz/t) silver, and 3.8 meters of 94 g/t (3.03 oz/t) silver.

The 2018 drill program also made a high-grade gold discovery at No Cash, a target about 1,000 meters north of Bermingham.

Highlights from the No Cash discovery drilling include:

- K-18-0718 cut 1.51 meters averaging 76.3 g/t gold and 105 g/t (3.37 oz/t) silver; and
- K-18-0714 cut 0.7 meters averaging 5.36 g/t gold and 24 g/t silver.

Alexco said further work is required to understand the significance of this discovery.

In total, Alexco completed 19,544 meters of drilling during its 2018 exploration program at Keno Hill.

A 15,314-meter surface drilling involved 55 holes that included the reconnaissance program; 11 in-fill holes at Bermingham; 1,179 meters of metallurgical and geotechnical drilling at Flame & Moth; and 2,692 meters of drilling on third party properties within the district complex.

The balance of the program involved 4,230 meters of underground drilling at Bermingham.

"In 2019, we will launch a further surface drilling program to follow up on our 2018 results, most importantly focusing on the Bermingham deep area where our first drill hole K-18-0706 identified a 60-meter-wide structural zone containing multiple mineralized intervals including 1,675 g/t silver over a true-width of 0.33 meters," said Nauman.

In the meantime, Alexco is finalizing a pre-feasibility study for the resumption of operations at Keno Hill.

see **NORTHERN NEIGHBORS** page 8

NORTH OF 60 MINING NEWS

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Companies involved in Alaska and northwestern Canada's mining industry



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Alaska Steel Co.

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Contango Ore

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Website: www.contangoore.com
Contango ORE, Inc. (CORE) has a strategy of exploring for gold, copper, silver, and other valuable minerals in Alaska, and advancing our discoveries to the point that our properties become attractive to a larger integrated mining company for acquisition or joint venture. CORE's current focus is on the road accessible Peak Gold project near the community of Tok. The majority of our 849,800-acre land position is a

long-term lease from the Tetlin Village Council, and we added State of Alaska mining claims adjoining the Tetlin Village lands.

Millrock Resources Inc.

Contact: Greg Beischer, President and CEO
Phone: 907-677-7479
Fax: 907-677-3599

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Millrock (TSX-V: MRO, OTCQX: MLRKF) is a premier project generator company focused on discovery and development of high value metallic mineral deposits in four jurisdictions with outstanding potential: the State of Alaska, Mexico – primarily the state of Sonora, Golden Triangle British Columbia, the Southwest USA. The company's main emphasis has been on gold and copper, focusing on porphyry and high-grade vein style deposits. Millrock's objective is to discover a world class ore body, further build shareholder value through the exploration and development of existing projects and exploration joint ventures. Anchorage Office 907-677-7479

Pacific Rim Geological Consulting Inc

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Phone: (907) 458-8951 • Fax: (907) 458-8511
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E-mail: bundtzen@mosquitonet.com
Geologic mapping, metallic minerals exploration and industrial minerals analysis or assessment.

Pebble Partnership

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E-mail: receptionist@pebblepartnership.com
Advanced exploration project in Southwest Alaska. In federal permitting. Minerals include copper, gold, molybdenum and silver.

Mining Companies

Constantine Mining LLC

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Hours of operation: 9am-5pm PST
Constantine is a base and precious metal exploration company focused on premier North American mining environments, led by a top tier technical team with a discovery track record. The Company's flagship Palmer VMS Project is located in a very accessible part of southeast Alaska and host to a growing copper-zinc-silver-gold resource and district-scale prospects. Management is committed to providing shareholder value through discovery, meaningful com-

munity engagement, environmental stewardship, and responsible mineral exploration and development activities that support local economies.

Kinross Fort Knox

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E-mail: anna.atchison@kinross.com
The Fort Knox mine is an open-pit gold mine located on State of Alaska and Mental Health Trust lands approximately 26 miles northeast of Fairbanks. The mine was originally permitted in 1994 and poured its first commercial ounce in 1996. It is the largest single tax contributor in the FNSB and employs 650 local Alaskans.

NOVAGOLD

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Hours of operation: Monday-Friday 8:30am – 4:30pm
NOVAGOLD is the 50 percent owner of the Donlin Gold project, a uniquely attractive asset which – in terms of size, grade, exploration potential, production profile, mine life, and jurisdictional safety – is one of the most important gold projects in the world today. With the Record of Decision and major Federal permits being received in August 2018, Donlin Gold has completed the multi-year Federal environmental review process.

Seabridge Gold

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E-mail: info@seabridgegold.net
Hours of operation: Monday-Friday 9am-5pm
Seabridge Gold's resource base of gold, copper and silver is one of the world's largest. Our principal projects are located in Canada. Our objective is to grow resource and reserve ownership per share. Our risk-reducing strategy: acquire North American deposits; expand them through exploration; move them to reserves through engineering; and sell or joint venture them to established producers for mine construction and operation.

Usibelli Coal Mine

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Usibelli Coal Mine (UCM) is the only operational coal mine in Alaska located 115 miles south of Fairbanks. Founded in 1943 by Emil Usibelli, the mine continues to be a fourth generation, family owned business 75 years later. UCM pro-

duces approximately 1-million tons of ultra-low sulfur coal that is supplied to the power plants located in Interior Alaska for heat and power. UCM operates year-round and is supported by the most modern mining equipment and state-of-the-art engineering with a workforce of approximately 100 people.

Trade Associations

Alaska Miners Association

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Anchorage, AK 99503 United States
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The Alaska Miners Association advocates for and promotes responsible mineral development in Alaska. AMA also provides a wealth of institutional knowledge to assist its membership in their mining activities. A membership to AMA amplifies your voice on regulation and legislative issues and helps fund outreach and education efforts by the association, while granting you access to industry experts who can assist you. Visit the AMA Membership page to learn more about all of the valuable benefits of being an AMA member.

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Soloy Helicopters LLC

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NORTHERN NEIGHBORS

The company said mine planning, mine scheduling and metallurgical work related to the updated production plan is proceeding on schedule with results anticipated to be available by early March.

—SHANE LASLEY

Deep drilling adds to 3 Aces gold potential

Golden Predator Mining Corp. Jan. 21 reported that its 2018 drill program in the central core area of the 3 Aces Project in southeast Yukon confirm that the high-grade gold structures outcropping at Hearts Zone extend to depth.

All seven holes drilled at Hearts Zone cut the structures where they were expected — 200 and 500 meters down-dip from the discovery outcrop — intersecting localized high-grade gold mineralization within larger lower grade envelopes. The company said this drilling confirms that the mineralized structures within the 13.5-square-kilometer (5.2 square miles) central core area at 3 Aces have persistent lateral and vertical continuity and likely account for other high-grade surface outcrops exposed along a 4,500-meter-long corridor that hosts both the Hearts and Clubs zones.

Hole 3A18-351 cut 28.5 meters averaging 0.93 grams per metric ton gold from a depth of 175 meters, including 0.55 meters of 6.35 g/t gold;

3A 18-352 cut 30.15 meters of 0.83 g/t gold from a depth of 115.35 meters, including one meter of 11.55 g/t gold, and 13.4 meters of 2.88 g/t gold from 203 meters, including 0.85 meters of 31.52 g/t gold; and

3A 18-153 cut 23.67 meters of 1.06 g/t gold from a depth of 272.65 meters, including 1.13 meters of 13.05 g/t gold.



The winter 2016-17 drill program at 3 Aces confirmed high-grade gold mineralization at Ace of Hearts, one of several veins discovered in the central core area of this road-accessible project in southeastern Yukon.

This was the deepest drilling so far within the 3 Aces core area. Golden Predator said the structures in Hearts zone continue to be open in all directions along strike and at depth.

“Confirming the continuity and mineralization of the structures down-dip and on strike, right where we projected them to be, is a game-changer in terms of demonstrating the size potential of the 3 Aces project,” said Golden Predator Executive Chairman William Sheriff. “It is now clear that the high-grade surface outcrops previously discovered in the central core area are not isolated occurrences but rather expressions of a much larger system, which significantly expands the potential at 3 Aces.”

Designed as a first pass drill program to test Hearts zone expansion area, both along strike and at depth, Golden Predator used relatively small HQ (58.5 millimeters) drill core, considering the high grades typical at 3 Aces.

At surface, the Hearts discovery outcrop assays above 30 g/t gold and samples contain abundant coarse gold.

From past experience, such as the bulk

sampling and drilling at the Spades zone, Golden Predator has found that the larger the sample, the more precise the grade estimate. Assay results from larger diameter PQ core, reverse circulation drilling and bulk sampling generate considerably larger sample volumes and produce more reliable grade estimates than split HQ drill core used as an initial assessment of Hearts Zone expansion areas. The company plans to continue to use HQ core to explore for and confirm continuity of mineralized structures at depth and along strike but will rely on larger diameter PQ core and reverse circulation in-fill drilling for grade determination within the structures.

—SHANE LASLEY

Teck to up its stake in Fireweed Zinc

Fireweed Zinc Ltd. Jan. 18 announced that Teck Resources Ltd. has put in a lead order to acquire shares during Fireweed’s upcoming C\$5 million private placement financing.

Teck, which already holds a 4.7 percent interest in Fireweed, will up its holdings in the Yukon zinc explorer to around 9.9 percent.

“Fireweed is delighted to see Teck grow their stake in the company to just shy of 10 percent,” said Fireweed CEO Brandon Macdonald. “This is a strong vote of confidence in the project and management from one of the world’s preeminent zinc miners.”

Fireweed Zinc emerged on the mineral exploration scene in 2017 with the completion of a C\$4 million initial public offering and an option to acquire Macmillan Pass, a property that blanketed 5,159 hectares (12,748 acres) of the zinc-rich Selwyn Basin.

Over the past two seasons, the company has updated and expanded a historical resource for Jason and Tom, the most advanced deposits on the property, and has expanded the property to cover most of the Macmillan Pass zinc district in eastern Yukon.

According to a resource calculated at the beginning of 2018, the Jason and Tom deposits hosted 11.21 million metric tons of indicated resource averaging 6.59 percent (1.63 billion pounds) zinc, 2.48 percent (610 million lb) lead and 21.33 g/t (7.7 million ounces) silver; plus 39.47 million metric tons of inferred resource averaging 5.84 percent (5.08 billion lb) zinc, 3.14 percent (2.73 billion lb) lead and 38.15 g/t (48.4

million oz) silver.

A preliminary economic assessment completed in May outlined a 4,900-metric-ton-per-day mill at Macmillan Pass that would produce 3.4 billion lb of zinc, 1.9 billion lb of lead and 37.2 million oz of silver over an 18-year mine life.

This project shows the potential for robust economics, including an after-tax net present value (8 percent discount) of C\$448 million and internal rate of return of 24 percent.

The PEA does not include results from a robust 2018 drill program that included expanding the resource considered in the assessment and testing other zinc targets on the property.

In addition to a robust exploration program, Fireweed exercised its option to gain full ownership of the original Tom and Jason claims and consolidated the Macmillan Pass Zinc District with the purchase and options on several blocks of adjacent claims, including a claim block the company acquired from Teck.

As a result of these deals, Fireweed expanded its land holdings in the district to 544 square kilometers (210 square miles).

Macdonald told Mining News that Fireweed Zinc does not plan to update the resource or advance the project to prefeasibility study until after the company has a better idea of the larger resource potential on the expanded property.

This year’s exploration program will continue to investigate the larger potential at Macmillan Pass.

“So, 2019 will focus on regional exploration and some bold step-outs of known zones so we can get a better sense of the total scale of mineralization of the district,” Macdonald told Mining News. “That would allow us to better plan out a path to a global resource for the district and a mine plan that reflects all the mineralized zones.”

The C\$5 million offering that will help fund this exploration will consist of 2,187,500 regular shares at C80 cents each; 890,000 flow-through C95 cents each and 2,187,500 charity flow-through shares at C\$1.10 each.

Under a provision of Canada’s Income Tax Act, flow-through financings allow exploration companies to transfer exploration expenses to individual investors that purchase the flow-through shares. The flow-through investor, in turn, can apply his portion of the exploration expense to reduce or eliminate his tax liability.

Because of the tax benefits, flow-through shares typically have a low or nil-adjusted cost to the purchaser. Investors can avoid tax on that gain by investing flow-through share to charity.

Teck has agreed to purchase the 2,187,500 regular shares offered by Fireweed.

“We made significant progress on Macmillan Pass in 2018 and this new financing will help make 2019 another great year for the company,” said Macdonald.

—SHANE LASLEY

New Red Mountain zone delivers high-grade

IDM Mining Ltd. Jan. 22 reported the

see **NORTHERN NEIGHBORS** page 9

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NEWS NUGGETS

have already emerged at Pogo underscore the strength of the acquisition and the potential for the Interior Alaska mine to drive strong operational results and add to the company's gold inventory.

To take full advantage of these opportunities, the company has increased its upfront investment in-mine development, diamond drilling, mobile fleet and other measures aimed at enabling it to take full advantage of the opportunities now available.

This accelerated expenditure was a large contributor to the higher than originally expected all-in sustaining costs at Pogo during the first quarter under Northern Star ownership.

Northern Star said it will provide a more comprehensive update on its investments into development and mining at Pogo in February.

—SHANE LASLEY

For sale: Peak Gold mine project

Contango ORE Inc. Jan. 23 announced that the Peak Gold mine project near the crossroads town of Tok in Eastern Interior Alaska is officially up for sale.

The Peak Gold project is owned by a joint venture between Contango ORE (60 percent) and a subsidiary of Royal Gold Inc. (40 percent).

Royal Gold, which manages the work under the joint venture, has retained Scotia Capital Inc. to conduct a joint process for the sale of the Peak Gold properties in Alaska.

Given the high gold grades and robust economics calculated for developing a mine at this road-accessible project, the Peak Gold partners should not have any problems finding suitors, if they have not already identified the buyer.

A preliminary economic assessment published last October envisions an open-pit mine feeding a 3,500-metric-ton-per-day mill that is forecast to produce 1.09 million ounces of gold and 2 million oz of silver over an initial eight-year mine-life.

Mined from two adjacent open pits, Main and North Peak, the potential ore for this operation consists of 9.3 million metric tons of skarn material from the Peak deposits averaging 3.99 g/t gold and 11.7 g/t silver.

The after-tax net present value (at a 5 percent discount) of this operation is calculated to be US\$393 million and the after-tax internal rate of return is 29.1 percent.

The capital costs to develop Peak Gold are calculated to be US\$340 million, which includes US\$294 million for the initial costs to develop the mine and US\$46 million in sustaining capital and closing costs.



Avalon Development President Curt Freeman explains the geology of the Main and North Peak skarn deposits on the road accessible Peak Gold project near Tok, Alaska.

The cost to produce an ounce of gold, based on the initial capital investment, is calculated to be an exceptionally low US\$428/oz of gold recovered. With the sustaining capital included, this cost is only US\$470/oz gold.

While mining the Peak zones is intriguing, these high-grade skarn deposits represent only a fraction of the highly prospective land package held by the Peak Gold joint venture.

"The project considered in the PEA is a very small area of the consolidated land package of about 35,000 square kilometers (850,000 acres) we control in Tintina Gold Belt that runs through Alaska and the Yukon," Royal Gold President and CEO Tony Jensen informed shareholders late in 2018.

This larger land package is highly prospective for other skarn deposits similar to the Peak deposits; as well as porphyry or epithermal deposits containing gold, copper, silver, zinc and potentially other metals.

"The company and its joint venture partner Royal Alaska have spent several years exploring for a commercial gold deposit, and the previously released preliminary economic assessment of the Main Peak and North Peak resource areas are very encouraging," said Contango ORE CEO Brad Juneau. "There is significant exploration upside remaining on the acreage, and along with the Main Peak and North Peak resource areas, we believe our project will be one of the most attractive in the North American market."

CORE's 60 percent interest in the Peak Gold project plus cash on hand, which was US\$11.7 million at the end of September, constitute substantially all of the Texas-based mineral exploration company's assets. CORE has retained Petrie Partners, LLC and Cantor Fitzgerald and Co. to advise on its strategic options. The Peak Gold partner said it is primarily interested in a sale of CORE stock in exchange for cash or liquid publicly traded shares.

Royal Gold, which owns roughly 12.7 percent of Contango ORE's shares, said it is considering all alternatives with respect to its own investment in the Peak Gold joint venture.

—SHANE LASLEY

NANA hires VP, Tuuq Drilling pres

NANA Jan. 19 announced the hiring of two key executives heading into the new year – Sarah Lukin now serves as senior vice president and chief administration officer at NANA Regional Corp., and Kevin Aubertin joins NANA's Commercial Group as the president of Tuuq Drilling.

Lukin, who officially began her tenure at NANA on Jan. 7, will provide strategic leadership in a broad range of functions, including leading external and government affairs, corporate communications, corporate administration, corporate operations and regional sustainability.

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NORTHERN NEIGHBORS

newly discovered Lacasse zone at Red Mountain delivered one of the highest grade gold-silver intercepts at Red Mountain, a near development mine project about 15 kilometers (nine miles) east of Stewart, British Columbia.

The Lacasse discovery was among the results from the final 40 underground core holes IDM received from the 2018 drill program, which targeted multiple zones for resource expansion, conversion and exploration last year at Red Mountain.

Red Mountain was originally interpreted to consist of parallel zones of mineralization. Last year, however, this model was revised to account for the identification of post mineralization folds that have deformed the mineralized zones.

The success of applying this model to the expansion of the known mineralized zones, as well as the discovery of the Lacasse and Preef zones, has validated this model and has opened up multiple areas for future drilling targeting resource expansion.

This model helped target confirmation and expansion drilling at SF, a zone currently comprised of inferred resources.

Hole U18-1337, a step-out to the north of SF zone cut 8.52 meters averaging 6.41 grams per metric ton gold and 39.48 g/t silver.

U18-1339, an infill hole at SF zone, cut 1.5 meters averaging 18.31 g/t gold and 4.21 g/t silver.

The SF zone is interpreted to be open to the east, where the zone is folded, and to the north towards a fault that offsets the mineralized horizon to Bray zone.

Most holes drilled in the AV, JW and Smit zones last year targeted the expansion of known mineralization and the



IDM Mining's 2018 drill program cut 1.74 meters averaging 277 g/t gold and 1,442 g/t silver in the newly discovered Lacasse zone at Red Mountain.

conversion of inferred resources.

The 2018 drilling in the Smit zone cut wide zones of lower grade gold mineralization, with multiple higher grade subparallel horizons within.

U18-1341, the furthest down-dip hole drilled so far at Smit zone, cut 97 meters averaging 1.16 g/t gold, including 4.5 meters averaging 5.59 g/t gold.

U18-1348, which targeted an area without current resources within a transition area between the JW and Smit zones, cut 29.5 meters of 12.1 g/t gold, including 1.5 meters averaging 177.83 g/t gold.

The most exciting results from the final 40 holes, however, are the high gold and silver grades at Lacasse zone, a discovery named after Marilynne Lacasse, the 2018 program manager at Red Mountain.

Starting only 25 meters from the underground decline into Red Mountain, hole U18-1361 cut 9.82 meters averaging 65.13 g/t gold and 313.09 g/t silver, including 1.74 meters averaging 277.06 g/t gold and 1,442.02 g/t silver. This interval is among the highest grade ever encountered in drilling on the property, including the highest-grade silver values ever.

The Lacasse zone occurs in the hanging wall to the AV zone, and appears to be at an oblique angle to the orientation of the major zones at Red Mountain. It was encountered in a definition drill hole, targeting the AV zone. After cutting through Lacasse, hole U18-1361 cut a 69-meter section of the AV zone averaging 3.76 g/t gold and 21.6 g/t silver, including 18.5 meters averaging 9.07 g/t gold and 24.18 g/t silver. The AV zone intercept will expand the resource shell thickness, and further along strike to the south.

Lacasse zone was encountered in hole U18-1358, which cut four meters averaging 11.27 g/t gold and 24.03 g/t silver. IDM Mining said the 2018 intercepts likely connect with historical surface and underground intercepts in the hanging wall to the AV zone that were not understood and are currently not included in the Red Mountain resource estimate, such as a 1990 hole that cut six meters averaging 13.42 g/t gold and 34.01 g/t silver; and a 1992 hole that cut five meters of 12.99 g/t gold and 32.04 silver.

The 2018 geological reinterpretation of post-mineralization folding at Red Mountain suggests a substantial area of near-surface exploration potential within a large fold – the Chicka syncline, between the Marc and the 141 zones. Testing this syncline near the Smit zone, hole U18-1367 cut six meters averaging 36.43 g/t gold, including 1.5 meters averaging 133.69 g/t gold. Roughly 100 meters to the south, U18-1354 cut 57.75 meters of 1.49 g/t gold, including 2.1 meters averaging 10.53 g/t gold.

Further south, a new zone of massive pyrite mineralization, which is commonly associated with high-grade gold at Red Mountain, was discovered. One hole that encountered this newly discovered Preef zone, U18-1366, cut 7.4 meters averaging 2.49 g/t gold and 5.46 g/t silver.

Systematic drilling to develop near-surface resources within the Chicka syncline is recommended for future underground drilling programs at Red Mountain.

—SHANE LASLEY



SARAH LUKIN

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Lukin has more than 18 years of experience working with businesses across the U.S. and Canada, including her previous role as chief operating officer for Pt Capital, LLC, and senior vice president of corporate affairs for Afognak Native Corp. Lukin earned her bachelor's and master's degrees from the University of Alaska, and a certificate in Alaska Native executive leadership from Alaska Pacific University.

"As a key member of the executive leadership team, Sarah will take the lead on many critical issues and initiatives, and will work closely with me and the board of directors to support NANA's broader mission and objectives," said NANA President and CEO Wayne Westlake.

Tuuq Drilling, owned by NANA Development Corp., brought Aubertin on in Dec. 2018 to

strengthen the drilling company's business performance for sustainability and growth. Tuuq Drilling provides drilling services in the mining industry, most notably in the 38,000-square-mile NANA region in Alaska's Arctic. The company specializes in drilling solutions for mineral exploration and geotechnical investigation in arctic conditions.

Aubertin comes to Tuuq Drilling with diverse experience in global business organizations including Canada-based Tonto Drilling Services, Nevada-based Coates Drilling and the joint ventures of NANA-Coates and NANA-Dynatec. Most recently, Aubertin was the project management superintendent for Major Drilling America. These companies provided Aubertin the opportunity and challenge to work on and lead projects in Africa, Alaska, Canada, Mexico, Russia, South America and locations in the Lower 48. Aubertin's drilling operations and leadership experience includes

mineral exploration, mine development, coal bed methane, as well as geotechnical and geothermal projects.

"With over 40 years of experience in drilling operations and management, Kevin brings tremendous expertise to our company to deliver on our strategy to effectively sustain and grow Tuuq Drilling," said NANA Commercial Group President John Hendrix.

NANA is an Alaska Native corporation whose mission is to enrich the lives of its more than 14,400 shareholders across the globe. As the owner of a diversified holding company with business holdings in the federal and commercial groups, NANA works to maximize economic growth, protect and enhance its lands, and promote healthy communities with decisions, actions, and behaviors inspired by the Iñupiat Iitqusiat values.

—SHANE LASLEY



KEVIN AUBERTIN

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ANCSA PRIMER

ness in Alaska should understand. Much of the lands selected under ANCSA are split estate, with the regional corporations owning the subsurface rights and the village corporations owning the surface estate.

In addition to their resource potential, the lands Alaska Native corporations selected under ANCSA were based on traditional, infrastructure and other strategic uses.

Sometimes, however, regional corporations will own both the surface and subsurface rights.

It is often the case that a mineral exploration company will establish a solid agreement on mineral rights with the regional corporations and early stage surface agreements with the village corporations before exploration begins. Once a deposit is established to the point that the economics of a mine are being considered, and the details of what surface lands will be needed for a potential mine and its supporting infrastructure begin to emerge, longer term surface land use, hiring, contracting, subsistence and other agreements are then struck.

Crafted successfully – and carried out in a way that provides economic benefits, while respecting the traditional values of the surface and mineral rights landholders – these agreements form the basis for a strong and enduring partnership.

Unique Red Dog agreement

The Red Dog Mine, operated by Teck Resources Ltd. in partnership with NANA, is a prime example of the success that can be achieved by building strong partnerships with ANCSA corporations.

While early negotiations between the mining company and the Northwest Alaska Native corporation were rough, by 1982 Cominco (now Teck) and NANA signed a landmark agreement that directs how the mine is operated and ensures sustainable benefits for the region and its people.

This unique development and lease agreement mandated that Red Dog:

- Protect subsistence and the Inupiaq way of life;
- Create lasting jobs for NANA shareholders;
- Provide opportunities for NANA's youth; and
- Act as a catalyst for regional economic benefits.

It also gave NANA a direct ownership interest in the operation that results in healthy royalty payments on the net proceeds from the metals produced at Red Dog.

Teck paid off its capital and operating costs at Red Dog in 2007, triggering an increase in NANA's net proceeds royalty to 25 percent from the zinc mine.

Under the agreement, this net proceed royalty increases by 5 percent every five years, up to a maximum of 50 percent. In 2017, NANA's royalty from the net profits at Red Dog was bumped to 35 percent.

So far, NANA has received around \$2 billion in net proceeds payments.

Red Dog also directly creates more than 700 full-time and temporary jobs in an area of Alaska where good-paying jobs would otherwise be scarce.

Today, around 57 percent of the roughly 600-person workforce at Red Dog are Alaska Natives, mostly NANA shareholders, who bring home an average annual wage of around US\$100,000.

"It has been a revolutionary thing for our region economically and demonstrates the kind of development that can be done that not only benefits the local people but protects the environment," said Willie Hensley, who was active in the founding of NANA and subsequent develop-

ment of Red Dog.

Nearly four decades after the landmark agreement, all signs point to the world class zinc mine continuing to serve as an economic engine in the Northwest Arctic for several decades to come.

Red Dog currently has enough high-grade zinc ore in reserves to keep the operation going until 2031 and new zinc deposits show the likelihood that this world-class mine will continue to be a globally significant supplier of this important base metal much deeper into the 21st Century.

"The mine was an opportunity to responsibly develop resources in this area of the state and provide economic development to the communities," NANA Vice President of External and Government Affairs Liv Cravalho informed Alaska lawmakers in 2018. "The mine continues to have a significant impact on the NANA region."

Building a solid relationship

The world-class Donlin Gold deposit is poised to provide a similar boost to the Calista region, which covers 58,000 square miles of the Yukon-Kuskokwim region of Southwest Alaska, an area about the size of New York state.

Donlin Gold LLC – a joint venture owned equally by Novagold Resources Inc. and Barrick Gold Corp. – has worked hard to build a solid relationship with the ANCSA corporations and people of Calista region.

This engagement began with a commitment to hiring local residents during the early exploration phase at the gold discovery and grown stronger over the ensuing two decades.

By 2008, nearly 90 percent of the more than 200 workers at the advanced exploration project were Calista shareholders, or their descendants.

June McAtee, former vice president of Calista's land department, told Mining News in 2009 that the key to the success of the shareholder-hire program at Donlin Creek is twofold – Calista's ownership of the land encompassing the Donlin Creek deposit, and Placer Dome, Barrick Gold and Novagold's longstanding commitment to hiring and training shareholders at the project.

"There has been a continual process of hiring and training shareholders from the very beginning. Even though the original company (Placer Dome) isn't there any more, the companies that came after it believed in those same concepts and did more than just pay it lip service. They actually acted on that, and took the lead, in fact, in the hiring and training," McAtee said.

Today, Novagold has taken what it has learned with working in the Calista region and enshrined that into its core values.

"Novagold believes that a company must earn its social license in any given region by establishing a strong and collaborative working relationship with the community where it operates," the company says on its website. "Moreover, this social license must be based on a solid foundation and thorough understanding of the language, values and culture of the people in the region."

While Donlin Gold has built a reputation for local hire, this commitment is preserved in agreements with Calista Corp. and The Kuskokwim Corporation.

This combination of shareholder hire, community engagement and strong agreements with Calista and TKC has earned Donlin Gold LLC strong endorsements by local leaders.

"As a mine that focuses on environmental responsibility, meaningful dialogue with communities, job opportunities, and economic stimulus for one of the poorest regions

in the entire state, Donlin Gold has TKC's full support," said The Kuskokwim Corporation President and CEO Maver Carey.

Currently envisioned as a mine that will produce more than 1 million ounces of gold per year from 504.8 million metric tons of proven and probable reserves averaging 2.09 grams per metric ton (33.85 million oz) gold, Donlin Gold is expected to be a globally significant mine.

To develop this operation, Donlin Gold LLC anticipates paying out roughly \$375 million in wages to around 3,000 workers during the three- to four-year construction phase. Once in production, the company expects a payroll of more than \$100 million per year for the minimum of 800 workers that would be needed at the mine currently being considered. In addition to this direct employment, Donlin Gold is expected to spur about another US\$60 million a year worth of jobs.

While not all these jobs will be filled by residents of the region, history indicates that a large portion of them will.

Donlin Gold has now reached the end of the permitting process and the project partners are expected to decide on developing this world-class gold project in the near future.

"Ultimately, economic development of such a large project will help fulfill the broader goal of self determination by allowing residents and Calista shareholders to significantly participate in the world economy," said Calista President and CEO Andrew Guy.

Section 7(i) – sharing the hunt

While a regional corporation such as NANA or Calista can be elevated to a significant participant in the world economy through the development of a mine on the lands it owns, the economic benefits of such an endeavor is shared by all the ANCSA corporations, due to sections 7(i) and 7(j) of ANCSA.

ANCSA Section 7(i) requires Regional corporations to distribute 70 percent of net revenues from resource development on ANCSA land among all 12 regional corporations. In turn, Section 7(j) requires that half of the Section 7(i) payments received are distributed to the respective village corporations within each of the ANCSA regions.

While these provisions were primarily put into ANCSA as a way to bring balance to all the regional and village corporations by sharing the resource successes, they also fit well with millennia-long traditions of sharing the "proceeds" of successful hunts.

When it comes to Section 7(i) proceeds from mining, NANA has been by far the largest contributor.

Of the approximately \$1.3 billion in proceeds NANA received from Red Dog through 2015, the most recent year for comprehensive data on Section 7(i) distribution, the Northwest Alaska Native corporation has made more than \$820 million in 7(i) payments to the other ANCSA Regional corporations.

"That means we have a significant impact on the rest of the state and the other Alaska Native communities," said NANA Vice President of External and Government Affairs Cravalho.

In total, mining has contributed \$863 million to Section 7(i) distribution through 2015. When combined with oil and gas (\$1.45 billion) and timber (\$278 million), roughly \$2.5 billion has been distributed through ANCSA Section 7(i) through 2015.

The "leveling effect" of sections 7(i) and 7(j) creates economic activity that otherwise would not occur in recipient regions and provides village corporations with

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vital funding.

Getting to know the people

Whether a mining company is looking to explore and develop mineral properties on Alaska Native, state or federal lands, understanding the landscape of the ANCSA regional and village corporation in the area is a key first step in the future success of the project.

In addition to earning that ever important social license, ANCSA regional and village corporations have much to offer Alaska's mining sector.

While sitting down with ANCSA regional, village and business leaders is a good start, getting to know the people in the region of Alaska a mining or mineral exploration company is planning to work provides an enormous advantage.

One of the primary rewards is recruiting a local workforce. Many of the ANCSA shareholders living in rural Alaska have worked in remote camps and have experience with the positions needed at mineral exploration projects. When you couple this work experience with lifelong and generational knowledge of living and working in the region, hiring local provides many advantages for mining companies.

Mining companies can also learn a lot about the area by sitting down and talking with local residents. Getting to know the "traditional knowledge" can pay dividends down the road.

This traditional knowledge could be finding out about a trapline that is in the same area as a potential deposit and being able to talk with the individual early in the process; getting generational insight into weather and wildlife; or even information on outcrops or other geological structures.

Understanding the landscape

From the prospector scouring Alaska's broad expanse for the next Red Dog or Donlin Gold, to the global miner looking to acquire a world-class deposit already found, the ultimate goal is to develop a mine that delivers the metals needed and wanted. This path inevitably leads to the people that have called these mineral-rich northern lands home for millennia and the corporations they are shareholders of.

Understanding the ANCSA landscape early could be the difference between efficiently permitting and developing a successful mine with strong local partners, or arduous work later to gain the social license and government permits needed to extract the rich mineral resources Alaska has to offer.

For these reasons, an ANCSA map and information on the Alaska Native lands, people, corporations and businesses has a place among the geological maps and mineral data for any prospector, explorer or miner looking to unlock Alaska's vast mineral potential. ●

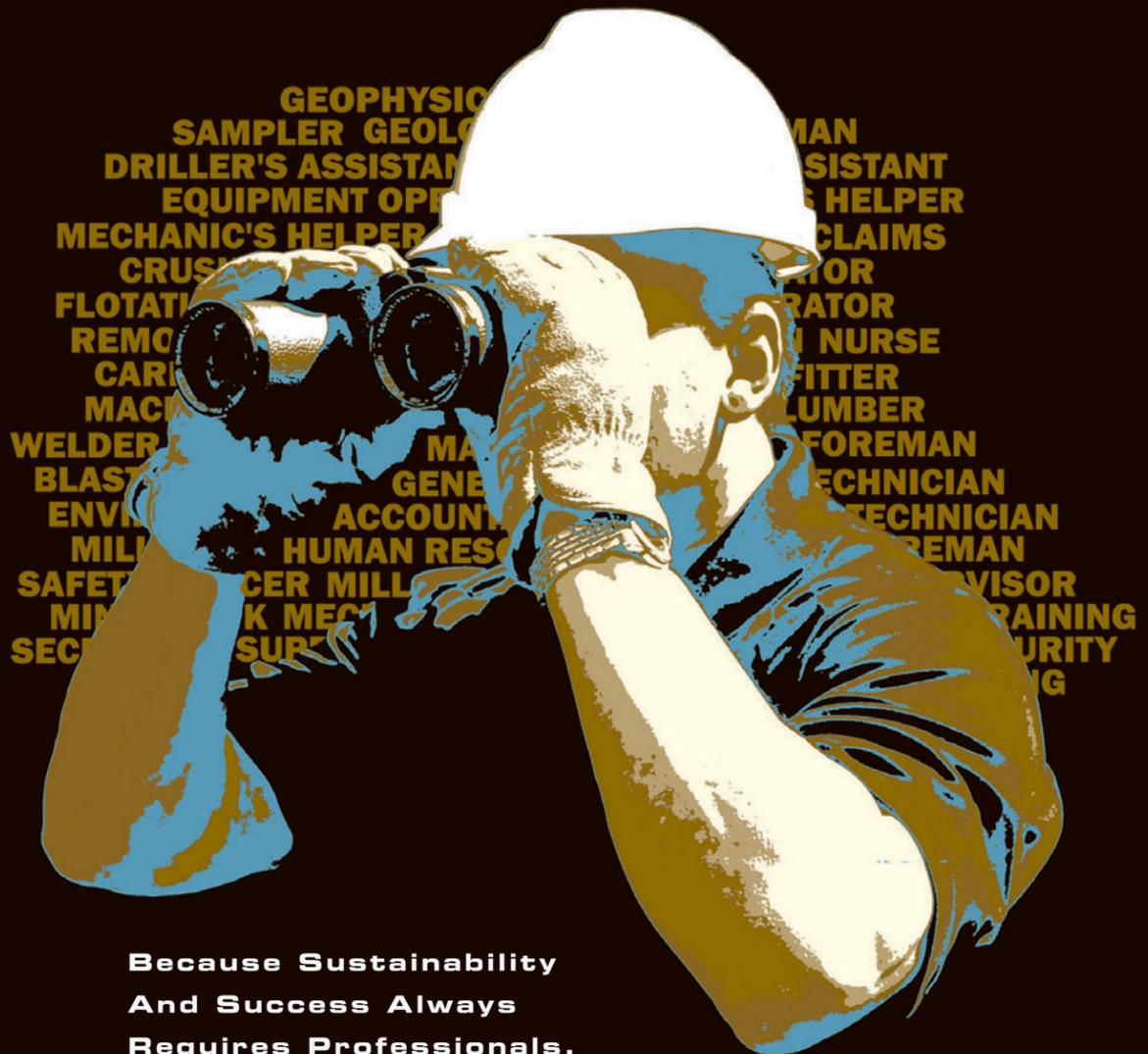
EDITOR'S NOTE: "An Alaska Native claims primer for miners" is the first article in a 13-part series that investigates what the Alaska Native Claims Settlement Act means for Alaska's mining sector and its future. The coming 12 articles will dig deeper into each of the land-holding Regional corporations and the Village corporations within them; the mining lands that they own; and the services they offer to the mining sector. As a life-long Alaskan that has written about mining here for more than a decade, it is my hope that this series will provide a better understanding of ANCSA and serve as a guide to mining companies seeking to do business in The Last Frontier.



By 2008, nearly 90 percent of the more than 200 workers at the Donlin Gold project in the Yukon-Kuskokwim region of Southwest Alaska were Calista shareholders, or their descendants.

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