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Millrock Resources Chief Exploration Officer Philip St. George traverses the Alaska Peninsula Project during a 2014 reconnaissance program aimed at investigating some of the more intriguing copper targets on the expansive property. First Quantum Minerals, which financed the summer program, has entered into an option to joint venture the project. See page 3.

PHOTO BY TIM IRELAND / COURTESY OF MILLROCK RESOURCES INC.

A special supplement to Petroleum News

WEEK OF
December 21, 2014

Petroleum news

ALASKA

First Quantum eyes SW copper potential

Growing global miner joins Millrock on promising Alaska Peninsula Project; confirms porphyry system with drilling at Copper Joe

By SHANE LASLEY
Mining News

Since buying out its mining rival Inmet Mining Corp. in early 2013, First Quantum Minerals Ltd. has shown a keen interest in Alaska's copper potential.

With seven mines in operation and five mineral projects under development, First Quantum is a growing, diversified miner with a particular focus on copper. Its operating mines and development projects are located in Africa, Australia, Finland, Spain, Turkey and Latin America. Yet the company has no foothold in North America.

Carrying forward a relationship built between Inmet and Millrock Resources Corp., First Quantum is now exploring the possibility of expanding its copper business into Alaska.

Early in 2014, the copper miner cut a tentative deal with Millrock that gave it an exclusive right to option the aptly named Alaska Peninsula Project. This early-stage copper and gold project, involves roughly 500,000 acres (203,000 hectares) of Alaska Native land on the isthmus that extends into the Pacific Ocean from Southwest Alaska.

Millrock came by this extensive and highly prospective land package on the Alaska Peninsula through an exploration and option-lease agreement signed with the Bristol Bay Native Corp. in 2012.

"We are proud to engage with BBNC to responsibly explore for and develop mineral resources. We look forward to performing systematic regional-scale exploration and making great discoveries on these lands," Millrock President and CEO Greg Beischer said at the time.

Towards that goal, Beischer told Mining News that the Millrock team has "has moved the project forward in a measured, systematic, careful fashion" over the past two years.

In addition to the agreement with Bristol Bay Native Corp., which owns the subsurface minerals rights, Millrock has consulted the five Native village corporations that own surface lands in the area.

"We have worked closely with the village corporations to secure surface use agreements for the purpose of early stage mineral exploration work," Beischer said. "Local village corporations and residents can supply services for our activities, and we make a real effort to buy locally."

Beischer, who worked several years prior to the 2007 founding of Millrock as a consulting geologist for BBNC, is quite familiar with the mineral potential of the Alaska Peninsula lands.

He and his team at Millrock also value the importance of keeping BBNC shareholders in the boardroom and villages alike abreast of its plans for the Alaska Peninsula project.

Millrock Executive Vice President Sarah Whicker said, "We look forward to building our relationships in the region as we further explore the potential of this project for all its stakeholders."

Before committing to a longer term deal on Millrock's Alaska Peninsula project, First Quantum invested US$600,000 towards a 2014 reconnaissance program aimed at investigating some of the more intriguing targets on the property. In exchange, Millrock granted First Quantum an exclusive right to an option to earn up to an 80 percent joint venture interest in the property if it liked what it saw on the first-pass exploration.

Though results from the 2014 program were not yet available in early December, First Quantum decided to move ahead with a longer term option on the Alaska Peninsula property, which likely indicates that the results met the copper miner's expectations.

First Quantum's interest in Alaska's mineral potential also goes beyond the Alaska Peninsula. In August, the company secured a right to option Kiska Metals Corp.'s Copper Joe project, another prospective porphyry copper-gold property located just south of Kiska's Whistler and Millrock's Estelle properties in the Alaska Range of Southcentral Alaska.

Aleutian Arc

The Alaska Peninsula project extends roughly 75 miles (120 kilometers) from Stepovak Bay, near the southwestern end of the Alaska Peninsula, to just north of Chignik Bay, one of the primary ports in the area.

The project covers a portion of the Aleutian Arc, a Pacific Ring of Fire island arc being formed as the Pacific Ocean plate dives under the North American plate. This tectonic activity is witnessed in the geologically young mineralization – 3 million to 21 million years – being targeted by Millrock and First Quantum's

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PHOTO BY PHIL ST. GEORGE / COURTESY OF MILLROCK RESOURCES INC.

First Quantum Minerals Geologist Tim Ireland collects a sample while investigating some of the more intriguing porphyry copper prospects at the Alaska Peninsula Project during a summer field program.

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Petroleum news

North of 60 Mining News is a monthly supplement of the weekly newspaper, Petroleum News. It will be published in the fourth or fifth week of every month.

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exploration.

The geologically active region has received limited modern exploration and is prospective for epithermal gold as well as intrusive-related deposits such as skarns and porphyry copper-gold mineralizing systems.

While systematic mineral exploration is limited, a number of prospects have been identified along the more than 1,000-mile (1,600 kilometers) long peninsula and island chain, including at least 34 know mineral occurrences on a roughly 1.6-million-acre (650,000 hectares) portion of this active island arc being explored by Millrock and First Quantum.

The initial exploration funded by First Quantum included 1,140 line-kilometers of high-resolution airborne magnetic and resistivity surveys flown over three of the highest quality porphyry copper-gold occurrences – Kawisgag, Mallard Duck Bay and Bee Creek – followed up by a mapping and sampling program that started in July.

Three prospects

The Kawisgag prospect, located near the southwestern extent of the Alaska Peninsula land package, hosts two main zones of mineralization. These zones – referred to as the northern cirque and southern cirque areas – are inferred to merge below the ridge that separates them.

Airborne magnetic surveys carried out this year now define the limits of the magnetic intrusions and magnetic alteration. Zoned, large-scale, multi-element geochemical anomalies and porphyry copper-gold deposit alteration zones were defined.

While results from any sampling completed in 2014 have yet to be released, a soil grab sample collected from the Kawisgag prospect in 2012 returned encouraging results of 1.24 grams-per-metric-ton gold, 123 parts-per-million copper and 79 ppm molybdenum.

Millrock says a number of viable drill targets have been identified at Kawisgag.

Located about 45 miles (70 kilometers) northwest of Kawisgag, the Mallard Duck Bay prospect hosts an underexplored 809.4-hectare (2,000 acres) alteration zone situated five kilometers (three miles) south of Chignik Lagoon that has never been drilled. The zone of hydrothermal alteration has been dated at about 21 million years. Induced polarization and ground magnetic surveys completed in 2005 identified two chargeability anomalies, one coincident with exposed mineralization in a potassic alteration zone.

Millrock says airborne magnetic surveys, mapping and rock sampling have helped refine the geological interpretation at Mallard Duck Bay.

While Mallard Duck Bay is the earliest staged of the three prospects, geochemical sampling done in 2014 delineated several strongly anomalous zones that could warrant drilling.

Bee Creek, situated roughly 20 miles (32 kilometers) north of Mallard Duck Bay, is the most advanced prospect at the Alaska Peninsula project.

Dated at roughly 3.6 million years, the mineralization at Bee Creek is hosted in hornfelsed sediments intruded by multi-phase diorite intrusive rocks containing mineralized veins and disseminated chalcopyrite, molybdenite and pyrite.

The prospect was initially explored by Bear Creek Mining, which drilled five holes in 1976.

In 2005 and 2006, Metallica Resources Inc. and Full Metal Minerals Ltd. carried out geochemical and geophysical surveys, and drilled two holes. One of the holes cut 118 meters averaging 0.31 percent copper, 0.009 percent molybdenum and 0.126 grams per metric ton gold. Mineralization, alteration and anomalous copper values in soils and rocks extend over a broad area at the Bee Creek prospect.

As a result of the work done this year, Millrock now knows that mineralization, alteration and metallic anomalies in soil occur over a substantial area.

A 2014 airborne magnetic survey indicates the known mineralization may continue to the southwest below a ridge in that area. The soil geochemical results indicate a zoned distribution with high copper, gold and molybdenum in a core area surrounded by a halo of anomalous zinc, lead and manganese.

Although several holes have been drilled at the property, only a small portion of the geochemical and geophysical anomalies have been tested.

Though Millrock and First Quantum have yet to fully develop an exploration plan for 2015, Bee Creek represents the most promising of the drill targets.

Philip St. George, Millrock's chief exploration officer, said, "The results of the initial exploration program are quite encouraging, and we look forward to testing the drill targets that emerge from the program in 2015."

Millrock plans to have the 2015 work plan for the Alaska Peninsula project developed by early in the second quarter.

Copper Joe

In August, First Quantum increased its exploration profile in Alaska by cutting another tentative deal on Kiska Metals Corp.'s Copper Joe property located roughly 110 miles (175 kilometers) northwest of Anchorage.

Situated roughly 20 miles (30 kilometers) southwest of both Kiska's Whistler and Millrock's Estelle projects, Copper Joe is in a region of Southcentral Alaska known for its copper-gold potential.

To secure the exclusive right to option the property, First Quantum funded a late-season drill program.

Originally slated to be 1,500 meters, the program included 885 meters of drilling in two holes. In early December, Kiska reported that the drilling did not return any significant assay results, but confirmed the presence of a strong porphyry-hydrothermal system.

Kiska and First Quantum are currently undertaking an alteration and mineral chemistry study of rocks from surface and drill core to further evaluate the property and potentially identify vectors towards the core of the porphyry system.

First Quantum has until the end of March 2015 to notify Kiska of its intentions regarding an option to enter a joint venture on the Copper Joe project.

If the copper miner chooses to pursue an option at Copper Joe, it can earn an initial 51 percent interest by investing US$5 million in the project by 2017. First Quantum's interest would increase to 80 percent if Copper Joe was advanced to a production decision.

Kiska holds an exclusive right to acquire a 100 percent interest in the mining claims that comprise the Copper Joe Project from Kennecott Exploration

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ALASKA

The US$100M Alaska placer mining sector

Favorable gold prices, reality TV and modern equipment spur resurgence in industry, according to AMA-commissioned report

By SHANE LASLEY
Mining News

From the bold fortune hunters at the close of the 19th Century to the hopeful miners starring on 21st Century "reality" television programs, placer gold mining in Alaska conjures images of "Gold Rush." In truth, however, neither of these are accurate representations of the hard work and careful planning that lends to success at a contemporary placer gold mining operation in the Last Frontier.

To paint a clearer picture of today's placer miner in the Far North State and to quantify the contributions of this unique niche of the mining sector, the Alaska Miners Association hired the McDowell Group Inc. to complete a report on "The Economics of Placer Mining in Alaska."

"Placer mining is a unique segment of Alaska's mining industry. This form of mining has a rich history in Alaska, and the image of a goldpanner is iconic in Alaska's culture," the McDowell Group explained in its report. "Yet, little has been understood about the economic impact of this form of mining."

The McDowell study found that while individually placer mines tend to be small in stature, collectively this mining subsector accounted for roughly 82,600 ounces of the gold produced in Alaska in 2013 and contributed about US$97 million to the state's economy in the form of wages and spending on goods and services.

This source of jobs and spending provides a crucial injection of cash into a number of rural communities that serve as hubs to placer gold mining districts.

"Placer mining occurs in all corners of Alaska and ranges from small family affairs to larger corporate undertakings," according to the McDowell Group. "With recent reality televisions shows about mining in Alaska, along with favorable gold prices, placer mining has seen a resurgence."

Heavy metal

Unlike hardrock mining, in which an expensive and complicated system of mechanical and chemical equipment and techniques are needed to extract gold from solid rock, placer mining benefits from millions of years of natural processing.

With the natural erosion process freeing gold from the rock that binds it and then concentrating it in stream gravels below, a placer miner need only find alluvial deposits with sufficient concentrations of gold and using tools as simple as a shovel and pan begin producing his or her own personal stash of the precious aurum.

While the scale and sophistication of placer mining equipment has grown over time, the basic principle remains the same – gold is heavier than most everything else out there. With this basic concept, all placer miners, large and small, contemporary and legendary use gravity to capture the heavy precious metal while washing away the lighter materials.

While the recovery process is straightforward and inexpensive, finding placer gold concentrations of sufficient quantity to make a living with a shovel and pan in the modern era is much harder to come by.

Most of these "easy" alluvial deposits in Alaska were found and mined during the great gold rushes at the turn of the 20th Century and ensuing years – including a mini gold rush that flared up in the Last Frontier when the price of gold rocketed from around US$125 per ounce in 1976 to a peak of US$850 an oz in 1980.

"When the policy of a fixed gold price ended in the early 1970s, and gold ownership restrictions on private citizens were lifted by the federal government, several

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Company pursuant to an option agreement which was amended to, among other things, permit the transfer of rights or interests of Kiska under the Copper Joe agreement to First Quantum.

Kiska may exercise its option under the Copper Joe agreement to acquire a 100 percent interest in the Copper Joe Project upon the expenditure of US$5 million by Dec. 31, 2018. First Quantum's initial earn-in would cover this expense, and upon the vesting of Kiska's interest, 51 percent of such interest will be transferred to First Quantum.

Under the amended Copper Joe agreement with Kennecott, First Quantum would pay Kennecott US$10 million upon the completion of a pre-feasibility study, and US$5 million upon the announcement of a decision to mine.

In addition to these milestone payments, Kennecott would retain a royalty on the Copper Joe project.

"Kiska is very pleased to be able to restructure the Copper Joe agreement, and welcome First Quantum as a new partner on the project. The agreement provides Kiska with the opportunity to retain an important carried interest in the project, and is an excellent example of Kiska executing the prospect generator business model to create shareholder value," said Kiska President Grant Ewing. ●

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PLACER SECTOR

hundred placer operations in Alaska came back into production (or new production),” explained the McDowell Group. “By 1982, production from about 500 placer mines had risen to 174,900 oz worth $70 million.”

While most of the richest concentrations of alluvial gold have been mined, modern equipment and rising gold prices make previously uneconomic deposits worth a second look.

For the solo miner and small groups seeking to mine placer gold on a shoestring budget, the suction dredge has become the equipment of choice. Armed with some combination of small machinery, hand tools and a suction dredge, many of these small scale miners aim to make a livelihood from the gold recovered.

For others, the pursuit of gold on their claims is more of a weekend hobby. These recreational miners are an oft overlooked yet important subsector of the placer mining industry that ranges from Alaska families going out to seek gold on the weekends to tourists paying to pan or work on a “dude mine.”

“Based upon interviews with recreational mine operators in 2012, at least 800 people traveled to Alaska to primarily participate in recreational mining, amounting to at least 1,000 miner-weeks of annual recreational mining at the remote pay-to-mine camps. Several thousand miner-weeks are also estimated to occur at highway-accessible sites near Anchorage and Fairbanks,” according to the McDowell Report.

Today’s larger scale placer mines in Alaska – ranging from family size setups of two or three people to commercial scale operations employing dozens – do not typically seek high-grade deposits overlooked by their forbearers. Instead, these operations rely on the ability to process more pay gravel and higher gold prices to mine areas previously considered uneconomic. Some of these modern miners have even found that more powerful digging machines and refined gravity recovery techniques make it profitable to rework the tailings and underlying bedrock pay left behind by historical miners.

Tracking the gold price

In the modern era, placer gold production in Alaska tends to trail the price of the precious metal. In 2005, when the gold price was hovering around US$450/oz, roughly 71 placer operations recovered an estimated 24,600 ozs of the yellow metal in Alaska. From 2005 gold prices steadily climbed to a crescendo of US$1,900/oz in August 2011. Likewise, placer gold production in the 49th State climbed to 100,041 ozs form 321 operations in 2012.

ALASKA STATE LIBRARY, B.B. DOBBS PHOTOGRAPHS

This stack of gold bullion at the Miner’s and Merchants Bank in Nome was valued at US$6 million by the photographer that took the photo in 1906. Strong gold prices and reality television shows has attracted a new generation of placer miners to the golden beaches of Nome.

This trend continued into 2013, with some 295 operations reporting placer gold recoveries of 82,600 ozs.

“Placer mining remains strong in Alaska with gold prices ranging from $1,200 to nearly $1,900/oz over the last four years,” noted the McDowell Group.

Continuing its longstanding title being the gold producing capital of Alaska, the Interior region accounted for about half of the state’s placer gold production.

According to “Alaska’s Mineral Industry 2013,” an annual report published by state agencies, 138 placer mining operations in Interior Alaska recovered 41,366 ozs of gold. This region – which includes the famed gold rush mining districts of Fairbanks, Circle and Fortymile – has produced roughly 11.73 million ozs of placer gold over the past 130 years. This is nearly half of the 24.8 million ozs recovered across the entire state.

Western Alaska – which includes the famed golden beaches of the Nome Mining District – produced 31,354 ozs of placer gold from around 90 operations during 2013.

A relatively large number of the placer gold operations in Western Alaska, 40, are classified as recreational. This is due largely to the near-shore placer marine deposits for which the region is renowned and the added notoriety these golden beaches have received in recent years.

“A resurgence of suction dredge mining offshore of Nome, somewhat driven by reality television programs, has also attracted a host of new operators in that area,” the McDowell Group noted in its report.

The state of Alaska has set aside a portion of Nome’s golden beaches especially for recreational miners, allowing individuals to use small dredges and hand mining techniques along the shorelines made famous at the dawn of the 20th Century.

An offshore lease sale held by the Alaska Department of Natural Resources in 2011 is resulting in a growing amount of marine placer gold being recovered from this area.

The state divided its offering into two groups – 53 smaller near-shore parcels, ranging from 40 acres to 160 acres, and 31 larger tracts measuring up to 2,794 acres located in the deeper waters from roughly one mile off the beach to the three-mile limit of Alaska-owned land.

The production from these tracts is beginning to be realized from some of the smaller leases. Larger operations tend to take more time to complete exploration and baseline studies before diving into operations.

The Nome Offshore Project, the largest tract of marine placer gold properties acquired during the state’s offshore lease, is being advanced towards a production decision by an international consortium known as Placer Marine Mining.

While the Nome beaches and near-shore marine gold deposits have been continuously worked and reworked for more than a century, the depth of the icy water covering the deposits leased by Placer Marine Mining has prevented individuals and small-scale operations from dredging there.

In 2013, a PEA was completed on the large-scale marine placer project that was originally a joint venture between De Beers and AngloGold Ashanti. Some C$5.1 million was invested on exploration of the marine property last year. Exploration, environmental baseline studies and other work in support of the operation outlined in the PEA continued in 2014.

It is projected that operations could begin at the Nome Offshore Project as early as 2017.

All told, it is commonly believed that more than 10 million ozs, or roughly US$12 billion, of economically viable placer gold lies beneath icy waters of the Norton Sound.

Northern Alaska accounted for 4,900 ozs of the placer gold produced in 2013 and is set to produce a lot more gold in the coming years.

Goldrich NyacAU Placer, LLC – a joint venture placer mining company owned equally by Goldrich Mining Company and NyacAU, LLC – is targeting the recovery of up to 20,000 ozs of placer gold annually from rich alluvial gold deposits that blanket the valleys of the vast Chandalar land package located some 200 miles (320 kilometers) north of Fairbanks.

Startup at this large placer mine is slated for the summer of 2015 with full targeted capacity expected to be achieved in 2016. Drilling has delineated a 10.5-million-cubic-yard placer deposit at Chandalar averaging 0.025 oz/t (250,000 ozs) gold.

The remaining 5,000 ozs of placer gold recovered in Alaska during 2013 was mined in the Southcentral (2,400 ozs); Southwestern (1,600 ozs); and Southeastern (1,000 ozs) regions.

Significant contributor

During 2013, roughly 1,200 individuals worked in the placer mining sector. Some 73 percent, or 880, of these placer miners were Alaskans.

Of these, about 230 call Fairbanks home, another 230 hail from the larger Anchorage area (including the Mat-Su Borough) and roughly 420 are residents of other communities across the state.

Nearly half (47 percent) of the active placer operators with employees had at least one family member working on their claim. On average, these family-oriented operations have 1.7 family members employed.

It is estimated that the Alaska placer

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● COLUMN

Rumors of mining's demise are premature

Still, industry will likely be happy to see third year of falling minerals prices, near-zero investor interest in rearview mirror

By CURT FREEMAN
For Mining News

"The nearer your destination, the more you slip sliding away." As 2014 quickly slip-slides away, these normally melancholy lyrics by Paul Simon take on a surprisingly upbeat meaning for Alaska's mining industry.

Unlike watching most years slip by, seeing 2014 in the rearview mirror will bring a smile to most in the mining industry, not only in Alaska, but worldwide. This was our third consecutive year of declining commodities prices, near-zero investor interest and the ever-present drone of financial talking heads claiming that mining, in general, is dying and that some commodities, coal, gold and copper in particular, have already shuffled off their mortal coil. Yet, amid the slings and arrows of outrageous fortune, many in the mining industry are openly stating that they believe 2015 is going to be considerably better than 2013 or 2014. Is this just blind optimism, or is it a longer view of reality enjoyed by the mining industry, a view that clearly recognizes the growing demand for mined products? Ascribe it to whatever you will, the demise of the mining industry or of commodities it supplies, has been predicted by many experts on many occasions in the past and in each case, our expiration has been greatly exaggerated.

Western Alaska

GRAPHITE ONE RESOURCES INC. announced results from the first 10 holes of its 22-hole, 2,296.6-meter 2014 drill program at the Graphite Creek graphite project. All 10 holes intercepted significant widths of high-grade, near-surface graphite mineralization, including 7 meters grading 20.98 percent graphite carbon, 50 meters of 6.13 percent graphite carbon, 38 meters of 10.57 percent graphite carbon and 23 meters of 8.70 percent graphite carbon. Geology and assays confirm excellent vertical and lateral continuity of the mineralization within the 1,000-meter strike length of the 4.8-kilometer-long Graphite Creek deposit. 2014 drilling will be utilized to move a portion of the resource from inferred to indicated status. Additional results are pending.

SOUTHERN CROWN RESOURCES LTD. announced additional results from its Luna-Quicksilver project in southwestern Alaska. The company reported on geological mapping and geochemical results from 57 top of bedrock auger samples, 151 channel samples, 10 rock chip samples and 350 biogeochemical samples collected primarily over the Luna-Luna East area of the project. This work outline anomalous silver with associated gold, arsenic, antimony, bismuth and copper values over a 1.3 kilometer length of the Luna-Luna East trend. These anomalous metals are spatially related to the sulfide-rich stockworks evident on the river bank at Luna and the south side of Luna East as well as the massive sulfide vein present at Luna East. Anomalous metals tend to form linear anomalies suggesting that second order structural splays off the main Luna fault are the primary host for mineralization. Biogeochemical sample results tend to agree with existing rock and soil geochemistry and outlined a possible 800-meter northeast extension of the Luna-Luna East trend. The company is contemplating a 2015 drilling program on the project.

REDSTAR GOLD CORP. it has agreed to assume the obligations of **FULL METAL MINERALS LTD.** under its agreement with **THE ALEUT CORP.** on the Unga Island gold project near Sand Point. The company has agreed to pay to The Aleut Corporation an initial option payment in the amount of US$135,000 and later option payments totaling US$175,000 over three years, as well as annual payments in the amount of US$20,000. Additionally, the company will incur annual exploration expenditures totaling US$3,400,000 over four years. In addition, the company may enter into a Mining Lease with The Aleut Corp.at any time prior to Dec. 31, 2019. Upon entering into the mining lease, the company will make annual advance royalty payments escalating from US$25,000 in the first year to US$400,000 on the 16th anniversary and subsequent years. In the event the company delivers a feasibility study, the company will issue 500,000 common shares of its common stock to The Aleut Corp., subject to the approval of the TSX Venture Exchange. Upon commencement of commercial production, the company will pay to The Aleut Corp. a sliding scale net smelter returns royalty of 2-5 percent, depending on the price of gold, and a 2.5 percent net smelter returns royalty for all other commodities.

Alaska Range

KISKA METALS CORP. and funding partner **FIRST QUANTUM MINERALS LTD.** announced results from a drill program concluded on the Copper Joe copper-gold-molybdenum porphyry prospect located in the western Alaska Range. The fall program totaled 885 meters in two holes, spaced 740 meters apart. The drilling targeted coincident geological, geochemical and geophysical anomalies. The drilling did not return any significant assay results, but confirmed the presence of a strong porphyry-hydrothermal system. Hole CJ14-01 targeted a zone of magnetite breccia and banded quartz-magnetite veins mapped at surface. This hole intersected two separate zones, about 80 to 100 meters wide of heterolithic, magnetite flooded breccia cross-cutting a porphyritic quartz monzonite. The quartz monzonite is moderately to strongly sericite-pyrite altered, and contains local magnetite and k-feldspar alteration with trace chalcopyrite mineralization. The hole ended at 450 meters depth in rock-flour breccias with sericite-pyrite alteration and patchy magnetite alteration. Drill hole CJ14-02 targeted a large conductivity anomaly coincident with anomalous copper soil geochemistry. This hole intercepted moderately to strongly chlorite-epidote altered quartz monzonite breccia intruded by weakly altered

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The author

CURT FREEMAN

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mining sector paid US$40 million in wages and other forms of compensations such as production shares and owners profits.

When adding the indirect and induced impacts spurred by Alaska's placer miners, roughly 1,700 jobs, US$65 million in wages paid to Alaskans and US$150 million of in-state goods and services are attributed to the sector, according to the McDowell report.

While it is unlikely that placer mining in Alaska will ever match the legendary status it held at the turn of the 20th Century, continued strength in gold prices will continue to foster an important heritage that continues to support families across the Last Frontier.

"Alaska has a rich history of placer mining dating back to the late 1800s.

● COLUMN

Here's a way Alaska can make a few bucks

The state Legislature will be looking for revenue in the upcoming session; perhaps there are some easy ways to raise a few dollars

By J. P. TANGEN
For Mining News

Recently, an interesting question about AS 38.05.275 came to my attention, and it seems to have implications for a number of holders of federal claims situated within State of Alaska-selected land. The statute allows an Alaska mining location to be placed on top of an unconveyed valid federal mining claim situated within a selection. Until the federal claim is abandoned or declared invalid, the overstaked Alaska claim is "at risk" and conveys no rights to the locator, except for a priority right to mine the land if it becomes open to entry under state law.

The purpose of the statute presumably is quite clear. State selections can be peppered with doughnut holes of withheld land due to the presence of the federal claims, and can represent a management issue where the land around the withheld land is covered with active state claims that are the subject of a major exploration effort.

It makes little sense to have different management schemes on a property being brought into production as a single mine. Furthermore, as the federal managers seem to gravitate toward making the rules governing federal claims more stringent, many individuals conclude their best interests are served by abandoning their federal claims with the expectation that their overstaked state claims will spring to life, and the company can operate under state rules as opposed to federal rules.

Neither the statute nor the regulation which implements this statute requires that the locator of the top-filed claim be the owner of the underlying federal claim; and therein lies the rub.

It appears that there are a significant number of federal mining claims within state selected lands in Alaska that have been top-filed by "at risk" state claims. Since the state does not own the land upon which the top-filed claims are located, it cannot collect rent or royalties from the state claimholder. Nor should it, because the owner of the federal claims is already making payments to the federal government, and it would be unjust for both the United States and the state to collect rent from the same parcel of land.

Likewise, there is no sunset provision for the state top-filed claims; therefore, the top-filer can maintain his claims effortlessly forever, waiting for the federal claimholder to stumble or for the federal government to invalidate the claims, thereby unjustly enriching the top-filer.

In brief, this appears to be a statutorily endorsed plan for jumping claims.

Perhaps it is time that the Alaska Legislature took a look at this question and ensure that the statute actually says what was intended. After all, if the federal claims are converted to state claims, at least the state will get the rent. Of all the issues pending before the Legislature, this is admittedly a small one; however, since the Alaska Department of Natural Resources' regulations do not resolve it, surely some vehicle can be found upon which to hang this Christmas ball.

Seasons' greetings to one and all; and may commodities prices exceed your breakeven by a large margin in 2015! ●

Mining & the law

J.P. TANGEN

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FREEMAN

biotite-feldspar porphyry. Numerous intervals of anomalous copper, molybdenum, zinc and silver occur throughout the hole; the best of which are hosted in strongly chlorite-epidote altered quartz monzonite and magnetite altered breccia containing fragments of biotite altered porphyry with disseminated chalcopyrite. This hole ended at 435 meters depth within a late-mineral, biotite-feldspar porphyry which contained sparse copper mineralization in narrow hematite-pyrite-chalcopyrite veins. The companies are conducting an alteration and mineral chemistry study of rocks from surface and drill core to further evaluate the property and potentially identify vectors towards the core of the porphyry system.

NORTEC MINERALS CORP. announced that it has terminated two previously signed Memoranda of Understanding to directly acquire 100 percent interest in the Golden Zone project near Cantwell. One agreement was signed with **CHULITNA MINING CO.** while the second was signed with **MINES TRUST CO.** and **HIDEFIELD GOLD, LIMITED/HIDEFIELD GOLD (ALASKA) INC.** The company indicated that it was terminating its interest in the project due to the current difficult markets for junior exploration companies wishing to raise sufficient venture capital for a project like Golden Zone.

Southeast Alaska

HECLA MINING CO. announced third-quarter production results from its Greens Creek mine on Admiralty Island. The cash cost per ounce of silver for the quarter was US$3.75 compared to US$5.00 in the third quarter of 2013. The average grade of ore mined during the quarter was 13.04 ounces-per-ton silver compared to 13.15 oz/t silver in the year previous period. Average by-product grades were 0.11 oz/t gold, 3.22 percent lead and 7.91 percent zinc. During the third quarter the mine produced 1,890,929 ounces of silver, 13,524 ounces of gold, 5,033 tons of lead and 14,149 tons of zinc. Mining costs per ton were up by 3 percent due to higher labor cost while costs per ton were down by 2 percent due to lower energy costs, in the third quarter, as compared to the same period in 2013. The per-ounce cost of silver was beneficially impacted by lower energy costs, higher silver production levels, and higher prices for zinc and lead. On the exploration front, definition drilling continued to upgrade the lower NWW, West Wall and Deep 200 South resource areas. Exploration drilling tested the upper limits of both folds of the NWW zone and confirmed the fold limbs to the north beyond the current resource. Drill intercepts of the West Wall suggest thicker and more consistent mineralization than currently modeled and intercepts 100 feet further down dip than currently modeled, including 34.7 oz/t silver, 0.17 oz/t gold, 18.5 percent zinc and 5.6 percent lead over 9.6 feet. Exploration drilling on the southern extension to the Deep 200 South extended the high-grade upper bench mineralization another 300 feet to the south, including 63.6 oz/t silver, 0.15 oz/t gold, 5.6 percent zinc, and 2.6 percent lead over 6.6 feet and 34.4 oz/t silver, 0.14 oz/t gold, 5.5 percent zinc, and 2.8 percent lead over 16.3 feet. Surface drilling of Killer Creek, located a mile west-northwest of the mine, is being reviewed in order to prioritize drilling in 2015. ●

NUNAVUT

Sabina advances gold project in 2014

Junior pursues environmental impact statement, feasibility study, and project financing in hopes of starting production by 2018

By ROSE RAGSDALE
For Mining News

Sabina Gold & Silver Corp. made considerable progress in 2014 in advancing its Back River Gold Project located in southwestern Nunavut toward production. If the project continues development on its current track, the junior could pour first gold as soon as 2018 and quickly rival Agnico Eagle Mines Ltd.'s Meadowbank Gold Mine in size, producing 300,000 to 400,000 ounces of gold annually for 10-15 years.

The Back River project comprises seven properties covering 48,563 hectares (120,000 acres), located 520 kilometers (322.4 miles) northeast of Yellowknife, NWT and 400 kilometers (248 miles) south of Cambridge Bay, NU.

Sabina purchased the project from Dundee Precious Metals in late 2009 and, following discovery of multiple new deposits in 2010 and 2011, made the decision to develop the project.

In 2012, a preliminary economic assessment estimated at least US$1.1 billion worth of gold on the project's properties.

Development in progress

As regulators completed a technical review of the project in mid-November, Sabina reported incremental progress on the project, where it envisions six open-pit mining areas within the Goose and George properties and one underground mine at Goose.

The Back River proposal also includes several roads: all-weather roads within the two properties, a winter road between the two properties, a winter road linking the properties to a marine laydown area about 75 kilometers (47 miles) to the north at Bathurst Inlet and a short-term winter road to the Tibbett-Contwoyto winter road.

Ore produced at Back River would be processed on the Goose property where gold bars would be poured and then flown out by air.

The proposed mine would operate for 10 to 15 years, following two years of mine construction. Another five years would be required to close the mine. Sabina intends to hire 1,600 workers during the construction phase and 900 employees to operate the mine.

Sabina completed a new mineral resource estimate for Back River in March, compiling about 82,000 meters drilled in 2013 that were not included in a pre-feasibility study released in October 2013.

The current estimate includes a measured mineral resource of 10.4 million metric tons grading 5.2 grams-per-metric-ton gold for 1.761 million contained ounces of gold; an indicated mineral resource of 17.9 million metric tons grading 6.1 g/t gold for 3.536 million contained ozs gold and an inferred mineral resource of 8.2 million metric tons grading 7.3 g/t gold for contained 1.927 million ozs gold.

Although the impact of the increased resource on the project will not be fully known until completion of the feasibility study, Sabina said it believes the increase in measured and indicated mineral resources and increase in confidence in the continuity and grade of the deposits offers the potential for a larger mineral reserve on the project and a potentially longer mine life.

Sabina also began work on a feasibility study for the project in June, engaging a team comprised of JDS Energy & Mining Inc. (lead), Hatch Ltd., SRK Consulting, Knight Piésold Ltd. and AMC Consultants Pty Ltd. The feasibility study is anticipated to be completed during the first half of 2015.

"Our studies for the Back River FS are very much on track," said Sabina President and CEO Rob Pease. "While final results and economics for the FS are not expected to be completed until the first half of next year, we are very encouraged by our progress so far and believe with the volume of additional information we now have, that Back River is going to be a compelling project. We also are very fortunate to have what we believe is the best Arctic team in Canada working on the project. Our consultants all have significant Northern experience in design, construction, operations and permitting, which will bring relevant hands-on credibility to the FS."

For the feasibility study, a comprehensive review of all the mining areas has been undertaken. This review is focusing primarily on underground areas where conversion of inferred resources into the measured and indicated categories has demonstrated increased continuity leading to potentially more efficient development strategies and mining methods. The feasibility study will consider whether this could offer a potential reduction in underground mining costs and increased mining recovery and decreased dilution.

Life of mine gold recoveries in the pre-feasibility study were estimated to average 88.0 percent, and metallurgical testing since the PFS has resulted in increased recoveries to an estimated 93.9 percent over the life of the mine. This indicates roughly 5 percent more metal over the life of mine relative to the PFS, and more significantly, a potentially bigger impact in the early years from the first two pits at Llama and Umwelt, which had the lowest recoveries in the PFS, according to Sabina.

The pre-feasibility study contemplated underground development occurring from the bottom of the open pits and a single tailings storage facility to accommodate tailings waste for the life of mine. Current studies for the feasibility study, however, are evaluating the effects of ramp access to the underground external to the open pits.

Sabina said this change allows for other tailings disposal options to be considered in the feasibility study, including the use of open pits for tailings disposal. This may have a positive impact on sustaining capital as well as on the permitting process.

In the pre-feasibility study, the project envisioned a 5,000-metric-ton-per-day operation, producing a life-of-mine average of about 287,000 ounces of gold per year. Analysis is currently underway for the feasibility study on a scenario which would increase the throughput of the process plant by up to 20 percent for the majority of the life of mine. This could alleviate some of the planned open pit stockpiling and increase the overall production profile.

Regulatory progress

Sabina submitted the draft environmental impact statement and associated water license application for the Back River Project to the Nunavut Impact Review Board and the Nunavut Water Board Jan. 22. The DEIS presents scientific and community-based knowledge that determined key aspects of the natural and socio-economic environments in the region. Project interactions were identified; residual effects assessed and proposed mitigation and monitoring plans developed for the construction, operation and closure of the project.

In February, the company received notice from Review Board that the Back River DEIS conformed to the environmental assessment guidelines. In March the company received information requests from the technical review process, and submitted its responses to the board in July. Meetings for the technical review process too place in mid-November.

At the technical hearings, discussion centered on social and environmental concerns about the project, including the impact of shipping for Sabina's proposed Bathurst Inlet shipping area or marine laydown area, particularly on marine

see SABINA PROJECT *page 15*

NORTHWEST TERRITORIES

Diamonds remain territory's best friend

NWT & Nunavut Chamber of Mines envisions benefits from sector will fuel economy of northern jurisdiction for at least 15 years

By ROSE RAGSDALE
For Mining News

Thanks to recent progress in development of several major projects in 2014, the outlook for diamond mining in Northwest Territories is suddenly a lot brighter.

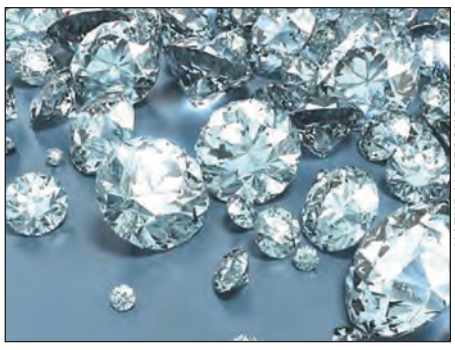
This is especially good news for the territory's mining industry, which is largely dependent on the production of diamonds now and in the foreseeable future.

This point was driven home most forcefully in "Measuring Success 2014: NWT Diamond Mines Continue to Create Benefits," a report recently released by the NWT & Nunavut Chamber of Mines.

An update of a January 2013 report that incorporates data from 2013 in its findings, Measuring Success 2014 describes the combined benefit of more than two decades of diamond exploration and mining in Northwest Territories and also projects what benefits the sector could provide in the future.

"The history of the diamond industry in the Northwest Territories has been a positive one," the chamber wrote in concluding the report. "It has come through direct actions by the mining companies, by investments from government and Aboriginal groups, and by partnerships between all three.

"In less than a generation, diamond mining has seen thousands of NWT residents trained, with skills that will carry them through long and productive careers in mining or other industries. We have seen billions of dollars spent with northern companies, enabling them to build a strong foundation to compete anywhere on the globe."



NATURAL RESOURCES CANADA

Diamonds produced by Northwest Territories' three diamond mines – Ekati, Diavik and Snap Lake, has been relatively constant over the past three years at just under 10 million carats per year, though output dropped slightly in 2013.

The amount of diamonds produced by the NWT's three diamond mines – Ekati, Diavik and Snap Lake, has been relatively constant over the past three years at just under 10 million carats per year, though output dropped slightly in 2013. Natural Resources Canada data (chart below) projects the value of 2013 diamond production at C$1.56 billion from sales of 9.9 million carats, down slightly from C$1.63 billion from sales of slightly less output (9.8 million carats) in 2012, and substantially from C$2.1 billion received from sales of about the same weight of carats (9.95 million carats) sold in 2011.

But local benefits from the NWT diamond mines continue to be strong, in all areas including people, business, government, and knowledge, according to the chamber.

Northern business spending by the mines is robust. The mines spent C$943 million in 2013, of which C$621 million was with northern businesses, including C$248 million was spent through Aboriginal firms.

Combined spending to date to construct and operate the three diamond mines totaled nearly C$15 billion. Of this, more than C$10.6 billion (73 percent) was spent with northern companies and joint ventures, including C$4.8 billion (33 percent) with Aboriginal companies.

In 2013, the three mines employed 1,430 northern workers, including 752 (52 percent) who were Aboriginal. The northern work force represented 46 percent of the mines' total work force of 3,109.

The presence of the diamond mines also resulted in the Government of Northwest Territories encouraging the growth of a secondary diamond cutting and polishing industry in Yellowknife with training and certification programs.

"As diamond mining operations flourished, there was clearly an opportunity to establish and nourish a secondary cutting and polishing industry in the NWT. As well, locally sorting rough stones coming from the mines could keep them separate from diamonds from the rest of the world," NWT officials said.

As a result, two sorting facilities, and several innovative manufacturing facilities were built in Yellowknife. Crossworks Manufacturing Ltd. has operated a diamond cutting and polishing facility in Yellowknife since 2008. In May, Crossworks also opened the NWT Diamond Centre in downtown Yellowknife. The center features several exhibits, and visitors are able to purchase locally mined diamonds. The company employs about 10 people in Northwest Territories.

Deepak International Ltd. is another company that recently purchased two factories and intends to open a diamond cutting and polishing factory in 2015 in Yellowknife. As a result, it is anticipated that more people will be employed by the secondary diamond industry in the coming years.

The factories have attracted some of the world's most experienced and skilled diamond-cutting and polishing craftsmen to Yellowknife to oversee employees as they turn NWT rough stones into high-quality polished diamonds.

The key to developing diamond manufacturing opportunities, according to the GNWT, is reliable access to quality rough diamonds. In broad terms, this means the three operating mines provide for access to 10 percent of their production (on a five-week cycle basis) to Approved NWT Diamond Manufacturers.

To date, C$39 million of diamond royalties have been shared with three NWT Aboriginal groups – the Gwich'in and Sahtu received more than C$12 million each and the Tlicho more than C$14 million.

Royalty sharing with Aboriginal groups is expected to increase going forward because the Government of Northwest Territories has committed to share 25 percent of royalties collected with Aboriginal signatories to the devolution agreement signed with the federal government last spring.

In addition to payroll and royalties, the mines also spent significant sums in NWT communities on cultural and health programs and events and on training and scholarships.

All three mines have invested in environmental and technology research programs aimed at extending knowledge of the surrounding areas. This work has led to caribou, grizzly bear, wolverine and wolf studies as well as construction of a wind farm at the Diavik Diamond Mine. (Diavik's four-9.2-Megawatt-turbine wind farm delivered 8.5 percent of the mine's power needs in 2013.)

Growth in the near term

In the near term, opportunities arising from the diamond mines are significant. A number of initiatives at the three diamond mines and at the advancing Gahcho Kué project are expected to sustain and even increase opportunities in the near future.

At the Ekati mine, development is underway on a number of diamond deposits aimed at keeping mining robust until the projected mine closure in 2019, when the ore bodies are depleted. These include:

- The 'pushback' to prepare the open pit for mining of the Misery Main pipe.
- Pre-stripping of the Pigeon deposit to prepare for open pit mining.
- The Lynx open pit project which will take advantage of the nearby Misery infrastructure.
- The Jay Deposit Project, which represents the long-term sustainability of the Ekati Diamond Mine beyond the current mine life of 2019. At the Jay deposit, drilling has established more than 78 million carats of indicated resource and 13 million carats of inferred resource.

Dominion Diamond, Ekati's owner, filed a Developer's Assessment Report for the Jay kimberlite pipe with the Mackenzie Valley Environmental Impact Review Board in early November.

The Jay Project, currently the largest diamondiferous resource in North America, has the potential to extend the Ekati mine's life to about 2030, more than 10 years beyond its current closure date of 2019. The facilities required to support the development of the Jay Project and to process the kimberlite already exist at the Ekati Diamond Mine.

see **NWT DIAMONDS** *page 11*

● BRITISH COLUMBIA

Miner eyes year-end startup at Red Chris

Northern B.C. copper-gold mine plugs into grid, mill testing gets under way; startup requires First Nation, provincial approvals

By SHANE LASLEY
Mining News

The nearly operational Red Chris Mine is plugged into the electrical grid, and Imperial Metals Corp. is readying all the components for operations in anticipation of final approvals from the local Tahltan First Nation and Government of British Columbia.

By the end of October, the final leg of the power line that connects Red Chris to the affordable and clean power delivered by the 287-kilovolt Northwest Transmission Line was complete. This milestone is allowing Imperial Metals to test all the major electrical components with the goal of a start-up at the copper-gold mine by the end of 2014.

"With power now at the Red Chris mine, we expect crushing operations to begin in November and the grinding and flotation circuits to begin operating in December," Imperial Metals said in its third-quarter financials released Nov. 14.

During a Dec. 10 update, Imperial Metals Vice President of Corporate Affairs Steve Robertson told Mining News that the crusher and conveyors have been commissioned and the onsite commissioning team is working its way through the electrical components in the mill building.

Though all the site preparations are progressing according to schedule, the tailings dam breach at Imperial Metals' Mount Polley Mine has added an extra level of scrutiny to the tailings storage facility at Red Chris – an essential element in putting the mine into production.

IMPERIAL METALS CORP.

The flotation bay at Imperial Metals' Red Chris Mine was ready for commissioning at the time of this October photo. The northwestern B.C. mine plugged into the power grid in November and the electrical components are being tested in anticipation of a December startup.

Tahltan question dam

The August failure of the tailings dam at Imperial Metals' Mount Polley Mine caused many members of the Tahltan Nation to question the integrity of a tailings facility at the nearly complete Red Chris Mine in their traditional territory.

Sitting between the failure of the Mount Polley tailings dam and the impending start-up of a new mine by the owners of Mount Polley, the Tahltan Central Council, the governing body of the Tahltan Nation, conducted a poll to get a better idea of its members' thoughts on Red Chris.

Of the 350 Tahltan members who responded to the survey, 77 percent said the Mount Polley tailings spill affected how they felt about Red Chris. Despite being shaken by the spill, more than 55 percent of the respondents said they still support the mine. An overwhelming 93 percent of the answers to the survey indicated that they wanted more information on the ongoing reviews and potential agreements between the Tahltan and the mine developer.

While the majority of Tahltan are in favor of opening the Red Chris Mine, roughly 26 percent of the respondents are strongly opposed to the new development.

Many of these members are likely to be part of Klabona Keepers, a Tahltan conservationist group that blockaded the roads leading to Red Chris following the dam burst at Mount Polley. By stopping the overland supply of fuel, personnel and equipment, the group comprised of Tahltan elders and families aimed to impede progress until its concerns are met.

In late August, the Tahltan hosted a series of gatherings to discuss the pending Red Chris Mine in the wake of the Mount Polley dam failure.

By the end of the gatherings – which involved two Tahltan-only meetings prior to inviting Imperial Metals and B.C. government to participate – Imperial Metals had agreed to a third-party review of the Red Chris tailings facility to be conducted by an engineering firm chosen by the Tahltan.

Klabona Keepers ended its blockade after the meetings. The group later resumed its protests until Imperial Metals was granted an injunction by the British Columbia Supreme Court Nov. 26 that prevents future blockades of its mine development project.

Recommendations made

Klohn Crippen Berger, the engineering firm chosen by

see **RED CHRIS** *page 13*

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NWT DIAMONDS

The project proposes the building of a water retention dike following a horse-shoe shaped alignment from the shoreline out into Lac du Savage to isolate the portion of the lake overlying the Jay pipe. The dike will be five kilometers long with an average water depth of five meters. The approach is similar in concept, geographic environment and water depth to that implemented by Agnico Eagle Mines Ltd. between 2008 and 2010 at the Meadowbank Gold Mine in Nunavut.

The project timeline currently envisions that dike construction would commence in the summer of 2016 and would continue through to 2019. De-watering and pre-stripping would then commence followed by conventional open-pit mining, with production currently expected to begin in 2020.

The Jay kimberlite pipe is located in the southeastern portion of the Ekati mine property, about 25 kilometers southeast of the Ekati main facilities and roughly seven kilometers to the northeast of the Misery pit, in the Lac de Gras watershed. The Jay project is part of the Buffer Zone Joint Venture, in which Dominion has a 65.3 percent interest.

The analytical and hearing phases, the next steps in the environmental assessment process, are anticipated to deliver a ministerial decision on the project in late 2015. Once the decision is issued, the water license and land-use permitting process will take another six months or so.

In 2013, the Diavik mine operated for its first full year as an all-underground mine. Ore production exceeded targets, demonstrating that Diavik is now a proven underground mine.

Diavik also continued in 2013 to examine the feasibility of open-pit mining of the A21 diamond deposit, located just south of the existing mining operations. Three sampling programs were completed on the A21 kimberlite pipe, which included the initial drill sample, an on-ice drill sampling program, and construction of a 1.2 kilometer decline tunnel. A total of 9,635 carats of rough diamonds were recovered, allowing for accurate pricing predictions. A21 contains a resource of 4.7 million metric tons at a grade of 2.8 carats per metric ton.

The mine's 60/40 percent owners, Rio Tinto plc and Dominion Diamond Corp. reported approval in late November of the development of the A-21 pipe. The mine's operator, Diavik Diamond Mine (Diavik Diamond Mines (2012) Ltd.), has estimated the total capital cost for the development of the A-21 pipe to be about US$350 million and a plan for A-21 diamond production to commence in late 2018.

The A-21 ore body is located under a lake requiring construction of a dike to isolate the open pit operations. The bulk of the requisite infrastructure for the A-21 pipe is already in place from previous dike construction to mine three other ore bodies and pit operations at Diavik, and the necessary operating licenses and agreements are in place for project implementation. The A-21 ramp up was anticipated to begin immediately, with the first equipment and supplies scheduled to be transported in early 2015 to the Diavik mine site on the seasonal winter ice road. Four years of dike construction and pre-stripping (2015-2018) are anticipated to be followed by roughly five years of open-pit mining. Mining of A21 is not expected to add mine life, but would help the mine to maintain its current diamond production.

The Diavik Joint Venture has approved the 2015 program of work. Expenditure on the development of the A-21 pipe in 2015 will relate to crushing costs, pipeline construction and initial dike foundation and abutment work in preparation for expected dike construction during the 2016 and 2017 summer seasons. Pre-stripping of the open pit is expected to begin in 2018 following dewatering of the pool within the dike.

DDMI has estimated that the A-21 pipe contains (on a 100 percent basis) 3.6 million metric tons of measured resources, at a grade of 2.8 carats per metric ton, and 400,000 metric tons of indicated resources at a grade of 2.6 cpt. These estimates were calculated as of Dec. 31, 2013.

At the Snap Lake Mine, owner and operator De Beers Canada Inc. is planning significant capital investment in 2015 to support increased production to improve the sustainability of the mine. This will require the purchase of additional mining equipment, expansion of power generation and fuel storage capacity, and enhancing water management systems.

In September, the Gahcho Kué diamond mine project, owned by a 51/49 joint venture between De Beers Canada and Mountain Province Diamonds Inc., received the final licenses required for construction. Construction of the Gahcho Kué mine is expected to require roughly 700 jobs at the peak of two years of construction. This will be followed by 12 years of mining with an operations work force of about 400 jobs. In 2013, De Beers signed a Socio-Economic Agreement with the Government of the Northwest Territories, which sets NWT employment targets of 25 percent, or about 175 northern jobs during construction and 55 percent, or about 220 jobs during operations. Gahcho Kué will provide for at least 16 trades training positions, 10 apprenticeships and four education sponsorship positions during the life of mine.

Uncertain future

Longer term opportunities for diamond mining in Northwest Territories are less well understood at this time, according to the chamber report.

Current mine lives for Ekati, Diavik and Snap Lake paint a mixed picture for the future. Ekati is projected to run out of ore in 2019; Diavik by 2024, and Snap Lake in 2028.

The addition of Gahcho Kué will add 12 years of production but will not offset the lost benefits from Ekati's projected closure in 2019. The work force at Ekati is about 1,400 workers, while the Gahcho Kué Mine work force is only 400.

Moreover, projected employment by one diamond and three hardrock mines anticipated to begin production within the next 10 years will fall short of providing enough jobs to offset the loss at Ekati.

In addition to Gahcho Kué, Avalon Rare Metals Inc.'s Nechalacho Rare Earth Elements project will require 286 mine workers; Canadian Zinc. Corp.'s Prairie Creek silver-zinc-lead-copper project will need 220 workers; and Fortune Minerals Ltd.'s Nico gold-copper-cobalt-bismuth project will hire 150 workers. Together, the future mines will employ a work force number 1,056, about 350 jobs shy of the positions lost with the closure of the Ekati mine.

Dominion Diamond, however, is continuing to advance the Jay Project, which contains more carats of diamonds than have been mined to date at Ekati. The Jay deposit has the potential to extend Ekati's mine life by more than 10 years and represents the future of the Ekati Diamond Mine beyond its current projected mine life of 2019.

The chamber said the timeline to have this project approved is critical as start of production needs to be timed with the completion of mining of the known ore reserves in 2019. Since purchasing the Ekati Mine, Dominion Diamond has worked with its stakeholders through public meetings and workshops to obtain important public input into the company's plan to extend the life of the mine. An important part of the execution for this project continues to be Ekati's engagement with community, government and regulatory stakeholders. This has helped the company create a revised plan to mine the Jay kimberlite pipe with simplified construction and a significant reduction in the overall environmental disturbance of the project, the chamber added. ●

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Companies involved in Alaska and northwestern Canada's mining industry

Mining Companies

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Located 25 miles northeast of Fairbanks, Fort Knox is Alaska's largest producing gold mine; during 2011, Fort Knox achieved 5 million ounces of gold produced, a modern record in Alaska mining.

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Usibelli Coal Mine is headquartered in Healy, Alaska and has 700 million tons of coal reserves. UCM produces an average of 2 million tons of sub-bituminous coal each year.

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Delta P Pumps and Equipment is a full line distributor for pumps, pump parts, and related equipment. We also handle system design, complete fabrication, installation assistance, and some repairs. Delta P Pump and Equipment is a woman owned Alaskan business established in 2000.

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RED CHRIS

the Tahltan First Nation, completed a review of the tailings impoundment design, as well as predictions of the water quality of the facility and the geohazards that might affect the integrity of the dam.

During its site inspection, the engineering firm could only inspect the "North Starter Dam" as the more permanent North and South dams have yet to be constructed.

The engineers that visited Red Chris said the starter dam is appropriately designed and a visual inspection showed none of the telltale signs of instability.

"The dam appears to be well constructed," the engineers concluded in the report.

Though engineers were unable to inspect the yet-to-be constructed permanent dams, they said the general designs being considered for these pending facilities are sound.

"Similar tailings dams have been constructed using centerline construction techniques at several sites in British Columbia. We consider that this design is feasible and will be stable statically and dynamically if constructed properly," according to the report.

The engineering firm, however, raised concerns about the potential of water seeping through soils at the base of the tailings facility, which could cause stability issues.

This permeability issue was taken into account during the original dam design, and it was determined that the very fine material in the tailings themselves would seal the more permeable natural material and prevent seepage.

Klohn Crippen Berger, which won the 2012 Canadian Consulting Engineering Award of Excellence for its work on a recent tailings expansion at the Greens Creek Mine in Southeast Alaska, does not dispute the concept that the tailings will seal the facility but recommends careful monitoring of water balance to ensure that the water is staying in the facility as designed.

All told, the engineering firm listed 22 recommendations for the safe construction and operation of the tailings facility at Red Chris. Most of the suggestions in the report are associated with risk mitigation through diligent monitoring of potential risks; keeping seepage and other models updated based on observations; and finalizing emergency preparation and response plans.

Of these recommendations made by Klohn Crippen Berger, the last one on the list seems to be the one that requires the most immediate attention and would likely be the cornerstone of the other 21 suggestions in the report.

"We strongly consider that the Red Chris site appoints a technical review board immediately that consists of senior, independent engineers and scientists in the following technical areas: geotechnical and tailings engineering;, hydrology, hydrogeology and geochemistry-water quality," the engineering firm commented. "Good practice is to have a management system in place that plans tailings disposal and executes tailings disposal, (and) raises, monitors and improves the performance of the system."

With the report complete, Imperial Metals and the Tahltan Nation are finalizing a plan to ensure that the tailings facility recommendations are addressed.

"There were 22 recommendations that came out of that report, and we have put together a work plan and we've presented that to Tahltan and have had a very positive response, so we will be working with them in order to implement that work plan and make sure those recommendations get attended to," said Robertson.

To start operations at Red Chris, an environmental management act permit to discharge tailings is required. Imperial Metals says it anticipates the permit will be issued in time to begin tailings discharge before the end of the year.

"We continue to work on the discharge permit for the mine, but we don't anticipate that that will in any way impede our ability to commission and get the mine up and running," said Robertson.

Red Chris cash flow

With the Mount Polley Mine being out of commission for an indefinite amount of time, Imperial Metals is looking forward to generating a revenue stream at Red Chris.

Keeping the company solvent is important, not only to management and shareholders, but also to ensure that the company can afford to rehabilitate the damage caused by the failure of the Mount Polley tailings dam.

The breach and resultant shutdown of Mount Polley has reversed the flow of cash at the central British Columbia mine.

Imperial Metals recorded costs of C$67.4 million related to the tailings dam breach during the third quarter. These costs include C$20.3 million for response and recovery as well as initial rehabilitation and restoration activities; and C$47.1 million provision for future costs related to the tailings dam breach.

To help bridge the cash-flow chasm between the tailings dam failure and realizing revenue from Red Chris, Imperial Metals completed a C$115 million financing in early September.

"This financing along with the projected cash flow from the Red Chris mine together with insurance proceeds is expected to fund the estimated rehabilitation and restoration costs of the tailings dam breach at the Mount Polley mine," the company said in its third-quarter report.

Based on reserves of more than 300 million metric tons of ore grading 0.36 percent copper and 0.27 grams per metric ton gold, a mine at Red Chris is projected to produce 2.1 billion pounds of copper and 1.32 million ounces of gold over an initial 28-year mine-life.

The projected construction cost to complete the Red Chris mine is now estimated to be C$643 million versus the previously estimated construction costs of C$631 million.

Mount Polley rehab

With three ongoing investigations, it is still too early to delve into the cause, or more likely, causes of the failure of the tailings dam at Mount Polley. In the meantime, clean-up and stabilization of the site is making strides.

Imperial Metals reported that the highest priority components of the initial phase of stabilization and early recovery efforts were largely completed by the end of October.

Overall, this first phase of a long-term remediation plan for the area impacted by the Mount Polley breach focuses largely on stabilizing the site for the winter. Towards this goal, the primary objectives of this phase is to stop the flow of tailings into Hazeltine Creek; stabilize the site to manage seasonal events such as the spring freshet; and ensure that water reaching Quesnel Lake meets B.C. water quality guidelines.

In a Nov. 24 update, the British Columbia Ministry of Environment reported that Imperial Metals has started or completed many of the phase 1 initiatives needed to meet these objectives.

Two of the biggest tasks – building a berm across the dam breach to hold the remaining tailings in place and lowering the water level of Polley Lake, where the surge from the tailings burst plugged the outlet with debris – have been achieved.

Additionally, a number of erosion mitigation measures are completed or underway, including a silt fence installation at the mouth of Hazeltine Creek, re-contouring, flow diversion, Polley Lake outlet flow control and installation and operation of settling ponds at Lower Hazeltine Creek.

"While full environmental remediation will take years, this first phase of the longer term plan sets a clear path towards the recovery process," explained British Columbia Minister of Environment Mary Polak. "We will continue to work closely with the mine, First Nations and local communities to ensure the necessary mitigation plans are in place to restore the land back to its original state as best we can. The first phase of this plan will stabilize the environment during the spring freshet and ensure cleanup efforts remain on track."

The second phase of the clean-up program, which will begin in the spring and run through the summer of 2016, will focus on remediating the areas impacted by the breach.

As Imperial Metals begins to get a handle on stabilizing and cleaning up the site, the company is beginning to study its options for resuming operations at Mount Polley. However, the company admits that the timeline for such a feat remains unclear.

In the interim, Imperial Metals is hoping that getting Red Chris into operation will stabilize its cash-flow breach, which will help fund the clean-up at Mount Polley.

"While the precise costs of rehabilitation and restoration are presently unknown, the company believes these costs can be managed over time, given the underlying value of Imperial's assets, the convertible debenture financing, the current sources of liquidity, insurance proceeds and the expected cash flow from the Red Chris mine," the company explains on its website. ●

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● YUKON TERRITORY

Yukon court quashes Peel Watershed plan

Justice concludes that territorial government's scheme for land use is 'inconsistent with the honor and integrity of the Crown'

By ROSE RAGSDALE
For Mining News

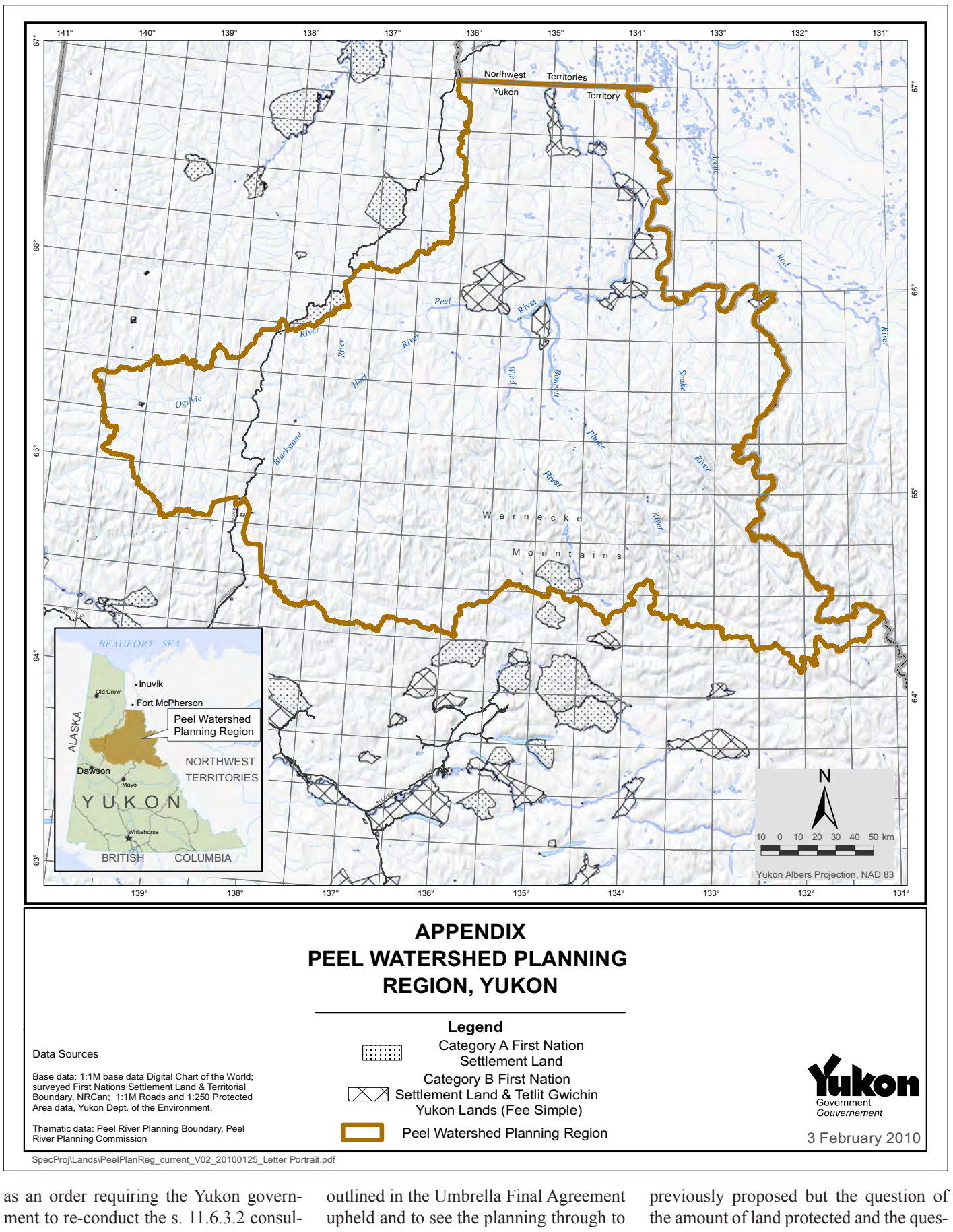
The Supreme Court of Yukon Dec. 2 struck down a land use plan crafted by the Government of Yukon for the territory's vast Peel River Watershed region that could have ripple effects throughout Yukon and beyond.

The Peel Watershed, roughly the size of Ireland, sprawls across 77,000 square kilometers (30,000 square miles) of mountainous terrain situated at the northern end of the Rocky and Mackenzie mountains. Though about 10 percent of the watershed lies across the border in Northwest Territories, some 68,000 square kilometers (26,248 square miles) is located within Yukon's borders, directly north and west of more populous central areas of the territory near Whitehorse, Dawson and other smaller communities.

Hailed by conservationists as one of the largest intact natural ecosystems left in North America, the Peel Watershed drains about 14 percent of Yukon's land mass.

While it is almost entirely undeveloped, and there are no mines in the region, there are nearly 8,500 active mining claims and more than C$100 million has been spent on mineral exploration in the region. The area is considered to harbor a large portion of Yukon's oil and gas potential.

Once completed, a regional land use plan will apply to non-settlement lands, which cover more than 97 percent of the Peel region. The plan also will balance protection for the most sensitive areas of the watershed with providing opportunities for economic activities.



Government plan

After several years of consultation with the public and affected First Nations, Yukon officials unveiled a final land use plan for the Peel Watershed Jan. 21, drawing sharp criticism from major stakeholders in the agreement and one legal challenge.

The First Nations of Nacho Nyak Dun and Tr'ondëk Hwëch'in, the Canadian Parks and Wilderness Society Yukon Chapter and the Yukon Conservation Society appealed the government's decision to Yukon's Supreme Court.

They argued that the government broke with the land-use planning process laid out in the 1990s under an Umbrella Final Agreement between Canada, Yukon and Yukon First Nations, which forms part of 11 final agreements across Yukon.

The plaintiff First Nations with two environmental organizations sought an order that the government-approved Peel Watershed 2 Regional Land Use Plan, dated January 2014, be quashed, as well as an order requiring the Yukon government to re-conduct the s. 11.6.3.2 consultation with constraints on its ability to modify the final recommended plan.

Legal observers say the case marks the first time that a Canadian court has been asked to consider the meaning of land-use planning provisions contained in the Umbrella Final Agreement.

In "The First Nation of Nacho Nyak Dun et al v. The Government of Yukon," the plaintiffs sought to have the process outlined in the Umbrella Final Agreement upheld and to see the planning through to a conclusion that would protect some 54,000 square kilometers (20,844 square miles) of Peel wilderness from mining and other industrial development.

During the week of July 7 – 10, renowned lawyer Thomas R. Berger argued the landmark constitutional case before the Yukon Supreme Court. The case was then continued on Oct. 24 to accommodate a deeper discussion focused on remedy.

Reasons for judgment

In announcing his decision Dec. 2, Justice Ron Veale of Yukon's high court listed the reasons for his judgment. Veale agreed with the plaintiffs that the Yukon government violated the land-use planning process laid out in the Umbrella Final Agreement in developing its final land use plan for the Peel Watershed

The planning process will now return to the final round of consultation with the affected First Nations and the public.

The court order further constrains the Yukon government to the modifications it previously proposed but the question of the amount of land protected and the question of access are off limits.

In a summary of the case, the court said the Peel Watershed is a vast and virtually undeveloped piece of land in northern Yukon. In 2004, a land-use planning process was entered into pursuant to Chapter 11 of the final agreements of the First Nation of Na-Cho Nyak Dun and the Tr'ondëk Hwëchin, both of which have traditional territory within the watershed.

Following roughly five years of background work and information-gathering, the Peel Watershed Regional Planning Commission released a recommended land use plan for the Peel Watershed in December 2009. After receiving proposed modifications from both the Yukon government and the affected First Nations in February 2011, the planning commission released its final recommended land use plan for the watershed on July 22, 2011. In February 2012, the Yukon government announced eight core principles to guide modification and completion of the Peel Watershed Regional Land Use Plan, and

see **WATERSHED PLAN** *page 15*

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SABINA PROJECT

mammals; and the impact of the Back River project on the dwindling Bathurst caribou herd, which is down in numbers to less than 10,000 animals in 2014 from about 60,000 in 2006.

Sabina agreed to reconsider the alignment of its proposed winter road to the marine laydown area because of potential impacts on the nearby ecosystem. The area would be used as a fuel storage tank farm and receiving dock for annual sealifts.

Agencies from both federal and territorial governments, including the Northwest Territories submitted concerns to the Review Board about the potential impact shipping would have on marine mammals and other wildlife along the inlet.

In response, Sabina agreed to provide further details on whether fuel storage includes overwintering of fuel vessels in the sea ice; site-specific water quality objectives and management plans; identification and consideration of migratory bird colonies along the shipping route; studies on polar bear distribution density along the route; and, more information on fuel spill risks as well as identifying best- and worst-case spill scenarios.

Sabina also committed to addressing cumulative impacts from the shipping activities of other Kitikmeot region mining projects – both proposed and approved – including TMAC's Hope Bay, Xstrata's Hackett River and MMG's Izok Corridor.

The final environmental impact statement for the Back River project will be informed by the feasibility statement early next year and is expected to be submitted to the Review Board during the third quarter of 2015.

Looking ahead

Sabina anticipated entering 2015 with about C$31 million in its treasury, a sum the junior said is sufficient to take the project through completion of the feasibility study and the environmental assessment process.

The company forecasts that its cash balance after completion of the feasibility study and the final environmental impact statement will total about C$23 million (at the end of 2015 and not including any field work that may be required to complete the FEIS).

Sabina managers are currently informally exploring project financing alternatives and opportunities. The project is expected to be substantively de-risked by the end of 2015, (subject to the results of the completed feasibility study and environmental assessment). ●

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WATERSHED PLAN

in September 2012, it revealed new land use designations and four maps reflecting proposed new concepts for the land use plan. After consultation, the government ultimately approved a Peel Watershed Regional Land Use Plan in January.

Relying on its s. 11.6.3.2 authority to "modify" the Planning Commission's final recommended plan as it applies to non-settlement land, the approved plan shifted the balance of protected land in the area from 80 percent to 29 percent.

In its decision indexed as "The First Nation of Nyak Dun v. Yukon (Government of), 2014 YKSC 69," the court granted the remedies sought by the plaintiffs.

The land-use planning process set out in Chapter 11 of the Final Agreements has a constitutional dimension by virtue of s. 35 of the Constitution Act, 1982.

"As treaties, the final agreements are to be given a large and liberal interpretation consistent with the objectives of the treaty and in a manner that upholds the honor of the Crown," wrote Justice Veale. "The final agreements must be interpreted in a manner that furthers the objective of reconciliation between Aboriginal and non-Aboriginal societies.

The final agreements give Yukon First Nations certain rights in their traditional territories in exchange for the release of their claims to it. This includes a right to participate in the management of public resources. Chapter 11 encourages the development of a common land-use planning process that applies to both Settlement and Non-Settlement Land in the Traditional Territories of the First Nations," he added

The approach to land use planning in Chapter 11 is consultative and collaborative and relies on an independent and objective commission. The Government of Yukon is required to consult, as that term is defined by the final agreements, with affected First Nations and affected Yukon communities in each of the recommended and final recommended plan reviews. In accepting, rejecting or proposing modifications in response to the recommended plan, the Yukon government must be responsive to the preceding consultation. If the government proposes modifications, it must provide written reasons. These reasons must be drafted with some precision so that the commission can reconsider the recommended plan and make a final recommendation addressing the proposed modifications. Once the final recommended plan is released, the Government of Yukon must again consult, following which it may accept, reject or modify the final recommended plan. If the government proceeds to modify the final recommended Plan, those modifications must be based on the proposed modifications with written reasons earlier put forward to the planning commission. Without this constraint, the government could thwart the land use planning entirely by imposing new modifications that the commission was not able to address.

"In this case, the process adopted by the Yukon government in approving the Peel Watershed Regional Land Use Plan was not based upon a contextual interpretation of s. 11.6.0 of the final agreements. The plain reading interpretation endorsed by the government does not enhance the goal of reconciliation and is inconsistent with the honor and integrity of the Crown," the justice wrote.

The government chose to propose modifications to the recommended plan in February 2011. Of the five modifications proposed, two simply stated a preference for more balance and increased options for access. This level of detail was insufficient for consultation and lacked any tangible or practical guidance for the planning commission.

To comply with the final agreements and respect the planning process, it was incumbent on the Government of Yukon at this stage to set out details about which Land Management Units it wanted zoned for increased access along with rationales and suggestions about mechanisms to accomplish this. These details should have been provided to the First Nations and the affected communities at the consultation stage and their responses considered before the proposed modifications were submitted to the planning commission."

"The modifications the government made to the final recommended plan at the final stage of the process in s. 11.6.3.2 did not flow from the valid proposed modifications communicated earlier and did not respect the land-use planning process set out in Chapter 11 of the final agreements," Veale wrote.

The appropriate remedy is to return the matter to the point in the process where the error occurred. This was at the stage of consultation with respect to the final recommended plan. In the result, the January 2014 government-approved Peel Watershed Regional Land Use Plan is quashed, he added.

As a result, the Yukon government is now required to hold final consultations with the affected First Nations and affected communities under provisions of the final agreements, based on the modifications it proposed in sufficient detail at the earlier stage in the process.

"Any modifications to the final recommended plan shall be limited to these proposed modifications, including the government's 16-page detailed response attached to the modifications, but not the stated preference for more balance and increased options for access," the justice concluded.

Reaction to ruling

Berger, who argued the case on behalf of the plaintiffs, called the ruling "a remarkable judgment."

He said the land-use planning process in the Umbrella Final Agreements signed by Canada, Yukon First Nations and the Yukon Government in 1993, and entrenched in the constitution has been "vindicated."

"The collaborative process for long-term land use planning provided for in the UFA is unique in that it does not allow the Yukon Government to exercise complete authority over land-use planning. Instead, it enables First Nations and Yukoners to play an important part in land-use planning," he added.

Reacting to the court's decision, Chief Ed Champion of the First Nation of Nacho Nyak Dun said, "We are very happy to see the courts honor and uphold the integrity of the Umbrella Final Agreement and Yukon First Nation agreements. We want to thank Justice Veale for all of his hard work and the thought and time he put into this decision."

CPAWS Yukon Executive Director Gill Cracknell said, "This is not just a victory for the plaintiffs, but for everyone who has given generously of their time, money, and voices to see the Peel Watershed protected."

Christina Macdonald, executive director of the Yukon Conservation Society, said, "This is not just a victory for the Peel, but for land-use planning across the Territory."

Chief Roberta Joseph of the Tr'ondëk Hwëch'in added, "The Peel River Watershed is as sacred to our people as it was to our ancestors, and through this decision today we have ensured it will remain so for our grandchildren."

Yukon officials said the government will carefully review the court's decision before determining how to move forward and will assess implications of the judgment on land-use planning and the economic future in Yukon. As we examine the court's opinion and the reasons given by the judge, we will continue to work with First Nations, consulting and engaging on many ongoing files, projects and activities.

The court's ruling did little to alleviate concerns members of Yukon's mining industry have expressed about the restrictions imposed by territorial government's land-use plan for the Peel region.

Samson Hartland, executive director of the Yukon Chamber of Mines, told reporters recently that planning should be done through talking and not courtroom showdowns.

Hartland also said the litigation has engendered significant uncertainty in Yukon miners about Yukon's land-use planning process.

Dawson regional land use

The Yukon high court's decision also is expected to have a major impact on land-use planning across the territory. Though the ruling deals specifically with the Peel Watershed in northeast Yukon, observers says the case will have direct implications for land use in other regions, and could have indirect impact on consultative requirements under modern treaties for other governmental land and resource use decision making in Canada.

The Yukon government, the Tr'ondëk Hwëch'in and Vuntut Gwitchin governments, meanwhile, have suspended the Dawson Regional Land Use planning process, pending the outcome of the Peel case.

The same section of the Umbrella Final Agreement governs both the Dawson and Peel planning processes.

Yukon Environment Minister Currie Dixon said work on the Dawson plan will be archived until further notice.

"The commission members' terms will still be in effect, and they'll just be in abeyance," Dixon said. "Their work will be on the shelf and be ready to go once we receive clarity and can move forward." ●