North of 60 Mining News

Alaska Division of Geological and Geophysical Surveys geologists and students search for rare earths and other critical minerals at Spooky Valley in the Ray Mountains of Interior Alaska. This field investigation is one part of a state program aimed at developing Alaska's strategic and critical mineral potential.

COLBY WRIGHT, UNIVERSITY OF ALASKA FAIRBANKS GRADUATE STUDENT

A special supplement to Petroleum News
WEEK OF
December 30, 2012
Petroleum news

• ALASKA

Graphite Creek grabs world-class title

Drilling confirms thick zones of graphitic carbon, maiden resource catapults NW Alaska deposit to second-largest on the planet

By SHANE LASLEY
Mining News

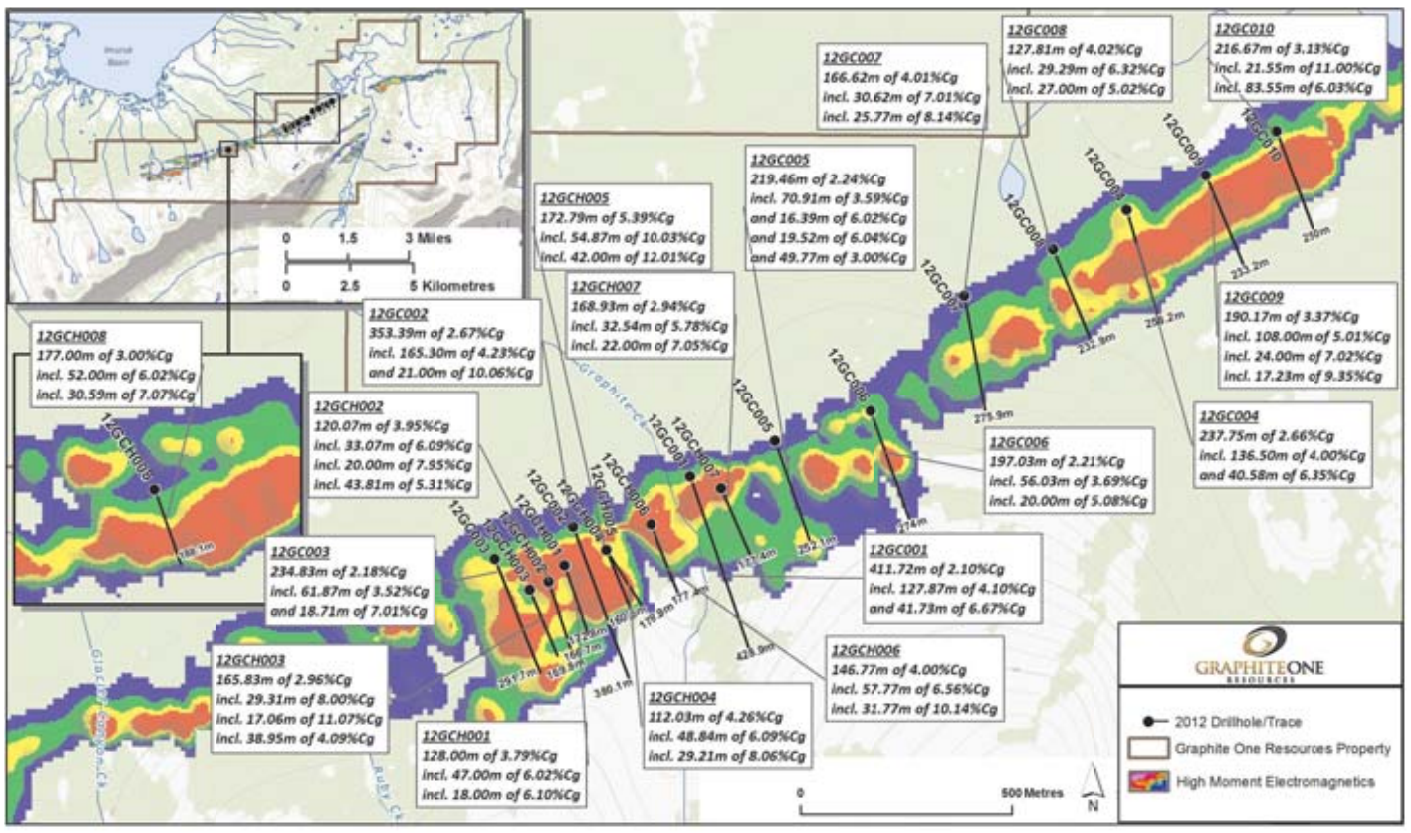
Graphite One Resources Inc. has tapped a vast graphite deposit in Northwest Alaska that rivals the top tier of graphitic carbon projects around the globe.

Graphite Creek, as this emerging world-class project is aptly named, has long been suspected to host somewhere between six and 20 million tons of crystalline-flake graphite. This assumption was based on a 100-meter thick graphite-rich layer that can be traced for some five kilometers (three miles) along the northern slopes of the Kigluaik Mountains.

"It's about five kilometers in length, the average width we see is about 100 meters and the dip-length that we can see at surface we expect to be between 100 and 200 meters," Graphite One CEO Charles Chebry told Mining News as the company was gearing up for the 2012 exploration program at Graphite Creek.

The 4,248-meter drill program carried out at Graphite Creek in 2012 cut through thick graphite-enriched zones that exceeded the early expectations of Chebry and the Graphite One team.

"The 2012 18-hole drill program has been very successful in establishing the potential of the project," said Graphite One Resources President Anthony Huston. "Areas of both high-grade, large-flake and bulk tonnage type mineralization have been defined and the system remains open along strike and at depth as defined by the geophysics and mapping, confirming the strength and continuity of this deposit. While more work remains to be done, there is clearly potential for a world-class mineralized system to be delineated."



GRAPHITE ONE RESOURCES INC.

Based on the results of Graphite One's 2012 drill program, Claude Duplessis, Eng., consultant for SGS Canada Inc., prepared an inaugural resource for this emerging graphite deposit. Using a cutoff of 3 percent graphitic carbon, Graphite Creek has an inferred resource of 107.2 million metric tons averaging 5.78 percent graphitic carbon, or some 6.2 million metric tons of graphite.

This maiden NI 43-101-compliant resource for Graphite Creek catapults the project to among the top graphite deposits in the world. According to Technology Metals Research, a United States-based tech-metals research firm, Graphite Creek ranks second only to Energizer Resources Inc.'s Molo deposit in Madagascar in terms of size; an impressive feat for a project had never previously been drilled.

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GRAPHITE CREEK

Lured by gold

Gold Rush-era prospectors first stumbled upon the Graphite Creek deposit located about 40 miles (65 kilometers) north of Nome while scouring the Seward Peninsula more than a century ago. Like these prospecting pioneers, it was gold that lured the Graphite One team to the Nome region.

Then known as Cedar Mountain Exploration, the company spent the 2010-2011 seasons exploring the gold potential of the Kelly Creek property.

"We were drilling on the Seward Peninsula and getting 0.8 grams (per metric ton) gold and it just wasn't enough to go back to the market and raise the necessary funds that we felt were needed for that area," Huston told Mining News.

In the meantime, green energy applications were spurring new demand for graphite. Knowing that a large deposit of this carbon polymer was located on the Seward Peninsula, the Cedar Mountain team began digging deeper into the graphite market.

"Graphite is vital for lithium-ion batteries, pebble bed nuclear reactors, and fuel cells among other uses. This has allowed for the price of graphite to rise; in the past seven years, the price has nearly tripled. Graphite is the mineral of tomorrow and as such, cannot continue to be overlooked and undervalued," the Edmonton, Alberta-based explorer concluded.

Determining that emerging green energy applications such electric vehicles are likely to continue to drive up the demand for the carbon polymer, the company began digging deeper into the carbon-rich potential of Graphite Creek.

GRAPHITE ONE RESOURCES INC.

The vast deposit at Graphite One Resources' Graphite Creek project in Northwest Alaska is primarily hosted by a garnet biotite quartz schist interval that contains coarse, crystalline flake graphite with distinctive high-grade lenses.

Though Graphite Creek had never been drilled, the promise of the deposit was obvious. In addition to the thick layers of graphite that could be traced on the surface, the property has a century-long history of being a source of high-grade graphite.

"The (Tweet) family had mined graphite here and put it on a barge back in the early 1900s," said Huston.

With World War I driving a strong demand for graphite, Norwegian gold miner Nicholas Tweet staked the high-grade Graphite Creek deposit in 1915 and leased the claims to the Alaska Graphite Company. Over the ensuing two years some 500 tons of graphite was mined from high-grade lenses and shipped to Seattle and San Francisco.

Though production stopped at the end of the war, the Tweet family has held onto its claims to the minerals rights at Graphite Creek – waiting for the right time and the right company to realize the potential of the abundant high-grade graphite found there.

Convinced that now is the time to develop the vast carbon-rich deposit, Graphite One approached the Tweet family about taking a look at the property. In a deal that was sealed with a handshake, the Tweets agreed to let Graphite One complete a due diligence survey; in return the explorer pledged it would share the details and results of the investigation with the family.

"We shook hands, and we did our own due diligence on the property for about eight months," Huston reflected.

Realizing the tremendous potential of the 3,400-acre (1,375 hectares) property, Graphite One closed an option and lease deal with the Tweet family in January 2012.

Under the terms of the agreement, Graphite One has an option to earn a 100 percent interest in the Graphite Creek Project over a three-year period through exploration work totaling C$1.525 million and cash payments of C$425,000. Upon meeting the terms of the option agreement the project will be governed by a 20-year lease with automatic renewal provisions. The lease agreement provides the Tweets a 5 percent production royalty, which can be reduced to 3 percent by cash payment of C$2 million for each 1 percent purchased.

Closing a deal on the property, Graphite One completed a C$6.4 million financing

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GRAPHITE CREEK

and changed its name from Cedar Mountain in March.

Resource established

Graphite One kicked off its 2012 exploration program in April with an airborne electro-magnetic survey over the entire land package. This geophysical program lit up the highly conductive graphite layers beyond the bounds of Graphite One's original land position, prompting the explorer to stake an additional 17 claims.

"Graphite One has more than tripled the original strike length which dramatically increases the potential deposit size from the previous 150 to 250 million metric tons of graphite-bearing rock," said Huston.

In addition to extending the apparent strike to more than 17 kilometers (10.5 miles), early drill results revealed that the graphite-rich zones ran deeper than first envisioned.

Hole 12GC001, drilled just northeast of the project's namesake creek, cut 411.7 meters of 2.1 percent graphite. This intercept includes 127.9 meters of 4.1 percent and 41.73 meters of 6.7 percent graphite.

Hole 12GC002, drilled about 300 meters to the southwest, cut 353.4 meters of 2.7 percent graphite. This intercept includes 165.3 meters of 4.23 percent, 46.4 meters of 6.6 percent and 21 meters of 10.1 percent graphite.

Stepping out some 1,500 meters to the northeast, 12GC004 cut 237.8 meters of 2.66 percent graphite, including 136.58 meters of 4 percent and 40.6 meters of 6.35 percent graphite.

Establishing a strong continuity between the geophysical response and the graphite-rich zones encountered during drilling, the company proceeded to systematically drill a 2,200-meter section of the deposit.

12GC010, the northeastern-most hole drilled, cut 216.7 meters averaging 3.13 percent graphite, including 21.6 meters averaging 11 percent graphite.

12GC003, drilled at the southwest extent of the current resource, cut 234.8 meters averaging 2.18 percent graphite, including 61.9 meters averaging 3.52 percent graphite.

All told, 17 holes drilled in the resource area cut thick zones of high-grade graphite and providing the data to establish the maiden resource of 6.2 million metric tons of graphite.

One of the advantages of this deposit, yet to be touted by Graphite One, is that the majority of the highest grade graphite drilled in 2012 was encountered at the top of the deposit.

Near-surface, high-grade intercepts include:

•12GC002 cut 14.3 meters of 10.1 percent graphite starting at a depth of 26.7 meters;

•12GC004 cut 17.6 meters of 9.36 percent graphite starting at a depth of 20.4 meters;

•12GCH003 cut 17.1 meters of 11.07 percent graphite starting at a depth of 3.9 meters;

•12GCH005 cut 54.9 meters of 10 percent graphite starting at a depth of 6.1 meters;

•12GCH006 cut 31.7 percent of 10.1 percent graphite starting at a depth of 12.2 meters; and

•12GC010 cut 21.6 percent of 11 percent graphite starting at a depth of 13.5 meters.

All of these intercepts are from the top of the reported graphite intercepts.

When asked about this near-surface high-grade mineralization, Huston said "most of the high-grade is on top and right along the fault-line."

Increasing the cut-off grade to 7 percent, Graphite Creek has an inferred resource of 25.44 million metric tons, averaging 9.69 percent graphitic carbon for 2.5 million metric tons of graphite.

The 18th hole

The 18th hole established solid proof of Graphite Creek's blue-sky potential. This hole (12GCH008) cut 177 meters averaging 3 percent graphitic carbon, including 52 meters averaging 6.09 percent graphite. Surface mapping and the electromagnetic surveys indicate a continuity to the carbon-rich layers stretching along the 2,200 meters between hole 8 and the resource area established by the other 17 holes.

"The step-out hole shows the high-grade mineralization is continuous for more than 4.4 kilometers (2.8 miles) as confirmed by drilling," Huston said.

Based on the 52 meters of 6.09 percent graphitic carbon tapped in hole 8, the consultant that calculated the resource estimates the 4.4-kilometer strike is likely to host between 9.9 million and 38.9 million metric ton of graphite.

Huston said this potential only represents a small portion of the likely carbon rich layers identified by the geophysical results, mapping and sampling along the Main trend, not to mention a second trend of graphite identified to the south.

"The rock grab samples continue to reiterate the presence of high-grade graphite mineralization along both the main trend and the southern (Araujo) trend," Huston said. "Now that the main trend is over 18 kilometers in strike length we have only drill tested 12 percent of the trend in detail which further builds to our story as we continue to work towards a resource."

Looking ahead

Though Graphite One has an enormous area to explore, its goal for 2013 is to increase the confidence in and around the current resource area to a point it can complete a preliminary economic assessment by the end of the year.

"We want to prove out to the indicated stage and we have shown right now that we have the ability to be, if not the largest, one of the largest graphite deposits with high graphite percentage in the world," Huston told Mining News. "We would like to do 5,000 to 8,000 meters of drilling; we feel that will get us to where we need to be."

The company, though, has not determined whether it will concentrate on only the 2.2-kilometer-long resource area or increase the strike toward hole 8.

"We are going to look at it internally and discuss whether or not we are going to get the bets bang for our buck by doing that," said the Graphite One President.

While the Graphite One team works out a plan for the 2013 drill season, the company is awaiting the results from roughly 10.5 metric tons of material it sent out to labs for mineralogy and metallurgy studies.

The results from this testing due out in the first quarter of 2013 will be an important milestone as Graphite One begins to consider the economic viability of Graphite Creek.

The size and shape of graphite largely determines the value of the carbon polymer.

The most abundant form of naturally occurring graphite is the fine-grained amorphous variety. This lowest form of the carbon polymer is used traditionally in steelmaking – lending its heat resistance to crucibles and furnace bricks, as well as serving as a carbon-boosting additive in the steel itself.

Lithium-ion batteries and other high-technology applications, however, require a higher order of the carbon polymer known as large flake graphite.

Large flake graphite containing 94-97 percent carbon is currently selling for around US$3,000 per metric ton, a 300 percent increase over the price that the lithium-ion battery ingredient was fetching five years ago.

Graphite Creek has long been regarded as a source of the more desirable large flake graphite.

Laboratory analysis of three 15-kilogram samples collected by Cedar Mountain in 2011 confirms the potential for large flake graphite at the project.

One of the samples taken from a historical stockpile of high-grade material averaged 56.9 percent graphite. The other two samples – one of schist containing disseminated graphite and a second sample of mixed schist and massive graphite – returned 8.2 percent and 14.5 percent graphite, respectively.

To qualify as large flake, graphite particles must be larger than 80 mesh. Mesh size refers to the number of openings per linear inch of mesh, so the larger the mesh size the smaller the material. More than 75 percent of the graphite content of all three of the Graphite Creek samples analyzed by Hazen Laboratories qualified as large flake. The sample of mixed schist and massive graphite, at 93.6 percent, had the highest large flake graphite distribution.

Additionally, some 65 percent of the large flake graphite is greater than 40 mesh, a premium form known as jumbo flake.

In addition to testing the physical characteristics, Graphite One had one of the 2011 samples tested for recoverability. Using a combination of gravity separation and floatation resulted in recoveries from 86.8 to 92 percent graphitic carbon.

Graphite One hopes the mineralogy and metallurgy studies due out early in 2013 will return similar results, increasing the value of the enormous graphite deposit in Northwest Alaska.

"Based on the size of the resource, flake content and potential, we believe this to be the largest reported flake graphite deposit in the world, and look to take an aggressive approach in 2013 to advancing the project towards production in the near future," touted Huston. ●

● COLUMN

Replacement cost of gold startles

CIBC Markets estimate combines various costs, capital, overhead and taxes with production costs to average US$1,500 per ounce

By CURT FREEMEN
For Mining News

I finally found something I have been thinking about for a long time but had not seen discussed in detail. We have all seen summaries of the declining rate of discoveries for new mineral deposits and have heard about the steadily increasing cost of production, now at a record US$727 per ounce, according to GFMS' Gold Survey 2012.

What I really wanted to know was the replacement cost of an ounce or a pound of metal. Let's take gold for example: If I am a producing mine and I just produced an ounce of gold, what is the cost of replacing that ounce in my global inventory? CIBC Markets recently looked into this and came up with an arresting average of US$1,500 per ounce to replace that ounce I just sold on the spot market. Costs included in that figure include US$700 in operating costs, US$275 in sustaining capital, US$150 in construction capital, US$125 in discovery costs, US$50 in overhead and US$200 in taxes. Add a 10-12 percent profit margin and you are looking at something like US$1,700 as the sustainable gold price needed to fuel continued exploration, development and production.

Adding insult to injury is that fact that junior exploration companies, collectively responsible for 40-50 percent of exploration expenditures worldwide, are suffering through one of the worst financing environments in history. How bad is it? Try this: The stock price for 80 percent of all junior mining companies listed on the Toronto Exchange currently is under C80 cents per share and 50 percent of all junior mining stocks are trading at less than C10 cents (a lousy dime!). Looking into the crystal ball for 2013, it seems clear that exploration spending in Alaska is likely to be flat or down compared to 2012. This means fewer companies working in the state and lower budgets for those who are working in the state. The silver lining to the gray cloud is improved acquisition opportunities for those with the capital and foresight to buy their straw hats during the winter.

Western Alaska

GRAPHITE ONE RESOURCES INC. pulled off a rare event this month at its Graphite Creek graphite prospect on the Seward Peninsula. After only one year of drilling, they announced the prospect's first industry compliant resource. Based on 17 or 18 holes drilled in 2012 and using a 3 percent cut-off, the project has an inferred resource of 107.2 million metric tons grading 5.7 percent graphitic carbon containing 6,196,160 metric tons of graphite. The 2.2 kilometer-long northeast striking, 60-degree northwest-dipping resource remains open along strike and down dip. The single drill hole that was not used in the resource estimate sits 2.2 kilometers west of the resource area and intersected 52 meters of 6.09 percent graphitic carbon suggesting immediate upside resource potential along strike.

No big surprise to most but the **U.S. ENVIRONMENTAL PROTECTION AGENCY** finally released results of a peer review of its Bristol Bay Watershed Assessment and found it seriously flawed in several areas. The panel of experts concluded that the one-year study, rather than the four- to nine-year timeframe normally required by EPA for similar-size studies, suffers from a lack of sufficient data and information to support the conclusions reached. The report authors in many cases overlooked the voluminous site-specific data provided by the Pebble project as part of its Environmental Baseline Document. The reveiw also concluded that the draft EPA report over-estimates both the likelihood and consequence of a range of potential systems and operational failures, presents inappropriate and misleading case studies and stated that the hypothetical mining scenario presented in the EPA's report does not employ best mining practices, or the alternative engineering approaches, environmental safeguards and other mitigation strategies commonly used at modern mines to avoid environmental effects.

LIBERTY STAR URANIUM & METALS CORP. announced that it has signed a binding loan settlement agreement with **NORTHERN DYNASTY MINERALS LTD.** on Liberty Star's Big Chunk project in southwest Alaska. The settlement terminated joint venture agreements between the two companies, retired a previously arranged debt agreement between the companies, and settled on a new border between Liberty Star's south block and Northern Dynasty Minerals Ltd. and **ANGLO AMERICAN PLC**'s Pebble project. In concrete terms, the US$4 million-plus loan that Liberty Star owed Northern Dynasty was discharge in full and Liberty Star transferred 199 mining claims to Northern Dynasty.

FIRE RIVER GOLD CORP. reported the final commissioning of its new carbon-in-leach circuit at the Nixon Fork gold project near McGrath. In the first half of the year, the processing plant averaged 86 metric tons per day. Mill throughput averaged 126 tpd in October with peak days over 200 tpd and is expected to increase in 2013. Total gold produced from both the CIL and flotation circuits during the three-month period between August and October 2012 was 3,048 ounces. Plant availability also has increased to +75 percent with additional improvements anticipated in 2013. Gold recovery has steadily increased and is expected to surpass the current 74 percent recovery rate early in 2013. The company also announced results of its 2,976 meters, 38-hole 2012 surface diamond drill program targeting resource expansion at the Mystery Mine. Twenty of 38 drill holes intercepted significant gold, silver and copper mineralization, including 7.62 meters grading 50.26 grams per metric ton gold, 42.36 g/t silver and 3.37 percent copper in drill hole N12-014, 8.31 meters grading 36.75 g/t gold, 22.55 g/t silver and 1.6 percent copper in drill hole N12-001 and 6.09 meters grading 31.83 g/t gold, 37 g/t silver and 2.28 percent copper in drill hole N12-012.

Interior Alaska

FREEGOLD VENTURES LTD. announced final 2012 drilling results from its Golden Summit project. Significant new results from the Dolphin zone included 56.7 meters grading 0.477 g/t gold in hole GSDL1225 and 13.9 meters grading 0.757 g/t gold, and additional 19.7 meters grading 1.91 g/t gold and 1.2 meters grading 37.6 g/t gold in hole GSDL1226. These two holes are outside of the company's recently announced 6-million-ounce-plus gold resource in the Dolphin – Cleary area. The company plans to resume drilling in January with one resource expansion drill rig and a second drill rig devoted to exploration drilling.

INTERNATIONAL TOWER HILL GOLD MINES reported an update of metallurgical recovery results from its Livengood gold project. Metallurgical studies have determined that the gold recovery for the four key rock types that comprise 70 percent of the deposit's gold resource will range between 77 percent and 88 percent. The study program included tests to first determine the gravity recoverable gold, and then evaluated two alternative mill flow sheets for processing of the gravity tailing. The tests showed a robust gravity recovery of between 43 percent and 55 percent. The two post-gravity recovery tests were whole-ore carbon in leach recovery and flotation of the sulfides from the gravity waste stream and then carbon in leach treatment of just the flotation concentrate. Gravity plus whole ore carbon in leach recoveries ranged from 76.7 percent to 87.7 percent while Gravity plus sulfide flotation carbon in leach recoveries ranged from 67.4 percent to 81 percent. Based on these studies, the company has chosen the gravity plus whole ore carbon-in-leach methodology for inclusion in its feasibility study planned for completion in mid-2013.

CONTANGO ORE INC. announced the preliminary results on a portion of its 2012 exploration program at its Tetlin gold-copper project near Tok. The approximately US$6.0 million 2012 exploration

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The author


CURT FREEMAN

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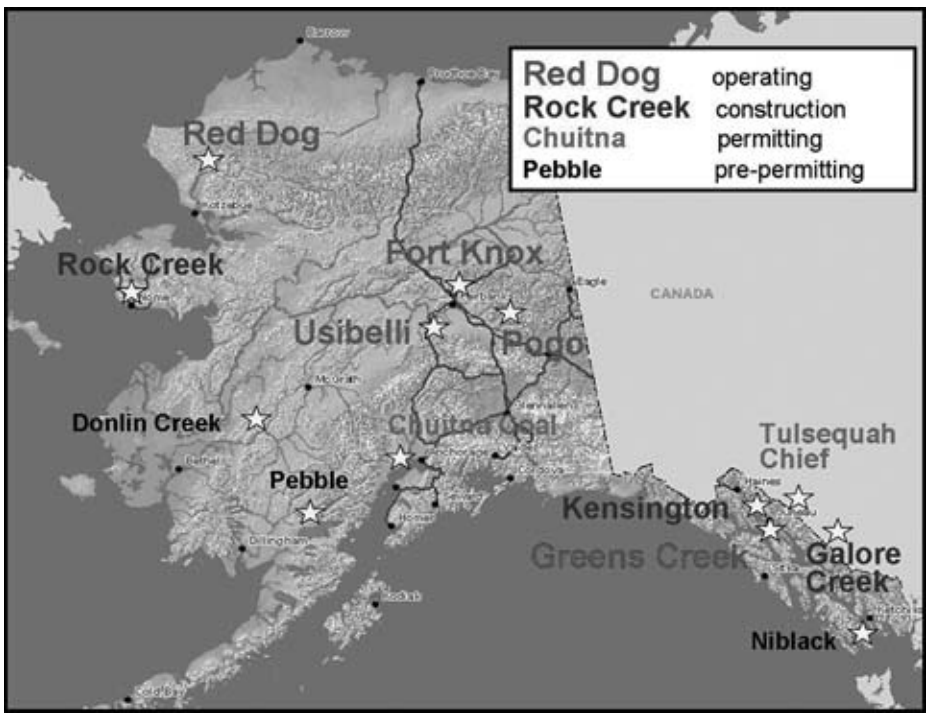
program included two diamond core drilling rigs primarily focused on the Chief Danny prospect where promising drill results were generated in 2011. During 2012 the company collected 82 surface rock samples and 1,029 top of bedrock soil auger samples at the Chief Danny, Taixtsalda and MM prospects and completed 36,004 feet of HQ-size diamond core drilling in 36 holes at the Chief Danny prospect. The 2012 exploration program has expanded on previously drilled areas and intercepted high-grade gold and copper mineralization in the newly discovered Peak Zone. Significant results include 107 feet grading 3.735 parts-per-million gold, 2.6 ppm silver and 0.113 percent copper in hole 1216, 161 feet grading 11.218 ppm gold, 21.6 ppm silver and 0.085 percent copper in hole 1217, 192 feet grading 11.996 ppm gold, 9.1 ppm silver and 0.243 percent copper in hole 1218 including 14.5 feet grading 46.148 ppm gold, 25.9 ppm silver and 0.518 percent copper, 14 feet grading 15.218 ppm gold, 2.3 ppm silver and 0.114 percent copper in hole 1219, 56.8 feet grading 21.766 ppm gold, 7.4 ppm silver and 0.319 percent copper in hole 1235 including 14.8 feet grading 67.797 ppm gold, 10.2 ppm silver and 0.363 percent copper, 160 feet grading 14.717 ppm gold, 10.1 ppm silver and 0.244 percent copper in hole 1236, and 120 feet grading 0.309 ppm gold, 71.6 ppm silver and 1.114 percent copper in hole 1238. In general, all of the holes intercepted a 100- to 125-foot wide zone of alteration and mineralization. The mineralization dips at a low angle to the north and trends northwest-southeast. In addition to gold, silver and copper, other anomalous metals include arsenic, bismuth, cobalt, molybdenum and tin with lesser, more sporadic anomalous lead and zinc. Following discovery of the Peak Zone, additional drilling was completed along strike to the northwest and southeast, eventually extending gold and/or copper mineralization over about 1,700 feet of strike. The company hopes to identify sufficient mineral resources by the end of 2013 to justify initial reviews of economic and engineering parameters on the Chief Danny prospect.

Alaska Range

WESTMOUNTAIN INDEX ADVISORS INC. announced positive assay results from the gold concentrates from the initial test run of its pilot mill at its Terra gold project. The pilot mill gravity concentrates assayed indicate 5,561.52 ounces of gold per ton and 2,254 ounces of silver per ton with copper, tungsten, antimony and zinc values ranging from 0.8 percent to 2.7 percent. From the concentrates of one ton of ore processed by the pilot mill, a total of 1.4 kilograms of gold concentrate were recovered which produced a 401-gram gold bar. The company anticipates receipts of 9 ounces of gold and 4 ounces of silver from the test run. Assay results from the concentrates indicate recoveries of 71 percent for gold and 29 percent for silver.

Northern Alaska

NOVACOPPER INC. and **NANA REGIONAL CORP. INC.** announced metallurgical results from the Arctic deposit and final 2012 drilling results from the South Reef zone of their Upper Kobuk project. Revised metallurgical results indicated copper concentrates recovered 88.6 percent of the copper, 5 percent of the zinc, 8.3 percent of the lead, 35 percent of the silver and 70.8 percent of the gold.



Zinc concentrates recovered 4.6 percent of the copper, 91.7 percent of the zinc, 3.4 percent of the lead, 7.5 percent of the silver and 5.8 percent of the gold. Lead concentrates recovered 2.5 percent of the copper, 1.4 percent of the zinc, 83.9 percent of the lead, 49.7 percent of the silver and 2.1 percent of the gold. These tests showed that high quality copper and zinc concentrates, averaging 29.5 percent copper and 59.2 percent zinc, could be created with conventional technology. The copper concentrate also has a high proportion of the gold and silver at Arctic. The company also reported their final drill results from their 15,457-meter, 22- hole South Reef prospect. Significant South Reef drilling results using a 1 percent cutoff grade include 73.8 meters at a grade of 2.69 percent copper in hole RC12-214; 17.6 meters grading 2.05 percent copper in hole RC21-215; 15.9 meters grading 2.54 percent copper in hope RC12-215W; and 77.2 meters grading 4.27 percent copper in hole RC12-216. Drilling at South Reef has outlined a 300-meter by 700-meter northeast trending zone of mineralization. Copper mineralization remains open to the north and east and to the southwest. An initial resource estimate for the South Reef prospect is expected in early 2013.

Southeast Alaska

GRANDE PORTAGE RESOURCES LTD. announced additional 2012 results from its Herbert Glacier gold project near Juneau. Drilling has now delineated Deep Trench vein mineralization over a strike length of at least 400 meters. Drill hole 12H-1, an exploration step out 150 meters east of Pad G, intersected a sheared and hydrothermally altered zone over 12 meters in width that hosts gold-bearing quartz with abundant arsenopyrite, an important sulfide associated with gold mineralization. A 1.17-meter interval within this zone averages 5.45 g/t gold. Approximately 700 meters of the Deep Trench vein along strike to the east has not yet been drilled. The company plans to release an update resource estimate in the first quarter of 2013.

ARROWSTAR RESOURCES LTD. released geochemical results for 105 rock samples collected at its Snettisham iron project near Juneau. The samples average 21 percent iron and 5.2 percent titanium, while the sulfur, phosphorus, silicon dioxide and aluminum oxide grades on samples containing high iron conformed with commercial grades. The company also conducted a series of magnetic separation tests using different grind sizes. At the 0.15-millimeter size, concentrate grades of ranged from 80.0 percent and 85.2 percent iron oxide. These high concentrate grades may be suitable for dry magnetic separation.

PURE NICKEL INC. announced initial assay results for the recently completed drilling program on the company's 100 percent owned Salt Chuck copper-gold –silver-palladium property on Prince of Wales Island. The 2012 six hole drilling program encountered high-grade gold mineralization in a previously unidentified gold bearing structure in the North Pole Hill area of the property. High-grade intersections include 127.8 g/t gold, 57.6 g/t silver and 2.78 percent copper over 0.35 meters apparent width. The newly discovered mineralization is associated with previously untested soil geochemical and induced polarization geophysical anomalies which extend 1.5 kilometers along strike to the east and west. A second gold-in-soil anomaly splays southward and continues a further 1.7 kilometers. The soil anomalies extend to the limits of the surveys – therefore the potential mineralized structure is open in all directions. The new discovery area is road-accessible and only 10 kilometers from Thorne Bay, Alaska. In addition to the re-mobilized gold copper mineralization, broad zones of anomalous palladium concentrations were encountered at greater depths in the westernmost drill holes, including NPH 12 02 where a weighted average concentration of 234 parts-per-billion palladium was intersected over 12.85 meters apparent width. These anomalous palladium intersections appear to reflect primary magmatic mineralization not previously identified in this area.

HEATHERDALE RESOURCES LTD. announced positive results from drill holes designed to increase the resources at the Trio deposit on its Niblack volcanogenic massive sulfide deposit. The 10-hole, 15,500 feet of surface core drilling program was originally designed to also test the Lookout zone, but early success at the Trio zone prompted the company to focus on the Truio zone in 2012. The drilling intercepted two or three mineralized horizons separated by a unit called the 'white rhyolite.' The white rhyolite unit (which is absent at Lookout) also resulted in the local development of a brittle-fracture network in-filled with sulfides to produce a classic stringer zone in a rhyolite flow dome sequence. Significant results from this drilling include hole S167 which intercepted 32.1 feet grading 0.27 percent copper, 0.29 g/t gold, 1.42 percent zinc and 4 g/t silver and hole S172 which intercepted 20.3 feet grading 0.23 percent copper, 0.40 g/t gold, 2.75 percent zinc and 6 g/t silver.

UCORE RARE METALS INC.

see **FREEMAN** *page 8*

● COLUMN

Alaska's miners lose a valued friend

David Stone was a leader and an icon for the mining industry in modern Alaska who studied the past and ably worked for the future

By J. P. TANGEN
For Mining News

There are those who walk among us who move the earth with a simple smile. One such being was the late David Stone, whose untimely passing on Nov. 20, 2012 leaves us with a hole in our hearts.

Although David was not born here – he moved to Alaska in his early teens – he was an Alaskan through and through. He loved Juneau and the historic mines that had ceased production nearly three decades before his arrival. He loved to explore the tunnels and chambers of the not-quite-sealed AJ Mine; he loved to talk about mining; he loved to write about mining; and he loved to advocate for the future of mining in Alaska.

That is not to suggest that David was a single dimensional character. Quite the contrary, as Deputy Commissioner of Labor he took on mine worker training as a responsibility. As a member of the Juneau Assembly, he was an advocate for development of the historic mines of Juneau. As a past-president of the Alaska Miners Association, he was the titular spokesman for the industry for two years. As a contributing author and presenter at Alaska Mining Hall of Fame events, generally held in conjunction with Alaska Mining Association Conventions, he brought to life the stories of the men of another era who moiled (and panned) for gold.

David also was a devout Christian and a devoted family man and in exchange for these positive qualities, his church and his family have done him proud. At the Memorial Service held in Juneau earlier this month, the celebration of his life was truly touching and its poignancy was capped by the eulogy delivered by his war hero son, Brandon, a member of SEAL Team 6.

As a politician, David was unique. According to the story shared by one of the eulogists, when his advisors counseled him to raise money for a campaign for re-election to the Juneau Assembly, he did so. Because no one mentioned to him that he had to actually spend the money, at the conclusion of his successful campaign, he was able to make a substantial charitable contribution of the unspent funds.

My personal relationship with David dates back to the late seventies when, as a young lawyer, I first became active in the Alaska Miners Association. I learned that David had co-authored a book called, "Hard Rock Gold," detailing the history of mining in the Juneau Goldbelt for the Juneau Centennial, but that it was out of print. The Juneau Centennial Committee had funded the publication and retained the copyright, but there was little interest in publishing a second edition. Working together we secured the copyright and republished. This minor service resulted in a lifetime of friendship, and David rarely failed to mention it whenever we were together at a social gathering.

I don't know that it was the case, but I suspect that he treated virtually all his friends the same way – never forgetting the most modest acts of friendship.

As with so many Alaskans, David's passing is the literal equivalent of turning a page in history. In a state as small, population-wise, as Alaska, everyone has the chance to make his or her mark on the community and the state. David Stone will be long remembered for the mark he has made. ●

Mining & the law

J.P. TANGEN

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FREEMAN

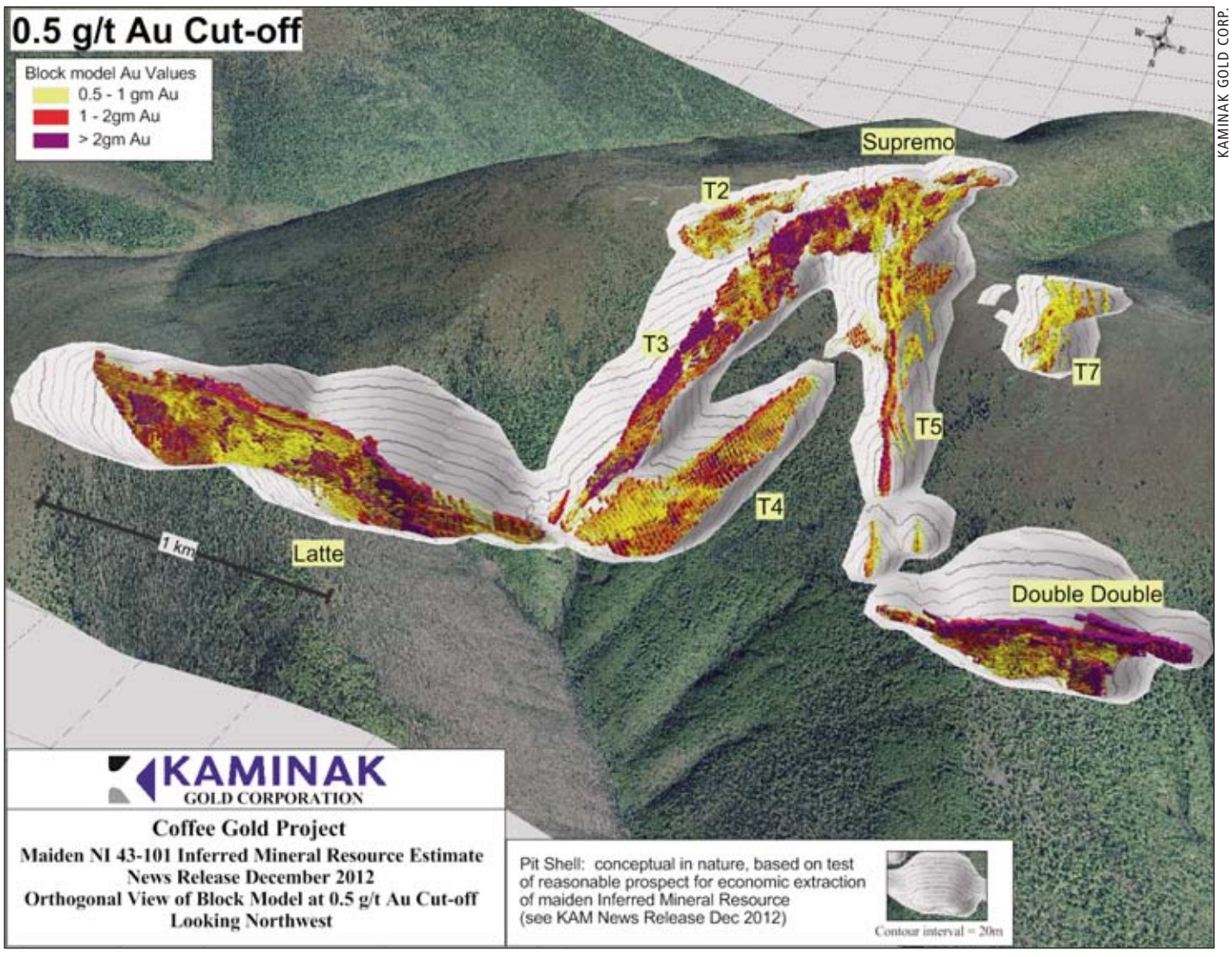
announced its long-awaited preliminary economic assessment for the Dotson Ridge zone at its Bokan Mountain heavy rare earth property in Southeast Alaska. Highlights of the PEA include a net present value of US$577 million at a 10 percent pre-tax discount rate, internal rate of return of 43 percent with a 2-3 year payback period, capital costs of US$221 million including a complete on-site rare earth oxide separation plant, and a contingency provision in the amount of US$25 million, a mining rate of 1,500 tpd with 75 percent of mill feed eliminated via the use of Dual Energy X-Ray Transmission sorting and magnetic separation resulting in approximately 375 tpd reporting to the leach circuit. Average total rare earth recoveries are estimated at 81.6 percent with deployment of Solid Phase Extraction technology to generate high purity individual rare earth oxides at the site. Annual rare earth oxide production is projected at 2,250 metric tons per day during the first five years at full production, including 95 metric tons of dysprosium oxide, 14 metric tons of terbium oxide, and 515 metric tons of yttrium oxide. Mine life, using current resource estimates (5.3 million metric tons at an average grade of 0.65 percent total rare earth oxides) is 11 years with employment pegged at 170 fulltime employees. The design contemplates trackless mining with adit access and blasthole stoping with all tailings will be placed underground via cemented paste backfill. The processing plant will generate about 735 tpd of tailings, significantly less than the mine requirement of approximately 1,030 tpd. Nitric acid that is not consumed in the leach circuit will be recycled through the use of diffusion dialysis, reducing acid consumption by more than 75 percent. ●

YUKON TERRITORY

Coffee resource pegged at 3.24M oz gold

Kaminak Gold Corp. touts heap leach, expansion potential of White Gold district property after 2.5 seasons of exploratory drilling

By ROSE RAGSDALE
For Mining News



KAMINAK GOLD CORP.

Kaminak Gold Corp. Dec. 13 reported a maiden NI 43-101-compliant inferred mineral resource estimate for its Coffee Gold Project in west-central Yukon Territory of 3.236 million ounces of gold contained in 64 million metric tons, grading 1.56 grams per metric ton gold.

The long-awaited calculation follows several seasons of intensive exploration at the 60,704-hectare (150,000 acres) property ignited in 2010 by a modern gold rush to an area now known as the White Gold district of the Yukon. Kaminak was the second company to report the discovery of significant gold mineralization, after Underworld Resources Inc.'s 2009 discovery of the Golden Saddle deposit. Underworld since has been acquired by Kinross Gold Corp.

The majority of the new resource for Coffee is comprised of mineralization in the Latte, Supremo, and Double Double deposits, which occur within close proximity of each other over an area measuring about two kilometers by two kilometers (1.24 miles by 1.24 miles).

Since 2010 Kaminak has drilled 16 gold discoveries at Coffee, but only four deposits are included in the first-ever resource calculated for the 60,704-hectare (150,000 acres) property. The resource estimate also encompasses the Kona deposit which lies some 2.5 kilometers (1.5 miles) west of Latte.

The resource estimate is derived from 659 diamond core and reverse circulation drill holes drilled from 2010 to 2012 for a total of 130,000 meters.

Prepared by Robert Sim, P.Geo, of SIM Geological Inc., the resource estimate is divided into subsets based on different types of gold mineralization. Sim is an Independent Qualified Person as defined by Canadian securities law.

Shallow oxide ore comprises about 46 percent of the resource, with 28.078 million metric tons grading 1.64 g/t (1.481 million ounces) at a base case cut-off of 0.5 g/t gold for oxide ore, while transitional material occurring below the oxide ore totaled about 44 percent of the resource at 31.313 million metric tons grading 1.41 g/t (1.418 million ounces) gold, also at a 0.5 g/t cut-off. The remaining 5.03 million metric tons of the resource is still deeper sulphide ore grading 2.08 g/t (337,000 ounces) gold at a 1 g/t cut-off.

The Coffee resource estimate, at a 0.5 g/t gold cut off, breaks down by deposit as follows:

Supremo hosts 1.027 million ounces of gold contained in 19.86 million metric tons oxide ore, grading 1.61 g/t gold, 704,000 ounces gold contained in 16.54 million metric tons grading 1.32 g/t gold in transitional material and 76,000 ounces gold in 1.66 million metric tons sulphide ore grading 1.43 g/t gold;

Latte has 288,000 ounces of gold contained in 6.66 million metric tons oxide ore, grading 1.48 g/t gold, 537,000 ounces gold contained in 11.33 million metric tons grading 1.48 g/t gold in transitional material and 326,000 ounces gold in 6.89 million metric tons sulphide ore grading 1.47 g/t gold;

Double Double has 120,000 ounces of gold contained in 1.18 million metric tons oxide ore, grading 3.16 g/t gold, 120,000 ounces gold contained in 1.96 million metric tons grading 1.90 g/t gold in transitional material and 16,000 ounces gold in 311,000 metric tons sulphide ore grading 1.55 g/t gold; and,

Kona has 47,000 ounces of gold in 989,000 metric tons oxide ore, grading 1.48 g/t gold, 57,000 ounces gold contained in 1.473 million metric tons grading 1.20 g/t gold in transitional material and 21,000 ounces gold in 605,000 metric tons sulphide ore grading 1.06 g/t gold.

At an increased cut-off grade of 1 percent gold, the Coffee project's inferred resource totals 36.52 million metric tons, grading 2.21 g/t gold containing 2.6 million ounces gold. Of that amount, 15.55 million metric tons is oxide ore grading 2.39 g/t gold for 1.19 million ounces gold, while 15.94 million metric tons is transitional material grading 2.08 g/t gold for 1.065 million ounces gold. The remaining 5.03 million metric tons sulphide ore grading 2.08 g/t gold for 337,000 ounces.

'Major milestone'

"This resource estimate represents a major milestone for Kaminak and highlights the deposit quality and ongoing exploration potential of the Coffee Gold Project," said Kaminak President and CEO Rob Carpenter in a Dec. 13 statement. "At a discovery cost of approximately C$15 per ounce gold, we have advanced Coffee from initial discovery to a +3-million-ounce inferred resource in a little more than 2.5 years. The drilling strike rate and continuity of the mineralized structures at shallow depths show that our strategy and targeting technique, that is drilling gold-in-soil anomalies, is highly effective in this geological terrain."

Investors greeted news of Kaminak's maiden resource estimate for Coffee with enthusiasm, briefly boosting the junior's share price on the TSX Venture Exchange by C42 cents to C$1.43 after a sustained decline in recent weeks. Kaminak shares closed Dec. 19 at C$1.31, down 4 cents.

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COFFEE RESOURCE

Kaminak said its drill strategy from 2010-2012 has been primarily to target near-surface gold mineralization to about 200 meters below surface, thus the maiden inferred mineral resource estimate is comprised of some 90 percent oxide and transitional mineralization. About 55 percent of the oxide and transitional resource occurs within 100 meters below surface, and 87 percent occurs from 0-150 meters below surface. The junior defines transitional mineralization as material with 95 percent oxide and 5 percent sulphide ore.

Other key characteristics of the project:

All zones begin at surface and are open in all directions;

•High-grade and extensive oxide mineralization present in all zones;

•Consistent, repeatable assay results (no nugget effect);

•Gold evenly distributed within mineralized zones;

•Structurally late gold mineralizing event; and,

•Gold hosted in multiple structural trends.

KAMINAK GOLD CORP.

An aerial view of the road connecting Coffee camp to the main drill site during Kaminak Gold Corp.'s 2012 exploration program.

Lack of glaciation over the Coffee property also has allowed in-situ soil-sampling to be employed as a highly effective and low-cost exploration tool. Currently, Kaminak has identified more than 20 kilometers of untested soil anomalies at Coffee that warrant drilling, and only 15 percent of the property has yet to be grid soil sampled.

Encouraging metallurgy

Previously completed metallurgical analyses comprised 72-hour bottle-roll cyanidation, carbon-in-leach and carbon-in-pulp test work on oxide samples from Supremo and Latte, which returned gold recoveries ranging from 96.3-98.5 percent. Remaining diamond core corresponding to these two samples was then composited and crushed to 0.5" for simulated heap leaching via column leach test work, which returned 90.4 percent recovery over 80 days and included 83.2 percent recovery over the first 15 days of leaching.

Three additional samples were submitted to Inspectorate Exploration & Mining Services Ltd. in October for cyanide leach test work, including 72-hour bottle-roll cyanidation, CIL and CIP to the same parameters as the previous tests.

Samples were selected from Double Double, Supremo and Latte. The Double Double sample, which returned gold recoveries of 96.0-96.9 percent were taken from drill core at depths of 30-100 meters below surface comprising 95 percent or greater oxidized material.

The Supremo sample which returned gold recoveries of 90.7-92.4 percent was taken from drill core intercepts in the T3 mineralized structure from depths of approximately 180-200 meters below surface and contains 5-10 percent sulphide material; therefore, it is classified as deep oxide / transitional.

The Latte sample, which demonstrated poor gold recoveries from sulphide material, was taken from drill core at a depth of greater than 300 meters below surface. Due to the poor gold recovery, the sample is currently undergoing diagnostic leach test work to determine the mineralogical association of gold. Given that the Latte sample was taken from a single drill hole, work is also underway to provide an indication of whether the style of mineralization sampled is limited spatially or is typical of sulphide mineralization at Coffee. Further test work will then be determined to assess possible processing options for gold recovery from this type of mineralization.

More drilling, studies in 2013

Kaminak said it currently has C$16 million in cash and no debt and is fully funded for its planned 2013 exploration program. Based on the surface footprints of currently known gold-in-soil anomalies, Kaminak's geologists said the property has considerable expansion potential along strike from the current resource and elsewhere.

"We are preparing to continue with our aggressive pace of exploration in March 2013 and, given that the initial column leach metallurgical results suggest that the oxide mineralization may be amenable to heap leach processing, plans are also being made to undertake a comprehensive metallurgical testing program and commence preliminary economic studies in 2013," Carpenter said.

Images of the block model at various cut-off grades are available on the Kaminak website at www.kaminak.com. ●

ALASKA

Geopolitics trump geology in Fairbanks

With state's potential well-established, 2012 Alaska Strategic and Critical Minerals Summit speakers focus on foreign reliance

By SHANE LASLEY
Mining News

FAIRBANKS – In contrast to the geology, geochemistry and geophysics that dominates discussions at most mining conventions, geopolitics grabbed the limelight at the 2012 Alaska Strategic and Critical Minerals Summit held in Fairbanks Nov. 30.

"Countries that control a given element have a way to leverage businesses to come to those countries. They have a way of demanding there are technology transfers," American Elements President Michael Silver informed the more than 200 delegates who gathered in Fairbanks.

Silver, whose company has been a seller of Chinese rare earth elements for more than two decades, said China's monopoly on this group of strategic elements is one such example.

"What China was doing, and something the world has to recognize, is they were creating a price differential where if you moved your business to China, the cost of rare earths were a third of what it would be if you had to export," he explained.

By levying steep export taxes, constraining overseas shipments and tagging additional upward pressures to the costs of rare earths leaving the country, China has created a two-tier pricing system in which it behooves manufacturers needing these technology metals to move their factories to the Middle Kingdom.

Or, as American Resources Policy Network President Dan McGroarty puts it, "Rare earths are so magnetic that they will suck your whole factory into China."

While China's monopoly on REE is a prime example of the potential risks of over-reliance on other countries to supply elements critical to national security, green technology and economic growth, several speakers at the summit warned that these are not the only minerals that the United States should be concerned about.

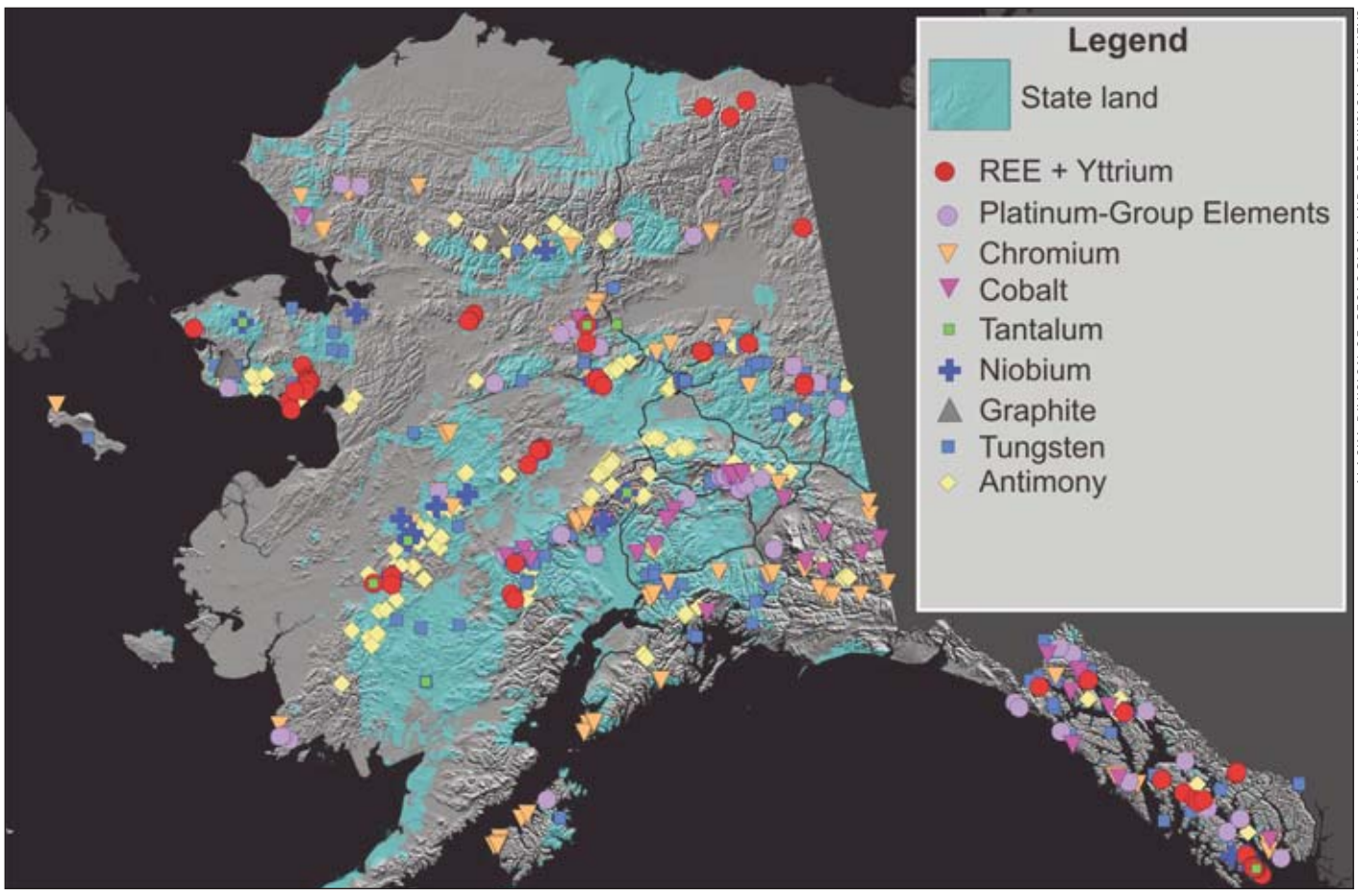
"Rare earths garner many of the headlines, but we need to look at the bigger picture," Sen. Lisa Murkowski, R-Alaska, advised the crowd. "We are 100-percent-dependent on foreign sources of 18 other minerals and more than 50-percent-dependent on foreign sources for some 25 others."

If you break down the rare earths into the 15 individual lanthanide elements, the U.S. Geological Survey list that Murkowski referenced would total 32 individual minerals in which the United States is 100-percent reliant on foreign sources – China is the primary or sole supplier of more than 20 of these minerals.

"We have seen that the world does not operate on pure economics, there is a geopolitical element to it, and you have to be careful that other countries don't gain the system in order to disadvantage us," McGroarty cautioned.

Silver, McGroarty and Murkowski agree that, with a favorable regulatory environment, Alaska's rich stores could ease the United States' reliance on foreign countries to supply its strategic and critical mineral needs.

"Our state has incredible potential in this area," Murkowski told the audience.



ALASKA DIVISION OF GEOLOGICAL AND GEOPHYSICAL SURVEYS

State geologists have identified an array of strategic and critical mineral prospects and deposits across the entire Alaska landscape.

Geological time

The concern that an over-reliance on foreign and undiversified sources of strategic and critical minerals could put the United States at a disadvantage is not new in Washington D.C.

In a report penned in 1983, the U.S. Congressional Budget Office presaged, "An interruption or curtailment of U.S. supplies of one or more critical materials arising from political or economic events is far more likely than a national defense emergency. The causes of such disruptions could be actions by foreign governments intended to disrupt U.S. supplies for political purposes or to raise prices, localized political or military actions that incidentally disrupt supplies, or abrupt demand surges in excess of existing

see **MINERALS SUMMIT** *page 15*

• NUNAVUT

Junior finds more uranium at Angilak

Kivalliq Energy reports successful 2012 exploration program near Lac Cinquante deposit, discovery of six new mineralized zones

By ROSE RAGSDALE
For Mining News

Kivalliq Energy Corp. recently completed a successful uranium exploration season at its Angilak Property located 225 kilometers (140 miles) southwest of Baker Lake, Nunavut and reported plans to resume work on the project in 2013.

"We had one of the largest uranium exploration programs on the globe in our peer group," said Kivalliq CEO James Paterson in a September update. "And our 2012 program came in on time and under our budget of C$20 million."

Describing 2011 as a "bumpy ride" in the uranium sector, Paterson said Kivalliq outlined in February plans for what has become "a year of growth through new discoveries" for the Vancouver, B.C.-based junior.

Kivalliq Dec. 3 reported the latest results from 38,856 meters of NQ diamond and reverse circulation drill holes completed in 2012, noting that six mineralized zones were discovered during the season at Angilak. Since 2010 Kivalliq has discovered 10 significant uranium occurrences on the property, which also hosts the Lac Cinquante Uranium Deposit discovered in the 1970s.

The latest results come from the Nine Iron Trend, a mineralized area located some 10 kilometers (six miles) southeast of the Lac Cinquante deposit and five kilometers (three miles) southwest of Kivalliq's Nutaaq camp.

KIVALLIQ ENERGY CORP.

Kivalliq Energy Corp.'s exploration team: Geologist Jacques Stacey, Exploration Manager Bill Cronk and COO Andrew Berry take a break at Nutaaq Camp on the Angilak Property in south-central Nunavut.

The trend is outlined by a distinct, nine-kilometer- (5.6 miles) long magnetic geophysical anomaly extending below the contact or "unconformity" with the Angikuni Basin.

Drilling in 2012 at the east end of Nine Iron Trend intersected anomalous uranium in five holes over a strike length of 100 meters, and to a vertical depth of 154 meters. Significant uranium mineralization was intersected in three of five diamond drill holes, including 0.45 percent U3O8 over core interval of 0.9 meters in hole 12-BIF-001; 0.28 percent U3O8 over core interval of 1.3 meters in hole 12-BIF-002; and 0.24 percent U3O8 over core interval of 2.1 meters in hole 12-BIF-003. In addition, prospecting samples taken in 2011 along three kilometers of the Nine Iron Trend returned high-grade uranium assays, including 13 of 25 grab samples exceeding 1 percent U3O8 and five samples exceeding 15 percent U3O8.

The sample results prompted ground geophysical surveying and geological mapping which revealed a southwest-trending magnetic anomaly that coincided with both prospecting results and a 10-kilometer by one-kilometer (6 miles by 0.62 miles) belt of Archean-aged metasedimentary rocks. The magnetic trend and host rocks sit on the southeastern flank of the Yathkyed Greenstone Belt and trend westward below an unconformable contact with the Proterozoic age Angikuni Basin.

"The Nine Iron Trend is located five kilometers (three miles) from any previously known mineralization and is a completely new target area within the Angilak Property. This trend combines significant uranium in drill core with highly mineralized surface samples, along a sizable geophysical signature that strikes beneath the Angikuni Basin unconformity," said Kivalliq President Jeff Ward. "We consider Nine Iron to be more evidence of the district-scale potential of the Angilak Property, and a high-priority unconformity-related target for 2013."

Subhed: History of prospectivity

Angilak has been viewed as a highly prospective property since it was discovered in the 1970s. Pan Ocean, one of numerous companies that explored the property since the 1960s, discovered the Lac Cinquante deposit between 1975 and 1981, but very little data is publicly available for historic work completed on the deposit, according to Kivalliq.

In a technical report and resource update released in March, Kivalliq said exploration for uranium ceased abruptly at Lac Cinquante and the surrounding area when Pan Ocean divested its uranium projects in 1982 in the wake of nuclear accidents at the Three Mile Island Nuclear Power plant in 1979 and Chernobyl in 1986, combined with a decrease in oil prices in the mid-1980s. These events negatively affected uranium consumption resulting in depressed uranium prices throughout the '80s.

Kivalliq, a spinout from Kaminak Gold Corp., became the first company in Canada to sign a comprehensive agreement with Nunavut Tunngavik Inc. to explore for uranium on Inuit Owned Land in Nunavut. In 2008, the junior acquired a 100 percent interest in the acreage that hosts the Lac Cinquante deposit in an agreement with the Inuit landowner that encourages uranium exploration.

Today, Kivalliq controls 137,705 hectares (340,268 acres) in its flagship Angilak Property, including 35,386 hectares (87,438 acres) in 38 strategic claims staked in 2012. The company has invested some C$50 million in the project, conducting systematic exploration, including: ground and airborne geophysics, geological mapping; prospecting, and over 87,500 meters of diamond and reverse circulation drilling.

Kivalliq spent about C$17 million on exploration of Angilak in 2011, discovering the Western Extension and Eastern Extension of the Lac Cinquante deposit along with four other mineralized zones – Pulse, Spark, BIF and AG. The work enabled the company to nearly double (92 percent) the inferred mineral resource estimate for the Lac Cinquante deposit to its current level in early 2012.

Year of discovery

In February, Kivalliq unveiled plans for a two-phase, C$20 million exploration program with 35,000 meters of core and RC drilling at Angilak designed to advance the uranium discoveries made in 2011 and increase its NI 43-101 inferred resource estimate of 27.13 million pounds U3O8 in 1.8 million metric tons averaging 0.69 percent U3O8 (at 0.2 percent cut off) for the Lac Cinquante

see **KIVALLIQ** *page 14*

● NORTHWEST TERRITORIES

Territory sees spurt in mining activity

Regulatory improvements encourage companies to buck trend by increasing expenditures for exploration, development and production

By ROSE RAGSDALE
For Mining News

A challenging economic climate in 2012 failed to impede growth in mining activity in Northwest Territories. As miners struggled to fund their work programs, numerous companies managed to plow ahead in the wake of regulatory improvements, advancing projects that could bring even more robust times to the territory's mineral resources sector.

The Northwest Territories, one of Canada's three northern territories, is sandwiched between Yukon Territory to the west and Nunavut to the east. With a land mass of nearly 1,347,150 square kilometers (520,000 square miles), the NWT is roughly twice the size of Texas and a bit smaller than Alaska, though it has a particularly sparse population of only 43,000 residents.


DAVID RAMSAY

"What the NWT does have – in huge amounts – is resource potential," said NWT Industry, Tourism and Investment Minister David Ramsay.

"Lying beneath our lands are diamonds, gold, uranium, tungsten, lead, silver, zinc and other rare earth minerals. We are fortunate to have seven potential mining projects coming on-stream within the next decade – ranging from the opening of our fourth diamond mine – Gahcho Kué - to Avalon's Nechalacho Rare Earths mine project," Ramsay told an audience at the Arctic Technology Conference held in Houston Dec. 6.

What the NWT also has, according to Natural Resources Canada, is a mineral resource industry that is on the move. Unlike its neighbors, the NWT is expected to see growth in mineral exploration investment in 2012.

NRCan's survey of mineral exploration companies, released in November, forecast 2012 northern exploration expenditures decreasing from year-earlier levels in Nunavut and Yukon but increasing in the NWT.

NRCan's latest semi annual report, "Exploration and Deposit Appraisal Expenditures, by Province and Territory," predicted a 44 percent increase in 2012 mining investment to C$135.5 million in the NWT compared with C$93.8 million a year earlier. By contrast, such spending is forecast to decrease in Nunavut and Yukon from record highs in 2011. In Nunavut, 2012 expenditures are forecast to drop 20 percent to C$426.5 million from C$535.7 million a year ago, while comparable outlays in Yukon are expected to dip 12 percent to C$291.7 million from C$331.7 million in 2011.

"While NRCan provided no details to explain its survey results, we can say that the good news is that mining projects in both the NWT and Nunavut continue to advance through the approvals processes," said Cathie Bolstad, president of the NWT & Nunavut Chamber of Mines in announcing the survey results. "We are pleasantly surprised to see that the NWT is bucking the northern trend with a projected increase of 44 percent over last year. We are cautiously optimistic that this reflects the good work being done by so many parties to improve the NWT's investment climate: The Federal government with regulatory improvement and its Northern Projects Management Office; the territorial government to create a NWT Mineral Strategy; and our own Chamber's work with the Akaitcho to strengthen that Aboriginal community's support for mineral development."

> *"Lying beneath our lands are diamonds, gold, uranium, tungsten, lead, silver, zinc and other rare earth minerals. We are fortunate to have seven potential mining projects coming on-stream within the next decade – ranging from the opening of our fourth diamond mine – Gahcho Kué - to Avalon's Nechalacho Rare Earths mine project."*
> **–Hon. David Ramsay, Minister of Industry, Tourism and Investment, Government of Northwest Territories**

NRCan's data includes on mine site and off mine site activities, field work, overhead costs, engineering, economic and pre or production feasibility studies, environment, and land access costs.

Claim-staking slows

In its annual mineral exploration overview, the NWT Geoscience Office summarized the gains made by the NWT mining sector in 2012.

The 34-page report, authored by H. Falck and K. Gochnauer, said that much of this year's activity resulted from a surge of mining activity begun in 2011, and the NWT mining sector also suffered from the same setbacks felt throughout the industry.

By the end of October, for example, only 88 claims covering 58,000 hectares had been staked in NWT, many covering older claims that had lapsed. By comparison, 710 claims covering 550,000 hectares were staked in 2011 when explorers ventured into new regions and returned to areas where mining activity had been absent for 20 years, the report said.

The territory has only four operating mines – three diamond producers: Ekati, Diavik and Snap Lake and one tungsten mine, Cantung.

With the exception of Snap Lake, these are mature operations that are set to close within the next decade unless significant new deposits are found to prolong their mine life.

De Beers Canada Ltd.'s Snap Lake Diamond Mine located 220 kilometers (136 miles) northeast of Yellowknife continued to ramp up production in 2012, targeting 1.4 million carats of annual production by 2014. The mine, which is designed to process ore at a rate of 3,150 metric tons per day, is forecast to produce diamonds until 2030. In 2011, Snap Lake recovered 881,000 carats from 814,000 metric tons of material, down slightly from 925,000 carats in 2010.

Ekati's majority owner BHP Billiton reported plans to sell its stake in Canada's first diamond mine, and Diavik's 40 percent co-owner Harry Winston is working to acquire the operation in a deal reportedly valued at about US$500 million.

Diavik's 60 percent co-owner Rio Tinto plc also announced a review of its Canadian diamond assets that could lead to their sale and curtailed its diamond exploration activities in the NWT indefinitely.

Advanced projects progress

Meanwhile, thanks to considerable work on a slew of advanced exploration and development projects, the overall outlook for mining activity in the NWT is on the upswing.

Exploration and environmental work continued on of these ventures, including Avalon Rare Metals Inc.'s Nechalacho Project, Canadian Zinc Corp.'s Prairie Creek Minesite Project, Fortune Minerals Nico Project, Tamerlane Ventures Inc.'s Pine Point Mine Project, Tyhee Gold Corp.'s Ormsby/Nicholas Lake Project and Seabridge Gold Co.'s Courageous Lake Project.

De Beers Canada and Mountain Province Diamonds Inc. are currently working to advance their huge diamond project, Gahcho Kué, through the environmental review process with five days of public hearings in several NWT communities concluding recently. Reports from the companies indicate a positive feasibility study for the project, and their proposed mine plan calls for recovery of 4.5 million carats annually from open pits on the 5034, Hearne and Tuzo kimberlite pipes for an 11-year mine life.

The companies expressed optimism Dec. 11 about the project's chances of winning regulatory approval. "We are confident that the project is not only technically sound, but also reflects our commitment to sustainable development by listening to our community partners and incorporating key input that makes this project viable and respects local priorities," said De Beers Canada Chief Operating Officer Glen Koropchuk in opening remarks.

"Last week's public hearings mark an important milestone towards the development of Canada's next great diamond mine. The successful permitting of Gahcho Kué will secure the Northwest Territories' position as one of the world's leading diamond producing regions," said Mountain Province Diamonds President and CEO Patrick Evans in the Dec. 11 statement.

Canadian Zinc received approval in December 2011 from the Mackenzie Valley Environmental Impact Review Board for the Prairie Creek project to proceed to the regulatory phase for approval by the Mackenzie Valley Land and Water Board. The Geoscience Office said that pending another step of approval, construction of the lead-zinc-silver mine could begin in 2013.

Avalon recently reported an increase in the mineral resource estimate for its flag-

see **NWT ACTIVITY** *page 14*

continued from page 12

KIVALLIQ

ship Nechalacho rare earth elements project and that it received positive news from metallurgical and refinement testing. The company also announced plans to build a separation plant and refinery in Louisiana. The Nechalacho deposit located at Thor Lake, NWT, is emerging as one of the largest undeveloped rare earth elements resources in the world.

Diamond exploration surges

Despite the slow pace of claim-staking, mineral exploration activity in the Northwest Territories in 2012 was relatively robust. Diamond explorers included Kennady Diamonds Inc., a company formed by Mountain Province Diamonds in 2011 to manage its Kennady North diamond project, which lies north of Gahcho Kué. Kennady engaged Northtech Drilling Ltd. to drill a minimum 2,500 meters to test up to 12 new targets and intersected kimberlite in four holes along the Kelvin Faraday Corridor. Initial results of testing include 1,889 diamonds (0.92 carats total weight) extracted from 394.4 kilograms of core with an average grade of two carats per metric ton for the combined Kennady North kimberlites. More targets remain to be tested, and the company is planning a winter drill program.

An affiliate of Diavik's 40 percent owner, Harry Winston Diamond Mines Ltd. continued work in 2012 on the 124,238-hectare joint venture property that it agreed to explore with North Arrow Minerals Inc. and Springbok Holdings Ltd. in an option agreement in 2011 but ran into a delay in July because of the lack of availability of a track-mounted reverse circulation drill. Harry Winston had agreed to spend at least C$5 million over a five-year period on the project in order for the option to vest.

Olivut Resources Ltd. discovered new kimberlite in an 11-hole lightweight drill program testing eight targets on the HOAM property that covers 57,465 hectares in the Interior Platform region south of Fort Simpson, NWT. Caustic fusion analysis results are pending. Olivut's exploration of HOAM has resulted in the discovery of 29 kimberlites to date and the identification of numerous additional priority drill targets.

After several years of no field work in the Lac de Gras region, Peregrine Diamonds Ltd. returned in the summer of 2011 and completed a 295-kilometer (183 miles) ground geophysics program over a number of claims in an effort to generate new kimberlite targets. Last winter, the explorer drilled 799 meters on four separate kimberlite targets. Kimberlite pipes were discovered at three of those sites and microdiamond analysis confirmed that all three are diamondiferous.

"The discovery of three new diamondiferous kimberlites at Lac de Gras, a diamond district with two operating mines that has seen intense exploration activity in the last 20 years, is a testament to the experience and dedication of Peregrine's exploration team," Peregrine President Brooke Clements told Mining News recently. "It also illustrates the potential to make additional new discoveries. We continue to analyze the results from this year's work and previous programs. … Future work programs are being planned and could include new target evaluation on the company's 75,000 hectares of mineral claims, additional drilling on one or more of the kimberlites discovered this year and an updating of the economic and resource studies of the DO-27 kimberlite."

Talmora Diamonds Inc. also carried out staking and a limited exploration program of collecting samples and drilling in August on its 27,835-hectare Horton River Project in hopes of substantiating early analysis of kimberlite mineralization on the property.

Metals exploration heats up

Metal explorers also carried out numerous work programs in 2012 in the Northwest Territories. They include BFR Copper & Gold Inc., Boxxer Gold Corp., Bullmoose Mines Ltd., Scavo Resource Corp. (formerly Pure Living Media Inc.), Copper North Mining Corp. (copper-silver) Devonian Metals Inc. (zinc-lead-silver), Manson Creek Resources Ltd. (gold), Minerals and Metals Group (copper-lead-zinc), Nighthawk Gold Corp. (gold), Platinum Group Metals Ltd. (copper-nickel-cobalt-PGM), Selwyn Chihong Mining Ltd. (zinc-lead), Tamerlane Ventures Inc.(zinc-lead-copper-silver-gold), Viking Gold Exploration Inc. (gold), Williams Creek Gold Ltd. (gold) and WPC Resources Inc. (gold).

Nighthawk reported an initial NI 43-101 mineral resource estimate in February for its Colomac gold project, which encompasses the historic Colomac Gold Mine, of 1.446 million ounces of gold, or 42.65 million metric tons of ore averaging 1.05 grams per metric ton gold, using a cut-off grade of 0.6 g/t gold. The junior drilled 11,235 meters in 30 holes in its 2012 exploration program, and assay results confirmed higher grade gold ore shoots plunging beneath several zones on the 94,701-hectare property. The results included intersections as high as 25.78 meters averaging 7.78 g/t gold and 13.25 meters averaging 11.4 g/t gold.

Platinum Group Metals explored Providence (Credit Lake) copper-nickel-cobalt property with a gravity survey and six-hole, 1,208-meter drill program and confirmed that mineralization continues at depth with intercepts 90 meters vertically below historic intercepts. Assay results are pending. ●

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NWT ACTIVITY

deposit, currently Canada's highest-grade uranium deposit outside of the Athabasca Basin.

By comparison, Areva's Kiggavik Project located about 225 kilometers (140 miles) to the north near Baker Lake, Nunavut, which is currently undergoing environmental assessment, has a resource of 133 million pounds (51,000 metric tons) grading about 0.46 percent U3O8. Based on existing resources, Kiggavik's mine life is estimated at 14 years of operation after three to four years construction.

After a busy spring and summer, Kivalliq reported completion of its field program Sept. 24, including discovery of the J4, Ray, Hot, Flare and Southwest zones. Drilling throughout the season focused on adding inferred resources and testing new mineralized target areas within the Lac 50 Trend, a 15-kilometer-long by three kilometer-wide (10 miles by 2 miles) southeast striking structural trend within Archean volcanic rocks adjacent to an unconformity with Proterozoic sediments of the Angikuni sub-basin.

An unconformity represents time during which no sediments were preserved in a region, but the term is used to describe any break in the sedimentary geologic record. Unconformity-type uranium deposits host high grades relative to other uranium deposits and include some of the largest and richest deposits known.

During the 2012 season, Kivalliq also conducted 930 line kilometers of ground magnetic, VLF electromagnetic, gravity and seismic surveys; prospecting, mapping and RC drilling to test new target areas property-wide as well as ongoing geological, metallurgical, environmental and archeological studies.

The company further emphasized community consultation, including hosting property visits by local community leaders.

From April 13 to Sept. 15, Kivalliq Energy drilled 33,583 meters of NQ core in 173 holes with three diamond drill rigs. The drilling tested the extent of uranium mineralization at the Lac Cinquante deposit down-dip and along the Lac 50 Trend.

Significant deposit in J4 Zone

On July 1, Kivalliq discovered the J4 Zone located about 2.5 kilometers (1.5 miles) east of Lac Cinquante, and since then, drilling has extended the strike length of the J4 zone to 800 meters. The J4 zone is defined by an electromagnetic conductor located 1.8 kilometers southeast of Lac Cinquante's Eastern Extension and about 300 meters north of the Ray zone.

Uranium mineralization at J4 is hosted by two sub-parallel mineralized horizons, 10- 45 meters apart, referred to as the J4 Upper Zone and the J4 Lower Zone. These zones have been intersected at vertical depths of between 35 and 383 meters, the deepest uranium interval drilled on the Angilak Property to date. Mineralization occurs in quartz-carbonate veins, having estimated true widths between 0.2 and 24.1 meters, hosted by a sheared sulphidic, graphitic tuff within a larger sequence of basalt.

Significant uranium mineralization has now been intersected in 49 of 63 holes drilled from 24 sites at the J4 zone. At season's end, the J4 zone remained open along strike and at depth.

By late November, Kivalliq had released assay results from 160 holes, including high-grade uranium assays from the J4 zone. Highlights of the latest assay results from the J4 zone include:

•2.42 percent U3O8, 0.25 percent copper, and 137.4 grams-per-metric-ton silver over 3.8 meters in hole 12-J4-029;

•2.86 percent U3O8 and 29.2 g/t silver over 1.5 meters in hole 12-J4-038;

•3.91 percent U3O8 and 18.3 g/t silver over 0.9 meters in hole 12-J4-028;

•2.85 percent U3O8, 0.66 percent copper and 20.6 g/t silver over 1.1 meters in hole 12-J4-062; and,

•0.30 percent U3O8 and 10.1 g/t silver over 24.1 meters in hole 12-J4-050.

The intervals are estimated true widths.

Tables of all the assay results are available at:

http://kivalliqenergy.com/projects/angilak/program_images/

Ward said drilling at the J4 zone this year "returned assay results with both high grades, and now with Hole J4-12-050, broad intervals of uranium mineralization."

The Ray zone is expressed by a subtle EM conductor parallel to J4 and located two kilometers along strike and southeast of Lac Cinquante's Eastern Extension. In 2012, a total of 2,796 meters were drilled at the Ray zone from five sites along 310 meters of strike length and uranium mineralization was intersected in 10 of 16 holes drilled at vertical depths between 25 and 129 meters. This mineralization occurs in a narrow sulphidic, graphitic tuff horizon similar to mineralization at Lac Cinquante. The estimated true width of the zone varies between 0.4 and 1.8 meters, with the best result to date being 0.66 percent U3O8 over an interval of 1.2 meters.

Drilling at the Main Zone of the Lac Cinquante deposit tested for mineralization below the current resource using 14 wide-spaced holes, while drilling at the Eastern Extension tested the gap between the Eastern Extension and the Main zone with four holes. Limited drilling at the Main Zone below the current resource along 1.3 kilometers of strike intersected weak uranium mineralization in four holes, with the best result being 0.43 percent U3O8 over 0.3 meters estimated true width at 300 meters vertical depth (hole 12-LCM-006). At the Eastern Extension, two of four holes extended known mineralization by 50 meters westward, with the best result being 0.44 percent U3O8 over 0.8 meters estimated true width at 82 meters vertical depth (hole 12-LCE-001).

All holes at the J4, Ray and Main zones and the Eastern Extension were drilled northeast with azimuths of 026 degrees at inclinations ranging from -45 degrees and -90 degrees.

Kivalliq aims to incorporate results from this new drilling within the Lac 50 Trend, specifically the J4 and Ray zones, into a NI 43-101 inferred resource estimate by the end of the first quarter of 2013.

More discoveries

In early November, Kivalliq reported significant assay results from six of seven diamond drill holes at the newly-discovered Hot Zone at Angilak. The Hot zone is located on a 2-kilometer- (1.24 miles) long geophysical target within the Lac 50 Trend, drilled late in the season.

Highlights of the assay results from the HOT Zone include 0.6 meters of 0.37 percent U3O8, 0.70 percent molybdenum and 88.4 g/t silver in HOT-12-003; 3.0 meters of 0.85 percent U3O8, 0.53 percent moly and 56.2 g/t silver in HOT-12-004; and 0.6 meters of 0.53 percent U3O8, 0.21 percent moly and 87.9 g/t silver in HOT -12-005.

Kivalliq completed 1,292 meters of core drilling in seven holes and intersected significant uranium over 150 metres of strike length. The Hot EM geophysical anomaly is located parallel to, and 1.8 kilometers (1.1 miles) northeast of the Lac Cinquante deposit. The Hot zone remains open along strike in both directions and at depth.

Kivalliq also undertook an aggressive RC drilling campaign this season, completing 5,273 meters in 38 exploratory holes. Some 22 of these RC holes generated samples having anomalous radioactivity greater than 500 counts per second. These holes served to prioritize target areas for subsequent diamond drilling and resulted in the discovery of the Flare zone. Additional targets advanced by the RC rig will be tested by diamond drilling in 2013.

Results and interpretation are also pending from 930 line kilometers of ground magnetic, VLF electromagnetic, gravity and seismic geophysical surveys combined with prospecting and mapping programs.

Kivalliq said the fourth quarter of 2012 would be dedicated to initial metallurgical and engineering studies, technical analysis and resource modeling with the goal of identifying new target areas and updating the project's mineral resource in early 2013. ●

continued from page 11

MINERALS SUMMIT

SHANE LASLEY

More than 200 delegates gathered in Fairbanks, Alaska, Nov. 30 to attend the 2012 Alaska Strategic and Critical Metals Summit.

worldwide production capacity,"

The study, "Strategic and Critical Nonfuel Minerals: Problems and Policy Alternatives," allocated 64 "strategic and critical" minerals and metals in which the U.S. was a net importer.

The CBO expressed concerns "about U.S. vulnerability to a disruption of these imports."

"Peacetime disagreements with various mineral producer governments over political or economic interests could conceivably lead to a reduction in their shipments of raw materials to the United States," the CBO report continued.

Thirty years later, the United States is realizing the premonitions inked in this 1983 study.

McGroarty, whose organization is focused on educating Washington D.C. policymakers on the importance of reducing the United States' dependence on foreign countries for critical minerals, said, "We are not moving very rapidly in this space. We seem to treat matters of geology as if they deserve for us to move in geological time."

Critical mineral storehouse

The United States' decades-long reliance on foreign countries to supply the minerals critical to its national security, economic wellbeing and high-tech innovation does not reflect the nation's potential to produce these materials at home.

"The United States is very resource-rich and Alaska in particular is the one state that really contributes the most in terms of the range of resources that are available," McGroarty said at the Alaska Miners Association annual convention early in November.

In 2010, the USGS compiled a list of 35 strategic and critical minerals, all of which are considered essential in the United States and at risk for supply restrictions.

"This list of minerals is just a subset of Alaska's mineral potential," Alaska Division of Geological and Geophysical Surveys Director Bob Swenson informed the delegates at the strategic and critical minerals summit.

The state geologists said these "strategic minerals are scattered across the state."

In fact, Alaska has the potential to produce 48 of the 50 minerals (counting the individual rare earths separately) in which the nation is a net importer.

Indium, a by-product at the Red Dog Mine in Northwest Alaska, is the only strategic or critical mineral currently being produced in the Far North state. A number of the remaining minerals on the USGS watch-list are currently being sought as a primary or secondary mineral in exploration programs across Alaska.

With a concerted and focused effort, Murkowski believes the nation can break its dependency on other countries for many of these essential minerals.

"We will need modern geologic surveys, a well-trained work force, an efficient regulatory environment and responsible individuals to make it all happen," said the senator. "If we have all those things, and we devote resources to the effort, I believe we can, and think we must, reverse our reliance on foreign sources of these minerals."

Red lantern permitting

Despite Alaska's potential to curb the United States' dependence on foreign countries to provide the minerals it needs, a long and cumbersome permitting process could prevent these materials entering the supply chain for more than a decade.

According to a 2012 study by the Beher Dolbear Group, the United States, at seven to 10 years, is tied for last place with Papua New Guinea when it comes to the length of time it takes to get a proposed mining project through the permitting process.

"The U.S. is tied with Papua New Guinea for dead last in the world in the time it takes to make a 'yes' or 'no' decision on permit applications. It has persisted as an unfortunate reality for nearly every project in the country and the consequences are really dire," Murkowski reminded the summit attendees.

Alaska's senior senator said the effect of the increasingly cumbersome permitting process is reflected in the drop in the United States' share of exploration spending over the past two decades.

"In 1993, the U.S. attracted 20 percent of all investment in minerals exploration, today, that has eroded to just eight percent. And, in a large part, this is the result of a well-earned reputation for taking far too long to permit new or expanded mines here in the United States," Alaska's senior senator added.

Murkowski was one of several speakers to address the United States' red lantern mine permitting performance, prompting McGroarty to quip. "I think there should be a rule that every speaker has to mention Papua New Guinea."

The ARPN president agreed the lengthy permitting process stifles investments from financiers who are seeking a timely return on investment.

"They are looking for entry and exit in industrial projects, and they are looking at a timeframe of three to five years. If you are taking seven to 10 years to permit a mine, you are completely outside the sphere of an industry they even want to evaluate," he explained.

Hiroyuki Katayama, an assistant general manager at Japan Oil, Gas and Metal Corp.'s Vancouver, B.C. office affirmed McGroarty's assertion.

With an annual budget of 1.6 trillion yen (US$18.7 billion), JOGMEC scours the globe in search of a stable supply of natural resources for Japanese industry.

During his presentation at the strategic and critical minerals summit, Katayama said, "The lengthy and unpredictable permitting process is a big issue, because the unpredictable process may lose a market opportunity."

Katayama told the summit delegates that the U.S. Environmental Protection Agency's Bristol Bay Watershed Assessment, a study that could result in the federal regulatory agency banning the development of the enormous Pebble copper-gold-molybdenum project before developers have an opportunity to apply for permits, is an even bigger issue for JOGMEC and other organizations seeking to invest in Alaska's mineral potential.

"Everybody knows that EPA's pre-empt action towards the Pebble project is the largest concern, because this kind of action in pre-application incurs depression of mining investment," he said.

Strategic view

Despite the setbacks on the federal level, Katayama and several of the other speakers said Alaska has a lot of attractive qualities.

"Of course, Alaska has significant mineral potential," affirmed the JOGMEC manager.

In addition to copper, gold, zinc and molybdenum; Katayama said Alaska is highly prospective for several minerals critical to Japanese industry, including platinum group metals, rare earths, antimony and tungsten.

JOGMEC played a key role in the early exploration of the Pogo gold project in Interior Alaska and is currently providing financial support to Tokyo-based Itochu Corp. in that company's joint venture with Pure Nickel Inc. to explore the MAN platinum group metal project some 90 miles (145 kilometers) south of the gold mine owned and operated by Sumitomo Metal Mining.

Though Alaska is highly regarded for its mineral potential, Murkowski said the state should not rest on its laurels.

"We need to stay focused on finding the best deposits here in Alaska – the highest grade ore bodies – and bringing every other resource we have to bear on winning the competition for investment," the senator encouraged.

Under the leadership of Gov. Sean Parnell, the state government has been contributing to this effort. In addition to conceiving and organizing the Alaska Strategic and Critical Minerals Summit, the state has been active in evaluating Alaska's strategic and critical minerals potential.

"Alaska has the largest state-run survey program for critical minerals in the country and I am very pleased to see the Legislature is devoting funding to continuing this work," Murkowski touted.

During the fiscal year 2012 and 2013 budget cycles, the Legislature approved US$3.2 million to identify and evaluate strategic and critical minerals prospects in Alaska. In his fiscal year 2014 budget, Alaska Gov. Sean Parnell is asking the Legislature to approve an additional US$2.7 million to continue this initiative.

"That is already underway but Alaska is rich in rare earth elements, something our country needs for national security as well as for our consumer electronics," Parnell explained during a Dec. 14 rollout of his budget.

The governor has proposed a further US$18 million toward funding Roads to Resources, an initiative to connect some of Alaska's promising resource areas to the state's road system; US$15 million toward a new building for the state's geological materials center which is a repository of core and samples collected from across the state; and US$7.3 million toward streamlining permitting and statewide digital mapping.

In a 10-year plan released in conjunction with Parnell's 2014 budget, the Office of Management and Budget wrote: "Alaska has an important role to play in securing a domestic supply of strategic minerals. These minerals are essential for use but subject to potential supply disruptions due to China's domination in the world market."

The state's proactive role in the realm of strategic and critical minerals is being recognized by outside observers.

"This state has committed to taking a strategic view of critical metals and that is really quite different than any other single state," said McGroarty.

Katayama said that, despite several concerns, "Alaska is a very mining friendly jurisdiction."

Murkowski's parting words reflected the reservations and opportunities presented at the 2012 Alaska Strategic and Critical Minerals Summit.

"Going forward, I am confident that we will navigate the challenges we face, just as we have in the past. Truthfully, we don't really have any other choice. The jobs you create are real, the minerals you produce are essential and the contributions you make to our state's future are vital," the senator concluded.

McGroarty left the attendees of the summit with a similar but more ominous message.

"The issues here are critical to national security, they are critical to our economy, they are critical to manufacturing, they are critical for the innovation in high technology to be executed in the United States; and, at the end of the day, they are matters of war and peace," the ARPN president cautioned. ●

NORTH OF 60 MINING NEWS

Companies involved in Alaska and northwestern Canada's mining industry

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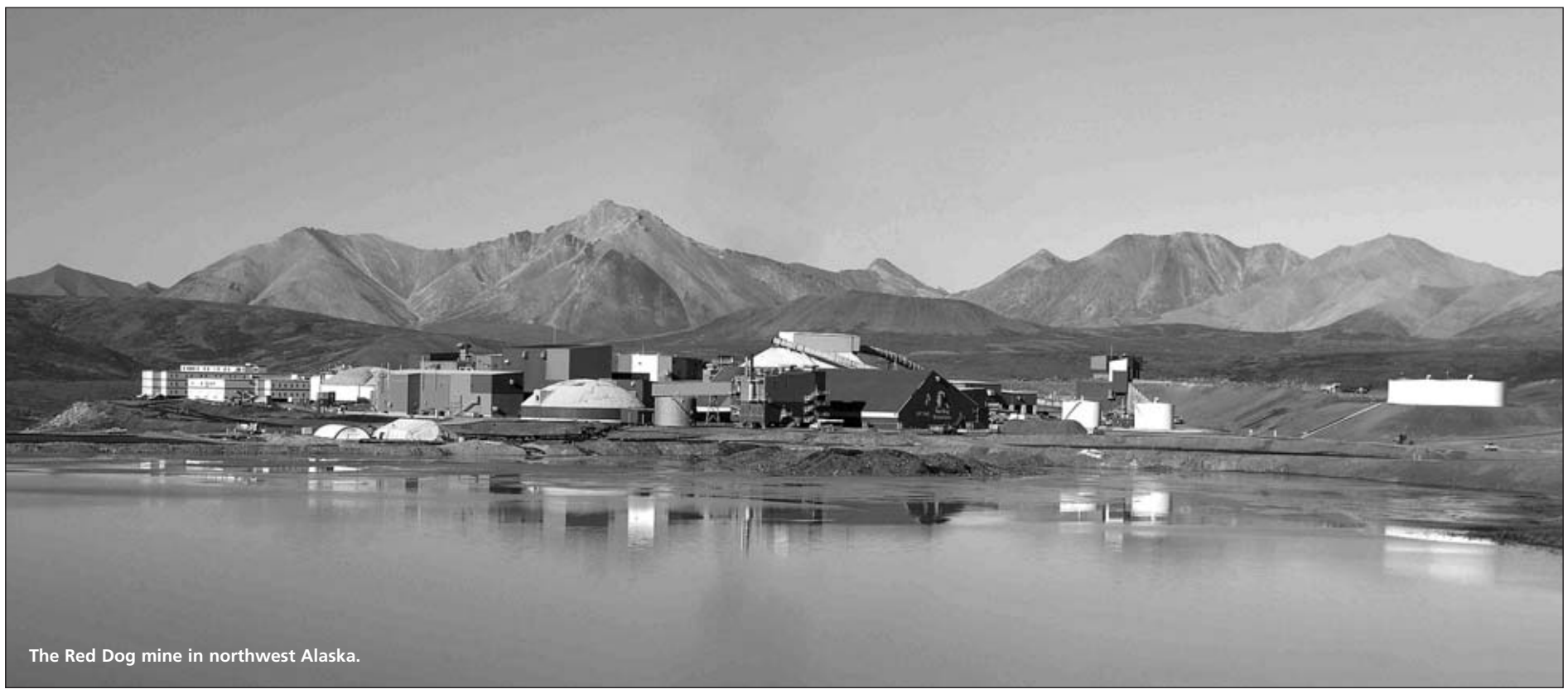

The Red Dog mine in northwest Alaska.

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• ALASKA

Minerals critical to restoring luster

Interest in strategic and critical minerals provides an opportunity for evangelists to expound the advantages of domestic mining

By SHANE LASLEY
Mining News

Mining, by definition, is an environmentally invasive practice of digging holes in the earth to extract the minerals found therein. This reality, coupled with a historical legacy of leaving unsightly scars that ooze metal-laden acidic waters, has given the modern mining industry a figurative black eye.

Champions of today's extraction sector, however, see the strategic resources that are critical to national security, a strong economy and the development of a green energy future in the United States as an opportunity to restore luster to the tarnished image of those who dig up minerals for a living.

Why? These minerals are elemental to the standard of living humankind has become accustomed to in the 21st Century.

This message was a re-occurring theme at the 2012 Alaska Strategic and Critical Minerals Summit, a state government-organized gathering held in Fairbanks on Nov. 30.

"We are doing a good job of this in Alaska with events like this summit, but we really need to carry that message to other venues and to other industries beyond just mining. In particular, we need stronger coalitions with the manufacturers that rely on minerals for their products. We need to involve the processors, the marketers, the distributors and recyclers," U.S. Sen. Lisa Murkowski, R-Alaska, told an audience at the gathering.

Dan McGroarty and Michael Silver, two other keynote speakers at the summit, agree that the mining industry must go beyond "preaching to the choir" and see the recent heightened interest in strategic and critical minerals as an opportunity to garner a larger awareness of the advantages of domestically mining materials important to national security, clean energy and high-tech innovation.

"We have some evangelists here," McGroarty observed.

SHANE LASLEY

American Elements Chairman and CEO Michael Silver addresses delegates at the 2012 Alaska Strategic and Critical Metals Summit. Silver said the mining community needs to tell Hollywood, "You guys don't get it."

Seeking unobtainium

Silver told participants in the summit that blockbuster movies such as "Avatar" further tarnish the public image of the mining industry and illustrate the disconnect between Hollywood's perception of the mining industry and the reality of modern mining practices in the United States.

"We need to send people to Hollywood and say 'you guys don't get it,'" the chairman and CEO of California-based American Elements told the crowd.

In "Avatar," an Earth-based mining firm, the Resources Development Administration, travels to the distant planet Pandora in 2154 to mine "unobtainium," a mineral worth US$20 million per kilogram, due to its fantastic magnetic and superconductive properties. To acquire this fictional 22nd Century contemporary of today's rare earth elements, the RDA is willing to displace Pandora Aboriginals, the Na'vi, and wreak havoc on the environment, including areas sacred to the Pandorans.

While "Avatar" is set on a far-away planet 150 years in the future, the plot of this film, written and directed by James Cameron, reflects the blemished façade of today's earth-bound miners.

"It is a cultural problem and one that needs to be addressed," Silver told the audience.

As opposed to Parker Selfridge, the RDA administrator willing to destroy the Na'vi civilization to mine the unobtainium and bolster the company bottom line in the movie, Silver would like to see real miners cast in roles more akin to Indiana Jones.

"What is more fun than going up into the mountains and discovering something and getting wealthy doing it," the American Elements president reflected.

While only time will tell whether the two planned sequels to Avatar or other future Hollywood blockbusters will shine a more positive light on mining, the industry may be making some headway in the realm of video games.

In "Black Ops 2," the latest installment of the popular "Call of Duty" series of video games, China has banned exports of rare earth elements, sparking a Cold War between the Middle Kingdom and the United States.

Said Mark Lamia, head of Treyarch, the studio that developed "Call of Duty: Black Ops 2: "It was very interesting to find out that the tension in the world, the wars that will be fought, will not be created by the tension over something like oil. Instead, it is more likely to be created by something that many people don't know much about – something called rare earth elements."

While the storyline is violent, a mainstay of the first-person shooter genre of video games, the more than 100 million people expected to play Black Ops 2 will be introduced to the once-obscure group of lanthanide elements.

Meanwhile, Silver, who would like to see miners cast as heroes on the silver screen, said his company is taking a more elementary approach to getting the word out.

American Elements – which sells more than 3,000 elemental metal, metallic-compound, ceramic and crystalline materials – is doing its part to enlighten young people about the basic building blocks of the universe by providing schools with magnetic periodic tables he said.

"They are really intended for kids to get excited about the periodic table; to recognize the alchemy of it; to recognize that the periodic table, Harry Potter and the alchemy of the Middle Ages are all one in the same," Silver explained. "Magical things are happening every day in this world, and if they can make that connection, you are going to see more of the next generation moving into the industry that we are in."

Critical mineral pioneers

McGroarty, president of Washington, D.C.-based American Resource Policy Network, said Alaska is fortunate to have lawmakers on both the state and federal levels that understand the importance of a domestic supply of strategic and critical minerals.

"This state has committed to taking a strategic view of critical metals and that is really quite different than any other single state," McGroarty said.

He urged the mineral savvy lawmakers and Alaska's larger mining community to help his organization in its mission "to educate the public and policymakers on the need for natural resource development to reduce resource dependency that weakens U.S. economic competitiveness and national security."

As part of this mission, ARPN is informing Washington D.C. policymakers that the United States:

•Has serious resource dependencies;

•Known resources that could alleviate or reverse those dependencies;

•A private sector ready to put capital at risk; and,

•A public policy regime that impedes action and dampens our competitiveness.

McGroarty delivered this message to the U.S. House of Representatives Subcommittee on Energy and Mineral Resources during a May oversight hearing on strategic and critical minerals policy.

He stressed in his testimony the importance of reducing America's dependency on foreign countries to supply the minerals critical to green energy and the nation's avant-garde defense systems.

He pointed to China's monopoly on the global supply of rare earths and that country's increasing restraints on exports of these technology minerals as a prime example of the dangers posed by this dependency.

"So, whether China withholds its rare earths supply for geo-strategic purposes,

see **STRATEGIC MINERALS** *page 19*

● NORTHWEST CANADA

Juniors struggle to stay afloat in 2012

PwC report forecasts more rough water ahead for mining sector in 2013 as beleaguered companies seek financing for survival, growth

By ROSE RAGSDALE
For Mining News

With money drying up, 2012 continued to be one of the most painful years ever experienced by junior exploration companies worldwide, according to a recent report by PwC.

In "Junior Mine 2012 – Must survive before you can thrive," PwC ranked the industry's top 100 juniors based on market capitalization.

Only two juniors with significant projects in northern and western Canada placed in the top 10 companies in PwC's Top 100 for 2012 – Copper Fox Metals (No. 3 – Schaft Creek copper-gold-molybdenum-silver project in northwestern British Columbia) and Atac Resources Ltd. (No. 9 – Rackla gold project in central Yukon Territory).

Other Top 100 companies with Yukon properties include Kaminak Gold Corp. (No. 24 – Coffee gold project), Victoria Gold Corp. (No. 36 – Eagle gold project), Strategic Metals Corp. (No. 46 – Midas Touch gold project) and Prophecy Platinum Corp. (No. 50 – Wellgreen PGE-nickel-copper project). Canada Zinc Metals Corp. (Akie zinc-lead-silver project in northern British Columbia,) came in at No. 79, while North American Tungsten Corp. Ltd. (Cantung mine and Mactung tungsten project in the Northwest Territories) made the ranking at No. 81 and Kivalliq Energy Corp. (Angilak uranium project in Nunavut) placed No. 84.

Only 39 companies in 2012's Top 100 held or increased their market cap from 2011 levels, while 61 companies lost ground.

PWC

In addition, equity financing raised by 2012's Top 100 mining companies listed on the TSX Venture Exchange at June 30, decreased by a troubling 41 percent to C$1.6 billion, compared with C$2.7 billion raised by the Top 100 juniors in 2011.

PwC, which shortened its name from PriceWaterhouseCoopers in 2010, said junior mining companies' struggle to raise equity during the past year corresponds with their overall decline in market capitalization. Market cap for PwC's Top 100 fell to C$11.7 billion 2012 from C$20.6 billion a year earlier, representing a 43 percent decline.

Bought deals, which were by far the most popular form of financing for juniors in 2011 totaling 43 percent of all equity raised, accounted for only 29 percent of equity raised in the first half of 2012.

PwC said these troubling results reflect a volatile market, populated with skittish investors who want greater returns.

"They aren't looking to add more risk to their portfolios; instead they are risk-averse and shying away from investments with a high risk-rewards ratio. Unfortunately for juniors, this is their 'sweet spot'," said John Gravelle, PwC's Mining Leader for the Americas in an introduction to the 32-page report.

Challenging outlook

So what does 2013 have in-store for juniors?

Due to low valuations, PwC predicted that many juniors may get gobbled up by mid-tiers or seniors hoping to acquire junior miners at discounted prices. While there may be willing buyers in the market, willing sellers will prove tough to come by. With memories of their company's 52-week high still fresh in mind, many CEOs won't stomach the valuations offered up by interested buyers.

The multinational professional services firm also anticipates increasing numbers of juniors giving up on conventional forms of financing in 2013 and beginning to aggressively chase alternatives. Foreign investment will likely be an important component of new growth strategies adopted by many juniors, according to PwC

"Look for an increase in 'toehold' investments – investments in slightly less than 10 percent of issued and outstanding shares, foreign investors are able to avoid being labeled an 'insider' under applicable Canadian securities laws. As a result, investors don't need to disclose their investments," Gravelle said.

He also predicted an increase in investments by foreign non-mining companies.

To get juniors to bite, mid-tier and senior mining companies will have to increase their premiums – partially defeating the upside of depressed valuations – or engage in a robust game of chicken. Who will blink first, buyers hungry for a good deal or sellers watching their cash deplete?

PwC said it sees the best opportunities for juniors mining gold. The firm has observed a recent bout of deals completed with juniors in the gold sector – drawing above-average deal premiums. This doesn't necessarily mean the market can expect this spell to continue; instead, with elevated expectations for high deal premiums, matched with marching orders to conserve cash, mid-tier and senior miners may not be able to meet the optimistic expectations of gold juniors, PwC added.

Access the full report at: www.pwc.com/ca/juniormine.●

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STRATEGIC MINERALS

or consumes an ever-increasing amount of the metals it used to export to the so-called 'Rest of the World', the result will be the same – a shortage of a group of metals critical to our technological and economic development, as well as our national security," McGroarty said.

While countries such as Australia, Japan and South Korea are moving rapidly towards securing reliable sources of rare earths and other critical minerals, McGroarty quipped that the United States is moving in "geological time."

In contrast to the tectonic pace on the federal level, he praised Alaska's progressive approach to critical minerals.

"Here you are in this state, and I know of no other, that puts together these strategic conferences; where you look at coordinating state agencies with all different stakeholders," he said.

Despite the headway being made on the state level, Alaska must still contend with a cumbersome federal bureaucracy.

"How do you act or interact in Alaska as you put together strategic policy; and how do you do that where Washington, D.C. has some play?" McGroarty queried.

The answer may lie in Alaska's pioneering spirit.

"Alaska is creating solutions to a problem that the policymakers on the federal level don't even see," McGroarty told Mining News during a Dec. 21 interview. "I think that is part of the challenge for Alaska, but if one takes this more evangelical view, maybe it is an opportunity."

As a pioneering state in this realm, McGroarty believes Alaska has an opening to shape strategic and critical minerals policies.

"If states are the laboratory for reform then Alaska should move forward and not just create its own policy but (a policy that) would then stand for the other mining states as a possible direction for them to go," he said. "It should not let the gridlock in Washington (D.C.) dissuade it from taking action."

At the same time, the APRN president said Alaska policymakers should continue to be evangelists on the state and federal levels. In addition to spreading the word to their immediate peers, McGroarty suggested that the Alaska congressional delegation and state administration reach out to federal agencies such as the U.S. Department of Energy, Department of Defense and United States Geological Survey and even the White House.

"The White House has a critical metals working group; the Alaska delegation could seek to attach themselves as a state to that working group," the ARPN president suggested.

By being actively involved on these various levels, Alaska can raise the awareness of the need for a domestic supply of strategic and critical minerals and the state's potential to meet that need.

"Alaska will help itself if it helps the rest of the policymaking community understand the critical and strategic nature of domestic resource development," McGroarty added.

Mining a green future

Though McGroarty focused primarily on swaying perceptions in Washington, D.C., and Silver spoke on the need to gain influence in the nation's opinion-shaping capital, both speakers see the current focus on the minerals critical to developing a green energy future as an opportunity for the mining and environmental communities to engage.

"Because technology is so critical to advancing the green energy alternatives, it is a moment for us to stop and think about the way that metals are necessary to make that transition – a moment to have a strange new respect for mining," McGroarty observed.

He expects this respect to rise with the realization that the solar panels, wind turbines, electric cars and fuel cells envisioned to build a green energy future will require a large quantity and wide range of minerals.

"The only way we are going to build that future is by going into the ground and taking out the rare earths, taking out the lithium and taking out the materials we need to build that future," said Silver.

This creates a Catch-22 for the environmental community, he said.

"They have to reconcile the supply chain," Silver said. "The environmental movement can't have it both ways."

McGroarty and Silver both said that if the massive amounts of minerals needed to build the green energy infrastructure and products are not mined in the United States or some other developed country with stringent environmental policies, they will be sourced from places with fewer regulations, such as the Congo or China.

While environmentalists may find it impossible to see the world from a miner's perspective, and vice versa, Silver said the oftentimes opposed groups may find common ground in responsibly sourcing the materials needed to build a green energy future.

Beyond the environmental implications, a domestic source of the elements needed to build this green energy future in the United States could bolster the economy along the entire supply-chain.

"Somebody, somewhere is going to mine those things, and they are going to build the solar panels, and we will just buy them. McGroarty told Mining News. "Let's mine these materials and build them out of the stuff they are made of."

"I think that governments need to sit down with all of the stakeholders and make people realize that the green technology future that we all want requires mining; that is where the supply-chain begins," Silver said.

Mining has at least one evangelist on Capitol Hill that agrees.

"We need every step in the supply-chain to understand the benefits of producing these minerals in a place like Alaska," Murkowski told the summit. ●