Petroleum news

page 3 Q&A: Craig Fleener touts Alaska to Arctic Council, sees boost to state

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This week's Mining News

NORTH OF 60 MINING news

page 14 Freeman: Global trends may signal 'good things' ahead

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NEWS NUGGETS

Compiled by Shane Lasley

Weak metal prices weigh Teck profits

Teck Resources Ltd. April 21 reported first-quarter adjusted profit attributable to shareholders of C$64 million, or C11 cents per share, compared with C$105 million, or 18 cents per share, in 2014. The company attributes the lower profits to challenging commodity markets, which was partially offset by a stronger U.S. Dollar. "Our ongoing focus on cost management and operational performance, aided by the strong U.S. dollar, is enabling our diversified business to withstand the generally weak commodity price environment, allowing all of our operations to generate positive operating cash flows after our sustaining capital spending," said Teck President and CEO Don Lindsay. The company says prices for steelmaking coal have fallen further since the beginning of the year and the market for steelmaking coal remains oversupplied, primarily due to indications of weakening demand in China. Copper prices dipped sharply in the quarter but rebounded substantially towards the end of the period with prices averaging US$2.64 per pound compared with US$3.19 per pound in the previous year. Zinc was the one bright spot on the commodities front. LME zinc prices averaged US94 cents per pound in the first quarter of 2015, 2.5 percent higher than the same period last year. Zinc prices reached a low of US90 cents per pound on March 17 as global oil and commodity prices fell, but recovered to US$1.01 per pound in early April. Lead prices, however, are down 14 percent, averaging US82 cents per pound. As a result of stronger zinc prices, U.S. dollar strength and increased sale volumes from the Trail refinery in British Columbia, gross profit before depreciation and amortization for Teck's zinc unit was C$179 million, a C$58 million increase compared with results of the first three months of last year. Mill throughput at Red Dog was similar to the first quarter of 2014. Zinc grade and recoveries at the Northwest Alaska mine during the first three months of this year, however, were slightly lower than 2014, resulting in 4 percent less zinc production. Higher lead grade than 2014 was partially offset by lower recoveries, which yielded 4 percent more lead production at Red Dog.

Endurance eyes Elephant gold target

Endurance Gold Corp. April 20 said the 2013 and 2014 summer programs at its Elephant Mountain gold property in

see **NEWS NUGGETS** *page 16*

COEUR MINING INC.

Coeur Mining anticipates investing roughly US$16 million per year in underground development at Kensington through 2018, which will provide access to newly-found high-grade gold deposits at the Southeast Alaska gold mine.

PRODUCTION

Kensington's new plan

High-grades found at historic Jualin to provide more gold at lower costs

By SHANE LASLEY

Mining News

The Kensington gold mine in Southeast Alaska is set to produce more gold at lower costs in the coming years, according to a new plan published by owner Coeur Mining Inc.

"Our recent success identifying high-grade mineralization near existing Kensington infrastructure has added higher-margin production to our mine plan and significantly improved the expected economics of the mine," Coeur Mining President and CEO Mitchell Krebs explained.

MITCHELL KREBS

The highest grade portion of this newly found gold is located in the area of the historic Jualin Mine, which is situated about 8,250 feet from current mining in the Kensington Mine area. Since late 2013, Coeur has outlined a deposit at Jualin with gold grades that are more than triple the ore currently reporting to reserves.

Coeur hopes to begin recovering this higher grade gold by 2017. In the meantime, the new mine plan relies on Raven, another deposit with grades that exceed what has been mined at Kensington so far.

This higher margin plan for Kensington is one component of the restructuring of not only the Southeast Alaska mine, but the entire company in recent years.

"Kensington's new mine plan is expected to be a key component of the company's overall strategic repositioning that is expected to increase overall production levels by approximately 30 percent, reduce overall unit costs by approximately 25 percent, and boost the company's free cash flow to US$190 million-US$200 million in 2017."

see **KENSINGTON PLAN** *page 17*

GRANITE

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Coeur Mining looks to boost underground development at Kensington to access to newly-found gold deposits. See page 13.

EIA sees stark alternatives for Alaska, with low-price shutdown

The federal crystal ball presents some stark outcomes for Alaska. In one forecast, Alaska oil and gas production breaks its decades-long decline. In another, each dries up entirely.

Every year, the U.S. Energy Information Administration issues the Annual Energy Outlook, a long-term forecast of domestic energy markets. The outlook compares a "reference" case to a handful of alternatives, each considering different circumstances.

This year, the five alternatives in the outlook present wildly different visions for Alaska.

If oil prices stay low for decades, Alaska oil production would end — not decline, but simply stop outright. Without

see **EIA OUTLOOK** *page 32*

Halford confirmed but Paskvan, Gallagher don't win approval

All of Gov. Bill Walker's cabinet-level appointments were confirmed by the Alaska Legislature April 19. Other oil and gas related appointments met with mixed fates.

Mike Gallagher did not win confirmation to the Alaska Oil and Gas Conservation Commission; Joe Paskvan was not confirmed to the board of directors of the Alaska Gasline Development Corp.

Floor debate on the Gallagher nomination indicated concern about his background. Even those speaking in opposition had nothing personal to say against him, just that he lacked the type of oil and gas background relevant to AOGCC, described as a highly technical board. Gallagher worked on pipeline projects in the state, a long-time official with the Laborers' International Union of North America and most recently was

see **WALKER APPOINTMENTS** *page 26*

EXPLORATION & PRODUCTION

Promising results

DOE publishes more findings from North Slope methane hydrate test well

By ALAN BAILEY

Petroleum News

The National Energy Technology Laboratory has published some new results from methane hydrate testing carried out in 2011 and 2012 in the Ignik Sikumi test well on Alaska's North Slope. According to an article in the latest edition of NETL's Fire in Ice publication, the results shed light on the potential use of injected carbon dioxide as a means of producing natural gas from methane hydrate deposits, while also demonstrating that producing gas by depressuring the deposits may work more easily than previously thought.

Methane hydrate is a naturally occurring solid that traps concentrated volumes of methane, the primary component of natural gas, in an ice-like lattice of water molecules. The material, which is only stable within a certain range of temperatures and pressures, is known to exist in huge quantities around the base of the permafrost under the North Slope. A viable means of commercially producing natural gas from the material could add massive volumes of recoverable natural gas to the more

The depressurization test, the longest conducted to date as a part of methane hydrate research, showed methane production that was highly responsive to the well's bottomhole pressure.

see **HYDRATE WELL** *page 25*

GOVERNMENT

Gas still an issue

Gov. Walker vetoes HB 132; enalytica cites disadvantages of competition

By KRISTEN NELSON

Petroleum News

Gov. Bill Walker did what he said he would do — vetoing House Bill 132, which would have limited use of funds allocated to the Alaska Gasline Development Corp. for a study of enlarging the Alaska Stand Alone Pipeline project to a size competitive with Alaska LNG, the project in which the state is an equity partner.

"This veto in no way means the end of discussions with legislative leadership," Walker said in an April 17 statement. "We continue to have multiple meetings to ensure AKLNG is successful and remains the priority while maintaining access to a backup option."

Although the Legislature met April 19 in joint session to vote on the governor's appointments, it did not take a vote on overriding the veto, and had no further joint sessions scheduled when

On the market side, enalytica said buyers would be "very suspicious" of the same gas being marketed by different projects and said it would be difficult for the state to sign firm sales contracts while gas ownership remains unclear.

see **HB 132 VETO** *page 24*

NATURAL GAS

LNG secrecy stirs legislators

Petronas said to be on verge of final approval for Pacific NorthWest LNG project

By GARY PARK

For Petroleum News

British Columbia's Natural Gas Development Minister Rich Coleman is trumpeting the chances that Malaysia's Petronas will formally sanction its Pacific NorthWest LNG project just as his government is coming under fire for shielding more of its negotiations with LNG proponents from public scrutiny.

On his return from a visit earlier in April to Petronas headquarters, Coleman told the Globe and Mail that he is "as optimistic, if not more optimistic, than I've ever been" that the Pacific NorthWest joint venture by Petronas and three Asian junior partners is poised for a final investment decision.

But these signs of progress are colliding with amendments to the province's LNG Income Tax Act that will reduce tax revenues and has the opposition New Democratic Party accusing the Clark government of negotiating with LNG players in private and keeping the details secret.

Despite a series of delays, including an ongoing federal environment review of the Pacific NorthWest plans, Coleman left his meeting with newly installed Petronas Chief Executive Officer

see **LNG SECRECY** *page 30*

contents

Petroleum News *North America's source for oil and gas news*

GOVERNMENT

Fleener touts Alaska to Arctic Council

Gets Legislature nod as lieutenant governor successor, says US chair assignment to Arctic Council could be a needed boost to Alaska

By STEVE QUINN

For Petroleum News

The United States has assumed the post as chair for the Arctic Council and that could be great things for Alaska. In his state of the state delivery, Gov. Bill Walker identified Arctic policy as a priority, having previously naming Craig Fleener has his Arctic policy advisor. Fleener also received unanimous legislative approval to be the lieutenant governor's successor during recent confirmation hearings.

The U.S. is part of the council that features seven other nations: Canada, Denmark, Finland, Iceland, Norway, Russia and Sweden. It also includes six indigenous organizations with permanent status, plus more than two dozen countries holding observer status.

For Fleener, the Arctic Council represents a reprisal of his work with the Gwich'in Council International, the International Porcupine Caribou Board and the Yukon River Panel.

Fleener spoke to Petroleum News about what the two-year term could mean for Alaska.

Petroleum News: What do you see is your job as the governor's Arctic policy advisor?

Fleener: As the Arctic policy advisor, I think my role is to make sure that I am advising the governor on all things Arctic and of course implementing the Arctic policy that was adopted by the Legislature. It's a rather robust policy, very robust in fact. It's not missing a whole lot. The plan is find a good way for us to knit together what we would have wanted to do as an administration and what we've been provided by the Legislature.

The good news is the Legislature was very thorough in completing that work and so we will be implementing the Arctic policy. In addition to that is we've got other areas that we are interested in and other responsibilities outside of that. One of those is the Arctic Council chairmanship, and us making sure we have a very strong role in partnering with the State Department on developing Arctic policy and implementing that policy as we go forward.

The State Department, of course, has their own broad international objectives for Arctic policy. There aren't a whole lot of domestic components to their plan. Part of our goal is to help remind them that Alaska has a lot of issues that need to be addressed. Most of our issues simply aren't domestic. We can treat them as domestic because they impact all Alaskans.

At the same time because we are so much like northern Russia, so much like Greenland, so much like Canada that our issues are actually as impactful as the other Arctic nations. Maybe not so much like Scandinavia because their Arctic is so much further developed than the rest of the world's Arctic. They don't have the same types of problems. Water and sanitation is not an issue in much of northern Scandinavia; infrastructure is not a big issue there; jobs is not a big issue there. All of those are big issues for us, plus the costs of energy and developing resources. And the other four nations that I mentioned.

We need to somehow get what's important to us on the radar screen of the State Department to help us develop those as we go forward. Even though the State Department's responsibilities are international we want the U.S. in general to be more responsive to Alaska's needs.

CRAIG FLEENER

We want the United States itself when they use the word Arctic, I feel as though they are thinking primarily in terms of international. I want them when they say the word Arctic to think Alaska. There is only one Arctic component to the United States and that's Alaska, so every time they say Arctic, we want them to think Alaska.

Petroleum News: How do you accomplish that?

Fleener: We've started by reaching our hand out and being available, trying to be everywhere. It's a little tough with a one-man shop with other folks pitching in. It's about forging partnerships and relationships, and asking to be involved with different activities that are going on. It's about connecting the right people in state agencies with right people in the federal agencies to make sure we are involved. So mostly it's about reaching out or partnering where we are allowed to.

We certainly aren't going to be successful by being overly aggressive and threatening and bringing lawsuits, and that sort of mentality. That hasn't proven to be successful in the past. In some cases lawsuits work to resolve issues. For the most part, I think we can get a lot more done in a lot more of a positive way if you are reaching out offering your assistance and expertise.

Petroleum News: You mentioned that the Legislature's plan (House Bill 1) is very robust. Is that good? Are your hands tied by this?

Fleener: No. Not at all. There are things in there that it may take us forever to get to just by virtue of the amount of money we have right now. So it's going to take us some time to get to all of those things rolled out. The Legislature did a good job of looking at Alaska holistically and saying what do we need to advance Alaska as the Arctic. You can look at it and say what does Arctic policy really mean?

Different people have different definitions. Some people treat it as if it's everything north of the Brooks Range. Some people treat it as everything north of the Arctic Circle. We have the AYK line, which is a much more accepted delineation of the Arctic, which is down the Yukon River over to the Kuskokwim River and then down the Aleutian chain. That's kind of what we've been using for the most part.

I pretty much see it as all of Alaska. The way I view it is most of us live in or are affected by what goes on in the Arctic. If you don't live in the Arctic, you are affected by it. If you are not immediately impacted by it, the laws and regulations that come down to set goals and guidelines in the Arctic, they all affect us.

Oil and gas development is a perfect example: where we go with that, what we develop, the amount of taxation. That affects every single Alaskan. And that's Arctic policy. Most of our oil and gas is coming from the Arctic. I prefer to use a broader definition to be able to be more responsive to a broader swath of Alaskans. I think the Arctic policy has done that. It's been broad enough to incorporate the most important aspects of Alaska.

There are probably a few things that need more attention. There is not much given to military and defense, but those are really not Alaska issues on their own, but we need to be engaged in that because we are right next door to one of the most powerful militaries in the world.

Petroleum News: There's always discussion about whether one person is the right fit for this job or that job. I gain a

see FLEENER Q&A page 27

● EXPLORATION & PRODUCTION

ConocoPhillips juggles volumes

By GARY PARK
For Petroleum News

Despite layoffs and a slowdown in the latest phase of its Alberta oil sands expansion, ConocoPhillips is setting an ambitious goal of raising its Canadian production by 80,000 barrels of oil equivalent per day over the next two years.

Although the company is counting on ramping up its unconventional activities in that time by spending US$1.3 billion a year over a three-year stretch, it needs 100,000 bpd to offset production declines.

But it has ample prospects based on an estimated 25 years of inventory tied to established and early-stage unconventional drilling plays on almost 3 million acres in Western Canada, including Glauconite, Cardium, Montney and Duvernay formations.

"We've got two vast resource positions in Canada — in the oil sands and the unconventional," Matt Fox, executive vice president of exploration and production, said on a webcast.

ConocoPhillips' is heavily tied to its Surmont steam-assisted gravity drainage oil sands project — a 50:50 joint venture with France's Total — with the first stage producing 30,000 bpd and the second stage scheduled to start steaming wells by mid-2015 and targeted to ramp up output from the operation to 136,000 bpd.

The company applied last July for regulatory approval to add another 125,000 bpd of capacity at Surmont, but has since slowed the rate of development by cutting 200 workers, or 7 percent of its Canadian payroll.

ConocoPhillips also hired Scotia Waterous to help sell gas-weighted assets in Western Canada that are producing 35,000 boe per day.

"In the current price environment, we've decided to slow the pace of new development at Surmont and instead we're focusing on optimizing our production through existing facilities," Fox said.

By 2017 the company expects there will be a "significant increase" in capital allocated to unconventional programs in Alberta and British Columbia, he said.

In addition to Surmont, ConocoPhillips has a 50 percent stake in the Foster Creek, Christina Lake and Narrows Lake oil sands assets operated by Calgary-based Cenovus Energy in exchange for giving Cenovus a position in ConocoPhillips' refineries in the United States.

Brian Youngberg, an analyst at Edward Jones, said the company has "created a niche as a major independent producer with an attractive dividend and stable returns that trades more like" larger oil companies such as ExxonMobil.

Investors now want to see the producer shore up its finances and spend in line with cash flow, he said.

The Houston-based parent company has cut its overall capital spending over the next three years to US$11.5 billion from US$16 billion as it tries to building production by 10 percent to 1.7 million boe per day. ●

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EXPLORATION & PRODUCTION

SAExploration seeks IHA for Beaufort

SAExploration Inc. has applied for an incidental harassment authorization for a 3-D seismic survey scheduled for the upcoming open water season in the Beaufort Sea.

The authorization would allow the seismic company to accidentally disturb a small percentage of various marine mammal species in the region, including beluga whales.

The proposed survey would occur in a roughly 300-square-mile area of the nearshore waters of the Beaufort Sea between Harrison Bay and the Sagavanirktok River delta. The company expects the survey to last for 70 days between July 1 and Oct. 15.

The survey would involve a "recording patch," which would be a group of six receiver lines and 32 source lines used to record over a given area. The company would leapfrog, to some degree, collecting information from one patch as it recorded from another. The patches would overlap considerably, as they are moved side-to-side or end-to-end.

SAExploration applied for the authorization from the National Marine Fisheries Service in early December 2014 and modified the application four times through mid-February.

The agency is taking comments on the plan through May 14.

—ERIC LIDJI

● FINANCE & ECONOMY

Legislature passes refined fuel surcharge

Intent of House Bill 158 is to spread response costs to wider range of users, reflecting number of refined fuel spills in the state

By KRISTEN NELSON

Petroleum News

The Alaska Legislature has passed a refined fuel surcharge, updating funding for the Department of Environmental Conservation's Division of Spill Prevention and Response.

SPAR has been funded from the Oil and Hazardous Substance Release Prevention and Response Fund, which comes from the 5 cents per barrel surcharge on crude oil produced — 4 cents of which goes into the prevention account.

SPAR Division Director Kristin Ryan told the Senate Resources Committee in a February hearing that the division is funded by cost recovery, fines, investment income and a surcharge on each barrel of crude oil produced in the state, and with both oil production and interest rates down, the division is underfunded.

Department of Environmental Conservation Commissioner Larry Hartig said the response fund is critical, providing more than 50 percent of SPAR's funding. The fund was established in 1989 and the 5 cents per barrel rate hasn't changed, Hartig said.

Previous attempts to increase the 5 cents going into the fund from crude oil production faced objection from the oil industry, which argued it cleans up its own spills and that funds it provided were used for non-crude oil spills.

Both bodies pursued funding

Two bills, House Bill 158, sponsored by Rep. Cathy Munoz, R-Juneau, and Senate Bill 86, sponsored by Sen. Peter Micciche, R-Soldotna, had the same goal of increasing SPAR funding. HB 158, as amended in the Senate, was the bill that the Legislature passed April 18.

Munoz said in March hearings that SPAR faces a $1.9 million projected shortfall in fiscal year 2016, assuming receipt of a $5 million federal settlement related to a site in Aniak and budget reductions including deletion of four positions and consolidation of programs. After FY 2016, Munoz said, the estimated budget shortfall without additionally funding is $7 million annually.

Micciche said in a statement on SB 86 that a variety of industries and individuals spill oil and hazardous substances and a majority of spills to which the state responds are refined oil spills. The bill "distributes prevention and response costs across all users of refined fuel," he said.

Munoz had proposed a 1 cent per gallon surcharge; Micciche proposed 0.8 cents per gallon; the amended HB 158 provides for a surcharge of 0.95 cents per gallon.

Funding spill response

"HB 158 is critical to the state's ability to fund the response of fuel spills in our communities, along our roads and in our rivers and lakes," Micciche said in an April 18 statement after passage of the bill.

"Most spills result from refined fuels, not crude oil; but in the past all spills cleaned up by the fund were paid for by a fee on the producers of crude oil. They will continue to pay their share, however this legislation apportions clean-up costs more equitably. The lion's share of new costs will be covered by mid-sized industries. For the small proportion passed down to the consumer, the average driving Alaskan family will likely spend less

see FUEL SURCHARGE page 6

LAND & LEASING

Potential Alaska, federal oil gas lease sales

Agency	Sale and Area	Proposed Date
DNR	Cook Inlet Areawide	May 6, 2015
DNR	Alaska Peninsula Areawide	May 6, 2015
DNR	Beaufort Sea Areawide	fall 2015
DNR	North Slope Areawide	fall 2015
DNR	North Slope Foothills Areawide	fall 2015
BLM	NPR-A	fall 2015
BOEM	Chukchi Sea	May 2016
BOEM	Cook Inlet (special interest)	November 2016
BOEM	Beaufort Sea	May 2017

Agency key: BLM, U.S. Department of the Interior's Bureau of Land Management, manages leasing in the National Petroleum Reserve-Alaska; BOEM, U.S. Department of the Interior's Bureau of Ocean Energy Management (formerly Minerals Management Service), Alaska outer continental shelf region office, manages sales in federal waters offshore Alaska; DNR, Alaska Department of Natural Resources, Division of Oil and Gas, manages state oil and gas lease sales onshore and in state waters; MHT, Alaska Mental Health Trust Land Office, manages sales on trust lands.

EXPLORATION & PRODUCTION

Key takeaways from Arctic report

NPC study was a collaborative effort that supported offshore development while also recommending further research, panel says

By ALAN BAILEY
Petroleum News

Reflecting on a recently published National Petroleum Council report supporting oil and gas development in the U.S. Arctic offshore, a panel consisting of four members of the team that had prepared the report told a meeting of Alaska business people on April 9 that the report has three takeaway messages. The report resulted from a collaborative effort involving the interests of more than 260 participants; the report concluded that it is possible to safely develop Arctic offshore opportunities; and the report identified scope for more research into topics such as Arctic oil spill response technologies, the panel told a joint meeting of the Alaska Support Industry Alliance and the Resource Development Council for Alaska.

Although internationally there have been substantial technical and regulatory improvements relating to oil spill prevention and response in sea-ice conditions, not all stakeholders in the Arctic accept these improvements and not all of the improvements are currently available in the United States.

Exploration should proceed

As described in the April 5 issue of Petroleum News, the report recommends that oil exploration in the Arctic Alaska offshore should proceed without delay, to stave off a future decline in U.S. oil production when Lower 48 shale oil production passes its peak. After decades of research, much is known about the Arctic's physical, ecological and human environments. And Arctic offshore exploration and development can be conducted using proven technologies, the report says.

The National Petroleum Council is a federally chartered and privately funded committee that provides advice to the Secretary of Energy on matters relating to oil and gas. Ahead of the United States taking the chair of the Arctic Council, the intergovernmental forum of Arctic nations, Energy Secretary Ernest Moniz had asked the Petroleum Council for guidance on potential research and technology to support prudent development of Arctic oil and gas resources, balancing factors such as community interests, environmental stewardship and economic opportunism. The report is the outcome of that request.

Diverse team

Carol Lloyd, co-chair of the coordinating subcommittee for the report and vice president, engineering, for the ExxonMobil Technology Upstream Research Group, emphasized the diversity of the study team. With 105 organizations involved, 43 percent of the participants came from industry; 30 percent from federal and Alaska state government; and 12 percent from academic institutions — the remaining 15 percent was about equally split between Alaska Native organizations, independent consultants and environmental organizations, Lloyd said.

"It's a consensus report. Everyone had to agree with every word that is in the report," Lloyd said. "I'm particularly pleased with the degree of consensus that we were able to reach with some pretty significant conclusions."

The study leading to the report found that the Arctic has substantial hydrocarbon resource potential, with the Alaska Beaufort and Chukchi seas estimated to hold large volumes of undiscovered oil and gas. At the same time, although the Arctic climate and ice cover are changing, much is known about the region. And

see **ARCTIC REPORT** *page 7*

continued from page 5

FUEL SURCHARGE

than a penny a day," he said.

Munoz said following passage of the bill that "Alaskans value a healthy environment" and many remember the devastation of the Exxon Valdez spill in 1989. "That event demanded a long-term funding solution to prevent and respond to not only large scale spills but also smaller scale contaminated sites, marine spills, and other fuel releases. The Legislature enacted a surcharge on oil production to fund prevention and response activities."

Collected from qualified fuel dealers

A fiscal note from the Department of Revenue's Tax Division said the surcharge will be collected from qualified fuel dealers, who generally import and wholesale fuel oil, as well as from some in-state refiners, the same group of companies currently filing Alaska's motor fuel excise tax. The motor fuel excise tax, which varies from 3.2 to 8 cents per gallon, in only paid on certain types of fuel, the division said, with exemptions defined in statute.

The surcharge under HB 158 will be applied to a wider range of refined fuel, including some products exempted from the motor fuel tax.

Exemptions from the new surcharge include sales to federal and state government, fuel exported out of the country, fuel used in aviation and transfers among qualified dealers.

The division said it is estimated that, with those adjustments, the surcharge will apply to approximately 785 million gallons of refined fuel in the first year, and at 0.95 cents per gallon, will represent annual revenue of some $7.45 million in fiscal year 2016, with an estimated 2 percent increase per year afterward. ●

Contact Kristen Nelson at knelson@petroleumnews.com

continued from page 6

ARCTIC REPORT

the oil and gas industry has a long history of successful operations in Arctic and Arctic-like conditions, Lloyd said.

With shallow water depths in the Alaska Arctic offshore and open water seasons two to three months in duration, it is possible to use traditional floating drilling rigs for exploration while installing fixed gravity-based structures for field development.

But the region poses challenges when it comes to the economic viability of oil and gas development. And the general public does not have confidence in the oil industry's ability to pursue Arctic opportunities safely, in a manner that maintains environmental stewardship, Lloyd said.

Spill prevention and response

Although internationally there have been substantial technical and regulatory improvements relating to oil spill prevention and response in sea-ice conditions, not all stakeholders in the Arctic accept these improvements and not all of the improvements are currently available in the United States. The study team has therefore recommended publicly visible, collaborative research, to discuss, validate and make available new technologies, Lloyd said.

Meantime, recent new technologies such as capping stacks, devices designed to be lowered onto a well head for sealing a leaking well, have made offshore drilling much safer than it was prior to the Deepwater Horizon disaster in the Gulf of Mexico, she said.

The study team recommended that the Bureau of Safety and Environmental Enforcement, the federal agency responsible for the regulation of offshore drilling safety, should participate in a joint industry Arctic oil spill response research program that has been under way since 2012 — eight companies are collaborating in that program, Lloyd said.

Research recommendations

The executive summary of the report includes 32 high-priority recommendations for research, while the main body of the report contains 60 additional research recommendations, Lloyd said.

Although the Energy secretary had asked for a technical study into the prudent development of Arctic oil and gas, the study team did consider government policy issues, where those issues have a clear intersection with technical questions. For example, government regulations have an impact on the use of technology, Lloyd said.

Lloyd later told reporters that the study team had excluded from consideration the question of the sharing of federal government revenues from offshore oil and gas with local communities. The team viewed revenue sharing as a commercial issue, with no obvious connection to technology, she said.

In terms of oil spill response technologies, the report recommends that government regulators consider the use of techniques such as in-situ burning and oil dispersant application, as well as the use of mechanical oil recovery, the technique currently favored in the Arctic by U.S. regulators. However, a policy change in this area would require the alignment of public support for the techniques in question, Lloyd commented.

The report recommends collaborative initiatives to conduct further research into the human and ecological environment of the Arctic, in addition to the substantial amount of research that is currently in progress. Research into long-term population estimates for key Arctic wildlife species, especially species dependent on sea ice, would be beneficial.

While the report's coordinating subcommittee included biologists and human environmental scientists, one member of the team met separately with several environmental organizations, to identify their concerns with Arctic offshore oil and gas development, Lloyd said. Most of those concerns revolved around the feasibility of conducting an oil spill response in sea ice, she said. The study team tried to understand these concerns and fully debated them, she said.

Research has shown that offshore spill response techniques used in warm climates typically work better in cold Arctic conditions, Lloyd later told reporters.

Obstacles to exploration

Having taken a view that Arctic offshore oil and gas development could, in fact, be conducted safely, the team identified two issues that currently impede exploration: the short length of the drilling season and the 10-year terms of U.S. outer continental shelf oil and gas leases.

The brevity of the drilling season results from a requirement to drill in open water conditions, with adequate time allowed during the open water season for the drilling of a relief well — a relief well plugs a well following a loss-of-control incident. The same-season relief well requirement can result in having to mobilize drilling assets over two seasons to drill a single well, Lloyd said. If people can become comfortable with the use of new well capping technologies, as ways of sealing a well until a relief well is completed, the length of the drilling season could be extended. Effective ice management operations could perhaps extend the drilling season further, possibly halving the cost of an exploration well if a well can be drilled in a single season.

Well kill system

Doug Hoyt, a member of the report coordinating subcommittee and manager of ExxonMobil's Corrosion and Materials Group, later described to reporters a new well kill system that has been used in the Kara Sea and that goes below the blowout preventer at the well head. This device, which is self contained and has blind shear rams similar to those in the blowout preventer, can be remotely activated using an acoustic system, if the blowout preventer fails. A well capping stack then could then provide a third line of defense, if necessary.

And, whereas it might take weeks or months to complete the drilling of a relief well, wellhead devices can seal a well immediately, John Guy, deputy executive director of the National Petroleum Council commented.

The 10-year lease standard, designed for the Gulf of Mexico, requires the completion of exploration and field appraisal activities within that 10-year window, Lloyd said. That is almost impossible in the Arctic, she said. Some jurisdictions outside the United States have split their leases into primary exploration terms and discovery licenses — the study team recommended that the Department of the

see **ARCTIC REPORT** *page 8*

ALTERNATIVE ENERGY

Preparing for the next steps for Igiugig

Village council files draft FERC license application for in-river turbine power while ORPC plans next phase of system testing

OCEAN RENEWABLE POWER CO.

Ocean Renewable Power Co.'s RivGen being deployed in the Kvichak River during the summer. The device was sunk to the bottom of the river, enabling its helical shaped turbine to generate electricity for the village of Igiugig.

By ALAN BAILEY
Petroleum News

Following a successful test of an in-river power generation system in the Alaska village of Igiugig last summer, the village tribal council has filed a draft application for a Federal Energy Regulatory Commission license for an operational system. The village sits on the bank of the fast-flowing Kvichak River and wants to use the river current to generate electricity, to replace at least some of the expensive diesel-fueled power that the village depends on.

However, with further testing needed before a fully operational in-river system can be implemented, the village does not anticipate starting the build out of the system until perhaps September 2016. The tribal council envisages a two-phase project. Phase one would involve the installation of a single in-river turbine while phase two, possibly starting in 2018, would involve the installation of a second unit. Two turbines together would be capable of meeting the village's average electricity demand, the license application says.

The license application says that, although Igiugig has some wind turbines, the village's main power supply comes from a power plant with three diesel generators that consume about 30,323 gallons of diesel fuel annually. The cost savings resulting from the use of the in-river turbines could amount to more than $250,000 per year, the application says.

Ideal location

Igiugig is located near the end of Lake Iliamna in southwest Alaska — the Kvichak River flows out of the lake. Monty Worthington, director of project development for Ocean Renewable Power Co., manufacturer of the "RivGen" power generation device that was tested at Igiugig last year, told Petroleum News that the village is ideally situated as a location for spearheading the new in-river technology. In addition to the village being a great partner in the project, the river is almost free of the debris that can plague in-river turbine systems at some locations. Moreover, the river is typically ice free, Worthington said.

ORPC's RivGen device consists of a turbine with helical shaped blades, connected to a submersible generator and

see **TURBINE POWER** *page 9*

continued from page 7

ARCTIC REPORT

Interior researches this issue, she said.

Arctic collaboration

The report also makes recommendations to a new committee that President Obama has formed to coordinate Arctic policies across government agencies. And the oil and gas industry is interested in collaborating with the State Department over the planning of oil pollution preparedness and response exercises, under the terms of international agreements formed through the Arctic Council, Lloyd said.

Reflecting on the Energy secretary's objectives in calling for the National Petroleum Council's report, Nancy Johnson, co-chair of the coordinating subcommittee and Department of Energy director for environmental sciences and policy analysis, told reporters that her agency has been told to give priority to the Arctic. The Department of Energy is very serious about figuring out how to move forward, she said. Johnson also commented that in the past the Department of Energy had not necessarily done well in communicating with people in Alaska.

"We're seeing more attention being paid to working with Alaskans, the state of Alaska and the Alaska communities," Johnson said. ●

Contact Alan Bailey at abailey@petroleumnews.com

continued from page 8

TURBINE POWER

mounted on a pontoon structure. The floats of the pontoon can be filled with water to sink the structure to the river bed, for anchoring in position. By refilling the floats with air the device can be refloated and towed to the shore for maintenance.

The focus of last year's testing was validating the technique for moving the RivGen device in and out of the river and demonstrating that the device could produce power, as planned, Worthington said. Based on lessons learned from that test program, ORPC is in the process of making some modifications to the device. A company on the Kenai Peninsula is fitting a ramp-like fairing to the bottom side of the structure, to increase the velocity of the water flow through the turbine and hence improve the turbine's efficiency.

"It will increase the efficiency, the amount of power we get out of the same size turbine," Worthington said.

ORPC is also making some changes to the pontoon structure, to enable the floating structure to be towed through the strong river current with less horsepower — last year there was a lot of drag when towing because of certain structural members on the pontoon, he said.

Integrate the power

In addition to testing the effects of the new fairing on the turbine efficiency, this summer's program will involve further work on integrating the power from the river turbine into the electricity grid at Igiugig. A key factor for the technology, referred to as hydrokinetics, will be its ability to integrate into the type of diesel-powered microgrid that is typical of a rural village.

"Hydrokinetics have a lot of promise, not only to reduce diesel fuel use but, because they're fairly consistent. If you size the project appropriately, you could even have times when you turn the diesels off completely," Worthington said.

In fact, the Igiugig program presents a worldwide opportunity for ORPC, given the possibility of using the hydrokinetic technology as a power source for remote communities, if the technology can integrate successfully with microgrids he commented.

The clear water of the river at Igiugig enables an underwater camera to monitor the behavior of fish near the turbine and last year's tests revealed no adverse interactions with river wildlife. No fish were observed to go through the turbine. However, small fish have been recorded swimming uninjured through a similar turbine device in an ORPC hydrokinetics application in Maine, Worthington said.

Earlier deployment

This year ORPC hopes to deploy the RivGen device at Igiugig in July, about a month earlier than last year. That will enable the interaction of different species with the turbine to be observed, Worthington said. And ORPC will continue to collect environmental data, as part of the process leading to the licensing of the power generation system, he said.

Assuming that the system goes into full-scale operation, the idea would be to place the RivGen device in the river for most of the year, removing the device in late April, before broken winter ice starts flowing out of Lake Iliamna, and then re-installing the device four to six weeks later. Annual maintenance could be conducted while the machine is out of the water. ●

Contact Alan Bailey at abailey@petroleumnews.com

ENVIRONMENT & SAFETY

Permafrost GHG emission slow, prolonged

A team of scientists has evaluated research into the emission of greenhouse gases from thawing Arctic and sub-Arctic permafrost and has concluded that the emission will be slow and prolonged, rather than taking place suddenly, as a "carbon bomb," as thought a couple of decades ago, according to a paper published in the journal Nature on April 8. According to a U.S. Geological Survey press release, permafrost soils contain twice as much carbon as exists in the atmosphere, thus raising the possibility of elevating carbon dioxide and methane levels in the air as microbes act on organic material when the frozen soil thaws. The release of carbon in this way can lead to what is referred to as a positive feedback loop, an acceleration in global warming as the warming expels increased amounts of warming gas.

Vladimir Romansky, a permafrost expert from the University of Alaska Fairbanks Geophysical Institute and a co-author of the Nature paper, has said that the average temperature of permafrost in Alaska, Russia and other Arctic regions has increased from almost 18 F to just over 28 F in the last 30 years. But, although the eventual melting of the permafrost will release carbon, that release will be relatively gradual, the Nature paper says.

"Twenty years ago there was very little research about the possible rate of permafrost carbon release," said co-author A. David McGuire, a senior scientist with the U.S. Geological Survey's Alaska Cooperative Fish and Wildlife Research Unit and a climate modeling expert with the Institute of Arctic Biology at the University of Alaska Fairbanks. "In 2011, we assembled an international team of scientists into the Permafrost Carbon Network to synthesize existing research and answer the questions of how much permafrost carbon is out there, how vulnerable to decomposition it is once it's thawed, and what are the forms in which it's released into the atmosphere."

—ALAN BAILEY

PIPELINES & DOWNSTREAM

CIPL requests extra time to remove gravel

Cook Inlet Pipe Line Co. has applied to the U.S. Army Corps of Engineers for an extension of time to remove a 1.2-acre temporary fill pad installed last year in a project to replace a section of a buried 20-inch pipeline using horizontal directional drilling. The project is some three miles west of the Trading Bay Production Facility on the west side of Cook Inlet.

The Corps said CIPL, owned by Harvest Alaska LLC, proposes to modify an existing permit to allow for six additional months to complete removal and reclamation of the 1.2-acre temporary fill pad.

The Corps said CIPL, owned by Harvest Alaska LLC, proposes to modify an existing permit to allow for six additional months to complete removal and reclamation of the 1.2-acre temporary fill pad.

The gravel pad was constructed of geotextile material and gravel, with reclamation of the gravel pad site scheduled for March; the company now proposes to complete reclamation by the end of September.

The Corps said that due to warm temperatures, the access road to the pad has become unstable and would not support equipment needed to remove the pad. CIPL has told the Corps it expects the access road to dry out sufficiently by June or July.

CIPL is owned by Harvest Alaska, a subsidiary of Hilcorp Alaska.

The gravel and geotextile material will be removed and the 8,000 cubic yards of pit run gravel returned to an existing material site owned by Hilcorp.

—PETROLEUM NEWS

● NATURAL GAS

Gas pipeline right-of-way bill passes Legislature

By KRISTEN NELSON
Petroleum News

Senate Bill 70, allowing for rights of way for a gas pipeline through portions of Denali State Park, Captain Cook State Recreation Area, Nancy Lake State Recreation Area and Willow Creek State Recreation Area, has passed the Alaska Legislature.

The Senate voted 20-0 in favor April 14; the House voted 40-0 April 18; the Senate concurred with House changes 20-0 April 18.

SB 70 was an administration bill, and in a statement Gov. Bill Walker thanked legislators for its passage, calling the right of way "a necessary component to building a future natural gas pipeline in Alaska. By setting the wheels in motion now, we will be better prepared down the road."

Unlike the trans-Alaska oil pipeline, where there is limited access, the gas pipeline will be below ground and access should be as free as it is today once the pipeline is in the ground, Ellis said.

A briefing paper prepared by the Alaska Department of Natural Resources notes that the bill would authorize a corridor adequate for either the Alaska LNG project or the Alaska Stand Alone Pipeline and requires the corridor to be managed as parkland and recreation areas until a right-of-way lease is issued. Upon termination of the lease, the land would be returned to original park and recreation area management.

Right-of-way leases under SB 70 must be issued before Jan. 1, 2025, and pipeline construction must begin within 10 years of the effective lease date.

Right-of-way leases under SB 70 must be issued before Jan. 1, 2025, and pipeline construction must begin within 10 years of the effective lease date.

Different widths

Ben Ellis, director of DNR's Division of Parks and Outdoor Recreation, told House Resources in an April 17 hearing that the bill does not identify a right of way, but opens a sufficient amount of state park acreage from which a right of way can be selected. He said the right of way would be approximately 120 feet wide for construction, reduced to 53 feet for operation, for the ASAP line, and approximately 180 feet for construction and 100 feet for operation for the AKLNG project.

Ellis said the bill would not affect hunting and fishing access, with access remaining the same as it is now until a right-of-way lease is issued and construction begins, at which time there may be temporary hunting and fishing restrictions for construction.

Ellis said there would be an access road on top of the pipeline once it is in the ground, but a discussion on how much of a road has not yet occurred. It would provide access to the pipeline, he said, and would provide ATV access, which isn't now available, and could also provide snowmobile access in winter.

Unlike the trans-Alaska oil pipeline, where there is limited access, the gas pipeline will be below ground and access should be as free as it is today once the pipeline is in the ground, Ellis said. ●

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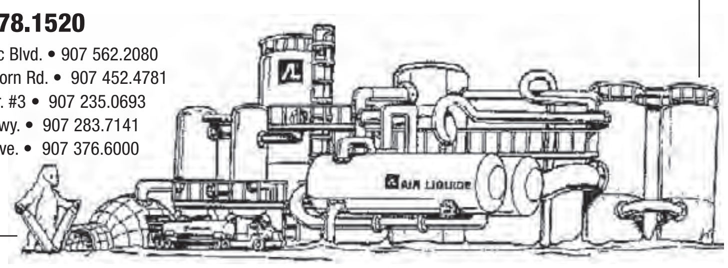

EXPLORATION & PRODUCTION

Inuit try to stop seismic

An Inuit village in Canada's Nunavut Territory is asking a federal court to stall regulatory approval of seismic exploration by a Norwegian consortium in Davis Strait between Baffin Island and Greenland.

Clyde River, a community of about 1,000, said it is concerned about the impact on marine mammals and fish of the 2-D survey program over five years of open water testing.

The Baffin Mayors Forum, representing all communities on the island, and the Nunavut Marine Council agree the tests should be stopped until the Canadian government completes an environmental assessment.

They are joined by 44 non-governmental groups and individuals, including Greenpeace, the Sierra Club and Amnesty International, along with a number of faith-based groups.

The National Energy Board, which conducted the most comprehensive hearings into a geophysical application in its history, approved the survey by TGS-NOPEC Geophysical Company, Petroleum GeoServices and Multi Klient Invest.

That decision last June came with a number of conditions including a requirement to have a marine mammal observer on the seismic vessel, with the authority to stop testing of an animal was spotted within 500 meters. Scientists have argued that 80 percent of whales in an area could easily be missed by an observer.

Clyde River Mayor Jerry Natanine said his community does not oppose development, but it wants to know more about possible consequences and a better chance to benefit from the resources under its waters.

He said Clyde River initially viewed the program as an "opportunity ... as things went on we started realizing that the (consortium) just wanted to get what they want and then leave. We're not in support of that."

United Kingdom-based Cairn Energy has plugged and abandoned five wells on the Greenland side of Davis Strait and in Baffin Bay as part of a US$1 billion program.

—GARY PARK

Linc remains 'confident' in Umiat

Linc Energy Ltd. is "extremely confident" in the Umiat field.

Despite the recent decline in oil prices, the Australian independent said it remains optimistic about its prospects for developing the remote oil field in the foothills of the Brooks Range Mountains, according to a company update released April 21.

In mid-2014, the company launched a strategic review after receiving an unsolicited offer for its American operations, including Umiat and operations in Wyoming. The company intended to make a decision by the end of last year. "Linc Energy remains in discussions with a number of interested parties with respect to the sale of its Umiat and Wyoming oil assets. Progress has been slower than previously anticipated as a result of the recent oil and gas market downturn," the company said in its statement. "However, the Company remains extremely confident in the long-term value of both the Umiat (particularly in light of the pre-appraisal Project Cost Estimate undertaken by NANA Worley Parsons earlier this year) and Wyoming oil assets and will continue to engage with interested parties whilst prudently progressing permitting and development plans for the fields."

After completing an exploration program at Umiat in early 2014, Linc said it saw a "clear path" to development. The field is price-sensitive, though, because of its remote location and its complex geology, which includes a reservoir partially buried in permafrost.

To adjust to the current oil price environment over the past six months, Linc said it has taken an "increased focus" on divesting non-core assets, optimizing organizational structures and reducing its "total cost per barrel of oil produced" in America below $29.

Linc is also pursuing an Alaska underground coal gasification program, which would convert deep coal deposits into gas, and said "good progress is being made on synthetic natural gas off take opportunities to existing and new participants in the Cook Inlet."

—ERIC LIDJI

NORTH OF 60 MINING news

page 14 Freeman: Global trends may signal 'good things' ahead

www.MiningNewsNorth.com *The weekly mining newspaper for Alaska and Canada's North* **Week of April 26, 2015**

NEWS NUGGETS

Compiled by Shane Lasley

Weak metal prices weigh Teck profits

Teck Resources Ltd. April 21 reported first-quarter adjusted profit attributable to shareholders of C$64 million, or C11 cents per share, compared with C$105 million, or 18 cents per share, in 2014. The company attributes the lower profits to challenging commodity markets, which was partially offset by a stronger U.S. Dollar. "Our ongoing focus on cost management and operational performance, aided by the strong U.S. dollar, is enabling our diversified business to withstand the generally weak commodity price environment, allowing all of our operations to generate positive operating cash flows after our sustaining capital spending," said Teck President and CEO Don Lindsay. The company says prices for steelmaking coal have fallen further since the beginning of the year and the market for steelmaking coal remains oversupplied, primarily due to indications of weakening demand in China. Copper prices dipped sharply in the quarter but rebounded substantially towards the end of the period with prices averaging US$2.64 per pound compared with US$3.19 per pound in the previous year. Zinc was the one bright spot on the commodities front. LME zinc prices averaged US94 cents per pound in the first quarter of 2015, 2.5 percent higher than the same period last year. Zinc prices reached a low of US90 cents per pound on March 17 as global oil and commodity prices fell, but recovered to US$1.01 per pound in early April. Lead prices, however, are down 14 percent, averaging US82 cents per pound. As a result of stronger zinc prices, U.S. dollar strength and increased sale volumes from the Trail refinery in British Columbia, gross profit before depreciation and amortization for Teck's zinc unit was C$179 million, a C$58 million increase compared with results of the first three months of last year. Mill throughput at Red Dog was similar to the first quarter of 2014. Zinc grade and recoveries at the Northwest Alaska mine during the first three months of this year, however, were slightly lower than 2014, resulting in 4 percent less zinc production. Higher lead grade than 2014 was partially offset by lower recoveries, which yielded 4 percent more lead production at Red Dog.

Endurance eyes Elephant gold target

Endurance Gold Corp. April 20 said the 2013 and 2014 summer programs at its Elephant Mountain gold property in

see **NEWS NUGGETS** *page 16*

COEUR MINING INC.

Coeur Mining anticipates investing roughly US$16 million per year in underground development at Kensington through 2018, which will provide access to newly-found high-grade gold deposits at the Southeast Alaska gold mine.

PRODUCTION

Kensington's new plan

High-grades found at historic Jualin to provide more gold at lower costs

By SHANE LASLEY
Mining News

The Kensington gold mine in Southeast Alaska is set to produce more gold at lower costs in the coming years, according to a new plan published by owner Coeur Mining Inc.

"Our recent success identifying high-grade mineralization near existing Kensington infrastructure has added higher-margin production to our mine plan and significantly improved the expected economics of the mine," Coeur Mining President and CEO Mitchell Krebs explained.

MITCHELL KREBS

The highest grade portion of this newly found gold is located in the area of the historic Jualin Mine, which is situated about 8,250 feet from current mining in the Kensington Mine area. Since late 2013, Coeur has outlined a deposit at Jualin with gold grades that are more than triple the ore currently reporting to reserves.

Coeur hopes to begin recovering this higher grade gold by 2017. In the meantime, the new mine plan relies on Raven, another deposit with grades that exceed what has been mined at Kensington so far.

This higher margin plan for Kensington is one component of the restructuring of not only the Southeast Alaska mine, but the entire company in recent years.

"Kensington's new mine plan is expected to be a key component of the company's overall strategic repositioning that is expected to increase overall production levels by approximately 30 percent, reduce overall unit costs by approximately 25 percent, and boost the company's free cash flow to US$190 million-US$200 million in 2017."

see **KENSINGTON PLAN** *page 17*

● COLUMN

Outlook brightens for mining industry

Gold, base metal production and acquisitions accelerated in 2014, signaling potential turnaround for exploration sector in 2015

By CURT FREEMAN
For Mining News

With a mild winter for most of Alaska behind us and an early spring in progress over much of the state, spring fever has once again laid its grip on the mining industry.

A number of exploration and development programs are slated for the summer season, suggesting the mining industry has finally started to rise from the three-year miasma that has gripped it worldwide. A couple of macro-scale items also are pointing toward a more robust industry. The U. S. Geological Survey's "Mineral Commodities Summary 2015" indicated that world gold production reached an all-time high of 91.95 million ounces in 2014. Putting this into perspective, 2014 world gold production was slightly larger than the cumulative gold production of Nevada's prolific Carlin Trend. Put differently, this means the mining industry must locate, define and mine one entire Carlin Trend each year! Even better news came from the mergers and acquisition sector where SNL Metals and Mining reported that 2014 saw 73 mining acquisitions with a total asset value of US$21.56 billion, compared with US$11.88 billion in 2013. Base metal acqusitions, dominated by copper deals, more than tripled, while gold acquisition fell slightly, though the average value of both base metal and gold acquisitions increased, suggesting an end to the bottom feeding that characterized the mergers and acquisitions markets in the last few years. Oddly enough, gold acquisitions in 2014 paid less on average for producing properties compared to 2013 and more for development projects, suggesting that some companies are starting to refill their depleted development pipelines. That normally spells good things for Alaska!

The author


CURT FREEMAN

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Western Alaska

GRAPHITE ONE RESOURCES INC. announced that is has received additional technical data for its 100 percent-owned Graphite Creek project located near Nome. This Stage B work revealed the existence of distinctive properties of the mineralization described as Spheroidal, Thin, Aggregate and Expanded, or STAX. This recent work on drill-hole concentrate samples revealed that naturally occurring graphite occurs in the shape of spheres and close to the size ranges of interest for lithium ion battery-grade graphite. Screening analysis and optical microscopy also demonstrated significant proportions (7-10 percent or more) of thin, coarse, large flake graphite (+20 mesh, +25-30 mesh). This included "pressed flake," or aggregated, graphite particles, some in the shape of flakes, alongside integral classic flake and both with high aspect ratios. Finally, the work revealed the presence of naturally occurring flake graphite with particle architecture closely matching that of expanded graphite. As a result of this new information, the company is briefly suspending work on its preliminary economic assessment of the project in order to incorporate the findings from the Stage B Report into the PEA.

NOVAGOLD RESOURCES INC. released its first-quarter financial results and updates for its flagship 50 percent-owned Donlin gold project. As a routine part of the environmental impact state-

see **FREEMAN** page 20

● EXPLORATION

Graphite Creek mineral deposit STAX up

Unique characteristics of Alaska project could meet downstream demand for spheroidal graphite used in high-technology manufacturing

By **SHANE LASLEY**
Mining News

Having established that the Graphite Creek deposit in western Alaska is so massive that a mine could ship out 50,000 metric tons of graphite per year for centuries, Graphite One is now narrowing its focus to study the graphitic carbon found on the property.

This new emphasis is on upgrading a segment of the enormous resource already identified to a category in which mining economics can be considered and analyzing the graphite to ascertain whether it fits the needs of downstream users of graphitic carbon such as manufacturers of lithium-ion batteries.

While lithium gets top billing in the battery of choice for electric vehicles and a growing field of other battery powered devices, there is 10-30 times more graphite than lithium in these power cells.

This and other high-tech uses are expected to bolster the need for graphite, according to a report published by Persistence Market Research in February.

"Rising demand for electric vehicles and other electronic devices such as mobiles, tablets, laptops, and cameras offers huge potential for the growth of the lithium-ion battery industry. This, in turn, is further expected to boost demand for graphite in North America," the New York City-based research company explained.

Metallurgical work done by Tru Group Inc. – a technology metals consultant with expertise along the entire graphite-graphene supply chain – indicates that the graphite found at Graphite Creek may be uniquely qualified to fill many of the high-technology and green energy applications that are expected to drive the need for a United States source of graphite.

"Our Graphite Creek Project in Alaska has the potential to be a significant supplier of high-quality, large flake graphite at a time when technology is driving increasing demand – and has established natural graphite as a critical and strategic mineral," said Graphite One President and CEO Anthony Huston.

Indicated resource

The continuity and simple geology of the 100-meter-thick graphite-rich layer that outcrops to the surface for some three miles (five kilometers) along the northern slopes of the Kigluaik Mountains has enabled Graphite One to readily outline a world-class graphite deposit with limited drilling.

"Our progress at Graphite Creek is due to a combination of factors: the continuity of the mineralization, a near-surface location and simple geology. Taken together these factors have allowed us to grow our resource to an impressive size with limited drilling – just 50 drill holes to date," explains Huston.

By early in 2014, Graphite One had outlined an inferred resource of 186.9 million metric tons of material averaging 5.5 percent graphite, or 10.35 metric tons of the carboniferous material. This could supply 50,000 metric tons of graphite per year for roughly 200 years.

While enormous, this deposit represents drilling along roughly a third of an 11-mile-long conductor zone revealed by an extensive airborne magnetic-electromagnetic survey flown in 2012 and the drilling completed through 2013 demonstrated a close correlation between the conductor and graphite in the ground.

GRAPHITE ONE RESOURCES INC.

The continuity and simple geology of the 100-meter-thick graphite-rich layer that outcrops to the surface for some three miles (five kilometers) along the northern slopes of the Kigluaik Mountains of western Alaska has enabled Graphite One to readily outline a world-class graphite deposit with limited drilling.

With more than enough inferred graphite, a 22-hole drill program completed in 2014 focused on upgrading a 730-meter segment of the 4,800-meter deposit to categories that the economics for mining could be considered.

As a result, this drilling upgraded 17.95 million metric tons of the deposit to the indicated category averaging 6.3 percent graphitic carbon.

Only a fraction of the overall deposit, the 1.13 metric tons of indicated graphite could provide a basis for a preliminary economic assessment for Graphite Creek.

"With this updated mineral resource estimate, we have the basis for developing our initial PEA, and the foundation for an infill drill program in 2015 to bring additional resources into the measured and indicated category," Huston said during the March release of the upgraded resource.

"The metallurgical samples we obtain will help us further refine our knowledge of the recovery and size distribution of our unique deposit and position Graphite Creek as a new source for the growing graphite market," he added.

Unique STAX graphite

According to a report published by Tru Group in early April, newly found characteristics of the Graphite Creek deposit may be a good fit for many of the high-tech and green energy sectors that are driving a large part of the growing graphite market.

As identified by TRU, these distinguishing features can be described as spheroidal, thin, aggregate and expanded.

Not all graphite makes a suitable ingredient for lithium-ion batteries. The anodes of these electricity storage cells need a higher form of the carbon known as spherical graphite. Typically, this requires mined graphite to be purified and turned into spheres, which increase the conductivity by increasing the surface area.

Tru Group has found that naturally occurring spheroidal graphite at Graphite Creek may fit this need with less processing. According to a report published by the strategic metals consultant, this spherical graphite was found in all the holes sampled.

Expanded graphite, also naturally existing at Graphite Creek, has excellent thermal qualities that make it an ideal lightweight material to use in heat sinks that keep laptop computers cool. This form of graphite also has outstanding electrical properties that lend to the production of very high power alkaline batteries.

These unique and naturally occurring properties have prompted Graphite One to apply for the trademark, STAX, to describe Graphite Creek graphite.

"TRU's study reveals the unique characteristics of the Graphite Creek mineralization, and we believe the STAX trademark succinctly captures these features," said Huston.

Because of the importance of this development, Graphite One is briefly suspending work on the PEA previously scheduled for release before mid-year in order to incorporate TRU's findings.

"Additional research and development is necessary to round out these findings and determine how these unique features may impact the development of the project," explains Huston.

Both companies caution that significant additional research and development is required to confirm these findings for the project.

"The discovery of this unique graphite, named STAX, is of notable scientific interest," says TRU President Edward Anderson. "We are anxious to delve more deeply into the 'natural' character of STAX and assess how those characteristics impact processing of graphite into finished products."

Growing demand

As Tru and Graphite One work to find the best fits for the various forms of graphite found at the western Alaska deposit, downstream demands for the car-

see **GRAPHITE CREEK** *page 16*

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Petroleum news

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NORTHERN NEIGHBORS

Compiled by Shane Lasley


NORTH ARROW MINERALS INC.

Q1-4 yellow diamonds in rare class

North Arrow Minerals Inc. April 21 reported that yellow diamonds recovered from the Q1-4 kimberlite at the Qilalugaq Project in Nunavut contain un-aggregated nitrogen, a defining characteristic of rare Type Ib diamonds with fancy "Canary Yellow" colors. Type Ib diamonds are exceptionally rare. "In fact, less than 1 percent of more than 24,000 fancy yellow diamonds investigated by the Gemological Institute of America as part of a 2005 study were classified as Type Ib diamonds, indicating that Type Ib diamonds are rare, even among natural fancy yellow diamonds," explained North Arrow President and CEO Ken Armstrong. "This rarity highlights the significance of today's result: all but one of the analyzed Q1-4 yellow diamonds contain un-aggregated nitrogen, and yellow diamonds make up over 21 percent, by carat weight, of the diamonds recovered so far from the Q1-4 bulk sample." These findings are based on Fourier Transform Infrared analyses of 41 representative yellow diamonds from the Q1-4 kimberlite. Un-aggregated nitrogen occurs as single, randomly distributed nitrogen atoms and strongly absorbs blue and violet light. As a result of this strong absorption, even relatively minor amounts of un-aggregated nitrogen can lead to intense yellow colors commonly referred to as "Canary Yellow" in the gem trade. "While all of the yellow diamonds recovered from the Q1-4 kimberlite will not qualify as fancy yellow colors, it is extremely unusual to have such a high proportion of diamonds tested from one locality report as Type Ib diamonds, and this is important information to have in advance of the upcoming Q1-4 diamond valuation process," said Armstrong. North Arrow also reported that the final processing and diamond sorting of the Q1-4 bulk sample is on track for completion in late April with a formal valuation of the diamond parcel to be conducted shortly thereafter. North Arrow is working to earn an 80 percent interest in the Qilalugaq diamond project from Stornoway Diamond Corp., subject to a one-time back-in right of that company, by collecting and processing the current bulk sample.

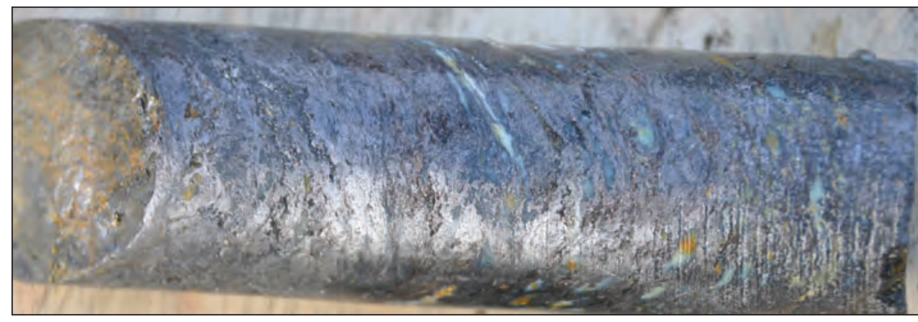
Diavik diamond production down 20%

Dominion Diamond Corp. April 20 said Diavik Diamond Mine processing volumes for the first quarter of 2015 fell 19 percent compared to the first three months of last year. The company attributes this decrease to the lack of stockpile ore that was available last year; mining through an area of higher-than-normal dilution; and upgrades made to the crusher during the quarter, which led to reduced capacity. As a result, 1.5 million carats of diamonds were recovered during the first quarter of this year, a 20 percent decrease from the 1.87 million carats recovered during the same period of 2014. Roughly 6.7 million carats of diamonds are expected to be recovered from run-of-mine ore at Diavik during 2015. An additional 300,000 carats are projected to be recovered from coarse ore rejects processed at the mine this year.

Mount Milligan gold deliveries rise

Royal Gold Inc. April 17 reported that its wholly owned subsidiary, RGLD Gold AG, received about 26,200 ounces of gold from the Mount Milligan copper-gold mine in British Columbia for the quarter ended March 31. As part of its purchase and sale agreement with Thompson Creek Metals Company Inc., Royal Gold can purchase 52.25 percent of the payable gold produced at Mount Milligan for US$435 per ounce, or the prevailing gold price, whichever is less. Royal Gold currently sells most of the delivered gold within three weeks of receipt, and recognizes revenue on its streaming transactions when the metal is sold. For the quarter ended March 31, Royal Gold sold about 24,200 ounces of gold from Thompson Creek, a nearly 70 percent increase over the December quarter. In addition, Royal Gold had roughly 6,800 ounces remaining in inventory at the end of the quarter. At March 31, Royal Gold had one provisionally priced final shipment of about 5,000 ounces outstanding and was not included in inventory. Hereafter, all deliveries to Royal Gold will be based solely on final settlement timing and volumes, subject to Thompson Creek's smelter contracts, which can take three to five months after concentrate is produced at the mine.

see **NORTHERN NEIGHBORS** *page 20*


GRAPHITE ONE RESOURCES INC.

Naturally occurring spheroidal graphite has been identified in all of the Graphite Creek drill holes sampled.

continued from page 15

GRAPHITE CREEK

boniferous mineral continues to grow.

According to the U. S. Geological Survey, Tesla Motors' lithium-ion battery Gigafactory, alone, will require 93,000 metric tons of flake graphite for use as anode material when the facility comes online, which is scheduled for 2020.

In its 2015 commodity summaries report, USGS points out that the United States does not currently mine any graphite. Roughly 45 percent of graphite used in the country since 2010 has been imported from China, most of the balance comes from Mexico, Canada and Brazil.

This foreign reliance has the Pentagon keeping an eye on graphite.

"Defense uses of natural graphite include batteries, lubricants, body armor, engine turbine components, coatings for aircraft manufacture, and missile parts," the U.S. Department of Defense said in a recent report, "Strategic and Critical Materials 2015 Report on Stockpile Requirements."

Because of its military applications, increasing demand in the private sector and the lack of a domestic supply, graphite is on a short list of mined materials that the Pentagon is watching.

"The United States has no domestic production of natural graphite, but it is consumed by roughly 90 U.S. companies," the Pentagon wrote. "Top-quality flake graphite will likely see an increase in demand in the coming years; meanwhile the supply looks to be steady at best, and there are concerns about potential export controls out of China."

Growing uses for graphite in the U.S. defense, high-tech and green energy sectors bode well for a dependable supply of this unique form of carbon.

"Every trend we see tells us that U.S. efforts to re-invigorate its manufacturing base and pioneer the development of new technologies will require a robust and reliable source of domestic graphite," Huston added. ●

continued from page 13

NEWS NUGGETS

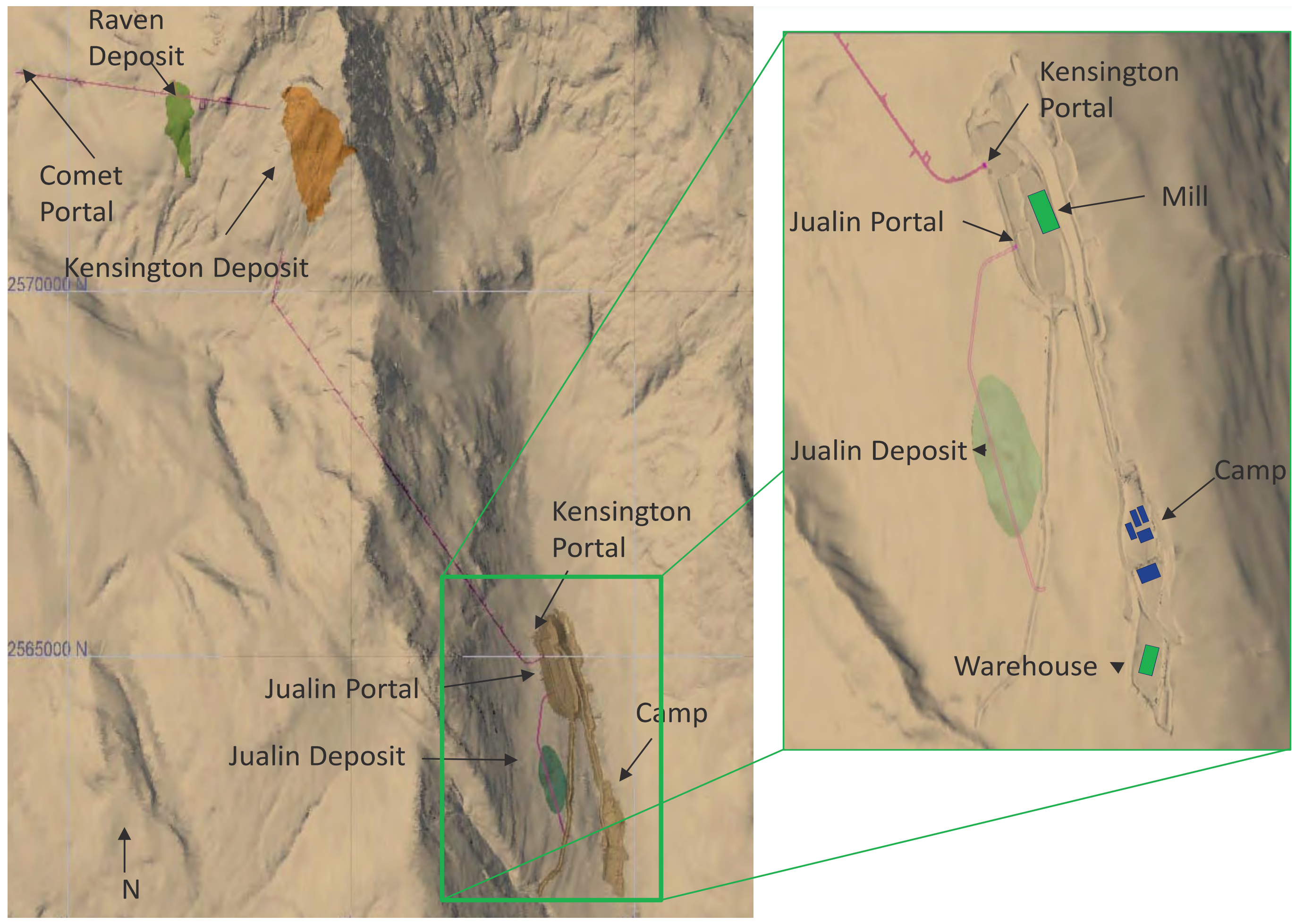
Interior Alaska confirmed an intrusive-hosted target area measuring at least 1,800 by 600 meters. This area includes an untested induced polarization chargeability anomaly, the Central Zone target, located between two gold-arsenic soil and rock sample anomalies, the North and South Zone targets. In 2014, Endurance completed 36 power-assisted auger soil samples at South Zone. These deep soil samples, between 0.81 and 1.52 meters, encountered up to 320 parts-per-billion gold. This work, together with shallower soil samples collected in 2013, have confirmed a continuous 600-meter long soil anomaly which exceeds 100 ppb gold. Endurance reports that previous exploration by Placer Dome in the 1990s identified a soil anomaly measuring about 1,000 meters by 300 meters, exceeding 20 ppb gold, in this same area which is now interpreted to have been offset from the bedrock source by downslope movement. Grab samples of 12.98 grams per metric ton, 5.21 g/t, 4.44 g/t, 3.02 g/t, and 2.59 g/t gold associated with iron oxide stained and altered granitic rocks have been collected at South Zone. In 1991, Placer Dome collected a grab sample from the target area that assayed 411.4 g/t gold. North Zone is a gold-arsenic soil geochemical anomaly that measures some 1,200 by 500 meters wide, with peak values of up to 1,540 ppb gold. Placer Dome drilled eight holes at this target, the best of which averaged 0.51 g/t gold over 99.4 meters. Seven grab samples collected by Endurance at North Zone have returned between 1.01 g/t and 1.92 g/t gold. Central Zone is a 1,500- by 500-meter IP target identified by Placer Dome that has never been tested with diamond drilling, and remains unexplained. Elephant Mountain is located in the Rampart-Manley Hot Springs area of Alaska about 76 miles west of Fairbanks. Endurance Gold is planning a 2015 program of power auger soil sampling focused on the Central and South zones to better define and prioritize drill targets.

Alaska gets lands under Tanana River

Alaska Department of Transportation April 15 reported that the U.S. Bureau of Land Management has relinquished any claims to ownership of more than 550 miles of lands underlying the Tanana River. In its written decision, known as a recordable disclaimer of interest, the BLM agreed that Alaska has clear title to these submerged lands as promised under the Alaska Statehood Act. "These disclaimers represent a mutual agreement between the state of Alaska and the BLM that a river is navigable and therefore belongs to the state," said Ed Fogels, deputy commissioner of DNR. This clarifies that Alaskans seeking authorizations to use these lands for uses such as docks or mining would obtain those from the state rather than the BLM. This is the 23rd RDI issued in Alaska, and it pertains to all but about 38 miles of lands underlying the Tanana River which remain under federal withdrawal or reservation. Other examples of past RDIs include submerged lands in the Kuskokwim, Porcupine, Chilkoot, and Klutina rivers. DNR's Public Access Assertion and Defense Unit and the Department of Fish and Game worked with BLM to implement a successful federal RDI program that is unique in the country. "Generally speaking, this is a more cost-effective and mutually beneficial way to clear title to the state's ownership of lands than litigation," Fogels said. Since 2003, Alaska has cleared title to submerged lands underlying more than 2,546 river miles. ●

continued from page 13

KENSINGTON PLAN



COEUR MINING INC.

Two mines

The Kensington property, situated some 45 miles (72 kilometers) north of Juneau, hosts two historical mines that date back to the dawn of the 20th Century – Jualin and Kensington.

Jualin operated for roughly 30 years beginning in 1896 and Kensington produced gold for about four decades, starting in 1897. Together, these bygone mines produced some 40,500 ounces of gold from 75,200 short tons of ore, or about 0.54 ounces per ton.

At the end of 2014, the main Kensington deposit had 3.24 million tons of proven and probable reserves averaging 0.181 ounces per short ton (584,000 ozs) gold, or about one-third the grades historically mined.

Recent exploration, however, has discovered a deposit on the Jualin side of the property that bests the historic average and is set to change the production profile of the contemporary Kensington Mine.

Since discovered late in 2013, the Vein 4 area at Jualin has been a primary focus of surface drilling completed at Kensington.

At the end of 2014, Jualin had 289,000 tons of inferred resource averaging 0.619 oz/t (179,000 oz) gold. Not yet elevated to reserve status, only about 1.3 million tons of this inferred resource is included in the new mine plan for Kensington.

The higher grade Jualin resources that are currently anticipated to be mined is expected to boost Kensington's gold production to 149,000 oz in 2018, followed by 137,000 oz in 2019 and 123,000 oz in 2020.

Though the Kensington and Jualin areas are about 1.6 miles apart, the mill sits between these historic mines. The portal and deposit currently being outlined at Jualin is actually closer to the mill than the reserves being mined on the Kensington side.

Development of a decline to Jualin is planned to begin in July.

If all goes according to the mine plan, mining will begin a Jualin in mid-2017 at a mining rate of about 250 tons per day, and increase to 500 tons per day in early 2018, accounting for about 27 percent of the average daily mill feed.

"Importantly, the required capital to place Jualin into production is estimated to be US$30 million and has an expected rate of return of around 70 percent," Krebs pointed out.

Raven steps up

Until Jualin begins providing feedstock to the mill in 2017, higher grade ore from the Raven deposit on the Kensington side of the property is bolstering grades at Kensington.

The neighboring Raven deposit has another 179,000 tons of reserves averaging 0.257 oz/ton (46,000 ounces) gold.

According to the new mine plan, ore feeding the mill at Kensington is expected to average roughly 0.2 oz/t gold over the next three years. This ore will primarily be mined from reserves in the main Kensington deposit, supplemented by higher grade reserves sourced from Raven.

This combination of Kensington Main and Raven ore resulted in the production of 33,909 oz of gold during the first quarter of 2015, a 33 percent increase over the 25,428 oz recovered during the same period last year.

This substantial rise in production is due to mill feed that averaged 0.24 oz per ton, up roughly 41 percent from 0.17 oz/t for the first three months of 2014.

According to the new mine plan, this year's gold production is expected to be about 118,000 oz, or roughly the same as in 2014, dipping to 115,000 oz next year and climbing to a record 125,000 oz in 2017.

The costs per ounce of gold produced over these first three years of the new mine plan is forecast to be roughly US$885 per oz., about a 7 percent improvement over the US$951 per oz in 2014.

Coeur anticipates investing roughly US$16 million per year on underground development through 2018 when production from the newly discovered high-grade gold deposits is expected to be fully ramped up.

The company also plans substantial drilling aimed at upgrading inferred resources to the higher confidence measured and indicated categories, which can in turn be converted to reserves. To accomplish this, the company plans to invest roughly US$9.1 million into 44,000 feet of underground drilling over the next two years.

Future upside

If recent drilling is any indication, Jualin and the other zones at Kensington will likely continue to deliver high-grade gold to the mill at Kensington beyond the new mine plan.

"Incorporating a portion of expected production from Kensington's high-grade zones and the Jualin ore-body has quadrupled our expected net cash flow at Kensington through 2022, and we believe considerable upside exists based on recent drill results," said Krebs. "Through continued drilling, our goal is to expand these sources of high-grade resources and extend the 2018 profile."

The inferred resource at Jualin is found in an area known as Vein 4. A number of recent holes drilled from the surface have intersected this vein over an area that extends roughly 1,000 feet away from the current deposit, pointing to the potential to expand the high-grade gold found there. Highlights from these holes drilled beyond the inferred resource include: 4.3 feet of 2.69 oz/t gold and 2.6 feet of 1.83 oz/t in hole JU14-X045; 1.3 feet of 1.33 oz/t gold in hole JU15-X002; and 4.4 feet of 0.56 oz/t gold in JU15-X006.

Beyond expanding Vein 4, Coeur said "planned drilling in Veins 1, 2, 3, and 5 at Jualin suggest considerable upside exists to increase the size of the overall Jualin zone and bring additional high-margin production into the mine plan as drilling continues."

Drilling on the Kensington side of the mine also is finding additional relatively high-grade gold.

Highlights from recent exploration drilling at Raven include: 5.4 feet of 0.71 oz/t gold in R14-1042-261-X03; 2.8 feet of 1.85 oz/t gold in R14-1042-261-X04; and 4.2 feet of 1.14 oz/t gold in R14-1042-261-X05.

Highlights from recent exploration drilling at Zone 10 area of Kensington Main include: 1.8 feet of 1.03 oz/t gold, 2.2 feet of 0.94 oz/t gold and 2.2 feet of 1.26 oz/t gold in hole K14-0520-095-X07; and 2.2 feet of 4.3 oz/t gold in hole K14-1170-110-X08.

With Coeur focused on supplementing the reserves at Kensington with the newly found high-grade inferred resources at Jualin and Raven, the new mine plan does not include the measured and indicated resources already identified in the Kensington Main and Raven deposits.

The company said these 1.6 million tons of resources averaging 0.24 oz/t (382,000 oz) gold could add future upside to Kensington with added drilling or higher gold prices. ●

NORTH OF 60 MINING NEWS

Companies involved in Alaska and northwestern Canada's mining industry

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

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Usibelli Coal Mine is headquartered in Healy, Alaska and has 700 million tons of coal reserves. UCM produces 1 to 2 million tons of sub-bituminous coal each year.

continued from page 14

FREEMAN

ment process, the company and partner **BARRICK GOLD** submitted the comments of six cooperating agencies on the initial draft environmental impact statement to the lead agency, the **U.S. ARMY CORPS OF ENGINEERS.** The partners anticipate publishing the draft EIS by yearend 2015. The partners also advanced other major permit applications with state and federal permitting agencies such as air quality, water discharge and usage, pipeline plan of development, wetlands and dam safety permits. During 2015, the Donlin partners anticipate spending US$26 million to advance the project with emphasis on permitting, community outreach and work force development in addition to US$3 million for technical studies to identify potential design and execution enhancements.

REDSTAR GOLD CORP. reported plans for a 1,500- meter drilling program on its Unga Island gold project near Sand Point. The phase 1 drill program will primarily focus on outlining the high-grade gold mineralization at the Shumagin prospect. The drill program is the first to be undertaken since 2011 and will build on the 50 historic holes already drilled in the Shumagin prospect as well as the encouraging results from last year's surface exploration program on the prospect.

Interior Alaska

KINROSS GOLD published an updated technical report for the Fort Knox mine and the adjacent Gil deposit in the Fairbanks District. This report full of interesting information, such as the Fort Knox deposit has been defined by a total of 1,421 drill holes (489 diamond core holes, 792 reverse circulation holes, and 140 geotechnical and dewatering holes) totaling 338,515 meters. The Gil deposit has been defined by a total of 738 drill holes (comprising 581 RC, 154 diamond, and 25 rotary holes) totaling 73,876 meters. Resources at Gil at the end of 2014 included indicated resources of 29.515 million metric tons grading 0.56 grams per metric ton (532,700 ounces) gold and inferred resources of 4.026 million metric tons grading 0.49 g/t (62,800 ounces) gold. The conventional truck-shovel, open pit operation at Fort Knox is capable of loading and hauling rates of up to 92 million metric tons per year. Higher grade ore is processed in a CIP mill, typically at a rate of about 13.2 million tpa, while an additional 30 million tpa of lower grade run-of-mine (i.e., uncrushed) ore is processed at the adjacent heap leach facility. The mill is expected to process 58.9 percent of the gold produced in 2015 with the remainder coming from the heap leach. Gold recovery from the heap leach ore was 49.9 percent to date at the end of December and is predicted to reach 65 percent at the conclusion of the operation. The operation's capital expenses for the next five years are estimated at US$325 million. Expected 2015 operating costs are US$8.62/t processed. Through the end of 2014, the mine has recovered 6,346,286 ounces of gold from roughly 355 million metric tons of ore. In 2019 the pit is expected to be mined out and the ore haul to the heap leach facility will cease. It is planned that after this point leaching will continue through 2027 with recovered gold declining each year. And that is just a tiny bit of the data contained in this report!

Alaska Range

COVENTRY RESOURCES INC. announced results of internal studies at its Caribou Dome copper project in the Valdez Creek District. Outcrops of sediment-hosted copper mineralization have been identified over a 15-kilometer extent, suggesting that the previously drill-tested 750 meters of mineralization is part of a much larger mineralized system. The two highest priority drill targets, both of which remain untested by drilling, include outcropping mineralization at Lens 2 that is 200 meters long, up to 15 meters wide and coincides with a 350-meter-long induced polarization geophysical anomaly and a 400-meter-long soil anomaly, with assays of up to 0.63 percent copper with a coincident induced polarization geophysical anomaly at the "Caribou South Target." Additional drilling is also warranted to further evaluate the strike and depth extensions of all nine known mineralized lenses, where mineralization remains open along strike and at depth.

Northern Alaska

NOVACOPPER INC. announced an update on its Upper Kobuk Mineral Project, a partnership with **NANA INC.** The company plans to advance the Arctic deposit to feasibility over a two- to three-year period for a total investment of about US$20 million. The company hopes to invest roughly US$8 million to US$10 million during the 2015 field season, mainly for in-fill drilling of the Arctic in-pit inferred resources to improve confidence level to measured and indicated and to collect Arctic in-pit geotechnical and metallurgical data. Funds also will be utilized for environmental and engineering studies to gather information in preparation for a feasibility study. The company also plans to advance assessment work at Bornite with a focus on evaluating potential synergies between the Arctic and Bornite projects. The company continued its efforts supporting the **ALASKA INDUSTRIAL DEVELOPMENT EXPORT AUTHORITY** in working towards drafting an environmental impact statement to permit the Ambler Mining District Industrial Access Road. The Consolidated Right of Way application document is substantially complete and the U.S. Army Corps of Engineers has selected a third-party environmental engineer to manage an environmental impact statement on behalf of the Corps.

Southeast Alaska

HECLA MINING CO. announced preliminary first-quarter 2015 production results for its Greens Creek mine on Admiralty Island. The mine produced 2,035,966 ounces of silver and 15,239 ounces of gold, which represent a 14 percent and 2 percent increase, respectively, over the year-previous period. The increase was principally due to mine sequencing, higher silver grades and higher silver and gold recoveries. Changes made to the flotation circuit in the fourth quarter of 2014 continue to result in higher silver recovery, the value of which has outweighed a slight loss in zinc recovery. The mill operated at an average of 2,172 tons per day in the first quarter.

COEUR MINING INC. reported first-quarter 2015 production results from its Kensington mine. The mill processed 147,969 tons of ore, or nearly 1,650 tons per day, a significant decrease over the year-previous period. The mine produced 33,909 ounces of gold grading 0.24 ounces per ton gold with an average recovery of 94.8 percent, a significant increase over the year-previous period. Higher head grades offset lower throughput in the first quarter, generating strong production in line with fourth-quarter 2014 performance. The company also released its plans for mining higher grade material from the nearby Jualin zone, located about 8,250 feet from current mining activities. Resources in the Jualin zone continue to expand based on ongoing drilling and contain an average gold grade over three times the average reserve grade of 0.185 oz per ton. Annual gold production between 2015 and 2020 at Kensington is expected to average about 128,000 oz and costs are expected to average $820/oz gold. The current resource base at Jualin is 257,000 metric tons grading 0.46 oz/t (approx. 110,000 oz). Development of the decline to Jualin is planned to begin in July 2015 with initial production expected in mid-2017 at a mining rate of about 250 tons per day, which is expected to increase to 500 tpd in early 2018 and represent roughly 27 percent of the average daily mill feed. Recently completed drilling in Jualin Vein 4 cut mineralization about 1,000 feet away from the existing inferred resource included in the mine plan, demonstrating the possibility to expand resources along Vein 4. High-grade drill results from other zones at Kensington as well as planned drilling in Veins 1, 2, 3, and 5 at Jualin suggest considerable upside exists to increase the size of the overall Jualin zone. Significant results from Vein 4 include 4.3 feet grading 2.690 oz/t gold and an additional 2.6 feet grading 1.831 oz/t gold in hole JU14-X045 and 4.4 feet grading 0.559 oz/t gold in hole JU15-X006. ●

continued from page 16

NORTHERN NEIGHBORS

Banyan readies for 2015 Hyland drilling

Banyan Gold Corp. April 16 announced plans to resume drilling at its Hyland Gold property in eastern Yukon Territory. Banyan has signed a contract with Whitehorse-based Kluane Drilling to complete at least 1,200 meters of core drilling at Hyland and has mobilized all required equipment and materials to site to support this program. A dozer and excavator delivered to the property will allow for access construction and trenching of the project's Montrose Ridge zone. Montrose Ridge was discovered through a soil and rock sampling program on the South Hyland Property, located 6.5 kilometers south of the Hyland Main Zone, during 2013. During 2014, Banyan completed a soil-rock sampling and geologic mapping program to follow-up of the encouraging results received from the 2013 Hyland South and regional exploration programs. This work included focused sampling and mapping over the CUZ South and Montrose Ridge zones. In total, Banyan collected and shipped 452 soil and 39 rock samples from the program. Results indicate a 500- by 1,000-meter east-west trending gold-in-soils anomaly focused around the Montrose Ridge zone. A parallel soils anomaly is located near CUZ South, and together these anomalies define a 2,000-meter-long cohesive arsenic-in-soils anomaly that remains open, particularly to the east and north. Additionally, Banyan said it has received a payment of C$49,650 from the Yukon Mineral Exploration Program – a program designed to promote and enhance mineral prospecting and exploration activities in Yukon – representing half of the 2014 exploration expenditures at Hyland. ●

● NATURAL GAS

House Bill 105 stalled on Senate floor

Removes requirement that Interior Energy Project be based on LNG generated on North Slope; requires reports, includes AIDEA items

By KRISTEN NELSON

Petroleum News

The Senate Finance Committee moved a committee substitute for House Bill 105 April 18. That bill, which changes requirements for the Interior energy project, has been held in the Senate ever since, and was still awaiting action when Petroleum News went to press April 23.

Senate Resources had stripped the Senate version, Senate Bill 50, back to its basics — allowing the Interior Energy Project to look at sources of natural gas other than those on the North Slope by replacing the requirements of Senate Bill 23, passed in 2013, that the LNG production plant and affiliated infrastructure be "on the North Slope," with a requirement that the LNG plant and infrastructure will be "in the state" and will "provide natural gas to Interior Alaska as a primary market."

The original bills adjusted a number of Alaska Industrial Development and Export Authority bond and loan thresholds and deleted out-of-date project authorizations. While Senate Resources removed the bond and project authorization section, they were added back in Senate Finance, which had both HB 105 and SB 50 to work with.

If requested, AIDEA will also provide a briefing to the Legislative Budget and Audit Committee.

Geographic flexibility

The bill in the version on the Senate floor says in intent language that while geographic flexibility has been provided, the goals remain to "bring affordable natural gas to as many residents of Interior Alaska communities as possible as quickly as possible" but also says the act "does not expand the scope of the project nor

see **HB 105 STALLED** *page 22*

GOVERNMENT

More time for Arctic drilling reg comments

The Bureau of Safety and Environmental Enforcement and the Bureau of Ocean Energy Management have extended by 30 days the public comment period for proposed new safety regulations for exploration drilling on the Arctic outer continental shelf. Comments on the proposed regulations are now due by May 27.

The proposed regulations, which include features such as the mandated in-region availability of a well capping stack and oil containment dome, were developed specifically for the Arctic in the wake of the Deepwater Horizon disaster in the Gulf of Mexico. Other than saying that the extended comment period will allow the public more time to provide input to the regulation development process, the agencies have provided no explanation for the new deadline.

There is considerable interest in the regulations, given the possibility of developing the large oil and gas resources thought to exist under the Arctic continental shelf coupled with concerns about the need to protect the Arctic environment and the interests of subsistence hunters in the region.

—ALAN BAILEY

EXPLORATION & PRODUCTION

US drilling rig count drops by 34 to 954

Oilfield services company Baker Hughes Inc. says the number of rigs drilling for oil and natural gas in the U.S. declined by 34 the week ending April 17 to 954 amid depressed oil prices.

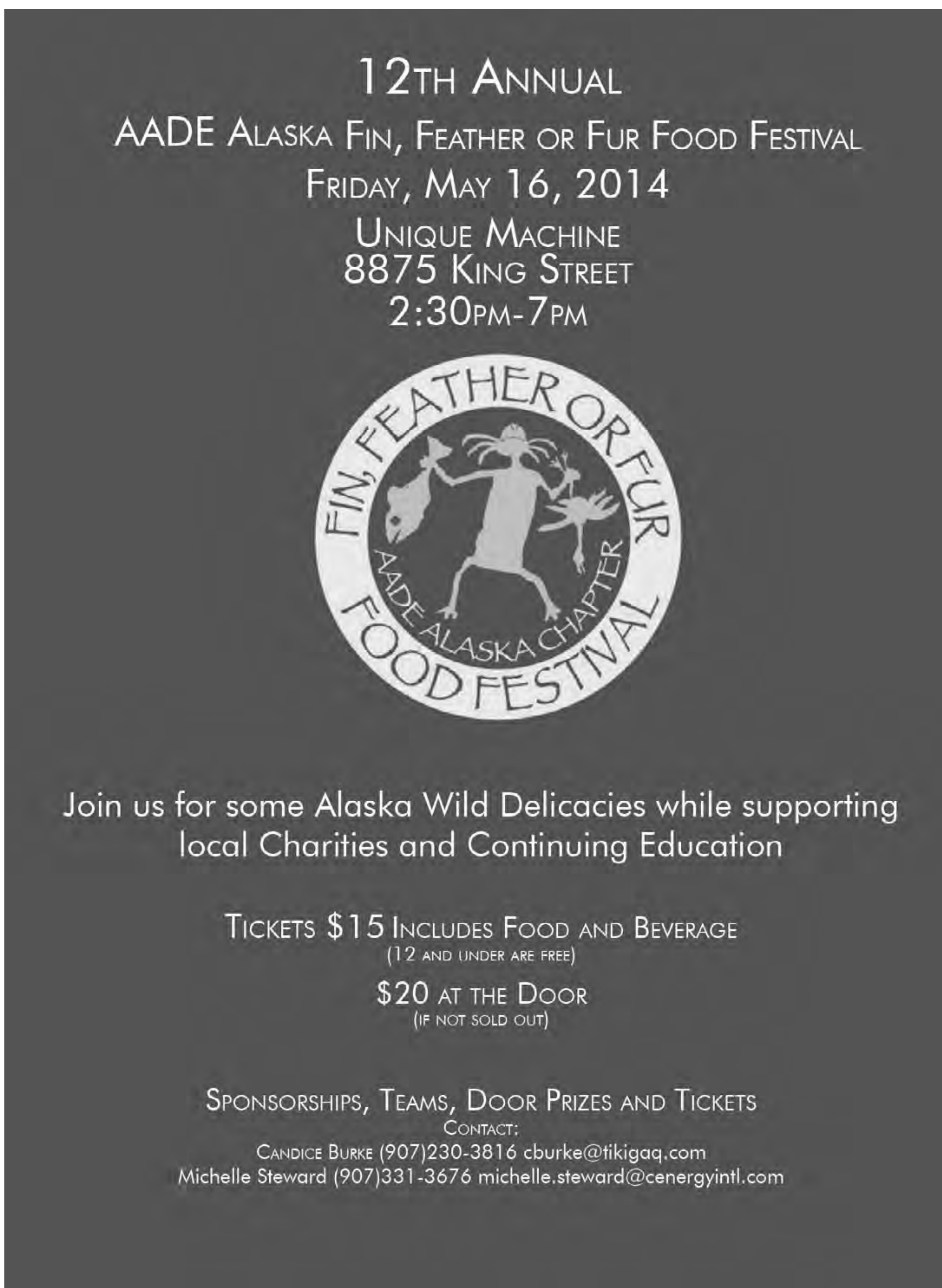
Houston-based Baker Hughes said 734 rigs were drilling for oil and 217 for natural gas. Three were listed as miscellaneous. A year ago, 1,831 rigs were active.

Among major oil- and gas-producing states, Texas plummeted by 15 rigs; Oklahoma was down six; North Dakota lost five; Wyoming was down four; and California, Kansas and Pennsylvania each dropped two. Alaska, Arkansas, Ohio and Utah declined by one each.

Louisiana rose by five while New Mexico gained two. Colorado and West Virginia were unchanged.

The U.S. rig count peaked at 4,530 in 1981 and bottomed at 488 in 1999.

—ASSOCIATED PRESS



LAND & LEASING

State terminates West Eagle unit

The state has terminated the West Eagle unit.

The Alaska Department of Natural Resources terminated the Cook Inlet unit on request of operator Buccaneer Alaska LLC, which recently went through bankruptcy proceedings. The company had previously surrendered its leases in the West Eagle area.

Buccaneer formed the West Eagle unit in early 2013 to preserve its leases in the southern Kenai Peninsula, northeast of the Homer. The company requested a 46,395-acre unit over nine leases. The state approved an 8,843-acre lease over three leases and required the company to post two $600,000 performance bonds to backstop work commitments.

Using information from a reprocessed 2-D seismic survey shot in 1981, Buccaneer had intended for West Eagle No. 1 to target an Upper Tyonek interval where the Standard Oil Company of California had encountered gas in the early 1960s. The well was supposed to be the first in a series, with at least one of the future wells targeting a nearby oil play.

Was part of farm-out

Toward the middle of 2013, the West Eagle prospect was included in a farm-out agreement between Buccaneer and a California-based independent, which was designed to give Buccaneer operating funds for a range of work. The deal ultimately fell through.

After considerable delay, including missed deadlines, Buccaneer started drilling West Eagle No. 1 in early 2014 but stopped at 3,700 feet, much shallower

see **WEST EAGLE** *page 24*

GOVERNMENT

Interior requests views on fee increases

The Department of the Interior is seeking public comments on potential increases in various fees that the Bureau of Land Management charges for oil and gas exploration, development and production on federal land. The target fees include lease sale minimum bids, rental rates and the royalties the federal government obtains from oil and gas production.

"It's time to have a candid conversation about whether the American taxpayer is getting the right return for the development of oil and gas resources on public lands," said Interior Secretary Sally Jewell. "The BLM's regulations have not kept pace with technological advances and market conditions, so this is an important information-gathering step as we seek to improve the way the federal government does business."

Currently the royalty rate for oil and gas produced from federal lands is 12.5 percent of the value of the produced resource. But the Government Accountability Office has repeatedly said that BLM's regulations do not provide a reasonable assurance that the public is receiving a fair share of the production revenues, Interior says.

"As part of this (fee review) process, the BLM and the department will conduct a thorough analysis of the cost of doing business on federal lands, and we welcome input from all parties on how taxpayers can be better assured adequate compensation from oil and gas production on public lands," said Assistant Secretary for Land and Minerals Management Janice Schneider. "We also want to ensure those resources are developed diligently and responsibly and that financial assurances and penalties reflect the true costs of modern day oil and gas development and reclamation."

The public comment period for the fee review will last for 45 days from the date when Interior publishes a notice of proposed rulemaking in the Federal Register, during the week of April 27.

—ALAN BAILEY

continued from page 21

HB 105 STALLED

authorize any other activity beyond accomplishing those stated goals."

It also requires AIDEA to "use an open and competitive solicitation process to select private entities to participate in developing" the LNG plant and infrastructure described in the bill.

The bill includes language prohibiting AIDEA — without first obtaining Legislative approval — from entering into a gas supply contract unless the contract is for the benefit of an LNG or distribution utility owned by the authority or a subsidiary of the authority.

AIDEA is also prohibited — without prior legislative approval — from purchasing or acquiring "gas reserves or a gas lease" or becoming a working interest owner. This issue was discussed by AIDEA, which was concerned it might prohibit the agency from helping to finance oil and gas projects in the state, such as Mustang, as an interest in the project can be a step in providing financing.

For financing a project providing natural gas to Interior Alaska, members of AIDEA are required to approve a plan by resolution, including: identifying source of natural gas or propane; including estimated cost of the project; and including estimated cost of natural gas or propane supplied to Interior Alaska natural gas utilities prior to distribution to consumers.

AIDEA is also required to submit a quarterly written report to the Legislature on the Interior energy project, including: project progress on all components; update on status of local distribution infrastructure build out; to-date and anticipated conversions to natural gas; and accounting of all funds spent and anticipated to be spent. If requested, AIDEA will also provide a briefing to the Legislative Budget and Audit Committee. ●

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● ENVIRONMENT & SAFETY

Feds remove six Umiat legacy wells

Ongoing effort remediating 60-to-70-year-old wells in NPR-A; program activity increases as federal money arrives

By ERIC LIDJI

For Petroleum News

The federal government has removed six legacy wellheads at the Umiat oil field.

This winter, the U.S. Bureau of Land Management and the U.S. Army Corps of Engineers, coordinating with the Alaska Oil and Gas Conservation Commission, plugged Umiat No. 1, No. 3 and No. 11 and removed the wellheads, and also removed wellheads at Umiat No. 4, No. 8 and No. 10, which had been previously plugged at the oil field in the foothills of the Brooks Range Mountains, along the Colville River. Crews cut the drilling pipes below ground level and buried the stumps beneath gravel and soil.

Marsh Creek LLC performed the work on behalf of the federal agencies.

Wells drilled in 1940s and '50s

The U.S. Navy drilled the wells in the late 1940s and early 1950s as part of an exploration campaign across the National Petroleum Reserve-Alaska designed to increase domestic oil supplies following World War II. The campaign yielded a major discovery at the Umiat oil field that Australian independent Linc Energy Ltd. wants to develop.

Since 2002, the federal government has spent more than $96 million plugging 21 "priority" legacy wells and remediating the sites, according to figures from the BLM.

But the exploration campaign also left many wellheads, which state and federal agencies have been rushing to remediate over the past decade. The most frantic effort came in 2005, when eroding coastline brought the Beaufort Sea within 15 feet of the casing of the JW Dalton test well and partially breached the reserve pit. Within six months of an emergency cleanup effort, summer storms had washed the project site into the sea.

Funding a challenge until 2013

The incident prompted the BLM to create a proactive strategy for remediating other legacy wells in the NPR-A. The effort was slowed by low funding until passing of the Helium Stewardship Act of 2013. The act, which Sen. Lisa Murkowski helped author, set aside $50 million to remediate legacy wells, including $37 million for this fiscal year.

"We're very pleased to be making headway on the cleanup of legacy wells, thanks in large part to funding provided through the Helium Act of 2013." BLM Alaska State Director Bud Cribley said in a statement about the recent Umiat program. "This work reflects our continued commitment to protect public safety and Alaska's environment."

Since 2002, the federal government has spent more than $96 million plugging 21 "priority" legacy wells and remediating the sites, according to figures from the BLM. ●

Contact Eric Lidji at ericlidji@mac.com

BLM PHOTO/ROB BRUMBAUGH

Umiat No. 10 was excavated for removal of the wellhead.

continued from page 1

HB 132 VETO

Petroleum News went to press April 23.

In an April 18 press availability the governor said legislative concerns may be that his intentions "are to in some disrupt what's been put in place." He said his desire is to take an in-depth look at AKLNG, which as he has said before, he thinks that will take about 45 days.

The governor said it may be possible to make changes in the joint venture agreement to take care of his concerns.

And he said he won't aggressively move on a backup plan until after the review is completed. Walker said he would brief legislative leadership on results on the review, in fact, he said, he would sit down with them during the review to provide updates. He said he expects a written report on results of the review, with care taken not to violate confidentiality. Walker also said he expects the document will become public.

Discussions with leadership would involve an explanation of his concerns and how they can be fixed, he said.

The governor said that as the project moves into the negotiation phase this summer he will make sure the terms negotiated are good for Alaska. Negotiations will include taxation and gas balancing agreements, Walker said.

The analytica view

Senate Resources got an end-of-session update April 16 from the Legislature's consultants, Janak Mayer and Nikos Tsafos of analytica, with a focus on risk analysis for LNG projects. In a presentation prepared for the committee, the men discussed five aspects of the projects: Will the gas supply be reliable? Are the sponsors credible? Is there stakeholder buy-in? Does the ecosystem support development? And, is the project commercially viable?

The AKLNG project got high marks — four green lights and one yellow light, with that cautionary note being on whether the project is viable, since the cost is still in a wide range, $45 billion to $65 billion.

An alternate project, "Plan B," got one red light, two yellow lights and only two green lights.

Because Plan B does not involve the producers, the issue of reliability of a gas supply got a yellow light. Plan B also got a yellow light on commercial viability for the same reason as AKLNG: The project cost is not known.

The governor said that as the project moves into the negotiation phase this summer he will make sure the terms negotiated are good for Alaska.

Plan B got a red light on sponsor credibility, since potential sponsors mentioned for an alternative project — such as Japanese utilities — do not include sponsors with successful large LNG project experience.

Since the state would presumably support Plan B it got a green light on stakeholder buy-in. And a green light on does the ecosystem support development, which involves issues such as can the government manage approvals, is there a physical risk to the infrastructure and is there existing infrastructure and a strong labor pool.

Problem with concurrent projects

But red lights dominated when analytica did a risk analysis on concurrent pursuit of the projects, with that labeled as problematic. In general, the men said, the AKLNG partners are unlikely to continue spending at current levels without state commitment, the state would need more resources to advance both and would also need to balance between the two projects.

It would be hard to secure regulatory approvals for two projects at the same time from the Federal Energy Regulatory Commission and the U.S. Department of Energy, analytica said, with parallel community engagement creating confusion and complications.

Competition between the projects for technical and design work would likely raise costs for supplies and labor, with asset and intellectual property ownership issues dictating independent efforts.

On the market side, analytica said buyers would be "very suspicious" of the same gas being marketed by different projects and said it would be difficult for the state to sign firm sales contracts while gas ownership remains unclear.

Likely partners would be different — partial investors vs. project sponsors — and, analytica said, a project owned by the buyers would be an atypical project structure. There are almost no large projects where large resources are sold at the wellhead, they said.

As for financing, those discussions are unlikely to advance very far until other risks have been mitigated, and lack of clarity on financing will limit the ability to advance with investors and buyers. ●

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continued from page 22

WEST EAGLE

than intended.

Preliminary analysis "confirmed that the sands encountered exhibited excellent reservoir qualities," according to the company, the lack of hydrocarbons "significantly increased the risks associated with the deeper objectives." Within a month of announcing the dry hole, Buccaneer had hired Conway MacKenzie Inc. to help with financial restructuring.

In late May, Buccaneer filed for bankruptcy, which took much of the year to resolve. The company ultimate sold most of its assets to its largest creditor, AIX Energy LLC.

—ERIC LIDJI

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continued from page 1

HYDRATE WELL

conventional gas resources available on the Slope.

Multi-year research

Research into both the extent of the methane hydrate deposits in Arctic North America and elsewhere around the world, and into the technical and commercial feasibility of producing gas from the hydrates, has been in progress for a number of years.

In 2002 a test in a methane hydrate test well in northwestern Canada attempted methane production through the application of hot water to the hydrate reservoir but found this technique to be ineffective. However, another test demonstrated that the hydrates could be disassociated through depressurization without the artificial application of heat.

In 2007 BP, the U.S. Department of Energy and the U.S. Geological Survey drilled the Mount Elbert methane hydrate stratigraphic test well at Milne Point on the Alaska North Slope. Tests in this well demonstrated the possibility of depressuring the hydrates and thus releasing methane by extracting free water from the hydrate reservoir.

And in 2008 a new test in the Canadian well succeeded in producing about 13,000 cubic meters of gas over a six-day period using depressurization.

In April 2011 ConocoPhillips drilled the Ignik Sikumi methane hydrate test well to a depth of 2,597 feet in the Prudhoe Bay unit on the North Slope. The well passed through the permafrost layer and extended below the base of methane hydrate deposits known to exist at the well site. A team involving ConocoPhillips, the U.S. Department of Energy, and the Japan Oil, Gas and Metals National Corp. then conducted tests using the well.

Carbon dioxide injection

A primary purpose of the Ignik Sikumi test was to try injecting carbon dioxide into the methane hydrate, in hopes that the carbon dioxide would displace methane from the hydrate lattice, thus serving the dual purpose of both producing natural gas and sequestering carbon dioxide coming from the Prudhoe Bay oil field. The test also involved

In April 2011 ConocoPhillips drilled the Ignik Sikumi methane hydrate test well to a depth of 2,597 feet in the Prudhoe Bay unit on the North Slope. The well passed through the permafrost layer and extended below the base of methane hydrate deposits known to exist at the well site. A team involving ConocoPhillips, the U.S. Department of Energy, and the Japan Oil, Gas and Metals National Corp. then conducted tests using the well.

depressurization of the hydrates, along the lines of what had been tried in the Canadian well a few years earlier.

Laboratory experiments had demonstrated the use of carbon dioxide to displace methane in hydrates, but nobody knew whether this type of technique would work in the field. Successful use of the technique could enable the exploitation of hydrate deposits without any impact on the mechanical stability of the deposits, and without the formation of pore-clogging ice or secondary hydrates as a consequence of disassociation-induced cooling.

According to the report that NETL has now published, the Ignik Sikumi tests actually involved injecting a mixture of nitrogen and carbon dioxide into the hydrates, along with chemical tracers to track where the injected material ended up. A flowback of material from the well at pressures above the stability pressure for pure methane hydrate was then conducted for one-and-half days to evaluate the effect of the injected mixture. This test was followed by a 30-day flowback in which a pump reduced the downhole pressure to levels below the hydrate stability threshold, thus inducing gas production through hydrate disassociation.

The tests demonstrated that, while pure carbon dioxide tends to react with free water in a methane hydrate reservoir to form carbon dioxide hydrate, rather than displacing methane from the existing hydrate, the injection of a carefully designed gas mixture, such as the mixture of nitrogen and carbon dioxide used in the Ignik Sikumi well, can be effective in methane production, the new report says.

Responsive to pressure

The depressurization test, the longest conducted to date as a part of methane hydrate research, showed methane production that was highly responsive to the well's bottomhole pressure. And, importantly, the heat exchange as a consequence of cooling of the hydrates during disassociation proved more favorable than anticipated, thus pointing to the possibility of using more aggressive pressure reduction techniques, the new report says.

While more laboratory studies and field tests will be needed to better understand the gas exchange process that was tested in the Ignik Sikumi well, the next field tests should involve the use of both an injection well and a production well the NETL report says. Commercial viability would depend on factors such as the well configuration, the injection method and the gas mixture injected. It is clear that gas injection and exchange will remain valuable in association with methane hydrate development strategies that are based primarily on reservoir depressurization, the report says. ●

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continued from page 1

WALKER APPOINTMENTS

project manager for the Alaska Laborers Training School.

Statutory requirements for the three AOGCC commissioners are that one shall be a petroleum engineer, one shall be a geologist and one member "shall have training or experience that gives the person a fundamental understanding of the oil and gas industry in the state."

The statutory requirement for the public member of the commission was changed under Gov. Sarah Palin, who was appointed to the public seat by Gov. Frank Murkowski and served on the commission in 2003 and 2004.

Over the past 20-some years the position was primarily held either by appointees with general administrative background (Tuckerman Babcock, 1993-96, Mary Marshburn, 1997 and Palin), or by attorneys with oil and gas experience (Camille Oechsli Taylor, 1997-2003, John Norman, 2004-14, and David Mayberry, 2014-15).

2006 change

Prior to the 2006 change the statutory requirement for the third member said that individual "need not be certified, trained, or experienced in either the field of petroleum engineering or the field of petroleum geology."

When a bill proposing a change was introduced in 2005 by Rep. Vic Kohring, chairman of the House Special Committee on Oil and Gas, it required that the public member be an attorney, have a degree in business management or have substantial management experience. A committee substitute changed that to "training or experience that gives the person a fundamental understanding of the oil and gas industry in the state."

Kohring said in a hearing that the administration hadn't supported the original bill, so the definition had been made more generic, but he said the oil and gas industry is so technically sophisticated that it is important that the public member come in with fundamental knowledge of the industry and compared AOGCC to the Regulatory Commission of Alaska, whose members are required to have substantial experience.

John Norman, then chairman of the commission, told legislators in 2006 that the commission regulates an increasingly complex oil and gas industry, and handles a large number of permits, applications and orders. He said there really isn't time for on-the-job training. A commissioner has to be able to hold their own in deliberations with the other commissioners; that's how decisions are made, he said.

Norman also said that knowledge or experience does not mean alignment with the interests of the oil industry, and noted that some commissioners have come from the oil and gas section of the Attorney General's office, while his own experience as an attorney included representing a wide range of interests on the opposing side of the table from the oil and gas industry.

AGDC board

The governor got a mixed confirmation result on the three public members he named to the Alaska Gasline Development Corp. board of directors: Rick Halford, Joe Paskvan and Hugh Short.

They replaced replacing three original board members he dismissed earlier.

The governor got a mixed confirmation result on the three public members he named to the Alaska Gasline Development Corp. board of directors: Rick Halford, Joe Paskvan and Hugh Short.

Short, chairman and CEO of Pt Capital, an Anchorage-based investment firm, and previously president and CEO of Alaska Growth Capital, was confirmed without objection.

Halford and Paskvan, both former legislators, Halford a Republican and Paskvan a Democrat, drew objections, and there was considerable floor discussion on both nominations.

The AGDC board was established under House Bill 4 in 2013, and includes two commissioners and five public members appointed by the governor and subject to approval by the Legislature. Public members serve at the pleasure of the governor.

The statutory language says: "When appointing a public member to this board, the governor shall consider an individual's expertise and experience in natural gas pipeline construction, operation, and marketing; finance; large project management; and other expertise and experience that is relevant to the purpose, powers, and duties of the corporation."

Considerable discussion in the floor debate centered on whether the governor was constrained to appoint board members with specific expertise as listed in the statute, or merely had to consider such expertise.

Both votes were divided, with Halford gaining confirmation and Paskvan failing, with a large number of senators voting against Paskvan, who served in that body for four years. Halford served in both bodies, a combined total of more than 20 years, and was House majority leader, Senate majority and minority leader, and Senate president.

Alaskans vs. specific expertise

Walker has said in making nominations that he is wants to name Alaskans who will focus on the interests of the state. In making the original nominations to the board in 2013, former Gov. Sean Parnell focused on what he called "deep and diverse expertise" and said the individuals he named "have proven individual track records and success in team settings."

Those original board members were John Burns, a lifelong Alaskan, the board's current chairman, a lawyer and former Alaska attorney general; Dave Cruz, also a lifelong Alaskan, president of Cruz Construction, Cruz Energy Services and Cruz Marine; Al Bolea of Big Lake, a retired BP executive who was formerly chairman of Alyeska Pipeline Service Co. and CEO of Dubai Petroleum; Drue Pearce, a former Alaska legislator who served as president of the Senate and as the first federal coordinator for Alaska natural gas transportation projects; and Dick Rabinow of Houston, formerly of ExxonMobil, who served as president of ExxonMobil Pipeline Co. and president and CEO of Longhorn Pipeline Partners.

Walker fired Bolea, Pearce and Rabinow.

—KRISTEN NELSON

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continued from page 3

FLEENER Q&A

sense that you have wanted this job before it even existed.

Fleener: I think you're exactly right. I think most of what I've done in my career led up to this very nicely. I served in the military for 28 years with a strong focus on Russia and the Arctic I researched wildlife species in the Arctic. I was born and raised in the Arctic. I was a permanent participant in the Arctic Council, representing the Gwich'in at the Arctic Council as the international chair.

The construct of the Arctic Council is the eight Arctic nations and six permanent participant indigenous organizations and four of them are actually in Alaska. They are all international: the Gwich'in are international in that we exist in Canada and the U.S.; Arctic Athabascan Council; the Inuit Circumpolar Conference and the Aleut International Association. Then there are two others: RIPON, which is Russian Association of Indigenous People of the North, and the Saami people (of Scandinavia). The RIPON is the only one that isn't international, but Russia is half of the Arctic.

Petroleum News: Having been a part of that Arctic Circle discussion and having a seat at the table, why should Alaskans care about the U.S. becoming chair of the Arctic Council?

Fleener: It is the opportunity of a lifetime, or at least every 16 years when the chairmanship rolls around, for us to highlight issues that are important to Alaska. The benefit of being a chair is each nation gets to pick their own priorities. Now the priorities have to be approved. It's a consensus-based organization, so all eight nations need to approve.

Sometimes they disapprove of parts they don't want to see worked on and sometimes they are too domestic, but it's still an opportunity for Alaska to be highlighted. As I said we are the only part of the Arctic. Every single thing they talk about over the next two years has an impact on Alaska.

It has to so we have a great opportunity to engage with international leadership. We will have ambassadors and foreign ministers and their cabinet — or their teams — coming from seven other countries. We'll have environmental, NGO and observer nations. I think there are 26 of them right now and that number is set to climb. So we have all of those folks coming here for meetings.

Over the next two years we will probably have 15, maybe more, meetings where all of these folks with all of their brainpower and all of their political power are coming to Alaska to talk about these issues, talk about how we can work together and talk about our common problems.

So it's important to Alaska because we want to be able to engage with these folks. When would we be able to engage with an ambassador from Norway or Russia? At what other time? Not many. It's a great opportunity to get our business-oriented and tribal oriented folks in the same room and talk to those folks about partnering and business opportunities.

Petroleum News: So when you talk about priorities, there seems to be a conflict of priorities between what the State Department wants and what the state of Alaska wants as far as a climate change agenda versus one of economic development. Is that the sense you get as well?

> *"That's really important not just to Alaska but all across the north: high energy costs are making it unlivable in most places."*
> ***—Craig Fleener, governor's Arctic policy advisor***

Fleener: I agree with that. There is definitely a divergence of opinions. We look at more immediate success. We want to see the State Department address issues that help address Alaska problems. The United States sees itself in an international capacity wanting to push forward project ideas that are international in scope and have the potential to have large, long lasting global impacts.

So you really can't blame them for that. But that's a little too big for Alaska. There aren't many of us. We are not typically thinking globally. Very clearly they are looking at it at the international level. We want them to do more than can benefit us.

What I've been trying to do — what many of us have been trying to do — is identify priority areas that would be a direct benefit for Alaska but also could be international in scope. For example, food security issues and how we do a better job that food security is maintained across the Arctic. It's a tremendous issue in rural Alaska and important across the spectrum so that's an issue we think we can work on.

Really, economic development is important everywhere. It's really a shock to most of us that the U.S. hasn't wanted to pursue that. But they have these big priority items that are supported by the president and Secretary Kerry and those are their priorities. They are in charge. They get to make the rules. We have to try and get our little project ideas in there when we can.

One of the ways we are addressing the lack of involving or adopting some of our priorities is that we are having a host committee and setting up activities and bringing our own people together and setting up different venues where we can bring people from the Arctic Council and talk about what's important to us and hopefully work on a few projects. I think that will be a great opportunity to not only entertain the guests but really bring Alaskans together with those folks and talk about our priority areas.

Now of course that's not as good as the U.S. saying developing an economy in Alaska is one of our priorities or reducing the cost of energy is one of our priorities. That's really important not just to Alaska but all across the north: high energy costs are making it unlivable in most places. We think those are areas that could easily have been adopted but the State Department has put together a very robust set of objectives for their two-year priorities and there's not much more room to put in anything else.

Petroleum News: OK, so let's talk about economic development then. Wouldn't there be international interest on oil exploration in the Arctic?

Fleener: Absolutely. So much so that every other country on the Arctic Council adopted Canada's idea to put together the Arctic economic council — every other country except the U.S. So it's a little odd to us that they weren't interested in that. But every other country knows of the importance of economic development. No matter what it is. Oil and gas is critical, especially to Alaska. We need to look at diversifying our economy whatever that means.

We have to start somewhere. The Arctic economic council was a great idea to bring countries and business leaders together on an international scope to focus specifically on the problem of the Arctic. And the problem of the Arctic of course is lack of infrastructure, harsh conditions, small workforce, long distances, everything that you could imagine and this group is getting together to help solve these things.

Petroleum News: Still along the lines of economic development, you mentioned infrastructure. Would that be of international interest?

Fleener: It's one of our priority areas. We cannot diversity our economy — we really can't run a state successfully without good infrastructure. We have to have good, solid infrastructure that spans across the state that meets the needs of our people, provide emergency response capability, develop our resources, accesses resources in general.

Petroleum News: Do you get a sense that other nations are seeing the same things Alaska leaders are but the folks in Washington aren't? Is that an accurate assessment of the landscape?

Fleener: Yes, it is. Absolutely. And we have made the point this is something we want them to support. When we are so opposed on an issue, we don't have a problem bringing it up. It's a matter of doing it diplomatically. We want to make sure we stay in the room and have an opportunity to be engaged so when the time is right we of course bring up issues where we are of divergent opinions.

Petroleum News: Some of the com-

see **FLEENER Q&A** *page 29*

Petroleum news

Oil Patch Bits

Motion Industries releases Zep hand cleaner video

MOTION INDUSTRIES

Motion Industries, a leading distributor of industrial maintenance, repair, and operation replacement parts is pleased to announce the release of the newest installment in the MiHow2 video series featuring Zep Professional Hand Cleaner. The video can now be viewed on the MiHow2 YouTube channel.

Filmed with the help of key Motion Industries supplier, Zep Professional, the video shows both the power and cost benefit of Zep Professional Hand Cleaner. "Benefits of Using the Zep Professional Hand Cleaner" can now be viewed on the MiHow2 YouTube channel.

"The hand cleaner is very cost-effective," said Randy Breaux, Motion Industries' senior vice president, Southern U.S. operations, corporate marketing and strategic planning. "It saves you money because of its ability to effectively clean with less product."

Each MiHow2 video is filmed in a workshop or appropriate off-site setting and features Motion Industries' always knowledgeable and comical host, Tom Clark, and a guest from one of the market-leading manufacturers demonstrating a product or application.

The series is also available for viewing via Facebook and YouTube. Additional MiHow2 videos are scheduled to be posted in coming weeks.

Motion Industries is a wholly owned subsidiary of Genuine Parts Company (NYSE: GPC). For more information visit www.motionindustries.com.

Volant unveils new HydroFORM SlimLINE centralizers

VOLANT GROUP

The Volant Group of Cos. proudly announces the launch of its new HydroFORM SlimLINE series of rigid centralizers — a thinner wall durable design at an affordable price.

Volant's proprietary hydroforming technology produces a high quality, high strength product. A proprietary, engineered process is used to precision form tubular steel, resulting in a smooth unit-body shape perfectly suited to today's complex well designs. Additionally, the new HydroFORM SlimLINE series of centralizers offer a tighter fit, reduced thickness and optimized rib geometry to balance standoff and flow characteristics — making this centralizer ideal for cementing applications.

The new Volant SlimLINE series of centralizers currently range from 4.5 inches up to 5.5

see OIL PATCH BITS page 29

Companies involved in Alaska and northern Canada's oil and gas industry

All of the companies listed above advertise on a regular basis with Petroleum News

ENVIRONMENT & SAFETY

Responders say diesel spills after rollover

Alaska environmental regulators say about 2,000 gallons of diesel fuel spilled when a commercial vehicle rolled over on state land after veering off the Parks Highway.

The state Department of Environmental Conservation says the Big State Logistics tanker-trailer overturned at 2:30 a.m. April 21 about 20 miles north of Healy. Alaska State Troopers say the driver was not injured.

The DEC says diesel spilled into a ditch when the front tanker compartment was ruptured. Regulators say the cause of the mishap is under investigation.

Officials say responders have assembled people and equipment at the site and have pumped fuel from the ditch. Responders also are vacuuming standing fuel.

The DEC says the fuel appears to be contained in the ditch and there have been no reports of impact to wildlife.

—ASSOCIATED PRESS

GOVERNMENT

Alaska State Senate approves new committee on federal issues

Alaska's Senate voted unanimously to create a special committee to address what the move's backers call federal overreach.

The Senate passed a resolution from the Senate Rules Committee April 20 to create a Senate Special Committee on Federal Overreach.

The resolution calls for the new committee to submit reports to the Senate in January 2016 and 2017 about how to use state authority to oppose what it calls the unconstitutional exercises of federal power. The reports also are supposed to address how Alaska can work with other states on such issues.

The resolution suggests the governor form a working group to create a new organization focused on state-federal relations.

The resolution would create a five-member committee that terminates in January 2017. Costs are expected to be absorbed in the legislative budget.

Members appointed April 20 were Sens. John Coghill, Mike Dunleavy, Cathy Giessel, Dennis Egan and Bill Wielechowski.

—ASSOCIATED PRESS

continued from page 28

OIL PATCH BITS

inches liner and casing diameters, available in a variety of outside diameters. Volant also offers a full range of standard HydroFORM centralizers for liner and casing sizes ranging from 4.5 inches to 13.375 inches, formed to various customer specified diameters. For more information please visit: www.volantproducts.ca.

AECOM welcomes Rockwell back to its Anchorage team


KAT ROCKWELL

Kat Rockwell has re-joined the AECOM Anchorage office after transferring from the AECOM Portland office as a certified project administrator. Rockwell has four years of experience in project administration and controls within the consulting industry, including more than three years of experience in federal contracting and FAR-compliant procurements. Her various responsibilities have included maintaining up-to-date contract files for each project, preparing status reports for project managers and maintaining accurate written records of contract actions, modifications and change orders. Additionally, she has been responsible for review and processing weekly/monthly financials which includes revenue recognition of all office projects, confirming that billing rates are in place and that project managers are aware of their project's financial status.

Editor's note: All of these news items — some in expanded form — will appear in the next Arctic Oil & Gas Directory, a full color magazine that serves as a marketing tool for Petroleum News' contracted advertisers. The next edition will be released in September.

continued from page 27

FLEENER Q&A

plaints I've heard about the U.S.'s role in Arctic policy is that we still don't have a strong enough indigenous voice, even with you in the position you're in. Do you see it that way?

Fleener: If you are talking about with the Arctic Council itself, I don't think it's entirely true although I've made that argument, so let me give you both sides of it. I don't think it's true that they don't have a strong voice because they have been one of the founding components of the Arctic Council. Six indigenous representatives are at the table at every meeting and are not prevented from having their opinions known. So when every single issue comes up, they are able to speak on it. They speak passionately, intelligently. They speak with scientific rigor if needed. Those folks are there and they are available and they can talk about the issues.

From the perspective of being in the room and having the ability of engaging with the decision makers, they are there. They are not in the same position of the eight countries because the countries are the only ones with a vote. You have to have a compelling argument for the nations to switch their vote.

The part where indigenous people may not have enough of a voice is that the Arctic Council and the indigenous people themselves have not done a very good job of finding the kind of revenue that is needed to participate in the best way possible. So I think it would be far better if there was a revenue source that would enable indigenous participants to conduct their own resources and present their research to the council. I really think that is one of the strongest areas to have impact on the Arctic Council: the research that you have. We need to find a way to get these projects funded. Once we do, the indigenous people will have a stronger voice.

There is always a question of how do we incorporate indigenous knowledge and indigenous science into western science. Well, one of the best ways is hire an indigenous person that has traditional knowledge but is also a wildlife biologist.

In Alaska we have had a problem of making sure indigenous voices are heard because we've been at odds for too long. We've fought each other too many times. We've had too many lawsuits back and forth. That's an area we are rapidly trying to fix. ●

Contact Steve Quinn at squinnwrite@gmail.com

Federal approval for pipeline to coast

British Columbia's Pacific NorthWest LNG venture has taken a decisive step forward by gaining federal regulatory approval to build a twin-pipeline system to feed natural gas into TransCanada's proposed transportation link to the Pacific Coast.

In recommending Canadian government approval of the North Montney mainline project, the National Energy Board gave its support to plans for the C$1.7 billion expansion of TransCanada's Nova Gas Transmission system involving two 42-inch pipeline sections covering 187 miles. They are due to be in service in 2016 and 2017.

In recommending Canadian government approval of the North Montney mainline project, the National Energy Board gave its support to plans for the C$1.7 billion expansion of TransCanada's Nova Gas Transmission system involving two 42-inch pipeline sections covering 187 miles.

North Montney is designed to carry 2.4 billion cubic feet per day of gas from the Montney shale gas formation and other sources in Western Canada and connect with TransCanada's proposed C$5 billion Prince Rupert transmission pipeline to Pacific NorthWest's planned liquefaction facility and tanker port on Lelu Island near Prince Rupert.

Petronas has contracted for 2 bcf per day, while other producers have signed shipping contracts for 78 million cubic feet per day. Nova Gas is continuing discussions with other parties that have expressed interest in securing shipping space.

North Montney called 'critical'

TransCanada Chief Executive Officer Russ Girling said North Montney is a

see **PIPELINE APPROVAL** *page 31*

continued from page 1

LNG SECRECY

Wan Zulkiflee Wan Ariffin in a buoyant mood, noting that the CEO and his predecessor Shamsul Azhar Abbas are scheduled to be in Vancouver by the end of June to meet with him and Premier Christy Clark.

The project already has a British Columbia environmental certificate but a Canadian government environmental assessment must still be "completed and signed off" before a federal certificate can be issued, he said.

Issues around negotiations

But these signs of progress are colliding with amendments to the province's LNG Income Tax Act that will reduce tax revenues and has the opposition New Democratic Party accusing the Clark government of negotiating with LNG players in private and keeping the details secret.

Bruce Ralston, the NDP's LNG spokesman, said the government is attempting to give itself greater taxation flexibility to attract LNG investments.

He said the change now contemplated involves offering a "further sweetener" to entice offshore LNG companies by lowering the tax on natural gas feedstock to 8 percent from 11 percent.

Weaver said that Russia has negotiated 30-year LNG contracts with China below US$10.50, "yet British Columbia thinks that somehow companies will invest tens of billions of dollars to transport LNG from our coast (to Asia) when it costs US$7-$8 per million Btu to do that."

Ralston said the government has decided it will "give you 8 percent right off the bat, no matter what volume you start off at and what fluctuations there are in supply."

NDP leader John Horgan said that instead of developing its natural resources in the "public interest," the province shows signs of using LNG as a "partisan tool."

Questions about amendment bill

Along with the NDP, Andrew Weaver, the Green Party's lone member of the provincial legislature, noted that the amendment bill covers 109 pages, compared with the 87-page original bill, which he said was "full of loopholes so big you could drive a bus through."

Weaver said the proposed changes come at a time when Clark's earlier talk of an LNG industry — one she said would create 100,000 jobs, a C$100 billion Prosperity Fund, a C$1 trillion boost to the gross domestic product and the elimination of British Columbia's debt — is starting to falter.

He said the economics of global LNG markets did not support those forecasts when they were made in fall 2012 and what has happened since was "entirely predictable."

Weaver said British Columbia's shale gas reserves pale in comparison to Australia, Russia, China, the United States, Iran and Qatar.

"There is shale gas all over the world," he said. "Yet somehow B.C. thinks that it and it alone is going to fill Asian markets with natural gas."

He also noted that LNG prices are falling along with crude, with the consulting firm of Wood Mackenzie forecasting that Brent crude prices averaging US$80 a barrel would result in LNG prices of US$12.60 per million British thermal units; Brent at US$70 would drag LNG down to US$10.50.

Weaver said that Russia has negotiated 30-year LNG contracts with China below US$10.50, "yet British Columbia thinks that somehow companies will invest tens of billions of dollars to transport LNG from our coast (to Asia) when it costs US$7-$8 per million Btu to do that."

He questioned whether Petronas will have any reason make a long-term investment decision on Pacific NorthWest before the mid-2020s.

Education tooling 'irresponsible'

Against those odds he said it is "irresponsible" of the government to talk about retooling its education system to train people for an industry that "doesn't exist now, but we hope maybe someday will exist" and tell LNG proponents that "we'll do whatever you want," including revised its natural gas tax credit.

Under the proposed new credit, which was not mentioned last fall, LNG taxpayers can decrease their corporate income tax from 11 percent to 8 percent and could end up paying 8 percent "in perpetuity," he said.

Weaver asked what might be next on the government's list of gifts to attract an LNG

see **LNG SECRECY** *page 31*

continued from page 30

LNG SECRECY

industry — "Are we going to promise them a free workforce? Are we going to promise them that they pay no tax?"

Access to agreements

Finance Minister Mike de Jong insisted the amount of the credit can't reduce an LNG corporation's effective income tax below 8 percent, but, in a concession to opposition legislators who are challenging the transparency of LNG deals, he said it would be the government's intention to allow the legislature to "examine in detail" at least the first of those agreements.

Ralston warned the government is positioning itself to negotiate LNG-related royalties for up to 40 years "in the privacy of the cabinet room," noting that Coleman had previously declared that "under no circumstances could project development agreements be disclosed."

Although de Jong disagreed with Coleman's statement, Ralston said an NDP request through freedom of information to see any project development agreements that have been signed came back with "blank pieces of paper."

"If the deals that are being struck are good deals for British Columbia, surely the government should be proclaiming from the rooftops the details of the return for the citizens of the province," he said.

Ralston said that any evaluation of returns to the public from the export of a natural resource from British Columbia "ought to be done in public."

"One does not know what assurances have been given in a project development agreement," he said. "Are there penalties if the agreement is broken that would make it financially impossible for another government to vary in any way?"

Ralston said it is clear that in its "desperation to get a deal, the government is prepared to go to any measure, including secret agreements that they're not prepared to disclose publicly, in order to get a deal." ●

Contact Gary Park through publisher@petroleumnews.com

continued from page 30

PIPELINE APPROVAL

"critical component in the infrastructure chain (linking) prolific" new gas supplies with existing and new markets.

He said the project and the Nova system are important parts of TransCanada's capital growth plans, which include C$14 billion in LNG-related gas pipelines in British Columbia.

TransCanada said it will comply with NEB conditions that it "engage and work with affected aboriginal groups on further opportunities to address and mitigate routing and other potential project impacts."

That aspect was reflected in the dissenting view of one NEB panel member who argued that a section of the pipeline should not proceed because it crosses a natural area of importance to First Nations.

While welcoming the NEB decision, Pacific NorthWest President Michael Culbert made no attempt to hide the major unanswered question — whether Petronas and its three Asian partners will give a final go-ahead to the LNG venture.

He said the partnership is also waiting for a federal environmental approval as it continues to "work cautiously towards" a final investment decision.

'Rolled-in tolling' approved

The NEB also approved TransCanada's request for a "rolled-in tolling design" for North Montney during a transition period until permanent tolls are set once work starts on Pacific NorthWest.

Culbert told the Calgary Herald that Pacific NorthWest would have liked greater long-term certainty on tolling, "but we're pleased the rolled-in tolls set the precedent for the start of the pipeline."

FirstEnergy Capital analyst Steven Paget said in a note to clients that it appeared the NEB wanted to "make the LNG-related infrastructure pay for itself, rather than allow TransCanada to create an expanded (Nova Gas) system that includes" LNG pipelines.

Culbert said he is hopeful that a sanctioning decision on the C$36 billion megaproject, once expected by late 2014, will take place later this year.

He was emphatic that the project will not be built if Canadian LNG prices are not competitive with other supplies in Asia.

Production cost a plus

But he offered an upbeat comment, suggesting that the low cost of producing gas in northeastern British Columbia can put Pacific NorthWest on a competitive footing with other global sources.

Culbert told reporters that as the joint venture deals with other fiscal and regulatory matters it is possible "that we will create the certainty that is required to make (the final investment) decision."

Progress Energy Canada, acquired by Petronas two years ago, is embarking on development of its Montney gas resources which have been estimated at 19 trillion cubic feet of proved plus probable reserves.

Progress said C$2 billion was invested last year on drilling and 180 infrastructure projects and C$1.5 billion was spent on acquiring assets. The budget for this year is set at C$2 billion and involves the use of 20 rigs. Production from the play is currently about 120,000 barrels of oil equivalent (80,000 boe per day net to Progress).

—GARY PARK

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continued from page 1

EIA OUTLOOK

oil production, gas production would be hampered, too.

If prices rise, though, and rise far beyond recent highs, Alaska oil production would increase above current rates and natural gas production would add a cherry on top.

Not a prediction

The outlook considers energy markets through 2040. That timeframe is far too long to be accurate. The outlook is mostly a way to consider the implications of various trends.

The reference case assumes oil prices will recover to $78 per barrel by 2018 and grow to $141 per barrel (in 2013 dollars) by 2040 on the strength of increased global demand.

With those conditions, the EIA forecasts Alaska oil production would putter along over the next quarter century. It would fall by approximately 1.6 percent each year through 2040, bottoming out at around 180,000 barrels per day by 2035 before picking up to 340,000 bpd by 2040. (Whether the trans-Alaska oil pipeline could safely and efficiently operate at 180,000 barrels per day is an open question that the outlook fails to address.)

In the reference case, North Slope natural gas production would begin in 2027 and reach 1.1 trillion cubic feet by 2040 through a liquefied natural gas export operation.

Figure 26. U.S. shale gas production in four cases, 2005-40 (trillion cubic feet)

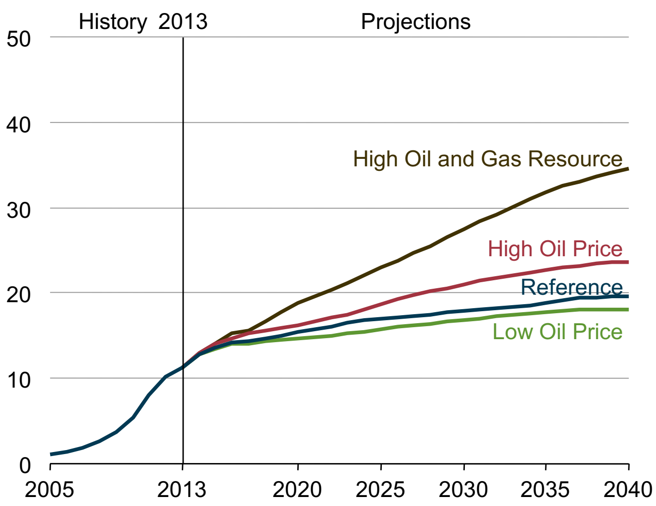
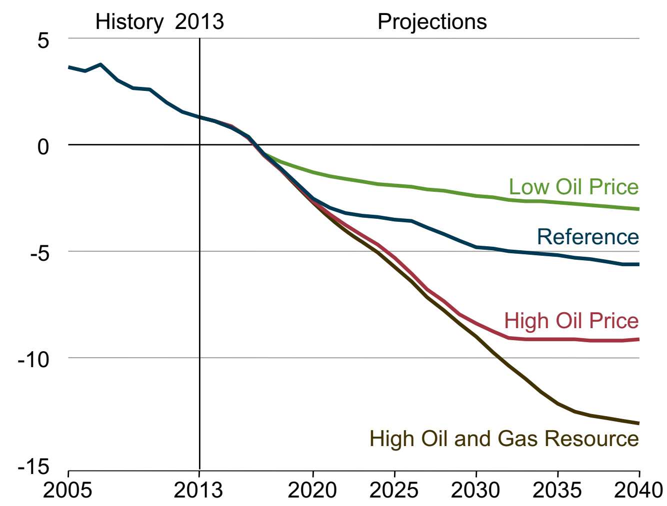


Figure 27. U.S. total natural gas net imports in four cases, 2005-40 (trillion cubic feet)



U.S. Energy Information Administration | Annual Energy Outlook 2015 21

Alternatives

The outlook also considers five alternatives to the reference case: high oil prices, low oil prices, high economic growth, low economic growth and high oil and gas resources.

The two price alternatives have big implications for Alaska.

In the "high oil price" alternative, developing countries demand more energy and reduced investment from the Organization of Petroleum Exporting Countries crimps global supplies, all of which pushes the price of Brent crude to $252 per barrel in 2013 dollars.

Under those circumstances, the EIA forecasts Alaska oil production climbing to 570,000 bpd by 2030 before dipping down to 450,000 bpd by 2040. Alaska gas production would begin in 2026, reach 1.2 trillion cubic feet by 2029 and remain at that level through 2040.

The "low oil price" alternative is much different. Low demand for energy in developing countries and increased OPEC supplies restrain Brent oil prices, which slowly rise to $76 per barrel by 2040. Under those circumstances, the EIA forecasts Alaska oil production falling to 420,000 bpd by 2020 and going offline through the rest of the forecast. Plus, lower natural gas prices would make an Alaska liquefied natural gas export operation uneconomic. And with natural gas currently used to boost North Slope oil production, lower oil prices could lead indirectly to a decline in North Slope natural gas production.

While price is the greatest driver in the forecast, the "high oil and gas resource" case would also have implications for Alaska, presumably by increasing global supplies. The alternative forecasts declining oil production and challenges to an LNG export operation.

—ERIC LIDJI

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