Petroleum News

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Week of January 8, 2017 • $2.50

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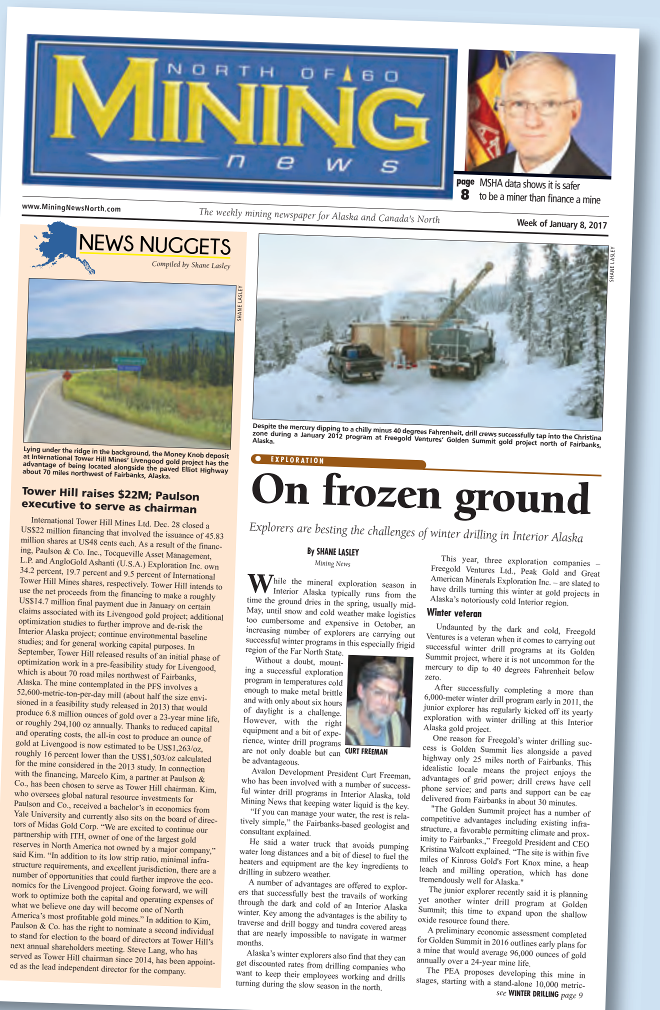
This week's Mining News



North of 60 Mining News

page 8 MSHA data shows it is safer to be a miner than finance a mine

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The weekly mining newspaper for Alaska and Canada's North

Week of January 8, 2017

NEWS NUGGETS

Compiled by Shane Lasley

Lying under the ridge in the background, the Money Knob deposit at International Tower Hill Mines' Livengood gold project has the advantage of being located alongside the paved Elliot Highway about 70 miles northwest of Fairbanks, Alaska.

Tower Hill raises $22M; Paulson executive to serve as chairman

International Tower Hill Mines Ltd. Dec. 28 closed a US$22 million financing that involved the issuance of 45.83 million shares at US48 cents each. As a result of the financing, Paulson & Co. Inc., Tocqueville Asset Management, L.P. and AngloGold Ashanti (U.S.A.) Exploration Inc. own 34.2 percent, 19.7 percent and 9.5 percent of International Tower Hill Mines shares, respectively. Tower Hill intends to use the net proceeds from the financing to make a roughly US$14.7 million final payment due in January on certain claims associated with its Livengood gold project; additional optimization studies to further improve and de-risk the Interior Alaska project; continue environmental baseline studies; and for general working capital purposes. In September, Tower Hill released results of an initial phase of optimization work in a pre-feasibility study for Livengood, which is about 70 road miles northwest of Fairbanks, Alaska. The mine contemplated in the PFS involves a 52,600-metric-ton-per-day mill (about half the size envisioned in a feasibility study released in 2013) that would produce 6.8 million ounces of gold over a 23-year mine life, or roughly 294,100 oz annually. Thanks to reduced capital and operating costs, the all-in cost to produce an ounce of gold at Livengood is now estimated to be US$1,263/oz, roughly 16 percent lower than the US$1,503/oz calculated for the mine considered in the 2013 study. In connection with the financing, Marcelo Kim, a partner at Paulson & Co., has been chosen to serve as Tower Hill chairman. Kim, who oversees global natural resource investments for Paulson and Co., received a bachelor's in economics from Yale University and currently also sits on the board of directors of Midas Gold Corp. "We are excited to continue our partnership with ITH, owner of one of the largest gold reserves in North America not owned by a major company," said Kim. "In addition to its low strip ratio, minimal infrastructure requirements, and excellent jurisdiction, there are a number of opportunities that could further improve the economics for the Livengood project. Going forward, we will work to optimize both the capital and operating expenses of what we believe one day will become one of North America's most profitable gold mines." In addition to Kim, Paulson & Co. has the right to nominate a second individual to stand for election to the board of directors at Tower Hill's next annual shareholders meeting. Steve Lang, who has served as Tower Hill chairman since 2014, has been appointed as the lead independent director for the company.

Despite the mercury dipping to a chilly minus 40 degrees Fahrenheit, drill crews successfully tap into the Christina zone during a January 2012 program at Freegold Ventures' Golden Summit gold project north of Fairbanks, Alaska.

EXPLORATION

On frozen ground

Explorers are besting the challenges of winter drilling in Interior Alaska

By SHANE LASLEY

Mining News

While the mineral exploration season in Interior Alaska typically runs from the time the ground dries in the spring, usually mid-May, until snow and cold weather make logistics too cumbersome and expensive in October, an increasing number of explorers are carrying out successful winter programs in this especially frigid region of the Far North State.

Without a doubt, mounting a successful exploration program in temperatures cold enough to make metal brittle and with only about six hours of daylight is a challenge. However, with the right equipment and a bit of experience, winter drill programs are not only doable but can be advantageous.

CURT FREEMAN

Avalon Development President Curt Freeman, who has been involved with a number of successful winter drill programs in Interior Alaska, told Mining News that keeping water liquid is the key.

"If you can manage your water, the rest is relatively simple," the Fairbanks-based geologist and consultant explained.

He said a water truck that avoids pumping water long distances and a bit of diesel to fuel the heaters and equipment are the key ingredients to drilling in subzero weather.

A number of advantages are offered to explorers that successfully best the travails of working through the dark and cold of an Interior Alaska winter. Key among the advantages is the ability to traverse and drill boggy and tundra covered areas that are nearly impossible to navigate in warmer months.

Alaska's winter explorers also find that they can get discounted rates from drilling companies who want to keep their employees working and drills turning during the slow season in the north.

This year, three exploration companies – Freegold Ventures Ltd., Peak Gold and Great American Minerals Exploration Inc. – are slated to have drills turning this winter at gold projects in Alaska's notoriously cold Interior region.

Winter veteran

Undaunted by the dark and cold, Freegold Ventures is a veteran when it comes to carrying out successful winter drill programs at its Golden Summit project, where it is not uncommon for the mercury to dip to 40 degrees Fahrenheit below zero.

After successfully completing a more than 6,000-meter winter drill program early in 2011, the junior explorer has regularly kicked off its yearly exploration with winter drilling at this Interior Alaska gold project.

One reason for Freegold's winter drilling success is Golden Summit lies alongside a paved highway only 25 miles north of Fairbanks. This idealistic locale means the project enjoys the advantages of grid power; drill crews have cell phone service; and parts and support can be car delivered from Fairbanks in about 30 minutes.

"The Golden Summit project has a number of competitive advantages including existing infrastructure, a favorable permitting climate and proximity to Fairbanks.," Freegold President and CEO Kristina Walcott explained. "The site is within five miles of Kinross Gold's Fort Knox mine, a heap leach and milling operation, which has done tremendously well for Alaska."

The junior explorer recently said it is planning yet another winter drill program at Golden Summit; this time to expand upon the shallow oxide resource found there.

A preliminary economic assessment completed for Golden Summit in 2016 outlines early plans for a mine that would average 96,000 ounces of gold annually over a 24-year mine life.

The PEA proposes developing this mine in stages, starting with a stand-alone 10,000 metric-

see WINTER DRILLING page 9

Mining explorers are besting the challenges of winter drilling in Interior Alaska. Read more in Mining News, page 7.

Alyeska: TAPS has calendar-year increase, up 1.8% from 2015

Alyeska Pipeline Service Co., operator of the trans-Alaska oil pipeline, said Dec. 30 that the volume of oil moved in 2016 is projected to be up from 2015, the first calendar year-over-year increase since 2002. The total amount of crude oil the pipeline moved in 2016 is projected to be 517,500 barrels per day, a 1.8 percent increase from the 508,446 bpd the line moved in 2015.

"More oil is the best long-term solution for sustaining TAPS, from a technical and operational standpoint," Alyeska President Tom Barrett said in a statement. "It's also the best thing for Alaskans and our economy. Every barrel matters to us. The more throughput, the better we can plan for the continuing safe operation of the pipeline," he said.

The pipeline is entering its 40th year of operations and has

see **TAPS VOLUME UP** *page 16*

IGU releases draft of Pentex MOU, sets terms of purchase from AIDEA

The Interior Gas Utility, one of the two current gas utilities in Fairbanks, has released a draft memorandum of understanding setting out the terms under which it would purchase Pentex Alaska Natural Gas Co. from the Alaska Industrial Development and Export Authority. With Pentex owning Fairbanks Natural Gas Co., the other Fairbanks utility, the purchase would consolidate the two utilities into a single entity. Pentex also owns the Titan liquefied natural gas facility near Point MacKenzie on Cook Inlet and the trucking operation for transporting LNG to Fairbanks. FNG currently supplies gas to the central part of Fairbanks. IGU has started constructing a gas distribution network in Fairbanks in anticipation of an expanded gas supply for the city, in conjunction with the Interior Energy Project, an AIDEA project to facilitate a growing

see **PENTEX PURCHASE** *page 16*

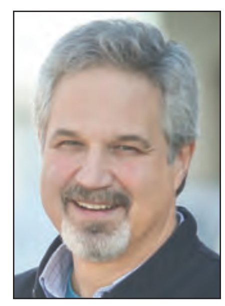
GOVERNMENT

Taxes, fiscal reforms

House, Senate leaders discuss challenges for 2017 legislative session

By TIM BRADNER

For Petroleum News



PETE KELLY

CHRIS TUCK

Incoming leaders in the 2017 legislative session provided a taste of battles to come in Juneau after lawmakers gavel in Jan. 17. Incoming Senate President Pete Kelly, R-Fairbanks, and Rep. Chris Tuck, D-Anchorage, who will be majority leader in the new coalition state House, spoke Jan. 5 to members of the Resource Development Council in Anchorage.

Oil taxes, state fiscal reforms and proposed new taxes will be on the Legislature's agenda.

"Alaska is going through a very tough transition period," Tuck said. "We can no longer depend on oil as our main revenue source. It's good to see production up (for 2016) and oil prices creeping up, but an oil price increase won't save us,"

"Spending cuts will have to continue but we need to ensure we can provide basic services like public safety and to ensure continued investment in education. We need to make 'smart decisions' that won't hurt the economy," he said.

The goals of the new House coalition will be to, "protect the economy, ensure jobs, to support educa-

see **LEGISLATIVE OUTLOOK** *page 15*

EXPLORATION & PRODUCTION

Glacier permitting Sabre

W. McArthur River prospect announced, postponed before bankruptcy, reorganization

By ERIC LIDJI

For Petroleum News

Glacier has been reviewing its entire Alaska portfolio over the past year.

Glacier Oil & Gas Corp. is returning to the Sabre prospect.

Through its subsidiary Cook Inlet Energy LLC, the independent recently applied to the U.S. Army Corps of Engineers for permission to drill the offshore Sabre No. 1 exploration well off the coast of the west side of Cook Inlet near Trading Bay.

The company is proposing to use the Spartan 151 jack-up rig for the program. The program is scheduled to begin in late March or early April and last some 70 days.

Cook Inlet Energy acquired a 70 percent interest the Sabre and nearby Sword prospects in its initial acquisition of Alaska properties and farmed-in the remaining 30 percent from Hilcorp Alaska LLC in September 2012. A former executive had touted estimates as high as 20 million barrels of oil and 14.3 billion cubic feet of natural gas for the prospects.

The company brought the Sword No. 1 well into production in November 2013 and began discussing plans to either develop additional intervals or drill a second well.

Instead, Cook Inlet Energy began considering

see **SABRE PROSPECT** *page 15*

FINANCE & ECONOMY

Canada regains mojo

Trump presidency fuels price recovery hope; analysts predict US$61 by year end

By GARY PARK

For Petroleum News

"Two full calendars of fiscal pain have done much to tune up the industry for the future." —Peter Tertzakian, ARC Financial

There is no hiding the bullish mood in Canada's upstream oil and gas sector.

You don't have to dig too widely or too deep to find confidence in a turnaround, with companies posting impressive gains on the stock markets, riding forecasts for a Trump-inspired resurgence tied to the incoming president's pro-energy, infrastructure-heavy campaign promises.

"With the potential for increased U.S. (oil and gas) demand, coupled with significant supply curtailments, the stage is set for some recovery in commodity prices," said Matt Barasch, chief Canadian equity strategist with RBC Capital Markets.

And, despite Trump's threats to renegotiate the North American Free Trade Agreement, the long-held belief in Canada is that it will derive some benefit from whatever gains the U.S. makes.

The RBC commodity team expects crude will continue to rise in 2017, surging to US$61 a barrel by the fourth quarter of the year (far ahead of the

see **BULLISH MOOD** *page 15*

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Alaska - Mackenzie Rig Report

Alaska Rig Status

North Slope - Onshore

Rig Owner/Rig Type	Rig No.	Rig Location/Activity	Operator or Status
Doyon Drilling			
Dreco 1250 UE	14 (SCR/TD)	Stacked	
Dreco 1000 UE	16 (SCR/TD)	Standby	
Dreco D2000 Uebd	19 (SCR/TD)	Alpine CD5-18	ConocoPhillips
AC Mobile	25	Standby	
OIME 2000	141 (SCR/TD)	Kuparuk 2M-38	ConocoPhillips
	142 (SCR/TD)	Kuparuk 1D-28	ConocoPhillips
Hillcorp Alaska LLC			
	Rig No.1	Milne Point	Hilcorp Alaska LLC
Nabors Alaska Drilling			
AC Coil Hybrid	CDR-2	Kuparuk 2F-18	ConocoPhillips
AC Coil	CDR-3 (CTD)	Kuparuk	ConocoPhillips
Dreco 1000 UE	2-ES (SCR-TD)	Deadhorse	Available
Mid-Continental U36A	3-S	Deadhorse	Available
Oilwell 700 E	4-ES (SCR)	Deadhorse	Available
Dreco 1000 UE	7-ES (SCR/TD)	Deadhorse	Available
Dreco 1000 UE	9-ES (SCR/TD)	Deadhorse	Available
Oilwell 2000 Hercules	14-E (SCR)	Deadhorse	Available
Oilwell 2000 Hercules	16-E (SCR/TD)	Mustang location	Available
Oilwell 2000 Canrig 1050E	27-E (SCR-TD)	Deadhorse	Available
Oilwell 2000	33-E	Deadhorse	Available
Academy AC Electric CANRIG	99AC (AC-TD)	Deadhorse	Available
OIME 2000	245-E (SCR-ACTD)	Kuparuk	Available
Academy AC electric CANRIG	105AC (AC-TD)	Deadhorse	Available
Academy AC electric Heli-Rig	106AC (AC-TD)	Deadhorse	Available
Nordic Calista Services			
Superior 700 UE	1 (SCR/CTD)		Available
Superior 700 UE	2 (SCR/CTD)	Prudhoe Bay	Available
Ideco 900	3 (SCR/TD)		Available
Parker Drilling Arctic Operating Inc.			
NOV ADS-10SD	272	Prudhoe Bay DS 18	BP
NOV ADS-10SD	273	Prudhoe Bay DSW-59	BP

North Slope - Offshore

Rig Owner/Rig Type	Rig No.	Rig Location/Activity	Operator or Status
BP			
Top Drive, supersized	Liberty rig	Inactive	BP
Doyon Drilling			
Sky top Brewster NE-12	15 (SCR/TD)	Stacked	
Nabors Alaska Drilling			
OIME 1000	19AC (AC-TD)	Oooguruk, Cold Stacked	Caelus Alaska

Interior Alaska

Rig Owner/Rig Type	Rig No.	Rig Location/Activity	Operator or Status
Doyon Drilling			
TSM 7000	Arctic Fox #1	Nenana, Stacked	

Cook Inlet Basin – Onshore

Rig Owner/Rig Type	Rig No.	Rig Location/Activity	Operator or Status
Glacier Oil & Gas			
	Rig 37	West McArthur River Unit Workover	Glacier Oil & Gas
All American Oilfield LLC			
IDECO H-37	AAO 111	In All American Oilfield's yard in Kenai, Alaska	Available
Aurora Well Services			
Franks 300 Srs. Explorer III	AWS 1	Stacked out west side of Cook Inlet	Available
Saxon			
TSM-850	147	Stacked	Hilcorp Alaska LLC
TSM-850	169	Stacked	Hilcorp Alaska LLC

Cook Inlet Basin – Offshore

Rig Owner/Rig Type	Rig No.	Rig Location/Activity	Operator or Status
Hilcorp Alaska LLC			
National 110	C (TD)	Platform C, Stacked	Hilcorp Alaska LLC
	Rig 51	Steelhead Platform, Stacked	Hilcorp Alaska LLC
	Rig 51	Monopod Platform, Drilling	Hilcorp Alaska LLC
Spartan Drilling			
Baker Marine ILC-Skidoff, jack-up		Spartan 151, Stacked Seward	
Furie Operating Alaska			
Randolf Yost jack-up		Drilling KLU A-2	Furie
Glacier Oil & Gas			
National 1320	35	Osprey Platform, activated	Glacier Oil & Gas
Kuukpik Drilling	5	King Salmon Platform	Hilcorp Alaska LLC

Mackenzie Rig Status

Canadian Beaufort Sea

Rig Owner/Rig Type	Rig No.	Rig Location/Activity	Operator or Status
SDC Drilling Inc.			
SSDC CANMAR Island Rig #2	SDC	Set down at Roland Bay	Available

Central Mackenzie Valley

Rig Owner/Rig Type	Rig No.	Rig Location/Activity	Operator or Status
Akita			
TSM-7000	37	Racked in Norman Well, NT	Available

The Alaska - Mackenzie Rig Report as of January 4, 2017.
Active drilling companies only listed.

TD = rigs equipped with top drive units WO = workover operations
CT = coiled tubing operation SCR = electric rig

This rig report was prepared by Marti Reeve

JUDY PATRICK

Baker Hughes North America rotary rig counts*

	Dec. 30	Dec. 23	Year Ago
United States	658	653	698
Canada	157	224	83
Gulf of Mexico	22	24	25

Highest/Lowest		
US/Highest	4530	December 1981
US/Lowest	404	May 2016

*Issued by Baker Hughes since 1944

● NATURAL GAS

AGDC has potentially costly to-do list

Some issues, particularly those from US Pipeline and Hazardous Materials Safety Administration, could require costly design changes

By TIM BRADNER
For Petroleum News

Federal agencies have handed Alaska Gasline Development Corp., the state's gas corporation, a long to-do list for final preparations of an application to the Federal Energy Regulatory Commission to build the Alaska LNG Project.

Some of the issues raised by the agencies, particularly the U.S. Pipeline and Hazardous Materials Safety Administration, or PHMSA, could require costly design changes in the project.

State agencies are also requesting more research on permafrost thawing and how that will affect integrity of the buried pipeline.

AGDC is in the process of taking over Alaska LNG, previously led by ExxonMobil Corp. on behalf of a consortium of the three North Slope producers and the state.

The state corporation must now answer questions submitted through FERC by federal and state agencies on the 12 resource reports prepared by Alaska LNG as a part of the pre-application process for a FERC certificate.

One significant issue raised by the agency involves the proposed 50-mile spacing between mainline block valves along the 800-mile pipeline. The valves, which can be closed to isolate sections of pipeline, "would probably have to be 35 miles or less," PHMSA said.

The 56 pages of questions submitted through FERC on Dec. 14 are in addition to 362 pages of questions submitted earlier.

Rosetta Alcantra, AGDC's spokeswoman, said the corporation is developing cost estimates for doing the work but those have not yet been presented to the corporation's board. "We're doing as much as we can with in-house staff in answering the questions," although contractors will eventually be brought in to deal with some issues. Discussions with potential contractors are now underway, she said.

Costly PHMSA concerns

PHMSA's questions total 38 of the 56 pages referred by the FERC and deal mainly with federal safety codes and specifications for pumps, equipment pressures, fluids and spill-containment systems.

One significant issue raised by the agency involves the proposed 50-mile spacing between mainline block valves along the 800-mile pipeline. The valves, which can be closed to isolate sections of pipeline, "would probably have to be 35 miles or less," PHMSA said.

Also, "Mainline valve spacing and the crack-arrestor spacing changes would require a special permit," from PHMSA, the agency said. Crack arrestors are placed on pipelines to limit and contain stress cracks.

The agency said a special permit would also be required to approve Alaska LNG's plans to use multi-layer coatings on the pipeline that are installed to shied cathodic protections that limit corrosion.

A request from a state agency asks Alaska LNG to do further investigation of permafrost thaw, which will affect the stability of piles and gravel pads installed to support the pipeline over its projected 30 years of life. The draft resource report submitted by Alaska LNG refers to 1- to 2-foot layers of active permafrost on the North Slope during summer. "Some evidence indicates that permafrost warming has increased the active layer … and designs should account for the trends during the facility's design life of 30 years."

Other federal agencies asked for a marine vessel simulation study for LNG ship traffic at the marine terminal at Nikiski and to identify the number of tugs that will be needed based on the study.

Safety, subsistence issues

There were safety-related issues raised, such as a request for information on maximum distances for safety during possible toxic chemical releases at the North Slope gas treatment plant and the LNG plant at Nikiski. Agencies asked for data on three levels of severity of exposure (the Acute Exposure Guideline Levels) with points on plot plans and with property lines and occupied buildings identified.

A "comprehensive discussion" was also requested of safety measures employed to protect the public, workers and wildlife during construction, including measures like traffic control and above-ground and underground utility crossings.

Federal agencies also asked for more information on subsistence activities along the pipeline and the project areas and the effects on communities due to increased payroll spending, with corresponding effects on the mix of cash-earning and subsistence in rural villages.

On more specific plant safety issues, agencies noted that several impoundment areas for ignitable fluids, if they were ignited, could cause heat impacts over 3,000 British thermal units per hour over equipment areas. More information was requested on fire water and cooling volumes for each ignitable fluid impoundment and how these were arrived at in the sizing of the impoundment.

Questions were also asked about the estimated soil settlement of 10 inches at the LNG storage tanks along with 5 inches of differential settlement. Information was requested on the calculations and assumptions used in arriving at these. The agency also noted that, "the levels of settlement seem high and may warrant either additional ground improvement or use of deep foundations."

Other questions dealt with estimated effects on facilities of high winds. Parts of the LNG plant designed for liquefying, storing and vaporizing LNG would be designed to withstand sustained winds of 150 miles per hour but other parts of the plant would be designed to withstand three-second gusts of 110 mph winds.

Alaska LNG was asked which facilities that handle hazardous fluids, or are control buildings or emergency facilities, are not designed to withstand l50 mph winds and to provide a justification as to why they are not.

Another comment noted that the facility fire protection system was not fully developed at the time the report was submitted. Alaska LNG was requested to provide an updated description of the fire protection system and to explain how indoor and outdoor equipment, including the outdoor liquid propane system, would be kept cool in the event of a fire. ●

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GOVERNMENT

Dunleavy: Obama has gone too far

Wasilla Republican, Finance Committee member says outgoing Obama administration's actions deny Alaskans chance at prosperity

By STEVE QUINN
For Petroleum News

Sen. Mike Dunleavy is looking forward to Jan. 20 when Donald Trump gets sworn into office. That means President Barack Obama can no longer issue executive orders Dunleavy believes are not in the best interest of Alaska's economic prospect. While not on the Senate Resources Committee, Dunleavy does hold a seat on the Finance Committee and pays rapt attention to resource development issues. Dunleavy, a Wasilla Republican, shared his thoughts on Obama's recent executive orders, the state's gas line prospects and its tax regime.

Petroleum News: You've recently weighed in on some of the (Obama) administration's decisions for resource development in Alaska, and were clearly upset — talk about that.

Dunleavy: I wouldn't characterize it as upset. I'm being sincere when I say that. I have a philosophy that I can't make anyone happy, sad or upset — neither can they do that with me so I don't get emotionally wrapped around the axle over anything. I do believe President Obama has an agenda. He had an agenda and he's been implementing it. When it comes to Alaska, I think it's a combination of factors.

I don't think they view Alaska as a state to be honest with you. I think they view it as a magical, mystical place way up north that America owns and thus it is so unique, so different, so pristine, so wonderful that we can't allow the state of Alaska to be solely in the hands of Alaskans like we can Floridians, Pennsylvanians, or anyone else. We are so different that we have to be preserved. I think the president has looked at every possible way to push his agenda when it comes to resource extraction, the environment and climate on Alaska.

We are his poster child on this. Numbers wise we are small — 730,000. And so he has the ability to mobilize millions of people who believe like him. He has the ability to mobilize dozens, if not more, federal delegates — congressmen and senators — to buy into his views.

Here in Alaska, we don't believe it has to be either or. We believe we can have some of the most stringent environmentalist policies and regulations here but at the same time develop our resources that the world wants.

His latest move was made when he closed off the Arctic to exploration because there could be spills. Well the world is still going to demand oil and gas, and coal. The Russians aren't going to play by our environmental standards, rules and regulations. That's for sure. So what he did was basically prevent Alaska from having opportunities for supporting these basins and finds with onshore businesses and labor — he basically killed that.

The idea that the president of the United States of America closing off the Arctic will preserve the Arctic defies logic and defies geography. It defies geopolitics. The Russians are going to develop the Arctic. The Norwegians are going to develop their small slice of the Arctic. We had Chinese ships pass through the Bering Strait when President Obama was here two years ago. So you have countries all over the world who see the Arctic and its potential for resource development and resource extraction, and here we have our own president cutting our own throats on our ability to benefit from this.


SEN. MIKE DUNLEAVY

So upset? Emotionally no. But in my opinion this is just a bad move.

Petroleum News: You noted what other countries are doing. Are there any other downsides you're seeing?

Dunleavy: Well, there is the stuff I just listed and the fact that if the Russians have an oil spill, trust me it's not going to get the response it would here in the United States. We've basically told the Russians, "Hey, look we are doing you a big favor. We are not going to extract oil which means you can. You don't follow our rules and adhere to our regulations so we are giving you a gift. Do what you want in the Arctic and we are going to handcuff the hands of our people in Alaska so they can't."

So with his actions, we don't benefit at all. It does not decrease the demand for oil and gas. It doesn't do that. And it doesn't stop the Russians and Norwegians and others from exploring up north and developing it. None of that is prevented by this. He made himself feel good — that's it — at our expense.

Petroleum News: What do you hope can be accomplished by the Trump administration?

Dunleavy: Everything the Obama administration didn't do. The whole Trump thing is a fascinating, fascinating study. Two years ago or longer he was railing against the trade agreements. Those trade agreements started under Clinton. A lot of your so-called middle class Americans in your suburbs and rural parts of the country who were for decades staunch Democrats — labor Democrats, FDR Democrats — they became, in their minds, disenfranchised when Bill Clinton embraced these treaties and trade agreements and also embraced the white collar professionals over the blue collar. So they were set adrift. They didn't feel they had a party any more.

My parents were FDR Democrats. They were conservative when it came to abortion, guns, hunting, but they were very much labor Democrats. When I saw Pennsylvania going and Ohio going, I could see it happening. Trump got those folks believing America could be great again. He's a billionaire and he got people who are out of work to believe by voting for Clinton there was no hope but by giving Trump a chance there was hope.

In West Virginia it wasn't hard because Clinton made it clear that she agreed with the Obama policies on coal. Coal is bad — terrible. We are going to stop it. She actually told the miners she was doing it for them like they were idiots.

Trump told them we are going to keep extracting. My hope is we keep extracting; my hope is we keep drilling; my hope we keep exploring; my hope is we keep exporting. The world still wants what we have. We can do it in an environmentally sound manner, I believe truly.

You know I have a daughter who is 24 years old. She works at Red Dog mine and has for a few years. She makes a salary we can only dream of making today. She's working toward getting her college degree. You don't see those jobs any more. It's either folks on the lower end in terms of income and relying on receipts and welfare. And it's a handful of individuals at the top. The middle class is really taking a hit and Trump capitalized on that.

When you look at the range of wages in Alaska, we are probably the number one state when it comes to a lack of disparity. We don't have tons of millionaires in Alaska or tons of people in total poverty. You kind of have a tighter spread. We, of any states, have the ability to benefit from a Trump administration if he carries out what he said he would and what we think he will do.

Petroleum News: There is a lot of debate whether the Trump administration can undo what the Obama has done, in each case to the displeasure of certain groups in Alaska.

Dunleavy: I'll be honest with you. I have to do a little more research as to under what authority he's making these decisions. Are they executive orders that can be reversed by an incoming executive? For example, I won't be shocked to get up in the morning and the paper says President Obama declares the coastal plain as one national park forever. That won't shock me at all. So it all depends on how these decisions are made and under what authority to see if these decisions can be reversed.

There was a time when Ted Stevens was in Congress. We had Ted Stevens, Don Young and Frank Murkowski. You had a Republican administration and a Republican Congress, and Sen. Stevens made a play to open up the coastal plain of ANWR for exploration and he couldn't get it done because some of his fellow Republicans bought into the Alaska is a sacred place and can't be disturbed.

To answer your question, I don't know what kind of support he'll get from Congress. He's in the same situation when Sen. Stevens was there. So you tend to think the stars will align and they will get behind him to undo some of these things in terms of resource extraction and development. So I don't know the answer to that one yet.

Petroleum News: Should the Legislature weigh in with resolutions?

see **DUNLEAVY Q&A** *page 13*

NATURAL GAS

LB&A requests audit of AGDC funds use

Legislative auditors are digging into whether the Alaska Gasline Development Corp. is improperly using money for work on a state-led liquefied natural gas project from a fund designated for an in-state gas pipeline.

The Legislative Budget and Audit Committee approved the audit at its Dec. 4 meeting in Anchorage. Rep. Mike Hawker, R-Anchorage, had requested the audit.

Hawker's request was that auditors examine the "compliance of actual spending with legislative intent and restrictions on the purpose and use of the In-State Gas Project fund and the Alaska LNG Project."

AGDC has about $30 million in the Alaska LNG fund and $70 million in the in-state gas project fund and Hawker believes that the corporation is funding some activities for the LNG project from the in-state fund, which has more money.

Hawker also asked auditors to find out if the AGDC board approved specific spending decisions and contracts for senior executive employees and consultants.

Legislative staff who have queried AGDC on the comingling of funds say they were told that money from the in-state fund was typically used for activities that benefit both projects, and because of that would be legal.

An example is funding for permitting and environmental work for the Alaska Stand Alone Pipeline, or ASAP, that also benefits the larger Alaska LNG Project.

ASAP is an 800-mile 36-inch gas pipeline developed as a backup to get North Slope gas to Alaska communities in case the larger Alaska LNG Project falters.

Alaska LNG involves a 42-inch pipeline built along the same right of way as ASAP but extending beyond the proposed southern terminus of ASAP in the Matanuska-Susitna Borough to an LNG plant at Nikiski, on the Kenai Peninsula.

Both projects have large gas treatment plants on the North Slope but the Alaska LNG Project treatment plant is larger. Also, ASAP has no LNG plant at its southern end, while the Alaska LNG Project does have one.

Since the right of way from the North Slope to the Mat-Su is the same for both, the environmental work done for ASAP is directly applicable to Alaska LNG. Staff of AGDC were also instructed by the Legislature not to duplicate work for the projects if data for one can be used for the other.

—TIM BRADNER

PIPELINES & DOWNSTREAM

Demolition begins on shuttered refinery

The company that owns the shuttered North Pole Refinery has begun its demolition.

The decision by Flint Hills Resources to tear down refining facilities ends modest hope that a buyer could resume operations, the Fairbanks Daily News-Miner (http://bit.ly/2hzqXwb) reported.

Flint Hills spokesman Jeff Cook in a prepared statement Dec. 28 said no buyer was found.

"With no parties interested in purchasing and operating the refinery, the prudent step is to demolish the refinery to best protect the site and repurpose the site for productive future use," he said.

The refinery opened in 1977. Flint Hills in 2014 ended refining operations but continued using the property as a storage facility.

Flint Hills cited an increasingly difficult market and environmental cleanup costs from a chemical spill under a previous owner for shuttering the plant. The refinery was mothballed so a prospective buyer could resume production.

The demolition is sad but "kind of inevitable," said North Pole Mayor Bryce Ward.

The reduced property value of the plant will have revenue consequences for the city, Ward said. The tax value already had been reduced more than half after refining ended.

Until 2014, the plant was producing jet fuel, diesel, gasoline, asphalt and specialty fuels from North Slope oil transported through the trans-Alaska oil pipeline. More than 100 people worked at the refinery.

Storage operations will continue, Cook said.

—ASSOCIATED PRESS

● NATURAL GAS

LNG decision in focus

BC Provincial cabinet minister hopes for Pacific NorthWest LNG sanctioning by mid-2017, based on discussions with Petronas leaders

By GARY PARK
For Petroleum News

Despite the many loose ends yet to be nailed down, a final investment decision is still possible by mid-2017 on British Columbia's Pacific NorthWest LNG project, said Rich Coleman, the cabinet minister responsible for LNG.

He bases that optimism on recent discussions with management at Malaysian state-owned Petronas, operator of the C$36 billion venture, along with his belief that markets in China and Japan are willing to buy LNG from British Columbia.

Coleman said that once estimates of project costs and returns to partners have been resolved, Petronas will be in a position to see if the sales contracts are viable.

Also among the unfinished business is a partnership review of the 190 conditions attached to Pacific NorthWest by the Canadian government, he said.

Coleman told the Globe and Mail that it was clear during his latest visit to Malaysia in October that Petronas "wants to get to 'yes' on this thing, but it still has some due diligence to do."

He said several more meetings are expected by mid-January on the project's design and tendering process.

Spencer Sproule, a senior official with Pacific NorthWest, said the consortium is continuing to work with affected First Nations, stakeholders and regulators to "manage any potential impacts through mitigation measures and design optimization."

On that front a Bloomberg News report hinted at a breakthrough, citing an unnamed source who said Petronas is adjusting plans for a liquefaction plant and tanker terminal on Lelu Island, near Prince Rupert, involving the transfer of the docking facility to nearby Ridley Island.

Sproule said Pacific NorthWest is "conducting a total project review over the coming months," without disclosing what modifications are under review.

Aboriginal groups and environmentalists have strongly objected to the terminal location because of the potential impact on a shallow, eel-grass covered embankment that is a breeding ground for salmon and a place where juvenile salmon acclimate between fresh and salt water.

Gitanyow hereditary Chief Glen Williams said his community always wanted the terminal moved and is encouraged that Petronas is open to changes.

The Canadian government's Environmental Assessment Agency said it has yet to receive any formal proposal, but is open to determining the "appropriate next steps."

Ridley Island was formerly held by Canpotex, which relinquished its lease for a fertilizer export terminal in early 2016.

Separately, work is proceeding at a cautious pace on the Royal Dutch Shell-led LNG Canada proposal, with some 100 employees — about half the payroll when Shell decided five months ago to delay progress.

Although no revised timetable has been issued, LNG Canada Chief Executive Officer Andy Calitz said the remaining team is "working flat out but at a sustainable holding cost."

He told the Globe and Mail that "there is space in the market in the mid-2020s for LNG from Canada," meaning there is ample room to start and complete construction by 2025.

Another glimmer of hope amid a largely gloomy outlook for British Columbia LNG comes from high-flying natural gas player Seven Generations Energy.

The company President Marty Proctor said Seven Generations hopes to take advantage of opportunities it believes will surface in the next decade for midstream and downstream projects.

But, despite securing a minority stake three months ago in Steelhead LNG, which plans two LNG export projects on Vancouver Island, Seven Generations is only interested in committing gas volumes to operations such as gas-fired electric generation plants, liquefied petroleum gas export facilities or pipelines, but not making a direct investment in those operations, said company Senior Vice President Tim Stauft.

He said that although Canada's gas production is forecast to drop to 14.8 billion cubic feet per day by 2020 from 15.4 bcf per day last year, largely because of competition from U.S. shale production in Eastern Canada, new pipeline capacity may be needed to the British Columbia coast.

However, Proctor said Seven Generations has contracted for capacity on TransCanada's existing delivery systems and proposed gas lines to the Pacific Coast to connect with LNG projects. ●

Contact Gary Park through publisher@petroleumnews.com

NORTH OF 60 MINING news

page 8 MSHA data shows it is safer to be a miner than finance a mine

www.MiningNewsNorth.com *The weekly mining newspaper for Alaska and Canada's North* Week of January 8, 2017

NEWS NUGGETS

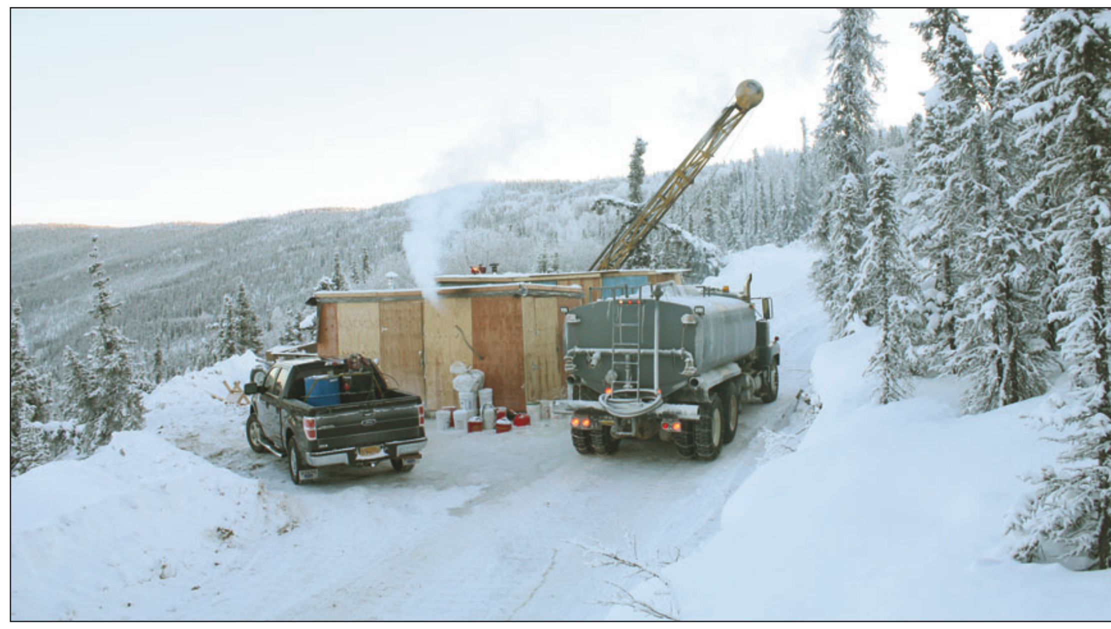
Compiled by Shane Lasley

SHANE LASLEY

Lying under the ridge in the background, the Money Knob deposit at International Tower Hill Mines' Livengood gold project has the advantage of being located alongside the paved Elliot Highway about 70 miles northwest of Fairbanks, Alaska.

Tower Hill raises $22M; Paulson executive to serve as chairman

International Tower Hill Mines Ltd. Dec. 28 closed a US$22 million financing that involved the issuance of 45.83 million shares at US48 cents each. As a result of the financing, Paulson & Co. Inc., Tocqueville Asset Management, L.P. and AngloGold Ashanti (U.S.A.) Exploration Inc. own 34.2 percent, 19.7 percent and 9.5 percent of International Tower Hill Mines shares, respectively. Tower Hill intends to use the net proceeds from the financing to make a roughly US$14.7 million final payment due in January on certain claims associated with its Livengood gold project; additional optimization studies to further improve and de-risk the Interior Alaska project; continue environmental baseline studies; and for general working capital purposes. In September, Tower Hill released results of an initial phase of optimization work in a pre-feasibility study for Livengood, which is about 70 road miles northwest of Fairbanks, Alaska. The mine contemplated in the PFS involves a 52,600-metric-ton-per-day mill (about half the size envisioned in a feasibility study released in 2013) that would produce 6.8 million ounces of gold over a 23-year mine life, or roughly 294,100 oz annually. Thanks to reduced capital and operating costs, the all-in cost to produce an ounce of gold at Livengood is now estimated to be US$1,263/oz, roughly 16 percent lower than the US$1,503/oz calculated for the mine considered in the 2013 study. In connection with the financing, Marcelo Kim, a partner at Paulson & Co., has been chosen to serve as Tower Hill chairman. Kim, who oversees global natural resource investments for Paulson and Co., received a bachelor's in economics from Yale University and currently also sits on the board of directors of Midas Gold Corp. "We are excited to continue our partnership with ITH, owner of one of the largest gold reserves in North America not owned by a major company," said Kim. "In addition to its low strip ratio, minimal infrastructure requirements, and excellent jurisdiction, there are a number of opportunities that could further improve the economics for the Livengood project. Going forward, we will work to optimize both the capital and operating expenses of what we believe one day will become one of North America's most profitable gold mines." In addition to Kim, Paulson & Co. has the right to nominate a second individual to stand for election to the board of directors at Tower Hill's next annual shareholders meeting. Steve Lang, who has served as Tower Hill chairman since 2014, has been appointed as the lead independent director for the company.



SHANE LASLEY

Despite the mercury dipping to a chilly minus 40 degrees Fahrenheit, drill crews successfully tap into the Christina zone during a January 2012 program at Freegold Ventures' Golden Summit gold project north of Fairbanks.

EXPLORATION

On frozen ground

Explorers are besting the challenges of winter drilling in Interior Alaska

By SHANE LASLEY

Mining News

While the mineral exploration season in Interior Alaska typically runs from the time the ground dries in the spring, usually mid-May, until snow and cold weather make logistics too cumbersome and expensive in October, an increasing number of explorers are carrying out successful winter programs in this especially frigid region of the Far North State.

CURT FREEMAN

Without a doubt, mounting a successful exploration program in temperatures cold enough to make metal brittle and with only about six hours of daylight is a challenge. However, with the right equipment and a bit of experience, winter drill programs are not only doable but can be advantageous.

Avalon Development President Curt Freeman, who has been involved with a number of successful winter drill programs in Interior Alaska, told Mining News that keeping water liquid is the key.

"If you can manage your water, the rest is relatively simple," the Fairbanks-based geologist and consultant explained.

He said a water truck that avoids pumping water long distances and a bit of diesel to fuel the heaters and equipment are the key ingredients to drilling in subzero weather.

A number of advantages are offered to explorers that successfully best the travails of working through the dark and cold of an Interior Alaska winter. Key among the advantages is the ability to traverse and drill boggy and tundra covered areas that are nearly impossible to navigate in warmer months.

Alaska's winter explorers also find that they can get discounted rates from drilling companies who want to keep their employees working and drills turning during the slow season in the north.

This year, three exploration companies – Freegold Ventures Ltd., Peak Gold and Great American Minerals Exploration Inc. – are slated to have drills turning this winter at gold projects in Alaska's notoriously cold Interior region.

Winter veteran

Undaunted by the dark and cold, Freegold Ventures is a veteran when it comes to carrying out successful winter drill programs at its Golden Summit project, where it is not uncommon for the mercury to dip to 40 degrees Fahrenheit below zero.

After successfully completing a more than 6,000-meter winter drill program early in 2011, the junior explorer has regularly kicked off its yearly exploration with winter drilling at this Interior Alaska gold project.

One reason for Freegold's winter drilling success is Golden Summit lies alongside a paved highway only 25 miles north of Fairbanks. This idealistic locale means the project enjoys the advantages of grid power; drill crews have cell phone service; and parts and support can be car delivered from Fairbanks in about 30 minutes.

"The Golden Summit project has a number of competitive advantages including existing infrastructure, a favorable permitting climate and proximity to Fairbanks.," Freegold President and CEO Kristina Walcott explained. "The site is within five miles of Kinross Gold's Fort Knox mine, a heap leach and milling operation, which has done tremendously well for Alaska."

The junior explorer recently said it is planning yet another winter drill program at Golden Summit; this time to expand upon the shallow oxide resource found there.

A preliminary economic assessment completed for Golden Summit in 2016 outlines early plans for a mine that would average 96,000 ounces of gold annually over a 24-year mine life.

The PEA proposes developing this mine in stages, starting with a stand-alone 10,000 metric-

see **WINTER DRILLING** *page 9*

NORTHERN NEIGHBORS

Compiled by Shane Lasley

Alexco adds 12.1M oz silver to Bermingham

Alexco Resource Corp. Jan. 3 reported a major expansion of the Bermingham deposit at its Keno Hill Silver District in the Yukon. Bermingham now hosts 868,000 metric tons of indicated resource averaging 628 grams per metric tons silver. The 17.3 million ounces of contained silver is more than a 300 percent expansion from 5.2 million oz in the previous estimate. Additionally, Bermingham's inferred resource has swelled from 700,000 to 5.5 million oz. of contained silver. As a result of the Bermingham expansion, the district-wide indicated mineral resources at Alexco's Keno Hill project increased roughly 22 percent, from 55.4 million to 67.5 million oz. of contained silver. The Bermingham deposit comprises the Etta zone and Arctic, a fault separated zone to the east. Exploration over the past two years has focused on extending Arctic to the northeast. "The majority of the tonnage in the Bermingham deposit resides in the Arctic zone. The northeastern extension of the Arctic zone is defined by higher grade mineralization primarily in the closely juxtaposed Bear and West Dipper veins," explained Alexco President and CEO Clynt Nauman. The Bear and West Dipper veins host 169,000 metric tons of indicated resource averaging 1,296 g/t silver. These higher grade veins account for 7 million ounces of the overall Bermingham indicated resource. "Looked at it in total, the Bermingham deposit is emerging as a fairly large discovery, now characterized by more than 850,000 tonnes (metric tons) of indicated mineralization with an average silver grade approximately 25 percent higher than our Flame & Moth deposit," Nauman added. Alexco plans to publish an updated preliminary economic assessment that includes the expanded Bermingham resource, as well as updated mine plans for the Flame & Moth, Bellekeno and Lucky Queen deposits and a preliminary mine plan for the Bermingham deposit. The company is also planning at least 5,000 meters of surface drilling program at Bermingham in 2017, primarily to expand high grade mineralization down-plunge into an area where the Bermingham vein system is observed to closely imitate the large-scale looping vein geometries observed at the 96-million-ounce Hector-Calumet Mine, the largest past-producing silver mine in the Keno District. Subject to permitting requirements, Alexco is also considering an underground drill program to infill and upgrade higher grade areas in the shallower portion of the Bermingham resource.

Golden Predator adds properties near 3 Aces

Golden Predator Mining Corp. Jan. 3 said it has entered into an agreement to acquire Bearing Resources Ltd.'s interest in mineral claims in the Upper Hyland River area of Southeastern Yukon. The claims included in the agreement are HY-Jay, a property immediately northwest of Golden Predator's 3 Aces gold project; VF, immediately southeast of 3 Aces; and VM, which consist of two claim blocks situated further northwest. To acquire the claims, Golden Predator has agreed to pay Bearing C$275,000 over four years. In addition, Golden Predator will issue 35,000 common shares to Bearing upon the TSX Venture Exchange approving the transaction, and a further 50,000 shares eight months later. Golden Predator has also agreed to issue up to C$600,000 worth of common shares 20 months, 32 months, and 48 months from the execution date. Bearing will retain a 2 percent net smelter return royalty on certain of the claims and a 1 percent NSR on the balance of the claims. Golden Predator may buy half of the NSR for C$1 million.

Back River decision postponed to 2017

Sabina Gold & Silver Corp. Dec. 29 said a federal decision on its Back River gold project in Nunavut has been postponed to sometime in 2017. Late in

see **NORTHERN NEIGHBORS** *page 9*

Petroleum news

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● MINE SAFETY

MSHA data: Mining among safest U.S. jobs

You are more likely to die financing a mine than working at one, according to Department of Labor workplace fatality statistics

By SHANE LASLEY
Mining News

According to preliminary data released by the U.S. Department of Labor's Mine Safety and Health Administration, 25 miners died in work-related accidents in the United States during 2016. This is the lowest fatality rate for American miners ever recorded, besting the record of 29 set in 2015.


JOSEPH MAIN

With around 330,000 American miners working in the U.S. last year, this comes to roughly 0.8 deaths per 100,000 workers, which is much lower than the 3.4 deaths per 100,000 workers across all occupations during 2014 and 2015, per the latest figures from the U.S. Bureau of Labor Statistics. In fact, the mining fatality rate compares with the two safest occupational sectors reported by BLS – educational and health services (0.7 deaths per 100,000) and financial activities (0.9 deaths per 100,000).

"While these deaths show that more needs to be done to protect our nation's miners, we have reached a new era in mine safety in the past few years," said Joseph Main, assistant secretary of labor for mine safety and health. "Each year since 2009, injury rates have dropped, and the number of mining deaths and fatality rates were less than in all prior years in history except in 2010, when the Upper Big Branch mine disaster occurred."

In 2010, a methane explosion killed 29 underground workers at the Upper Big Branch mine in West Virginia.

Nine of this year's 25 fatalities occurred in coal mines – four in West Virginia, two in Kentucky, and one each in Alabama, Illinois and Pennsylvania – the lowest such tally for coal miners on record. The balance occurred in surface metal and nonmetal mines.

Machinery and power haulage accidents led to 13, or slightly more than half, of the 2016 miners' deaths.

There were no fatalities at underground metal mines in the U.S. during 2016, a testament to the strong safety culture that has been developed in the mining sector.

Main attributes the improved mining safety environment to a combination of strategic enforcement tools being employed by MSHA and improved compliance by the mining industry.

"We have created a new roadmap to protect our nation's miners," he said.

In addition to prevention, MSHA is improving and developing equipment to rescue miners when accidents do occur.

The mine safety agency demonstrated some of this new rescue equipment during a Jan. 5 presentation at the Pittsburg Research Laboratory, a federal research facility in Pennsylvania that includes an underground research mine.

MSHA demonstrated the following:

A newly developed seismic location system, which will enable rescuers to better locate trapped miners by detecting seismic signals produced by miners pounding on the roof of the mine, and digital filtering of these signals the helps pinpoint where miners are trapped.

A sophisticated communications and tracking system, which allows mine rescue teams underground to communicate directly with those on the surface as they coordinate rescue and recovery efforts – an improvement on the common relay system, where messages were repeated and sometimes incorrectly conveyed.

Mine rescue robots, which can be deployed to enter mine environments deemed unsafe for rescue teams, including "a snake robot" that can explore extremely restricted areas.

With the goal of never needing to use this rescue equipment, MSHA encourages mine operators to put effective safety and health programs in place that address the specific conditions and hazards of the mine; conduct thorough examinations of the workplace to assure that the conditions and hazards leading to deaths and injuries are identified and fixed before they pose a danger; and train their miners on hazards and conditions that could cause injury, illness or death. ●

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WINTER DRILLING

ton-per-day valley heap leach operation that would process the shallow oxide portion of the resource, and then transitioning to a larger milling scenario that involves a 10,000 tpd bio-oxidation plant for the sulfide material.

The area being considered for mining in the PEA hosts 61.5 million metric tons of indicated resource averaging 0.69 grams per metric ton (1.36 million ounces) gold; and 71.5 million metric tons of inferred resource of averaging 0.69 g/t (1.58million ounces) gold.

Additionally, a resource was calculated for the oxide portion of this deposit, which is found largely within the upper 60 meters of the overall resource. At a 0.3 g/t gold cut-off, this oxide cap hosts 16.2 million metric tons of indicated resource averaging 0.66 g/t (345,000 oz) gold; and an inferred resource of 9.6 million metric tons averaging 0.59 g/t (183,000 oz) gold.

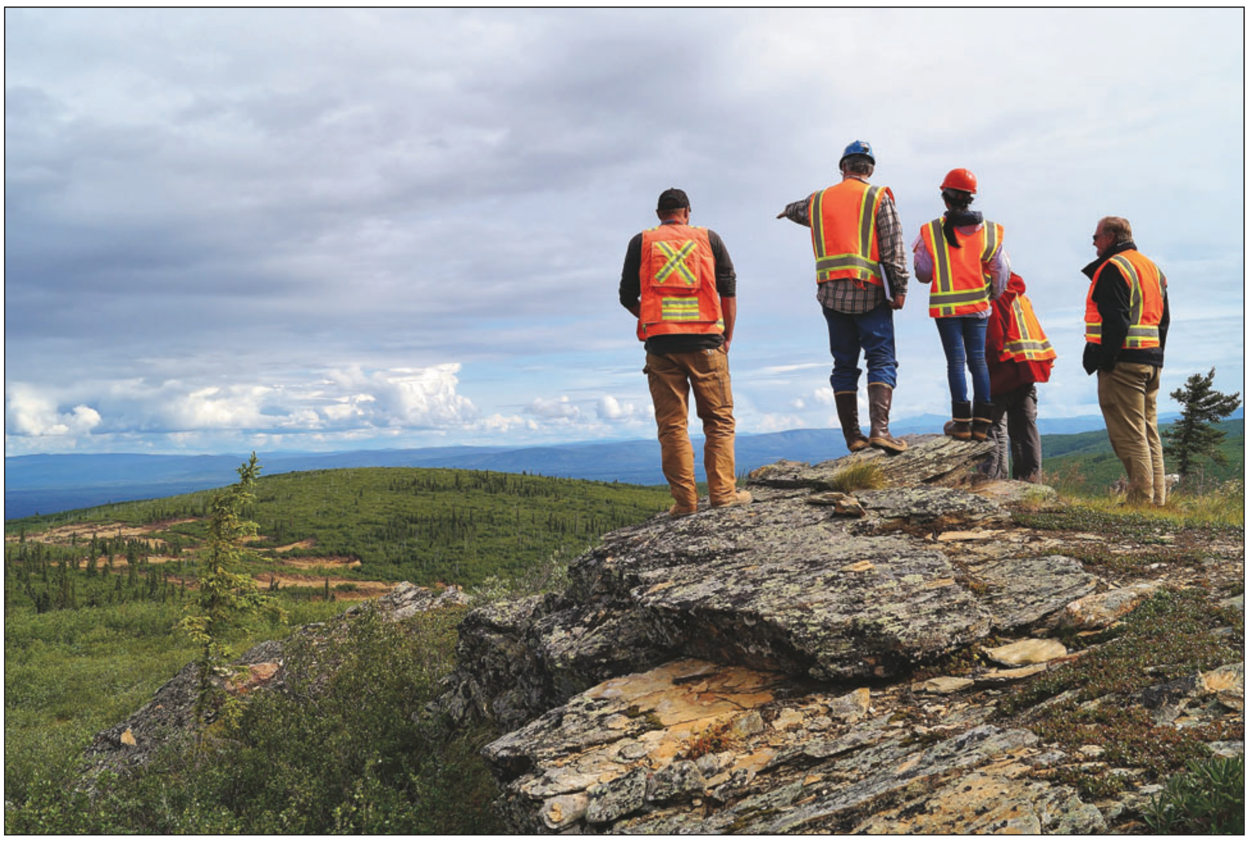
Freegold has identified areas in and around the deposit where it believes it can expand the oxide resource.

The company said recent sampling has identified a gold-in-soil anomaly west of the deposit and previous shallow rotary air blast drilling results indicates that better grade oxide material may be present to the north.

Initial drilling will be focused to the north of the current mineral resource in an effort to incorporate material now classified as waste material in the PEA to resource. Exploration drilling will also focus on areas where geophysical data suggests the presence of shallow intrusive rocks to the southwest of the deposit.

Winter connection

About 180 miles southeast of Golden Summit, Peak Gold, a joint venture between Contango Ore and Royal Gold Inc., is finding similar winter drilling success at its Tetlin gold project near the town of Tok.



AVALON DEVELOPMENT CORP.

From a vantage point overlooking Main Peak and North Peak, Avalon Development President Curt Freeman provides Royal Gold representatives with an update on the expansion of these gold-rich zones at the Tetlin project near the town of Tok. While this region of Alaska enjoys an average high of 74 degrees Fahrenheit in the summer, it also boasts a record January low of minus 71 degrees Fahrenheit.

While Tetlin may be slightly closer to the equator than Golden Summit, it is situated in one of the coldest areas of Alaska, or North America for that matter, where minus 70 degrees Fahrenheit temperatures have been recorded on several occasions. Tetlin, however, enjoys many of the advantages of its counterpart – road access, cell phone service and a nearby town that provides basic services.

Royal Gold, operator of the JV, can earn up to a 40 percent interest in Tetlin by investing US$30 million in Contango Ore's 735,000-acre underexplored project by October 2018.

In 2015, when the JV was formed, the Peak deposit hosted the equivalent of 1.2-million ounces of gold, when accounting for the value of the copper and silver present in this most advanced zone at Tetlin.

In its first year as a Peak Gold partner, Royal Gold invested US$6.8 million in a 2015 exploration program

see **WINTER DRILLING** *page 10*

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NORTHERN NEIGHBORS

2015, Sabina submitted an environmental impact statement for a 3,000-metric-ton-per-day mine focused on Goose, one of the properties that comprise the larger Back River project, to the Nunavut Impact Review Board. In June, NIRB recommended that the Minister of Indigenous and Northern Affairs Canada not advance Back River to the next phase of permitting at this time. INAC has the option to accept or reject the NIRB report and recommendation; or send the Back River project back to the board for further recommendation. INAC had originally indicated that its decision would likely be made before the end of 2016, however, this decision now seems likely sometime early in 2017. In the meantime, Sabina continues to work with the Kitikmeot Inuit Association, an Inuit development corporation that owns the land where Back River is located, and various responsible agencies to define additional measures to address uncertainties stated in the NIRB report. This work includes a two-day workshop on wildlife management and mitigation held in Yellowknife and multiple visits to communities in the Kitikmeot regions of Nunavut where Back River is located. Sabina said it continues to receive broad based Inuit support for the project. Letters written to the INAC minister on behalf of Sabina and the Project have been received from KIA, hamlet councils, hunters and trappers' organizations, community representatives, as well as the government of Nunavut have sent letters to the INAC minister in support of the Back River project. "We had hoped to receive a decision from INAC before the end of the year," said Sabina President and CEO Bruce McLeod. "We have been working diligently with all appropriate parties in the interim towards this end. However, despite these efforts it is likely that we will not receive word from the minister's office until early in 2017."

Imperial raises $65M

Imperial Metals Corp., owner of the Red Chris and Mount Polley copper-gold mines in British Columbia, Dec. 30 closed a C$65 million private placement financing. The financing involved the issuance of 11,818,182 shares at C$5.50 each. N. Murray Edwards and The Fairholme Partnership, already a significant shareholder of Imperial Metals, purchased C$30 million and C$13.1 million of the financing, respectively. Imperial Metals intends to use the proceeds of the Financing to improve its working capital and for general corporate purposes.

Colorado raises $950k

Colorado Resources Ltd. Dec. 29 reported the closing of a C$950,000 financing that involved the issuance of 3.8 million flow-through units at C25 cents each. Each unit consists of one flow-through common share and a warrant that entitles the holder to purchase one non-flow-through Colorado share for C40 cents until Dec. 29, 2017. Under Canada's Income Tax Act, a flow-through financing allows mineral exploration companies to transfer their exploration expenses to individual investors that purchase the shares. Most exploration companies do not generate revenues, so they do not need the tax write off, however, the flow-through investor can apply his portion of the exploration expense to reduce or eliminate his tax liability. The exploration company, however, must spend the flow-through dollars raised on a qualifying mineral project in Canada within two years of closing the financing. Colorado is currently focused on exploration at KSP, a gold-copper project about 15 kilometers (nine miles) southwest of the historic Snip gold mine in northwestern B.C.; the company is optioning from Seabridge Gold Inc.; KingPin, a large copper-gold property immediately southeast of KSP; and North Rok, a copper-gold project in north-central B.C. ●

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WINTER DRILLING

that expanded the breadth and depth of the Peak deposit and Peak North, a seemingly parallel zone of mineralization with similar grades and thicknesses about 250 meters to the north.

Excited about the discoveries made in 2015, Royal Gold upped the ante, depositing US$11 million in the Peak Gold bank account to fund a 2016 exploration program that started in February.

This first ever winter drilling at Tetlin expanded Peak; revealed that North Peak, a second zone about 250 meters away, could have the size and tenor to rival the main deposit; and tapped the Connector zone, indicating that these seemingly separate Peak deposits may link up.

Despite these successes, the drill program did not reach the number of holes or meters envisioned by the JV. Ironically, this smaller than anticipated winter program had less to do with harsh winter conditions than an early spring breakup, which cut the program short.

After the snow melted and the ground dried, Peak Gold returned to Tetlin for two additional phases of drilling in 2016.

Overall, the three phases of exploration at Tetlin included 20,523 meters of drilling in 118 holes.

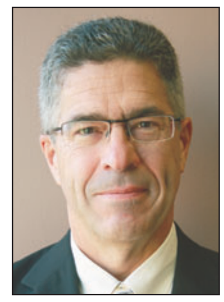
All of the drilling completed since Royal Gold joined the project in 2015 will be included in a Peak-Connector-North Peak resource currently being calculated.

"We remain encouraged by the joint venture's drilling results and technical expertise provided by Royal Gold," said Juneau. "We look forward to releasing a resource estimate of the joint venture's Alaskan gold deposit in the spring of calendar year 2017."

In the meantime, the Peak Gold partners are considering plans for a 2017 winter drill program at Tetlin. While details of this program are not yet finalized, North of 60 Mining News believes that areas immediately north and east of North zone and much of the Connector zone that are undrilled due to permafrost cover would be likely targets for winter drilling. Successful drilling in this area could fill the gap between Peak and North Peak, delineating a roughly 2,000-meter arc of contiguous high-grade gold mineralization.

New winter game


DENNIS MCDOWELL


PATRICK SMITH

Great American Minerals Exploration is currently planning for a winter exploration program at its 55,465-acre SAM project about midway between Sumitomo Metal Mining's Pogo Mine and Fairbanks.

GAME, as the company is commonly known, spent 2016 reassembling Uncle Sam, a gold property previously explored by Kennecott Exploration and others, and cutting a deal with Sumitomo Metal Mining for Monte Cristo, a large gold property bordering the south of Uncle Sam.

Known now as Sam, this newly consolidated land package allows Game to explore the previously separated district-scale potential.

"To finally be able to start working the geology and eliminate the property lines seems to be in everybody's best interest," said Game Chairman and CEO Dennis McDowell.

On the Monte Cristo side of the now erased border, SMM Exploration Corp. – a subsidiary of Sumitomo Metal Mining– has already outlined significant gold mineralization in a zone known as Naosi.

A total of 79 holes drilled by SMM Exploration has been incorporated into an independent resource being prepared for Game by a third party contractor.

At a cut-off grade of 0.51 g/t gold, Naosi hosts an estimated 48.4 million metric tons of inferred resource grading 1.85 g/t (2.88 million ounces) gold and 33 g/t (51.4 million oz.) silver, or 3.42 million gold-equivalent ounces.

Intriguingly, this deposit remains open for expansion and trends towards Lone Wolf, a zone of similar gold mineralization that has been tapped with drilling on the north side of the former Monte Cristo-Uncle Sam border.

On-Line Exploration, an Alaska-based geological consulting firm, and Game have compiled the data from some US$20 million of past exploration completed on both sides of the former border in preparation for a 2017 program.

Excited to explore Sam's larger potential, Game is putting the pieces in place to carry out a winter drill program.

"Game is working closely with On-Line Exploration and GroundTruth Exploration to complete the logistics and permitting for a winter exploration program," Game President Patrick Smith told Mining News.

GroundTruth – an innovative exploration company started by famed Yukon prospector Shawn Ryan and wife, Cathy Wood – has developed a number of exploration tools particularly well suited for far north winters.

A late winter sampling program slated to begin in March will utilize GroundTruth's exclusive GT Probe, an efficient and minimally invasive way to sample the soil-bedrock interface, and GT RAB, a rotary air blast drill to provide early stage tactical drilling. Both rigs are rubber track mounted, making them well suited for snow and tundra travel.

"GroundTruth has also developed a lightweight (40lb), high powered auger drilling system mounted on a backpack for soil sampling in winter and permafrost conditions," Smith explained. "Extensive winter sampling programs have been successfully conducted with this unit."

When asked about the advantages to a winter program, Smith quipped, "No bugs!"

He added that Kennecott has already had winter drilling success at Sam and the property has a number of winter trails that can be easily traversed by the GT Probe and GT RAB drills while the ground is frozen. This, coupled with ability to commute to the drill sites via snowmachine, will reduce costs associated with helicopter transport.

The ability to explore on frozen ground is expected to jumpstart Game's 2017 exploration at Sam.

"The information gained during this winter sampling program will be extremely useful for designing an effective summer season core drilling program," Smith explained. "The core drilling program will aggressively expand upon known oxide gold mineralization, test higher grade Naosi gold zones at depth, and will test the very strong priority gold-in-soil anomalies patiently waiting for their day in the sun." ●

● EXPLORATION & PRODUCTION

Outsiders on the run

Foreign-based companies exit Alberta oil sands, underlining high costs of development; Norway's Statoil takes biggest step so far

By GARY PARK
For Petroleum News

There has been a two-stage exodus from Fort McMurray over the last eight months that has the northern Alberta city buckling at the knees.

In May a wildfire swept through the so-called capital of the oil sands industry, destroying 2,400 residences and buildings and forcing 90,000 residents to flee for safety.

Most of those who lost their homes are still negotiating with insurance companies, uncertain whether they even want to rebuild, but trapped by insurers who refuse to make cash payouts.

Thousands of them are also victims of layoffs, with little prospect of getting rehired in the oil sands, compounded by a wave of departures by global players.

Statoil most troubling

Statoil is the most troubling example of all to this point now that the company owned 67 percent by the Norwegian government has concluded a hasty six months of negotiations by selling the bulk of its oil sands assets for C$832 million to Athabasca Oil, posting a possible writedown of US$550 million on the deal, while keeping a 20 percent stake in Athabasca.

The sale works out to a bargain C$24,000 per flowing barrel of oil equivalent, nine years after spending C$2.2 billion to acquire North American Oil Sands in what at the time seemed like a steal, especially when Statoil unloaded 40 percent of the purchase to Thailand's national oil company, PTT Exploration and Production, for C$2.3 billion in 2010.

Four years later, Statoil and PTT parted ways through an asset swap that saw Statoil pay US$200 million.

Even so, the Norwegian company, despite a smear campaign in its home country led by Greenpeace, stuck to its plans for a C$10 billion oil sands project.

A Statoil official said on Dec. 15 that his company wanted to "optimize" its portfolio to focus on core assets in Norway, the United States, Brazil and offshore Newfoundland.

see **SANDS EXIT** *page 15*

● UTILITIES

Making best use of Railbelt generation

Chugach Electric official explains how the utilities dispatch power across the transmission grid to manage costs and reliability

By ALAN BAILEY
Petroleum News

The question of how best to manage the dispatch of electrical power from power generation plants across Alaska's Railbelt has long been a subject of debate, given the need to supply power to Railbelt consumers at reasonable cost and with an acceptable level of reliability. The Railbelt power system is unusual in that, while supporting a relatively small number of electricity consumers over a large geographic area, it is completely isolated from the interconnected power grid elsewhere in North America.

On Dec. 13, during Law Seminars International's Alaska Energy Markets and Regulation conference, Mark Fouts, executive manager, fuel and corporate planning, for Chugach Electric Association, explained how the Railbelt utilities currently manage the use of the various Railbelt generation facilities, and what opportunities there may be for making the power supply system more cost-effective.

Base-load power

Fouts distinguished between what he referred to as base-load facilities and reserve or peaking units. The base-load facilities provide the core, relatively stable power that is needed continuously, while the peaking units kick in to meet spikes in power demand. Reserve power is needed to ensure power supply continuity, should a generator go out of service for some reason. With the power from peaking units being expensive relative to that of the base-load systems, the general tactic is to minimize the use of peaking generation, Fouts explained.

Across the Railbelt there are seven base-load generators, Fouts said. Those include coal, diesel and naphtha fueled systems in Fairbanks, North Pole and Healy; a gas-fueled plant at Eklutna, north of Anchorage; the gas-fired Southcentral Power Project in Anchorage; and a gas-fired plant at Nikiski on the Kenai Peninsula. Municipal Light & Power is also bringing on line its new gas-fired Plant 2A in Anchorage. Together the base-load plants provide about 80 percent of the Railbelt power, with three hydroelectric plants near Eklutna Lake and at Cooper Lake and Bradley Lake on the Kenai Peninsula contributing about 15 percent of the power, Fouts said. There are also three wind farms connected to the grid.

Balancing areas

There are six independent Railbelt electric utilities, each of which owns and operates some portion of the Railbelt power generation, transmission and distribution system. Consequently, the grid is divided into several areas, within each of which the electrical power supply is balanced across the continuously varying electricity load. Each day utility dispatchers plan how to handle the anticipated load on the following day, assessing what generation facilities are available and calling each other to figure out how best to use the most efficient generation resources, Fouts explained.

At the same time, as the actual load varies during the course of the day, generators ramp up and down automatically to follow the load. As this happens, each utility can typically meet 80 to 90 percent of its load using its own base-load generation capacity, while purchasing the remaining capacity from other utilities. Because all of the utilities are regulated by the Regulatory Commission of Alaska, the utilities know each others' generation costs and can, therefore, determine how to reduce the cost of power through these inter-utility energy sales. Essentially, when one utility sells power to another, the two utilities split any resulting cost savings, so that both utilities can benefit financially from the use of an efficient power generation facility. Utilities also buy and sell spinning reserves, the reserve power needed to accommodate power generation outages, Fouts commented.

Joint dispatch

But greater efficiencies could be achieved if utilities are able to merge their load-balancing areas, thus implementing a single power regulation system across the service areas of multiple utilities. Modeling of the Railbelt grid has indicated that savings of $10 million to $30 million per year in fuel costs could be achieved through a joint dispatch system across the grid, Fouts said. Those saving would presumably translate to reduced electricity bills for consumers. This type of joint dispatch arrangement could also result in improved certainty over fuel purchase commitments in take-or-pay fuel supply contracts, Fouts said.

Anchorage utilities Chugach Electric Association and Municipal Light & Power are in the process of merging their dispatch systems into a single balancing area, to make optimum use of their most efficient power generation facilities. Matanuska Electric Association has decided to join this arrangement, with the ultimate result of implementing a tightly coordinated power pool across Anchorage and the Matanuska-Susitna valleys. Other Railbelt utilities that are not part of this "tight pool" will be able to continue to sell and buy power to and from the pool. Extension of the joint dispatch arrangement across the entire Railbelt would require the coordination of generation and dispatch across the complete grid. ●

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EXPLORATION & PRODUCTION

Armstrong gets Horseshoe permits

Armstrong Energy LLC has received two key regulatory approvals for its one-well North Slope winter exploration program at the Horseshoe prospect, in the area south of Nuiqsut.

The local subsidiary of the Denver-based independent received a drilling permit for the Horseshoe No. 1 well and approval of its lease plan of operations for the program.

The Alaska Oil and Gas Conservation Commission issued a drilling permit for the Horseshoe No. 1 exploration well on Dec. 21, according to a recent weekly permitting report. The state Division of Oil and Gas approved the plan of operations on Dec. 29.

The proposed well would be 1,500 feet east of the Colville River unit and approximately 12 miles southwest of the village of Nuiqsut. The plan of operations also includes an 18-mile ice road, a 4.5-acre ice drilling pad and an ice camp pad, in addition to the well.

Armstrong will drill the 9,000-foot nearly vertical well on ADL 392048, which is part of a package of leases the company holds west of the Meltwater satellite of the Kuparuk River unit. The company acquired the leases from Royale Energy Inc. in late 2015.

Armstrong initially planned to drill two exploration wells this winter, but cancelled plans for the Pikka No. 1 well and as many as three sidetracks to ease concerns from the nearby village of Nuiqsut. Instead, the company plans to share information from ConocoPhillips Alaska Inc., which is planning to drill the Putu No. 1 well on nearby acreage to Pikka.

—ERIC LIDJI

ENVIRONMENT & SAFETY

Feds continue NPR-A legacy well cleanup

Federal officials are planning another trip to a reserve on Alaska's North Slope to plug several old oil wells as winter weather settles in the area.

The Bureau of Land Management oversees the National Petroleum Reserve-Alaska, where it's responsible for cleaning up 50 wells drilled by the Navy and the U.S. Geological Survey decades ago that could possibly leak. Stacie McIntosh, the BLM's Arctic Office manager, said the work can only get done during the winter to protect the tundra's permafrost.

"You have a short window of opportunity to do it and it's very expensive," McIntosh told Alaska's Energy Desk (http://bit.ly/2hLQ0Is). "For most of (the wells), they're in a stable condition. A lot of them, though, just have plugs that rely on ice and other things down in the well bore. And as we know, there's the potential to be deep thaw, etc., associated with climate change."

Sixteen wells have been cleaned up so far, and the agency is looking to complete up to five more "in the near future," said Nicole Hayes, BLM's Legacy Wells project coordinator.

State officials are hoping this winter's cleanup goes smoother than last winter.

The Alaska Oil and Gas Conservation Commission sent BLM multiple violation notices for last winter's cleanup, saying the agency didn't follow proper procedures.

BLM officials said the incidents did not cause environmental damage.

Commission Chair Cathy Foerster said the state is confident the BLM will have more success plugging the wells this season.

"The AOGCC is optimistic that this season's legacy well cleanup will go better than last year's," Foerster said. "We're committed to working as cooperatively with the BLM as they will allow us to. We're hopeful that they'll be more successful this season in cleaning up the messes out there."

—ASSOCIATED PRESS

● EXPLORATION & PRODUCTION

AOGCC report: December 2016

•ON NOV. 29, the Alaska Oil and Gas Conservation Commission approved (Area Injection Order No. 6.013) a request from Hilcorp Alaska LLC to amend Area Injection Order No. 6.013 to continuing allowing water only injections at the Granite Point State 18742 13RD well through the end of 2018, extended from the end of 2016.

•ON DEC. 8, the AOGCC approved (Area Injection Order No. 2C.041) a request from ConocoPhillips Alaska Inc. to continue water only injection at the Kuparuk River unit 2K-20 well. In October, the company reported a potential Tubing (T) x Inner Annulus (IA) pressure communication while injecting natural gas. The company switched the well to water-only injection for 30 days, during which time the communication wasn't observed. A mechanical integrity test convinced the AOGCC of the safety of the well.

•THE AOGCC HAS SCHEDULED a hearing (Docket No. OTH 16-36) on Jan. 17 to determine if Aurora Gas LLC "has complied with all the provisions of the laws of the State of Alaska and the regulations, rules and orders of the AOGCC in the drilling, operations, maintenance, repair and abandonment of each well and the clearance of the location, or has not filed with the AOGCC all notices and records required by the AOGCC." The commission made the decision to hold the hearing "on its own motion" after receiving notice that Aurora would no longer be bonded after Jan. 31.

•ON DEC. 19, the AOGCC approved (Area Injection Order No. 2C.042) a request from ConocoPhillips to continue water only injection at the Kuparuk River Unit No. 1L-22 well. ConocoPhillips reported a potential Inner Annulus pressure communication on Aug. 9, 2016. Subsequent tests convinced the AOGCC of the integrity of the well.

•ON DEC. 19, the AOGCC rescheduled a hearing to review proposed amendments to its regulations. The meeting will now occur in March 2017, rather than on Jan. 10.

•ON DEC. 22, the AOGCC approved (Other Order No. 112A) a request from ConocoPhillips Alaska Inc. to set the meter allocation factor at 1.0 for the GMT-1 project. After a hearing about the matter on Nov. 17, the commission held the record open to allow ConocoPhillips to respond to questions asked during the hearing and to allow potentially affected landowners to provide comments. The commission received comments from the U.S. Bureau of Land Management, Arctic Slope Regional Corp., ConocoPhillips, the state Department of Natural Resources and the state Department of Revenue. The BLM and ASRC favored "establishing the meter factor for the GMT1 metering system at 1.0," while DNR and DOR "did not object to establishing the meter factor for the GMT1 metering system at 1.0," according to the AOGCC.

•ON DEC. 27, the AOGCC denied (Conservation Order No. 341F.003) a request from BP Exploration (Alaska) Inc. for a waiver of the rule requiring "an open- or cased-hole neutron log to be run, in certain portions of the pool, on newly drilled wells prior to sustained production for the purpose of gas oil contact" at the Prudhoe Oil Pool.

In reviewing the PBU 15-16C sidetrack, the AOGCC determined that the well design would accommodate a neutron log. Additionally, since it has been six years since direct measurements of the gas oil contact had been made in the relevant portion of the pool, the commission felt it was inappropriate to grant BP a waiver on the logging rule.

•ON DEC. 30, the AOGCC approved (Area Injection Order No. 2B.015 Cancellation) a request from ConocoPhillips to cancel Area Injection Order No. 2B.015.

The commission approved the Area Injection Order in September 2006, a few months after the Kuparuk River Unit 1Y-05 well "developed a production casing leak above the packer." The commission amended the order in October 2008. The order allowed ConocoPhillips to continue water injections at the well, under certain conditions.

ConocoPhillips conducted workover operations at the well in November 2016 and repaired the casing leak, making the Area Injection Order no longer applicable.

•IN LATE DECEMBER, the AOGCC released public files for two exploration wells completed in late 2014: the Kitchen Lights Unit No. 5 well and the Olson Creek No. 2 well.

Furie Operating Alaska LLC drilled the 11,800-foot KLU No. 5 well in the central block of its offshore Kitchen Lights unit in September 2014. The com-

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DUNLEAVY Q&A

Some consider them a voice for the state; others see them as a waste of time and paper.

Dunleavy: I think they should make a statement. Resolutions are a good thing because it tells folks what the sense of the Legislatures would be. I don't' know how much of a difference that would make. President Obama made a decision over the majority of Alaskans' wishes. I'm convinced of that. I don't have to do a poll; I'm just convinced of that. Labor, producers, etc, he did it over their objections.

So I don't know what a resolution will do other than tell Congress how we feel. It's going to be Republicans in other states — that's the problem to be honest with you. They are in the majority now and if they buy into the idea that yes we are Republicans, we believe in a free market and yes we believe in creating wealth, but Alaska is a special case and we want to wall that thing off and make it a park, then we are in trouble.

Petroleum News: Let's get closer to home. Next session, we know there is a motor fuels tax bill on its way but most expect another oil tax and oil tax credits bill coming back. What are your thoughts on reprising discussions on oil taxes and oil tax credits?

Dunleavy: The tax credits are a different issue from SB 21. Some of those tax credits predated SB 21. Many of those tax credits we are talking about actually benefit the little guy, the independents coming up who may be a little more nimble like Armstrong and Caelus. Then we had tax credits in Cook Inlet, which were primarily gas credits.

There's an argument to be made that those tax credits worked in terms of getting people up here, exploring and in some cases finding oil and gas that can be developed. Then there are those who say it picks winners and losers. So I think the tax credit concept will come back up and we'll have a robust discussion. I'm not sure where we'll go.

We did some changes last year with tax credits (HB 247) especially in Cook Inlet. Middle earth, as they call it, really you're just talking about what's happening in Copper River and Ahtna with gas and in Nenana and Doyon with gas and possibly some oil. Middle earth will be a non-concept in a few years.

So really you're back up on the Slope. Caelus and Armstrong are going to confirm their finds here pretty quick. If in fact they did what they say they are going to do, and they are able to produce recoverable oil of 200,000 barrels or 185,000, that's significant going into the pipeline. We are going to have to seriously think about how we are going to entice those folks up, and keep folks coming up here to explore.

I think tax credits could come up for a deeper conversation: With SB 21, bringing that back is a whole other ballgame. You have a split Legislature. There are a lot of things that aren't going to happen, and I don't see SB 21 being revisited to a great degree to be honest with you.

Petroleum News: Some changes to any credits can be perceived as a tax increase, particularly removing the net operating loss credit being carried forward. Philosophically, how do you see it?

Dunleavy: Well, is that a tax credit or part of SB 21? That's another discussion. Some say the NOLs are SB 21 and that would be tax policy. If you are dealing with just the tax credits, especially the tax credits before SB 21, that's a whole other conversation. I try to differentiate between the two concepts. I think the concept of NOLs in SB 21, I'm sure there will be attempts to bring it up, but I'm not sure how far it will go.

Petroleum News: Let's switch to the gas line project. What are your observations about where the gas line stands now?

Dunleavy: The governor is still very optimistic. The majors aren't. The world is awash in gas. I'll be a believer in terms of going onto further steps once we see contracts in hand. I haven't seen those yet. The economics lead me to believe that's very difficult. If there are no contracts, there is no project.

I haven't seen any contracts because the Asian markets are in the driver's seat right now. They can play us off of Australia. They don't have to do long-term contracts as they once did. They can go shorter durations of five or 10 years. If they want to go shorter duration, that's a problem for us. This gas line, this entire project, is again a $45 billion to $60 billion project. We more than anybody have to have certainty going on 20 to 30 years so we can amortize the costs and get a return on this.

I think Sen. Bishop stated it best during the special session a few years ago when he said I hope we aren't going to build a $60 billion gas line so we can make $40 billion. That still rings true today. If the governor comes and lays contracts down in front of us that are such duration and the guts of the contract indicate that we can make a profit, I'm more than happy to take a look at it. I just think right now there is a lot stacked against having a liquefied natural gas line project.

People will say that within five to 10 years, the Arctic will be ice free. That may be a different ball game and we may want to look at a different way of delivering that gas. The bottom line is if we can make any money for Alaska, and we don't have a fairly certain guarantee of that, I'm not willing to take that risk.

Petroleum News: Being on the Finance Committee, you get one of the first votes toward appropriations, what would you need to hear from AGDC if it were to come to you and say they need more money in working toward those contracts?

Dunleavy: They would have to convince me that it's viable. They would have to convince me that coming up with tens of millions of dollars more — maybe hundreds of millions — that's going to end in a project, or at least a contract. You know in the special session I voted no (to buy out TransCanada). I voted yes for the bill (SB 138) because in that bill we have to get to a pre-FEED stage to determine whether the FEED stage is feasible. Well, we got here in October and the majors said from their perspective, and I'm paraphrasing, "it's not worth it for us to move ahead on this project as it is." Well, if they are not going to move ahead on this project that certainly should give us all something to think about.

But they are willing to sell us gas. Of course they are willing to sell us gas. There's no risk involved for them. They are not willing to take the risk but they want us to take the risk. I need to see something that is viable.

I'll give you an example. If the Caelus find is verified, and if the Armstrong is verified, the amounts of oil they put in the pipeline, there is zero risk to the state. We don't have to front any money for those projects. I don't want us to lose sight — and I think that is what's happening to some extent — that the true moneymaker is still oil. There is no risk to the state to produce it. So I have to be convinced it's absolutely viable. If not, it's going to be very difficult for me to keep putting money into it.

Petroleum News: Do you see the administration trying to advance an uneconomic project?

Dunleavy: I hope not. I'm not saying that. I'm saying the governor's office is working very hard in trying to secure contracts for this project, and that the governor believes Alaska's future is gas. I've got to tell you, I don't disagree with that. It's just the timeline. I'm not sure with the world's situation of fracking in America and Australia is doing a good job too — Canada as well. I'm just not sure if we have a horizon that starts giving us a return in 10 or 15 years. I just don't know that. Now 30, 40, 50 years out, does Alaska's gas have value, yeah, I believe it does. So I think the idea of monetizing Alaska's gas is a sound concept, but I find it hard to believe the Asian markets are going to contract with Alaska for 20- or 30-year contracts. Again, I still have an open mind; I want to see the contracts. I still believe sometime in the future, we'll be able to make a profit from the gas. I just don't know when. ●

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AOGCC REPORT

pany described the well as a dry hole in a plan of development for the unit submitted in November 2014.

The well permit is 214-072.

Cook Inlet Energy LLC drilled the 11,589-foot deviated Olson Creek No. 2 well on a pair of Alaska Mental Health Trust leases on the west side of Cook Inlet, north of the village of Tyonek.

According to a well completion report included in the file, the presence of natural gas was "insufficient to measure" during a flow test at the well in early October 2014.

The two Olson Creek exploration wells proved to be disappointing, prompting the company to take a $13.4 million write off. In December 2014, Carl Giesler, who was then president of Cook Inlet Energy's parent company Miller Energy Resources Ltd. said, "Simply put, our operational credibility is low at best and we get that." Miller subsequently filed for bankruptcy protection and re-emerged as Glacier Oil & Gas Corp.

The well permit is 214-113.

—ERIC LIDJI

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● ENVIRONMENT & SAFETY

BSEE funds tests of autonomous skimmer

Device automatically guides oil collection system through the thickest sections of an offshore oil slick to maximize oil recovery

By ALAN BAILEY
Petroleum News

The federal Bureau of Safety and Environmental Enforcement has been funding research in its Ohmsett test facility in New Jersey, to evaluate the effectiveness of an autonomous oil skimmer system, according to the latest edition of the Ohmsett Gazette. The device, which is placed in the apex of an oil collection boom, mounted to the bow of a spill response vessel, senses the thickness of an oil slick and then uses a high-precision navigation package to guide the vessel along an optimum route.

BSEE says that the system was first tried out in the test tank at Ohmsett in 2015 and worked as anticipated in a simulated oil slick. Following lessons learned from that exercise, the researchers improved the system algorithms to better match real-world vessel dynamics. Further tests in March 2016 involved a variety of wave conditions. The system worked well in calm water and long-period waves, but performance dropped in short-period waves, the researchers reported. Tests were also conducted of a sensor for measuring the oil-in-water percentage.

Other research reported in the Ohmsett Gazette included a test of the impact on oil skimming of the partial treatment of oil with oil dispersant chemicals.

At this stage, the concept for the autonomous skimmer has been shown to be feasible, BSEE reported. The next step in the program would involve scaling up the technology to operate with larger skimmer vessels, and to incorporate the sensing of oil thicknesses over a wider area of water, the agency said.

Other research projects

Other research reported in the Ohmsett Gazette included a test of the impact on oil skimming of the partial treatment of oil with oil dispersant chemicals. Data from the tests are still being evaluated, but one of the tests did indicate that the presence of dispersant in oil did impact skimmer performance.

In another project, BSEE and the National Oceanic and Atmospheric Administration tested the effectiveness of various remote sensing technologies in detecting, monitoring and measuring oil slicks in a marine environment. An initial study focused on the identification of oil emulsions using a variety of sensors mounted on aerial and satellite platforms. The researchers created a large oil slick in the Ohmsett test tank, and allowed the slick to weather for several days before using artificial waves to emulsify the oil.

Different sensors mounted on a bridge across the tank, on an unmanned aerial vehicle, on a fixed-wing aircraft and on a helicopter scanned the emulsified slick from multiple angles. Three satellites overflying the Ohmsett facility also collected high-resolution sensor data.

BSEE says the results of the sensor tests will provide input to some tests of the sensor technologies in the open water of the Gulf of Mexico, and will provide useful information about the effectiveness of remote sensing in real-world oil spill responses and oil spill damage assessments. ●

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SANDS EXIT

He said the global energy market has changed "quite considerably" since 2007, a feeling echoed by a host of other foreign-based investors in the oil sands, notably Total, ConocoPhillips, Chevron, Koch Industries , BP and Repsol, who have either scaled back their interests or are seeking buyers.

Multiple divestments

Evaluate Energy has estimated 42 divestments from Canadian oil by external players have totaled US$9.4 billion, raising an unmistakable question about the economics of developing the oil sands because of regulatory delays, environmental opposition and the Alberta government's plan to raise carbon taxes to C$50 per metric ton.

Paul Fulton, chair of Statoil's Canadian operations, said the primary reason for selling oil sands assets related to the limit on a company's ability to lower operating costs, compared with shale plays that also require large capital investments but carry a shorter risk period.

Those odds are compounded by the lack of pipeline access to new offshore markets, shrinking demand from U.S. buyers and a price differential between Western Canada Select and West Texas Intermediate that is at its widest in two years.

The departure of Statoil is also a blow to the Canadian Oil Sands Innovation Alliance, which has 13 member companies committed to sharing research and development technologies.

Total expected to sell

Next on the list of expected oil sands sellers is Total, which has a 30 percent stake in Suncor's Fort Hills oil sands mine, which could yield in the range of C$1 billion.

But not all oil sands players are backing away from the resource, with Cenovus Energy boosting its 2017 capital budget by 24 percent to C$1.2 billion-C$1.4 billion, partly to revive a 50,000 barrels per day expansion of its steam-driven Christina Lake operation, a joint venture with ConocoPhillips which was halted in 2014 as oil prices tumbled.

Chief Executive Officer Brian Ferguson said Cenovus has made "tremendous progress over the past two years in reducing operating costs and sustaining capital. We're confident we can move forward with projects that have strong potential to drive shareholder value."

The company said it has trimmed the capital costs for its latest phase at Christina Lake by more than C$500 million. ●

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SABRE PROSPECT

the Sabre prospect. The company described the project as a potential six-well development with the first extended reach well costing between $25 million and $30 million. By late 2014, the company was "evaluating joint venture offers for participation in the project," to defray the cost.

Although the program never came to fruition, the company incorporated the Sword and Sabre prospects into the boundaries of the West McArthur River unit in 2015.

Cook Inlet Energy continued to include both prospects as potential near-term projects in its unit plans of operation for West McArthur River. A plan from early 2014 envisioned a Sword No. 2 and Sabre No. 1 well by April 2016. A plan from early 2015 pushed the Sword well into 2017 and said the Sabre well was still being evaluated. As an extended-reach well, Sabre conflicted with a new strategy of "developing lower risk targets." The company expected to delay exploration until it had finished drilling proven prospects.

In a late January 2016 plan of development for West McArthur River, the company said it would drill a second Sword well by April 30, 2018, "if appropriate to increase recovery, and if economic conditions warrant." The company reiterates its plans to postpone work at the Sabre prospect until it finished developing proven prospects.

Glacier Oil & Gas

But in the months after filing that plan of development, former Cook Inlet Energy parent company Miller Energy Resources Ltd. emerged from bankruptcy as Glacier Oil & Gas.

Glacier has been reviewing its entire Alaska portfolio over the past year. The company relinquished some of the longer-term prospects in its portfolio. With that work completed, the company now appears to be interested in resuming exploration activities.

The first sign of renewed interest came in May 2016 when Cook Inlet Energy amended its oil discharge prevention and contingency plan to add use of the Spartan 151 jack-up rig to drill the Sabre exploration well in Trading Bay. The amendment also suggested a new strategy for Sabre, using a jack-up rig rather than extended reach wells. ●

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BULLISH MOOD

C$70 level deemed necessary for a thriving oil sands sector).

Canada's oil patch has also been celebrating the strong prospects of OPEC's first supply cut in eight years, combined with a 27 percent third-quarter increase in energy exports to the U.S. as the industry rebounded from the wildfire disruptions in the oil sands region eight months ago.

Projects for revenue growth

Peter Tertzakian, chief energy economist at ARC Financial, wrote in the Globe and Mail that upstream revenue from the petroleum industry as a whole, is likely to climb back above C$100 billion in 2017, compared with C$78 billion in 2016, while predicting that cash flow should more than double from C$20 billion to C$45 billion.

He based those targets on a West Texas Intermediate average for the year of US$55 and C$3.40 per thousand cubic feet for natural gas.

Tertzakian said "two full calendars of fiscal pain have done much to tune up the industry for the future" — a period when costs have moderated, field productivity has increased significantly and the debilitating Canadian crude oil price discounts of 2012 and 2013 have almost retreated back to normal.

He said recent disclosures from more than 20 publicly traded companies point to an average 40 percent lift in 2017, with the biggest spenders concentrating on the Montney shale play in northeastern British Columbia and northwestern Alberta.

However, spending in the oil sands is likely to drop by another 20 percent from a weak 2016, Tertzakian said.

The latest figures from Statistics Canada show capital expenditures were down 30 percent in the third quarter of 2016 from a year earlier, about even with the second quarter, but a solid improvement from the year-over-year drops of 35 percent and 48 percent in the previous two quarters.

Canadian Natural Resources

Those looking for additional hope can find it in Canadian Natural Resources, well known for marching to its own drumbeat.

The multi-faceted company has set a C$3.9 billion capital budget, while emphasizing it is ready to ramp up or back down depending on the market.

The plan includes an increase in exploration and production by C$465 million to C$1.79 billion and C$435 million to debottleneck operations at its Horizon oil sands project, increasing output by 80,000 barrels per day by late 2017 and laying the groundwork for other oil sands ventures.

The company will boost its well count to 563 in 2017, up from 193 last year and expects to generate between C$2.6 billion and C$3 billion of free cash flow.

"A trademark of Canadian Natural is out capital flexibility," said company President Steve Laut, adding that if oil prices slump, the budget could be cut back by C$900 million. ●

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LEGISLATIVE OUTLOOK

tion and ensure that government isn't the 'enemy' of economic growth. We can't live beyond our means, but we know we can't 'cut' our way out of this. There will have to be new revenues," Tuck said.

"People will be upset, but we will work to make sure that one group is not burdened at the expense of another. This will not be easy," he said.

There will be continued work on oil tax credits in the House, Tuck said, mainly to complete things not accomplished last year in House Bill 247, a comprehensive tax credit bill that passed. "One thing we want to do is to understand who is getting these credits and make sure the people who really need them are receiving them," he said.

He said the state does need to honor unpaid tax credits from the past, and that this is "a debt that is owed." A comprehensive state fiscal reform package to be considered should include a way to pay these, he said.

Kelly, the incoming Senate president, agreed with Tuck that it could be a heated session, and he said the Senate majority will likely oppose measures that tend to redistribute wealth (a reference to taxes) and ideas of 'going after those who produce', a reference to proposals from the House to tinker again with oil taxes.

> *There will be continued work on oil tax credits in the House, Tuck said, mainly to complete things not accomplished last year in House Bill 247, a comprehensive tax credit bill that passed.*

He said the incoming Senate leadership will "have a cohesive strategy" in a response to the fiscal problem, one with "a bias toward continued spending cuts … but nothing is off the table," a reference to possible new revenue sources.

He credited the Legislature with making dramatic reductions in spending in recent years, which is not always understood by the public. "In 2014 we were spending $8 billion a year in general fund spending. We reduced this to $7 billion the next year, to $6 billion and $5 billion in the following two years, and now to $4.3 billion," he said.

"While a lot of this was in the reduced state capital budget there has also been a reduction, $1.2 billion, in the operating budget in the last two years," Kelly said.

Systematic changes

He also cited the systematic changes in state programs to slow the steady creep of spending increases.

A major Medicaid "reform" bill, Senate Bill 74, passed the Legislature last year and should result in $400 million in annual savings in six years, Kelly said. Similar reductions will come through a comprehensive crime reform bill, Senate Bill 91, passed last year. Kelly said Republicans and Democrats worked together on those measures.

Five principles that will personally guide Kelly include keeping government's role in the economy limited; to recognize the importance of both public and private employment but with a higher priority given to stimulating private jobs; to recognize that government does not provide wealth, but that the private sector does; that some government programs are 'hard-wired' for growth, and need vigilance, and that while Alaska should get its "fair share" of oil revenues the overall goal should be to increase production. ●

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PENTEX PURCHASE

and cost-competitive Fairbanks gas supply.

Purchased in 2015

In 2015, in conjunction with the Interior Energy Project, AIDEA purchased Pentex for $54 million. The agency characterized the purchase as a short-term, strategic investment, to help move the Interior Energy Project forward. The plan was to ultimately spin off FNG to form a consolidated utility with IGU, thus enabling economies of scale in Fairbanks gas supplies and the development of a fully integrated gas distribution network in the city. The draft MOU that IGU has now issued is not binding but sets out the conditions under which the utility consolidation would take place. The anticipated sale price is approximately $58.2 million, a figure that includes AIDEA's anticipated return on its original investment in Pentex. AIDEA and IGU want to finalize the sale agreement by March 31, the MOU says. The envisaged sale includes a gravel pad on the North Slope that was constructed in an earlier phase of the Interior Energy Project as a site for a potential North Slope LNG facility.

AIDEA's Interior Energy Project team has been working to tie down the various supply chain components for an enlarged gas supply for Fairbanks. Those components consist of an appropriate gas supply agreement with a Cook Inlet gas producer; an expansion to the existing Titan LNG plant; transportation of LNG by road, or possibly by rail, to Fairbanks; an expansion to LNG storage and gas distribution facilities in Fairbanks; and the facilitation of the conversion of homes and businesses in Fairbanks to the use of gas for heating.

Plan for expansion

The program for an integrated Fairbanks gas utility, following the purchase of Pentex by IGU, envisages a three-phase expansion of the Titan facility to an eventual liquefaction capacity of 100,000 gallons per day; expanded LNG transportation arrangements; LNG storage and re-gasification facilities in Fairbanks and North Pole; and a phased enlargement of the Fairbanks gas distribution infrastructure. Financing would involve a combination of a state capital appropriation, AIDEA Sustainable Energy Transmission and Supply, or SETS, loans, and state bonds.

According to the MOU, closure of the sale of Pentex to IGU will require a number of conditions, including the establishment of a long-term gas supply contract for the project, the adoption by AIDEA and IGU of a plan of development for the Titan plant, and the development of a comprehensive plan for the integration of FNG and IGU in Fairbanks.

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TAPS VOLUME UP

mostly reported annual throughput declines since flow peaked at 2 million bpd in 1988, the company said, with slight year-to-year increases in 1991 and 2002 the only exceptions.

Alyeska said it has worked for years to anticipate and respond to "escalating challenges" from declining throughput. "Lower flow means slower-moving oil, which allows more potential for cooling temperatures, ice formation in the line, and for water and wax to drop out of the flow stream and accumulate."

Barrett said adjustment to lower flows has included adding heat to the pipeline and modifying pipeline pigging operations.

Point Thomson drives Endicott volumes

On a month-over-month basis, Alaska North Slope crude oil production for December averaged 556,681 bpd, up 1.4 percent from a November average of 549,263 bpd, an increase of 7,418 bpd.

The largest month-over-month percentage increase was in Endicott volumes. The field, which includes Eider, Minke and Sag Delta, as well as volumes from the Glacier Oil & Gas-operated Badami field and the ExxonMobil Production-operated Point Thomson field, averaged 16,175 bpd in December, up 37.8 percent, 4,439 bpd, from a November average of 11,736 bpd.

Information for December comes from the Alaska Department of Revenue's Tax Division which reports North Slope oil production consolidated by major production centers and provides daily production and monthly averages. More detailed data, including Cook Inlet and individual North Slope fields and pools, is reported by the Alaska Oil and Gas Conservation Commission on a month-delay basis.

The largest Endicott increase appears to be from Point Thomson, as Tax Division daily figures over the month show Endicott volumes ranging from a low of 8,906 barrels on Dec. 9 — approximately the volumes shown for Endicott before Point Thomson production began in April 2016 — to a high of 20,916 barrels Dec. 24.

AOGCC data for November show Point Thomson averaging 1,895 bpd in November, up 12.2 percent, 206 bpd, from an October average of 1,688 bpd.

Production from Badami averaged 942 bpd in November, up 7.2 percent, 63 bpd, from an October average of 879 bpd.

Prudhoe, Lisburne up

The BP Exploration (Alaska)-operated Prudhoe Bay field, the North Slope's largest, averaged 313,705 bpd in December, up 1.6 percent, from a November average of 308,632 bpd, an increase of 5,073 bpd. Prudhoe production includes Aurora, Borealis, Midnight Sun, Orion, Polaris, Sag River, Schrader Bluff and Ugnu, as well as production from the Hilcorp Alaska-operated Milne Point and Northstar fields.

AOGCC data show Milne Point averaged 22,030 bpd in November, up 14.1 percent, 2,729 bpd, from an October average of 19,301 bpd, while Northstar averaged 5,189 bpd in November, up 4.3 percent, 215 bpd, from an October average of 4,974 bpd.

The BP-operated Lisburne field averaged 24,587 bpd in December, up 8 percent, 1,824 bpd, up from 22,763 bpd in November. Lisburne includes volumes from Niakuk, Point McIntyre and Raven.

Alpine, Kuparuk

The ConocoPhillips Alaska-operated Alpine field averaged 60,927 bpd in December, up 1.2 percent, 701 bpd, from a November average of 60,226 bpd.

Alpine includes satellite production from Fiord, Nanuq and Qannik.

The ConocoPhillips-operated Kuparuk River field, the Slope's second largest, averaged 141,287 bpd in December, down 3.2 percent, 4,619 bpd, from a November average of 145,906 bpd.

Kuparuk volumes include satellite production from Meltwater, Tabasco, Tarn and West Sak, as well as production from the Eni-operated Nikaitchuq field and the Caelus Alaska-operated Oooguruk field.

AOGCC data show Nikaitchuq averaged 22,033 bpd in November, down 1.4 percent, 311 bpd, from an October average of 22,344 bpd. Oooguruk averaged 14,838 bpd in November, down 2.9 percent, 437 bpd, from an October average of 15,275 bpd.

Cook Inlet down 3%

November production from Cook Inlet as reported by AOGCC averaged 14,513 bpd, down 3.25 percent, 487 barrels, from an October average of 15,000 bpd.

Hilcorp Alaska's Beaver Creek field, Cook Inlet's smallest, averaged 83 bpd in November, down 58.1 percent, 115 bpd, from an October average of 198 bpd.

Hilcorp's Granite Point field averaged 2,514 bpd in November, up 0.2 percent, 4 bpd, from an October average of 2,510 bpd.

BlueCrest's Hansen field, the Cosmopolitan project, averaged 164 bpd in November, up 8.1 percent, 12 bpd, from an October average of 152 bpd.

Hilcorp's McArthur River field, the inlet's largest, averaged 4,455 bpd in November, down 9.8 percent, 486 bpd, from an October average of 4,941 bpd.

Middle Ground Shoal, also a Hilcorp field, averaged 1,813 bpd in November, down 0.6 percent, 10 bpd, from an October average of 1,823 bpd.

Redoubt Shoal, operated by Glacier Oil and Gas, averaged 586 bpd in November, down 14.3 percent, 98 bpd, from an October average of 684 bpd.

Hilcorp's Swanson River field averaged 1,961 bpd in November, up 5 percent, 94 bpd, from an October average of 1,867 bpd.

Trading Bay, also operated by Hilcorp, averaged 1,757 bpd in November, down 11.4 percent, 226 bpd, from an October average of 1,983 bpd.

Glacier's West McArthur River field averaged 1,180 bpd in November, up 40 percent, 337 bpd, from an October average of 842 bpd.

ANS crude oil production peaked in 1988 at 2.1 million bpd; Cook Inlet crude oil production peaked in 1970 at more than 227,000 bpd.

—KRISTEN NELSON

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