Celebrating 20 years: 1996-2016

Petroleum news

page 5 Giessel: AKLNG questions stacking up, turnover growing concern

Vol. 21, No. 40 • **www.PetroleumNews.com** *A weekly oil & gas newspaper based in Anchorage, Alaska* **Week of October 2, 2016 • $2.50**

This week's Mining News


NORTH OF 60 MINING news

page 15 Dominion gets US$2.8 million for largest-ever Ekati diamond

www.MiningNewsNorth.com *The weekly mining newspaper for Alaska and Canada's North* Week of October 2, 2016

NEWS NUGGETS

Little Squaw placer gold mine hits production highs in 2016

Independent analysis verifies SuperLig dysprosium recoveries

EXPLORATION

Digging deeper at Unga

Redstar takes fresh approach to exploring historic gold property in Alaska

By SHANE LASLEY

Want More Control of Your Blasting Results?

Redstar takes a fresh approach in exploring the historic Unga gold property in Alaska. Read more in North of 60 Mining News, page 9.

The conundrum of disused wells; AOGCC eyes in-field boreholes


JUDY PATRICK

CATHY FOERSTER

While continuing to pursue a multi-year campaign over the remediation of disused oil wells in federal land in the National Petroleum Reserve-Alaska, the Alaska Oil and Gas Conservation Commission is starting to turn its attention to ensuring that disused wells within Alaska's oil fields are plugged and abandoned in a timely fashion. AOGCC Chair Cathy Foerster has told Petroleum News that, bearing in mind the huge number of abandoned wells in the Lower 48, with nobody responsible for their closure, the commission wants to get ahead of the game, making sure that all disused wells in Alaska are appropriately closed off before they are even-

see **DISUSED WELLS** *page 22*

Steelhead LNG advances plans

One of the latest entries into the crowded field of starters to develop LNG in British Columbia is starting to show greater staying power than most.

In its latest advance, Steelhead LNG has signed an agreement with Western Canadian natural gas producer Seven Generations Energy, 7G, to become a leading source of feedstock gas for two proposed projects on Vancouver Island.

British Columbia's Natural Gas Development Minister Rich Coleman said the partnership, which gives 7G a minority interest in the private equity-based company for an estimated C$55 million, leaves the province "exceptionally positioned" to become a leading supplier of LNG to Asian markets.

7G Chief Executive Officer Pat Carlson said his company believes "scalable projects" such as those proposed by

see **STEELHEAD LNG** *page 20*

NATURAL GAS

190 conditions

Pacific NorthWest has miles to go, even after Canadian government approval

By GARY PARK
For Petroleum News

British Columbia's Pacific NorthWest LNG project has emerged intact from the regulatory phase, including two exhaustive environmental reviews, with Canadian government approval that imposes 190 conditions, the toughest of which are designed to reduce environmental conditions.

In making the announcement Sept. 27 in Vancouver, three federal cabinet ministers — Catherine McKenna (environment), Jim Carr (natural resources) and Dominic LeBlanc (fisheries and oceans) — made it clear the decision did not come with any guarantees from the lead partner Petronas that the project will ever be built.

The best guess is that a fully operating project is at least five years away.

The best guess is that a fully operating project is at least five years away.

For now, though, control has been transferred to Petronas, which has a 62 percent stake in the liquefaction facility near Prince Rupert and the natural gas reserves in northeastern British Columbia. The other participants are China's Sinopec with 15 percent; Japan Petroleum Exploration and Indian Oil Corp with 10 percent each; and PetroleumBrunei 3 percent.

see **PACIFIC NORTHWEST** *page 22*

ANALYSIS

MOU presents issues

Pros, cons of agreement between AGDC, Conoco, to guide JV negotiations

By TIM BRADNER
For Petroleum News

A joint-venture marketing arrangement for North Slope liquefied natural gas announced Sept. 21 between ConocoPhillips and the Alaska Gasline Development Corp., the state gas corporation, is a step toward a similar arrangement that had been discussed earlier but rejected among the four partners now in the current Alaska LNG Project.

During a trip to Singapore the signing of a Memorandum of Understanding was announced by AGDC and ConocoPhillips that will guide negotiations toward a joint-venture marketing program.

ConocoPhillips had pushed the idea during negotiations among the parties and the state on Alaska LNG commercial terms, and with the state's support, but the idea was strongly opposed by Exxon Mobil Corp., one of the Alaska LNG partners and the largest owner of gas reserves on the Slope.

For gas owners like the state who do not have existing marketing staffs there are obvious advantages in teaming up with a major producer because the state can take advantage of the expertise of the industry partner.

"ConocoPhillips has always supported joint-

see **ANALYSIS** *page 24*

NATURAL GAS

LNG project nears FEED

Resources Energy Inc. progresses plan to ship Cook Inlet natural gas to Japan

By ALAN BAILEY
Petroleum News

Resources Energy Inc., a Japanese company pursuing the possibility of exporting liquefied natural gas from Alaska's Cook Inlet to Japan, is anticipating making a decision around the turn of the year on whether to proceed to the front-end engineering and design phase of the LNG project, company officials told the Alaska Oil and Gas Congress on Sept. 21. A final investment decision could follow by June 2017, said Brian Murkowski, REI vice president of regulatory and government affairs.

REI proposes to build a 1 million ton-per-year LNG plant near the existing port at Point MacKenzie, across Knik Arm from Anchorage, to process about 160 million cubic feet per day of Cook Inlet natural gas. The primary objective would be to export LNG to Japan, although the company has said that gas would only be exported if local in-state gas needs can be met.

And although the estimated capital cost of REI's project, at about $1 billion, is by no means insignificant, the cost of the gas would dominate the internal rate of return on the project over the project's 20- to 25-year life.

"The goal is to bring first gas to Japan by 2020, maybe 2021," Murkowski said. "We're fairly far along. We've been working on this project for about

see **REI LNG PROJECT** *page 23*

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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	BP
Dreco D2000 Uebd	19 (SCR/TD)	Alpine CD5-99	ConocoPhillips
AC Mobile	25	Standby	
OIME 2000	141 (SCR/TD)	Kuparuk 3C-15A	ConocoPhillips
	142 (SCR/TD)	Kuparuk 2S-09	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)	Oliktok Point, Stacked	ENI
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 Drill site W-pad, well 05	BP
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

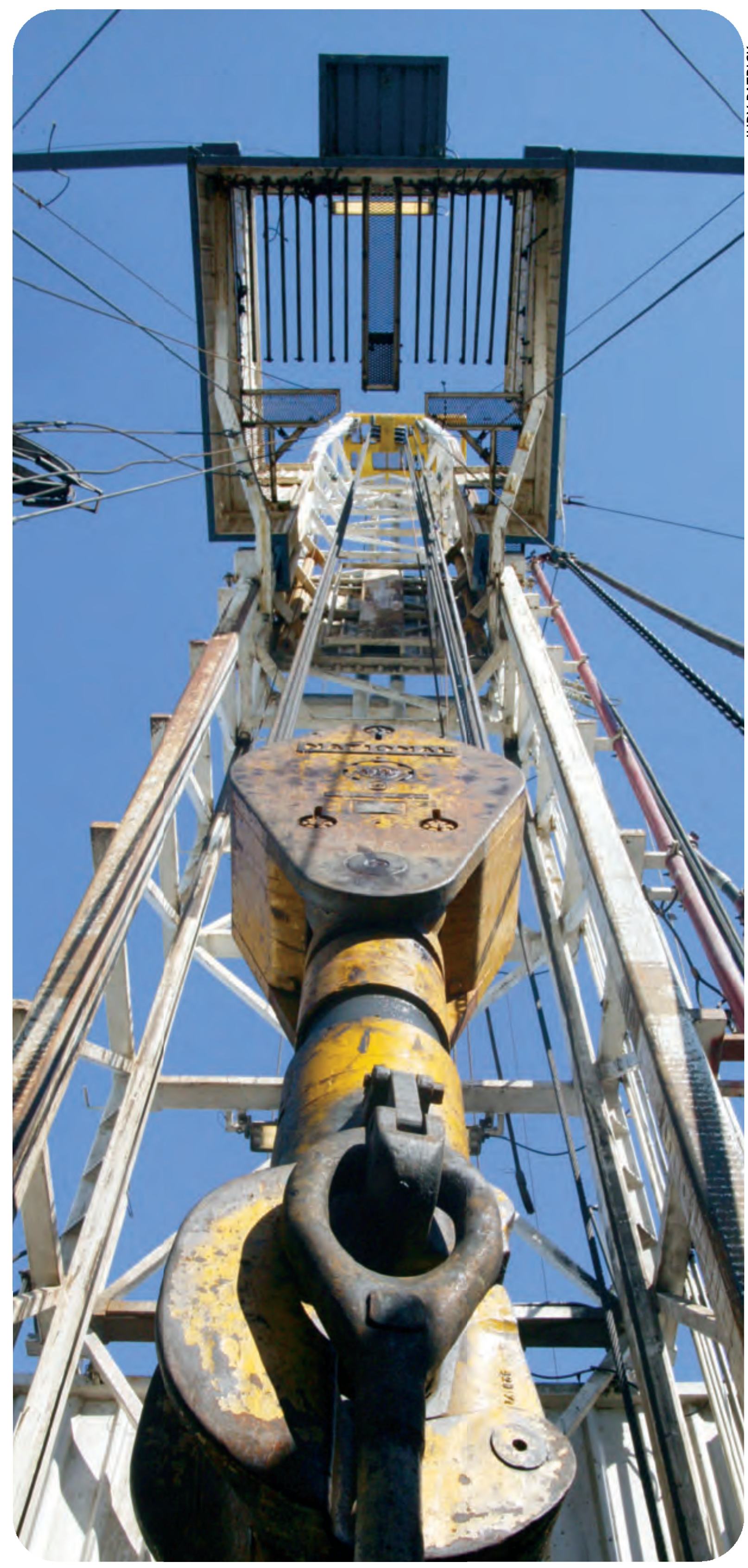
Central Mackenzie Valley

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 September 28, 2016. 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*

	Sept. 23	Sept. 16	Year Ago
United States	511	506	838
Canada	138	132	176
Gulf of Mexico	20	20	31

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

*Issued by Baker Hughes since 1944

● NATURAL GAS

A focus on the gas price

Interior Energy Project team continues to work on all elements of a supply chain for natural gas for the Fairbanks region

By ALAN BAILEY
Petroleum News

The Interior Energy Project team continues to work on all elements of the supply chain for an expanded natural gas supply for Fairbanks and the surrounding Interior, Gene Therriault, IEP team leader, told the board of the Alaska Industrial Development and Export Authority on Sept. 22.

The team has established a term sheet for a gas supply in the North Pole area, and is waiting to hear back from a prospective gas supplier on whether the terms are acceptable, Therriault said. The team also needs to ensure that the gas supply terms fully meet the needs of the utilities in Fairbanks.

Importance of price

"We're very focused on price," Therriault said. "The project cannot take a lot of risk as far as take or pay obligations, because we want to grow the use of the commodity but we're not sure ... exactly how quickly that growth will take place."

Both FNG and IGU had started expanding their pipeline systems but put that work on hold in October 2015.

Supply arrangements need to be projected to a year or two into the future, when the gas becomes available for the Interior market, he added.

The team is also continuing to work with Salix Inc. on a plan for a gas liquefaction plant in the Cook Inlet region, looking for opportunities to squeeze down the cost of liquefaction. The idea is to build a new liquefied natural gas plant to greatly enlarge the supply of LNG to Fairbanks — the IEP team previously set a target price of $15 per thousand cubic feet for gas delivered to consumers in the Fairbanks area. The team has recommended Salix as having the most appropriate concept for the LNG plant.

The overall concept is to alleviate the high cost of energy in Fairbanks while also reducing air pollution that results from the use of wood stoves for the heating of buildings in the region.

LNG for Tok

Meanwhile, gas utility Fairbanks Natural Gas has negotiated an agreement with Alaska Power and Telephone, the power producer in the town of Tok, for the supply of LNG as a possible fuel for power generation in Tok, Therriault told the board. FNG already supplies LNG to Fairbanks from a small LNG facility at Point MacKenzie on Cook Inlet. The LNG is transported to Fairbanks by road using LNG trailers — the Interior Energy Project anticipates greatly expanding this supply.

Dan Britton, president of FNG, told the AIDEA board that the Tok utility has converted one of its reciprocating generator engines to use a mixture of diesel fuel and natural gas, rather than just diesel. The economics of LNG usage will depend on how high a proportion of gas can be used in the mix, Britton explained.

Therriault added that the Interior Energy Project has always been envisaged as benefitting the Interior, and not just Fairbanks, and that potentially any community on the road or rail system could see advantage from what the project anticipates achieving. The town of Glennallen has expressed an interest, he said, commenting that FNG already delivers LNG to a hotel in Talkeetna.

LNG transportation

From the perspective of the LNG transportation component of the anticipated gas supply for the Interior, last year the Interior Energy Project tested the use of a prototype large-capacity LNG trailer on the Alaska road system. Following success with that test, FNG has purchased the prototype trailer and has ordered three additional similar units, Therriault said. These additional trailers will be delivered around the middle of 2017, he said.

Another possibility is to ship LNG on the Alaska Railroad. With that in mind, the railroad has recently taken delivery on loan of two cryogenic containers and has embarked on the trial use of these trailers for LNG shipment. As part of the testing, the railroad is shipping the containers to Fairbanks empty, with that initial test run to be followed by a trial involving the transportation of the trailers when filled with LNG, Therriault explained.

"The railroad is very aggressively exploring how they can take on this supply chain in the future in a way that helps to drive down costs," Therriault said.

For test purposes, it is necessary to transport the containers by truck to and from the railroad terminals at either end of the route. However, should the railroad transportation option work out, ways of avoiding those end-route costs would be figured out, Therriault explained.

Storage and distribution

An expanded LNG supply to Fairbanks will require expanded LNG storage facilities in the city. The Interior Energy Project now has an understanding with the Interior Gas Utility, the second gas utility in the city, over storage requirements for a gas distribution system that combines the systems of FNG and IGU, Therriault said. The Interior Energy Project envisages the two utilities combining, to achieve economies of scale and efficiency. Meanwhile, given the high capital cost of storage expansion, the expansion is on hold pending the establishment of the enlarged gas supply arrangements, Therriault said.

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● GOVERNMENT

Giessel: AKLNG questions stacking up

Anchorage Republican, two-term Resources chair says turnover among Walker's resources team a growing concern with each departure

By **STEVE QUINN**
For Petroleum News

Senate Resources Chair Cathy Giessel was nearly as busy during the interim as she was during regular session holding joint hearings that spanned up to eight hours in one case and two days in another. She and other members learned that the state's pursuit to monetize North Slope gas has essentially stalled, having been deemed uneconomical. Still Gov. Bill Walker believes the state has too much to lose by not progressing forward. Giessel, an Anchorage Republican, offered thoughts to Petroleum News on recent resource development issues.

Petroleum News: Let's start with recent news about Corri Feige's departure from the Division of Oil and Gas. Some of your colleagues have been concerned about the turnover in light of Mark Myers and Marty Rutherford also leaving. Do you share these concerns?

Giessel: You know, I do. The people you named — Mark Myers, Marty Rutherford and Corri Feige — were all knowledgeable people about this project, demonstrated expertise in Alaska and now they are gone. I would add they are people the Legislature trusted, so yeah it's concerning.

Petroleum News: One of the Legislature's consultants, Nikos Tsafos, noted in a recent hearing how he feels as though he's starting over each quarter whereas with the industry partners, there is a constant.

Giessel: Well there certainly has been a pattern of quality people leaving. You probably heard us at the quarterly updates, certainly last year, asking the question who is on first because folks are coming and going. Just as we get to know them, they are gone, so yeah it's disconcerting. On a positive note, (Exxon's) Steve Butt has been with this project from the beginning and has been that consistent anchor, providing that global expertise and great information, keeping the Legislature updated on the status on the project, so he has been a bright light on this changing landscape.

Petroleum News: Speaking of AKLNG, what is your view of how things are at this point?

Giessel: Well, we had a project plan in place. In 2014, we passed SB 138. We did provide in that legislation off ramps. Those were provided because we foresaw perhaps partners would be leaving and new ones coming into the project. So my hope is we will continue to work within the framework of SB 138.

Petroleum News: If you can't continue under SB 138, do you see the need for a new bill?

Giessel: The governor hasn't taken any actions since the Legislature adjourned in terms of new approaches to the project, so I don't know exactly where he is planning to go in terms of answering questions. The Legislature has consistently asked three questions:


SEN. CATHY GIESSEL

Who — that is who will be the experts doing this project? How are we doing to do it? What will the costs and risk structure look like? So the who, how and what remains pretty much the same. If he proposes a new approach, then I guess we will be looking at new legislation.

Petroleum News: Do you have any additional questions about how the project advances.

Giessel: Sure. I think the risk question is a big one. Who is going to take on this risk? What does the financing look like? Which brings on the who question as to who will pay for financing this and who will build it? What contractors is he looking to hire? These are questions we've asked AGDC President Keith Meyer but so far haven't received satisfactory answers to.

The governor is in Singapore as you and I speak. The reports from brief summaries I've received from that are that it's a rather somber mood, frankly, in Singapore at the summit. The market is recognizing right now that there is an oversupply.

The low priced environment, which is so beneficial to consumers, is certainly challenging to new projects. I do want to say the low gas prices have allowed parts of the world that have lived in poverty for their entire existence to now be emerging from poverty. Having low-cost, clean supply of energy is a wonderful thing for them. That's all good. For those of us on the supply side — I'm referring to the state of Alaska, of course — that presents a challenge for us in terms of making money for our project and building it. I was reading in another supply publication today, the East Coast — the Appalachian area, the Utica shale — is booming right now with increased production of both gas and oil. That to me underscores what we are hearing that frankly gas is everywhere in the world so we may have to wait a bit for our project to actually become economic.

Petroleum News: So do you feel that the state is moving forward with an uneconomic project?

Giessel: Well, again, I'm not sure how far forward we are moving right now. We certainly have heard from consultants, one being Wood Mackenzie that right now our project is the most uneconomical of all the projects under consideration. I know the governor is still hopeful and hope is a great thing to have but hope is not a strategy or a plan. In listening to the Wood Mac presentation they were very clear on the second or third to the last slide that even if the state of Alaska gave up all taxes, this project would still not be economic: Again, a pretty clear message. Our consultant Nikos Tsafos made the memorable statement that if our only goal was to spend $50 billion, we can certainly do that. My goal is any billions of dollars that we spend is for the wellbeing and good return of Alaska citizens. So that is the question that we are asking right now: Is the project still something that brings a good return to citizens of Alaska?

Petroleum News: During the hearings, were you seeing any kind of misalignment among the four partners?

Giessel: I'm almost having to laugh here. There is clearly in my opinion misalignment between the state of Alaska and the three producing partners. In recent news I see BP and Conoco have both started looking at the possibility of a joint venture with the state on marketing. That's great. That was something that we had talked about early on in this project, so that's a positive. In terms of other misalignment: certainly the timing, obviously. That's why we are where we are today. We, the three producing partners and the state of Alaska, are misaligned as far as moving this project forward. The companies, however, have said to the governor, if the state wants to go forward please feel free and we will agree to put our gas into the pipeline after you've built it.

Petroleum News: So what do you make of the governor going to Asia?

Giessel: Marketing trips to Asia are honestly not new. I know when (U.S. Sen.) Dan Sullivan was DNR commissioner he also made trips to Asia, marketing Alaska's gas potential and other resources. DNR Commissioner Sullivan made trips to the Lower 48 marketing the opportunities for oil exploration in Alaska, so we've had a pretty aggressive person in Commissioner Sullivan. I suspect other commissioners that I'm not even aware of have gone to the markets in the past, so Gov. Walker's trip is not the first one ever done.

Petroleum News: So is this something Alaska should be doing, keeping these relationships open with Asian countries until the market takes a turn in Alaska's favor?

Giessel: It's prudent to keep our name on the table, our interest in selling the resource. I think it's important to make sure the right people are going. It sounds like there was a fairly large entourage. Whether that large number of people needs to be going I don't know. That's another question related to the state budget, which is right now a hot topic because we are running short on cash. I don't think it's necessarily wrong to be promoting our resources. I think it's resources beyond just gas, that being our mining opportunities and fishing as well.

Q AND A

Petroleum News: What have your impressions been thus far of Mr. Meyer?

Giessel: It's my understanding that as the board interviewed President Keith Meyer, they were impressed with his resume. He certainly has a long history in the gas industry, so that's great. We in the Legislature continue to ask questions that we talked about earlier: the who, what and how. Mr. Meyer has proposed a new financing structure for the gas pipeline. So again asking the who: Who would consider investing in a project that is not built yet? How much would they consider investing and how would it work? What are we looking at in terms of a timeframe? What would we be giving up as a state to go into this kind of arrangement? What kind of risk would the state be taking on in all of this? So we've asked for answers. In fact after the last update at the end of August, I've sent yet additional questions related to these topics and I am looking forward to getting some answers hopefully soon.

Petroleum News: On the topic of a new finance method, the tax exempt status pursuits, what's your take on this?

Giessel: We heard from two attorneys on the idea of having tax exempt status from the IRS. They both opined they thought it was a long shot. That's two

see **GIESSEL Q&A** page 21

● EXPLORATION & PRODUCTION

Room for expansion at Cosmopolitan field

Johnson says further development Cook Inlet field facilities will depend on drilling results; natural gas development is on hold

By **ALAN BAILEY**
Petroleum News

Since the initial production facilities are now in operation, with a capacity of up to 10,000 barrels per day of oil, any future expansion of the facilities at the Cosmopolitan oil field will depend on the results of development drilling, Benjamin Johnson, president of BlueCrest Energy, told the Alaska Oil and Gas Congress on Sept. 21. There is ample space on the Cosmopolitan pad for further facility expansion, should expansion prove worthwhile.


BENJAMIN JOHNSON

"So, we're going to wait and see how our drilling turns out before deciding what, if any, expansion we need to make for the field," Johnson said.

The field is in Cook Inlet offshore the southern Kenai Peninsula and is accessed by directional drilling from a surface pad near Anchor Point. Oil production started in April from a converted exploration well, with oil from the field being trucked to the Tesoro oil refinery at Nikiski. Johnson said that BlueCrest has no plans to build an oil pipeline, given the very high expense of building such a long line and the cost-effectiveness of trucking the oil. Building a pipeline would require a high level of oil production, he said.

Meanwhile, gas development in the field, which would require offshore production platforms, is on hold, he said.

Powerful rig

For the drilling of development oil wells BlueCrest has brought in what Johnson characterized as Alaska's most powerful drilling rig.

"This rig was specifically designed for drilling our wells," Johnson said. "We are drilling some of the most extreme wells in Alaska in terms of the depth and the horizontal distance."

The well bores at Cosmopolitan will extend three miles out from the onshore pad before extending another mile horizontally through the oil reservoir. This results in a measured well bore depth of 24,000 feet to reach targets at a vertical depth of 7,200 feet, Johnson said. The rig, which has a 750-ton top drive, has what Johnson thinks is the only 7,500-pounds-per-square-inch drilling mud system in Alaska, to ensure adequate control of the highly deviated wells. And the rig derrick can hold all 24,000 feet of drill pipe needed for a well, thus avoiding the need to suspend drilling operations for the loading of additional pipe, Johnson said.

The rig can move on rails between wellheads in minutes, Johnson added. He also commented that the field had been developed with a focus on environmental issues and neighbor protection. For example the LED lighting for the field facilities is focused inside the pad, to avoid disturbance to the field's neighbors, he said.

The Cosmopolitan story

Johnson reflected on the story behind the Cosmopolitan field and how BlueCrest had come to acquire and develop what it now recognizes as a significant oil and gas resource.

When Pennzoil drilled the field discovery well in 1967, the well just clipped some oil at the side of the field. And the company, not having good well logs, abandoned the prospect, having concluded that the oil column was very thin, Johnson said. Then 25 years later ARCO, thinking that Pennzoil may have missed a large discovery, shot some seismic over the prospect. The seismic revealed a large 15,000-acre dome-shaped structure in the subsurface. But, with no equipment available for offshore drilling, the company was faced with the need to drill a fairly risky directional well from onshore.

In 2001 ConocoPhillips did drill a well from onshore, confirming the presence of oil in the prospect and showing the potential for more oil than previously thought. A further well drilled in 2003 included a somewhat horizontal section through the Hemlock formation — a relatively short horizontal section of the well produced 1,000 barrels per day of oil, Johnson said.

Pioneer Natural Resources then acquired the prospect, shooting a 3-D seismic survey to better define the Cosmopolitan structure. Although this survey provided a clear delineation of the scale of the structure, gas at the top of the structure disrupted the seismic signals, thus blotting out any image of the structure inside the dome. In fact, the seismic image suggested that the dome had caved in at the top.

Pioneer drilled a well into the structure in 2007 but this long, undulating horizontal well missed many of the reservoir sands, Johnson said.

New offshore well

Johnson said that BlueCrest's geophysicists had attributed the collapsed appearance of the structure to the distortions to the seismic imaging caused by a gas cloud in the subsurface. A recalculation of the seismic results on the assumption of the presence of a gas cloud indicated the existence of a large geologic dome, he said. The drilling of a well in 2013 from an offshore rig after BlueCrest had acquired the rights to the Cosmopolitan prospect not only confirmed that this dome structure was present but also found a 5,000-foot thickness of gas-bearing sands. Apart

see **COSMO EXPANSION** page 7

continued from page 4

GAS PRICE

Similarly, continued expansion of the gas distribution pipeline network in Fairbanks has also been suspended, until the other components of the expanded gas supply move forward. Both FNG and IGU had started expanding their pipeline systems but put that work on hold in October 2015.

Gas conversion

A critical component of the project viability is the question of how many Interior residents will convert their house heating systems to the use of natural gas rather than fuel oil. And the current low oil prices have created something of a challenge in making gas use competitive. As a consequence, the project team has been seeking incentives for gas use, including, for example, government clean energy and energy efficiency grants.

One program of interest is the Property Assessed Clean Energy, or PACE, program. PACE, a mechanism that is in operation in several states, would provide low interest, relatively long-term loans to assist energy efficiency projects. A bill for PACE legislation proposed for Alaska narrowly missed the cut at the end of the last legislative session. The hope is that a similar bill will see quick passage in the upcoming session, Therriault said. He commented that PACE legislation had been a significant topic of discussion at a recent energy efficiency and renewable energy workshop organized by Gov. Bill Walker. ●

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GOVERNMENT

Crunch time for Trudeau

Canada less than 3 months from Trans Mountain project verdict as positions harden; prime minister confident he can achieve balance

By GARY PARK
For Petroleum News

The Canadian government of Prime Minister Justin Trudeau is within weeks of making what shapes up as its toughest domestic decision yet, one that is certain to deepen a national rift, accompanied by the prospect of extreme civil disobedience.


JUSTIN TRUDEAU

And the pressure on the prime minister is intensifying from all sides, none of whom are likely to be satisfied by the outcome.

Trudeau is faced with two irreconcilable issues: The need to approve a major oil pipeline at a time when the export systems to the United States are running at capacity and his desire to retain environmentalists and First Nations as key elements of the Liberal government's powerbase.

When questioned on the issue, he routinely says his administration is determined to balance limits on greenhouse gas emissions associated with pipelines while finding a way to deliver Canada's oil resources to market.

"We have an obligation to the proponents and to those people who are involved in each of these projects (Kinder Morgan's Trans Mountain expansion, TransCanada's Energy East and Enbridge's Northern Gateway) to assess it on their own merits and to determine the national interest on the basis of what has been proposed and what has been recommended by the (National Energy Board)," he said on Aug. 25.

Ruling due in December

The conclusion to be drawn from those remarks is vague, muddled and clear proof that his government is in disarray on the issue.

The common consensus is that sometime before Dec. 19 the Trudeau cabinet is scheduled to rule on the Trans Mountain proposal to triple its volumes of oil sands bitumen to 890,000 barrels per day.

The C$6.8 billion Trans Mountain expansion offers the advantage of closely following an existing pipeline that has been in operation for 63 years, sweetened by Kinder Morgan offers totaling C$8.5 million for various recreational improvements.

Energy East faces a crunch decision before the next federal election in 2019, while Trudeau has indicated he does not support Northern Gateway on its present route, leaving open the possibility of a revised application.

But all of the proponents find themselves in a gathering storm of organized opposition, compounded on Sept. 22 when aboriginal communities in Canada and the northern United States signed a treaty to jointly fight plans to build more pipelines out of the Alberta oil sands, emboldened by the intervention of the U.S. Justice Department to delay construction on sections of the US$3.8 billion Dakota Access Pipeline.

The Treaty Alliance Against Tar Sands Expansion was signed by 50 entities, who also oppose crude transportation by tankers or rail.

General opposition

If there were any questions about the intentions of the First Nations in Canada, Serge Simon, Grand Chief of the Kanesatake in Quebec, said the treaty will see aboriginal communities from British Columbia to Quebec oppose both the Trans Mountain and Energy East projects.

"We will also work with our tribal allies in Minnesota as they take on Enbridge's Line 3 expansion and we know they'll help us do the same (in Canada)," he said.

The resolve is reflected by Daniel T'seleie, a Native activist from the Northwest Territories, who was arrested during the Dakota Access blockades and intends returning to North Dakota to face charges of reckless endangerment (a felony) and three misdemeanors.

He said North Dakota is "trying to scare people from using any type of non-violent direct action tactics that actually stop construction of a pipeline," taking advantage of the inability of protesters to pay for bail.

But T'seleie, arguing he is a "protector, not a protestor," said he is continuing to train aboriginals in the use of non-violent direct action.

Even if work stoppages last only one day at a time, they force the pipeline companies to rethink their position, he said.

Mulroney urges approval

Brian Mulroney, Canada's prime minister from 1984 to 1993, brings a different argument to the table, insisting that the best way to shock Canada's troubled economy back to robust growth is for Trudeau to approve Energy East, designed to ship 1.1 million bpd to Eastern Canadian refineries and export terminal.

He said that if Trudeau can forge a new pipeline strategy embracing the oil industry, First Nations, provincial governments and municipalities he could cre-

see CRUNCH TIME page 8

Rail option gets fresh lift

Canada's National Energy Board estimates crude-by-rail shipments will grow tenfold over the next 25 years unless major pipelines are built to deliver oil sands bitumen to domestic refineries and international markets.

The federal regulator told a Canadian Senate committee that, despite otherwise gloomy forecasts, Canada's oil production could grow to 6.1 million barrels per day by 2040 from the current 3.8 million bpd, of which 1.2 million bpd would have to move by rail.

The NEB said the additional costs associated with rail transport could undercut investment in the oil and natural gas sector.

"From a producer perspective, the netbacks (from rail shipments) are lower," said the NEB's chief economist Shelley Milutinovic.

She forecast that unless new pipelines are introduced, production in 2040 would fall 500,000 bpd short of what would otherwise have been the case.

Before oil prices started their decline, Canadian producers fetched a higher West Texas Intermediate price on the U.S. Gulf Coast than they could at the Hardisty terminal in central Alberta if they shipped by rail, even after taking into account transportation costs as high as US$21 per barrel compared with US$7 on a pipeline.

NEB Chairman Peter Watson told the committee that his board does not take a position on which method of transportation it prefers.

—GARY PARK

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COSMO EXPANSION

from a couple of water sands, everything else was filled with gas. Below the gas lay about 1,200 feet of oil sands, separated by some shales, Johnson said.

Johnson showed cross sections of the subsurface geology and the various well trajectories, showing that the earlier wells had hit the edges of the hydrocarbon pools, thus failing to reveal the full extent of the subsurface hydrocarbon resources. However, the well that Pioneer drilled in 2007 has turned out to have continuing value — BlueCrest has converted this well into an oil production well, enabling the Cosmopolitan field to come on line before the main development drilling program got underway.

But the gas resource in the field, while large, is too shallow to be accessed from onshore drilling. Thus, with probably two offshore platforms required for development, BlueCrest has no immediate plans to bring the gas on line, Johnson said. ●

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● PIPELINES & DOWNSTREAM

Point Thomson Pipeline settlement reached

Pipeline owners ExxonMobil and BP reach tariff agreement with state, ConocoPhillips; if regulators make changes, agreement void

By KRISTEN NELSON
Petroleum News

PTE Pipeline LLC, the state of Alaska and ConocoPhillips Alaska Inc. reached a settlement agreement Sept. 16 on initial tariff rates for intrastate and interstate transportation of condensate on the line from Point Thomson to Badami.

PTE Pipeline LLC, owned 68 percent by ExxonMobil Pipeline Co. and 32 percent by BP Transportation (Alaska) Inc., submitted proposed initial rates of $20.39 per barrel in September of 2015 to the Regulatory Commission of Alaska and the Federal Energy Regulatory Commission. The state of Alaska filed a protest and petition to intervene and ConocoPhillips filed a petition to intervene.

The parties said the settlement agreement filed with RCA and FERC resolves all issues in both RCA and FERC dockets and provides stipulated rates for two periods, an initial period of April 1, 2016, through March 31, 2017, and a second period beginning April 1, 2017. The agreement says PTE LLC has agreed to file rates by June 1, 2019, for a rate change effective no later than July 1, 2019, subject to refund and investigation.

The parties said the agreement "does not raise any policy implications and is tailored to address only the issues that have been raised in the instant proceedings."

Integrated package

The parties described the settlement as "an integrated package" and said it incorporates compromises by both PTE LLC and the other parties, with no element of the agreement "severable from the whole."

If either RCA or FERC rejects or modifies any provision of the agreement or conditions its approval, the agreement "will immediately terminate and be deemed withdrawn as an offer of settlement with that agency."

If one agency approves the settlement without modifications or conditions and the other does not, the agreement "will be implemented at the approving agency and deemed withdrawn at the other agency."

The parties said the agreement is "intended to resolve uncertainty and avoid the expense of litigation in these proceedings," as well as providing assurance for the parties on tariff rates for the settlement period.

Rates lowered

The initial tariff rate is lowered in the settlement from $20.39 per barrel to $17.56 per barrel for the period April 1, 2016, through March 31, 2017, and to $12.09 per barrel for the period beginning April 1, 2017, and ending "on the date when PTE LLC places superseding rates in effect, but not later than July 1, 2019."

Within 30 days of approval of the agreement by FERC and/or RCA, PTE LLC is to refund to shippers, with interest, the difference between the tariff rate previously paid and the initial settlement rate.

Within 30 days of approval of the agreement by FERC and/or RCA, PTE LLC is to refund to shippers, with interest, the difference between the tariff rate previously paid and the initial settlement rate.

22-mile line

The Point Thomson Export Pipeline is a 22-mile, 12-inch liquids pipeline originating at the Point Thomson central production facility and connecting to the Badami Pipeline to the west.

Tariff filings by PTE Pipeline put the cost of the line at some $165.8 million. Projected first-year throughput on the line was some 5,800 barrels per day, some 2.1 million barrels in the first year of operation.

When the state protested the initial rates it called them "unjust, unreasonable and unlawful" and said the underlying assumptions and inputs of the tariff were unsupported. The state said the rates were so high because they were based on throughput for the line's first year of operation, estimated at some 5,000 bpd, while second-year throughput is estimated at some 8,000 bpd. The state objected to the tariff model which it said makes no adjustment based on a projection of a 60 percent increase in throughput in the second year.

The line has a capacity of 70,000 bpd and Point Thomson initial production is projected to peak at 10,000 bpd.

When ConocoPhillips intervened it noted it would be a future shipper — it is a part owner at Point Thomson — and had a direct financial interest in the proceeding outcomes.

In November the parties told the RCA they were in settlement discussions, said they were making progress in the settlement negotiations and asked for time to complete the negotiations. ●

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EXPLORATION & PRODUCTION

Hilcorp seeking E pad expansion at Milne

Hilcorp Alaska LLC wants to expand a drilling pad at the Milne Point unit to support an eight-well development program at the onshore North Slope oil and natural gas field.

The local subsidiary of the Texas-based independent is asking to add approximately 1.59 acres to the Milne Point E pad to accommodate a drill rig for a development program.

The Alaska Department of Natural Resources is taking comments through Oct. 26.

Standard Oil Company of California built the E pad in 1969, as it was exploring the area northwest of the Prudhoe Bay unit. Conoco Inc. re-built the pad in 1984, when it was delineating the field and preparing to bring the unit into production. The second iteration minimized the gravel footprint of the pad to match the scale of development at the time, according to a recent Hilcorp filing. "We are now adding more wells and infrastructure, which will require an extension to the gravel footprint," the company wrote. "The rigs currently used are larger than the ones used when the pad was constructed. When the larger drill rigs are positioned on the wellheads additional space to the edge of the pad is required for the drill rigs and workover rigs. The wells at Milne need to be worked over frequently throughout the year. The larger drill rigs are also used to work over wells."

Hilcorp wants to begin placing gravel in the area this November and complete "compaction and seasoning of the gravel expansion" by October 2017. The drilling program would begin in May 2017 and continue through the end of 2018.

Earlier this year, Hilcorp also proposed expansion of B pad and L pad at the unit.

—ERIC LIDJI

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CRUNCH TIME

ate "hundreds of billions of dollars in new investments, millions of new jobs ... and be as transformational and beneficial to the country as any major policy initiative undertaken in Canada in the last 70 years."

Mulroney said Trudeau has the "determination and skill" to engage all of the players and get a major pipeline underway without falling into trap of his predecessor, Stephen Harper, in acting unilaterally.

Goal of road public buy-in

At the same time, Trudeau indicated a shift in his stance by declaring that his government is determined to get Canadian oil to global markets through broad public buy-in.

But that will not extend to the current plan for Northern Gateway, which even Enbridge seems to agree has no hope of succeeding.

The pipeline company and Canada's Natural Resources Minister Jim Carr said they will not appeal a ruling by Canada's Federal Court of Appeal to overturn the Harper government's approval of the project in 2014.

"We believe that meaningful consultation and collaboration and not litigation is the best path forward for everyone involved," said Northern Gateway President John Carruthers, who has also pointed to success on the negotiating front.

He said 31 First Nations and Métis communities in British Columbia and Alberta — more than 70 percent of those with land along the pipeline right of way — have now agreed to deals that would give them ownership stakes in the project.

But eight First Nations, four environmental groups and a labor union have launched legal challenges against the pipeline approval, which was accompanied by 209 conditions.

Carr said a cabinet decision is imminent on whether or not the proposal should be returned to the National Energy Board for reconsideration.

"We're not interested in carrying things out longer than what is reasonable or necessary to do," he said. ●

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NORTH OF 60 MINING news

page 15 Dominion gets US$2.8 million for largest-ever Ekati diamond

www.MiningNewsNorth.com | The weekly mining newspaper for Alaska and Canada's North | Week of October 2, 2016

NEWS NUGGETS

Compiled by Shane Lasley

GOLDRICH MINING COMPANY

Located about 200 miles north of Fairbanks, the Little Squaw Mine is ramping up to be one of the largest placer gold mines in the United States.

Little Squaw placer gold mine hits production highs in 2016

Goldrich Mining Co. Sept. 26 provided an update on 2016 operations at the Little Squaw placer mine in northern Alaska. Through Aug. 31, 8,570 ounces of alluvial gold, for approximately 7,000 oz. of fine gold, has been recovered from the mine in 2016. This reflects a roughly 95 percent increase in gold recoveries compared with output during the entire 2015 mining season. Production for the year continued through Sept. 21 and final production numbers for the season will be released after all smelter settlement documents have been received. The Squaw Creek Mine is operated by Goldrich NyacAU Placer LLC, a 50-50 joint venture owned by Goldrich and NyacAU LLC. Prior to the formation of the joint venture, Goldrich outlined about 250,000 oz. of gold in a 10.5 million cubic yard alluvial deposit in Little Squaw Creek, averaging 0.25 oz. per ton gold. Goldrich said 5,540 oz. of the placer gold recovered this season was from outside the delineated deposit. To date, some US$26 million has been invested to develop the Little Squaw Mine. All initial capital expenditures are being funded by NyacAU under terms of the joint venture agreement.

Independent analysis verifies SuperLig dysprosium recoveries

Ucore Rare Metals Inc. Sept. 26 said an independent

see **NEWS NUGGETS** *page 14*

ALASKA STATE LIBRARY

The Apollo-Sitka gold mine on Unga Island began production in 1892, making it the first hardrock gold mine in Alaska. Redstar Gold Corp. is seeking extensions of the historically mined high-grade veins and new deposits along parallel structural trends that cut across Unga.

EXPLORATION

Digging deeper at Unga

Redstar takes fresh approach to exploring historic gold property in Alaska

By SHANE LASLEY

Mining News

With a new top executive and financial backing from one of the most respected investors in the mining space, Redstar Gold Corp. is taking a fresh look at Unga, a high-grade gold property that is home to Alaska's first hard-rock mine.

Going into 2016, Redstar appointed Peter Ball as president and CEO of the company, filling a void left by Ken Booth, who served as the company's interim top executive for about a year.

Ball brings more than 25 years of experience to Redstar, including his most recent role as senior vice-president of business and corporate development for Columbus Gold.

"The Redstar portfolio of projects, including our district-scale Unga gold project, are very encouraging and require the type of leadership that Peter is capable of offering," said Redstar Executive Chairman Jacques Vaillancourt.

> *"Ore deposits of epithermal veins do not necessarily outcrop at the surface, certainly not with ore grades, as shown in numerous examples around the world at deposits that are now mines."*
> ***—Jeffrey Hedenquist, independent consultant, Hedenquist Consulting Inc.***

The nearly 60,000-acre (24,282 hectares) Unga property blankets two high-grade gold trends – Apollo-Sitka and Shumagin – that each cut roughly six miles across Unga Island. Apollo-Sitka hosts Apollo, a historic mine that produced roughly 150,000 of gold from 1892 to 1913. Shumagin, a

see **DEEPER AT UNGA** *page 11*

● COLUMN

Producers explore for gold closer home

Global trend favors Alaska because of its multitude of prospects, large primary deposits and stellar political and social climate

By CURT FREEMAN

For Mining News

Reuters recently reported that the 10 largest gold-producing companies worldwide have steadily increased their near-mine exploration budgets over the past few years to 56 percent in 2015 from 45 percent in 2013. They also reduced their higher-risk greenfields exploration budgets to 21 percent from 25 percent in the same time period.

This retrenchment of exploration by the larger producers is occurring, while global gold output is declining with an expected reduction of 9 percent over the next three years. Mainly, this is good news for Alaska, since it is home to more than 3,300 documented gold prospects and several of the world's largest primary gold deposits. Factor in an enviable cost per ounce discovery rate that is less than 25 percent of the worldwide average and the fact that most recent gold discoveries are at or near the surface, and the odds of finding a significant new gold deposit in Alaska rank right up there with the best-endowed jurisdictions in the world. Further enhancing Alaska's stature as a mining destination is its zero rate of mine-site insurrections, kidnappings, contagious incurable diseases, poisonous critters and drug-cartel murders. Sure, we have our problems, but starting out further along the value chain has got to make Alaska just that much more attractive to the world's mining community.

The author

CURT FREEMAN

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Western Alaska

GRAPHITE ONE RESOURCES INC. closed a $1.3 million financing that will allow it to proceed with exploration and development of its Graphite Creek graphite project on the Seward Peninsula. The company also will work toward final preparation of a preliminary economic assessment on the project, estimated for completion in the third quarter of 2016.

REDSTAR GOLD CORP. reported initial exploration results from its Unga gold project near Sand Point. The company completed an infill rock-chip sampling and geological mapping program along steeply-dipping breccias along the two-kilometer- (1.24 miles) long Shumagin Zone, part of the larger nine-kilometer- (5.6 miles) long Shumagin Trend. These rhodochrosite-rich breccias are the main exploration target on the project. During 2016 the company collected 44 rock chip samples covering about 325 meters of strike along the Main breccia. These samples returned grades ranging from less than 1.0 grams-per-metric-ton gold up to 54.4 g/t gold and from less than 1 g/t silver up to 137 g/t silver. Samples taken along the Main breccia at Shumagin returned high-grade gold and silver values, including a composite surface-chip sample taken across the exposed width of weathered quartz-adularia rhodochrosite breccia, which returned a weighted average grade of 37.26 g/t gold and 103.7 g/t silver over a true width of 2.3 meters. The company also collected 15 rock-chip samples along similar rhodochrosite breccias at the Bunker Hill prospect where historic shallow diamond drill intercepts from DDH26 returned intervals of 37.7 g/t gold and 20.6 g/t silver over 0.76 meters and 11.48 g/t gold and 15.1 g/t silver over 1.21 meters. Rock-chip samples taken along 10- to 20-meter wide, east-west trending exposures of oxidized and manganese oxide-stained quartz-adularia breccias returned anomalous values of gold (up to 453 parts per billion) and silver (up to 26.4 parts per million). These breccias are enriched in tellurium (up to 20.4 ppm) and manganese (up to 8,190 ppm).

Interior Alaska

INTERNATIONAL TOWER HILL MINES LTD. posted the results of a pre-feasibility study on an optimized configuration for its Livengood gold project. The engineering optimization studies selected a project that will process 52,600 tons per day of ore and produce 6.8 million ounces of gold over 23 years. Compared to the 100,000-tpd project evaluated in a September 2013 feasibility study, this improved configuration reduced the capital costs by 34 percent, or $950 million to $1.84 billion; reduced the process operating cost by 28 percent, or $2.97 per ton to $7.48 /ton; and reduced the all-in sustaining costs by 16 percent, or $242 to $1,263 per oz. of gold. Average annual life of mine production would be 294,100 oz. from ore grading 0.71 oz. /t gold, with output of 378,300 oz. per year in years one through five from ore grading 0.88 oz. /t gold. Average life of mine recovery is estimated at 75 percent. Ore would be mined from a conventional truck and shovel open pit with a 1.3 to 1 waste-to-ore stripping ratio and processed in a single-line semi-autogenous and ball mill circuit. Total project electrical demand would be 55 megawatts drawn from a purpose-built, 50-mile-long 230 kV commercial electrical line brought in from Fairbanks. The revised study also included elimination of two previously planned fresh water supply reservoirs due to the inclusion of a subsurface fresh water supply from a local aquifer; elimination of a permanent accommodations camp as a result of the planned daily transport of workers to the mine site during operations; and owner, instead of contractor, operators in the placement of large development earthworks using mine pre-production material. At a $1,300-per-oz. gold price, the revised configuration has a negative $404 million net present value, calculated at 5 percent discount rate, with a 1.8 percent rate or return on investment and a 15-year payback period. The company is continuing optimization studies designed to further reduce capital and operating costs and improve project economics.

Just across the Tolovana River from the Livengood project but in a completely different geological terrane, **FREEGOLD VENTURES LTD.** announced results from its first drill hole from the 2016 drilling program at its Shorty Creek copper-gold porphyry project. Three additional holes have been completed and drilling is ongoing at the project. Hole SC 16-01 was collared in the center of a 1.0 kilometer by 0.75 kilometer magnetic high at Hill 1835, about 125 meters southwest of hole SC 15-03, which returned 91 meters grading 0.55 percent copper, 7.02 g/t silver and 0.14 g/t gold. Hole SC 16-01 intersected 434.5 meters grading 0.36 percent copper, 7.46 g/t silver and 0.12 g/t gold from the base of oxidation at 86.1 meters to end of hole at 520.6 meters. This same interval also contained elevated tungsten, averaging 273 ppm over the same interval. Mineralization is hosted in quartz vein stockworks and sulfide disseminations within strong secondary biotite alteration in a carbonaceous flysch unit intruded by feldspar quartz porphyry sills and dikes.

ENDURANCE GOLD CORP. announced the commencement of drilling on its 100 percent optioned Elephant Mountain gold project near Manley Hot Springs. Three targets are prioritized for drilling with five drill holes planned with initial focus on the South and North zones. Gold mineralization on the property is associated with three generations of quartz veinlets crosscutting altered granite and syenite and occurs in drainages where historic placer gold mining has occurred. The company believes the mineralization is similar to other intrusive-related gold deposits in the Tintina Gold Belt of eastern Alaska and western Yukon Territory.

CONTANGO ORE INC. reported additional 2016 drill results from its phase 2 drill program at the Tetlin gold project, a joint venture with a wholly owned subsidiary of **ROYAL GOLD INC.** Significant results from the North Peak zone included hole 16242 which returned 26.35 meters grading 5.55 g/t gold, hole 16243 which returned 17.51 meters grading 4.97 g/t gold, hole 16244 which returned 15.92 meters grading 11.74 g/t gold and hole 162248 which returned 9.06 meters grading 5.02 g/t gold and an additional 10.79 meters grading 4.05 g/t gold. The company also indicated that it was testing geological targets at West Peak and East Peak, for which assays are pending.

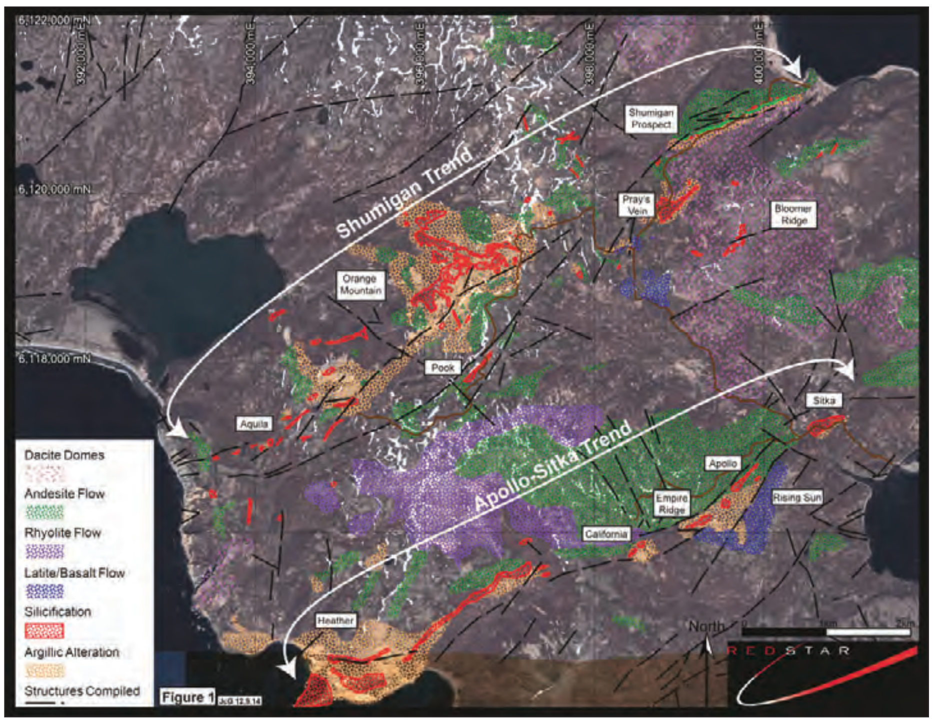
Alaska Range

WHITE ROCK MINERALS LTD. reported additional information on newly acquired claims at its Red Mountain volcanogenic massive sulfide project in the Bonnifield District. The high-priority targets are conductors located within zones of anomalous surface geochemistry that are indicative of proximal volcanogenic massive sulfide mineralization. The highest priority conductors are located within the identified geochemical target areas, some of which are coincident with strong base metal and precious metal anomalies from historic sampling. The resulting assessment identified 30 coincident geophysical and geochemical anomalies with the top five, Dry Creek West, ReRun, West Tundra Flats, Smog and Glacier target areas, considered as highly prospective for additional volcanogenic massive sulfide deposits. Most of the prospective target areas occur within Paleozoic volcanic and sedimentary rocks along a distinctive time-stratigraphic contact within the Sheep Creek syncline. The company plans to conduct surface geochemical sampling and ground geophysics at the highest priority target to define drill targets for the coming field season.

MILLROCK RESOURCES INC. reported that induced polarization geophysical surveys were being conducted on its Stellar gold-copper project located near the Denali Highway in the central Alaska Range. The work is being carried out by Vista Minerals (Alaska) Inc., which acquired an option on the project last year. The geophysical surveys are being conducted at the Jupiter copper occurrence and on the west flank of the high-grade Zackly gold-copper skarn deposit. Earlier this year, Vista significantly expanded the original claim block which now covers more than 17,000 acres (6,880 hectares). The historic resource at Zackly includes 185,724 oz. of gold and 61.6 million pounds of copper contained in 1,128,500 metric tons,

see **FREEMAN** *page 14*

REDSTAR GOLD CORP.



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DEEPER AT UNGA

parallel structural trend about 2,000 meters to the northwest, has been the primary focus of recent exploration.

"We believe that Unga, with its dual trends of epithermal low to intermediate sulphidation mineralization and gold showings … is currently amongst the most exciting and prospective gold projects in North America," Vaillancourt added.

Epithermal expert

With Ball at the helm, Redstar is looking beyond and below the high-grade surface gold veins that lured miners to Unga 125 years ago.

The company hired Jeffrey Hedenquist, one of the world's leading experts on epithermal gold system, to investigate the larger potential of Unga.

After two weeks on the island, Hedenquist found the high-grade gold mineralization at Unga shares characteristics with numerous intermediate sulfidation-style deposits around the world, such as the famous Comstock Lode in Nevada.

The epithermal gold expert advised a systematic exploration strategy that looks beyond and below the high-grade surface gold found along the Apollo-Sitka and Shumagin structural trends cutting across the island.

"Ore deposits of epithermal veins do not necessarily outcrop at the surface, certainly not with ore grades, as shown in numerous examples around the world at deposits that are now mines," Hedenquist penned in his report. "Thus, only assessing outcropping veins with good geochemical anomalies may be like only examining the tip-of-the-iceberg in terms of district potential."

Identifying targets

With Hedenquist's report as a guide, Redstar launched an exploration program focused on identifying new drill targets at Unga.

Shumagin zone, a 2,000-meter-long subset of the 9,000-meter (5.6 miles) Shumagin structural trend, was one of the primary targets of this newly informed exploration at Unga.

Past trenching and drilling in the Shumagin prospect area has traced high-grade gold-silver veins for more than 1,200 meters along strike and to a depth of 330 meters, including drilling completed by Redstar in 2015. High-grade gold encountered in drilling is often associated with rhodochrosite, a manganese carbonate mineral that typically occurs as red crystals.

A composited continuous chip sample collected this summer from a weathered breccia containing rhodochrosite averaged 37.26 g/t gold and 103.7 g/t silver across 2.3 meters.

"The summer exploration program at Shumagin has refined new exploration targets along known structures hosting high-grade rhodochrosite-bearing breccias within dilation zones localized along the … Shumagin zone," said Redstar President and CEO Peter Ball. "We see a lot of room for additional discovery potential at the Unga Gold Project, as we continue to advance exploration at Shumagin, and we will apply that knowledge towards defining new exploration targets along the … Shumagin Trend."

One such area is Orange Mountain, a prospect about 3,800 meters southwest of the Shumagin zone that show the potential to host a deeper epithermal vein system.

"Based on exploration work to-date, Orange Mountain remains an exceptional exploration target, which we will look to further examine in 2017," explained Ball. "Geological interpretation is that Orange Mountain may host buried intermediate epithermal vein systems rooted at depth."

While deeper veins at Orange Mountain might take a bit more work to find, this summer's exploration turned up shallower and more immediate drill targets at Empire Ridge, a prospect along the Apollo-Sitka trend.

Redstar said exposed vein breccias at Empire Ridge are structurally, texturally and geochemically similar to those found at the historic Apollo Mine, which is located about 400 meters northeast.

"The company can now plan new diamond drill targets along the roughly 750-meter-long by 250-meter-deep panel along the Taurus Bench and Empire Ridge zones that collectively, define the continuation of the Apollo vein system to the southwest of historic mine development stopes. This immediately presents a drill-ready target, for a potential shallow, high-grade oxidized vein gold system," explained Ball.

Sprott invests

Redstar's work at Unga caught the attention of renowned mining investor Eric Sprott, who now owns 30 million shares, or 11.6 percent of the issued and outstanding common shares of the gold exploration company on a non-diluted basis.

All told, Redstar raised C$4.1 million in the financing that closed on Sept. 13. With these funds, the company plans to complete an updated technical report for Unga and dig deeper into the potential of this high-grade gold project in Alaska.

"I would like to welcome Mr. Sprott as one of Redstar's largest shareholders and newest strategic investor. The company can now make plans to initiate drilling up at our 100 percent-controlled Unga gold project in Alaska," said Ball. ●

NORTHERN NEIGHBORS

Compiled by Shane Lasley

ROCKHAVEN RESOURCES LTD.

Rockhaven Resources completed 8,427 meters of drilling aimed at bolstering the results of a preliminary economic assessment completed earlier this year for the company's Klaza gold-silver project in southern Yukon Territory.

Klaza drilling expands open-pit potential

Rockhaven Resources Ltd. Sept. 26 reported another batch of results from a recently completed drill program at its Klaza gold-silver property in southern Yukon Territory. Highlights from this drilling include 4.32 meters averaging 17.01 grams per metric ton gold and 121 g/t silver in hole 317; 8.09 meters averaging 3.48 g/t gold and 88.4 g/t silver in hole 318; and 2.46 meters of 10.25 g/t gold and 52.9 g/t silver in hole 337. The 2016 drill program focused on better defining and expanding near -surface mineralization adjacent to open pits and declines proposed in a preliminary economic assessment released in March. The majority of drilling was conducted within the Central and Eastern Klaza zones, testing veins located to the east and in the immediate footwall of the proposed open pit. These near-surface veins are particularly attractive targets because most are not included in the current mineral resource estimate or the proposed mine plan presented in the PEA. "The PEA highlighted the importance of high-grade, open pittable resources to project economics. These Central and Eastern Klaza zone results and the recently reported drill intersects from the Rex zone demonstrate that additional discoveries of (this) type can continue to be made at Klaza," said Rockhaven CEO Matt Turner. "Results from this drilling have exceeded our expectations, further illustrating the deposit's excellent potential to grow." The 2016 field program at the Klaza property consisted of 8,427 meters drilled in 44 holes.

Goldstrike finds new Lucky Strike gold zone

Goldstrike Resources Ltd. Sept. 26 reported that trenching at its Lucky Strike property, located in the heart of Yukon's White Gold District, has returned values of 0.42 g/t gold over 154 meters, including 3.0 g/t gold over eight meters. These results are from the Monte Carlo discovery zone, which measures 1,400 by 350 meters and remains open. Monte Carlo is one of four large gold-in-soil anomalies discovered at Lucky Strike. Other significant

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Petroleum news

North of 60 Mining News is a weekly supplement of the weekly newspaper, Petroleum News.

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NORTH OF 60
MINING NEWS

Companies involved in Alaska and northwestern Canada's mining industry

DIRECTORY

The Red Dog mine in Northwest Alaska.

Mining Companies

Kinross Fort Knox/Fairbanks Gold Mining Inc.
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Located 25 miles northeast of Fairbanks, Fort Knox is the largest gold producing mine in Alaska. During 2016, Fort Knox celebrated two milestone events, the seven-millionth-ounce of gold produced and the 20-year anniversary of commercial operations.

Usibelli Coal Mine
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FREEMAN

grading 6.03 g/t gold and 2.19 percent copper. At the Mars prospect, 10 kilometers (six miles) west of Zackly, soil sample lines across altered zones consistently returned anomalous copper values, including 950 meters averaging 763 ppm copper, and 1,200 meters averaging 462 ppm copper. At the Jupiter prospect, Millrock previously identified a multi-element geochemical anomaly measuring 1.7 kilometers by 2.3 kilometers which is underlain by a corresponding magnetic high. The anomaly consists of 33 soil samples with average values of 832 ppm copper and 92 ppb gold. In addition to high copper and gold, the soils contain anomalous silver and cobalt. The newly discovered Gemini target area is a strong copper-in-soil anomaly centered on a chlorite alteration zone in andesite and basalt. The anomaly measures 1.8 kilometers by 3.0 kilometers and averaged 568 ppm copper in limited sampling. The core copper anomaly is accompanied by strongly anomalous lead, gold, and molybdenum, and is surrounded in a zoned halo of zinc, iron and manganese. The Moonwalk prospect is an intrusion-related gold prospect in moderately dipping sedimentary rocks intruded by a granodiorite sill. Quartz veins are mapped over a broad zone of east-trending veining, which appears to cut both intrusive and sedimentary rock. Rock and soil samples from Millrock's work returned results consistently anomalous in gold, antimony, arsenic, bismuth and zinc. Soil samples covering an area roughly 500 meters by 700 meters over the altered and veined granodiorite averaged 1.15 g/t gold with rock samples returning grades up to 30.4 g/t gold.

Southeast Alaska

CONSTANTINE METAL RESOURCES LTD. and funding partner **DOWA METALS & MINING CO. LTD.** reported the start of road construction and provided an update on work programs at their Palmer volcanogenic massive sulfide project near Haines. The road will provide significantly improved access for exploration, environmental and geotechnical work at the project. The 2016 summer drill program included four reconnaissance exploration holes (1,465 meters) and three geotechnical holes (502 meters) for a combined total of 1,967 meters, with assays now received for three of the four exploration holes. Highlights from drilling include a 20.5-meter thick zone of chert and semi-massive pyrite intersected at the CAP prospect. The intersection, which is anomalous in silver and other pathfinder elements, is significant because at the South Wall and RW zones, located 2,500 meters to the northeast, chert grades laterally into high-grade massive sulfide mineralization. The thickness of the chert horizon at CAP, which occurs at the contact between overlying argillite and altered footwall volcanics, suggests good potential for a well-developed massive sulfide system within the immediate area. Mapping and rock and soil sampling programs were completed at several other areas of the project with the objective of advancing prospects to the drill stage. Results of this work will be summarized following receipt of assays. Inferred resources at Palmer currently include 8.1 million metric tons grading 1.41 percent copper, 5.25 percent zinc, 0.32 g/t gold and 31.7 g/t silver. ●

UCORE RARE METALS INC.

Independent laboratory tests confirm that SuperLig One – a pilot plant designed by IBC Advanced Technologies to separate rare earth elements using molecular recognition technology – has created 99.99 percent pure dysprosium from a solution derived from Ucore Rare Metals' Bokan Mountain project in Southeast Alaska.

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third-party review has confirmed previously reported operational success of the SuperLig-One pilot plant near Salt Lake City, Utah. Under the observation of Ed Bentzen of Resource Development Inc., a pregnant leach solution from the Bokan Dotson-Ridge project in Southeast Alaska was submitted to the SuperLig-One purification circuit. Under Bentzen's direction, output samples from the circuit, containing purified dysprosium, were then analyzed by both an independent commercial laboratory, Activation Laboratories, located in Ancaster, Ont., and an independent university laboratory, Brigham Young University, located in Provo, Utah. These laboratory results confirm and authenticate the 99.99 percent dysprosium purity obtained earlier by IBC Advanced Technologies Inc. "This is an exciting time for Ucore," said Ucore President and CEO Jim McKenzie. "Our next steps will include the scoping of a full-scale production plant to process high demand specialty metals, possibly in the Houston area, and preparation for the licensing and joint-venturing of our pre-existing catalogue of SuperLig® products (which include dozens of customized molecules designed to locate and appropriate a variety of specialty metals) via a hub and spoke growth model."

Vista begins geophysical surveys at Stellar project

Millrock Resources Inc. Sept. 22 said induced polarization geophysical surveys are underway at its Stellar gold-copper project located near the Denali Highway in central Alaska. This IP survey – being carried out by a subsidiary of Vista Minerals Pty Ltd, a private Australian company – covers the Jupiter copper occurrence and on the west flank of the high-grade Zackly gold-copper skarn deposit. Roughly 12,200 meters of drilling in some 85 holes has been completed at Zackly, outlining a historical (non-NI 43-101-compliant) resource of 1.13 million metric tons grading 6.03 grams per metric ton (218,944 ounces) gold and 2.69 percent (66.9 million pounds) copper. The Jupiter occurrence is a 1,700- by 2,300-meter geochemical anomaly identified by Millrock. Underlain by a corresponding magnetic high, this anomaly consists of 33 soil samples ranging from 246 to 3,850 parts per million copper, averaging 832 ppm. Gold values in these soil samples average 92 parts per billion and range from five to 178 ppb. One grab sample of rock collected by Millrock in an area northwest of the main Jupiter prospect in 2013 returned 23 percent copper, but no follow up work has yet been done. Vista plans to inspect the site of this sample this year. "The Zackly gold-copper prospect presents an excellent opportunity for Vista to establish a modern gold resource and expand upon it," said Millrock President and CEO Greg Beischer. "The porphyry and intrusion-related gold targets, none of which have ever been drilled, are virgin country, ripe for a new discovery." Vista and Millrock formed an option to joint venture agreement on the project in late 2015. Millrock presently owns the claims, subject to Vista's right to earn up to an 80 percent interest by investing US$4 million on exploration and paying US$300,000 to Millrock over a four-year period. A production royalty would be payable to Altius Minerals Corp. Earlier

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results from trenching at Monte Carlo include 0.21 g/t gold over 28 meters at trench 7; 0.58 g/t gold over 58 meters in trench 8; and 5.15 g/t gold over 6.8 meters in trench 9. Goldstrike said this initial trenching confirms that Lucky Strike has strong potential for a near-surface gold deposit similar to Goldcorp's Coffee deposit and Kinross' Golden Saddle deposit.

Klondike hits Nugget gold; Lone Star next

Klondike Gold Corp. Sept. 27 reported results from drill at the Nugget zone on its Klondike gold project near Dawson City, Yukon Territory. Highlights from drilling at Nugget include 11.93 meters averaging 3.3 grams per metric ton gold in hole EC16-55; 14.34 meters averaging 5.1 g/t gold in EC16-32; and 0.22 meters of 336.6 g/t gold in EC16-54. The company said this year's drilling within the Dominion area of the Klondike property returned sporadic results. Two holes with interesting intercepts include 0.34 meters of 15.4 g/t gold in DM16-01; and 1.5 meters of 1.7 g/t gold and 162 g/t silver in DM16-08.

Drilling is currently underway at Lone Star, a target located near Eldorado Creek at the western end of Klondike's 50-kilometer- (31 miles) long property. The company plans to drill roughly 15 holes for about 1,500 meters at Lone Star.

Millrock readies BC property for drilling

Millrock Resources Inc. Sept. 26 said a ZTEM airborne geophysical survey is underway at its Oweegee Dome project in the Golden Triangle area of northwestern British Columbia. ZTEM, Z-Axis Tipper Electromagnetic system, is an innovative airborne electromagnetic system which uses the natural or passive fields of the earth as the source of transmitted energy. This system is capable of deep penetration and identification of conductive zones at depth. Case studies have shown that structural features and pyrite halo mineralization around significant porphyry ore bodies are possible. Geotech Ltd., the company that developed ZTEM, is conducting the survey with their aircraft and instrumentation, and will be merging these geophysical results with other types of surveys that have previously been conducted on the property by prior operators. "This survey will complement the existing geophysical information that we acquired along with the property when we purchased it. We now have all project information in a database and will use all data at hand to develop drill targets for testing in 2017," said Millrock Chief Exploration Officer Phil St. George.

Exceptional diamond, plant restarts at Ekati

Dominion Diamond Corp. Sept. 22 reported the restart of the process plant at its Ekati Mine and the sale of an exceptional diamond recovered at the Northwest Territories operation. The Ekati process plant, which was damaged by a fire in June, resumed operations at full capacity on Sept.21. During the three-month downtime, Dominion implemented an active management strategy designed to mitigate the impact of the fire on production and cash flow for the current fiscal year. As part of this strategy, the company reduced operating and capital costs by deferring mining activities at the Lynx and Pigeon open pits, while continuing to mine and stockpile higher value ore from the Misery Main open pit and Koala underground. The ore blend for the remainder of the current fiscal year is expected to be a blend of the higher value Misery Main and Koala ore of which about 750,000 metric tons was available in stockpile when the plant resumed operations. The total cost of the process plant repairs is about US$15 million. "We are very pleased the process plant repairs have been substantially completed ahead of schedule and below our original cost estimate," said Dominion CEO Brendan Bell. "This is a testament to the outstanding skills and determined efforts of our team at Ekati. Their contributions were instrumental in the development and implementation of our active management strategy which is expected to help minimize the impact of the fire on production and cash flows for this fiscal year." In June, Dominion recovered a 186-carat gem-quality diamond from the Pigeon kimberlite. The exceptional stone – the largest gem-quality diamond ever recovered at Ekati – sold for US$2.8 million at the company's most recent sale. "The Ekati mine is renowned for its premium gem quality diamonds," said Bell. "We are particularly encouraged that this exceptional stone was recovered during the processing of ore mined from the early benches of the Pigeon open pit. The recovery of a gem-quality stone of this size is a reminder that there continues to be upside poten-

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DOMINION DIAMOND CORP.

This 186-carat gem-quality diamond recovered from the Ekati Mine in Northwest Territories fetched US$2.8 million at Dominion Diamond's most recent sale.

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this year Vista significantly expanded the original Millrock claim block by staking of claims, all of which are now subject to the option to joint venture agreement. The property now covers 17,759 acres (7,187 hectares).

White Rock identifies new drill targets at Red Mountain

White Rock Minerals Ltd. Sept. 13 said it has identified a number of high-priority volcanogenic massive sulfide targets at its expanded Red Mountain project in the Bonnifield District of central Alaska. In addition to extending the known zinc-silver-lead-gold deposits at Dry Creek and West Tundra Flats, White Rock said there is significant potential to discover several new metals-enriched VMS deposits at Red Mountain. Jim Franklin, a recognized global VMS expert, completed an assessment of surface geochemical data recently compiled by White Rock. The study aimed to use modern vector analysis to identify new exploration targets from old data. Using the known deposits at Dry Creek and West Tundra Flats to calibrate his assessment of regional data, Franklin prioritized the Dry Creek West, ReRun, West Tundra Flats, Smog and Glacier target areas as highly prospective for additional VMS deposits. Condor Consulting Inc. completed a detailed interpretation of an electro-magnetic and magnetic survey flown by the Alaska Division of Geological and Geophysical Surveys in 2007. Also using the Dry Creek and West Tundra Flats deposits to calibrate the data, Condor identified a number of high-priority conductors with the potential of being caused by massive sulfide mineralization. The highest priority conductors are located within the identified geochemical target areas. White Mountain said the two studies have provided a pipeline of targets for follow-up field assessment. The highest priority conductivity anomalies will be advanced through field programs of surface geochemical sampling and ground geophysics to define drill targets for the coming field season. White Rock CEO Matt Gill said, "The two studies underpin our belief that the Red Mountain project could be home to a new camp of high-grade zinc-silver-gold VMS deposits. Of the 30 conductors associated with geochemical anomalism, White Rock will aim to prioritize five of the best conductors for a campaign of follow-up field work that will culminate in drilling to test the best of these targets in addition to confirming the existing deposits at Dry Creek and West Tundra Flats." On Sept. 28, the company reported plans to raise up to AU$5.74 million. These funds will be used to complete a feasibility study and environmental impact statement for its Mt. Carrington gold-silver project in Australia and exploration at Red Mountain. ●

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tial to the modeled prices used for our Ekati ore bodies."

TerraX expands gold discovery at Mispickel

TerraX Minerals Inc. Sept. 22 reported results from the first four holes of a planned 27,000-meter drill program at it Yellowknife City Gold Project, immediately north of the Northwest Territories capital. Drilled at the Mispickel, all four holes cut significant zones of gold mineralization. Highlights include: 5.53 meters averaging 29.85 grams per metric ton gold in the hanging wall zone of hole TWL16-020; three meters of 22.44 g/t gold in the main zone of TWL16-020; 5.85 meters of 12.47 g/t gold in TWL16-019; 4.67 meters of 13.83 g/t gold in TWL16-021; and two meters of 9.37 g/t gold in hole TWL16-022. "The pervasive gold mineralization at Mispickel continues to indicate a large mineralizing system. There are currently three drills turning on the property with a focus on expansion step-outs and discovery drilling," said TerraX President Joe Campbell. TerraX has completed 13 of 20 holes planned for Mispickel this fall. The company plans to follow-up at Mispickel by further testing along the strike and dip extensions of the structure during the winter drill program scheduled to begin in January.

Largest new diamond mine opens in NWT

The De Beers Group Sept. 20 reported the opening of Gahcho Kué, the world's largest new diamond mine. A joint venture between De Beers (51 percent) and Mountain Province Diamonds (49 percent), the Gahcho Kué Mine in Northwest Territories is expected to produce some 54 million carats of rough diamonds from about 35 million metric tons of scheduled material over a 12-year lifetime. Comprised of three open pits, the mine will employ 530 people full-time. Gahcho Kué was opened officially by De Beers Group Chairman and Anglo American Chief Executive Mark Cutifani, De Beers Group CEO Bruce Cleaver, De Beers Canada CEO Kim Truter, Mountain Province Diamonds CEO Patrick Evans, and representatives of First Nations and Metis communities in the Northwest Territories at an event that included 150 guests from across Canada and around the world. "Our employees, our business partners and our community partners went above and beyond to deliver this world-class asset ahead of schedule and under budget. All those who played a part from discovery through permitting, construction, commissioning and now first production can be proud to have done so in a safe and environmentally responsible way," said Truter. Underpinned by a US$1 billion capital investment, the development of Gahcho Kué between has already provided a C$440 million boost to the Northwest Territories economy, according to a recent socio-economic impact study completed for The De Beers Group of Companies. More than 90 percent of Gahcho Kué's economic impact will be delivered once the mine becomes fully operational, equivalent to a further C$5.3 billion to the territory. Including its supply chain impacts, the mine supported more than 2,700 jobs in 2015, with employment at the site representing more than 10 percent of employment in the NWT's extractive industries. ●

EXPLORATION & PRODUCTION

US drilling rig count up 5 to 511

The number of rigs drilling for oil and natural gas in the U.S. increased by five the week ending Sept. 23 to 511.

A year ago, 838 rigs were active. Depressed energy prices have sharply curtailed oil and gas exploration.

Houston oilfield services company Baker Hughes Inc. said 418 rigs targeted oil, up two, and 92 natural gas, up three. One was listed as miscellaneous.

Among major oil- and gas-producing states, Texas and Oklahoma each gained two rigs and Alaska, California, North Dakota and Pennsylvania were each up one.

Louisiana, New Mexico and West Virginia each declined by one rig.

Arkansas, Colorado, Kansas, Ohio, Utah and Wyoming were unchanged.

The U.S. rig count peaked at 4,530 in 1981. It bottomed out in May at 404.

—ASSOCIATED PRESS

Satellite radar confirms man-made quakes

Scientists used radar from satellites to show that five Texas earthquakes, one reaching magnitude 4.8, were caused by injections of wastewater in drilling for oil and gas.

In 2012 and 2013, earthquakes — five of them considered significant — shook East Texas near Timpson. A team of scientists for the first time were able to track the uplifting ground movements in the earthquake using radar from satellites. A study in the journal Science on Sept. 22 says it confirms that these were not natural, something scientists had previously said was likely using a more traditional analysis.

Study co-author William Ellsworth of Stanford University said the technique provides a new way to determine what quakes are man-made.

The team looked at two sets of wells, eastern and western. The eastern wells were shallow and the satellite radar showed that the eastern wells weren't the culprit, but the high-volume deeper western ones were, Ellsworth said.

Cornell University seismologist Rowena Lohman, who wasn't part of the study, said it shows that satellite data of ground changes provide good ways to complement what's measured on the ground.

The quakes have stopped, but Ellsworth said, "the area was shaken pretty thoroughly over a period of about 18 months."

Ellsworth said the shaking stopped when injection of wastewater dramatically decreased. And that's a lesson that other areas — such as Kansas and Oklahoma — also have learned.

"Part of the solution is how we manage this problem," Ellsworth said. "If we get the pressure to go down at depth, the earthquakes stop."

—ASSOCIATED PRESS

PIPELINES & DOWNSTREAM

RCA OKs Enstar storage recovery change

The Regulatory Commission of Alaska has approved a change to the way in which Enstar Natural Gas Co., the main Southcentral Alaska gas utility, recovers the cost of storing gas in the Cook Inlet Natural Gas Storage Alaska facility on the Kenai Peninsula. Enstar stores excess gas in the facility during periods of low gas demand and then withdraws the gas to bolster its gas supplies when demand is high.

The utility pays to reserve storage capacity in the CINGSA facility, and to inject and withdraw gas. Enstar adds these storage costs to the cost of the gas for its customers. Essentially, while making a return on the fees it charges for shipping gas through its pipeline network, Enstar simply passes through the cost of its gas supplies, including the storage costs, in the form of what is called a gas cost adjustment, or GCA.

Enstar has been accumulating records of its storage expenses in a "gas stored account," and then recovering these costs retrospectively by allocating the costs proportionately across gas withdrawals, at the time the gas is pulled from the storage facility. The consequence is to defer some portion of the storage costs from one year to the next, since not all gas stored in a given year is used during that year.

Under the new arrangement, which Enstar requested and RCA has now approved, the storage costs will instead factor into each year's GCA calculation, regardless of whether the gas has been withdrawn from storage. This will, in effect, eliminate the deferral of the recovery of any of the storage costs. The overall impact will be to increase the immediate cost of the gas that Enstar sells while reducing the cost of the gas that Enstar holds in storage, with the average cost of gas declining over time, the commission says.

The commission says that the other Southcentral utilities that use CINGSA already employ the same type of cost recovery mechanism that Enstar had requested and that nobody had objected to the proposed tariff change.

—ALAN BAILEY

● GOVERNMENT

AOGCC sets regulation changes workshop

AOGA, ConocoPhillips support updating, but have concerns with sunset provisions, cementing changes, log submittal requirements

By KRISTEN NELSON
Petroleum News

Alaska's oil and gas industry is objecting to some of the regulatory changes proposed by the Alaska Oil and Gas Conservation Commission. The commission took public comments Sept. 27 on the proposed changes, with ConocoPhillips Alaska and the Alaska Oil and Gas Association expressing concerns with some of the proposed changes and requesting a public workshop so industry could better understand the commission's goals.

In response the commission scheduled a public workshop on the proposed changes for Nov. 1 and continued the Sept. 27 hearing to Jan. 10.

Another issue aired at the Sept. 27 hearing involved regulations for hydraulic fracturing. Cook Inlet Keeper has asked the commission to address hydraulic fracturing regulations and the commission said it would schedule a separate hearing on that issue for Dec. 15.

In announcing the regulations workshop date, AOGCC Chair Cathy Foerster said she would be hesitant to schedule a second workshop, telling industry representatives that while the proposal for a workshop was a good idea, she wouldn't allow a workshop to turn into a lengthy stalemate over the proposed changes. The Nov. 1 public workshop will provide time for public input and modifications of regulations to be firmed up for the Jan. 10 continuation of the hearing, she said.

Impacts seen

In written comments ConocoPhillips told the commission it "sees merit in many of the proposed changes" and supports "updating and clarifying the regulations."

But the company said several of the commission's proposed changes "could have material adverse impacts to oil and gas producers," and encouraged the commission to hold a workshop on the proposed changes.

Kara Moriarty, president and CEO of AOGA, said a hallmark of the commission has been consistency and predictability. Most of the proposed changes are not particularly problematic, she said, but AOGA members are concerned about the change in cementing requirements, the expansion of logs subject to filing and sunsetting of the commission's orders.

Moriarty said the change in wording on logs required to be filed could be read as encompassing all logs run, including those with confidential information such as interpretive logs, with a potential result that companies wouldn't do some interpretive work.

AOGA had suggested more confidentiality for logs and Commissioner Dan Seamount asked if that would apply to development wells.

Joshua Kindred, AOGA environmental counsel, said the issue was that if some confidentiality is not allowed, companies may stop investing in some interpretive log work.

Cementing issue

A proposed cementing change inserts the word "vertical" in a requirement that cement fill a minimum of 500 feet above significant hydrocarbon zones, a change from the previous measured depth. Measured depth is measurement along the wellbore, whereas vertical depth is measurement from the surface. There would be no difference in a vertical well, but today most North Slope wells are directionally drilled.

Seamount asked about the additional cost of requiring cementing based on vertical depth rather than measured depth and Kindred said AOGA did not have costs which he said would be case specific.

He told Commissioner Hollis French that the change from measured depth to vertical depth in the requirements could lead to technical risk and suggested the commission look at the requirement on a case-by-case basis.

> *A proposed cementing change inserts the word "vertical" in a requirement that cement fill a minimum of 500 feet above significant hydrocarbon zones, a change from the previous measured depth.*

Randall Kanady, ConocoPhillips drilling engineer, told the commission the company was particularly concerned about changes in cementing requirements, casing test pressures and automatic sunsetting for the commission's orders.

Kanady said that in a sample Colville River unit well, the length requiring cement would be almost double. He said 500 feet of measured depth has provided good zonal protection and said he doesn't know of a case where it hasn't been sufficient.

He also cited potential technical risks from the vertical measurement cementing requirement.

Sunsetting

The commission has proposed sunsets for all of its orders, including pool rules which govern pool operations.

Moriarty said sunsetting would create greater uncertainty and noted the commission already has the authority to alter orders.

In its written comments ConocoPhillips said it "strongly opposes" the sunset proposal, urging the commission "to refrain from adopting such an onerous rule without greater consultation with affected operators" and a public workshop to discuss the commission's objective "and less burdensome alternatives to the current proposal."

The company said it sees "a high risk of new and unnecessary problems" with automatic expiration.

The commission has proposed that conservation orders expire five years after adopted or when the operator changes for the property; enhanced recovery, area, storage and disposal injection orders would expire two years after adoption if operations have not begun or two years after the operations authorized by the order or five years from adoption if operations are ongoing or when the operator changes.

In its written comments AOGA said the commission needs to clarify whether the change would affect only new orders, and also said the commission already possess the authority to alter orders and said the automatic sunset would place a large administrative burden on operators. ●

Contact Kristen Nelson at knelson@petroleumnews.com

GOVERNMENT

Fisheries Service to assess Cook Inlet IHAs

The National Marine Fisheries Service has announced its intent to conduct an environmental assessment of the impacts of issuing incidental harassment authorizations for Cook Inlet for 2017. The agency has also said that it needs to receive applications for IHAs for 2017 by Oct. 15.

An IHA, while not strictly a legal requirement, is an essential prerequisite for anyone conducting offshore activities since it authorizes the minor, unintended disturbance of marine mammals, thus protecting the authorization holder from violating the Marine Mammal Protection Act. A company conducting, for example, a seismic survey in Cook Inlet will obtain an IHA for the survey — the IHA, which lasts for one year, involves a public review process and typically includes specified measures needed to mitigate the possibility of significant wildlife disturbance.

Of particular concern in Cook Inlet is the beluga whale, a marine mammal subspecies that has been listed as endangered under the Endangered Species Act. The Fisheries Service says that in October 2014 it announced an intention to prepare an environmental impact statement, analyzing the impacts of issuing IHAs for Cook Inlet. But, given the length of time required to complete an EIS of this type, the agency is conducting a simpler environmental assessment for 2017.

The concept behind the environmental assessment is to evaluate the potential impact of multiple concurrent IHAs on beluga whales, rather than separately conducting an individual assessment for each IHA, the agency says.

The Fisheries Service also commented that it has issued new guidance for assessing the impacts of anthropogenic sound on marine mammal hearing.

—ALAN BAILEY

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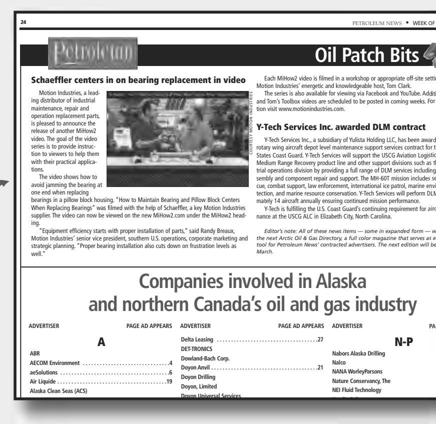

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STEELHEAD LNG

Steelhead and that provide a role for First Nations from the outset can deliver strong benefits to all affected communities.

Steelhead Chief Executive Officer Nigel Kuzemko conceded the current market is challenging for LNG development, "but our projects remain very promising opportunities," with the 7G pact representing a "positive step toward realizing our sustainable and economic delivery model for LNG."

But he acknowledged "there is more work to do and milestones to achieve for our projects to proceed."

Steelhead has five 25-year export licenses from the National Energy Board to ship a combined 30 million metric tons a year of LNG.

The deal comes a year after Steelhead teamed up with Oklahoma-based Williams Cos. to examine the feasibility of building a gas delivery pipeline from the mainland to two sites — one at Malahat at the southern end of Vancouver Island and the other near Port Alberni on the island's west side.

That includes the possible revival of a C$340 million undersea pipeline that was shelved in 2003.

Steelhead said its design concept for the two floating terminals will need only a "limited land-based footprint at each site" and offer "scalable production capacity" leading to an "efficient decommissioning process at the end of the facility lifespan."

The company also said it is exploring ways to access emerging LNG markets such as the conversion of international shipping vessels to LNG from bunker fuel and diesel.

Steelhead has five 25-year export licenses from the National Energy Board to ship a combined 30 million metric tons a year of LNG.

—GARY PARK

Petroleum news — Oil Patch Bits

Foss partners with Seattle Maritime Academy

Foss Maritime has entered into a four-year agreement with the Seattle Maritime Academy to support the academy's new training facility, which includes a state-of-the-art engine room simulator, a full mission bridge simulator and a computer simulation training laboratory.

Foss' experienced mariners will have access to the new simulators, along with the customized professional development training offered by Seattle Maritime Academy, to support upgrading or renewing licensing, and to learn new skills.

"At Foss, safety is our top concern. And when it comes to avoiding accidents, there are three things that really help: practice, practice and practice. Having as much time as possible on a simulator is an excellent way for mariners to build their skills and confidence in vessel handling, navigation and equipment handling," said Scott Merritt, senior vice president at Foss.

The new facility will also prepare students new to the industry for maritime careers, with professional/technical programs in maritime engineering technology and marine deck technology.

"We are grateful for Foss' support and participation as we build this new resource for the community, and are looking forward to working with Foss mariners to build their skills," said Sarah Scherer, director/associate dean of Seattle Maritime Academy.

The opening ceremony for Seattle Maritime Building 1, 24,000 square feet on two floors, will be held Oct. 6. The building will be christened like a vessel. Foss and other industry professionals will be in attendance.

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

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

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

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GIESSEL Q&A

attorneys. I think if we asked a third, we'd get a third opinion. I think that is something we need a firm answer to before we move forward on this because it makes quite a difference in the cost. As I mentioned we also heard from Wood Mackenzie that even if the state were to get the tax exempt status and gave up its production tax, property tax and corporate income tax, the project would still not be economic. I would be interested in hearing from the communities along the route who would be giving up the property tax. We asked the Wood Mackenzie consultant if he had considered the impact payments. He had not considered those payments. That to me indicates they hadn't even considered all of the costs.

Petroleum News: So what would you like to see done next with pre-FEED coming to an end?

Giessel: First of all, what I would like to see is us completing the FERC process so continuing to go and follow through on that part of the project. We can also look at decreasing the cost of supply. There are things the state can be doing that would expedite and reduce the cost of this project.

We have roads that are going to be needed to transport the materials to build the pipeline, the LNG facility and the gas treatment plant. So those roads can be beefed up now. This is going to be heavy equipment running across these roads; DOT can be working on that. We can be working on wetlands mitigation. We have talked in the past about a wetlands mitigation bank that would be state operated. That's something we can work on. We can continue to work with the federal agencies on the permitting process.

The other thing that is sort of obvious but we forget to talk about is continue to talk about and encourage oil production on the North Slope. With oil more gas is found. In addition, an increase in oil production will help our finances. So these are just a few things we can continue to do that can advance this project even though we may not be progressing at the same speed we originally were when we started when it was economic.

Petroleum News: So who does it fall under? Is it the commissioner? Is it John Hendrix? Is it Keith Meyer? A little of each?

Giessel: At the end of the day, it falls to the governor to strategize how we can continue to move forward under SB 138 for this project, so instructing the Department of Transportation to continue to work on roads. Certainly the Department of Revenue has a role in oil production on the North Slope through its tax policy advocacy. We are continually hearing about increasing the oil tax structure. We know that has a concerning effect with companies willing to invest on oil production on the North Slope. We have tax credits that have not been paid. That is something the Legislature is concerned about and the companies are floundering as they wait for those payments to pay off bills that already occurred.

With wetlands mitigation bank, that's something DNR can be working on. DNR and the Department of Revenue can continue to work on the state components of the permitting process for the project.

Petroleum News: You mentioned the state's role for oil production with tax policy advocacy. Do you expect to be discussing changes next session?

Giessel: I have heard through media reports that Director (Ken) Alper continued debate on tax policy, so I would not be surprised if that were brought to the table again. On the other hand, I don't know for certain that it would be. We've seen a significant slowdown with the oil industry on the North Slope. I can tell you as I talk to thousands of constituents I have encountered people who have been laid off from their jobs. I have walked neighborhoods where I have not previously seen for sale signs on houses that are already empty. Having been through 1986 here in Alaska, I'm not real interested in going through that kind of crippling shutdown again. We can do that to ourselves if we will be antagonistic to an industry that feeds the families of a lot of Alaskans. And if we do, we can lose Alaskans. I'd rather not do that.

Petroleum News: The two issues that seemed to be in play are the 4 percent hardened floor and the net operating losses being carried forward. Initially, after last year's working group of tax credits supported a hard floor, you supported it but then during the session ruled it should remain as it is. Has your positioned changed?

Giessel: My position hasn't changed. It has been demonstrated that hardening the floor is a tax increase for the smaller companies as well as the large. For the smaller companies, it's more than a simple 4 percent increase; it's a 100 percent increase. So my position remains the same. I think it would be imprudent. It's essentially a tax increase on companies that right now are not making a profit at what they are doing. I noticed today's price is about $47 a barrel. Director Alper noted to us during session that $47 a barrel — on average — represented a breakeven point for North Slope companies.

Petroleum News: The second was the NOLs and those being carried forward.

Giessel: We have a net profits system. We moved to this somewhere in the mid-2000s. Net operating losses or carry forward losses are an integral part of that type of tax structure. So changing that NOL would be a significant change to our foundational tax structure. Again, that's not something I think we want to do. I think it needs a lot more discussion. If we want to go back to a gross tax system that's something we can discuss, but that's a significant change and would require quite a bit of discussion.

Petroleum News: So whatever your role is next year, what would your priorities be next session?

Giessel: My priority has been for the last four years in Resources is what we call "grow the pie," in other words increase the use of our resources to support our families and communities. So what that means in terms of oil. We have on the Slope a new discovery by Armstrong and Repsol called Pikka unit and that promises to possibly be another Kuparuk field.

I want to see that move forward in development. That will provide significant jobs for Alaskans. It will provide significant revenue for the state coffers to continue to support our infrastructure, and the social services we provide to the most needy. There are mines that could come into development if we continue to support that process. I think particularly of Donlin mine. That mine is located in southwest Alaska, the poorest part of our state.

see **GIESSEL Q&A** *page 23*

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DISUSED WELLS

tually abandoned.

More companies operating

In the past, with just a few major oil companies operating Alaska's oil fields, the issue was more easily manageable, Foerster said.

"But now that we're getting small operators, and the big operators are selling their properties to the smaller operators, it's probably an appropriate time to start laying the groundwork, so that that doesn't become a problem," she said.

A couple of operators in Alaska went bankrupt last year, leaving wells that are abandoned but that do not have an operator with the financial wherewithal for remediation, she said.

Foerster said that the commission has already conducted discussions with BP, operator of the Prudhoe Bay field, and has determined with the company a list of wells that could usefully be plugged right away and another list of wells that would be better plugged later.

Following an evaluation of the results of its efforts with BP, the commission anticipates conducting a similar exercise with other operators and fields, with these discussions probably happening sometime next year.

"We're going to do this exercise with everybody," Foerster said. Foerster said she does not know how many wells might be impacted by the AOGCC program.

Need for caution

And the agency is sensitive to the need for caution, for not rushing into the closure of wells that might have some future utility. For example, had the commission insisted on the plugging and abandonment of disused in-field wells 25 or 30 years ago, the subsequent productive programs of coiled tubing drilling and the drilling of multilaterals might not have been possible. However, while some wells may be plugged in conjunction with the eventual decommissioning of fields, it does make sense to plug some wells right away, Foerster said.

Moreover, with the possibility of exporting natural gas from the North Slope starting in 2025, oil well redevelopment not now on the horizon will probably not happen, she said.

"The timing just feels right for having those (well closure) discussions and deciding whether to exert pressure," Foerster said.

ConocoPhillips has procedures for dealing with defunct wells, company spokeswoman Natalie Lowman has told Petroleum News. ConocoPhillips operates the Kuparuk River and Alpine fields on the North Slope.

"In our normal course of business, we already have a thorough program in place to handle wells that have no future utility," Lowman commented in a Sept. 29 email.

NPR-A legacy wells

Meanwhile, the issues surrounding the remediation of legacy government wells on federal land in the NPR-A rumble on. Last winter the Bureau of Land Management continued a multi-year program to deal with the wells. But, as reported in the Alaska Dispatch News in May, two of the wells, the Iko Bay No. 1 well and the Simpson Core Test 26 well, were not properly plugged and require to be reworked.

Foerster told Petroleum News that BLM had not succeeded in demonstrating to AOGCC that fluids could not flow to the surface from the wells. Apparently, in addition to plugging the well with cement, it is necessary to conduct a pressure test, to verify the integrity of the seal. Moreover, the BLM contractor left the wells in a state that will render further work on the wells difficult she said.

"They created such additional problems that going back in and trying to address the original problem will be difficult and expensive, if not impossible," Foerster said.

In March AOGCC also issued BLM with a notice of violation for the Simpson well for failure to use required well control equipment and the subsequent flow of fluids to the surface.

According to the Alaska Dispatch News report, Bud Cribley, BLM state director in Alaska, has said that BLM is committed to satisfying AOGCC's concerns.

—ALAN BAILEY

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PACIFIC NORTHWEST

The government approval covers the C$11.4 billion processing and export facility which will handle 3.2 billion cubic feet per day of natural gas and export up to 19.2 million metric tons of LNG a year.

Carbon dioxide an issue

A federal environmental report released in February estimated the LNG facility would release about 5.3 million metric tons a year of carbon dioxide, adding 8.5 percent to British Columbia's total emissions, while the upstream segment, including natural gas exploration and transportation, would add another 6.5 million to 8.7 million metric tons.

But, in setting a new environmental standard for resource development, the Canadian government will require the proponents to meet a cap on greenhouse gas emissions that would cut them by nearly 20 percent, setting a target of 4.3 million metric tons for the LNG plant.

It is not yet clear whether that would translate into a 20 percent reduction in output.

"The only way to get resources to market in the 21st century is if they can be done in a responsible and sustainable manner," McKenna told reporters. "This decision reflects that objective."

Pacific NorthWest's President Adnan Zainai Abidin said in a statement that the consortium was pleased the government had issued its environmental decision.

Now the partnership will "conduct a total project review over the coming months prior to announcing the next steps for the project," he said, without indicating when a final investment decision is likely.

Project challenges

The overriding challenge is to determine the economics, given the dramatic shift that has occurred in the last three years.

In 2014 the spread between North American and Asian natural gas prices was as high as US$16 per million British thermal units; that spread has now shrunk to between $6 and $8, forcing other Canadian proponents such as the Shell-operated Kitimat LNG Canada project at Kitimat to shelve its plans indefinitely.

Ian Gillies, an analyst with FirstEnergy Capital, said final approval from the Pacific NorthWest consortium is "far from certain."

Adding to that uncertainty is the certain prospect of more delays triggered by environmentalists and First Nations.

Clean Energy Canada Executive Director Merran Smith said the project was "not in the best interests of Canadians."

Even with the reduced emissions cap, it would still be "one of the single biggest sources of carbon pollution" in Canada, she said.

George Hoberg, professor of environmental and natural resource policy at the University of British Columbia's Institute for Global Issues, said the government announcement is a "major step backward" for Prime Minister Justin Trudeau's administration, which has committed to lowering emissions by 30 percent by 2030.

"B.C. has blown through its 2020 emission-reduction target and abandoned all pretence of reducing emissions before 2030," he said.

The Skeena Corridor Nations, with representatives from six aboriginal communities, said the green light will "only lead to protracted litigation, which benefits no one," while the Sierra Club of B.C. said Canada's second largest salmon run "may have had its death warrant signed, through a reckless disregard" for the dangers posed by the Pacific NorthWest liquefaction plant.

Development values

On the other side, Val Litwin, president of the B.C. Chamber of Commerce, said Pacific NorthWest — which carries an estimated price tag of C$36 billion for gas development, transportation and the LNG facility — would be the largest private sector development in Canadian history.

It is a "monumental step toward securing not only the future of B.C., but could also mean a much-needed boost for the Canadian economy."

see **PACIFIC NORTHWEST** *page 23*

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REI LNG PROJECT

four years."

As distinct from the much larger AKLNG project, the project designed to export Alaska gas from the North Slope, REI's concept involves the export of gas from gas fields in the Cook Inlet basin.

The gas supply

Murkowski said that his company has approached several Cook Inlet gas producers at various times over the last couple of years to try to establish a gas supply. And although the estimated capital cost of REI's project, at about $1 billion, is by no means insignificant, the cost of the gas would dominate the internal rate of return on the project over the project's 20- to 25-year life.

REI is trying to form some type of relationship with the producers — an equity position, some form of joint venture — to reduce the gas cost, Murkowski said.

Eiji Maezawa, REI executive vice president and chief operating officer, said that the Japanese LNG market is currently in a state of flux. Spot market prices have been rising from $4.30 per thousand cubic feet of gas in May, while the terms buyers seek for LNG supplies are changing towards a mix of spot purchases and long-term contracts, with diversified pricing. At the same time, moves to deregulate the Japanese energy and city gas markets will create more competition in the marketplace, he said.

Capital cost

However, the capital cost of the project is very important. With an existing gas pipeline infrastructure around the Cook Inlet basin, the bulk of the cost will be tied up in the construction of a liquefaction plant and an associated marine facility for loading the LNG onto vessels for shipment to Japan. It will be particularly interesting to determine where cost savings can be made, Murkowski said.

REI has worked with a number of companies and experts to develop cost estimates for its project, he said.

Planned arrangements

REI has already selected the type of liquefaction technology to use at the planned Point MacKenzie facility and has an agreement with Teekay Corp. to use the two ice-class LNG carriers that have been serving the existing LNG facility, currently operated by ConocoPhillips, at Nikiski on the Kenai Peninsula, Murkowski said. The leases on the vessels will be available for year-round operation from REI's planned facility, starting in 2021, he said.

However, one issue yet to be resolved is whether it will be possible to use the existing dock at Port MacKenzie as a multi-use dock, including facilities for the loading of the LNG carriers as well as for other types of cargo — there is no precedent for this type of multi-use arrangement involving LNG, Murkowski said.

Murkowski said that, even without further gas exploration in the Cook Inlet basin, there is adequate known gas in the basin to meet both REI's needs and the needs of Alaska's gas and power utilities. Nor is the REI project in competition with the AKLNG project, given that the two projects are targeting different types of gas buyers and that the REI project is much smaller than the North Slope effort, he said.

Marketing opportunities

Maezawa said that there are marketing opportunities for LNG in Japan looming from around 2020 and 2021, but that the uncertain future scale of the Japanese nuclear power sector presents the biggest uncertainty in the future scale of the Japanese LNG market. Some nuclear plants have been restarting following a complete shutdown following a major earthquake in 2011. That shutdown has been the primary driving force behind Japan's interest in the use of LNG as an energy source.

The Japanese government is trying to establish an LNG trading hub in the Tokyo area, potentially starting around 2020 to 2025 and serving markets in Japan, Korea and Taiwan, Maezawa said.

The appeal of having Alaska as a source of LNG is the relatively short shipping distance from Japan and the reliability of supply from a safe source across a safe sea route. Shipping time to Japan is seven days, with a round trip, including uploading and offloading, taking about 19 days, Murkowski said. This represents a shipping time several days less than would be required to bring LNG from Lower 48 shale gas plays, a factor that significantly impacts the LNG economics, he said.

"There are no obvious deal killers with bringing the project together at Port MacKenzie, so we're very optimistic," Murkowski said.

Public-private partnerships

Under public-private partnership arrangements with two Japanese prefectures, Cook Inlet LNG could be shipped to two planned LNG terminals: one on Japan's east coast and one on the country's west coast, Maezawa said. The appeal of the west coast option is that it can mitigate the risk of another major earthquake on the east coast disrupting Japan's energy supplies. Each terminal would support a gas-fired, combined cycle power station. In 2015 Gov. Bill Walker signed a memorandum of understanding with the governor of the Kyoto prefecture, on the Japanese west coast, for mutual cooperation over the Cook Inlet LNG option.

REI itself consists of a consortium of Japanese industrial companies, gas companies and government entities interested in investing in a secure LNG supply. The company is not asking for government funding but is exploring the possibility of using an AIDEA loan for some of the infrastructure development, Murkowski said.

AIDEA has previously provided some funding assistance for studies that have formed part of REI's project. ●

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PACIFIC NORTHWEST

B.C. Premier Christy Clark, whose chances of re-election in May 2017 depend heavily on moving at least one LNG project towards completion, said Pacific NorthWest represents an "unprecedented opportunity to create thousands of jobs and new economic prospects for First Nations and communities throughout our province."

She boldly forecast that the price of natural gas will "go up any day" based on a strong appetite for the commodity in China and Japan, who need an alternative to coal-fired power plants. ●

Contact Gary Park through publisher@petroleumnews.com

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GIESSEL Q&A

Again, it would provide significant jobs for Alaska residents. The mining industry on average has salaries of $100,000 a year. In an area like Southwest Alaska that would be a game changer. Donlin mine is planning a gas pipeline from Cook Inlet to the mine site. They have oversized the pipe to allow communities in the area to tap into it to supply themselves with natural gas. This will also be a game changer. The state has to participate here by actually being open for business for this mine. So those are just a couple of things related to resource development that will continue a vibrant, private sector economy in the state. And allow families to continue to live here.

Petroleum News: If you are in the majority next year, do you want a third term as Resources chair? Is it something that still piques your interest?

Giessel: You know, people wonder why a nurse practitioner would care about resource development. I'll tell you as a health care provider, my focus is on healthy citizens who can live productive lives. Having a good job, even two good jobs — some folks work more than two even — but having work is one of the elements that contributes to human happiness. We are meant to be productive people, and resources are the way that Alaskans are able to be productive. ●

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venture marketing and we see this as a first step," company spokeswoman Amy Jennings Burnett said. The other two major North Slope gas owners, BP and ExxonMobil, will be invited to join the effort.

BP would not comment on the proposal and ExxonMobil is considered unlikely to change its position.

Potential issues

Aside from commercial complications for larger companies, who now do their own LNG marketing, a combined marketing entity may raise anti-trust issues, people familiar with North Slope gas point out.

Joint-venture LNG marketing essentially involves two or more owners pooling their resources into a dedicated marketing organization and staff. That compares with what some call "equity" marketing, or essentially each gas owner selling its own LNG through individual marketing units and staffs.

One variation of a four-party JV marketing is two gas owners, or even three, pooling their LNG for sales. Also, the current Heads of Agreement document among the four parties gives the state the option of contracting with a producer company with a marketing organization for sales of state-owned LNG. That eliminates the state having to set up its own marketing group.

Another variation of this is the state contracting with all three of the producer companies to sell a portion of the state's gas, so that there could be, in theory, three separate, competing marketing groups all selling a portion of the state's gas along with their own.

There is a certain logic in this in that the state's royalty gas share, and its tax share, is an approximate 25 percent share of each producer's production.

State lacks marketing staff

For gas owners like the state who do not have existing marketing staffs there are obvious advantages in teaming up with a major producer because the state can take advantage of the expertise of the industry partner.

One advantage of separate arrangements with all three producers is the state having the benefit of the strengths of the separate companies, who all compete in gas and LNG marketing. There could be a lot of flexibility for the state in such arrangements, particularly if they are for set periods of time.

Setting up a dedicated JV marketing group with all four gas owners would have the entity as its own marketing and contract organization so that LNG sales contracts are signed by that entity rather than individual companies.

ExxonMobil has not commented on its objections to four-party JV marketing but one possible reason, aside from antitrust worries, is that large companies with their own LNG marketing may prefer to keep things that way because it gives them great flexibility in negotiating contracts.

For example, a large company would sign a gas sales contract with a large LNG buyer and could guarantee supply from several places the company might produce gas and make LNG, for example LNG from Alaska, Indonesia or elsewhere.

For the customer there is the knowledge that supply sources are diversified and that if a company has a production problem at one place the shortage will be made up with supply from elsewhere.

Backstop arrangements like this are possible among participants in JV marketing too but it raises more complications, and those can worry customers who are concerned, most fundamentally, with security and regularity of supply.

The nature of a joint-venture marketing program that could emerge from the AGDC-ConocoPhillips negotiations is unknown, and AGDC said Sept. 28 that it cannot now release copies of the MOU, which the state gas corporation has signed.

Other issues

According to AGDC's Sept. 21 announcement, the MOU also commits the state and ConocoPhillips to work together in general to promote the Alaska LNG Project in the market. Once the JV is formed, it is anticipated that initial efforts would focus on gathering LNG information in support of gas and LNG supply arrangements.

"The JV would also seek to establish terms for sufficient and reliable supply of gas to the project, resolving longstanding project gas supply assurance issues," the AGDC announcement said.

The mention of gas supply assurance issues speaks to another problem that was not resolved in the four-way commercial negotiations, a "gas balancing" agreement among the three producers and the state setting out terms for handling possible production upsets in either the Prudhoe Bay or Point Thomson fields, which would both supply gas to Alaska LNG.

ExxonMobil, BP and the state own gas in both Prudhoe and Point Thomson but ConocoPhillips' gas is mostly in Prudhoe Bay, and the gas supply agreement is a major priority for the company, ConocoPhillips officials have said several times.

If there are complications in a field-level gas balancing agreement much of what the balancing agreement would have accomplished, in making up supply shortfalls between the producers, could also be accomplished within a four-party JV marketing group. That is one possible reason ConocoPhillips, with the state's support, pushed the idea.

In its announcement, AGDC also said, "the MOU anticipates that other producers or third parties could join the JV, make gas available via wellhead sales, or commit to tolling arrangements with the Alaska LNG Project."

A tolling arrangement is where the Alaska LNG Project would ship gas for a third-party gas owner and charge a fee, or toll. ●

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