Celebrating 20 years: 1996-2016

Petroleum news

page 3 Q&A: Pearce still in touch with AK issues; says progress significant

Vol. 21, No. 41 • www.PetroleumNews.com | A weekly oil & gas newspaper based in Anchorage, Alaska | Week of October 9, 2016 • $2.50

This week's Mining News

NORTH OF 60 MINING news

page 11 Millrock CEO foresees new mines near Pogo, expands clams in area

www.MiningNewsNorth.com | The weekly mining newspaper for Alaska and Canada's North | Week of October 9, 2016

NORTHERN NEIGHBORS

Compiled by Shane Lasley

GOLDEN PREDATOR MINING CORP.

Golden Predator Chief Geologist Mike Burke (left) and Chairman Bill Sheriff at Ace of Spades, one of several high-grade gold discoveries the company made this summer at its 3 Aces project in southeastern Yukon Territory.

Drilling targets new gold veins at 3 Aces

Golden Predator Mining Corp. Oct. 5 reported new high-grade gold results and the discovery of new veins at its 3 Aces project in southeastern Yukon Territory. More than 800 rock chip, composite grab, channel and panel samples have been collected within the central core area of the property this year.

Trenching is being targeted in areas of anomalous gold geochemistry, known areas of mineralization and along new or existing road cuts. Detailed geological mapping, surveying using a Differential Global Positioning System and 3D modeling of the trenching results are being conducted to estimate true widths of the newly exposed veins and to plan the upcoming drill program. The company's program of road building followed by extensive trenching has continued to expose additional mineralized quartz veins including several with visible gold across the Spades, Hearts and Clubs zones. Panel sampling of the three principal veins at the Jack of Spades discovery zone returned 186.5 grams per metric ton, 94.7 g/t and 64.3 g/t gold respectively. Sampling of the northeast extension of the Ace of Spades vein returned assays of 51.2 g/t and 55.1 g/t gold. Two new mineralized quartz veins were discovered in the Clubs zone with the Six of Clubs assaying 16.85 g/t gold from a large composite grab sample and the Ten of Clubs assaying 10.65 g/t gold from a panel sample. These discoveries in the Clubs Zone are 2,000 to 2,500 meters northwest of the Jack and Ace of Spades. These recently identified and sampled veins will be targeted for drilling commencing in October 2016. A total of 4,500 meters has been budgeted for the remainder of 2016, increasing to more than 25,000 meters in 2017. "Our aggressive road-building, trenching, and sampling program has returned impressive high-grade results over a broad area. The newly discovered veins now provide ample targets for our RC (reverse circulation) drill program, which is set to begin this month and continue through the winter,"" said Golden Predator CEO Janet Lee-Sheriff.

see **NORTHERN NEIGHBORS** *page 11*

SHANE LASLEY

Drilling has outlined a deposit at Pebble containing 57 billion pounds of copper, 70 million ounces of gold, 3.4 billion lbs. of molybdenum and 344 million oz. of silver in the measured and indicated category. Upon resolution of a legal dispute with the U.S. Environmental Protection Agency, the Pebble Partnership plans to apply for permits needed to develop the world-class deposit in Southwest Alaska.

LITIGATION

Breaking the impasse

Legal fee cap indicates resolution of Pebble-EPA court battle draws nigh

By SHANE LASLEY

Mining News

Is the impasse between Pebble Limited Partnership and U.S. Environmental Protection Agency over the potential development of the world-class Pebble copper deposit in Southwest Alaska about to be resolved?

Northern Dynasty Minerals Ltd., currently the sole owner of the Pebble Partnership, believes the standoff will likely be over by January if an ongoing lawsuit between Pebble and the EPA runs its full course, and possibly sooner if the parties come to an agreement outside of the courtroom.

"Either way, we have every confidence that we will prevail, and Pebble will ultimately move forward to initiate the environmental impact statement process under the U. S. Clean Water and National Environmental Policy acts unencumbered by any extraordinary development restrictions as proposed by EPA," said Northern Dynasty President and CEO Ron Thiessen.

Secret advisory committees

The extraordinary development restrictions mentioned by the Northern Dynasty executive and how the EPA went about supporting such restrictions is what got Pebble and the environmental agency locked up in a court battle in the first place.

In 2014, the Pebble Partnership filed a complaint in U. S. district court, alleging that the EPA violated the Federal Advisory Committee Act (FACA) by collaborating with anti-mining activists to develop a strategy for utilizing Section 404 (c) of the Clean Water Act to place restrictions or outright prohibit permits for developing a mine at Pebble before the permitting process.

In making its case, the Pebble Partnership claimed the "anti-mine coalition secretly advised EPA on how the agency should develop its strategy under Section 404(c), including making critical recommendations on who EPA officials should recruit, how the agency could best leverage the Alaska Native "tribes," and how to formulate EPA's messaging in a way that would minimize anti-federal government backlash among Alaskans."

Once a suitable strategy was formulated, according to Pebble, the anti-mine groups played an integral role in preparing EPA's Bristol Bay Assessment, a study aimed at determining the effects developing a mine at Pebble would have on fish resources near the enormous copper-gold-molybdenum deposit.

The assessment was used as the basis for unprecedented pre-emptive 404c restrictions that would detrimentally limit the footprint of any mine allowed to be developed at the enormous porphyry copper-gold-molybdenum deposit in Southwest Alaska.

The Pebble Partnership asserted that the behind-the-scenes collaboration between EPA and the anti-mine groups violates advisory committee law and taints the entire process for which the environmental agency is basing its Clean Water Act determination with regards to Pebble.

Beyond seemingly unlawful collaboration with anti-Pebble advocates, Northern Dynasty says the evidence collected in support of the FACA case shows that EPA first decided to preemptively veto or restrict permits to develop Pebble and then built a case to support this decision.

"We have every confidence these facts will be validated at trial, and EPA's ability to use a severely flawed BBWA (Bristol Bay Watershed

see **COURT BATTLE** *page 11*

Legal fee cap indicates resolution of Pebble-EPA court battle draws nigh. Read more in North of 60 Mining News, page 9.

ConocoPhillips claims AK record

ConocoPhillips Alaska Inc. has laid claim to having drilled the longest well ever in the state of Alaska. The well, drilled by Doyon Rig 19 from the CD5 drill site in the Colville River unit, has a measured depth of 26,196 feet, reaching a vertical depth of about 7,400 feet. The well, an injection well, includes a horizontal section of 17,228 feet, took 24 days to drill and penetrated the Alpine "A" sands, ConocoPhillips says.

The ConocoPhillips Alpine oil field in the Colville River unit

see **WELL RECORD** *page 19*

Five wells for Cosmo next year

BlueCrest Alaska Operating LLC is planning to drill as many as five wells or laterals at the Cosmopolitan project next year, according to a recent plan of development.

In August 2016, the local subsidiary of Texas-based independent BlueCrest Energy Inc. received an Alaska Oil and Gas Conservation Commission drilling permit for the H-16 well. The company expects to request drilling permits for the H-14, H-14L, H-12 and H-12L wells and associated laterals

see **COSMO WELLS** *page 19*

Ahtna starts drilling at Tolsona

Ahtna Inc. has started drilling the Tolsona No. 1 exploration well about 11.5 miles west of the town of Glennallen in the Copper River basin, the company said Sept. 29. The well is seeking natural gas in the Nelchina sandstone at depths of between 4,000 and 5,000 feet. The intent is to find a viable gas resource to alleviate the high cost of energy in the Copper Valley region. Ahtna is the Native corporation for the region.

Ahtna is using the Saxon 147 drilling rig on a gravel pad con-

see **TOLSONA DRILLING** *page 18*

EXPLORATION & PRODUCTION

Finding the big one

Caelus discovery at Smith Bay could add 200,000 barrels per day to TAPS

By ALAN BAILEY

Petroleum News

Following tantalizing hints earlier this year about the possibility of a major oil find at Smith Bay, towards the western end of the North Slope, Caelus Energy Alaska has now made an official announcement: The two exploration wells that the company drilled in the bay in early 2016, coupled with the results of earlier seismic surveying, have revealed the presence of a massive resource of light oil.

In an Oct. 4 statement the company said that there could be 6 billion barrels of oil in place in its Smith Bay leases, with the possibility of 10 billion barrels or more across the complete Smith Bay area.

An oil field development at Smith Bay could result in the delivery of 200,000 barrels per day of light crude to the trans-Alaska pipeline system, Caelus said.

One well found net pay of 183 feet, while the other well encountered net pay of 223 feet.

"This discovery could be really exciting for the State of Alaska," said Jim Musselman, Caelus CEO. "It has the size and scale to play a meaningful role in sustaining the Alaskan oil business over the next three or four decades."

The field as characterized by Caelus would be

see **CAELUS DISCOVERY** *page 17*

NATURAL GAS

Meyer: 'Give us a chance'

AGDC president acknowledges uphill fight for Alaska liquefied natural gas project

By TIM BRADNER

For Petroleum News

Keith Meyer, CEO of Alaska's state-owned gas corporation, knows Alaska LNG faces an uphill fight. Liquefied natural gas prices are in the tank, there's huge competition and Alaska's own finances are thin.

KEITH MEYER

"But give us a chance," he's asking Alaskans.

Meyer hopes a combination of creative financing, a flexible commercial structure and the security of a major West Coast U.S. LNG supply will help the state lower the cost of delivering LNG enough to net some customers.

It's like casting a lure out there, hoping the bait is good enough.

Getting buyers is most important. Not much will happen until there are customers.

Meyer said he expects to know within a year whether Gov. Bill Walker's gamble of having the state take over the $45 billion Alaska LNG Project from industry has a chance.

Realistically, the governor's initiative is the only game in town, because the industry-led approach is no longer an option, Meyer said. It's either that, keeping Alaska out there as a supply

see **AGDC** *page 14*

LAND & LEASING

Pikka expansion request

Armstrong says 24 additional state leases needed to accommodate planned wells

By ALAN BAILEY

Petroleum News

Armstrong Energy LLC, operator of the Pikka unit on Alaska's North Slope, has applied to Alaska's Division of Oil and Gas and to Arctic Slope Regional Corp. to expand the unit. The proposed expansion would add 24 state leases to the southern part of the unit, with 17 of those leases on the west side of the unit and seven on the east side. In its application Armstrong says that the expansion is needed to accommodate all of the wells specified in a plan of development filed in a permit application to the U.S. Army Corps of Engineers in June 2105.

Following that permit application, the Corps of Engineers has been working on an environmental impact statement for the development.

The western section of the expansion area would accommodate up to 62 potential wellbores or partial wellbores targeting the Nanushuk, Alpine and Kuparuk formations. The eastern section would accommodate up to 16 wellbores or partial wellbores targeting the Alpine formation, the application says.

Major discovery

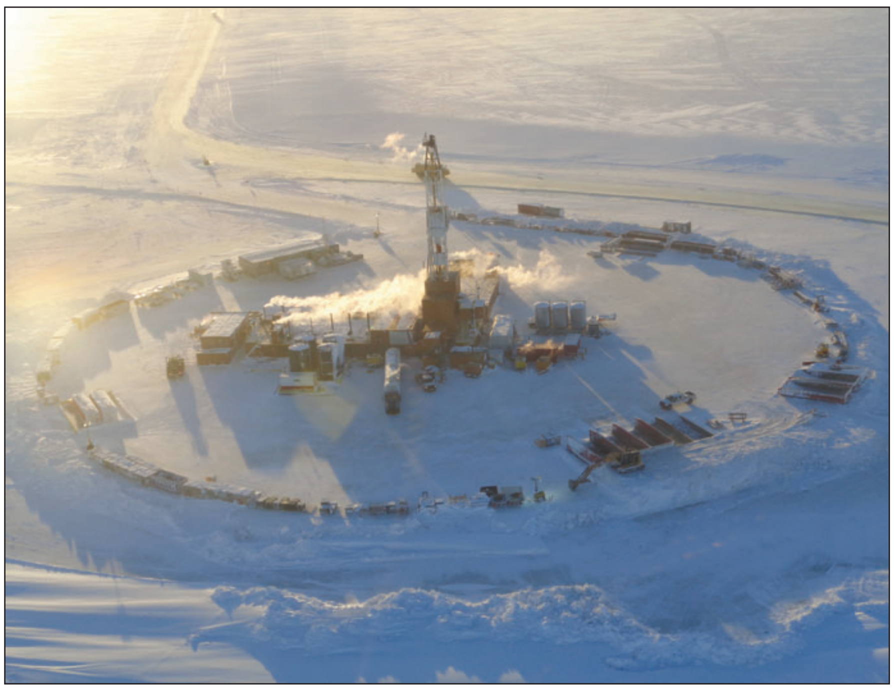
Armstrong has previously indicated that it has a major oil discovery involving multiple oil pools in a new oil play in the area of the Pikka unit, between the Kuparuk River and Alpine oil fields. In an August interview Bill Armstrong, president of Armstrong Oil & Gas, told Petroleum News that the Nanushuk discovery, the focus of the Pikka unit, contains oil across

see **PIKKA EXPANSION** *page 18*

contents

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

ON THE COVER



EXPLORATION & PRODUCTION

GOVERNMENT

NATURAL GAS

SUBSCRIBE *to Petroleum News*

Don't miss another issue, call: **907 522.9469**

PRA
Petrotechnical Resources Alaska

Alaska's Oil and Gas Consultants

Geoscience
Engineering
Project Management
Seismic and Well Data

3601 C Street, Suite 1424
Anchorage, AK 99503
(907) 272-1232
(907) 272-1344
www.petroak.com
info@petroak.com

GOVERNMENT

Pearce: Still in touch with AK issues

Former Senate President says gas line progress may not be visible, but it's significant; questions Walker's path to advance project

By STEVE QUINN

For Petroleum News

Former two-term Senate President Drue Pearce hasn't been in state government in more than 10 years. Yet the former federal pipeline coordinator has got her fingers on the pulse of heavy-hitting resource issues such as Arctic development, marketing North Slope gas and tax policy. Pearce now serves as a policy advisor for law firm Crowell Moring, splitting time between homes in Alaska and Maryland. A former member of the Alaska Gasline Development Corp. board, Pearce spoke to Petroleum News on resource development issues facing Alaska and its Legislature in the coming session.

Petroleum News: Let's start with Arctic development. What are you seeing the last three or four years when the country ramped up to become Arctic Council chair and ultimately assumed its post, which it has held for nearly 18 months? Has it advanced or failed to advance the resource development prospects.

Pearce: What I've seen is that being chair of the Arctic Council has not only not advanced natural resource projects in Alaska, it's probably put us back a few steps. I say that because while there is more awareness in the Lower 48 today that the United States is an Arctic nation, there is always much more climate change alarmism.

There is a belief more widely held that the United States needs to quickly move to a post carbon economy. Those things together have probably made Alaska more of a symbol to those in the Lower 48 who have the belief that my goodness we need to save Alaska from Alaskans than there was before we became chair of the Arctic council.

I will say what has been positive. There is a better understanding now of our university system and our world-class geophysical institute in Fairbanks and the world-class research that we do on everything Arctic. There is also a better understanding of what we do with the state's continued efforts in bringing renewable energy to a community that has a renewable resource that it can exploit.

But on a national basis and even on an international basis, what I've seen is a more cautious and even more negative approach to development in the Arctic. I'll give you an example. When President Obama and the five Arctic Scandinavian country leaders met in May for their big summit — it was after his first summit with Prime Minister (Justin) Trudeau in Canada and they did an Arctic statement saying they would be cautious in their approach to developing oil and gas in the Arctic.

Then the stakes got a little higher when he did a statement of agreement with Finland, Sweden, Norway, Denmark and Iceland and it called for using the precautionary approach in decision making for oil and gas development in the Arctic. It specifically calls out oil and gas and the precautionary approach.

The thing about the cautionary approach — defined by Oceana for example — it means knowing and having all the information ever about what all the impacts might ever be before doing anything. So it becomes never doing anything effectively. That is now the official position of the United States as taken in this agreement with other Arctic countries.

DRUE PEARCE

Petroleum News: Many carbon emitting industries had a similar approach supported by the Supreme Court, saying all financial implications should be considered before changes are made.

Pearce: The Arctic Council is interesting because its entire genesis came out of a move for most of the Arctic countries to protect the environment of the Arctic. The discussion started over agreements of management of Antarctica. What gets lost in that equation are the 4 million people who live in the Arctic and their dependency on having some sort of economic future of their own, economic security along with food security and an ability to develop on their territorial and ancestral land. In Scandinavia, they have the infrastructure that Canada, the U.S. and Greenland don't have. So they don't need more infrastructure: They have the ports; they have the roads; they have the railroads, even, that we don't have. So development becomes even more difficult here. The Arctic Council does not consider economic security or the economic well-being to the people of the Arctic to be in their wheelhouse.

Petroleum News: So are you getting a sense people who live in the Arctic are not getting a meaningful voice?

Pearce: Different people in the Arctic would tell you different things. But I'll give you one example, one that I find very telling. The international group that advocates for world heritage sites will be releasing a report they did with the ICUN, which they pulled together experts and scientists from around the world to talk about what Arctic areas in particular — what oceans and what waterways — meet the criteria and what should be made world heritage sites.

I have not found — and I've tried at the state level, at the university level, at the North Slope level, at the ASRC or NANA level — I have found no one at least who lives in the U.S. Arctic who was invited to be experts and be one of this group that is going to be putting out maps that I'm sure are going to show huge pieces and parts of Alaska coastline and say those areas should be designated world heritage sites.

Alaska has to force his way to the table sometimes, which Craig Fleener by the way is very good at doing, but he's one man trying to force his way to a bunch of tables. So it's hard for the people who live in the Arctic to have the voice that I think they deserve.

Q AND A

Petroleum News: One of the long-standing Arctic topics for Alaska is ANWR. It comes up every year, even if it's just resolutions in the House and Senate. Is it worth keeping this fight going?

Pearce: Absolutely. I believe in folks who have seen information on the "kick well" (KIC No. 1, the lone well drilled in ANWR), and I think they continue to believe the eastern flank and the coastal plain of ANWR continue to have the prospectiveness we thought it had back in the 1980s when Congress told the Fish and Wildlife Service they were to do the study and bring it back to Congress.

We've taken nothing out so there is no reason to believe it's less prospective. Considering Armstrong's new find, which is a different type of oil and gas field compared to Prudhoe Bay and Kuparuk, so something different to look for on the North Slope. That to me makes fighting to be able to go in and explore and find out what is and or isn't in ANWR just as important, if not more important.

Chevron was the operator and that information is still held confidential by the companies as well as by ASRC and KIC (Kaktovik Inupiaq Corp.) as well as by the state. We certainly cannot stop being alert to the fact that the environmental movement wants to cut off all access to oil and gas on any refuge in the nation.

We've seen a greater push to stop any other sort of development of any kind on Fish and Wildlife refuges. In Alaska the land mass is vast. I think it's very important for the state to have the opportunity and the people on the North Slope in particular, to have the opportunity to have access to the land and the resource.

ASRC and the village corporation have considerable land ownership in that refuge they have not been allowed to drill and find out what's there. The fight over ANWR has been in part over that. Since it's a refuge it should develop oil and gas. Now we've had oil and gas development in the Kenai National Wildlife Refuge since before ANILCA.

Petroleum News: Do you get a sense

see PEARCE Q&A *page 15*

TTT Environmental — Instruments and Supplies
907-770-9041 www.tttenviro.com
Buy Alaska
Alaska's preferred source for instrument Rentals, Sales, Service and Supplies.

Air Monitors	PPE	Industrial	Field Screening	Water Sampling
• PiDs	• Tyvek	• SCBAs	• Dexsil	• Bailers
• Gas Monitors	• Gloves	• Tripods	• Niton (XRF)	• Tubing, Filters
	• Respirators	• YoYos		• Pumps

RAE Systems · Dräger Safety · Industrial Scientific · Air Systems · DBI SALA · Quest Technologies · Sensidyne · YSI

LAST CHANCE TO REGISTER

The world's most focused and comprehensive Arctic event.

St. John's, Newfoundland and Labrador
24-26 October 2016 • St. John's Convention Centre

ARCTIC TECHNOLOGY CONFERENCE
AN OTC EVENT SM

Attend the only Arctic event backed by the combined reach and credibility of 14 of the world's top engineering and scientific organizations and built with expertise representing every discipline.

Newfoundland Labrador CANADA

ArcticTechnologyConference.org

● NATURAL GAS

Petronas won't be rushed on project

Needs time for review of Pacific NorthWest approval; 'categorically denies' mulling sale of its stake; affected First Nations split

By GARY PARK
For Petroleum News

Malaysia's Petronas is backing away from setting a deadline for a final corporate decision on the Pacific NorthWest LNG project, while emphatically rejecting speculation that it is on the verge of selling its majority stake in the venture.

The state-owned firm said it wants time to consider the 190 conditions for approval imposed by the Canadian government while it conducts a "total review of the proposed project prior to deciding on the next steps forward."

The muted response fell far short of the fanfare surrounding the conditional green light from the federal government and the enthusiasm expressed by British Columbia Premier Christy Clark.

Outside those circles the consensus view among analysts was that Pacific NorthWest had no hope of proceeding in the current economic atmosphere for LNG, with a Reuters report dangling the prospect of Petronas selling its stake in the C$37 billion undertaking.

Sources quoted by the news agency said Petronas had been weighing a sale for months.

"They are going to be looking at gas prices, costs and returns before they make a final decision," said one of the sources. "It is a very tough call."

Divya Reddy, of the New York-based political risk firm Eurasia Group, said Petronas has already put so much into the project, including its C$5.2 billion takeover of natural gas producer Progress Energy, that "I can't see how they could ever recover it through a sale in current market conditions. But it's possible they are considering distributing the ownership across the existing partners."

Petronas offered a cryptic response to the speculation, saying it "categorically denies" a sale is in the works, insisting it will continue to work with its Asian partners (China's Sinopec, Japan's JAPEX and Petroleum Brunei) along with the British Columbia government.

First Nations' issues

While the deliberations continue on the proponents' side, a clear split has developed among First Nations affected by pipelines and the terminal facility near Prince Rupert.

The project opponents have vowed to seek a judicial review of government approvals, basing their case on unresolved land claims, with one group emphatic that it will not move off Lelu Island, the site of the liquefaction plant and tanker terminal.

"We're not going anywhere … that's a given" declared Don Wesley, a chief who had led an occupation of the island, but the elected council of the La Kw'alaams has expressed interest in a C$1.2 billion benefits package offered by the Petronas-led consortium.

The Kitselas First Nation welcomed the federal approval, saying it is now in a position to benefit from the development, praising the partnership for engaging with aboriginal communities.

Clark said her government will not wait for unanimity among First Nations. "Not everyone in British Columbia is going to agree 100 percent, but leadership means you've got to make a decision sometimes," she said.

Karen Ogen-Toews, chief executive officer of the First Nations LNG Alliance, said the highlight of the federal decision is the conditions that should address "the concerns the First Nations have for environmental impacts … it may be favorable for all of us."

Shannon McPhail, executive director of the Skeena Watershed Conservation Coalition, which has been in the forefront of opposition to Pacific NorthWest has also worked with indigenous leaders to reduce conflict among aboriginal communities.

"We have come to understand that the values by which people support or oppose pipelines are the same," she said. "We all want a future for our families."

McPhail said there are still endless opportunities for governments, industries and communities to pursue alternative energy projects that would ensure First Nations are not held captive to developments such as LNG. ●

Contact Gary Park through publisher@petroleumnews.com

Petroleum news
www.PetroleumNews.com

Kay Cashman	PUBLISHER & EXECUTIVE EDITOR
Mary Mack	CEO & GENERAL MANAGER
Kristen Nelson	EDITOR-IN-CHIEF
Susan Crane	ADVERTISING DIRECTOR
Heather Yates	BOOKKEEPER
Shane Lasley	NORTH OF 60 MINING PUBLISHER
Marti Reeve	SPECIAL PUBLICATIONS DIRECTOR
Steven Merritt	PRODUCTION DIRECTOR
Alan Bailey	SENIOR STAFF WRITER
Tim Bradner	CONTRIBUTING WRITER
Eric Lidji	CONTRIBUTING WRITER
Wesley Loy	CONTRIBUTING WRITER
Gary Park	CONTRIBUTING WRITER (CANADA)
Steve Quinn	CONTRIBUTING WRITER
Judy Patrick Photography	CONTRACT PHOTOGRAPHER
Mapmakers Alaska	CARTOGRAPHY
Forrest Crane	CONTRACT PHOTOGRAPHER
Tom Kearney	ADVERTISING DESIGN MANAGER
Renee Garbutt	CIRCULATION MANAGER
Ashley Lindly	RESEARCH ASSOCIATE

ADDRESS
P.O. Box 231647
Anchorage, AK 99523-1647

NEWS
907.522.9469
publisher@petroleumnews.com

CIRCULATION
907.522.9469
circulation@petroleumnews.com

ADVERTISING
Susan Crane • 907.770.5592
scrane@petroleumnews.com

Bonnie Yonker • 425.483.9705
byonker@petroleumnews.com

FAX FOR ALL DEPARTMENTS
907.522.9583

Petroleum News and its supplement, Petroleum Directory, are owned by Petroleum Newspapers of Alaska LLC. The newspaper is published weekly. Several of the individuals listed above work for independent companies that contract services to Petroleum Newspapers of Alaska LLC or are freelance writers.

OWNER: Petroleum Newspapers of Alaska LLC (PNA)
Petroleum News (ISSN 1544-3612) • Vol. 21, No. 41 • Week of October 9, 2016
Published weekly. Address: 5441 Old Seward, #3, Anchorage, AK 99518
(Please mail ALL correspondence to:
P.O. Box 231647 Anchorage, AK 99523-1647)
Subscription prices in U.S. — $118.00 1 year, $216.00 2 years
Canada — $206.00 1 year, $375.00 2 years
Overseas (sent air mail) — $240.00 1 year, $436.00 2 years
"Periodicals postage paid at Anchorage, AK 99502-9986."
POSTMASTER: Send address changes to Petroleum News, P.O. Box 231647 Anchorage, AK 99523-1647.

PERFORMANCE UNDER PRESSURE

American Marine Services Group
6000 A Street, Anchorage, AK 99518
907-562-5420
Deadhorse, AK
907-659-9010
www.amarinecorp.com • www.penco.org
alaska@amarinecorp.com

AMERICAN MARINE INTERNATIONAL
• Commercial Diving
• Marine Construction Services
• Platform Installation, Maintenance and Repair
• Pipeline Installation, Maintenance and Repair
• Underwater Certified Welding
• NDT Services
• Salvage Operations
• Vessel Support and Operations

PENCO PACIFIC ENVIRONMENTAL CORPORATION
• Environmental Services
• Oil-Spill Response, Containment and Clean-Up
• Hazardous Wastes and Contaminated Site Clean-Up and Remediation
• Petroleum Vessel Services, e.g. Fuel Transfer
• Bulk Fuel Oil Facility and Storage Tank Maintenance, Management, and Operations

Anchorage Honolulu Los Angeles

● EXPLORATION & PRODUCTION

Great Bear evaluating eight prospects

Continues to look for conventional oil opportunities south of Prudhoe Bay as a route to the viable development of source rock oil

By ALAN BAILEY
Petroleum News

Following some intense work analyzing the results of 3-D seismic surveys in its acreage south of Prudhoe Bay, Great Bear Petroleum Operating LLC's geoscience team has identified eight conventional oil prospects, Pat Galvin, the company's chief commercial officer and general counsel, told the Alaska Oil and Gas Congress on Sept. 21. Although most of those prospects are in the Brookian sequence, one prospect, the Avenger, is in the Kuparuk, Galvin said.

And, because those prospects are stacked on top of each other, all can be probed with just two wells. Moreover, most of the prospects tie into oil shows that were observed in the nearby Pipeline State No. 1 well, he said.


PAT GALVIN

The Brookian is a relatively young and shallow rock sequence under the North Slope, while the Kuparuk, the rock unit containing the reservoir sands for the Kuparuk River field, is in the deeper and older Beaufortian sequence.

Evolving focus

Great Bear, when it first entered the Alaska oil scene in 2010, focused on testing the possibility of developing oil from the North Slope's prolific source rocks using the techniques developed for unconventional shale oil development in the Lower 48. And in 2012 the company drilled two stratigraphic test wells near the Dalton Highway to evaluate the source rock oil concept. The company also embarked on a multi-year program of 3-D seismic surveying across its leases.

But around 2013 the company started identifying conventional oil prospects from its seismic data, while also realizing that developing a conventional play first could open the way to economic viability for an unconventional development, Galvin said.

"What we recognized was that we really needed to find a more conventional play first and have that be the backstop to justify the infrastructure investment," Galvin said. "Once the infrastructure is in place, the unconventional play would be economic."

"What we recognized was that we really needed to find a more conventional play first and have that be the backstop to justify the infrastructure investment. Once the infrastructure is in place, the unconventional play would be economic." —Pat Galvin, Great Bear Petroleum

In the winter of 2015 the company drilled the Alkaid No. 1 well to test a conventional target, using an ice pad and an ice road four miles west of the Dalton Highway. Unfortunately, however, the flooding of the Dalton Highway that winter following an overflow of the Sag River cut the drilling program short, preventing Great Bear from testing the well.

"We're looking for an opportunity to go back and test it, but we're encouraged by what we found there," Galvin said. Galvin did not comment on any upcoming drilling plans that his company may have.

Large lease position

Great Bear operates a broad swath of about 500,000 acres of state leases south of the Prudhoe Bay and Kuparuk River fields, and stretching east of the Dalton Highway and Sag River. Oil services company Halliburton has a 25 percent working interest in a portion of the leases, while Australian company Otto Energy has working interests in leases across the entire Great Bear acreage, other than in the central blocks where Great Bear has already drilled, Galvin said.

Following five years of seismic surveying, Great Bear now has seismic coverage of more than 1,000 square miles of its acreage, Galvin said. From 2012 to 2015 the seismic surveying focused on the central part of the acreage, while last winter the company had the far western and far eastern sides of its acreage covered.

Asked about how quickly Great Bear could move to oil production if the company locates a viable oil resource, Galvin commented that the timing would depend on the location of the discovery. The company has six well locations staked out close to the Dalton Highway, including the two wells drilled in 2012. Oil could be trucked from those locations, thus simplifying development until a suitable pipeline is built, Galvin said. On the other hand, a more remote location would involve a longer development process.

North Slope challenges

Galvin also reflected on the challenges that Great Bear faces in conducting its North Slope program. The primary challenge, he said, is the chaotic state fiscal situation in Alaska. In particular, Gov. Bill Walker's veto of tax credit payments has created uncertainty and "a devastating environment in which to operate," he said. If the state offers tax credits then it needs to pay the credits when they are due, he said.

Rather than bouncing the production tax arrangements around as a political football, as they have been in every election for the past 20 years, increased oil production and increased state oil revenues will require political equilibrium in the tax system, Galvin said. He also cautioned against viewing all the various state tax credits equally, given that each credit was introduced for a particular reason. Galvin particularly argued for the value to North Slope explorers of the net operating loss credit, saying that this credit puts companies with no current North Slope oil production on an equal footing to those that do have production.

Other challenges for a company exploring on the North Slope include a lack of data outside the area of the existing oil fields; short exploration seasons of unpredictable length; and the numerous permits required from multiple government agencies. And when it comes to North Slope oil development, there is a need for a more regional approach to wetlands mitigation, rather than the incremental approach on a case-by-case basis, Galvin commented. In general, the North Slope has a high-cost business environment, with a need for a critical mass of more competition, he said. ●

Contact Alan Bailey at abailey@petroleumnews.com

EXPLORATION & PRODUCTION

Conoco sees North Cook Inlet bump

ConocoPhillips Alaska Inc. appears to have slowed declining natural gas production at the North Cook Inlet unit through a workover program and other maintenance work.

The offshore Cook Inlet unit produced 9.29 billion cubic feet in 2014 and 7.33 bcf in 2015, according to the Alaska Oil and Gas Conservation Commission. In the first six months of 2016, the unit produced 3.58 bcf, which suggest a decline from 2015, although not as steep as the decline between 2014 and 2015.

After completing a three well program at the North Cook Inlet unit in 2008, ConocoPhillips reduced its development program at the offshore field in Cook Inlet. A decline in reservoir pressure across most of the field and increased sand production in places have contributed to an overall decline in production since the drilling program.

The slowdown in declining production this year might be the result of a four-well workover program and other maintenance projects ConocoPhillips undertook at the North Cook Inlet unit in 2015. When the company released its plan for 2016, it proposed no such work for this year but looked forward to a possible workover program in 2017.

The actual plan for 2017, released in early October, provided few details, noting, "The team continues to evaluate future rig work-over and/or drilling opportunities" and "ConocoPhillips plans to continue to evaluate potential undeveloped accumulations."

North Cook Inlet has traditionally been connected to the Kenai liquefied natural gas facility in Nikiski. Activity at the plant has been sporadic in recent years. ConocoPhillips shipped five cargoes between May and September 2014 and six cargoes between May and mid-October 2015. The company made no shipments in the first quarter of 2016, despite receiving U.S. Department of Energy permission to continue exports. Instead, the company has been selling gas production from North Cook Inlet into the local market.

—ERIC LIDJI


FUGRO

100%

COMMITTED TO ALASKA

With decades of Alaska-based experience, Fugro delivers comprehensive survey and geotechnical services for every phase of the project lifecycle.

Fugro, Tel: +1 907 561 3478
Email: info-arctic@fugro.com, **www.fugro.com**

● EXPLORATION & PRODUCTION

Alaska Oil and Gas Conservation Commission report

•On Aug. 30, the Alaska Oil and Gas Conservation Commission allowed (Area Injection Order No. 2C.037) ConocoPhillips Alaska Inc. to continue water injections in the Kuparuk River Unit 2H-01 well. The company reported potential pressure communication in the well in May 2016 while injecting gas and switched to water injection for 30 days while suspending production and conducting tests. The commission concluded the well has “at least two competent barriers to the release of well pressure” and “does not exhibit signs of pressure communication while on water injection.”

•On Sept. 1, the AOGCC canceled Area Injection Order No. 2C.022. ConocoPhillips asked the commission to cancel the order, which was issued in late June 2015. The order placed the Kuparuk River Unit 3O-06 well on water-only injection in response to a “tubing by inner annulus pressure communication” while on gas injection in June 2013. A rig workover of the well in October 2015 repaired the well and resolved the problem.

•On Sept. 1, the AOGCC granted (Area Injection Order No. 4G.002) a request from BP Exploration (Alaska) Inc. to continue water-alternating-gas injection in the Prudhoe Bay Unit P2-09 well. The company had reported a potential casing leak in the well. A series of mechanical integrity tests convinced the commission that the well was sound.

•On Sept. 1, the AOGCC granted (Area Injection Order No. 4G.003) a request from BP to continue water only injection in the Prudhoe Bay Unit 13-31A well. The company reported a potential Inner Annulus repressurization. A recent mechanical integrity test and planned safeguards convinced the commission to allow water only injections.

•On Sept. 1, the commission granted (Area Injection Order No. 5.028) a request from Hilcorp Alaska LLC to continue water injections at the Trading Bay Unit G-13 well.

Hilcorp shut in the well after reporting a potential pressure communication on July 8, 2016. After the company completed a “static and injecting temperature survey” on August 22, 2016, the commission was satisfied with the integrity of the well.

•On Sept. 7, the AOGCC partially approved a revised agreement between Caelus Natural Resources Alaska LLC and ConocoPhillips concerning multiphase flow meters for hydrocarbon production from the Oooguruk unit. Caelus had asked the AOGCC to approve revisions to its 2009 agreement with ConocoPhillips. The commission approved (Docket Number: CO-16-015) the changes, except for the recurring phrase “at its sole discretion,” which gave ConocoPhillips additional control over aspects of the operations.

•On Sept. 12, the AOGCC approved (Area Injection Order No. 2C.038) a request from ConocoPhillips to continue water-only injections in the Kuparuk River Unit 2G-07 well. The company reported a potential pressure communication on July 7, 2016, when the well was shut in after approximately one year of natural gas injection. The communication was not observed when the well was switched to water injection. The well passed two tests in May and July of this year, according to the commission.

•On Sept. 15, the AOGCC allowed (Conservation Order No. 44.75) Hilcorp to convert the Middle Ground Shoal A44-02 injection well into a production well. The project would involve plugging the well above the Hemlock G sand in the MGS G Oil Pool and recomplete the well as a producer MGS F Oil Pool to access un-drained oil reserves.

•On Sept. 15, the AOGCC modified Conservation Order No. 725 (Conservation Order No. 725.001) to accommodate several requests from operator ConocoPhillips.

ConocoPhillips asked the AOGCC to revise the phrase “regular production” in the description of the Kuparuk River-Torok Oil Pool included in the order. According to the order, “regular production of the proposed Moraine Oil Pool within the Kuparuk River Unit began in 2013 from KRU 3S-19.” ConocoPhillips argued that the order should not describe the production as “regular” because state statutes define “regular production” as continuous for marketing purposes, rather than for testing purposes. ConocoPhillips brought the KRU 3S-19 well online for four stretches between February 2013 and November 2014 and sporadically throughout 2015 and suspended production between those stretches before converting the well back to a Kuparuk pool producer in June 2015.

“Given the discontinuous nature of the 3S-19 Moraine production, and the purpose of producing the well in order to evaluate the reservoir, ConocoPhillips submits that the production should not be characterized as ‘regular’ production,” ConocoPhillips GKA Development Manager Kazeem Adegbola told the commission in a Sept. 1 letter.

The distinction matters because House Bill 247 links the gross value at the point of production to the beginning of “regular production.” The commission removed the word “regular” from the Conservation Order, while also noting that “its willingness to delete “regular” is not a determination of whether regular production has or has not occurred.”

ConocoPhillips also asked the AOGCC to remove automatic expiration clauses from Conservation Order No. 725 and the associated Area Injection Order No. 39. The commission kept the clause but revised the two orders to make their clauses similar.

The AOGCC also agreed to remove a clause stating that ConocoPhillips would pre-produce injectors before beginning injection operations, which conflicted with other rules

Finally, the AOGCC rejected a request from ConocoPhillips to modify a portion of the order establishing a response to sustained casing pressures in certain wells.

•On Sept. 19, the commission approved (Area Injection Order No. 2C.039) a request from ConocoPhillips to continue water-only injection in the Kuparuk River Unit 2F-03 well. The company reported a potential pressure communication on July 18, 2016, while the well was injecting gas. The commission approved a 30-day gas injection program and a 30-day water injection program for monitoring. After a mechanical integrity test, the commission determined that the well was safe for water injection.

•On Sept. 30, the commission granted (Area Injection Order No. 3B.005) a request from BP to continue water only injection in the Prudhoe Bay Unit P-06B well. The company reported a potential Inner Annulus repressurization. Subsequent diagnostics and monitoring convinced the commission of the integrity of the well for

see AOGCC REPORT page 8

You never know who's watching.

Cyber attacks are becoming more targeted. Today, 76 percent of websites are vulnerable to cyber attacks, yielding profitable results for those who breach your network.

Let AT&T monitor your network instead of hackers.

Speak with an AT&T representative about Network Security solutions today.

907-264-7387
1-800-955-9556

MOBILIZING
YOUR
WORLD℠

Source: Symantec Internet Security Threat Report, Volume 20
© 2016 AT&T Intellectual Property. All rights reserved. AT&T, the Globe logo and other marks are trademarks and service marks of AT&T Intellectual Property and/or AT&T affiliated companies. All other marks contained herein are the property of their respective owners. This document is not an offer, commitment, representation or warranty by AT&T and is subject to change.

EXPLORATION & PRODUCTION

Mustang still on pace for late 2017

Brooks Range Petroleum Corp. describes 'very high level' timeline for bringing North Slope Southern Miluveach unit online

By ERIC LIDJI
For Petroleum News

Brooks Range Petroleum Corp. remains on pace for a late 2017 startup at Mustang.

The subsidiary of a multiparty joint venture recently told state officials it expects to begin oil production from the Southern Miluveach unit between October and December 2017, which supports a November 2017 startup the company proposed earlier this year.

BRPC had previously expected to bring the Mustang field into production by the end of this year but slowed its development schedule because of technical delays encountered during the initial drilling campaign. In a new plan of development released in late September, the company described its current timeline as a "very high level" assessment based on its current understanding of the field and current economic conditions within Alaska.

A major cause of delay was high pressure encountered at the field. A root-cause analysis of the drilling program convinced the company of the need for enhanced drilling equipment. BRPC told the state it was currently discussing its needs with contractors and would schedule the retrofitting project with an eye toward the late 2017 startup date.

Roads and pads for the project were completed in 2013 and most of the above ground pipeline supports were installed in early 2015. Engineering work on the Mustang Operations Center No. 1 processing facilities was about 65 percent complete when BRPC slowed its timeline in the third quarter of last year. Before the slow down, BRPC contractors in Canada completed fabrication of the oil train modules, the gas compression train and gas conditioning train. The modules are currently staged in Calgary and Nisku, Alberta, according to the company. BRPC also finished procuring much of the long-lead engineering equipment that it had ordered before it slowed down the project. The equipment is currently being stored at three facilities in Anchorage, according to BRPC.

Another reason for the slowdown, according to BRPC, was that the downturn in oil prices made it difficult to attract capital. If funding comes through before the end of this year, the company expects to resume the engineering and procurement activities that were stalled last year and begin the process of finding fabrication and installation contractors.

According to the most recent timeline, BRPC will install communication infrastructure toward the end of this year and build early operations centers and camps early next year.

Prior to the expected arrival of the first Alaska-fabricated modules in April 2017, the company plans to complete pipeline installation and interconnection and some remaining pad work. The last Alaska-fabricated modules are expected in September 2017, with the Canadian-fabricated modules arriving in August 2017 and installed by October 2017, providing two-to-three months for conducting the final system-wide review of facilities. ●

continued from page 6

AOGCC REPORT

water injection.

•**On Sept. 30**, the AOGCC fined Hilcorp Alaska LLC $30,000 for conducting well operations at the Milne Point Unit without a working gas detection system.

The AOGCC initially proposed a $50,000 fine when it raised the matter in November 2015 but reduced the amount after Hilcorp requested an informal review of the case.

The case concerns a workover operation Hilcorp conducted at the Milne Point Unit F-96 well in August 2015. A required gas detection system was working when the company began work but faced a malfunction a few hours thereafter. The company notified the AOGCC and ordered a replacement part. Hilcorp was required to suspend operations until it fixed the system, but internal emails showed the company "removed the wellhead lock down pins from the tubing hanger," according to the AOGCC.

While acknowledging that Hilcorp was quick to announce its failed system, that workers had personal gas detection systems during their work and that the public was not harmed by the project, the AOGCC concluded that the company failed to act in good faith by continuing operations. According to the AOGCC, "Hilcorp's history of noncompliance and the need to deter similar behavior weigh strongly in setting the penalty amount."

In addition to the $30,000 fine, the AOGCC is requiring Hilcorp to provide "detailed explanation of how recurrence of this violation will be prevented in the future."

•The AOGCC has tentatively scheduled a meeting for the morning of Oct. 11 to consider a request from Glacier Oil & Gas Corp. subsidiary Cook Inlet Energy LLC to use multiphase flow meters at the West McArthur River and Redoubt units. The request comes as Glacier plans to decommission the West McArthur River unit production facility and route production through the nearby Kustatan production facilities instead.

•The AOGCC will hold a public workshop on Nov. 1 to allow interested parties to provide input on a range of proposed regulatory changes introduced in September.

•The AOGCC has tentatively scheduled a hearing on Nov. 3 to consider a request from BP to classify the gas cap water injection project at the Lisburne field of the Prudhoe Bay unit as "permanent," rather than its current designation as a pilot project. The commission will proceed with the hearing if it receives a written request before the afternoon of Oct. 15.

—ERIC LIDJI

When in Alaska, ask the experts.

Established in 1982, UMIAQ meets the growing demands for services to support resource and rural community development projects in Alaska. Equipped with experts in design and consulting that address the unique tactical and environmental challenges of the Arctic and remote regions of Alaska.

UMIAQ Design & Municipal Services, LLC
Offering services in comprehensive design, construction administration, project management and analysis, master planning, peer review/code analysis, conditions surveys, renovation and reuse.

UMIAQ Environmental, LLC (a DBE and 8(a) pending business)
Providing a comprehensive suite of environmental services including permitting, NEPA documentation, spill response, permit compliance database development, environmental monitoring and contaminated site clean-up characterization and remediation.

UMIAQ
www.UICAlaska.com

6700 Arctic Spur Road, Anchorage, AK 99518 • (907) 677-8220
A MEMBER OF THE UKPEAĠVIK IÑUPIAT CORPORATION FAMILY OF COMPANIES

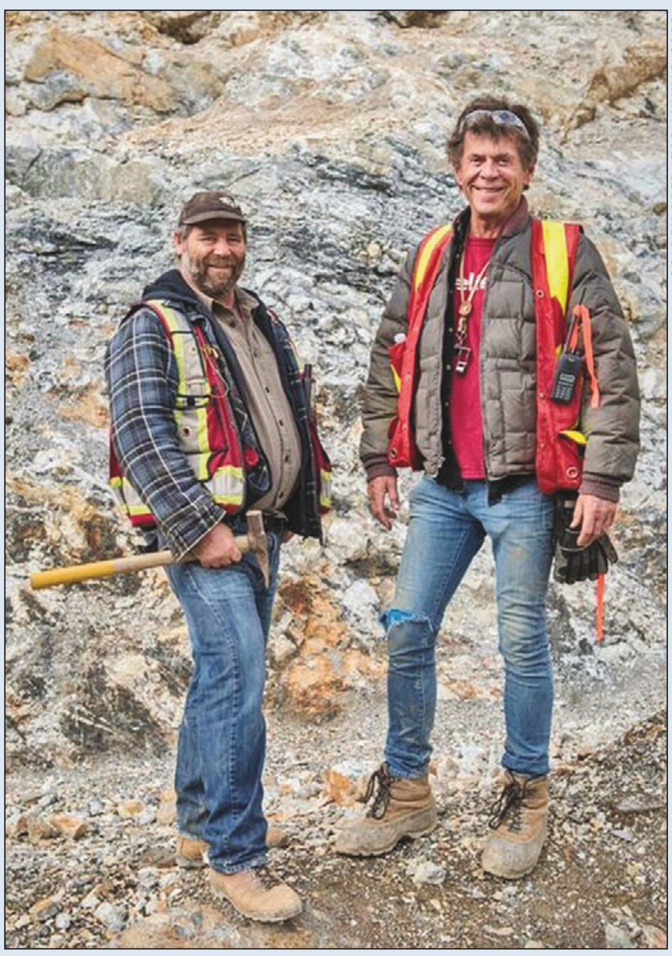
NORTH OF 60 MINING news

page 11 Millrock CEO foresees new mines near Pogo, expands claims in area

www.MiningNewsNorth.com *The weekly mining newspaper for Alaska and Canada's North* **Week of October 9, 2016**

NORTHERN NEIGHBORS

Compiled by Shane Lasley



GOLDEN PREDATOR MINING CORP.

Golden Predator Chief Geologist Mike Burke (left) and Chairman Bill Sheriff at Ace of Spades, one of several high-grade gold discoveries the company made this summer at its 3 Aces project in southeastern Yukon Territory.

Drilling targets new gold veins at 3 Aces

Golden Predator Mining Corp. Oct. 5 reported new high-grade gold results and the discovery of new veins at its 3 Aces project in southeastern Yukon Territory. More than 800 rock chip, composite grab, channel and panel samples have been collected within the central core area of the property this year.

Trenching is being targeted in areas of anomalous gold geochemistry, known areas of mineralization and along new or existing road cuts. Detailed geological mapping, surveying using a Differential Global Positioning System and 3D modeling of the trenching results are being conducted to estimate true widths of the newly exposed veins and to plan the upcoming drill program. The company's program of road building followed by extensive trenching has continued to expose additional mineralized quartz veins including several with visible gold across the Spades, Hearts and Clubs zones. Panel sampling of the three principal veins at the Jack of Spades discovery zone returned 186.5 grams per metric ton, 94.7 g/t and 64.3 g/t gold respectively. Sampling of the northeast extension of the Ace of Spades vein returned assays of 51.2 g/t and 55.1 g/t gold. Two new mineralized quartz veins were discovered in the Clubs zone with the Six of Clubs assaying 16.85 g/t gold from a large composite grab sample and the Ten of Clubs assaying 10.65 g/t gold from a panel sample. These discoveries in the Clubs Zone are 2,000 to 2,500 meters northwest of the Jack and Ace of Spades. These recently identified and sampled veins will be targeted for drilling commencing in October 2016. A total of 4,500 meters has been budgeted for the remainder of 2016, increasing to more than 25,000 meters in 2017. "Our aggressive road-building, trenching, and sampling program has returned impressive high-grade results over a broad area. The newly discovered veins now provide ample targets for our RC (reverse circulation) drill program, which is set to begin this month and continue through the winter,"" said Golden Predator CEO Janet Lee-Sheriff.

see **NORTHERN NEIGHBORS** *page 11*

SHANE LASLEY

Drilling has outlined a deposit at Pebble containing 57 billion pounds of copper, 70 million ounces of gold, 3.4 billion lbs. of molybdenum and 344 million oz. of silver in the measured and indicated category. Upon resolution of a legal dispute with the U.S. Environmental Protection Agency, the Pebble Partnership plans to apply for permits needed to develop the world-class deposit in Southwest Alaska.

LITIGATION

Breaking the impasse

Legal fee cap indicates resolution of Pebble-EPA court battle draws nigh

By SHANE LASLEY
Mining News

Is the impasse between Pebble Limited Partnership and U.S. Environmental Protection Agency over the potential development of the world-class Pebble copper deposit in Southwest Alaska about to be resolved?

Northern Dynasty Minerals Ltd., currently the sole owner of the Pebble Partnership, believes the standoff will likely be over by January if an ongoing lawsuit between Pebble and the EPA runs its full course, and possibly sooner if the parties come to an agreement outside of the courtroom.

"Either way, we have every confidence that we will prevail, and Pebble will ultimately move forward to initiate the environmental impact statement process under the U. S. Clean Water and National Environmental Policy acts unencumbered by any extraordinary development restrictions as proposed by EPA," said Northern Dynasty President and CEO Ron Thiessen.

Secret advisory committees

The extraordinary development restrictions mentioned by the Northern Dynasty executive and how the EPA went about supporting such restrictions is what got Pebble and the environmental agency locked up in a court battle in the first place.

In 2014, the Pebble Partnership filed a complaint in U. S. district court, alleging that the EPA violated the Federal Advisory Committee Act (FACA) by collaborating with anti-mining activists to develop a strategy for utilizing Section 404 (c) of the Clean Water Act to place restrictions or outright prohibit permits for developing a mine at Pebble before the permitting process.

In making its case, the Pebble Partnership claimed the "anti-mine coalition secretly advised EPA on how the agency should develop its strategy under Section 404(c), including making critical recommendations on who EPA officials should recruit, how the agency could best leverage the Alaska Native "tribes," and how to formulate EPA's messaging in a way that would minimize anti-federal government backlash among Alaskans."

Once a suitable strategy was formulated, according to Pebble, the anti-mine groups played an integral role in preparing EPA's Bristol Bay Assessment, a study aimed at determining the effects developing a mine at Pebble would have on fish resources near the enormous copper-gold-molybdenum deposit.

The assessment was used as the basis for unprecedented pre-emptive 404c restrictions that would detrimentally limit the footprint of any mine allowed to be developed at the enormous porphyry copper-gold-molybdenum deposit in Southwest Alaska.

The Pebble Partnership asserted that the behind-the-scenes collaboration between EPA and the anti-mine groups violates advisory committee law and taints the entire process for which the environmental agency is basing its Clean Water Act determination with regards to Pebble.

Beyond seemingly unlawful collaboration with anti-Pebble advocates, Northern Dynasty says the evidence collected in support of the FACA case shows that EPA first decided to preemptively veto or restrict permits to develop Pebble and then built a case to support this decision.

"We have every confidence these facts will be validated at trial, and EPA's ability to use a severely flawed BBWA (Bristol Bay Watershed

see **COURT BATTLE** *page 11*

Only pay for the speed you need...
Dynamic Routing!℠

At Lynden, we understand that plans change but deadlines don’t. That’s why we proudly offer our exclusive Dynamic Routing system. Designed to work around your unique requirements, Dynamic Routing allows you to choose the mode of transportation — air, sea or land — to control the speed of your deliveries so they arrive just as they are needed. With Lynden you only pay for the speed you need!

The new Lynden phone app is now available to download!

Download on the App Store | Download from Windows Store | ANDROID APP ON Google play

LYNDEN
Innovative Transportation Solutions

www.lynden.com 1-888-596-3361

continued from page 9

COURT BATTLE

Assessment) report to justify its pre-emptive regulatory action at Pebble will be stayed," Thiessen said

Federal Judge H. Russel Holland found Pebble's allegations credible enough to issue a preliminary injunction in November 2014 that barred the EPA from finalizing its planned restrictions on Pebble permits.

Northern Dynasty said this indicates a reasonable likelihood of Pebble prevailing on the merits of its case.

"While it's never possible to guarantee legal outcomes, we have long held that the evidentiary basis for us to prevail in our litigation against EPA is well-established," said Thiessen. "From the tens of thousands of pages of communication, memos and reports obtained under discovery and the Freedom of Information Act, and from the deposition of key government employees, it's now clear that EPA's frequent, intensive and ongoing engagement with ENGOs (environmental non-government organizations) and anti-mining activists in planning and executing its BBWA study and CWA 404(c) strategy occurred in violation of federal laws intended to provide for open, honest and transparent decision-making."

End draws nigh

Steptoe & Johnson LLP, a respected international law firm that is representing the Pebble Partnership in the FACA case, also must feel confident that a positive outcome for its client is drawing nigh.

Steptoe, which has a reputation for being able to solve complex problems with a governmental aspect, has agreed to cap its fees to finish up the FACA court battle with EPA at US$1 million.

"The significance of today's announcement is we now have certainty that Northern Dynasty will have the financial and professional resources necessary to pursue its legal case against EPA to a final conclusion," Thiessen explained.

If that conclusion results in a victory for Pebble, Steptoe will get a bonus payment for its success.

Thiessen said the firm's willingness to cap its legal fees at $1 million reflects its confidence in Pebble's FACA case.

Notwithstanding the new fee arrangement, Pebble continues to seek a resolution to its impasse with EPA that forestalls litigation.

If the trial runs its full course without an earlier settlement, Northern Dynasty anticipates a final judgment in January. ●

GOLDSTRIKE RESOURCES LTD.

Bonanza, an outcropping vein with pervasive visible gold, was discovered by Goldstrike geologists during an early season mapping and prospecting program at the company's Plateau property in Yukon Territory. Sampling at Bonanza has returned gold grades similar to Goldstack, a zone about 4,000 meters to the southeast.

continued from page 9

NORTHERN NEIGHBORS

Bonanza, other Plateau gold finds ready to drill

Goldstrike Resources Ltd. Oct. 3 reported that initial channel samples of a 30- by 30-meter outcrop in the Bonanza zone of its Plateau property in the Yukon Territory have returned 15.06 grams per metric ton gold over 1.13 meters, 14.4 g/t gold over 0.9 meters, 6.9 g/t gold over 1.3 meters and 2.22 g/t gold over 2.75 meters. These results are similar to initial channel samples taken at the Goldstack discovery outcrop in 2012. Located 4,000 meters northwest of Goldstack, Bonanza consists of a swarm of parallel veins with mineralization similar to that seen in the high grade drill intersections at Goldstack. Assays of 28 rock grab samples collected at Bonanza zone have ranged from below detection limit to 436.4 g/t gold. Goldstrike said the grab and channel assay results from the Bonanza zone provide strong drill targets designed to trace the gold mineralization both to depth and along strike in the next phase of exploration. Based on the similarity between the surface channel sample results at Bonanza and Goldstack, the geological team believes that Bonanza has excellent potential to evolve into a significant gold discovery in the subsurface, as seen as Goldstack. At the Goldback zone, located immediately southeast of Goldstack, 44 reconnaissance rock grab samples returned values ranging from below detection to 15.1 g/t gold. Goldstrike said this discovery provides excellent future drill targets along trend up to 600 meters to the southeast of Goldstack. The company also reported sampling success at Big Bang, a zone discovered earlier this year about 10 kilometers (6.2 miles) northwest of Bonanza. Fifty reconnaissance rock grab samples collected at Big Bang returned assays ranging from below detection l to 21.2 g/t gold, including 14 samples that returned more than one g/t gold. Two initial channel samples from the Big Bang zone returned 2.17 g/t gold over one meter and 3.46 g/t gold over half a meter.

see **NORTHERN NEIGHBORS** *page 12*

NEWS NUGGETS

Compiled by Shane Lasley

Redstar mobilizes to drill Unga

Redstar Gold Corp. Oct. 5 said it is planning a 1,500-meter drill program at its high-grade Unga gold project in Alaska. Scheduled to start in late October, the drilling will focus on outlining additional high-grade gold mineralization at the Shumagin zone along strike and at depth. The company anticipates a larger drill program in spring 2017, after all results from this second phase of 2016 exploration are received and modeled. "With the drill rig currently at site, we are immediately mobilizing our technical team to the Unga gold project to initiate the drill program by the end of October," said Redstar President and CEO Peter Ball. "The Shumagin gold zone has already delivered exceptional high-grade gold intersections, and we look forward to the next set of results from the upcoming Phase 2 drill program. The 2016 summer exploration program at Shumagin assisted in refining new exploration targets, and has fully prepared our technical team to initiate the next phase of drilling, which follows significant results from the 2011 and 2015 drill programs."

Millrock nabs Pogo area claims

Millrock Resources Inc. Oct. 5 said it has assembled a large land position covering high-potential gold targets near Sumitomo Metal Mining Company's Pogo gold mine in the Goodpaster Mining District of Interior Alaska. As a result of a series of purchase and option agreements and claim staking, Millrock now holds six discrete claim blocks in the district covering an area of 15,847 hectares (39,158 acres). The claims cover soil geochemical anomalies, many of which are untested. On several properties, there are intersections obtained through drilling by prior operators that are strongly anomalous in gold and deserving of follow-up exploration. Millrock acquired full ownership of six claim blocks – Eagle, ER, Beverley-Cal- Surf, SE Surf, Scot and Boundary – from Kiska Metals Corp., subject to certain continuing obligations to a subsidiary of Kiska; Capstone Mining Corp., and Anglogold Ashanti (U.S.A.) Exploration, Inc.; optioned the West Pogo claims from Aurora Exploration; and optioned the WP Hansen claims from Beau and Zeynip Hansen. Millrock had previously acquired the WP Raven claims from Corvus Gold Inc. "So far, only one hard rock lode mine has been discovered in the Goodpaster Mining District, and it is a very good one. We believe that one day there will be multiple lode gold producers in the area. By virtue of these recent property acquisitions, Millrock now has what we think to be the best-potential land in the mining district. The claims are positioned based upon the results of millions of dollars of regional and local exploration done by the various vendors," said Millrock President and CEO Greg Beischer. The Goodpaster Mining District area is subject to a collaboration agreement that Millrock signed with a major mining company in 2015. Per the terms of the agreement, Millrock will offer the major the opportunity to assign individual projects to designated project status subject to an option agreement with pre-determined business terms. The various claim blocks that now comprise the West Pogo project – ER, WP Aurora, WP Hansen, WP Raven and claims staked by Millrock – have been the subject of a recent exploration program conducted by Millrock with funding from the major totaling roughly US$250,000. Work consisted of re-logging and sampling of existing drill core, infill soil sampling and geological mapping.

Contact North of 60 Mining News:

Publisher: Shane Lasley • e-mail: publisher@MiningNewsNorth.com
Phone: 907.229.6289 • Fax: 907.522.9583

Petroleum news

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

Shane Lasley	PUBLISHER & NEWS EDITOR
Rose Ragsdale	CONTRIBUTING EDITOR
Mary Mack	CEO & GENERAL MANAGER
Susan Crane	ADVERTISING DIRECTOR
Heather Yates	BOOKKEEPER
Marti Reeve	SPECIAL PUBLICATIONS DIRECTOR
Steven Merritt	PRODUCTION DIRECTOR
Curt Freeman	COLUMNIST
J.P. Tangen	COLUMNIST
Judy Patrick Photography	CONTRACT PHOTOGRAPHER
Forrest Crane	CONTRACT PHOTOGRAPHER
Tom Kearney	ADVERTISING DESIGN MANAGER
Renee Garbutt	CIRCULATION MANAGER
Mapmakers Alaska	CARTOGRAPHY

ADDRESS • P.O. Box 231647
Anchorage, AK 99523-1647

NEWS • 907.229.6289
publisher@miningnewsnorth.com

CIRCULATION • 907.522.9469
circulation@petroleumnews.com

ADVERTISING
Susan Crane • 907.770.5592
scrane@petroleumnews.com

FAX FOR ALL DEPARTMENTS
907.522.9583

Several of the individuals listed above are independent contractors

NORTH OF 60 MINING NEWS is a weekly supplement of Petroleum News, a weekly newspaper.
To subscribe to North of 60 Mining News,
call (907) 522-9469 or sign-up online at www.miningnewsnorth.com.

continued from page 11

NORTHERN NEIGHBORS

Aben readies Forrest Kerr for 2017 drilling

Aben Resources Ltd. Oct. 5 reported the completion of a property-wide reconnaissance and surface sampling program on its 23,000-hectare (56,800 acres) Forrest Kerr gold project in the Golden Triangle region of northwestern British Columbia. The program included the collection of 360 soil, 11 silt, and 35 rock samples to confirm historic high-grade zones and extend existing multi-element soil anomalies. The company believes the sampling will better define known mineralized trends and will assist in confirming targets for a planned drill program in 2017. The field program saw work conducted across the entire property with a focus on three specific areas where past exploration has revealed strong mineralization. In the northern portion (RDN Claims) of the amalgamated claim block, historic drilling at the Wedge zone has intersected high-grade gold-silver-copper-lead-zinc mineralization over a strike length exceeding 1,000 meters. At south Wedge, historic hole RG90-07 returned an average of 14.5 grams per metric ton gold over 7.8 meters; and RG91-21 returned 125 g/t gold over 0.8 meters and 91 g/t gold over 1.95 meters. RDN04-32, collared more than 900 meters north of those two holes, returned greater than 5 g/t gold over 1 meter with elevated silver-lead-zinc over a six-meter interval. At the Boundary Zone, situated eight kilometers (five miles) south of Wedge, Noranda reported 60 g/t gold over 5.5 meters in drill hole RG91-16. Follow-up drilling in the immediate vicinity encountered 19.2 g/t gold and 2.7 percent copper over 1.5 meters. Aben said numerous mineralized occurrences are documented throughout the Forrest Kerr gold project area and sound, systematic fieldwork conducted from the late 1980s to the mid-2000s provide a solid framework for ongoing fieldwork. With little activity in the area during the past decade, the area is ripe for modern exploration techniques. The area has recently seen major infrastructure improvements, including roads and hydro-electric facilities. In addition, rapid melting rates of glaciers in parts of the property area are expected to provide new exposures in areas that were inaccessible during previous exploration campaigns.

SKEENA RESOURCES LTD.

Skeena Resources is tracing high-grade gold beyond the historical workings at the Snip Mine. Skeena believes the current gold price and vastly improved infrastructure should increase the viability of mining the remaining zones and high-grade gold targets at Snip.

Teck opts out of Kliyul, Kiska regains control

Kiska Metals Corp. Oct. 4 reported that Teck Resources Ltd. has terminated its option to earn up to a 51 percent interest in Kliyul. As a result, Kiska regains 100 percent interest in the copper-gold project in northern British Columbia. Over the past three years, Teck completed roughly C$3 million on exploration and community engagement programs related to Kliyul. The field work included induced polarization geophysical surveys, archeological surveys, baseline water quality surveys and around 2,000 meters of diamond drilling in four holes. Kiska said discussions with a potential new partner are underway. "Management believes it is in the best interest of Kiska shareholders to seek continuous advancement of the Kliyul project," said Kiska President and CEO Grant Ewing. "And while it is unfortunate to lose Teck as a partner, Kiska is excited to regain control of the Kliyul project, and is confident that there will be strong interest from other major mining companies."

High-grade gold spurs further drilling at Snip

Skeena Resources Ltd. Oct. 3 posted assay results from six holes drilled at the past-producing Snip high-grade gold project in the Golden Triangle of northwestern British Columbia. Highlights include 4.7 meters of 16.01 grams per metric ton gold, including 1.65 meters of 37.7 g/t gold in hole S-16-11. This hole, along with S-16-12, targeted an area below the Twin West underground workings, where limited historic production totaled about 10,000 metric tons at an average grade of 18.8 g/t gold. Intercepts on the new holes indicate continuity with several historical intersections including 57.3 g/t gold over 1.3 meters, 34.7 g/t gold over 3.7 meters and 34.8 g/t gold over 2.1 meters. "Given the strong initial drill results from Snip, the board has decided to extend the current 6,000-meter program," said Skeena CEO Walter Coles, Jr. "Planning is under way for additional holes. We expect to complete the C$2 million spending commitment, which is the primary requirement to earn 100 percent of the property from Barrick Gold by the end of October. Once we transfer title and gain access to the underground workings, the drilling will shift to underground, which will enable us to delineate the vein structures in a much more efficient manner."

Critical step forward at Committee Bay

Auryn Resources Inc. Oct. 3 released partial results from its summer exploration program at the Committee Bay gold project in Nunavut. During the eight-week program, Auryn completed roughly 10,000 meters of rotary air blast drilling at various prospects, 3,750 meters of diamond drilling at the Three Bluffs deposit, 5,500 regional till samples, 3,100 XRF till samples, 1,000 line-kilometers of mapped boulders and 3,500 square kilometers of drone imagery. This year's RAB drilling was designed to test new target structures underneath till cover and to drill the source rock of gold in till anomalies and mineralized boulder trains. One hole drilled at the Anuri prospect cut 13.71 meters averaging 1.91 grams per metric ton gold. "The initial RAB exploration drill results successfully intersected structures with gold mineralization underneath till cover. This has been a critical step forward on our path to discovery as it allows us to effectively target and drill the numerous high-grade corridors that have been highlighted from our 2016 summer reconnaissance work," said Michael Henrichsen , COO and chief geologist, Auryn Resources. "At the Three Bluffs deposit, the modest five-hole drill program demonstrated that the mineralized system extends to depth and remains open." Highlights from Tree Bluffs include 23 meters of 2.5 g/t from a depth of 419 meters; and 30 meters of 2.12 g/t from a depth of 777 meters. "We were able to achieve a tremendous amount of work this summer and look forward to the remaining drill results as well as the details of the six new multi-kilometer high-grade target corridors that we plan to drill in our 25,000-meter Committee Bay drill program in 2017," Henrichsen added.

Grey Rock grabs gold property in NW B.C.

Gray Rock Resources Ltd. Sept. 30 said it has entered an agreement to acquire the Surprise Lake gold property in northwestern British Columbia from DeCoors Mining Corp. Located near Atlin, the Surprise Lake property covers two documented mineral occurrences – Surprise and Cabin Silver – as well as a new visible gold discovery in bedrock along Otter Creek. The agreement also includes six other early-stage mineral exploration properties in British Columbia. In consideration of the acquisitions, Grey Rock will issue to DeCoors for 4 million shares for Surprise Lake and reimburse the vendor up to C$30,000 for property location and exploration costs. In addition, DeCoors will retain a 1.5 percent net smelter returns royalty on each of the purchased properties, until the Grey Rock has paid C$2 million under the NSR of any property placed into commercial production. Alternatively, Grey Rock has the option to pay C$666,667 for every one-third of a NSR at any time. "With the improved market conditions, we have set out to build a solid portfolio of well-located projects in British Columbia," said Gray Rock President and CEO David Wolfin. "The Surprise Lake property represents an exceptional opportunity for the company, and Gray Rock will be able to pursue exploration with field crews already in place." ●

● EXPLORATION & PRODUCTION

Production up at western satellites

Aurora, Borealis, Midnight Sun, Orion, Polaris present bright spot for BP at Prudhoe Bay unit; production up at all but Borealis

By ERIC LIDJI

For Petroleum News

After across-the-board declines last year, BP Exploration (Alaska) Inc. is reporting increased oil production at four of the five western satellites at the Prudhoe Bay unit.

The increases came from a combination of drilling activity at a few fields and maintenance activities at most of the others. Whether those activities can continue at a time when the company is reducing both its workforce and its drilling plans in response to depressed oil prices remains to be seen. The longer-term projects required for maintaining growth at the western satellites appear to be on hold for another year.

The plans of development for the five satellites in the western half of the unit — Aurora, Borealis, Midnight Sun, Orion and Polaris — are the third and final collection that BP submits each year for the Prudhoe Bay unit. The company submitted its plans for the Initial Participating Areas in April and the Greater Point McIntyre Area in June.

As has been the case for years, the plans offer little progress on several big projects, such as construction of a proposed I pad or an expansion of the existing S pad and M pad.

The proposed I pad project at the overlapping Borealis and Orion fields was originally slated for 2006 and later postponed until 2010 and now until as late as 2020.

Constructing the pad would require a major investment, which is one reason lawmakers have regularly hauled the project into debates over state fiscal policy. In its previous plan, BP said the future project depended on results of sand control technology being deployed in the Schrader Bluff formation. In its current plan, the company said a trial of the technology at Z pad was being deferred "due to the current business climate." The expansion of M pad and S pad also depends on the results of the sand control trial.

Additionally, BP is continuing to search for ways to improve the sand handling capacity of Gathering Center 2, which was created to handle lighter oil than is currently produced.

Aurora

Aurora reported increased production over the past year. The field produced 6,303 barrels of oil per day on average between July 2015 and June 2016, up from 4,305 bpd during the 2014-15 cycle and 4,655 bpd during the 2013-14 cycle, according the company.

The growth came primarily from drilling activities in late 2015, before BP instituted its cuts. In the final months of last year, the company drilled the S-42A producer to replace the abandoned S-108 producer and the S-44A producer north of the S-101 injector. The company listed both of those projects in its 2015 and its current 2016 development plans.

This year, BP undertook two major development projects at Aurora.

In the first quarter, the company hydraulically fractured the S-135 well. The well produced 3,587 barrels of oil per day after the operation, compared to 836 bpd in the most recent test before the operation, according to the company. In the second quarter, the company drilled the S-112L1 lateral to support the S-42A producer. The lateral failed to reach its target. BP converted the parent well and a portion of the lateral to injection.

BP provided no specific development program for the coming year, aside from mentioning plans to continue well work as needed and considering future drilling targets.

Borealis

Borealis production fell this year, although the declines slowed from the year before.

The field produced 8,517 barrels of oil per day during the 2015-16 cycle, down from 8,768 bpd during the 2014-15 cycle and 9,932 bpd during the 2013-14 cycle, according to the company. The 2.8 percent decline in oil production between this year and last was far less than the 11.7 percent decline between last year and the year before.

Borealis is developed from three pads — L, V and Z.

BP focused its development work on L pad and Z pad this year. The company hydraulically fractured the L-123 injector and L-124 producer in late 2015 and early 2016. The L-123 well was returned to injection. The L-124 well produced an initial rate of 1,758 bpd after the operation, and "stabilized at a lower rate that was well in excess" of a rate of 83 bpd recorded before the operation. The company also brought the Z-114 injector into operation in early 2016 and repaired the Z-504A and Z504B wells.

BP suspended production and injection at V pad in June 2016 "due to piping over stress findings from an engineering study." The company launched the study after noticing subsidence at the pad. While BP is currently modifying the piping and support system, and told the state it is expected to resume operations by the end of the year, any activities undertaken in the coming months would only be a short-term solution combined with ongoing monitoring. The company expects a long-term solution to take until early 2018.

Aside from mentioning vague plans for well work and new drilling as needed, BP provided no details for drilling and maintenance work at Borealis for the coming year.

Midnight Sun

Midnight Sun production rose during the year.

The field produced 1,134 barrels of oil per day during the 2015-16 cycle, up from 964 bpd during the 2014-15 cycle and 1,106 bpd during the 2013-14 cycle.

The only major activities at the field this year were repairs to the offline P1-122i injection well drilled in early 2015. The work restored the well to injection. The company said it was not planning any additional drilling work at Midnight Sun over the coming year.

Orion

Orion production rose during the year.

The field produced 4,747 barrels of oil per day during the 2015-16 cycle, up from 4,693 bpd in the 2014-15 cycle and down from 5,483 bpd in the 2013-14 cycle.

While the company did not drill at the field over the past year, it conducted considerable maintenance activities, such as changing the waterflood regulation valves of 15 injection wells. The field also produces from V pad and experienced down time similar to Borealis.

Aside from mentioning vague plans for well work and new drilling as needed, BP provided no details for drilling and maintenance activities at Orion for the coming year.

In addition to I pad, BP is looking for ways to reduce downtime at viscous wells in the northwest portion of the field, near the proposed I pad. Over the past year, the company considered whether to sidetrack the L-200 and L-205 producers. "In their current states, both wells have little to no remaining value. A plan to re-drill both multi-lateral producers as vertical wells with frac-pack completions is being evaluated," the company wrote. A similar evaluation is underway at the Borealis field, which lies beneath the Orion field.

Polaris

Polaris production rose during the year.

The field produced 4,306 barrels of oil per day during the 2015-2016 cycle, up from 3,890 bpd during the 2014-15 cycle and 4,080 bpd during the 2013-14 cycle.

As with Orion, BP did not drill at Polaris over the past year but performed considerable maintenance work such as changing waterflood regulation valves on eight injection wells.

The company listed no specific drilling plans for the coming year. ●

Contact Eric Lidji at ericlidji@mac.com

LOGISTICAL CONTAINERS - DESIGN, FAB, RENT
www.tanks-a-lotinc.com
For Orders Call:
907-283-0580
EN BS-12079
AECCA 2012.1
STANDARD
(See aecca.us)
WE MEAN IT WHEN WE SAY..
TANKS-A-LOT
www.tanks-a-lotinc.com
985-385-1913
PALLET BOXES - CUTTING BOXES - FREIGHT BOXES - BASKETS
CUTTING BOXES
BOTTLE RACKS
DRUM RACKS
TANKS
GPS
PALLET RACKS
CARGO BOXES
CARGO BASKETS
ON-SITE SPILL UNITS
42134 Kenai Spur Hwy (Yard)
14896 Kenai Spur Hwy, Suite 107-A (Office)
Corporate Headquarters
Morgan City, Louisiana • (985) 385-1913 • tal.office@tanksalotinc.net

continued from page 1

AGDC

source, or do nothing. It's got to be done without any more state money, also.

"A year is enough time for us to get a sense as to whether there is a market out there and whether we can actually do this," Meyer said.

Project lead by year end

AGDC will take over the project by the end the year from a four-party consortium now led by ExxonMobil Corp. The state is a partner in the group along with North Slope producers BP and ConocoPhillips as well as ExxonMobil. That partnership is now ending, however.

Earlier this year the companies told the governor that with the strains of current low energy prices they could not continue into a costly final engineering stage for Alaska LNG after concluding preliminary engineering, or pre-Front End Engineering and Design.

The industry partners offered to support the state stepping in as the project developer, an option Walker has accepted, and to make their gas available to buyers through a project developed by the Alaska Gasline Development Corp.

Costs were adding up for the consortium. The pre-FEED, largely complete, cost about $600 million, and the producing companies earlier spent about $125 million on feasibility and conceptual design work. Final engineering, or Front End Engineering and Design, was expected to cost between $1.5 billion and $2 billion.

Filing, marketing immediate goals

Meyer said his immediate goals are to file an application to build the project early next spring with the Federal Energy Regulatory Commission and simultaneously work to attract potential customers and third-party investors.

AGDC has $105 million on hand through appropriations from the Legislature and that is sufficient to undertake any supplemental engineering and other work needed for the FERC application and to pursue marketing, Meyer said.

"This gives us a real-life gas seller. They (ConocoPhillips) want to sell gas, and we want to sell our pipeline capacity."
—Keith Meyer, AGDC

"Alaska has a good story. We have the gas resources, we're close to the markets in Asia and we're in a politically stable region," Meyer said. However, an 800-mile pipeline from the North Slope is needed, a burden some competitors don't have. Overall, the competition is fierce, too.

Meyer acknowledged Alaska has competition. A gap of about 100 million tons per year between Asian LNG demand and supply is widely predicted by 2025, but there is about 800 million tons per year of new capacity in planned and proposed projects chasing any market opening, he said.

Modestly encouraging

Despite that, the state governor and a team of officials, including Meyer, returned from an initial marketing foray to Singapore modestly encouraged by their reception. The governor addressed a major LNG conference in Singapore and was invited by South Korea's government to meet with officials there.

Meyer believes an attractive package can be put together for customers. "One thing we learned in Asia is that buyers there would really like to see a West Coast project. They are pretty tapped out on LNG from the new (U.S.) Gulf Coast projects but, for new supply, they like the reliability and security of a North American source," he said.

This could be an advantage for Alaska because most West Coast North American projects, like those proposed for British Columbia and Oregon, face political and environmental challenges. "Our project faces challenges, too, but they can be managed more easily than challenges facing other west coast proposals, Meyer said.

That said, Meyer said the Canadian government's Sept. 27 approval for the $36 billion Pacific NorthWest LNG came as a surprise and a signal that this project may emerge as Alaska's most serious North America competitor for the Asia market.

Marketing plans

AGDC intends to be out marketing, however, and a new joint-venture LNG marketing relationship with ConocoPhillips gives the state's effort credibility in the market, Meyer believes.

"This gives us a real-life gas seller. They (ConocoPhillips) want to sell gas, and we want to sell our pipeline capacity," he said. Eventually the state's substantial royalty gas holdings can eventually be sold through the joint-venture, he said.

AGDC's marketing strategy is to pursue a lower cost of service by attracting third-party equity investors to the project who would accept a lower return on long-term capital deployed than the return producers would have required. Cheniere Energy, which Meyer once headed, and Sempra LNG had success with similar strategies with new U.S. Gulf LNG projects.

A recent Wood Mackenzie analysis showed that the third-party investment approach could dramatically reduce the cost of service in moving LNG to the world market, to the point that the Alaska might compete even in the current ranges of low LNG prices.

However, buyers would still have to negotiate purchases with North Slope producers but gas acquisition costs a smaller part in the final delivered price than the infrastructure expense, Meyer said.

Also, the Alaska project could peg prices to an index like Henry Hub that is tied to gas markets instead of linking prices to crude oil, Meyer said.

"This is attractive for a large utility which is very sensitive to the volatility in oil prices, and we've already gotten some positive feedback on that idea," he said.

Third-party investment

The third-party investment strategy is sound, AGDC believes, because infrastructure equity funds are looking for good investments, and some now financing Gulf Coast LNG projects are doing so for returns of less than 8 percent, an assumption used in Wood Mackenzie's modeling of the competitiveness of Alaska's project.

Meyers acknowledged these investors typically come in after the project is "de-risked," after uncertainties like regulatory approvals and marketing are resolved.

That still leaves construction and completion risk but Meyers believes a turn-key type contract can be negotiated with a large contractor to do final engineering and also offer a fixed bid to build the project.

He believes this strategy will work partly because of high quality of the preliminary engineering, or pre-Front End Engineering and Design, done by the ExxonMobil-led industry team, which also included a new cost estimate.

"We now have a very good estimate," of $45 billion, the result of a very thorough pre-FEED, Meyer said. Previously the estimate was a range of $45 billion to $65 billion.

A contractor's fixed price would be subject to detailed review, Meyer said, including by those doing financing and by the customers.

AGDC has target of getting the project in service between 2023 and 2025 which is only a bit more aggressive than the producer-led consortium's completion target of 2025.

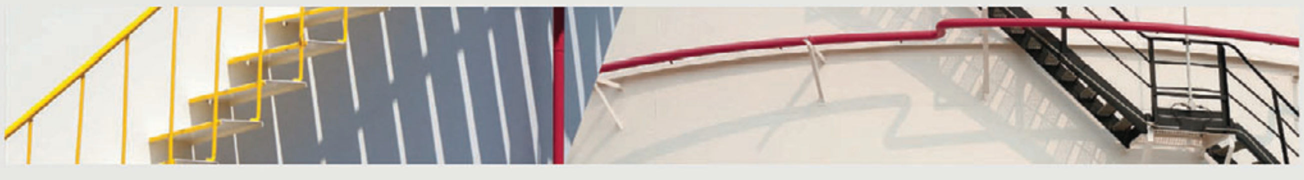
Achieving that will require a final investment decision in 2018 or 2019, Meyer said. That is the same target for FID set by the producer consortium, however. ●

Contact Tim Bradner at timbradner@gmail.com

AHC ALASKA INSTRUMENT COMPANY, LLC
a wholly owned subsidiary of The Aleut Corporation
907.561.7511 • www.alaskainstrument.com
Serving Alaska's oil & gas industry since 1969

THE LOCAL PAGES OF ALASKA
THE BEST PHONE BOOK IN TOWN™
IN CONNECTION WITH
GO N FIND
A quicker, easier, smarter way of connecting local business with local customers.

MOBILE | ONLINE | PRINT
WANT TO LIST YOUR BUSINESS?
907-903-4526
VISIT US ONLINE AT WWW.THELOCALPAGES.COM
find local businesses online at WWW.GONFIND.COM

2nd Annual
OIL AND GAS CAPITAL OUTLOOK CONFERENCE
Exploring Cash Flows, Asset Valuations, Equity Access, and the Role of the Technical Advantage
November 3-4, 2016 | Houston Marriott West Loop by The Galleria | Houston, Texas

WHERE ARE O&G CAPITAL MARKETS HEADED INTO 2017?
ACCESS TO CAPITAL
- Funding plans for 2017—Will equity/debt markets remain constrained or are they opening up?
- Alternative financing structures (PIKs, converts, etc.)
- What are the headwinds that smaller operators face when trying to access the public market?
A&D, M&A, AND VALUATION
- Risks involved in acquisitions—Diminished cash flows, reduced asset valuations, plugging, and abandonment
- Bid-ask spreads across different basins, asset types, underlying contract structures
- Stand-alone midstream assets not tied to production versus package deals with upstream assets
TECHNOLOGY'S IMPACT IN A LOW PRICE ENVIRONMENT
- How can operators be more efficient in the evaluation and application of new technology?
- How technology is developed and funded and should this change?
- What can operators do to better explain drilling and development costs and align with equity partners?
S&P Global Platts
Register By September 23, 2016 and SAVE $300
Priority Code: PD625PN

continued from page 3

PEARCE Q&A

that this fight has become less proactive and more of a defensive posture against ANWR receiving that designation?

Pearce: I do. Whether they are playing offense or defense depends upon who is in the White House and which party is in control of Congress. Unfortunately, the stars have not been aligned at the right time, but I think everybody who has been on the ANWR side expected the Obama years to be on the defensive to keep the coastal plain available.

We've lost it at least in terms of a management plan. We haven't lost it in terms of an antiquities designation for example. The way to untangle everything that has been added to the management regime of ANWR gets more difficult. It's a bigger tangled web with each administration that toys with taking it completely off the table.

Petroleum News: Let's switch to the gas line, which was your wheelhouse as federal coordinator. The state has tried several different approaches for different lines, but we don't seem to have gotten very far. Is it a victim of market changes or have politics de-railed it?

Pearce: Well, first thing I would say is I think it's important to note the Alaska LNG project — or whatever name you want to go by — has actually made tremendous progress. We are much further along in the engineering, design, development phase than we've ever been before. Much of that design and engineering is finally complete.

We've advanced the FERC progress forward tremendously and at great expense. We have DOE export authority. Lands have been purchased in Kenai. It is a real project. I think there has been real progress. I think this governor is even credible when he makes a trip that he has made (to Asia) because it has progressed so far. You can now see a window as to what it would take to get to that final FEED decision and then onto a sanction decision.

The timeline is tremendously shorter than what it was for example when I came on as federal coordinator when we still had all of that in front of us. The work that has been done is tremendously important and has been done by world-class organizations starting with TransCanada and Denali which was ConocoPhillips and BP. They did quite a bit along a route no longer being used but it was important work all the same. As Exxon came in as lead for the AKLNG, they have all consistently had what I honestly believe the best people they could have doing the design and engineering while trying to bring the cost down.

Many people in Alaska believe AGIA was a big mistake, but frankly the money TransCanada spent and the work they did was invaluable. When Exxon came in and built it further, all of that work is what has been built up into resource reports that FERC now has in hand and the progress of the FERC licensing. All that work has to be done before you can get a license to build a project. That sometimes gets lost with people who ask why are we still designing this thing? Why aren't we digging?

Petroleum News: Were there any windows that were missed?

Pearce: That's a hard question to answer. There are always windows. When I was at DOI and the first team that worked on the gas line from the Bush administration was a very high level team. FERC commissioners would say we've got all of these applications in the Lower 48 to bring LNG to the Lower 48. If Alaskans don't hurry, they will miss the window.

Well, that window turned out not to even be a window because we found shale gas. Nobody expected the shale gas evolution and revolution. Nobody expected the international economic downturn which meant that the demand dropped. So it's hard to see we've missed any windows. I think we are at a place now where we can take advantage of being ready to move quickly in making a pipeline happen when we see an opportunity.

That's something a lot of people don't recognize. It's a long build up before you can license a project. You don't wake up one day and decide I'm going to build a gas pipeline and have it built 12 months from now ready to bring gas. The shortest timeline I ever saw was at least two years to do preliminary work, then a two- to three-year window to get all the way through the FERC processes into a license decision. Then there has to be a sanctioning decision. Now because we are at the end of pre-FEED and all of those FERC reports are done, we will be able to go to FEED after some additional work is done.

Petroleum News: There are always philosophical differences between some group of lawmakers and any governor. The one growing concern I've been hearing is the significant turnover with DNR. They lost Mark Myers, Marty Rutherford and most recently Corri Feige. I know you've weighed in on this somewhat. What are your thoughts?

Pearce: I think all of these losses are indicative of what concerns me with the administration and the governor's approach frankly to the gas line. He has world-class people and then he doesn't listen to them. I do know Mark Myers, I know Marty and I know Corri, and I know others who have not been allowed to stay including my fellow board members who were thrown out when the governor threw me out. What concerns me is I don't understand his approach.

He dismantled a world-class team, and like I said, that team had made tremendous progress. Now he's dismantled the Exxon led team that has made tremendous progress. He's had five or six different people in charge of AKLNG since he came into office and he hasn't been in office more than two years. It seems that the governor is single minded, laser focused on building a pipeline.

If you don't agree with his way of wanting to make that happen, then you find yourself isolated and not part of the conversation anymore or simply gone. And sometimes he doesn't even know what you think of the project and you're still gone. The people we've lost, I think it's very troubling that they left. Those people were not asked to leave; they left because they were uncomfortable working in his administration and didn't agree with the direction he was going.

The Legislature has questions about the way he is going.

There are so many questions that he doesn't appear prepared to answer. Where is the money going to come from? Does the state really have the capacity to replace the team that Exxon, BP and ConocoPhillips had pulled together, with people who frankly have the international expertise on how to build a pipeline? Does the market have any confidence in the state having the ability to execute making a pipeline happen? I'm not sure.

Mr. Meyer is saying they can sanction the project in 2018 even though they won't have finished FEED. I think there are risks to that approach. What is the Legislature's role? The governor seems to consider the Legislature to be kind of an inconvenient truth. They are there but he doesn't quite know what to do with them, so he tries to ignore them. He certainly hasn't worked close with them and tried to make them allies as far as I can see.

So I'm troubled by his approach. I'm very troubled by the people who have left who I have a lot of faith and trust in their ability, and frankly the governor had a lot of faith and trust in their ability — before he didn't.

Petroleum News: There is also a strong sense among a growing number of lawmakers that the governor is moving forward with an uneconomic project. How do you see it?

Pearce: The administration's own oil and gas experts call it the least attractive project that is on the drawing board right now anywhere in the world. Alaskans don't like to accept that unfortunately, our gas is 800 miles away from tidewater. Any project that is at tidewater where most of the other major gas finds in the past decade have been are going to be less expensive to develop.

The good thing is we have discovered the gas; we know we have the gas. But it's going to be expensive to treat, to get the CO_2 out, plus the tariff for the pipeline has to be factored in. So you start at a disadvantage. That's why the Alaska gas project is so big. The only way you can pencil it out is if you have huge throughput. That's the only way you can ever make it economic, to make it the biggest project ever so you have enough throughput to pay the cost of the tariff and bring the total cost down.

It has always been a project that has been on the edge in terms of the economics. It's not like discovering another oil field. Gas projects are not as financially strong because the commodity is not worth as much as oil.

Petroleum News: Speaking of the commodity of oil, tax policy seems to be on the table almost yearly. It seems like there is a difficulty establishing a stable regime. For years, it wasn't fair to the industry on the high side. Some feel it's no longer fair to the state on the low end.

Pearce: You know the constant changes to tax policy have made Alaska a

see **PEARCE Q&A** *page 17*

NALCO Champion
An Ecolab Company
Talk to one of our on-site experts today.
Anchorage, 907-563-9866
Fairbanks, 907-378-5900
Kenai, 907-252-0060

Essential Expertise for Alaska
Nalco is the world leader in delivering programs that maximize production, protect assets and reduce TCO for Mining, Oilfield production, Refining, Industrial producers and Utilities.
Our differentiated technologies and services
- Save water
- Increase energy
- Deliver cleaner air and water

CERTEK® HEATING SOLUTIONS
A *smarter* way to heat.®
www.certekheat.com • 1 (888) 923-7835
Oilfield Heating - Construction Heating - Pipeline Heating - Exploration Heating - Specialty Heating

Petroleum news

Oil Patch Bits

Arctic Slope Regional Corp. announces new acquisition

Arctic Slope Regional Corp. has announced the acquisition of Restoration Services Inc. by its wholly owned subsidiary ASRC Industrial Services LLC. Headquartered in Oak Ridge, Tennessee, RSI was founded 20 years ago and provides a variety of environmental services, including: regulatory strategy, comprehensive characterization, long-term stewardship, project controls and beneficial site reuse. RSI serves both federal and commercial customers throughout the continental United States.

"On behalf of ASRC's board of directors, I am pleased to welcome RSI's talented workforce to the ASRC family of companies," said Rex A. Rock Sr., president and CEO of ASRC. "The acquisition of RSI demonstrates ASRC's commitment to growing our industrial services' offerings to provide opportunities for our employees and benefits to our customers and shareholders."

"The acquisition of RSI is a critical component of the AIS strategy," said Greg Johnson, president and CEO of AIS. "Over the past 20 years, the founders of RSI have built a unique culture focused on enabling employees to do exceptional work for their customers. I look forward to working with the RSI management team to build on the company's culture of excellence as we pursue ASRC's vision for AIS."

"Today is an exciting day for RSI and its employees," added Paul Clay, RSI president. "I believe the acquisition of RSI by AIS will facilitate accelerated growth for the company thereby providing additional opportunities for our employees and increased services to our customers."

GCI launches upgraded cloud-based video conferencing

GCI recently announced significant upgrades to GCI managed video conferencing, with customers now able to virtually collaborate using a desktop, laptop, tablet or mobile device without being tethered to conference room hardware.

GCI's flexible, cloud-based service will allow customers to connect without the restrictions of room-based video conferencing hardware. Users can still enjoy the benefits of high-definition video, screen sharing and 24/7 customer support.

GCI's upgraded service has a pay-per-use option, making it highly scalable without restricting calls to other users. Additional features and benefits include: secure access via the Internet or dedicated connections, high-quality HD video with screen- and data-sharing support, flexible bandwidth use, depending on user requirements and network performance, support for any device from any location.

"GCI launched this service to meet the demands of today's increasingly mobile workforce," said Martin Cary, senior vice president and general manager of GCI Business. "With managed video conferencing, our customers can connect with colleagues and clients anytime, anywhere and with a variety of devices."

Traditional room-based video conferencing systems can be expensive while also limiting where calls can be made. GCI's upgraded service has a pay-per-use option, making it highly scalable without restricting calls to other users. Additional features and benefits include: secure access via the Internet or dedicated connections, high-quality HD video with screen- and data-sharing support, flexible bandwidth use, depending on user requirements and network performance, support for any device from any location.

"Video conferencing on the go is critical for enterprise customers to conduct meetings, clinics to connect with specialty doctors, and schools to provide distance learning opportunities," said Cary. "GCI has been providing managed video conferencing service for more than a decade, and we provide a variety of options that meet our customers' needs."

For more information on GCI's managed video visit: www.gci.com/business/nw/services/managed-video-conferencing.

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

ADVERTISER	PAGE AD APPEARS
A	
ABR	
AECOM Environment	
aeSolutions	
Air Liquide	
Alaska Clean Seas (ACS)	
Alaska Dreams	
Alaska Frontier Constructors (AFC)	
Alaska Instrument	14
Alaska Marine Lines	12
Alaska Railroad	
Alaska Rubber	
Alaska Steel Co.	
Alaska Textiles	
Alaska West Express	12
Alpha Seismic Compressors	
American Marine	4
Arctic Catering & Support	
Arctic Controls	
Arctic Wire Rope & Supply	
Armstrong	
ASRC Energy Services	
AT&T	7
Automated Laundry Systems & Supply	
Avalon Development	
B-F	
Bald Mountain Air Service	17
BELL & Associates	19
Bombay Deluxe	
Brenntag Pacific	
Brooks Range Supply	
Calista Corp.	
Carlile	
Certek Heating Solutions	15
CH2M	20
Colville Inc.	
Computing Alternatives	
CONAM Construction	
Construction Machinery Industrial	
Crowley Solutions	
Cruz Construction	18
Delta Leasing	
Dowland-Bach Corp.	
Doyon Anvil	
Doyon Associated	
Doyon Drilling	
Doyon, Limited	
Doyon Universal Services	
Equipment Source Inc. (ESI)	
exp Energy Services	
EXPRO Group	
Fairweather	
Flowline Alaska	
Fluor	
Foss Maritime	
Fountainhead Hotels	
Fugro	5
G-M	
GCI Industrial Telecom	
Global Diving & Salvage	19
GMW Fire Protection	
Greer Tank & Welding	
Guess & Rudd, PC	
Hawk Consultants	
Hudson Chemical Corp.	
Inspirations	
Judy Patrick Photography	
Kuukpik Arctic Services	
Last Frontier Air Ventures	
Lounsbury & Associates	
Lynden Air Cargo	12
Lynden Air Freight	12
Lynden Inc.	12
Lynden International	12
Lynden Logistics	12
Lynden Transport	12
Mapmakers of Alaska	
MAPPA Testlab	
Maritime Helicopters	3
N-P	
Nabors Alaska Drilling	6
NANA WorleyParsons	
Nature Conservancy, The	
NEI Fluid Technology	
Nordic Calista	
North Slope Telecom	
Northern Air Cargo	
Northwest Linings	
PacWest Drilling Supply	
PENCO	4
Petroleum Equipment & Services	
PND Engineers Inc.	
PRA (Petrotechnical Resources of Alaska)	2
Price Gregory International	
Q-Z	
Resource Development Council	
Ravn Alaska	
SAExploration	
STEELFAB	
Stoel Rives	
Taiga Ventures	
Tanks-A-Lot	13
The Local Pages	14
TOTE-Totem Ocean Trailer Express	
Totem Equipment & Supply	
TTT Environmental	3
UIC Design Plan Build	8
UIC Oil and Gas Support Services	
Unique Machine	
Univar USA	
Usibelli	
Volant Products	

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

continued from page 1

CAELUS DISCOVERY

roughly equivalent in scale to the Kuparuk River field, which together with the Prudhoe Bay field, has been a lynchpin of North Slope oil production.

Musselman told Petroleum News that Caelus has also been interpreting 3-D seismic data obtained from surveying that the company has conducted in its 350,000-acre lease position to the east of Prudhoe Bay, and has identified some promising oil prospects there. There is the eventual possibility to develop perhaps 500 million to 750 million barrels of oil from that region, he said.

Very expensive

Given the remote location of the Smith Bay find, development of the discovery there would be very expensive. And, with an estimated capital cost of $8 billion to $10 billion to bring the Smith Bay field on line, field viability would require a sustained oil price in the mid-$60s, Musselman told Petroleum News. But, also critical to the feasibility of developing the field is the future stability of Alaska's fiscal system, Musselman emphasized.

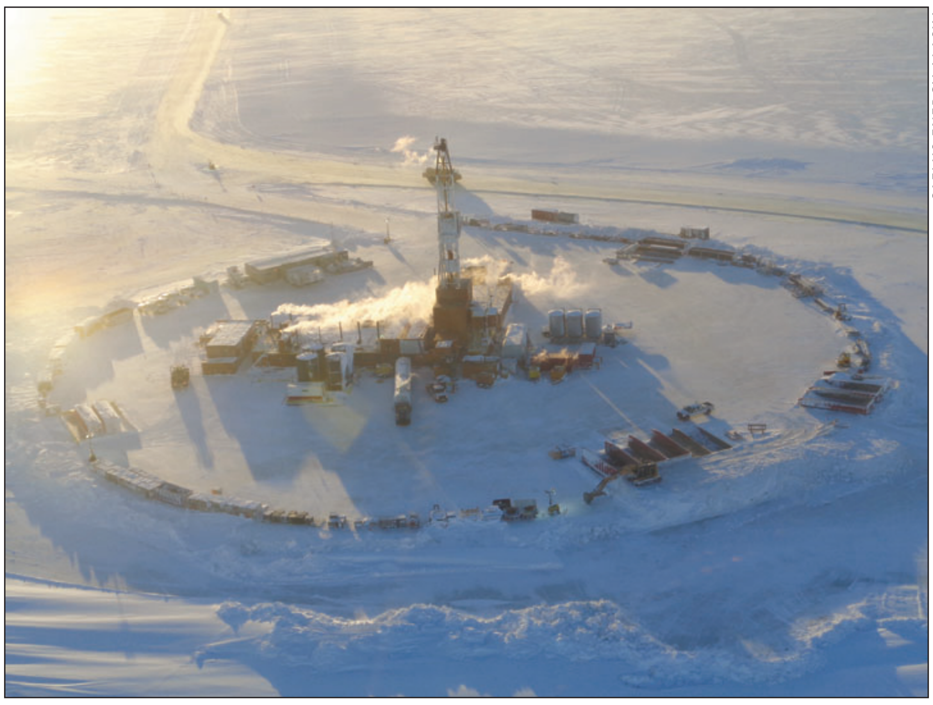
Caelus is a limited liability company funded by private investors.

Musselman attributes the successful discovery of major oil resources at Smith Bay both to the state's latest oil production tax regime, commonly known as SB 21, and to the state's tax credits.

"Fiscal stability going forward is critical for a project of this magnitude," Musselman said. "Without the state tax credit programs, none of this would've happened, and I'm not sure Caelus would've come to explore in Alaska. We're proof that the credit programs work."

Delayed drilling

Caelus had hoped to return to Smith Bay in the coming winter to drill a third well and to drill a horizontal lateral from that well to frack and flow test the oil. But given the current uncertainty in the state tax system coupled with the low price of oil, the company decided to postpone that plan, probably to the following winter. The company has also decided not to drill in its eastern North Slope exploration acreage this winter.



CAELUS ENERGY ALASKA

Doyon Ltd.'s Arctic Fox drilling rig in action, drilling from a circular ice pad in the shallow waters of Smith Bay during Caelus energy Alaska's 2016 exploration drilling project.

"We were hopeful that we could drill a well or two this coming winter. … We were also hopeful that we would be back out on the ice at Smith Bay this winter and we're not going to do that," Musselman said. "It's hard times politically, hard times economically."

Huge subsurface structure

Caelus says that the Smith Bay discovery lies in an ancient submarine fan structure that spans more than 300 square miles in the Smith Bay area. Apparently the discovery sits at a subsurface depth of some 5,000 feet in the Torok, a rock formation that lies below the Nanushuk formation in the Brookian sequence, the youngest and shallowest rock sequence within the Arctic Alaska petroleum systems. The Nanushuk is the focus of a major oil discovery being pursued by Armstrong Energy and Repsol in the Pikka unit, on the east side of the Colville River delta.

U.S. Geological Survey geologist David Houseknecht, an expert on Alaska petroleum geology, has suggested that the Nanushuk discovery by Repsol represents a major new oil play in the Brookian, extending west along the Beaufort Sea coast from the central North Slope. Oil in this play would be derived from source rocks to the north, deep under the nearshore waters of the Beaufort Sea. The Smith Bay discovery clearly supports this view.

Caelus says that its two Smith Bay wells encountered oil through a vertical interval of 1,000 feet. One well found net pay of 183 feet, while the other well encountered net pay of 223 feet. The company did not have sufficient time to flow test the wells. However, extensive sidewall coring and subsequent laboratory analysis have confirmed the presence of reservoir quality sandstones containing light oil with an API gravity ranging from 40 to 45, Caelus says. The estimates of total oil volumes in place come from using seismic data to trace the extent of the oil reservoir.

Could be larger

Musselman told Petroleum News that, although it will be important to drill a third Smith Bay well to conduct flow testing, his company is confident, based on the core and seismic data, in the overall scale of its oil find. In fact, given that the submarine fans in the Torok continue beyond the area encompassed by the seismic surveying, the discovery will likely turn out larger than Caelus' current estimate, he said.

In common with other Brookian oil reservoirs on the North Slope, the Torok at Smith Bay tends to contain multiple sand bodies, rather than consisting of a single massive sandstone unit. This feature of the geology can create challenges in accessing the oil from production wells. However, given the quality of the reservoir sands and the fact that the light oil will flow easily, Caelus is confident that the field can be productive, albeit with a need to use drilling and production techniques appropriate to a compartmented reservoir.

"We're confident that the rocks here are fine," Musselman said. "It's going to require horizontal wells. It's going to require fracking."

Simulations based on data obtained from the Smith Bay wells suggest potential well production rates of 8,000 to 10,000 barrels per day, with perhaps a total of 8 million or 9 million barrels of oil coming from each well, he said. The field also holds a significant quantity of natural gas that could be recycled for enhanced oil recovery. The use of this gas might enable as much as 60 to 70 percent of the oil in place to be recovered, Musselman said.

Five years for construction

Pat Foley, Caelus senior vice president for Alaska operations, said that, once development of the field starts, first oil is possible within five years. Musselman commented that included in the capital cost of the development would be an $800 million oil pipeline to the central North Slope — there are several potential pipeline routes. The development would probably involve the drilling of about 400 wells from four well pads. With water depths ranging from just 4 inches to 10 feet in Smith Bay, there are several options for the construction of the pads, with the use of large barges for drilling being one possibility.

The need to build onsite oil processing facilities at the remote Smith Bay location is a significant factor in the high development costs. A road past Smith Bay from the Alpine field in the central North Slope to Barrow would knock $1 billion off the Smith Bay development cost, Musselman commented.

A Brookian focus

Caelus has previously stated that the Torok and other Brookian rocks form a focus of the company's exploration and development efforts in Arctic Alaska. In fact, the Torok at Smith Bay is equivalent to the Torok reservoir that the company wants to develop in its 100 million to 150 million barrel Nuna development in its Oooguruk oil field. Musselman com-

see **CAELUS DISCOVERY** *page 19*

continued from page 15

PEARCE Q&A

laughingstock internationally and in the financial community.

Investors look at Alaska and have less interest in deploying their capital in a jurisdiction that changes or threatens to change its policy every single year. That is tragic because we have a lot of oil to produce but we should all be pulling together to figure out what's the best policy to the state and the companies where we can maximize the oil we have remaining on the North Slope. The problem is what's fair. What's my fair share and what's your fair share. I've about decided that it's human nature to think that you're not getting your fair share — whatever it is.

Also, it's an easy target in a campaign season. Small discussions become major discussions. It's a lot easier to talk about let's tax the oil industry than talk about let's restructure state government. ●

Contact Steve Quinn at squinnwrite@gmail.com

bald mountain air service

There are only four words to describe travel in the Great Land: **Bald Mountain Air Service**.

Owned and operated by lifelong Alaskans, we provide safe, experienced aviation services throughout Alaska and Canada. Whether it is aerial survey work, passenger and freight delivery, support for scientific surveys or oil exploration, we are ready to serve you!

- An Alaska Native Heritage company
- Safe and comfortable
- Gravel runway capable
- 9 passenger King Air B200, belly pod capacity of 500 lbs.
- 19 passenger STOL De Havilland Twin Otter
- 10 passenger Super STOL De Havilland Single Turbine Otters
- Deadhorse, Anchorage and Homer hangar facilities

Ask us about CASA 212 addition to our fleet!
Available for 24-hour callout.
800-478-7969 | 907-235-7969

COURTESY AHTNA/JUDY PATRICK PHOTOGRAPHY

The Saxon 147 rig in action drilling Ahtna Inc.'s Tolsona No. 1 exploration well from a gravel pad about 11.5 miles west of Glennallen.

continued from page 1

TOLSONA DRILLING

structed about a mile north of the Glenn Highway.

The region where the drilling is taking place is known to be gas prone. A previous exploration well, the Ahtna 1-19, drilled about 2 miles east of the Tolsona well between 2005 and 2007, encountered gas but eventually had to be abandoned because of exceptionally high formation pressures and problems with water encroachment. Ahtna said that for this new drilling venture it is putting in place mitigation measures for dealing with potential high subsurface pressures. For example, the drilling team will start with a small pilot hole to a depth of about 1,100 feet before setting the first concrete castings, Ahtna said.

Exploration license

The drilling is being conducted in state land under the terms of a state exploration license. Ahtna identified its drilling target with the help of seismic that the corporation shot in late 2014, combined with the reprocessing of some older seismic data.

"The 40-miles of 2-D seismic exploration that we performed in 2014 showed positive data and we are fortunate to have been able to learn from the experiences of those that have previously explored the area. It has allowed us to be proactive

The drilling is being conducted in state land under the terms of a state exploration license.

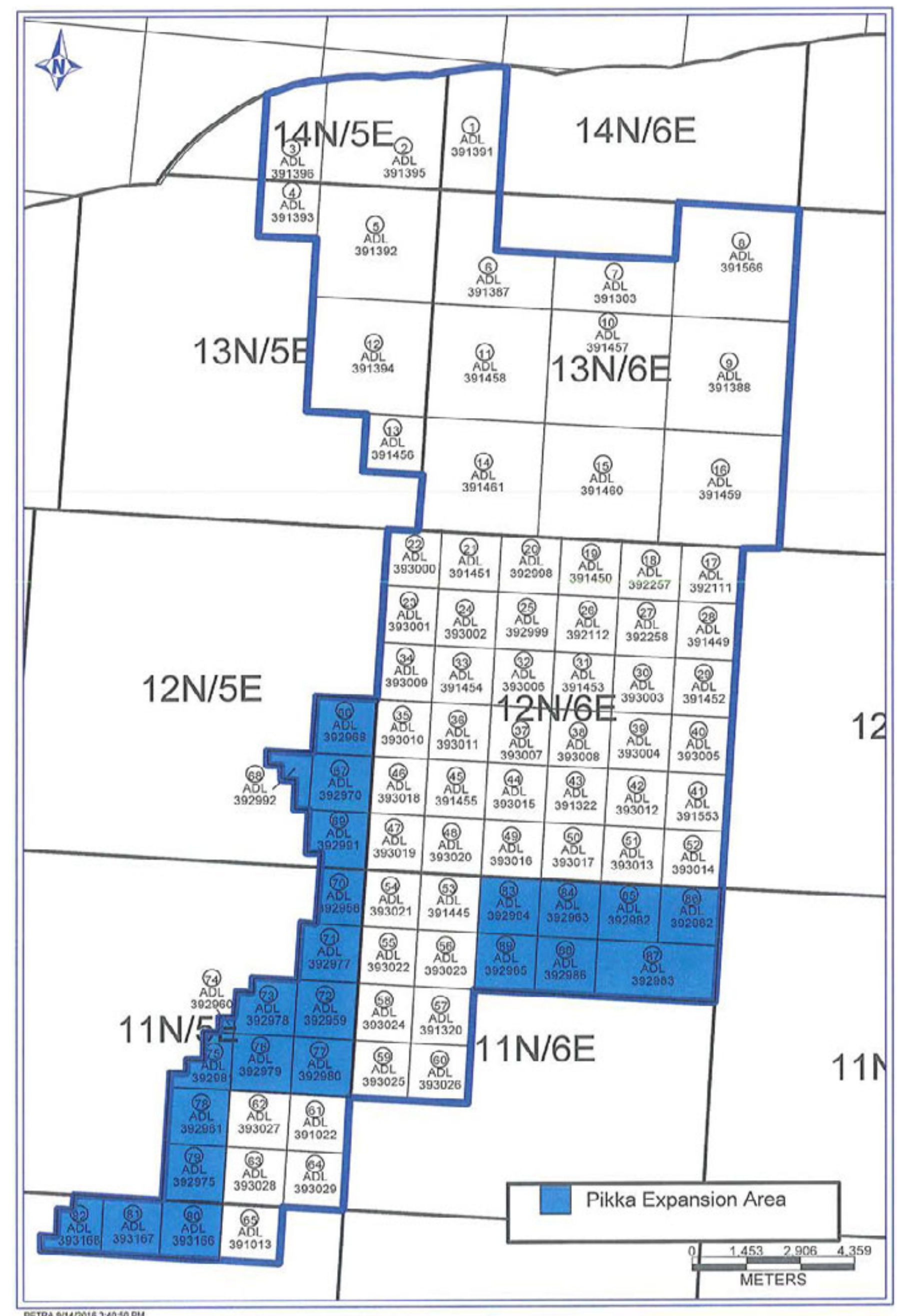
in putting plans and contingencies in place with the efficiency of the operation and safety of staff in mind," said Ahtna President Michelle Anderson. "We have some exceptional talent working on this project and it's inspiring to see the progression of the drilling program."

In addition to the potential access to a source of natural gas for the region, Ahtna sees its exploration project as a vehicle for employment in the Copper River region. The corporation has said, for example, that all of the project staff are Alaskans and that many of the people who worked on the construction of the pad and access road needed for the drilling were Ahtna Native shareholders. And presumably any gas development that results from the exploration drilling would involve some level of local hire.

With the economics of the drilling project involving the use of state tax credits, the extension of the credits available for use in the "Middle Earth" region of Alaska, including the Copper River basin, made the drilling possible, Ahtna has said.

—ALAN BAILEY

Contact Alan Bailey at abailey@petroleumnews.com



ARMSTRONG ENERGY LLC

The proposed Pikka unit expansion is on the west and east sides of the southern part of the unit.

continued from page 1

PIKKA EXPANSION

a 25,000-acre area at a depth of about 4,100 feet, with 225 feet of net pay in 650 vertical feet of reservoir rock.

Armstrong, Repsol E&P USA Inc. and GMT Exploration Co. LLC are the working interest owners in the Pikka unit.

The unit expansion application says that the working interest owners have drilled 14 wells and sidetracks and have as a result made numerous hydrocarbon discoveries in the Pikka unit and the proposed expansion area. The working interest owners have also conducted 3-D seismic surveying and licensed some legacy 3-D seismic data for the area — the seismic surveys and processed seismic data have enabled the mapping of the structural and stratigraphic components of the discovered oil reservoirs, the application says.

Drilling this winter

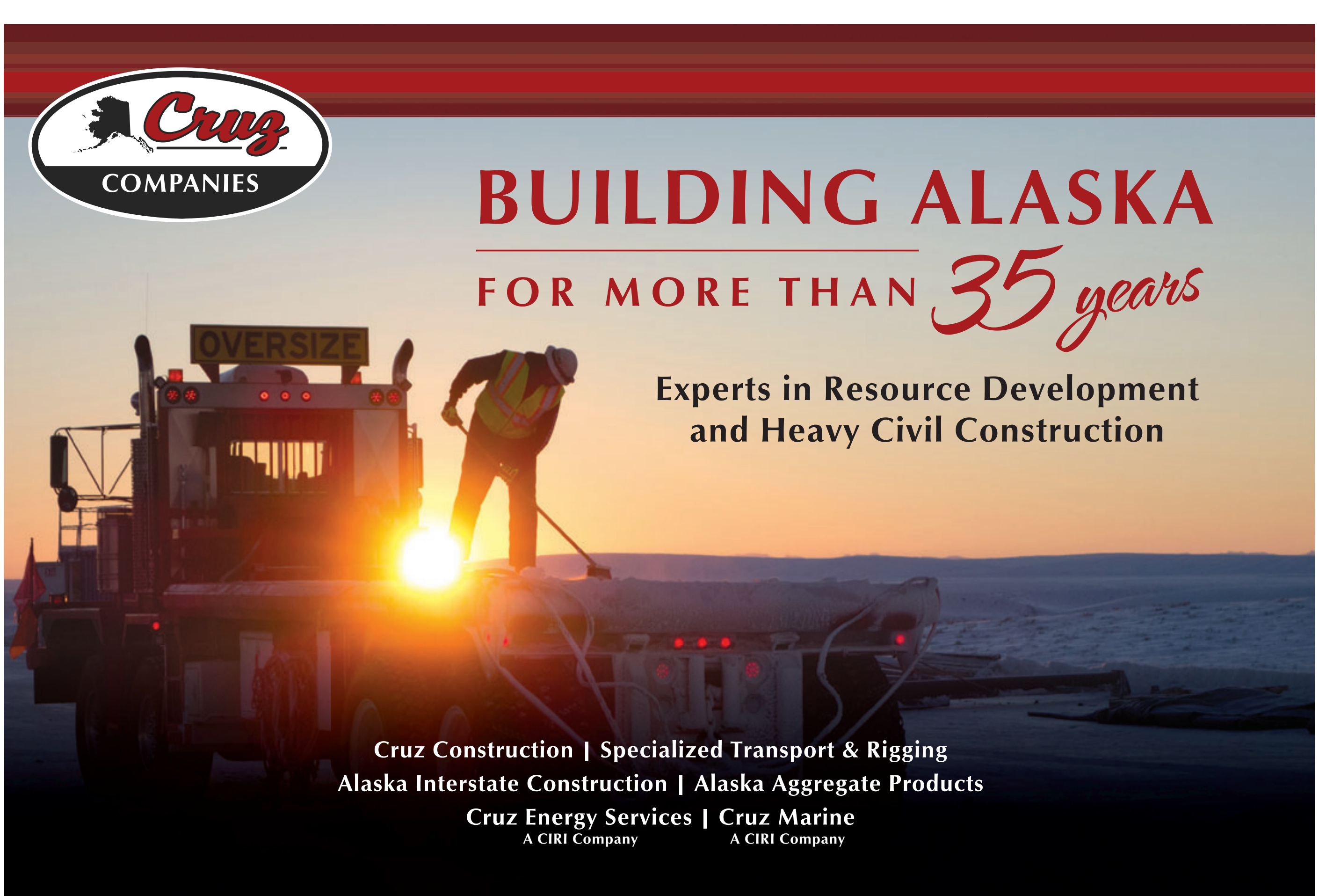
As previously reported in Petroleum News, Armstrong plans to drill two new wells during the coming winter, one an appraisal well for the Nanushuk project and one a wildcat exploration well 16 miles or so to the south of the Pikka unit. Armstrong has now filed a revised oil spill prevention and contingency plan with the Alaska Department of Environmental Conservation to accommodate the drilling of those wells.

The contingency plan says that the appraisal well, called the Pikka No. 1 well, will be drilled by the Doyon rig 14, or equivalent, at township 10 and 11 north, range 5 east of the Umiat meridian. The exploration well, the Horseshoe No. 1, will be drilled using the All American Oilfield rig 111, or equivalent, at township 8 north, range 5 east of the Umiat meridian. The plan says that drilling will be conducted from ice pads between January and April.

The Pikka No. 1 site is on the east side of the Colville River, just outside the southern end of the existing Pikka unit. The Horseshoe No. 1 well is also on the east bank of the Colville, within a state lease that is 75 percent owned by Armstrong Energy and 25 percent owned by Repsol.

Armstrong will construct ice roads from the Mustang gravel pad to the Pikka No. 1 drill site, and from an ice staging area adjacent the Kuparuk River unit Pad 2P to the Horseshoe No. 1 site, the contingency plan says. ●

—A map produced by Mapmakers Alaska was used to research this story.



continued from page 17

CAELUS DISCOVERY

mented that Caelus had planned to have Nuna come on line in early October this year, before the company put the project on hold because of low oil prices and Alaska tax uncertainty. Caelus has already invested $200 million in Nuna and has constructed a pad for the drilling of 40 wells, Musselman said.

Development drilling is also on hold in the currently producing Oooguruk field. Musselman commented that, thanks to favorable geology and improved well completion techniques, the performance of the Oooguruk field has turned out better than expected. Caelus has not just replaced the oil reserves at the field — it has added some new reserves, Musselman said. However, given the continuing low price of oil, the company may throttle back production a bit, to help manage cash flow, he said. Oooguruk probably has some 85 million barrels of oil remaining to be produced, he said.

Caelus' interest in the Brookian continues in the company's eastern exploration acreage, where many of the oil prospects that the company has identified so far from its seismic data are in this relatively young rock sequence.

Caelus' interest in the Brookian continues in the company's eastern exploration acreage, where many of the oil prospects that the company has identified so far from its seismic data are in this relatively young rock sequence.

However, the company has also found some significant possibilities in an older and deeper sequence known as the Ellesmerian, Musselman said. Musselman commented that there appears to be further scope for finding much as yet undiscovered oil under the eastern North Slope. He also expressed his amazement at the fact that no one has yet shot seismic across some of the acreage to the south of Prudhoe Bay.

In a Nov. 4 press release, Gov. Bill Walker congratulated Caelus on the company's Smith Bay discovery.

"My administration will continue to work with the industry to identify new development opportunities in Alaska's oil and gas sector, and provide appropriate investment incentives given our current fiscal climate," Walker said. ●

Contact Alan Bailey at abailey@petroleumnews.com

continued from page 1

COSMO WELLS

early next year, according to the plan of development.

The drilling program will begin as soon as BlueCrest finishes building the BlueCrest Rig No. 1. The work is occurring on site and expected to be complete by the end of the year.

The rig is being designed for drilling extended reach wells from the onshore Hansen pad to offshore targets. As envisioned, the H-16 well would have a total vertical depth of 6,900 feet and a measured depth of 22,846 feet, reaching top production at 14,740 feet.

The H-14 well would have a total vertical depth of 6,900 feet and a measured depth of 23,032 feet, reaching top production at 15,023 feet. The associated H-14L lateral would have a total vertical depth of 9,900 feet and a measured depth of 22,713 feet, reaching top production at a total vertical depth of 6,880 feet and a measured depth of 14,735 feet.

The H-12 well would have a total vertical depth of 6,900 feet and a measured depth of 23,238 feet, reaching top production at 15,036 feet. The associated H-12L lateral would have a total vertical depth of 9,900 feet and a measured depth of 22,479 feet, reaching top production at a total vertical depth of 6,680 feet and a measured depth of 14,749 feet.

BlueCrest still intends to drill two disposal wells, although it is currently permitted for only one of those with the U.S. Environmental Protection Agency. The company plans to drill the well after finishing the five-well development program.

The company also expects to begin engineering work on a water injection system for reservoir pressure maintenance at the offshore Cook Inlet field sometime in early 2017.

BlueCrest started oil production from the Cosmopolitan unit earlier this year but postponed plans for a corresponding natural gas development until the economy improves. The company is planning no offshore drilling or exploratory work in 2017.

—ERIC LIDJI

Contact Eric Lidji at ericlidji@mac.com

CONOCOPHILLIPS ALASKA

The Doyon Rig 19 on ConocoPhillips' CD3 drill site in the Colville River unit.

continued from page 1

WELL RECORD

was the first North Slope field to be developed exclusively using horizontal wells, ConocoPhillips says. The development strategy involves a pattern of horizontal injection and production wells, to extract oil from the subsurface reservoir.

This technique has proven particularly successful at CD5, the first operational drill site in the National Petroleum Reserve-Alaska, on the west side of the Colville River. Year-to-date oil production at the site has averaged 20,000 barrels per day, a production rate significantly above the original target of 16,000 barrels per day, ConocoPhillips says. The company says that it has approved funding for the drilling of additional wells and associated infrastructure to bring the pad to its full permitted well capacity.

Minimum drilling footprint

"Longer wells allow the company to access more of the reservoir without increasing the gravel footprint of the development," said Mike Wheatall, manager of drilling and wells for ConocoPhillips Alaska, when commenting about the new drilling record. "Ultimately, longer wells like these could mean more oil produced over a longer period of time."

"This exciting drilling record at Alpine is a significant technological achievement," said Joe Marushack, president of ConocoPhillips Alaska. "This accomplishment continues our tradition of innovation and developing resources in a way that minimizes impacts to the environment. It's something I'm very proud of, and I congratulate our drilling employees and contractors for their excellent work."

ConocoPhillips spokeswoman Natalie Lowman has told Petroleum News that modern improvements in rotary steerable drilling tools have made possible the drilling of longer wells. Managed pressure drilling, a procedure used to precisely control the pressure in the well bore, is also a key technology, Lowman said.

Drilling in Alaska

Over the years the Alaska oil industry has kept at the leading edge of drilling innovation.

According to Alaska Oil and Gas Conservation Commission data, the measured-depth record was previously held by the Northstar unit NS-33A well, completed from Northstar Island in the Beaufort Sea by BP in 2009. That well achieved a measured depth of 26,090 feet. ConocoPhillips has also come close to achieving record well lengths in the past with wells drilled from the CD2 and CD4 sites in the Colville River unit: Those wells achieved measure depths of 25,007 and 25,040 feet. In 2015 Eni drilled a well to 24,986 feet in the Nikaitchuq unit.

—ALAN BAILEY

Contact Alan Bailey at abailey@petroleumnews.com


You'll recognize our equipment on the North Slope of Alaska
You'll remember us for our people.
CH2M provides services and solutions for clients across the entire energy and resource value chain. As one of the largest employers across the state, we provide services for:
» Pre-FEED, FEED, and detail design engineering
» Engineering, Procurement, Construction (EPC) project delivery
» Truckable module fabrication
» Construction
» Logistics and fluid hauling
» Wells support
» Operations and maintenance
» Infrastructure development
» Environmental services
» Water and wastewater
» Transportation
» Equipment rental
CH2MHILL
ch2m SM
www.ch2m.com | alaska@ch2m.com
EG0907161129ANC