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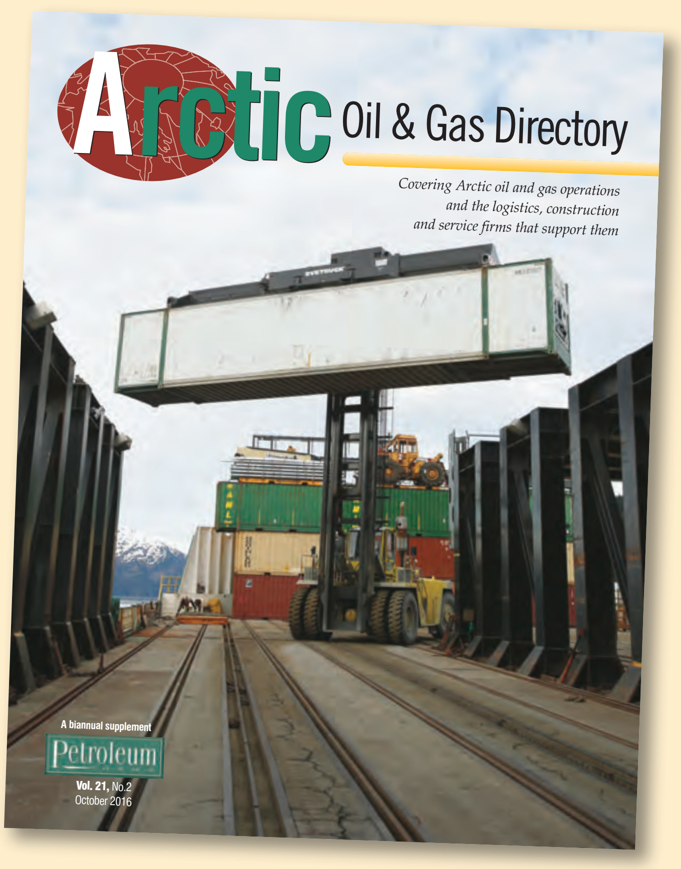

EXPLORATION & PRODUCTION

Aiming for Horseshoe

Armstrong's 9,000-foot well would test new idea in area south of Pikka

By ERIC LIDJI

For Petroleum News

Armstrong believes it is sitting on a major discovery on its leases between the Kuparuk River and Colville River units.

Armstrong Energy LLC is proposing a two-well exploration program this winter.

The company plans to drill the Horseshoe No. 1 exploration well west of the Meltwater satellite and the Pikka No. 1 exploration well at the southern tip of the Pikka unit.

The latter is an appraisal well at the Pikka unit. The former is a wildcat well some 20 miles south of the Pikka unit, near a horseshoe bend in the Colville River.

In a proposed plan of operations for Horseshoe No. 1 recently released for public comment, Armstrong said it intended to drill a 9,000-foot nearly vertical well from a 4.5-acre ice pad this winter. The ice pad would be connected to a 200-foot square staging pad at the existing Drill Site 2P at the Meltwater satellite of the Kuparuk River Unit by a 17.5-mile road across Great Bear Petroleum and ConocoPhillips Alaska leases. The drilling pad will include space for a drilling rig, maintenance buildings and a 60- to 90-man camp.

According to a timeline included in the filing,

see HORSESHOE WELL page 20

EXPLORATION & PRODUCTION

Economics set the pace

Hilcorp executive says Alaska oil and gas economics determine development rate

By ALAN BAILEY

Petroleum News

DAVID WILKINS

Oil and gas economics, in particular the price of oil, the level of state taxation and the demand for Cook Inlet natural gas, will determine the rate at which Hilcorp Alaska LLC's new development projects will move ahead, David Wilkins, Hilcorp Alaska's senior vice president, told a meeting of the Alaska Support Industry Alliance on Oct. 13.

While Hilcorp anticipates operating in the state over the long term, the pace of projects is tied to economics, he said. With the company seeking a reasonable rate of return over a period of five to 10 years from its projects, the project economics are currently very thin. And state taxes constitute a cost that will factor into decisions on whether to move forward with project activities, Wilkins said.

"We're going to be here for a long time," Wilkins said. "The pace at which we do projects is what we will alter, based on the economics of the day."

Hilcorp operates multiple oil and gas fields in the Cook Inlet basin and oil fields in the North Slope region.

In Cook Inlet, the company is considering new

see OIL ECONOMICS page 19

HEA plans deregulation of AEEC

Brad Janorschke, general manager of Homer Electric Association, has responded to comments made during an Oct. 12 Regulatory Commission of Alaska public meeting in which the commissioners reviewed some concerns raised over HEA's initiative to deregulate. HEA is conducting a ballot of its members, seeking membership approval of deregulation, shifting from regulation by the commission to full local control by the utility's board.

Among his responses to the comments at the meeting Janorschke said that if HEA's members vote to approve deregulation, the Alaska Electric and Energy Cooperative, the HEA affiliate that owns and operates both the southernmost portion of the Railbelt transmission grid and the utility's Kenai Peninsula power generation assets, would also deregulate. HEA itself only operates the electricity distribution network

see HEA DEREGULATION page 15

Furie's second well is nearing TD

Furie's second development well, the KLU A-1 well in the Kitchen Lights gas field, is nearing its target measured depth of 8,420 feet, Bruce Webb, Furie senior vice president, told Petroleum News in an Oct. 17 email.

"We should be running casing mid-week," Webb said.

The Randolf Yost jack-up rig, stationed at the Julius R gas production platform offshore in Cook Inlet, has been drilling the well. But with insufficient time remaining during the open water drilling season in the inlet to complete the well for production, Furie plans to conduct the well completion in April or May of 2017, Webb said. Furie anticipates moving the Randolf Yost to its winter storage location, probably at the OSK dock in Nikiski, about Oct. 26, he said.

Furie started drilling the A-1 well in mid-September after successfully completing and hooking up the KLU A-2 well, the first

see FURIE WELL page 18

page 3 Huggins Q&A: Engagement critical; improved communication necessary

PIPELINES & DOWNSTREAM

Activists raise stakes

Shut down 5 pipelines carrying oil sands crude from Canada into US; 10 arrests

By GARY PARK

For Petroleum News

U.S.-based Climate Direct Action posted photos and videos of members from the recently formed protest group cutting chains surrounding pipeline facilities and turning off valves.

The prospect of civil unrest targeting Canada's energy pipeline network has long been an unspoken fear in government and industry circles. Until now, that is.

A group of 10 climate-change activists were arrested Oct. 11 after forcing the shutdown — in Montana, Minnesota, North Dakota and Washington state — of five major transportation systems carrying crude from the Alberta oil sands to Lower 48 markets.

U.S.-based Climate Direct Action posted photos and videos of members from the recently formed protest group cutting chains surrounding pipeline facilities and turning off valves.

It said the shutdowns were in support of anti-pipeline protests in North and South Dakota led by the Standing Rock Sioux Reservation and were intended to force the U.S. government to enact tougher measures on climate change by banning new fossil fuel extraction and end the use of oil sands crude and coal.

Most serious escalation yet

The move marks the most serious escalation yet

see ACTIVIST SHUTDOWNS page 18

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GOVERNMENT

Huggins: Engagement critical in 2017

Wasilla Republican says things between administration and Legislature can improve, starting with Walker improving communication

By STEVE QUINN
For Petroleum News

Senate Rules Chairman Charlie Huggins entered public service, having accepted an appointment from Frank Murkowski, in 2004. In baseball parlance, Huggins pretty much touched them all. He has served as Senate president, Rules chairman, Resources chair, a member of the Senate Finance Committee, among other appointments. He retires in January. Huggins, a Wasilla Republican, spoke to Petroleum News about his time in office, offering observations about the state's resource development achievements and setbacks.


CHARLIE HUGGINS

Petroleum News: Let's start with AKLNG. What is your take from a broad perspective?

Huggins: No. 1, I've had my mental fingerprints on upwards of five different gas line propositions, of one different shape or another. One thing I'm fully confident in is that the environment in which you're proposing a concept is always changing. No 2. is always be concerned about movement and haste and with rigidity for lack of a better term. You've got to be flexible. As far as the current process, Exxon, Conoco, BP and others, didn't become large organizations because they made lots of mistakes.

They have made mistakes but they learned there is a deliberate process that you go through. By virtue of that, hopefully, you can ferret out some of the weak factors. Most important you want to winnow down the economic variables that decrease your costs and create a more positive environment whereby you can have the intended outcome of making a profit, delivering a resource and having a viable business.

I was talking to a member of the Murkowski administration. He came up to me and said aren't we lucky that we didn't build a gas line to Chicago. They wouldn't buy the gas. That was said retrospectively, but we have to look at the what-if proposition. What does that mean? The fact that the producers in this case said let's be very deliberate and not be hasty in going to the next decision point has some prudence to it.

On the other hand, in the current project, in my estimation, a couple of the key points were required for that process to go to feed. No. 1 was a gas tax policy that was durable for 20-plus years. No action on the part of the state. No. 2 was the PILT (payment in lieu of taxes). No action taken on the part of the state. I know the state did some negotiation, but from a legislative perspective, we never saw any evidence in a bill or a proposal that could be acted upon.

Hence, we the state, are as much an obstacle for a couple of prerequisites as others can say the producers are because they don't want to go to FEED or pause.

Petroleum News: Even as you won't be here in January, what do you believe needs to happen to start next year in the Legislature?

Huggins: It's very clear to me, the governor is all about Alaska and the Legislature is all about Alaska. Between the governor and the Legislature, we represent every Alaskan. The fact that there is not a productive, positive rapport between the Legislature, and the governor and some of his people is a detriment and quite frankly a burden that the state will suffer from. Nobody is more guilty than the other. But rapport, communication and confidence is hugely important.

So then you can talk about the task. Here's an example. The governor on the 15th of December is supposed to deliver his budget. It would certainly be nice that it's on time. He was going to give it to us 30 days early last year. Be that as it may, in that development, it be a cooperative effort to some extent so that it's not something you hand to someone and brief them on. This way it's a joint working relationship.

With a process like that, because everything costs money, whenever there is additional processes that involved money, or policy and legislation, you can use that kind of relationship to produce better results.

Petroleum News: Do you see a trust issue in play?

Huggins: Oh, absolutely. Let's take AGDC for example. AGDC has had nearly 100 percent turnover in their board and executive team. We have what some people call the million dollar man in Keith Meyer. He's a nice person and I assume a good competent professional. Although I must admit when he was with Cheniere, the concept was 180 degrees off. They had to re-engineer the whole operation because it's about import, not export. They got it 100 percent wrong. So you've got to be careful. That's the rigidity part I'm talking about.

Quite frankly, one of the things when it comes to gas pipelines that could have been a positive indicator and a good communications technique was Sen. Costello's legislation that essentially allowed a legislator sit in on AGDC meetings so you don't have to be a participant but you can audit it for lack of a better term.

This gives you confidence because early on there is information flow that happens. There are a lot of ways to make that work but the governor vetoed it. People say the governor said it was unconstitutional. Well, I don't know about unconstitutional. There are a lot of practices that have showed that to be a technique that has worked in the past.

Petroleum News: You've mentioned turnover with AGDC. There has been some significant turnover with DNR: Mark Myers left, then Marty Rutherford and most recently Corri Feige. Does that concern you as well in the same vein?

Huggins: I haven't talked to either of those three people about why they left, but it gets back to this business about flexibility and input that I've talked about. All three of those people are very competent and professional people. They have different backgrounds, but for the case in Myers and Marty Rutherford, they had been in DNR previously. You have to listen to people like that. For whatever reason there is not a complete consensus, sometimes what happens is people will say this isn't going to work because I'm not as effective as a leader in this organization. That's speculation on my part, but they left. And I don't think they left because they got a better job.

Petroleum News: What kind of onus of trust does that place on new hires like Andy Mack, Keith Meyer and John Hendrix?

Q AND A

Huggins: Those are all three different people who, in my assumption, are competent in their own right. But the same thing applies to each of those individuals. They have to have the governor's confidence. To whatever degree they also have to have the legislators' confidence, then the business of how you communicate to maintain that confidence and build upon it for effective results for Alaskans is what's important.

John Hendrix has been out speaking publicly. I happen to have a lot of admiration for him. He has good background for the job that he has. I know him better than the other two, though I think each of the other two have professional credentials.

Rapport doesn't happen because you're both down in Juneau at the same time.

Petroleum News: In the 13 years you've been in office, what do you think the Legislature has accomplished toward resource development?

Huggins: The number one thing, if you sit back and be honest with yourself, and look at the dilemma we faced in a place like Cook Inlet. At one time Anchorage was practicing brownouts because the supply of gas was a question mark at best. Right now at least that is history because the Legislature took some action in concert with the Parnell administration that essentially created gas storage and incentives for explorers. Right now we have some gas that is being exported. As far as Cook Inlet goes, you look at a mining operation, which is one of the better infrastructure developments in the region. Donlin Creek has publicly said they plan on building a pipeline to their site. None of that could happen if Cook Inlet was not successful today.

The other one yet to be proven, the part of getting gas to Fairbanks, that hasn't happened yet. The fact that Cook Inlet has gas that is adequate for the local region and that is the plan of action still remains to get gas to Fairbanks either by rail or by vehicle, maybe by pipeline at some point in time.

I think the success in Cook Inlet in turning around the problem with gas supply is huge. The second one is the aftermath of SB 21. Essentially in 2015 was the first evidence in a long time we had an increase of oil, consequences of SB 21. To be quite frank, that gets us to another piece that's hugely important. The environment we are in right now with the price of gas and the price of oil is a

see **HUGGINS Q&A** page 17

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● GOVERNMENT

BLM finalizes oil, gas measurement rules

Agency says changing technologies, industry practices, safety issues addressed; will ensure proper royalties to tribes, government

By KRISTEN NELSON
Petroleum News

The federal Bureau of Land Management said Oct. 17 that it has finalized three rules for oil and gas measurement and reporting on production from federal onshore leases. The agency said the rules will ensure that oil and natural gas produced from federal and Indian leases are accurately measured and accounted for so proper royalties are paid. While Indian tribes and individual Indian allotment owners keep 100 percent of royalties from leases on their lands, other royalties are split between the U.S. Treasury and the state where the production occurs.

BLM said the total value of production last year was nearly $20 billion, with more than $2 billion in royalty revenue from federal leases and nearly $600 million from tribal and allotted leases.

The agency said the rules address changing technologies and industry practices and will also contribute to safety.

The regulations are effective 60 days after publication in the Federal Register, and BLM said stakeholder briefings on the updated rules will be scheduled.

Alaska impact

In Alaska the rule changes appear to impact Hilcorp Alaska, the major Cook Inlet producer, and ConocoPhillips which has production from CD-5 in the National Petroleum Reserve-Alaska.

In Cook Inlet, three of Hilcorp's onshore fields currently produce from federal leases: Beaver Creek, Kenai and Swanson River. Two other Hilcorp fields on federal leases, Birch Hill and Sterling, showed no production in August, the most recent month for which Alaska Oil and Gas Conservation Commission production data is available.

In addition to CD5, ConocoPhillips is working to bring other NPR-A production online, starting with Greater Mooses Tooth.

Original rules 25 years old

The rules represent the first comprehensive update of BLM's measurement rules since they were issued 25 years ago, the agency said, and conclude a seven-year effort to address concerns about the adequacy of BLM's prior measurement rules raised by the Government Accountability Office, the Department of the Interior's Office of the Inspector General and the Secretary's Royalty Policy Committee.

"The conclusion of this rulemaking effort is a significant milestone in the BLM's effort to modernize its oil and gas program," Janice Schneider, assistant secretary for Land and Minerals Management, said in a statement. The updated rules, she said, "create a durable framework for the future that will support the responsible development and management of the nation's oil and gas resources and ensure that both the American public and tribes receive a fair return for these resources."

"These new rules provide a strong foundation for our oil and gas program that will ensure we are meeting our obligation to the American people and to the tribes we work with," said BLM Director Neil Kornze. He said the new rules allow BLM to be responsive to new technology, a particularly important change "because changing technology often provides opportunities to make oilfield operations safer and more efficient."

BLM said the total value of production last year was nearly $20 billion, with more than $2 billion in royalty revenue from federal leases and nearly $600 million from tribal and allotted leases.

Rule change costs

One of the rules addresses site security, strengthening BLM's production accountability program. The agency estimates ongoing compliance costs of about $11.7 million annually, some $3,200 per regulated entity. In addition there are one-time costs of some $31.2 million or $8,400 per regulated entity, with the one-time costs spread over three years.

BLM said it estimates changes from the proposed rule to the final resulted in a reduction of some $90 million in potential one-time compliance costs, largely attributable to modifications in site facility diagram requirements. There was also a $1.8 million savings in potential ongoing annual compliance between the proposed and final rules.

The rule change for oil measurement addresses use of new oil meter technology, proper measurement documentation and recordkeeping.

BLM estimates a one-time transition cost of $4.6 million spread over three years for implementation of this rule and ongoing annual costs of $3.3 million, for an aggregate cost of some $1,538 per affected entity for the first three years and $1,242 per entity thereafter. BLM did not provide an estimate of cost changes from proposed to final for this rule.

The third rule covers natural gas measurement and addresses new gas meter technology, requirements for hardware and software, requirements for recordkeeping and reporting, overall measurement performance standards and a mechanism for BLM to review new gas measurement technology and approve it for use.

BLM estimates one-time transition costs of $23.3 million, about $6,300 per affected entity, phased in over three years, and ongoing annual costs of $12.1 million or $3,300 per entity. The one-time compliance costs are estimated to be some $9.6 million less under the final rule, compared to the proposed rule, and ongoing annual costs $34 million less than the proposed rule.

Overall, BLM estimates that changes from the proposed rules reduced one-time compliance costs by nearly $100 million, with annual costs estimated to be reduced by $32 million.

BLM said it estimates that the rules will cost $12,856 per operator per year for the first three years and $7,654 per year thereafter. ●

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NATURAL GAS

Establishing a viable gas resource

IEP team still negotiating with gas supplier, LNG plant developer to establish an LNG supply with a workable gas price in Fairbanks

By ALAN BAILEY
Petroleum News

In its latest quarterly report to the Alaska Legislature, the Alaska Industrial Development and Export Authority's Interior Energy Project team says it is still negotiating with a Cook Inlet gas producer over the terms of a potential gas supply for the city of Fairbanks. The team is also working with Salix Inc. on the commercial terms and technical design for a liquefied natural gas plant, to liquefy gas for transportation to Fairbanks as LNG.

The objective is to establish an affordable energy supply for Fairbanks and the surrounding Interior, to replace the use of fuel oil for heating buildings and for electricity generation. Natural gas, at an appropriate price, is seen as the vehicle for achieving the project objectives — the team has set a target price of about $15 per thousand cubic feet "at the burner tip" for project viability.

Lengthy negotiations

The new report says negotiations with a gas producer are taking longer than anticipated. The idea is to sign a deal for a long-term gas supply, starting in 2018. But the need for a low price, coupled with flexibility over supply volumes, is complicating securing an agreement, the new report says. Presumably flexibility is needed because of uncertainty over future levels of gas demand in Fairbanks, with demand dependent on how many people convert their houses to the use of gas once a supply becomes available.

At the beginning of March the IEP team selected Salix as the vendor for construction and operation of the LNG plant, to be sited somewhere close to Cook Inlet. Since making that selection, the IEP team, including representatives from Fairbanks Natural Gas and the Interior Gas Utility, the two Fairbanks gas utilities, have been working with Salix to advance the LNG plant project to a point where the AIDEA board can decide whether to proceed to the front end engineering and design for the plant.

"All parties are focused on developing and financing the LNG plant in a manner that provides the lowest cost and risk to Interior natural gas customers," the new report says.

Expand the LNG supply

FNG, one of the Fairbanks utilities, already supplies natural gas to some customers in the central part of Fairbanks by trucking LNG from a small LNG plant at Port MacKenzie on Cook Inlet. The idea behind the IEP is to greatly expand that supply and reduce the cost of the gas.

In 2015 AIDEA purchased Pentex Alaska Natural Gas Co., the owner company of FNG, and of Titan, the company that owns and operates the existing Port MacKenzie LNG plant. As a government agency and through its ownership of FNG, AIDEA has been able to reduce the price of gas for FNG's existing customers, although that price remains substantially above the $15 target level.

AIDEA's strategy has been to engineer a consolidation of the two Fairbanks utilities, enabling the gas distribution network in Fairbanks to be optimized as that network is built out. The agency plans to achieve this consolidation by selling FNG to IGU. The hope had been to achieve that sale in June of this year, but, given the various uncertainties associated with the IEP, AIDEA has extended the target date for the transition to the end of the year.

Supply chain

The planned supply chain for the delivery of gas to Fairbanks consumers involves several steps. In addition to a supply of gas from the Cook Inlet basin and the liquefaction of the gas in a suitable plant, the produced LNG must be transported to Fairbanks, and then stored, gasified and distributed in the Fairbanks region.

The IEP team is considering two LNG transportation options: shipment by rail, using the Alaska Railroad, and trucking on the Alaska highway system.

The Alaska Railroad Corp. is currently evaluating the rail transportation option by trying out the shipment of LNG between Anchorage and Fairbanks using two 40-foot LNG containers that the railroad has borrowed for test purposes. To enable the testing, LNG is being trucked from Port MacKenzie to the Anchorage railroad depot and in Fairbanks from the railroad terminal to FNG's LNG storage facility.

To evaluate the practicalities of the trucking option, in 2015 AIDEA took delivery of a prototype LNG trailer with an Alaska carrying capacity of about 12,300 gallons. That compares with the 10,500-gallon capacity of the trailers that are currently in use. Following successful test runs with the new trailer, Titan has purchased the prototype trailer and ordered three additional similar trailers, to replace the aging trailers in its fleet, the report says. The additional trailers are expected in mid-2017, the report says. Apparently Titan has requested the new trailers to be configured, if possible, to be able to tow "pup" trailers, to increase carrying capacity.

Distribution network

In 2015 FNG and IGU began building out their gas distribution pipeline networks in Fairbanks, in anticipation of an increased gas supply for the city. However, the expansion of the distribution system has been on hold since October 2015. In the meantime FNG has been coordinating any pipeline installations that can usefully be accomplished in conjunction with major road works that are being carried out.

AIDEA and IGU are continuing to advance a plan for the physical integration of the FNG and IGU gas distribution systems, including the expansion of the LNG storage and re-gasification facilities in Fairbanks. And, in anticipation of the merger of the two utilities, AIDEA and IGU have been exchanging term sheets and have substantially completed a financial plan, the new report says.

Conversion incentives

With the need for a sufficient number of Fairbanks residents to convert to the use of natural gas for home heating being a key factor in the economics of the IEP, the recent decline in the price of home heating fuel oil has been driving an interest in finding ways to incentivize residents to make the conversion. The report says that consultancy firm Cardno Entrix has revised the estimates for conversions, using the lower oil price. However, the report also points out that the future price of oil is uncertain.

Potential conversion incentives include low cost financing and the possibility of transferring the loan repayment obligation to a new building owner following the sale of a building. Property Assessed Clean Energy, or PACE, legislation that has been proposed for Alaska could provide a mechanism for low interest, relatively long-term loans to assist energy efficiency projects.

Project funding

Funding for the Interior Energy Project comes from three sources: a $57.5 million state capital appropriation; $125 million in loans through AIDEA's Sustainable Energy Transmission and Supply, or SETS, program; and $150 million in state bonds. So far AIDEA has spent $14.6 million of the capital appropriation, including $14.1 million for an earlier initiative to build an LNG plant on the North Slope. AIDEA has issued $52.7 million in SETS loans for the buildout of the storage and gas distribution system in Fairbanks. No state bonds have yet been issued for the project.

Funding for the purchase of Pentex came from a separate AIDEA revolving fund — AIDEA anticipates recovering that cost from the subsequent sale of the business. ●

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● EXPLORATION & PRODUCTION

88 Energy reports some oil prospects

Seismic data indicates multiple conventional leads, with the five top prospects having combined potential of 758 million barrels

By ALAN BAILEY
Petroleum News

Australian independent 88 Energy Ltd. has announced some findings from interpreting the 2-D seismic data that the company acquired in its acreage south of the Prudhoe Bay unit early this year. The company says that it has identified some 20 conventional oil prospects in the Brookian sequence, with five of these prospects appearing particularly promising. The interpretation and mapping from the seismic data is now about 50 percent complete, with the possibility of identifying further prospects, 88 Energy said in an Oct. 18 announcement.

Based on an interpretation of the seismic, the five top prospects may hold a combined mean volume of 758 million barrels of oil, 88 Energy said. One prospect, the alpha prospect, is conveniently located on the east side of the Dalton Highway and may hold 118 million barrels of oil. The largest prospect, the bravo prospect, is some distance to the west of the highway and may hold 273 million barrels of oil. The other three top prospects may hold 128 million, 129 million and 110 million barrels of oil respectively.

"These leads are predominantly stratigraphic and considered to be associated with slope apron and basin floor fan systems," 88 Energy said.

Unconventional and conventional

Although 88 Energy's prime focus is the evaluation of potential source rock oil development south of Prudhoe Bay using the unconventional development techniques employed in Lower 48 shale oil and gas plays, the company has said that it is also interested in conventional prospects in its North Slope leases.

Along with minority partner Burgundy Xploration, 88 Energy drilled the Icewine No. 1 well in late 2015 from an existing pad at Franklin Bluffs to assess the resource potential of the HRZ shale — one of the three stacked source rocks in the central North Slope. This winter the company plans to drill a second well, the Icewine No. 2, also from the Franklin Bluffs pad, to further evaluate the HRZ source rock interval. Originally, the company had planned to drill that second well as a lateral, using multi-stage fracturing to test the oil production potential. However, the company has decided instead to drill a vertical well and then use a multi-stage stimulation technique for testing.

As reported in the Sept. 18 issue of Petroleum News, 88 Energy has indicated several reasons for the change in well design from lateral to vertical. Those reasons include the cost of the drilling, reduced drilling risk and the common use of vertical well bores in proving the production potential in unconventional oil plays. ●

Contact Alan Bailey at abailey@petroleumnews.com

● PIPELINES & DOWNSTREAM

Dangers on British Columbia coast

Grounding of tug and barge, returning from Alaska, demonstrates BC falls short of offering 'world class' marine response system

By GARY PARK
For Petroleum News

The British Columbia's inability to measure up to its 2012 pledge to establish a "world-leading marine oil response, prevention and recovery system" before any approval of increased oil tanker traffic on the Pacific Coast was highlighted Oct. 13 when a tug and barge ran aground on the central B.C. coast.

The U.S.-registered tug Nathan E. Stewart was pushing barge DBL 55 on a return trip from Alaska to Vancouver when it sank near Bella Bella, threatening a clam bed that yields C$150,000 a year for the Heiltsuk First Nation.

Luckily, the tug was left with only 190,000 liters of diesel, while the 287-foot barge was empty.

But a 2011 incident report filed by the Alaska Department of Environmental Conservation showed how bad the incident might have been after the combined tug and barge had an engine failure near Cape Fairweather in the Gulf of Alaska.

The report said the tug had capacity for 45,000 gallons of diesel and 500 gallons of lube oil, while the fuel barge could carry 2.2 million gallons of diesel fuel, 1,028 gallons of aviation fuel and 700 gallons of other petroleum products.

In that event, the tug and barge were brought to safety under tow and no fuel was spilled.

At Bella Bella, a fuel slick spread into an area treasured for its clam bed, which Heiltsuk Chief Marilyn Slett said could take "years or decades before we are able to harvest again."

Diesel recovery underway

Efforts are still underway in remove diesel fuel from the sunken tug, which the Coast Guard and local volunteers tried to contain, while a full response team took 20 hours to arrive at the scene from Prince Rupert.

The accident site is part of a Voluntary Tanker Exclusion Zone, but the Nathan E. Stewart is small enough that it is permitted to travel within the B.C. Inside Passage and also holds a waiver that allows it to operate without Canadian pilots on board.

However, Canada's Transport Minister Marc Garneau intervened Oct. 17 by revoking the exemption that allowed Nathan E. Stewart and other vessels operated by its owner Texas-based Kirby Corp. to work in the area without a pilot.

He said the incident "underlines the need for changes in the way we respond to marine pollution incidents ... and why I am currently working on a coastal strategy to improve marine safety."

The Heiltsuk leaders said the spill demonstrates the need for a ban on all oil tankers and tanker barges along the B.C. north coast before any approvals are granted to Enbridge's Northern Gateway project and Kinder Morgan's planned expansion of its Trans Mountain export pipeline.

29 groundings last year

Last year, 29 groundings were reported along the B.C. coast, according to the Transportation Safety Board of Canada.

Ingmar Lee, an environmental activity who lives near Bella Bella, has been warning for years about the risks associated with allowing barges to ply the B.C. coast, arguing that "one little mistake, one power failure ... and within minutes you are on the rocks."

B.C. Premier Christy Clark, commenting on the incident, said she has argued for five years "that the spill response on our coast is totally inadequate," not just in the event of increased oil tanker traffic but "for what we have now going up and down our coast." ●

Contact Gary Park through publisher@petroleumnews.com

Kudos ConocoPhillips!

ConocoPhillips Alaska

Doyon Rig 19 on ConocoPhillips' CD-3 drill site in the Colville River unit

ConocoPhillips lays claim to longest well ever drilled in Alaska

ConocoPhillips Alaska has set a drilling record for Alaska with a 26,196-foot well (measured depth) from its CD-5 drill site in the Colville River unit. The 7,400-foot deep injection well includes a horizontal section of 17,228 feet and took 24 days to drill. CD-5 is the first operational drill site in the National Petroleum Reserve-Alaska (see page 1 story in Petroleum News' Oct. 9 edition).

The Alpine oil field in the Colville River unit was the first North Slope field to be developed exclusively using horizontal wells. Development strategy involves a pattern of horizontal injection and production wells, to extract light oil from the subsurface reservoir.

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Volant Products

PIPELINES & DOWNSTREAM

RCA OKs Thomson pipeline settlement

Commission accepts PTE agreement, requires filings, payment of refunds for difference in temporary, agreed rates, within 30 days

By KRISTEN NELSON
Petroleum News

The Regulatory Commission of Alaska has accepted a settlement agreement reached by PTE Pipeline, the state of Alaska and ConocoPhillips Alaska on initial tariff rates for transportation of condensate from Point Thomson to Badami.

The order, dated Oct. 17, accepts the settlement agreement and joint statement filed by PTE Pipeline, the state of Alaska and ConocoPhillips Alaska on Sept. 16.

In the agreement (see story in Oct. 2 issue of Petroleum News), filed with both RCA and the Federal Energy Regulatory Commission, the parties said they had resolved all issues in both dockets and provided stipulated tariff rates for two initial periods of transportation.

PTE Pipeline LLC — owned 68 percent by ExxonMobil Pipeline Co. and 32 percent by BP Transportation (Alaska) Inc. — submitted proposed initial rates of $20.39 per barrel in September of 2015. The state protested and filed a petition to intervene; ConocoPhillips filed to intervene.

RCA established a temporary rate of $20.39 and suspended proceedings for settlement talks among the parties.

All issues settled

RCA said the parties stated that the settlement agreement resolved all issued in the proceeding. All parties interested in the rates on the Point Thomson Export Pipeline had opportunity to file comments or intervene, the commission said.

The state has an interest as a royalty interest owner and ConocoPhillips is a working interest owner at the Point Thomson unit: "both interests are diverse from those of PTEP LLC," RCA said.

The state and ConocoPhillips are parties to the settlement and with the pipeline now transporting condensates from Point Thomson, "an early resolution of this proceeding would clarify the obligations of all parties," the commission said.

Based on a review of the settlement, RCA said it finds "that the public interest does not require further proceedings in this docket," and accepts the settlement, "subject to the express condition that no issue should be considered to have been finally determined or adjudicated by virtue of our acceptance" of the settlement.

Refunds due

The settlement provides for a rate of $17.56 per barrel beginning April 1, 2016, and ending March 31, 2017, and a rate of $12.09 per barrel beginning April 1, 2017, and ending when the pipeline places "superseding rates in effect, but not later than July 1, 2019."

RCA said the settlement requires PTEP to refund the difference between the proposed rate and the settlement rate plus interest at 10.5 percent to shippers within 30 days of the commission's acceptance of the agreement. The agreement also requires a report to the commission from PTEP on the refunds within 30 days of refund payments, by Dec. 16.

The Point Thomson Export Pipeline began moving condensate April 2. As of the end of August Alaska Oil and Gas Conservation Commission data shows the pipeline had moved 147,688 barrels, an average of 1,230 barrels per day in August.

Condensate production from Point Thomson is targeted at 10,000 bpd; the pipeline was built to handle 70,000 bpd. ●

Contact Kristen Nelson at knelson@petroleumnews.com

EXPLORATION & PRODUCTION

AOGCC approves GMT1 metering waiver

Commission notes it would have cost $500 million to put production facilities at GMT1; Conoco says that would have been uneconomic

By KRISTEN NELSON
Petroleum News

The Alaska Oil and Gas Conservation Commission partially approved a request by ConocoPhillips Alaska to waive its usual metering requirements for the Greater Moose's Tooth unit. In an Oct. 12 decision the commission said ConocoPhillips requested waivers allowing use of a coriolis-based metering system at GMT Pad 1 to allocate GMT unit production to GMT1 and use of gas measurement at GMT1 instead of within the Colville River unit for gas transferred from the CRU to GMT1.

The commission held a hearing May 3 (see story in May 15 issue of Petroleum News) and extended the hearing deadline for ConocoPhillips to submit additional information. The company submitted written responses June 3 and on that same day the Arctic Slope Regional Corp. submitted comments in support of ConocoPhillips' application.

On June 9, the commission said, ConocoPhillips provided it with access to a data room so that project economic data could be reviewed.

Working interest owners at the Greater Moose's Tooth unit are ConocoPhillips and Anadarko Petroleum; WIOs at the Colville River unit are ConocoPhillips, Anadarko and Petro-Hunt LLC.

Landowners at GMT are the U.S. Bureau of Land Management and ASRC; landowners at CRU are the Alaska Department of Natural Resources, BLM and ASRC.

Measurement leaving GMT1

In its order the commission said ConocoPhillips has proposed installing a single stage three phase separator for measurement of production leaving GMT1, with a coriolis meter used to measure the oil coming off the three phase separator and the gas metered separately. After metering the oil and gas streams would be recombined before being shipped to Colville Delta Pad 5 and commingled with the CRU production gathering system.

ConocoPhillips proposed that the production allocation factor for GMT1 be fixed at 1.0, the commission said, assuming the GMT1 metering system is 100 percent accurate.

"Any error in that system would be applied to CRU production," the commission said, resulting in one unit "over-reporting production while the other unit underreports. Since the landownership of the two units is different this would result in landowners being over or under paid for royalties for production from their lands."

The commission said the only landowner commenting on the record was ASRC, and there was insufficient information to demonstrate that the other mineral rights owners "fully understand the implications of assigning a fixed allocation factor to one unit while the other unit has a floating allocation factor." The commission said it needs to gather more information before ruling on the allocation factor and potentially affected landowners should be allowed to weigh in on the request.

A hearing on the allocation factor has been tentatively scheduled for Nov. 17. Requests for a hearing are required by Oct. 31; the commission said if it receives no requests it may consider issuance of an order without a hearing.

Costs at GMT

The commission said in its order that ConocoPhillips' cost estimate for a production facility at GMT1 "was very thorough" and "sufficiently detailed to provide a valid basis upon which to assess" the company's request.

The evidence demonstrated, the commission said, that a standalone production facility at GMT1, which ConocoPhillips testified would cost "in the neighborhood of $500 million," would make the project uneconomic at a 10 percent rate of return and Alaska Department of Revenue price forecasts, with the result that the GMT1 reserves "would not be produced for the foreseeable future."

That would likely result in failure to "develop the four GMTU other participating areas for the foreseeable future," the commission said.

The commission said ConocoPhillips provided it with access to a data room to review confidential project specific economics, including a cost estimate prepared

see GMT1 METERING page 15

North of 60 MINING news

page 10 Baker: Hecla mines on pace to set 125-year silver production record

www.MiningNewsNorth.com | The weekly mining newspaper for Alaska and Canada's North | Week of October 23, 2016

NEWS NUGGETS

Compiled by Shane Lasley

WESTERN ALASKA COPPER & GOLD

Western Alaska Copper & Gold President Kit Marrs takes notes at RT-13, a hole testing induced polarization resistivity anomalies at the Round Top copper project near the town of Galena in western Alaska.

Promising results at Round Top; drilling taps interesting copper

Western Alaska Copper & Gold Oct. 17 reported results from the 2016 drill program at its Round Top copper-molybdenum project in the Illinois Creek Mining District of western Alaska. The goal of this program, which included the first drilling since Anaconda Minerals Co. tested the property in 1981, was to verify historical holes drilled at the east lobe of the Round Top deposit and then step out to test targets identified by recent soil geochemistry and high resolution aeromagnetic surveys. One such hole, DDH RT-11, cut extensive chalcocite copper enrichment from 102 meters to 302 meters. "The significance of chalcocite mineralization as a primary source of copper at Round Top may be the single most important discovery of the 2016 program," said Western Copper & Gold President Kit Marrs. From a depth of 138 meters, RT-11 cut 39 meters averaging 0.5 percent copper, which was part of a 70-meter intercept averaging 0.31 percent copper. A sample from a depth of 296 meters returned 0.94 percent copper, principally as disseminated chalcocite. This sample from near the bottom of the hole indicates higher grade copper could extend to depth. Additional sampling above and below this sample is pending. "The presence of secondary copper mineralization, primarily in the form of chalcocite, is a critical element of our future value considerations because this form of secondary-enriched copper can be extracted using the SXEW (solution extraction electro-winnowing) method. This method creates copper at the mine site and avoids shipment of a concentrate by barge downriver and then by ship to smelters in Asia," Marrs explained. DDH RT-13, collared in a previously untested area of induced polarization resistivity anomalies 583 meters north of RT-11, demonstrated the viability of the geophysical anomalies at Round Top. Though RT-13 did not reach the porphyry target, the hole encountered increasingly higher grades of copper towards the bottom of the hole. Western Copper & Gold said the most interesting geophysical anomalies have yet to be tested and are targets for drill programs planned for 2017 and 2018. The total dimensions of the Round Top copper system are still unknown, but mineralization has been traced by drilling for at least 600 meters north-south direction; and copper in the soil geochemistry and the aeromagnetic anomaly suggests the deposit could extend more than 2,000 meters in this direction. At this point, there is no known constraint in the east-west direction. With a budget of US$500,000, Western Copper & Gold completed 1,461 meters of core drilling in six holes at Round Top this summer. The privately held exploration company said its all-in drilling cost – camp, fuel, helicopter,

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COEUR MINING INC.

PWC Canada sees light at the end of the tunnel for junior miners. The financial advisor, however, is reluctant to call the uptrend in 2016 a recovery and cautions juniors to remain vigilant in the strategies that helped them survive the long bear market.

MARKETS

Cautiously optimistic

PWC Canada sees glimmer of light at end of tunnel for junior miners

By SHANE LASLEY

Mining News

While junior miners have not fully healed from the wounds inflicted by the brutal bear market of the recent past, the Canadian branch of PricewaterhouseCoopers sees improved vital signs for the sector.

"It's too early to call it a recovery, but there might be light at the end of the tunnel for the Canadian junior mining sector" PWC wrote in "Signs of Life", its 2016 junior mine report.

One such promising sign is that the market cap of top 100 junior mining companies on the TSX Venture Exchange hit C$11.4 billion by mid-2016, a 138 percent increase over the C$4.8 billion a year earlier.

"Significant growth in the space of a year," said Monica Banting, senior manager, PricewaterhouseCoopers, summarizing the results published Oct. 13.

Of the top 100 mining juniors listed on the TSX Ventures exchange, 63 are exploration companies, 25 are in development and 12 have producing mines.

The exploration companies, which were battered the hardest by the bear market, have enjoyed the biggest gains in 2016. Collectively, the market valuation of these 63 companies rose 154 percent, from C$2.6 billion in mid-2015 to C$6.6 billion at the end of June.

Gold's rise from below US$1,100 per ounce at the onset of 2016 to above US$1,300/oz. by the end of June played a major role in bringing life back to the sector.

"The gold rally in the last six months has definitely changed things for the juniors," Banting said.

This is especially true for companies seeking gold, either as a primary or secondary metal.

Of the top 100 TSX Venture Exchange listed mining companies, PWC Canada identified 72 with at least some gold exposure, compared to only 59 last year.

Energy and specialty minerals companies were also well represented among the top 100. In fact, NexGen Energy Ltd., exploring for uranium in northern Saskatchewan, was the top junior mining company on the list. A number of lithium companies, including Nemaska Lithium Inc. at No. 8 and Lithium X Energy Corp. at 33, also had strong showings. Ucore Rare Metals Inc., which is advancing the Bokan Mountain rare earth element project in Southeast Alaska, is 27 on the list.

The gold run early in 2016 also bolstered investor sentiment and loosened capital available to juniors, many of which were making the most of very limited funds.

The top 100 companies raised a combined C$1.2 billion through financings in the year ending June 30. Most of those funds, C$763 million, were raised through equity financings.

In addition to companies with some gold exposure, markets appear to favor juniors with a strong management team that has demonstrated the wherewithal and dexterity to survive the nearly five-year bear market.

"Those junior miners that got creative in the downturn; that really demonstrated resilience, those are the ones that are still with us today," Banter

While this resilience is being rewarded with fresh investments, markets harbor some trepidation about how the influx of money will be absorbed, given the creativity required by many to outlast the prolonged equity drought.

"Many made significant cuts to survive the downturn and the long-term effects of that belt

see **MINE REPORT** *page 11*

NORTHERN NEIGHBORS

Compiled by Shane Lasley

KENNADY DIAMONDS INC.

Kennady Diamonds completed 30 holes during the summer program at its Kennady North diamond project in the Northwest Territories, 29 of which tapped kimberlite.

High success rate for Kennady North drills

Kennady Diamonds Inc. Oct. 19 reported the successful completion of a 9,561-meter summer drill program at its Kennady North diamond project in Nunavut. One rig primarily focused on the Faraday 1-3 kimberlite complex, and the second rig was focused on Faraday 2. Towards the end of the program, two infill delineation holes were completed on the Kelvin kimberlite in order to refine the kimberlite pipe shell in two specific areas of this most advanced kimberlite at Kennady North. "Excluding three holes that were abandoned due to technical issues, twenty-nine of the thirty holes completed during the program hit kimberlite, representing a 97 percent success rate. This is a great achievement for our exploration team," said Kennady President and CEO Rory Moore.

see **NORTHERN NEIGHBORS** *page 11*

Petroleum news

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NEWS NUGGETS

fixed wing support, assays and core logging geologist – averaged US$103.40 per foot. The company attributes much of its cost saving to the use of a track-mounted drill rig leased from and operated by Stewart, British-Columbia-based More Core Drilling. This rig's ability to traverse between drill sites after initial mobilization greatly reduced the helicopter support required. Given this success, Western Copper & Gold purchased the track mounted drill rig at the end of the season and winterized it on site, which will result in significant savings on mobilization expenses for future drilling seasons.

HECLA MINING CO.

Through the first nine months of 2016, Hecla Mining's Greens Creek Mine in Southeast Alaska produced 7 million oz. of silver.

Hecla nears 125-year record; Greens Creek sets silver pace

Hecla Mining Co. Oct. 18 said it Greens Creek Mine in Southeast Alaska produced 2.4 million ounces of silver in the third quarter, accounting for more than half of the company's silver production for the period. This silver production is a 23 percent jump over the same period last year, thanks to higher grades. Gold production, however, dropped 17 percent to 14,376 oz. due to lower grades. Hecla estimates Greens Creek silver production to be 8.5 million oz. in 2016, significantly higher than the company's original guidance of 8.1 million oz. at the end of the year. Through the first nine months of 2016, Greens Creek has produced 7 million oz. of silver, putting the Southeast Alaska operation on pace to top 9 million oz. this year. Hecla anticipates 53,000 oz. of gold to be produced at Greens Creek this year. Hecla's four operations – Greens Creek, Lucky Friday in Idaho, Casa Berardi in Ontario and San Sebastian in Mexico – produced 4.3 million oz. of silver during the third quarter, a 67 percent increase compared to the same period of 2015. Companywide gold production was up 20 percent, to 52,126 oz. for the quarter. "The strong performance from all our mines enables us to increase our silver production estimate to 16.25 million oz. for 2016, the highest silver production in our 125-year history," said Hecla President and CEO Phillips Baker, Jr. Hecla had roughly US$192 million in cash and short-term investments at the end of September, an increase of about US$33 million for the quarter. "We continue to see substantial free cash flow generation, with higher prices and silver and gold production up 67 percent and 20 percent, respectively, over last year," added Baker.

Sampling expands Richardson gold

Northern Empire Resources Corp. Oct. 18 reported encouraging results from the rock sampling portion of its summer exploration program at its Richardson gold project about 25 miles northeast of Delta Junction in Interior Alaska. Rock chip channel samples were collected in one-meter intervals across 130 meters of an exposed face in the historically mined Democrat Pit at Richardson. One 32-meter-long sample returned 5.73 grams per metric ton gold and 29.8 g/t silver, including six meters of 18.33 g/t gold and 48.95 g/t silver. Another sample collected about 61 meters away returned 2.57 g/t gold and 39.3 g/t silver across six meters. The summer program also included 1,298 soil samples, prospecting and geophysics. "Sampling of the Democrat Pit shows the mineralization remains open as the first and final rock chip samples collected along the 130-meter line returned values of 0.31 g/t gold and 0.35 g/t gold, respectively. The company is still awaiting final results from soil and geophysical surveys which will guide efforts in 2017," said Northern Empire President and CEO Michael Allen.

First Quantum quits Copper Joe

Kiska Metals Corp. Oct. 13 reported results from a single hole drilled this year at the Copper Joe porphyry copper-gold project in Southcentral Alaska. This drilling consisted of an 806-meter hole targeting the center of a 1,400-meter-wide geophysical anomaly. This hole did not return any significant assay results but did cut 400 meters of hydrothermal breccia with abundant pyrite is that is believed to be the cause of the conductivity low anomaly identified by geophysics. Kiska said the extent of brecciation and the strength of the alteration encountered is evidence that Copper Joe is host to a robust porphyry-hydrothermal system. Additional drilling, however, is required to determine whether ore-grade mineralization exists. First Quantum Minerals, which funded the program, has indicated to Kiska of its intention to withdraw from the project, and Kiska will evaluate the next steps for Copper Joe over the coming days. "Although results are disappointing, Copper Joe has served as an excellent example of Kiska's ability to expose its shareholders to participation in a potential world-class discovery through cooperative agreements with senior mining companies," said Kiska Vice President of Exploration Mike Roberts. "We look forward to developing similar new opportunities in the near-future." ●

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MINE REPORT

tightening remain unclear. The market is now watching to see when and how these companies will begin to spend money again," according to the PWC report.

Though equity capital has loosened and the outlook for junior miners is looking brighter, PWC analysts warn companies not to let their guards down.

"In this uncertain environment, it's essential for junior miners to move strategically and cautiously," said Liam Fitzgerald, national mining leader, PwC Canada.

In the short term, Fitzgerald advises these companies to focus on the fundamentals of pursuing the right projects; securing the funds needed to take advantage of opportunities as they arise; and be confident about their timing.

For the longer haul, the PWC advisor cautions mining companies to be ready "for a new economic reality defined by low commodity prices."

To be prepared for such a reality, he suggests mining executives should consider innovative technology, community engagement, talent, portfolio diversity and partnership strategies.

Most of all, the report cautions that the improved vital signs does not mean the junior mining sector should ease up on the regiment of creativity and resilience that ensured their survival thus far.

"While the outlook is positive, it's too early to call it a recovery," said Fitzgerald. ●

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NORTHERN NEIGHBORS

KSM drilling discovers new copper-gold zone

Seabridge Gold Inc. Oct. 18 reported that one hole drilled this summer successfully found the depth extension of the higher grade core of the Iron Cap zone while also discovering a previously unknown deposit with initial gold and copper grades among the best drilled so far at the KSM project in northwestern British Columbia. Hole IC-16-62 was collared well north of previous drilling in an area covered by rubble and ice which had prevented surface mapping and geophysical surveys. The hole targeted the Iron Cap Lower zone about 400 meters below an intersection in a 2014 hole, IC-14-59, that cut 593 meters of 1.14 grams per metric ton gold, 0.37 percent copper and 3.7 g/t silver. The new hole confirmed the extension of the Iron Cap Lower zone over an interval of 556 meters at 0.83 g/t gold, 0.24 percent copper and 4.4 g/t silver. A distinct and separate zone was intercepted shallower in hole 16-62, returning 61 meters averaging 1.2 g/t gold, 0.95 percent copper and 4.1 g/t silver. Early indications are that the new discovery could represent a new core zone with a potentially positive impact on the project. The newly discovered zone is being evaluated for additional drilling in 2017. "Although we have only one hole into it, this new discovery has all the same hallmarks that proved to be relevant in the first holes drilled into Deep Kerr and Lower Iron Cap and which led us to pursue these deposits. Our exploration team thinks this discovery could be the elusive Mitchell North deposit which they have hypothesized since 2009," said Seabridge Chairman and CEO Rudi Fronk.

GOLDEN PREDATOR MINING CORP.

A recently completed bridge provides the final link between the high-grade gold zones at Golden Predator's 3 Aces project and the contiguous road system in the Yukon.

Winter drilling targets 3 Aces high grade gold

Golden Predator Mining Corp. Oct. 17 said it has begun a winter drill program that will target the high-grade gold the company has identified at surface at its 3 Aces project in southeastern Yukon. A progressive joint venture between Boart Longyear and the Liard First Nation, which was awarded the 3 Aces drill contract, is targeting the completion at least 3,500 meters of reverse circulation drilling and 400 meters of core drilling during the fourth quarter. This drilling will test depth and strike extensions of high-grade mineralization exposed in a number of trenches at the Ace of Spades and Jack of Spades zones, as well as other gold bearing veins in the Spades, Hearts and Clubs areas. Highlights from drilling at Ace of Spades earlier this year include: 11.43 meters of 31.89 grams per metric ton gold; 6.4 meters of 13.8 g/t gold; and 2.28 meters of 96.78 g/t gold. Panel sampling of trenches at the recently discovered Jack of Spades zone include gold assays up to 186.5 g/t. A recently completed bridge crossing the Little Hyland River provides for road access to the drill sites, reducing costs and allowing for year-round operations at 3 Aces.

More moly-tungsten at Davidson; PEA mulled

Darnley Bay Resources Ltd. Oct. 17 reported a significant increase in the molybdenum and tungsten resources at the Davidson property in north-central

see **NORTHERN NEIGHBORS** *page 12*

SHANE LASLEY

Golden Predator encountered higher than expected gold grades during a drill program to gather geotechnical data as it assesses the potential of resuming heap leap operations at its Brewery Creek mine project in the Yukon.

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NORTHERN NEIGHBORS

British Colombia. The new resource for Davidson includes 23 holes completed since the last estimate was completed for the property in 2007. A total of 72,815 meters of drilling has been completed in 218 drill holes since exploration of the molybdenum-tungsten property began in the 1950s. All of the historical drill core is available to Darnley Bay. Davidson now hosts 90.08 metric tons of measured and indicated resource grading 0.286 percent molybdenum disulfide (340.5 million pounds molybdenum) and 0.034 percent (67.53 million pounds) tungsten trioxide. This represents an 18 percent increase in molybdenum and a 16 percent increase in tungsten, compared to the previous resource estimate for Davidson. The report associated with the new estimate recommends that a preliminary economic assessment be commissioned to determine the cost of producing molybdenum and tungsten from Davidson. Bulk mining with onsite processing facilities and selective mining of higher grade ore to be shipped to another mill for processing are possible options for the B.C. molybdenum-tungsten project.

Lucky holes encounter gold at Brewery Creek

Golden Predator Mining Corp. Oct. 13 reported higher than expected gold grades were encountered in several metallurgical and geotechnical holes drilled this year at Brewery Creek, a former producing heap-leach gold operation about 55 kilometers (34 miles) east of Dawson City, Yukon. Three metallurgical holes and one geotechnical hole at the Lucky deposit cut gold mineralization below the historical pit floors. Hole 11 cut 8.2 meters grading 21.3 grams per metric ton gold from a depth of 22.2 meters at the western end of the Lucky pit; hole 31 cut 17.5 meters of 5.5 g/t gold from a depth of 9.9 meters at the north side of the Lucky pit floor; and hole 25 cut 5.6 meters of 5.2 g/t gold from a depth of 21.2 meters at the eastern edge of the Lucky pit. "We are very pleased with the results of our 2016 drill program at Brewery Creek, it demonstrates the potential for higher gold grades, and shows that significant amounts of oxide material remains in the old pits," said Golden Predator CEO Janet Lee-Sheriff.

The metallurgical program at Brewery Creek consisted of twelve large diameter core holes – five at Lucky, five at Kokanee and two at Golden. The oxide material gathered from these holes will test for higher gold recoveries from oxide material after crushing versus the gold recoveries from un-crushed run-of-mine material by the former operator. The metallurgical holes also collected high-grade sulfide material, which will be tested for gold recovery using carbon-in-leach and flotation methods. This will be the first metallurgical testing of any non-oxide material at Brewery since preliminary testing in the late 1990s. Another eleven geotechnical and groundwater holes were drilled at the project. Golden Predator said the results may provide information for an updated preliminary economic assessment update for Brewery Creek.

Kinross to nab stake in NWT gold explorer

Nighthawk Gold Corp. Oct. 13 announced plans to complete a C$10.1 million private placement that includes a strategic investment by Kinross Gold Corp. Following the completion of the financing, Kinross will hold roughly 9.5 percent of Nighthawk's issued and outstanding common shares on an undiluted basis. The offering will consist of up to 6.17 million common shares at C50 cents each and up to 10.77 million flow-through shares at C65 cents each. The gross proceeds from the sale of the flow through shares will be used for exploration of Nighthawk's properties, including the company's flagship Indin Lake gold project in Northwest Territories, and the net proceeds from the common shares will be used for general working capital purposes. "A strategic investment by Kinross positions Nighthawk well to continue to advance our Indin Lake project. We look forward to building upon this relationship while aggressively pursuing the untapped potential we both believe exists in this gold camp" said Nighthawk President and CEO Michael Byron. The offering is expected to close on Nov. 3.

Minto posts robust copper output in Q3

Capstone Mining Corp. Oct. 13 reported higher than planned copper production at its Minto Mine resulting from the processing of high-grade ore from the Minto North deposit. At mid-year, Capstone upped its copper production guidance for Minto to 28,000 metric tons of copper for 2016. With copper grades averaging more than 3 percent, the Yukon operation produced 11,620 metric tons of copper in the third quarter, more than the entire first half of 2016. The mill recorded a quarterly throughput record and recoveries were strong due to the lower than expected oxide content in the Minto North ore. Open pit mining of the Minto North pit was completed at the end of September and the mill is now processing high-grade stockpile combined with underground ore. Underground mining continued through the third quarter and is planned to extend to mid-2017, as additional areas of high-grade underground ore continue to be mined. Capstone's three mines – Minto, Pinto Valley in Arizona, and Cozamin in Mexico – have produce 84,700 metric tons of copper through the first three quarters of 2016. Given the strong performance at Minto and Pinto Valley, the company anticipates full-year production to be at the upper end of it guidance of 102,600-113,400 metric tons of copper. ●

Congratulations

Congratulations CAELUS

Caelus Energy Alaska finds mammoth oil field in state waters of Smith Bay

Caelus Energy recently confirmed a massive discovery of light oil toward the western end of the North Slope in Smith Bay from two 2016 exploration wells and earlier 3-D seismic. Caelus CEO Jim Musselman said there could be 6 billion barrels of oil plus natural gas in place in its leases, with the possibility of 10 billion barrels or more across the Smith Bay area.

The discovery lies in an ancient submarine fan structure at a subsurface depth of 5,000 feet in the Torok, a formation just below the Nanushuk in the Brookian sequence. The Nanushuk is the focus of a major oil find being pursued by Armstrong Energy in its Pikka unit on the western North Slope.

U.S. Geological Survey geologist David Houseknecht, an expert on Alaska petroleum geology, says the Nanushuk discovery reveals the possibility of major undiscovered oil resources in the Brookian along a fairway extending perhaps 100 miles west of Pikka and derived from source rocks to the north, deep under the nearshore waters of the Beaufort Sea. The Smith Bay discovery clearly supports this view, Houseknecht says.

Jim Musselman, Caelus CEO

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ALASKA DEPARTMENT OF LABOR

Highest Projected Growth

Top 25 occupations, 2014 to 2024

Occupation	Percent growth
Dental Hygienists	21.6%
Dental Assistants	20.9%
Opticians, Dispensing	20.3%
Dentists, General	20.2%
Farmworkers/Laborers, Crop, Nursery, and Greenhouse	20.2%
Recreational Therapists	19.8%
Medical Assistants	19.4%
Nurse Practitioners	18.9%
Massage Therapists	18.7%
Umpires, Referees, and Other Sports Officials	17.7%
Mental Health and Substance Abuse Social Workers	17.3%
Personal Care Aides	17.0%
Substance Abuse and Behavioral Disorder Counselors	16.2%
Nonfarm Animal Caretakers	16.1%
Physician Assistants	16.1%
Medical and Clinical Laboratory Technicians	15.9%
Family and General Practitioners	15.6%
Physical Therapists	15.4%
Social and Human Service Assistants	15.0%
Inspectors, Testers, Sorters, Samplers, and Weighers	14.9%
Medical Secretaries	14.7%
Labor Relations Specialists	14.4%
Licensed Practical and Licensed Vocational Nurses	14.2%
Aircraft Cargo Handling Supervisors	13.8%
Psychiatric Technicians	13.4%

Highest Projected Loss

Bottom 25 occupations, 2014 to 2024

Occupation	Percent loss
Reporters and Correspondents	-14.3%
Boilermakers	-13.2%
Helpers — Extraction Workers	-12.8%
Derrick Operators, Oil and Gas	-12.2%
Radio and Television Announcers	-12.0%
Logging Equipment Operators	-11.8%
Legal Secretaries	-11.8%
Broadcast Technicians	-11.4%
Advertising Sales Agents	-10.9%
Woodworkers, All Other	-10.8%
Printing Press Operators	-10.7%
Editors	-10.6%
Print Binding and Finishing Workers	-9.6%
Helpers — Pipelayers, Plumbers, Pipefitters, Steamfitters	-9.5%
Rotary Drill Operators, Oil and Gas	-9.3%
Petroleum Pump Sys Opers, Refinery Opers, Gaugers	-8.9%
Paralegals and Legal Assistants	-8.9%
Roustabouts, Oil and Gas	-8.4%
Dancers	-7.9%
Petroleum Engineers	-7.8%
Producers and Directors	-7.8%
Machine Feeders and Offbearers	-7.0%
Title Examiners, Abstractors, and Searchers	-6.8%
Legal Support Workers, All Other	-6.2%
Team Assemblers	-6.2%

Note: These lists only include occupations with at least 50 workers. For the growing occupations it includes only those with growth of at least 20 jobs, and excludes residual occupations ending with "all other" and a small number with incomplete or unreliable data.
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

FINANCE & ECONOMY

Oil price upends employment picture

State economists heavily revise 10-year employment forecast following crash in prices; oil industry sector hit hard

By ERIC LIDJI
For Petroleum News

The state publishes a 10-year forecast for industrial employment every other year, and each forecast usually makes just a few small adjustments to its immediate predecessor.

This time is different.

While the October 2014 forecast predicted 10.8 percent growth in employment from 2012 to 2022, the current forecast predicts 5.8 percent growth from 2014 to 2024.

The reason for the change is obvious. Oil prices started declining immediately after the last forecast was published. And that has upended many previous economic assumptions.

Before the crash, the Alaska Department of Labor and Workforce Development expected employment in oil and gas extraction to increase 15.3 percent between 2012 and 2022. Now, according to an article in Alaska Economic Trends by state economist Paul Mertz, the department expects employment in the sector to fall 10 percent between 2014 and 2024. And those figures fail to include drilling and support activities employment, which are expected to fall 18.9 percent and 5.5 percent, respectively, between 2014 and 2024.

The crash in oil prices gave the department some insight into the way the oil industry influences employment in other fields. "While projections are not able to predict business cycles or foresee economic shocks, especially those caused by a single commodity's price, the timing of the price plunge allowed us to infer some of the effects on not just future oil and gas employment but also many of the industries linked to it," Mertz wrote."

The projected loses extend throughout the industry.

The department expects a 7.8 percent decline in petroleum engineers, an 8.4 percent decline in roustabouts, an 8.9 percent decline in petroleum pump system operators and refinery operators, a 9.3 percent decline in rotary drill operators, a 9.5 percent decline in pipeline support positions, and a 12.2 percent decline in derrick operators. All of those fields are among the 25 professions expected to have the steepest losses through 2024.

Additionally, declining oil revenues will impact construction spending, particularly publicly funded financial civil projects and heavy construction related to oil and gas activities.

The department expects employment in the heavy and civil construction sector to fall by 15.7 percent between 2014 and 2024, even as overall employment in all the construction-related fields increases slightly. Employment in oil and gas pipeline construction is expected to face an even greater decline, falling by 38.9 percent over the forecast period.

Prices and jobs

Those stark projections suggest that the impact of the current crash could ripple through the oil and gas industry even after oil prices recover and industrial activities ramp up.

One reason for that is the steepness of the decline. Aside from a dip after the financial crisis in late 2008, oil prices were steadily rising for more than a decade before the crash.

"This round of projections comes on the heels of the oil and gas industry's highest employment since the early 1990s, and the drop in oil prices is quickly eroding that peak," Mertz wrote in the article. "Prices are expected to rebound somewhat, but we expect the effects of short-run declines to last well into the projections period."

The current projection reinforces the theory that oil prices influence oil indus-

see **STATE FORECAST** page 18

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GMT1 METERING

by Turner & Townsend Larkspur, which has "extensive experience preparing conceptual project cost estimates" for ConocoPhillips and other operators.

Sales gas meter

On the issue of the sales gas meter, to measure natural gas being shipped to GMT1, ConocoPhillips told the commission that CD5 was not designed to house a metering system for sales of gas to GMT1, requiring a variance from commission requirements that gas be measured before severance from the property or unit where produced. The gas would need to be shipped to GMT1 from CRU for fuel and rich miscible gas injection, and ConocoPhillips has proposed installing meters at GMT1 instead of within the CRU based on operational and space constraints at CD5.

The commission approved ConocoPhillips' request for a waiver to allow fiscal allocation of production from GMT1 to be based on a metering system that does not meet custody transfer quality standards.

But the commission said ConocoPhillips did not provide sufficient information supporting its assertions about the need to put the sales gas meter at GMT1 and denied that request "without prejudice" to ConocoPhillips renewing the request when it can provide additional evidence to support the request.

The commission also said it would require additional information on specifics of the fiscal allocation metering system design before those components can be approved and said it must approve the specific design before the metering system can be installed and operated. ●

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HEA DEREGULATION

on much of the Kenai Peninsula. Apparently the AEEC board, with the same membership as the HEA board, has already indicated that shortly after an election result approving the HEA deregulation, the AEEC voting delegation would be instructed to vote in favor of deregulation. AEEC is a utility with HEA as its only member.

Under Alaska statutes a utility can opt for deregulation if a majority of the utility's membership vote in favor of the deregulation move.

Transmission issues

One of the questions that the deregulation of the HEA/AEEC transmission and generation assets on the Kenai Peninsula would presumably raise would be the potential impact on current moves to consolidate the management and operation of the Alaska Railbelt transmission grid. Use of the grid is shared by the six Railbelt electricity utilities.

In June 2015, following a directive from the state Legislature to investigate the merits of operating the grid under unified management, the commission concluded that unified management would be beneficial for Railbelt electricity consumers through the possibility of making maximum use of the cheapest power sources on the grid. Since then, the commission has been encouraging the six Railbelt utilities to achieve unification through voluntary means, and there has been progress in that direction, with HEA involved in the unification discussions.

In July Janorschke told Petroleum News that the deregulation vote that his utility had planned only applies to the electrical distribution aspects of his utility's business and was a separate issue from the question of transmission system integration. The deregulation does not impact discussions that are taking place over the future of the transmission grid, he said.

"The local control vote that we're taking to our membership is for our distribution cooperative, which is poles and wires," Janorschke said. He said that the question of whether to deregulate the generation and transmission side of the business would be addressed after the deregulation of the distribution system had been dealt with.

Increased flexibility

HEA has said that deregulation would eliminate the lengthy, expensive and rigid RCA approval process for rate changes, thus enabling the utility to more flexibly implement or pilot new service arrangements and rate structures. Currently, under RCA regulation, all rate changes must go through a rate case process that can take up to 450 days to complete. Moreover, the utility's board would be able to make strategic decisions on electricity rates before the costs from those decisions would be incurred, HEA has said.

The RCA commissioners, while not disputing HEA's legal right to seek deregulation, have expressed concern over whether the utility has presented a fully balanced view of all of the deregulation issues to its members, thus enabling the membership to make a fully informed decision.

Undue influence

In response to concerns expressed by some commissioners that the HEA board, lacking the expertise of the HEA management, might unduly come under the influence of the management, Janorschke said that this view represents a misunderstanding of the board's role as a policy body, rather than as a management group. Janorschke also challenged questions over AEEC's apparent high current level of debt, saying that neither HEA nor AEEC is financially stressed and that the equity levels in the two utilities are rising.

And, in response to a discussion at the Oct. 12 meeting over the relatively high cost of electricity in HEA's service area, Janorschke commented that the high cost relates to the population density per mile of electrical line on the peninsula, and not to HEA's decision to build and operate its own power generation facilities. HEA electricity pricing was also relatively high during an earlier era when the utility purchased its power from Chugach Electric Association, Janorschke said.

Shavelson comments

During the Oct. 12 meeting, much discussion revolved around a set of concerns raised by Bob Shavelson, an HEA member and executive director of environmental organization Cook Inletkeeper. Some other HEA members expressed support for Shavelson's views.

In response to a general criticism that, especially through the use of a public relations firm to promote deregulation to its membership, HEA has overemphasized the positive aspects of deregulation at the expense of pointing out the downsides, HEA has responded that it had "made every effort to provide a balanced set of information to our members." However, HEA does believe that the benefits outweigh the concerns — the HEA board unanimously supports local control through deregulation, HEA said.

Shavelson also commented on the relationship between HEA and AEEC, accusing HEA of being obscure about the relationship between the two utilities and of not explaining to its membership the impact of deregulation on the generation and transmission components of HEA's business.

In response, HEA said that it has always been willing to divulge the purpose of AEEC and the nature of the relationship between AEEC and HEA. AEEC board meetings and financial information are open to HEA members, while the AEEC board determines AEEC's strategic direction, HEA said. HEA also dismissed a concern raised by Shavelson about AEEC's current level of debt and, hence, the utility's capability to invest in new renewable energy projects.

In response to a complaint that HEA refuses to commit to lower utility rates as a result of the cost savings to be gained from deregulation, HEA said that it has made it clear that cost savings will be passed through future rate calculation but that, given the many variables impacting the utility's rates, assuring a future rate reduction would be irresponsible.

Shavelson also questioned whether HEA, in its business decision making, truly reflects its members' interests. And would the utility assist its members with litigation costs, should they have to resort to a court appeal in the event of a dispute with the HEA board, Shavelson asked. HEA questioned the factual basis of Shavelson's concerns and commented that disputes would be resolved through utility representatives and the board of directors, as is done elsewhere in the United States.

Utilities comparison

Both Shavelson and the commissioners questioned HEA's use of utilities such as Kodiak Electric Association and Matanuska Telephone Association as examples of utilities that have successfully deregulated, given that KEA is not hooked into the Alaska Railbelt transmission grid and that MTA is a telecommunications utility that operates in a competitive market. While deregulation would not hinder the buying or selling of power with other Railbelt utilities, HEA would be regulated by its members, in an analogous manner to the way in which voters regulate the operations of local governments, HEA responded.

HEA also dismissed a concern that, if other Railbelt utilities opt for deregulation, that might have a negative impact on reliability and electricity costs across the Railbelt.

—ALAN BAILEY

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Oil Patch Bits

AECOM welcomes Kahlil Bolling to its team

KAHLIL BOLLING

AECOM said recently that Kahlil Bolling joined its team as a marketing coordinator to support the firm's Alaska marketing operations. In this role he is responsible for managing proposal coordination, event coordination and facilitation, company publicity and promotional efforts in Anchorage and all across Alaska. Bolling brings to AECOM a diverse marketing background which includes experience in strategic marketing and in completing marketing plans. His areas of expertise include strategic marketing, brand expansion, research and data analysis. He holds a Bachelor of Science degree in business-marketing from Ferris State University in Big Rapids, Michigan, and also studied at the College of the Canyons in Los Angeles, where he earned his associate of science degree in accounting.

IABA to host US senate candidate Arctic debate

The Iñuit Arctic Business Alliance will host a U.S. Senate candidate debate on the Arctic from noon to 2 p.m. on Oct. 26 at the Barrow High School auditorium in Barrow, Alaska. Confirmed candidates include the incumbent, Republican candidate Lisa Murkowski, independent or non-affiliated candidate Margaret Stock, Democrat candidate Ray Metcalf and non-affiliated candidate Breck Craig. Libertarian candidate Joe Miller and non-affiliated candidate Ted Gianoutsos have also been invited.

The debate will cover issues relevant to the Arctic, including national security, commercial shipping, transportation infrastructure, energy exploration, climate change, subsistence, economic development, housing, health and telecommunications. KTVA's Rhonda McBride will moderate the debate.

The debate will cover issues relevant to the Arctic, including national security, commercial shipping, transportation infrastructure, energy exploration, climate change, subsistence, economic development, housing, health and telecommunications. KTVA's Rhonda McBride will moderate the debate.

By virtue of Alaska, the United States is an Arctic nation. As this region of the world rapidly changes, Alaska is on the forefront of a new Arctic frontier. Issues of national security, commercial shipping, transportation, infrastructure, and energy exploration demand an elected leader who is ready to lead and advance Alaska's Arctic interests. It is also imperative that candidates running for statewide or federal office have a respect and understanding of Alaska's Arctic indigenous communities. It is critical for our elected leaders to honor the relationship Alaska Natives have with the United States federal government and to understand, as well as advocate for, the importance of our subsistence lifestyle, our languages and cultures.

IABA's mission is to provide a unified voice, collective vision, guidelines, and venue for doing business in the Arctic. IABA's goals are to ensure that the ASRC, BSNC and NANA regions directly benefit from activity and operations in the Arctic. IABA will provide the Alaska Iñuit a voice, with respect to transportation, infrastructure, energy and all facets of sustainable economic development and cultural stewardship.

Editor's note: Some of these 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

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

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HUGGINS Q&A

huge aberration. That might be an extended aberration, we'll see about that, but it's not normal times.

When you are taking corrective action, you also have to keep in mind the duration of what's going to happen based on actions you take and what happens to oil and gas production in the future. We as Americans are not very good on taking a long-term view of the effects of things we are doing now. In the case of resource development, we have to keep in mind that if we are going to be economically successful with the business of selling oil and hopefully selling gas, then we have to decide whether what we do will be enhanced and not to its detriment.

Petroleum News: With that in mind, do you feel the state has a durable tax system in place?

Huggins: I guess durable is relative. It seems like every few years if not every other year, there is tweaking going on if not major changes. Of course, it's always popular to say that we need something different. For the same reason, in this case, the producers say we need a tax policy for a gas pipeline that is durable for the next 20 years is evidence that we have not had a system that's been durable because people can't resist the opportunity to change it.

Then in this particular year, I know the governor got on record saying he didn't want to make any changes to SB 21. Some of the action he took was counter to that. That's always destabilizing in my estimation.

Petroleum News: You noted that it seems to come up every two years. Why do you suppose that is?

Huggins: There are a lot of variables. There is always the underlying school of thought that these companies are taking Alaska's resources and Alaska is not getting its fair share. The counterbalance is the average person has a hard time comprehending the differences and the cost factors of going to North Dakota and doing fracking where you move a rig in and in 30 days you expect to produce oil or in Texas where you've got a full road network.

Here you've got just the opposite. You've got seasonal operations. We have one road up and a lot of the places you have to build a pad. You might be able to build a road to it at some time. But there is limited infrastructure and then not to mention the harsh climate, and oh by the way you've got to fly your workers to work from Anchorage.

Then there is the fly in the ointment with people saying well you know we've got all these out of state workers. You know what, I think the percentage is lower than the average Alaskan realizes, but that's still a true dilemma. In some case the skill sets don't match up.

Petroleum News: That skill sets issue comes up a lot. What can the state do about this and bring that skill level up?

Huggins: Click Bishop is probably better armed to answer that question. We do have a significant number of dollars that goes toward workforce development. It's fairly well structured and not inexpensive. We have the pipeline training center up in Fairbanks for example. There are lots of skill factors, plus we have the construction industry.

We have a limited number of people when you start taking who graduated from high school and who is available and has the appetite to go through that training. When you have a small pool of people, at some point, the supply of people can't match the skill set and the qualification that's required. You still have to have people who have some experience and you have to integrate people as they develop that skill set.

As I recall during AGIA DOT was looking to get a significant amount of money toward upgrading the infrastructure: the roads; the bridges; rail and a number of other things. Upgrading infrastructure takes a significant amount because of the logistics. On the other hand, what you do has to meet the timeline of success, and oh, by the way we know what happened to AGIA.

I didn't vote for TransCanada to get the contract. We got saddled with them under contract with carried over to AKLNG. I think we paid them $380 million under AGIA and another $100 million to get them out of the Alaska LNG process. I think internationally, they were probably one of the most — if not the most — qualified builders in North America for sure.

Petroleum News: So why didn't you vote for them?

Huggins: It became abundantly clear to me that there was an expectation that because it was such a viable project, and the economics of it was going to be very enticing for national and international organizations to bid on — one of which was Mid-American — well guess what. Nobody else bid with a qualifying offer.

For me that read lack of confidence as to what was happening. I had previously voted for AGIA — reluctantly — then when I saw the business of contracting, I thought this is a bad deal. It was a bit of a protest vote against what it stood for. No. 2, if you only have one qualified bid, be careful if you have a closed bid process. Not the least of which the state had to pay them $500 million.

Petroleum News: You've seen all these developments succeed and fail from various angles: as Resources chair, a member of Finance, as Senate president, as a member of the majority and even as a member of the minority. What do you tell someone next year, either a successor or a freshman who could be getting a seat on these committees?

Huggins: Well, certainly everybody is different, but the No. 1 thing you have to come to the process with, and you have to maintain and demonstrate on a daily, weekly, monthly business is your integrity, that you're trustworthy. Also, you're not special interest this and special interest that. Oh by the way, you need to be open minded. When somebody comes to see you and you're trying to convince someone on a bill or a policy, or whatever the case may be you have to be opened minded about what you're proposing. And you hope they are open minded when you are proposing something.

Just because you don't accept their theorem, doesn't make their theorem bad. It doesn't make them evil because of that. They have a different perspective. They might come from a different region, and oh by the way, they have a different constituency and different concerns. You can't fall on your sword in the sense well that person obviously isn't enlightened because they don't recognize the merit of what I'm trying to do.

No matter what the aftermath, it should be a positive environment, because the next issue is completely different.

Being in the minority, that's a whole different thing. I chose to be in the minority when I was. That role professionally is probably incumbent upon you to display some of the counterpoints of what the argument currently is. You don't do it in a hostile nature, hopefully in a constructive nature in working with people. Every two years there will be a reorganization. You still have to maintain your integrity.

Equally, and this is a trait some people have and others don't, is a long-term vision. That's one of my concerns right now. If you read some of the commentary and some of the comments attributed to people is Alaska's future is gas. Well that might be but it might not be. We do know oil is a lot more valuable than gas. We have a lot of both, so we have to be able to have policies and an approach to allow both to prosper and allow us to share in that prosperity.

That's one of the concerns that I have about this state right now. There appears to be an attitude of well let's not forget about oil, but gas is king and let's just talk about gas. Well, that's done at our own expense if we do that.

Right over the horizon, we'll be asking ourselves, future legislators and future governors, what happened to future oil production? What caused either hesitation or decline in oil production that wasn't forecast and wasn't anticipated? It's like ACES. The state was making lots of money but it was hard to get anybody to come up to explore because the tax rate was so high.

The beauty of it right now is look at the number of independent organizations that are out looking for oil and gas.

Look at Caelus. They figure they found 6 billion to 10 billion barrels of oil. That is a success story that we have to maintain as much as we can going forward. ●

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FURIE WELL

of the two development wells that the company had planned to drill in 2016. A gas supply contract with Enstar Natural Gas Co., scheduled to go into effect in 2018, is contingent on Furie drilling two development wells at Kitchen Lights this year. The company is already producing gas from a converted exploration well, the KLU No. 3.

Subsea pipeline

A subsea gas pipeline connects the Julius R platform to Furie's onshore gas processing facility near East Foreland on the Kenai Peninsula. From there Kitchen Lights gas is delivered into the Kenai Peninsula gas transmission pipeline network. Furie currently supplies gas to Homer Electric Association for power generation, and to Aurora Gas to support Aurora's gas supply commitments to the Tesoro refinery on the Kenai Peninsula.

Furie can obtain more than enough gas from the KLU No. 3 well to support its current gas supply commitments. However, the two additional wells provide a level of production redundancy should the No. 3 well have to be shut in for some reason. Each well presumably accesses a different part of the Kitchen Lights gas reservoir. And, in preparation for the start of the Enstar contract, Furie anticipates drilling an additional well, the KLU A-3 in 2017.

> *Furie started drilling the A-1 well in mid-September after successfully completing and hooking up the KLU A-2 well, the first of the two development wells that the company had planned to drill in 2016.*

Furie's Homer Electric contract involves the supply of 12 million to 18 million cubic feet per day of gas, depending on the time of year. The Enstar contract anticipates delivery rates in the range of 10 million to 22 million cubic feet per day, with an option for additional gas during the winter. The subsea pipeline from the Julius R platform has a maximum capacity of 100 million cubic feet per day — Furie's development plan for the field envisages the eventual construction of two 100-million-cubic-feet-per-day subsea pipelines from the platform.

—ALAN BAILEY

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ACTIVIST SHUTDOWNS

against the oil sands sector and the Alberta government's efforts to gain access to global markets, moving the level of protest beyond vocal opposition to the construction of new pipelines, or expanding existing links.

"Forget building any new infrastructure, what we need to do is stop the existing infrastructure that is transporting and extracting crude," said a CDA spokeswoman.

The four pipelines affected by the "tampering" incidents were:

•Enbridge's Line 4 and Line 67 facilities in Minnesota that are key elements of the transportation link from Edmonton, Alberta, to Superior, Wisconsin, which handles the bulk of Canadian crude exports to the U.S.

•TransCanada's existing Keystone line in North Dakota, which has capacity of 550,000 barrels per day over 2,500 miles from Alberta to the U.S. Midwest.

•Kinder Morgan's pipeline system in Puget Sound of Washington state, which his linked to the Trans Mountain pipeline which carries 180,000 bpd.

•Spectra Energy's 720-mile Express pipeline which carries 280,000 bpd from central Alberta to Wood River, Illinois.

Safety concerns cited

Enbridge said the "actions taken to unlawfully trespass on our facility ... and tamper with energy infrastructure were reckless and dangerous."

It said the activists put at risk the safety of themselves, first responders and neighboring communities and landowners.

Ian Anderson, president of Kinder Morgan Canada, said his company had already been in "deep" conversations with policing authorities, including the Royal Canadian Mounted Police, to prepare for construction blockades if the Canadian government issues an approval later this year for an increase in Trans Mountain's capacity to 890,000 bpd.

Kinder Morgan is also providing explicit instructions to contractors should they encounter protesters, taking lessons from clashes in North Dakota over the US$3.7 billion Dakota Access pipeline.

Anderson told reporters he would be "naive" if he didn't expect blockades, but added he hopes that municipalities and 41 First Nations that endorse the Trans Mountain expansion have dispelled any notion that opposition to the C$6.8 billion project is unanimous.

Chris Bloomer, chief executive officer of the Canadian Energy Pipeline Association, said he has no problem with demonstrators voicing opinions about energy development, but no one should condone the actions taken in the U.S.

He said activists "need to recognize that an unauthorized and unscheduled valve closure on any pipeline could result in unpredicted pressure changes, which can pose some extremely serious risks." ●

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STATE FORECAST

try employment more than any other single factor. For example, Alaska oil industry employment increased from about 8,500 in 1988 to about 12,600 in 2008 — a time period when oil production declined 70 percent and oil prices increased near fivefold. And during those two decades, oil prices and employment moved nearly in lockstep.

Between the aging big fields and a range of smaller fields, the Alaska oil industry currently requires more people across more professions to produce less oil.

While the current forecast is dour, it is hardly fate, Mertz noted. Just as an unexpected crash in commodity prices upended the last forecast, he wrote, a future project such as a North Slope gas pipeline could make the current forecast irrelevant. With two big North Slope discoveries in recent years — by Armstrong Energy Inc. and Caelus Natural Resources Alaska Inc. — perhaps a bump in prices would result in a bump in employment. ●

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OIL ECONOMICS

developments in the Middle Ground Shoal and Granite Point fields, while also hoping to carry out a major well workover program in the company's offshore fields. On the North Slope Hilcorp has built a new drilling rig, initially for a planned new development project in the Milne Point field.

Re-invigorating old fields

After entering the Cook Inlet oil and gas industry in 2012, Hilcorp re-invigorated the various oil and gas fields that it acquired, doubling oil production from the region and boosting gas production to meet local demand. Drilling activity peaked in 2014, mainly as a result of the drilling of gas wells to support market needs. But now, with the Cook Inlet gas market stabilized, gas well drilling has slowed, Wilkins said.

"Once we got to a point where we sustained and stabilized the gas market, we backed off some of that drilling, because we don't need to drill for gas wells on such an active pace," Wilkins said. "We maintain our gas production to meet market demand."

However, Hilcorp does have a sizable inventory of gas wells on the Kenai Peninsula and will drill wells when the gas market requires, he said.

With the slowdown in gas well drilling, coupled with a recent fall in oil industry costs, Hilcorp's investment level in Alaska has dropped over the last couple of years. However, the company anticipates an uptick in its drilling program next year, while also continuing to spend money to ensure the necessary maintenance to its pipelines and equipment.

"We are still a responsible operating company here in Alaska," Wilkins said.

Growing the base

Both in the Cook Inlet basin and on the North Slope Hilcorp has projects that can grow its oil production base. The company is using the Kuukpik 5 drilling rig for a five-well Cook Inlet drilling program that will continue into early 2017. The wells being drilled as part of this program are targeting geologic zones and concepts that could create follow-up potential, Wilkins said.

"We are also very excited about our Granite Point field redevelopment, with a horizontal drilling program that we're hoping to start in 2017," Wilkins said.

And then there is the well workover program, lined up for the Cook Inlet offshore.

"It's sitting on the shelf, waiting for project economics, to continue," Wilkins said.

HILCORP ALASKA LLC

The new Innovation drilling rig which Hilcorp Alaska had built for use on the North Slope is very mobile and can access wells on 10-foot spacing.

> *"We're going to be here for a long time. The pace at which we do projects is what we will alter, based on the economics of the day."*
> ***—David Wilkins, Hilcorp Alaska***

Middle Ground Shoal

The 2015 purchase by Hilcorp from XTO Energy Inc. of the offshore Middle Ground Shoal field A and C platforms is also opening up some new Cook Inlet development opportunities. With Hilcorp already owning the mothballed Baker and Dillon platforms, the entire field now, for the first time, has a single operator, Wilkins said. In 2015 Hilcorp shot 3-D seismic across the field, with that being the first seismic data obtained for some parts of the field.

"We're currently processing that seismic and working projects for Middle Ground Shoal," Wilkins said. "I'm very excited about what we're seeing."

Despite the field's complex geology, there seem to be multiple drilling opportunities and new development possibilities, he said. Hilcorp has also been able to reduce field operating costs, mainly by consolidating what had been two separate helicopter and support boat operations under two operators. Those cost savings can extend the economic life of the field, thus adding to the field oil reserves, Wilkins commented.

Hilcorp has some planned drilling activity to re-activate the Baker and Dillon platforms. But initiating that activity will depend on the economics of the drilling projects, Wilkins said.

Kenai Peninsula

Activity onshore the Kenai Peninsula mainly revolves around gas production and development. Hilcorp has been conducting 2-D and 3-D seismic surveys and continues to conduct exploration, seeking large gas fields.

"We're still optimistic that we will find some more," Wilkins said.

Meanwhile, Hilcorp is upgrading the compressor capability at its Kenai gas field. The idea is to de-bottleneck the gas storage facility in the field, to enable faster delivery of gas when needed. Also, the company has been moving ahead with the Kalotsa pad, a new pad in the Ninilchik gas field, where the company hopes to start drilling by the end of November.

Hilcorp is particularly proud of its achievements in the Swanson River field, which will be 60 years old next year. With an oil production rate of just 475 barrels per day when the company took over the field in 2012, a series of drilling and well workover projects has lifted that production to 2,750 barrels per day, Wilkins said. Having re-instituted a gas flood in the field, Hilcorp anticipates drilling anywhere from five to 10 more wells in the next couple of years. The company also plans to start a gas well in the Swanson River field in the spring of 2017, to bolster the company's gas supply capabilities.

North Slope oil

Hilcorp saw a large jump in its overall Alaska oil production in late 2014 when the company completed the purchase of some BP oil assets on the North Slope. The company purchased a 100 percent interest in the Endicott and Northstar fields, and a 50 percent interest in the Milne Point field. Hilcorp also acquired a 100 percent interest in the proposed Liberty oil field, offshore in the Beaufort Sea. Hilcorp operates all of these fields.

The new drilling rig, called the

> *Wilkins also commented that December will mark the 15th anniversary of the start of production from the Northstar field.*

Innovation rig, which Hilcorp had built for use in its North Slope assets, is a 1,200 horsepower electric rig, capable of drilling to a depth of 16,000 feet. Able to move on five tire-mounted modules, the rig, the lightest modular rig on the North Slope, could be used in any of the Hilcorp-operated fields. The rig can access wells on 10-foot spacing, Wilkins said.

Hilcorp is initially targeting the rig for development drilling in a planned expansion in the Milne Point field, drilling from a new pad, the Moose pad, in the northwest of the field. Depending on the project economics, this field development might be accomplished in two to three years, with the drilling of 24 horizontal wells and 16 injection wells in the Schrader Bluff formation and the Kuparuk sands. Depending on the pace of development, Hilcorp anticipates peak production of 10,000 to 15,000 barrels per day from the new pad, Wilkins said.

Liberty development

The Bureau of Ocean Energy Management is currently preparing an environmental impact statement for Hilcorp's proposed development of the Liberty field in federal waters of the Beaufort Sea. Rather than trying to re-invent the wheel, Hilcorp is proposing using established safe, environmentally sound techniques to develop the field, Wilkins said, citing the Endicott and Northstar fields, both operating from gravel islands in the Beaufort Sea, as examples of how an offshore development in the Beaufort can be conducted effectively and in an environmentally sound manner. Hilcorp anticipates oil production rates of 60,000 to 70,000 barrels per day from Liberty, with a 15- to 20-year life and a total oil recovery of some 50 million barrels, Wilkins said. Hilcorp expects to hear from BOEM, with the findings of the EIS, in May 2017, he said.

Wilkins also commented that December will mark the 15th anniversary of the start of production from the Northstar field. To date the field has produced more that 169 million barrels of oil and contributed $2.2 billion to state revenues, he said.

"BP did a beautiful job of constructing and implementing this project," Wilkins said. "This is the kind of project we need more of in the state." ●

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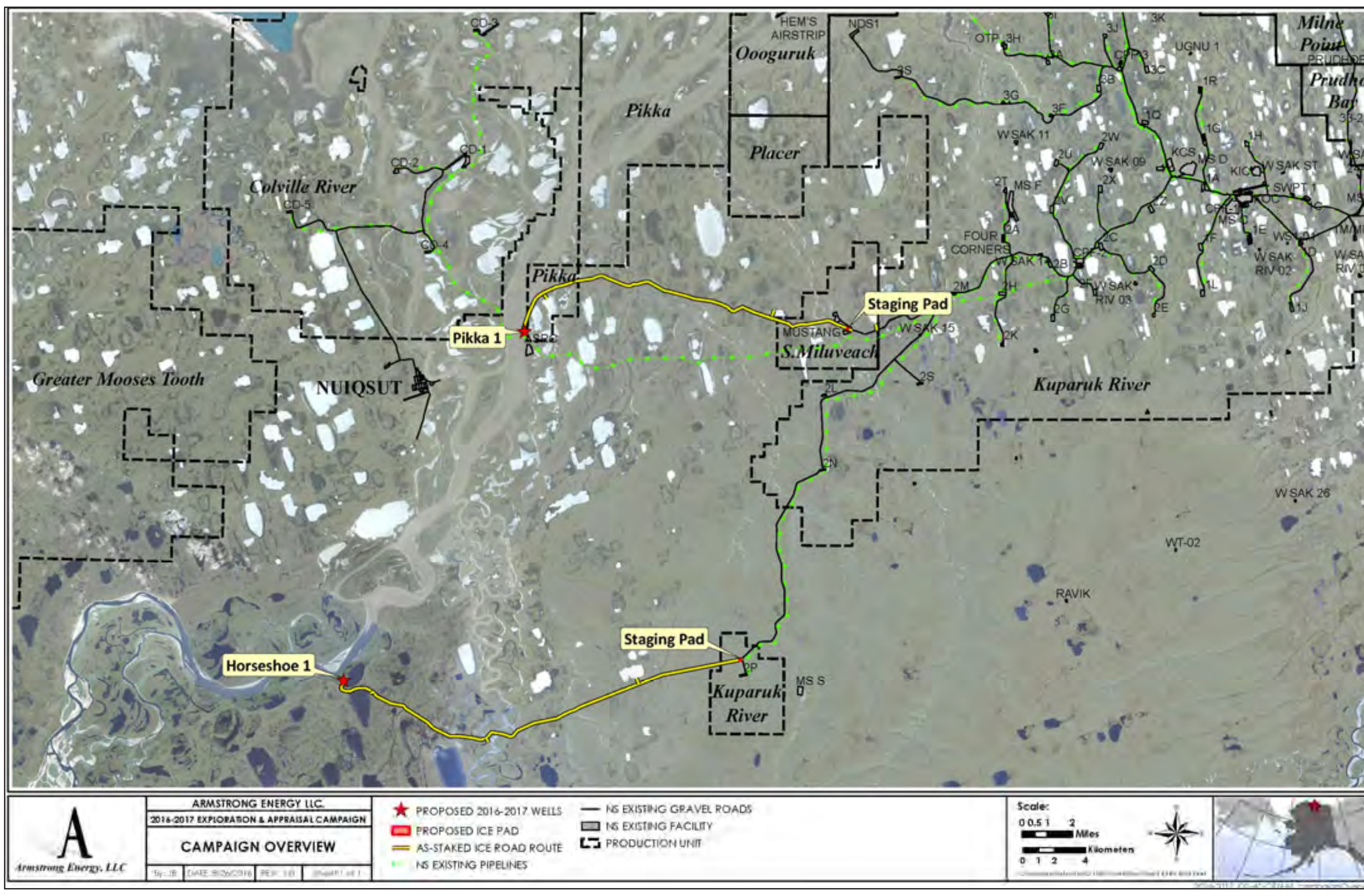
HORSESHOE WELL

Armstrong plans to begin ice road construction later this year and conduct drilling operations between January and April 2017. The company will use All American Oilfield Rig No. 111 or an equivalent rig.

The state Division of Oil and Gas is taking comments on the plan through Nov. 17.

The state is expected to release a plan of operations for the Pikka well soon. The proposed Pikka No. 1 well would appraise an earlier discovery at the Pikka unit.

Armstrong believes it is sitting on a major discovery on its leases between the Kuparuk River and Colville River units. The company estimates the Nanushuk discovery contains oil across 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. The company recently asked the state and Arctic Slope Regional Corp. to expand the Pikka unit to accommodate its development program.



What is the target?

Earlier this year, Armstrong Energy CEO Bill Armstrong said the Horseshoe well would "test a new idea" gleaned from the recent Horseshoe 3-D seismic program in the area.

By pursuing the wildcat project, Armstrong is betting prices will rise over the coming decade. The company believes existing conventional fields and even unconventional fields will fall short of demand by 2020, sending oil to "$70 to $80 per barrel at a minimum," Armstrong estimated in an August 2016 interview with Petroleum News.

In its permitting application, the company was vague about its plans. The well design, according to the company, would "be similar to that employed in previous exploration wells." As far as the target, "nearly all downhole aspects of the well are confidential."

According to permitting documents, Armstrong plans to drill the Horseshoe well on ADL 392048, which is part of a package of leases in the area that the company acquired from Royale Energy Inc. in late 2015. Earlier this year, Armstrong transferred a 25 percent working interest in the lease — and two neighboring leases — to Repsol E&P USA Inc.

Shortly after acquiring this so-called "western block" in 2012, Royale touted both the conventional potential of the Brookian and Beaufortian in the region as well as source rock potential. Along with its partner Rampart Energy Inc., Royale commissioned the Big Bend 3-D seismic program and began permitting a two-well Aki exploration program.

In a report released in June 2014, Netherland Sewell and Associates Inc. estimated that two prospects identified through the seismic program might contain between 17.8 million and 325.3 million barrels of oil in place, with a best case scenario of 77.5 million barrels.

In an oil discharge prevention and contingency plan released for public comment in August 2014, Royale said it had identified locations for eight potential wells at its Aki prospect. Like the current Horseshoe program, the two Aki wells would have been drilled from a temporary ice pad accessed by a snow or ice road leading to Drill Site 2P.

A lawsuit between partners prevented the exploration program from advancing. As part of the resolution of the dispute, Royale acquired Rampart's interest in September 2015 and assumed 100 percent interest over the western block. By the end of the year, Royale had sold the western block to an unnamed buyer, which turned out to be Armstrong. ●

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