Petroleum news

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page 3 Q&A: Giessel drilling down on oil tax credits bill, focused on value

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This week's Mining News


NORTH OF 60 MINING news

page 10 Infill drilling finds more bonanza gold grades in Valley of the Kings

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NEWS NUGGETS

SuperLig®-One pilot plant ready to separate Alaska rare earths

Ucore nabs Lifton's REE expertise

MINING POLICY

Splitting the difference

Resource committee proposes small mining tax hike; sends bill on its way

Legislative resource committee proposes small mining tax hike, sends bill on its way. Read more in Mining News, page 9.

CS drops inlet oil tax exemption, sets term for North Slope 'new oil'

The House Finance Committee released a committee substitute for House Bill 247 April 6. HB 247 is the governor's oil tax credit bill. Finance has been taking testimony on the House Resources Committee version of the bill, which dropped out a lot of the portions of the administration bill designed to raise revenue.

In response to testimony from its consultant that Cook Inlet oil production no longer needs to be incentivized, the CS drops the production tax exemption for Cook Inlet crude oil effective Jan. 1, 2017.

The Finance CS also sets a length of time for new oil to benefit from the gross value reduction.

But the largest financial impact comes from hardening the

see **OIL TAXES** *page 18*

Caelus on second Smith Bay well; first well reached about 7,000 feet

Caelus Energy has completed one of its Smith Bay exploration wells and is drilling the second of its wells. The Alaska Oil and Gas Conservation Commission has reported that the first well was completed on Feb. 19. And during a March 25 meeting of the Energy Action Coalition Jim Beckham, deputy director of Alaska's Division of Oil and Gas, commented that the company was drilling the second well.

According to the information published by AOGCC the first well was near vertical and was drilled to a vertical depth of 6,943 feet. The surface location of the well was township 17 north, range 9 west of the Umiat meridian. The well has been plugged and abandoned, but there is no information about whether Caelus conducted any testing in the well — the company had character-

see **SMITH BAY** *page 19*

EXPLORATION & PRODUCTION

A new oil resource

ConocoPhillips applies to AOGCC for rules for Kuparuk Moraine oil pool

By ALAN BAILEY
Petroleum News

ConocoPhillips has applied to the Alaska Oil and Gas Conservation commission for the approval of pool rules for a new oil development in the Moraine oil pool, in the northwestern part of the Kuparuk River unit. In its application the company says that it plans initial development from the existing onshore 3S drill site, with produced fluids to be commingled with other Kuparuk production for processing in a Kuparuk central processing facility. Additional development may take place from one or more new drill sites, the company says.

ConocoPhillips spokeswoman Natalie Lowman told Petroleum News in an April 7 email

> *With an anticipated recovery factor in the range of 10 to 40 percent, oil recovery may range from 20 million to 320 million barrels from the two sites.*

that the company is currently evaluating the commerciality of the Moraine deposit and the applicability of various development scenarios.

The proposed development involves turbidites of the upper and lower Moraine members of the Torok formation, in the relatively shallow Brookian rock sequence. Turbidites are rocks consisting of sandstone layers and channels, laid down as a consequence of periodic submarine

see **MORAINE POOL** *page 20*

EXPLORATION & PRODUCTION

Unit extension granted

DNR extends term of BRPC's Southern Miluveach unit 21 months to end of 2017

By KRISTEN NELSON
Petroleum News

The Alaska Department of Natural Resources has extended Brooks Range Petroleum Corp.'s Southern Miluveach unit to Dec. 31, 2017. BRPC has been working to bring oil production online from its Mustang pad at the unit.

The North Slope unit was set to expire March 31 of this year and BRPC initially requested a one-year extension, to March 31, 2017, a request which the company later amended to Dec. 31, 2017.

The unit, formed effective March 31, 2011, consists of 8,960 acres, five state oil and gas leases, south of the Kuparuk River unit.

> *BRPC plans to use managed pressure drilling "to facilitate controlled drilling in over-pressured conditions," DNR said, and may modify Nabors Rig 16E or contract for another suitable rig.*

DNR said in a decision dated March 30 that the unit is operating under its third plan of development. BRPC said in its March amended request that it would like the POD, which was set to expire March 31 of this year, to expire at the end of 2017, matching the unit extension. In its decision, how-

see **UNIT EXTENSION** *page 19*

NATURAL GAS

Down to the short list

Gas trade publication rates Woodfibre as player with best chance of forging ahead

By GARY PARK
For Petroleum News

Amid the seemingly endless shuffling of Canada's LNG deck to reach the launch point for even a single project, the best bet for a corporate sanctioning decision has narrowed down to Woodfibre LNG, a small-scale producer on the coast north of Vancouver.

Despite all of the community, First Nations and environmental opposition encountered by the privately owned venture it has emerged from a short list of proposals as the best bet to proceed.

World Gas Intelligence, a trade publication, said only four from the field of 20 proposals for the British Columbia coast now look feasible as the industry reels from a global supply glut and nose-

> *The other three in the "most-likely-to-succeed-club" are Pacific NorthWest led by Petronas; LNG Canada operated by Royal Dutch Shell; and WCC LNG, co-owned by ExxonMobil and Imperial Oil.*

diving prices for the commodity.

The analysis said that not even the "final four" may go ahead "until prices and demand pick up."

The other three in the "most-likely-to-succeed-club" are Pacific NorthWest led by Petronas; LNG Canada operated by Royal Dutch Shell; and WCC LNG, co-owned by ExxonMobil and Imperial Oil.

The publication said the odds on Canada's East

see **LNG SHORT LIST** *page 18*

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● GOVERNMENT

Drilling down on oil tax credits bill

Senate Resources Chair Cathy Giessel says Legislature must reconcile value of credits with costs to state in low price environment

By STEVE QUINN
For Petroleum News

Senate Resources Committee Chairman Cathy Giessel spent most of the interim examining the state's oil tax credit system with a working group made up of members of the Senate and industry personnel. With less than two weeks remaining in the session, she's begun working on SB 130, Gov. Bill Walker's oil tax bill designed to scale back tax credits and harden the gross floor at 4 percent.

This comes as House Finance is still working on the rewrite of HB 247 offered by the House Resources Committee.

Giessel, an Anchorage Republican closing out her fourth years as committee chair, spoke to Petroleum News about SB 130, as well as the progress on the AKLNG natural gas pipeline project and other resources bills that have passed through her committee this session.

Petroleum News: Let's start with the oil tax credit bill discussion in the context of your working group's findings during the interim. One of those findings said the state needs to look prospectively before making any changes, saying these moves should be graduated rather than have a firm date. Talk about that, please.

Giessel: So what the working group recommendation meant was we would not be favorable to retroactive changes to tax policy. You may recall that there was discussion by the working group that the tax rebate program is part of our oil tax policy. So by prospective, we mean any changes would happen in the next year, two years, three years. This would allow the companies an opportunity to adjust.

Now, allowing the companies time to adjust was a key point, but also the stability question. All of the investors in the oil and gas industry in our state are seeking stable, predictable fiscal terms. So the more deliberative those changes are, the more that stability and predictability element comes in. I'm always thinking about AKLNG and that gas pipeline because if we lose those producers, those small and big producers on the North Slope, the chances of a gas pipeline diminish significantly.

Petroleum News: The next observation was how the state needs to consider the project timelines and this will encourage that North Slope production and be critical for the state's fiscal health. It sounds like the timelines and prospective approach go hand-in-hand in your eyes.

Giessel: Absolutely. Timelines and prospectivity go together.

Petroleum News: The working group also found the state needs to maintain its appeal as a place for capital investment, citing the state's credit ratings being under heavy watch by the credit rating agencies. How much does policy affect this scenario even in low price environment?

Giessel: Well the state policy of being true to our word creates that magnate for investment. On the one hand we have the capital investors ING and BOA (Bank of America) who have said these tax credits looked durable and looked reliable so we decided to go forward with companies that would use those as collateral. So we started financing these smaller projects. They looked to them even more, financing these opportunities when the governor vetoed the $200 million. So that is the magnet for investment that the tax credits have been.


SEN. CATHY GIESSEL

With the price of oil being what it is now, we get it — I get it — that we can't afford those anymore. So how do we make those changes without appearing erratic and not having any long-term vision? That's again where the prospective changes come in.

Petroleum News: One of the last items addresses what's become probably one of the more hotly debated provisions — the production tax floor. The working group recommended against raising the floor, something the bill does, but also says the floor should be hardened. Talk about that, too, please.

Giessel: when it became evident to us through the working group hearings that the 4 percent tax floor could in fact be penetrated, we were concerned. Certainly on the Senate side, we believed that it was a firm floor but at the same time we deliberated and passed that in SB 21, there was no thought that oil could fall down into the $30 barrel price range, and so it was never really considered. Even when the working group was going on, we didn't spend a lot of time asking the companies or the consultants, model for us what would it look like with a 4 percent hard floor at $29 barrel oil? Having been to that location now, and even this location, we see that this in fact is adding a tax to companies who are already losing money on each barrel. So I'm actually personally re thinking even the idea of a hard 4 percent floor at this price range. Certainly at $80 a barrel, a 4 percent floor is not unreasonable, but $20 or $30 a barrel oil, even $40 a barrel oil, we are seeing this is significantly detrimental. Raising the floor in my view is out of the question, and that was my view, even during the working group when it was suggested outside of that working group meeting one day that someone might propose raising the floor. I immediately said I would not support that.

Q AND A

Petroleum News: With all of this in mind, what do you need to hear from the administration on this because it's the administration that needs to make its case?

Giessel: You know I've been listening to the administration. I certainly understand where they are coming from. They are in charge of our bank account and the amount of money that we have. Right now we are short about $4 billion, so they are looking for the quickest way to fill that hole. So I understand the side of the elephant they are examining. I'm looking at the other side of the elephant. The side that says how is this going to affect Alaska families, Alaska businesses, Alaska jobs? How is this a long-term view? What are the ramifications of what we are doing? I don't think it can be refuted that what the governor has proposed in SB 130/HB 247 will not negatively affect Alaska jobs, which in turn, causes significant loss to Alaska businesses and even more to Alaska families.

I have a constituent in my district who is a registrar to one of the schools in my district and in one month, she had five families withdraw. Four of them because of oil industry jobs that have been lost so those families were leaving the state. She said in the numbers of years — and there have been a number of them — that she has been a registrar, she has never had that many families withdraw in one month. The loss of three rigs on the North Slope, 100 jobs on each rig — that is rippling out right now in the state's economy. Not the state of Alaska government's fiscal, well it's rippling there too, but I'm worried about the citizens' economy.

Petroleum News: What would you like to hear from the industry?

Giessel: The industry has been speaking with great clarity. I cite BlueCrest for example. Their testimony in House Finance on HB 247 that they in fact do return to the state all the credits they receive plus a whole lot more. They are bringing not just jobs and work to businesses and are bringing significant royalties to the state, certainly energy security for Cook Inlet, and Cook Inlet being the main focus is the energy security element. For the North Slope, again jobs and throughput for TAPS, as I like to call it our aorta from our medical background, coming from the heart of our state government revenue source. So the

see GIESSEL Q&A page 17

● EXPLORATION & PRODUCTION

ANS production holds steady for March

AOGA says state data shows year-to-year production up 0.87 percent, April to March 2015-16 compared to same period for 2014-15

By KRISTEN NELSON
Petroleum News

Alaska North Slope crude oil production averaged 543,735 barrels per day in March, up 0.4 percent from a February average of 541,450 bpd. Cook Inlet crude oil production for February averaged 16,049 bpd, down 0.8 percent from a January average of 16,180 bpd.

The Alaska Oil and Gas Association, comparing average volumes for Alaska production from April through March for the past two years, found a 0.87 percent increase in daily production, from an average of 508,047 bpd in the earlier period to an average of 512,456 bpd in the most recent 12 months.

This is the first year-over-year production increase in almost 15 years, the organization said.

"This is a powerful testament to what a competitive tax policy can do for oil production," Kara Moriarty, AOGA president and CEO, said in a statement, noting that the production increase "happened during a period of low oil prices. Despite that challenge, Alaska saw enough investment to realize the first production increase in almost 15 years," she said, arguing that the production growth is proof that even sustained decline can be reversed with "the right investment climate."

Comparisons of production in January 2016 with January 2015 by the U.S. Energy Information Administration put Alaska production at an average of 516,000 bpd this January, up 3.1 percent from a January 2015 average of 500,000 bpd.

New production has come online recently from CD5 at the Colville River unit and from a new drill site at the Shark's Tooth development in the Kuparuk River unit.

Additional new crude oil production is expected in April and May from Cook Inlet's Cosmopolitan field and from Point Thomson on the North Slope.

Largest increase at Alpine

The largest month-over-month North Slope production increase was at the ConocoPhillips Alaska operated Alpine field, the Colville River unit, which averaged 61,247 bpd in March, up 13.4 percent from a February average of 54,020 bpd. Alpine includes satellite production at Fiord, Nanuq and Qannik. CD5, which came online in October, is included in Alpine volumes.

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

The ConocoPhillips-operated Kuparuk River unit also had a month-over-month production increase, averaging 141,397 bpd in March, up 2.7 percent from a February average of 137,714 bpd. Kuparuk volumes as reported by the Tax Division include satellite production from Meltwater, Tabasco, Tarn and West Sak, as well as production from the Eni-operated Nikaitchuq field and the Caelus Alaska-operated Oooguruk field.

AOGCC data for February show Nikaitchuq averaged 25,442 bpd, down 0.6 percent from a January average of 25,591 bpd, while Oooguruk averaged 9,596 bpd, down 13.5 percent from a January average of 11,062 bpd.

Other Slope production down

Other North Slope production as reported by the Tax Division was down month-over-month.

The BP Exploration Alaska-operated Prudhoe Bay field, the North Slope's largest, averaged 307,975 bpd in March, down 2.2 percent from a February average of 314,912 bpd.

Prudhoe Bay volumes reported by the Tax Division include satellite production from Aurora, Borealis, Midnight Sun, Orion, Polaris, Sag River and Ugnu, as well as from the Hilcorp Alaska-operated Milne Point and Northstar fields.

AOGCC data show the Milne Point field averaged 19,518 bpd in February, up 4.3 percent from a January average of 18,707 bpd, while Northstar averaged 5,510 bpd in February, down 1.2 percent from a January average of 5,574 bpd.

The BP-operated Lisburne field averaged 24,758 bpd in March, down 2.8 percent from a February average of 25,475 bpd. Lisburne includes volumes from Niakuk, Point McIntyre and Raven, which, along with Lisburne, are part of Greater Prudhoe Bay.

Hilcorp-operated Endicott averaged 8,358 bpd in March, down 10.4 percent from a February average of 9,329 bpd. Endicott volumes as reported by the Tax Division include satellite production from Eider, Minke and Sag Delta, as well as production from the Savant Alaska-operated Badami field. AOGCC data show Badami averaged 1,044 bpd in February, down 13.5 percent from a January average of 1,206 bpd.

Cook Inlet down month-over-month

AOGCC data show crude oil production from Cook Inlet averaged 16,049 bpd in February, down 0.8 percent from a January average of 16,180 bpd.

Two Cook Inlet fields had month-over-month production increases.

The Hilcorp-operated Swanson River field averaged 2,042 bpd in February, up 5.9 percent from a January average of 1,928 bpd.

The Cook Inlet Energy-operated West McArthur River field averaged 1,121 bpd in February, up 0.6 percent from a January average of 1,114 bpd.

The Hilcorp-operated Beaver Creek field averaged 125 bpd in February, the same as January.

Hilcorp's Granite Point field averaged 2,565 bpd in February, down 0.2 percent from a January average of 2,569 bpd, while McArthur River field, Cook Inlet's largest, also operated by Hilcorp, averaged 5,190 bpd in February, down 0.8 percent from a January average of 5,229 bpd.

Hilcorp's Middle Ground Shoal field averaged 1,841 bpd in February, down 3.8 percent from a January average of 1,915 bpd.

The Cook Inlet Energy-operated Redoubt Shoal field averaged 619 bpd in February, down 9.1 percent from a January average of 681 bpd.

Hilcorp's Trading Bay field averaged 2,545 bpd in February, down 2.8 percent from a January average of 2,618 bpd.

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

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● FINANCE & ECONOMY

ISER reports on state's fiscal options

Economists from UAA assess the impacts of various revenue raising and cost reduction choices on jobs and income in Alaska

By ALAN BAILEY
Petroleum News

With the price of oil remaining stuck in a deep hole and the state's oil production continuing to decline, the problem of how to deal with Alaska's massive government deficit defies any solution that avoids pain or difficulty. But, in the interests of shedding some light on the possible outcome of various fiscal choices, a group of economists from the University of Alaska's Institute of Social and Economic Research has published the results of the economic modeling of the likely impacts of various government policy options.

The ISER report comments that its authors do not advocate any particular state option but merely wish to compare the relative impacts of different ways of addressing the state's budget deficit. However, because the deficit is very large, the economic impact of successfully closing the funding gap will also be very significant, the report says.

Impacts inevitable

In general, the economists found that there is no means of reducing the deficit without impacting jobs and the amount of money flowing through the state's economy. But the only way of avoiding short-term economic impacts would be to spend some of the earnings from the state's Permanent Fund, albeit at the cost of slower Permanent Fund growth and lower future earnings from the fund.

If the state tries to close the fiscal gap by instigating some new means of collecting money from Alaskans, different ways of collecting the money would have significantly different impacts on people with higher or lower incomes, the ISER report says.

For example, a redirection into state coffers of all or part of the Permanent Fund dividend that Alaskans receive each year would have a much more pronounced impact on the poorer sectors of Alaska society than on the better off. That is because, for poorer families, the dividend represents a more significant percentage of total income than for those at higher total income levels. And because high wage earners tend to pay federal income tax at relatively high marginal rates, the dollar impact of a dividend cut, net of federal tax, would be a bit lower for high earners than for low earners, the report comments.

Conversely, a state personal income tax, calculated as a percentage of federal income tax, would have more impact on high wage earners, who pay correspondingly high taxes, than on the poor. The dollar impact on high earners would be particularly dramatic, although, expressed as percentage of income, the resulting income loss would appear more modest. Essentially, federal income tax, and with it any directly linked state tax, is a progressive tax, having a tax rate that increases with income level.

The ISER economists expressed particular concern about the potential impact of continuing large state deficits on general confidence in Alaska's fiscal and economic future.

Sales or property taxes

The ISER economists also investigated the possibilities of raising revenues from sales or property taxes levied on people in Alaska. These taxes would result in higher absolute costs for wealthier Alaskans but would represent a higher percentage of the income of poorer people in the state. However, the differences in impacts between the rich and the poor would not be as dramatic as those of reducing Permanent Fund dividends or introducing a state income tax.

The ISER economists also point out that, because some people would use in-state taxes as itemized deductions against federal income taxes, the state taxes would be partially offset by some reduction in federal tax liabilities. And new state taxes, unlike Permanent Fund dividend changes, would be collected both from Alaska residents and from non-residents.

Closing the budget shortfall through cuts in state expenditure, on the other hand, would reduce the incomes of state employees or result in state government job losses.

Loss of income and jobs

Any attack on the state funding shortfall, either through taxation, reductions in Permanent Fund dividends or state cost cutting would ultimately translate to a loss of income and jobs for Alaskans. Because, then, the people and businesses impacted by the cuts would spend less on goods and services, a "multiplier effect" would dampen the broader Alaska economy, the report says.

Having run the numbers through a standard economic model for assessing the multiplier effect, the ISER economists were able to estimate the total impact of the state's various options on jobs and incomes.

It turned out that cutting the state deficit by just cutting state jobs would have the biggest impact on overall job losses, with 1,677 jobs lost for a $100 million reduction in the deficit. The job losses would impact both direct state jobs and, through the multiplier effect, other forms of employment.

Cutting state expenditure by reducing workers' pay would have the same general impact on people's overall incomes as cutting state jobs but, overall, only about one-third to one-half as many jobs would drop from the economy. Cutting the Permanent Fund dividend, on the other hand, would have the biggest short-term impact on Alaskans' incomes, with a total income drop of $130 million to $150 million for every $100 million cut in the state deficit, the report says.

New state taxes would have a lower impact on the incomes of Alaska residents, perhaps with a total income fall of $115 million to $135 million, primarily because non-residents would pay some of the taxes.

Combinations of options

The report also says that, assuming that state government would in reality adopt some combination of fiscal options, the economic impact of each option in the combination would reflect that option's percentage of the total number of options implemented. Thus, for example, in the event of four options being implemented, each option would trigger 25 percent of the total economic impact of all options used. On this basis, the use of any option with a relatively low economic impact would tend to dilute the impacts of other options with higher impacts, the report says.

However, the report cautions that, given the assumptions and simplifications involved in the economic modeling, people should view the modeling results as approximations rather than precise numbers.

Nevertheless, whatever options are used, the economic impacts would vary significantly from one part of the state to another, depending on income levels and the number of state jobs in different regions. Higher income regions, for example, would be more impacted by a state income tax, while lower income regions would be particularly affected by a reduction in the Permanent Fund dividend, the report says.

The urgency of a solution

The report also comments on the thorny issue of how quickly the state's deficit should be addressed. While fully closing the deficit in one year would have a major impact on an economy already weakened by oil industry cutbacks and cuts in the state's capital budget, delaying a solution to the deficit would merely defer some of the economic pain while forcing a continuing drawdown of the state's savings.

Assuming a conservative 5 percent return on investment, each billion dollars drawn from the state's savings would reduce the state's future ability to generate income by $50 million annually, the report says. And a drawdown of the savings would trigger a further downgrading of Alaska's credit rating, thus increasing the state's borrowing costs. Moreover, a drawdown of the Permanent Fund earnings reserve to cover a state deficit would compromise continuing payouts from the fund for Permanent Fund dividends and sustainable state government funding, the report says.

The ISER economists expressed particular concern about the potential impact of continuing large state deficits on general confidence in Alaska's fiscal and economic future. The ensuing uncertainty would raise questions over whether Alaska remains a good place for businesses to invest and whether the state remains an attractive place for people to live, the report says. ●

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● FINANCE & ECONOMY

Striving to stay afloat

Canada's service sector turns to innovation to cut costs, ride out current storm; Beaver Drilling creates rig to optimize drilling

By GARY PARK
For Petroleum News

Total revenue generated by Canada's petroleum industry is forecast at C$74 billion this year, compared with C$149 billion in 2014, according to ARC Financial Corp.

And that's about all anyone needs to know as they watch the tidal wave from thousands of layoffs and billions of dollars in spending cutbacks spill from explorers and producers to service companies and now countless other associated businesses such as hotels, restaurants and vehicle dealers.

Drilling operators in Western Canada saw active rig counts plunge from the peak winter season, which has averaged 500 to 600 over the past five years to below 200, approaching the year's traditional low point in the April-June period and is reportedly now sliding to a historic low of about 50.

In Saskatchewan, a drilling pacesetter in recent years, not a single rig was drilling new oil or natural gas wells entering April.

That presents a race against time for contractors as Canada's largest banks brace themselves to cover potential energy-related losses.

Credit losses seen

The Royal Bank of Canada has raised its provision for credit losses to C$410 million in its first fiscal quarter, up 50 percent from a year ago, largely the result of four unnamed energy companies and one utility.

"There's no question that the persistently low oil prices are tough for clients in the affected regions and are driving an increase in credit provisions in our portfolio," RBC Chief Executive Officer Dave McKay told analysts.

He said the RBC still believes the pressure from oil prices "will be largely contained to oil-exposed regions and that the strength in other regions will support modest GDP growth this year. In fact, we have started to see the economic benefits of low oil prices and a weaker Canadian dollar on manufacturing and export activity."

The RBC estimates that if oil averaged US$30 in 2016 its provision for credit losses would be 0.3 percent to 0.35 percent, while oil prices of US$25, which would drag Canada into a recession, would see the money set aside for losses rise as high as 0.5 percent.

Rigs decommissioned

Precision Drilling and Ensign Energy Services, two of the largest drilling contractors, have decommissioned dozens of older, less-efficient rigs; some of their peer companies are staring into a chasm, although few have sought outright bankruptcy protection.

There are plenty of examples of lenders cutting some slack to companies that are making every effort to sell oilfield equipment, while embarking on a drastic overhaul of their cost structures.

Beaver Drilling's response

Rather than bemoaning its fate, one privately owned drilling contractor is eagerly taking up the challenge by embracing innovation.

Beaver Drilling is combining cost-cutting with new-generation technology as it concentrates on natural gas plays in northwestern Alberta and northeastern British Columbia, where prolific resources and upgraded technology can keep drilling operators within a break-even range.

Not that Beaver and its peers are able to avoid taking a dose of unpleasant medicine.

The company has reduced its rig fleet to five from nine, in response to Saudi Arabia's refusal to cut production and reduce the global crude supply glut, and sees little hope of re-commissioning those units.

Beaver President Kevin Krausert, who paid Christmas bonuses last year to keep his crews intact, said the company's earnings slumped 50 percent in 2015 and are expected to slide another 25 percent this year.

But Beaver's longstanding strategy of planning around market upheavals has kept the company's head above water.

New rig 'optimizes' variables

Krausert has also become a trailblazer by working with his staff to create a new rig that "optimizes" drilling variables, while increasing output.

The rig also uses hydraulic power to move from well site to well site, instead of being dismantled, moved by truck and reassembled. In addition its greenhouse gas emissions are much lower than many rigs.

Krausert is full of hope that gains in innovation are preferable to simply waiting for a turnaround in commodity prices.

The story of his company's efforts to get ahead of what he calls the industry "pity party" underpins a new "Oil Respect" campaign by the Canadian Association of Oilwell Drilling Contractors, which has decided to spread the message of successes achieved by small oilfield service companies and unemployed workers.

The association's objective is to retaliate against critics by demonstrating how drilling firms are competing "on a level playing field against foreign oil" and to wage a fight against "misinformation spread by foreign celebrities, radical environmentalists and grandstanding politicians."

Krausert concedes it is not easy to raise the capital to build new-age rigs that can cost about C$25 million, even though his so-called programmable unit can be contracted for C$18,000 a day.

However, there is a race against time for contractors as Canada's largest banks brace themselves to cover potential energy-related losses. ●

Contact Gary Park through publisher@petroleumnews.com

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NATURAL GAS

Interior Energy Project preparing plan

Tells AIDEA board that some work remains in completing the details of a proposal for a Cook Inlet LNG plant built by Salix Inc.

By ALAN BAILEY
Petroleum News

The Interior Energy Project, a project designed to bring affordable energy to Fairbanks and the surrounding Interior, is still finishing up the various components of a proposal to put to the Alaska Industrial Development and Export Authority board, members of the team told the AIDEA board during its March 31 meeting.

The proposal under consideration involves the construction by Salix Inc. of a liquefied natural gas plant in the Cook Inlet region. The team had hoped to complete the proposal in time for the end-of-March meeting but now anticipates having a complete plan package ready in time for the next board meeting on April 28, Gene Therriault, Interior Energy Project team leader, told the board.

During the March 3 board meeting the team had told the board that it had chosen the Salix proposal as the preferred option for an LNG plant, but that further work was needed on the plan before putting it to the board for a decision. The idea is that the board will review the plan and decide whether to approve moving forward to the front end engineering and design, or FEED, phase of the project.

Therriault said that for a board decision to be made the plan must identify the source of natural gas for the LNG plant; it must provide an estimated cost for the project; and it must provide an estimated price for natural gas supplied to consumers in Fairbanks. Although there has been progress on all three of these fronts, the three components have not yet come together, team member Robert Shefchik told the board.

Discussions with producers

Nick Szymoniak, AIDEA's energy infrastructure development officer, said that the team is "in discussions with multiple Cook Inlet producers about securing a gas supply for the project." The project will have a term sheet for the gas supplies firmed up prior to a proposal to move into FEED for the LNG plant. The gas supply will be in addition to the supply to the existing Titan LNG plant near Point MacKenzie, and will supplant that supply when the existing Titan gas supply agreement expires in early 2018, Szymoniak said.

The Titan plant currently produces LNG for Fairbanks Natural Gas, which provides a gas supply service in central Fairbanks. The idea behind the Interior Energy Project is to greatly expand that supply. Both Fairbanks Natural Gas and the Interior Gas Utility, the other Fairbanks gas utility, have started building out the Fairbanks natural gas distribution infrastructure in anticipation of the increased LNG supply becoming available.

As part of the Interior Energy Project, AIDEA has purchased Pentex Natural Gas Co., the owner of both the Titan LNG plant and Fairbanks Natural Gas. AIDEA's eventual objective is to achieve operational efficiencies and economies of scale through the consolidation of the two Fairbanks gas utilities, with AIDEA then spinning off the combined utility to some third party business.

Utilities involved

Shefchik said that the two utilities have been involved in the negotiations over new gas supplies and the new LNG plant proposal. He also commented that one consideration is possibly increasing the capacity of the Titan plant, and integrating the Titan plant into the new LNG supply arrangements. Work on expanding the Titan plant would likely cost $8 million to $10 million, with increased LNG storage capacity also being needed in Fairbanks, Shefchik said. Dan Britton, president and CEO of Fairbanks Natural Gas, said that the expansion would probably raise the plant's capacity from about 50,000 barrels per day to 75,000 barrels per day. However, it would be necessary to run a computer model of the plant to confirm the assumptions made in the capacity estimates, he said.

Shefchik commented that there have been meetings to pin down the scope of early work associated with the Salix LNG plant and that it is important to have an understanding of what the project will look like, as well as the project's commercial terms, before finalizing an agreement with Salix.

Gas demand

Therriault also commented on work in progress in trying to boost demand in Fairbanks for converting homes to natural gas — having an adequate rate of gas conversions forms a key component of project economics. Therriault said the project team is working with the local government and the Alaska Department of Environmental Conservation to find the best way of accessing an Environmental Protection Agency air quality fund, under a deal secured by U.S. Sen. Lisa Murkowski. One of the objectives of the Interior Energy Project is to reduce air pollution in Fairbanks that results from the use of wood burning stoves to heat houses. ●

One of the objectives of the Interior Energy Project is to reduce air pollution in Fairbanks that results from the use of wood burning stoves to heat houses.

Contact Alan Bailey at abailey@petroleumnews.com

Discussions continue over FNG purchase

Discussions are continuing over the Interior Gas Utility's potential purchase of Fairbanks Natural Gas, according to the latest quarterly report to the Alaska Legislature from the Interior Energy Project. The report, published on April 5, says that that the purchase could include Pentex Natural Gas's liquefied natural gas plant near Point MacKenzie on the Cook Inlet, and a trucking operation for shipping LNG from the plant to Fairbanks. The target date for closing the transactions is June 30, the report says.

As part of the Interior Energy Project, a project to bring affordable energy to Fairbanks and the surrounding Interior, in 2015 the Alaska Industrial Development and Export Authority purchased Pentex, thus obtaining ownership of Fairbanks Natural Gas and the Port MacKenzie LNG plant. AIDEA has made it clear that its eventual objective is to consolidate the two existing Fairbanks gas utilities, Fairbanks Natural Gas and the Interior Gas Utility, and then to spin off the combined utility to a local control entity. The IGU takeover of FNG is presumably a means of achieving this objective.

Both gas utilities have already embarked on a program of expanding the existing natural gas distribution infrastructure in Fairbanks, in anticipation of an increased gas supply becoming available for the city. However, a key variable in the economics of the program is the rate at which Fairbanks homeowners convert their properties to the use of natural gas for heating. The April 5 report comments that, while a couple of years ago many Fairbanks homeowners had indicated a willingness to convert at the gas price of $15 per thousand cubic feet that the AIDEA project has been targeting, the subsequent fall in heating fuel oil prices has been leading to an increased interest in finding ways to help homeowners with a switch to gas.

In addition to the potential use of flexible conversion financing through utility bills, there are several possible sources of government funding assistance. The Alaska Legislature is currently considering legislation for the Property Assessed Clean Energy program, a national program that could allow the local government to issue loan financing with attractive terms. The closure in March of Alaska's Home Energy Rebate Program means that that program is no longer available for funding help.

—ALAN BAILEY

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● ENVIRONMENT & SAFETY

EPA launches voluntary methane program

Oil and gas companies can set targets for emissions reductions from natural gas operations as part of greenhouse gas program

By ALAN BAILEY
Petroleum News

The Environmental Protection Agency has announced that it is putting into operation a new voluntary program for reducing methane emissions from the oil and gas industry. EPA had proposed the program, known as the Natural Gas STAR Methane Challenge, in July 2015, and subsequently made adjustments to the program, based on comments received. The idea is that companies will make commitments for methane emission reductions, with accountability and transparency in progress in achieving those commitments, and with the potential for public recognition for leadership in reducing U.S. emissions.

EPA says that so far 41 companies have signed up to participate in the program. Based on information on the EPA website, these companies appear to operate in the natural gas and power industries in the Lower 48.

Methane, the primary component of natural gas, is a potent greenhouse gas with a global warming impact 25 times that of carbon dioxide.

EPA has for 20 years been operating a voluntary Natural Gas STAR Program, in which companies have evaluated their operations and implemented ways of reducing their methane emissions. A commitment to participate in this existing program involves a requirement to report on actions taken but not on the results of those actions. The new program builds on this arrangement by having companies commit to specific emission reduction initiatives and then publicly report on progress in achieving their commitments.

"To protect public health and combat climate change, today, we are expanding our voluntary partnerships to reduce methane emissions from the oil and gas sector through our new Methane Challenge program, which is a platform for companies to transparently report actions to reduce methane emissions and to be publicly recognized as leaders in reducing methane emissions in the United States," said EPA Administrator Gina McCarthy on March 30 when announcing the launch of the new program. "The voluntary Methane Challenge program is one important part of our overarching strategy to reduce methane emissions, and complements regulatory efforts that will help the United States meet the Obama administration's goal of reducing methane emissions by 40 to 45 percent by 2025."

The Methane Challenge, as initially implemented, focuses on companies making commitments for best management practices for emission reductions, with EPA specifying one or more potential management practices for various emission sources and industry segments. Within six months of a company joining the program, the company will designate a commitment start date, with a target of achieving the commitment within five years of that date. EPA says that companies that have joined the program so far have made commitments such as the replacement or rehabilitation of cast iron and unprotected steel distribution gas mains, and the reduction of methane emissions from pipeline blowdowns.

Program participants will report annually to the EPA on progress in reaching their targets. EPA is developing a data system for the reporting.

EPA is still working on finalizing the mechanism for another commitment option that the agency had proposed in 2015 as part of the Methane Challenge program. This option, called the One Future option, will involve a company making a commitment to reducing its methane emissions intensity, a measure of the amount of methane emitted relative to the amount of methane processed. EPA said that it anticipates launching the One Future option soon.

EPA said that it announced the launch of its Methane Challenge program during the Global Methane Forum, an international event hosted by the Global Methane Initiative and the Climate and Clean Air Coalition. The Global Methane Initiative consists of a partnership of 43 countries, including the United States, with an objective of cost-effective methane emissions reductions from municipal solid waste, wastewater, agriculture, coal and the oil and gas sector, EPA said. The Climate and Clean Air Coalition is an international organization targeting what it characterizes as climate impacting air pollutants. ●

Contact Alan Bailey at abailey@petroleumnews.com

LAND & LEASING

Call for new info on ANS sales

The Alaska Department of Natural Resources, Division of Oil and Gas, has issued a call for "substantial new information" which has become available over the past year for state acreage in the Beaufort Sea, North Slope and North Slope Foothills areawide oil and gas lease sales. The sales are tentatively scheduled for the fall, and have in recent years been held on the same day as the federal lease sale in the National Petroleum Reserve-Alaska.

Best interest findings are issued each 10 years, with the most recent for the Beaufort Sea in 2009, the North Slope in 2008 and the North Slope Foothills in 2011.

The Beaufort Sea best interest finding was supplemented in 2011; supplements have not been issued for the other areawide findings.

The division said it "generally considers 'substantial new' information to be published research, studies, or data directly relevant to matters" in state statute and which have become available over the last year.

The complete call notice is available on the division's website at http://dog.dnr.alaska.gov. Information is due by May 13.

—PETROLEUM NEWS

NORTH OF 60 MINING news

page 10 Infill drilling finds more bonanza gold grades in Valley of the Kings

www.MiningNewsNorth.com
The weekly mining newspaper for Alaska and Canada's North
Week of April 10, 2016

NEWS NUGGETS

Compiled by Shane Lasley

UCORE RARE METALS INC.

The highly automated SuperLig®-One rare earth elements separation pilot plant can be operated and monitored from customized control interfaces.

SuperLig®-One pilot plant ready to separate Alaska rare earths

Ucore Rare Metals Inc. April 5 reported that pre-commissioning of the SuperLig®-One rare earth elements separation pilot plant is nearly complete, and the commissioning phase was scheduled to begin later in the week. The pre-commissioning included the testing of automation and fluid circuits; quality assurance certification of the SuperLig® resins to be used in the plant; analysis of the pregnant leach solution to be used during the commissioning phase of the plant; and testing of the process flow sheet. The pregnant leach solution to be used during the commissioning phase was produced from the Ucore's Bokan-Dotson Ridge project in Southeast Alaska. The rare earth separation process includes four stages of separation. During the first stage, the tightly interlocked rare earths are separated as a group from the waste materials suspended in the leachate solution. Second, scandium, a valuable REE used in aluminum alloys for the aerospace sector, is separated from the other rare earths. Third, the light and heavy rare earths are separated. Finally, the most critical and valuable rare earths – terbium, europium and dysprosium – are separated into individual salts exceeding 99 percent purity. The remaining heavy REE solution, as well as the light REE solution will be retained for future work. Once each of these stages is tested sequentially, the pilot plant will undergo a continuous run of solution. "The successful completion of initial stress testing and pre-PLS certifications for SuperLig®-One is exciting to say the least," said Jim McKenzie, president and CEO of Ucore. "Our objective now is the processing of the PLS at pilot scale, to be followed by early- stage blueprinting of our progress from pilot to production scale without delay."

JIM MCKENZIE

Ucore nabs Lifton's REE expertise

Ucore Rare Metals Inc. April 4 said it appointed Jack Lifton to its advisory board. In this role, Lifton will be consulting exclusively to Ucore in matters related to rare earths, including resource securement, production, and offtake agreements. Educated as a physical chemist specializing in high-temperature metallurgy, Lifton is a consultant, author and lecturer on the market fundamentals of technology metals, including rare earth elements, lithium, platinum group metals, and other core technology metals. He has more than

see **NEWS NUGGETS** *page 10*

NOVAGOLD RESOURCES INC.

Mining leaders say one new metal mine in Alaska, such as one planned at the nearly 40-million-ounce Donlin Gold project currently in permitting, would increase state tax revenues more than collections from a rate hike currently proposed in House Bill 253.

MINING POLICY

Splitting the difference

Resource committee proposes small mining tax hike; sends bill on its way

By SHANE LASLEY

Mining News

Alaska's mining sector is the target of a potential tax hike as lawmakers look for new revenues to help close the state's nearly US$4 billion budget deficit. For perspective, this fiscal gap is roughly 35 percent larger than the worth of all the zinc, gold, silver and lead mined in Alaska during 2015.

The proposed mining tax increase is part of Gov. Bill Walker's larger budget balancing plan that includes cutting state spending, restructuring the Alaska Permanent Fund, and implementing a broad-based tax, along with targeted industry and sin tax increases.

DEANTHA CROCKETT

For the mining sector, Walker proposed raising the tax rate on mines netting more than US$100,000 from 7 to 9 percent. This roughly 29 percent tax hike, along with other proposed changes to Alaska's mining tax law are outlined in House Bill 253.

KAREN MATHIAS

Mining leaders say this added load could not come at a worse time for an industry that is already being taxed by falling metals prices and dismal equity markets.

"The global mining industry is in a prolonged downturn, as are the vendor and contracting sectors that depend on its activity," Alaska Miners Association Executive Director Deantha Crockett testified before the House Resources Committee, the first stop for HB 253.

Together, Alaska's mines produced roughly US$2.76 billion of precious and base metals during 2015, down 12.3 percent from 2014, according to early estimations by the Alaska Division of Geological & Geophysical Surveys.

Crockett told the lawmakers that Alaska's miners are not against paying taxes and contributing to the state's fiscal solution but questions whether increasing taxes or encouraging sector growth is the best approach to increasing the flow of cash from mines to state coffers.

"Alaska is home to over a dozen advanced exploration mining projects, and just a single one of them going into production will bring the state of Alaska substantially more revenue than what is being proposed by this legislation," Crockett testified.

Splitting the difference

Members of the House Resource Committee took the helm of weighing the potential benefits and liabilities of boosting the Alaska mining tax in February.

According to the Alaska Department of Revenue, the 2 percent mining tax rate hike would net the state roughly an extra US$6 million next year. For lawmakers trying to close a multibillion-dollar gap, this is a drop in the proverbial bucket.

Council of Alaska Producers – a trade organization that represents five mines that would be immediately affected by a tax increase and another five projects hoping to be taxable mines in the near future – agrees with many of the governor's proposals to balance Alaska's budget but worries that this increase to Alaska's mining tax rate could do more harm than good.

"To achieve fiscal sustainability and a stable investment climate, we support strategic reductions in the cost of government, use of the Permanent Fund earnings and broad-based revenue measures

see **MINING TAX** *page 12*

NORTHERN NEIGHBORS

Compiled by Shane Lasley


PRETIUM RESOURCES INC.

The underground infill drill program at Pretium Resources' Brucejack project is delineating high-grade gold zones where mining will begin in the Valley of the Kings area.

Infill drilling cuts more bonanza gold at Brucejack

Pretium Resources Inc. April 5 reported the underground infill drill program at the Brucejack mine project in northwestern British Columbia continues to confirm the style and grade distribution of the gold mineralization in the area of the Valley of the Kings deposit currently being tested. This seventh batch of assay results includes six intersections grading greater than 1,000 grams of gold per metric ton. Hole VU-633 intersected 428.43 g/t gold uncut over 14 meters, including 11,650 g/t gold uncut over 0.50 meters; VU-592 intersected 37.87 g/t gold uncut over 28 meters, including 1,760 g/t gold uncut over 0.50 meters; VU-598 intersected 46.15 g/t gold uncut over 34 meters, including 1,660 g/t gold uncut over 0.50 meters; VU-622 intersected 77.3 g/t gold uncut over 9.54 meters, including 1,425 g/t gold uncut over 0.50 meters; VU-648 intersected 40.46 g/t gold uncut over 17.13 meters, including 1,245 g/t gold uncut over 0.50 meters; and VU-637 intersected 26.16 g/t gold uncut over 28.85 meters, including 1,410 g/t gold uncut over 0.50 meters. This infill drill program is designed to target stope areas in years one through three of the current mine plan for the Valley of the Kings. With the positive results to date, the program has been expanded to 64,000 meters of definition drilling. Drilling is in progress with five drills turning and is expected to be finished in the second-quarter of this year. Once completed, roughly 200 vertical meters over a strike length of 250 meters will have been drilled at 7.5- to 10-meter centers.

see **NORTHERN NEIGHBORS** *page 11*

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Petroleum news

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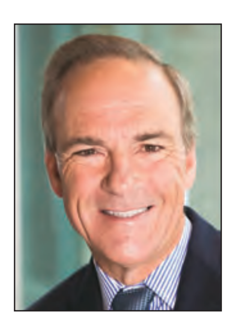
NEWS NUGGETS

50 years of experience in the global automotive and other high-tech industries. He subsequently became a metal trader specializing in the sourcing, manufacturing and sales of platinum group metals- and rare earth-based technologies, including rare earth permanent magnets, batteries, sensors, phosphors and ceramic specialties used to make catalytic converters. Lifton is a founding principal of Technology Metals Research, which informs individuals and corporations about rare earths, lithium, tellurium, gallium and other technology metals. He currently focuses his time conducting due diligence studies of business models and operations on behalf of institutional investors interested in metals-related opportunities. "Jack's depth of knowledge of the specialty metals sector is unparalleled, and we look forward to drawing on this knowledge as we continue to develop SuperLig® Technology as a separation tool for rare earths and other specialty metals," said Ucore CEO Jim McKenzie. "We expect that Jack's extensive network of contacts within the industry will serve us particularly well in sourcing rare earth feedstock and end user accounts as we transfer our focus to near term production." Ucore recently completed the SuperLig®-One rare earth separation pilot plant, which utilizes a highly-selective process known as molecular recognition technology to isolate the rare earth elements suspended in a solution.


JACK LIFTON

Novagold, Donlin remain on track

Novagold Resources Inc. April 4 released its first-quarter financial results and updates for its 50 percent-owned Donlin Gold project in Alaska and its 50 percent-owned Galore Creek copper-gold-silver project in British Columbia. At Donlin Gold, the U.S. Army Corps of Engineers continues to collect public comments on the draft environmental impact statement for the gold project. Meetings to collect comments on the draft EIS were held in Anchorage and in communities across the Yukon-Kuskokwim region where Donlin is located. The Corps will continue to accept written comments on the draft EIS until the close of the comment period, expected to be at the end of April, at which point the proposed document will be reviewed and responded to in a final EIS, expected in 2017. Donlin Gold LLC – equally owned by subsidiaries of Novagold and Barrick Gold Corp. – is also advancing other major permit applications and approvals. Public comment opportunities were provided for the project's Public Notice CWA Section 404 permit application, which will facilitate a Section 404 permit decision following the publication of the final EIS. BLM also provided opportunities for public comment on the proposed right of way for the proposed 300-mile natural gas pipeline. Donlin Gold responded to an initial State of Alaska review of the project's integrated waste management permit application and reclamation plan, as well as its major source air quality permit application. Donlin Gold also worked to finalize its water discharge permit application for state submittal. At Galore Creek, Novagold continued to work with project partner Teck Resources Ltd. on technical studies in project mine planning and design, as well as waste rock and water management. The initial phase of a generalized tunneling practice study is also well underway to evaluate access and material handling. "We anticipate that, when the copper markets turn, these efforts will further enhance the value and marketability of this major project. As we continue to assess the attractiveness of Galore Creek as a Tier 1 copper asset in a rare safe jurisdiction for the miners of the metal, we feel even more strongly that Galore Creek will realize material value for our shareholders," said Novagold President and CEO Greg Lang. At Feb. 29, Novagold had US$116.94 million in cash and term deposits, a decrease of US$9.8 million from the end of the prior quarter. The decrease was primarily related to US$7.7 million used in operating activities for administrative costs, withholding taxes on vested performance share units and working capital changes, US$1.9 million to fund Donlin Gold and US$200,000 to fund Galore Creek. In 2016, Novagold expects to spend roughly $25 million, including US$9 million to fund its share of expenditures at Donlin Gold; US$1 million at Galore Creek; US$1 million for its share of a joint Donlin Gold studies with Barrick; US$12 million for general and administrative costs; and US$2 million for working capital and other corporate purposes. "With $117 million in cash and term deposits at the end of the first quarter, we have more than sufficient capital to advance Donlin Gold through permitting to a construction decision and beyond," Lang said.


GREG LANG

Heatherdale CEO Smith steps down

Heatherdale Resources Ltd. April 1 reported that Patrick Smith has resigned as president and CEO and as a director of the company. Heatherdale Chairman Scott Cousens will serve as interim president and CEO of Heatherdale. Heatherdale is focused on Niblack, a volcanogenic massive sulfide project located on Prince of Wales Island in Southeast Alaska. "Pat's experience and understanding of Southeast Alaska was

see **NEWS NUGGETS** *page 12*

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NORTHERN NEIGHBORS

More gold, greater potential for Red Mountain project

IDM Mining Ltd. April 4 provided an updated resource estimate for its Red Mountain gold project located in northwestern British Columbia about 15 kilometers (nine miles) northeast of Stewart. Red Mountain now hosts 1.64 million metric tons of measured and indicated resource averaging 8.36 grams per metric ton (441,500 ounces) gold and 26 g/t (1.38 million oz.) silver. "With the release of today's updated resource estimate for the Red Mountain project, another milestone has been reached, and the potential value of the project continues to improve," said IDM President and CEO Rob McLeod. "The next step is to incorporate this estimate into an updated PEA which we expect to release shortly. These results suggest a meaningful increase in the potential mine life, higher average grades and total ounces potentially recoverable at Red Mountain." Discovered in 1989, Red Mountain was explored extensively until 1996 by Lac Minerals Ltd. and Royal Oak Mines Inc., with 466 diamond drill holes and over 2,000 meters of underground development completed, along with extensive engineering and environmental baseline work. Additional studies were completed over the past 12 years by Seabridge Gold Inc., North American Metals Corp. and Banks Island Gold Ltd. A 2014 preliminary economic assessment authored by JDS Energy and Mining Ltd. outlines plans for a 1,000-metric-ton-per-day mill producing 55,000 ounces of gold and 171,000 oz. of silver per year over a five-year mine life. The measured and indicated gold ounces have increased by 16 percent compared to the estimate used for the PEA. A two-year environmental baseline program in support of the environmental assessment process is expected to be completed in early summer, and the data will be incorporated into the provincial and federal environmental assessment applications. Engineering studies, including tailings and water management design, are progressing in conjunction with the EA process, with an aim to publish a feasibility study by the end of 2016.

Millrock expands holdings in B.C.'s Golden Triangle

Millrock Resources Inc. April 4 reported that has staked additional ground in the Golden Triangle of northwestern British Columbia that covers the favorable contact and structures that host mineralization on Millrock's Todd and Poly projects, and joins the two properties together. Todd is centered in the Todd Creek Valley, about 25 kilometers (16 miles) northeast of Stewart. Poly, bisected by Hwy 37A and the Stewart Power Line, is located about eight kilometers (five miles) southeast of Todd. The 5,391 hectares (13,321 acres) of new property blankets a number of BC Minfile occurrences – Surprise (molybdenum-copper) and Surprise Creek (silver-gold-copper-molybdenum). The new claims, which now link the Todd and Poly properties, allow assessment work credits to be spread over the entire land package. Millrock said the new claims are particularly important because they encompass the northern extension of the important geological target on its Poly property.

SHANE LASLEY

The Olive zone at Dublin Gulch lies just across the valley to the northeast of the 2.3-million-ounce Eagle Gold deposit. Olive and the adjacent Shamrock zone are expected to enrich Eagle project economics through the addition of higher-grade ore, increased flexibility in mine planning and lowering capital intensity from shared infrastructure.

New PFS shows promise for Prairie Creek zinc mine

Canadian Zinc Corp. March 31 provided summary results of its 2016 preliminary feasibility study on it Prairie Creek zinc-lead silver mine in Northwest Territories. This updated PFS is based on optimization work completed over the past three years, including a 2015 exploration program that increased total measured and indicated resource tonnages by 32 percent. The 2016 PFS outlines a mine that would produce an average of 60,000 metric tons of zinc concentrate and 55,000 metric tons of lead concentrate per year – containing roughly 86 million pounds of zinc, 82 million lb. of lead and 1.7 million ounces of silver. Using base case metal price forecasts of US$1/lb. for both zinc and lead and US$19/lb. for silver, this operation is anticipated to yield average annual earnings before interest, taxes, depreciation and amortization of C$90 million per year and cumulative EBITDA earnings of C$1.4 billion over an initial mine life of 17 years. This base case scenario is estimated to produce a pre-tax net present value (8 percent discount) of C$509 million and an internal rate of return of 32 percent; and a post-tax NPV (8 percent discount) of C$302 million and post-tax IRR of 26 percent. Pre-production capital costs, including a new all-season road and contingency, are estimated at C$244 million, with a payback of three years. "The base case economic model indicates a robust project at consensus forecasts for the long term prices of lead and zinc and we believe that there is very good potential for additional project optimization, enhanced economics and further extending the mine life," said Canadian Zinc Chairman and CEO John Kearney.

Drills turn on satellite targets at Yukon's Eagle Gold project

Victoria Gold Corp. March 31 reported that it has begun drilling the Olive-Shamrock target, a satellite zone to the Eagle Gold deposit at the Dublin Gold project in the Yukon Territory. Olive lies 2,000 meters from the proposed infrastructure at the fully permitted Eagle Gold project, where the company plans to develop an open-pit mine and valley heap leach operation that would produce 192,000 ounces of gold annually for roughly nine years, based on probable reserves of 92 million metric tons averaging 0.78 grams per metric ton (2.3 million ounces) gold. Previous drill and trench results at Olive-Shamrock demonstrate the existence of near-surface mineralization to potentially feed into Eagle operations and metallurgical testing has shown the mineralization is amenable to heap leaching. "Olive-Shamrock has the potential to further enhance Eagle Project economics by virtue of additional higher-grade ore, increased flexibility in mine planning and lowering capital intensity through shared infrastructure," explained Victoria Gold President and CEO John McConnell. A C$3.6 million exploration program is planned for Olive-Shamrock includes diamond drilling, surface trenching and geophysical surveys over the Olive-Shamrock zone with a focus on the previously undrilled areas linking Olive and Shamrock mineralization. The exploration program will concentrate on expanding the strike length of confirmed near-surface, high-grade gold mineralization within the Olive-Shamrock shear zone trend and target the previously un-

see **NORTHERN NEIGHBORS** *page 12*

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MINING TAX

to fill the remaining gap. However, CAP believes that targeting one or a few resource industries for tax increases is divisive, discourages investment and does little to balance the budget," Karen Mathias, managing consultant, Council of Alaska Producers, informed members of the House Resources Committee.

"Just one new large metal mine would bring more revenue to the state than this proposed increase," she added.

Donlin Gold – projected to produce more than 1 million ounces of gold per year, more gold than all of the rest of the mines in the state combined – is the nearest of Alaska's future mines to gaining the permits needed for development.

Reflecting on the enormous size of the proposed Donlin Gold Mine, Rep. Andy Josephson, D-Anchorage, "I am still looking for some comfort that when that (gold) gets removed and severed from Alaska that Alaskans are getting their fair share."

Josephson's concern is shared by many Alaska lawmakers trying to determine a mining tax rate that would maximize cash flow to Alaska coffers without discouraging further investment in the state.

In the end, resource committee members split the difference between the governor's proposal and the status quo – sending HB 253 to the House Finance Committee April 1 with a proposed 8 percent tax rate on Alaska mines netting more than US$100,000.

Exemption remains

In addition to raising the tax rate on mining, lawmakers considered the idea of doing away with a 3.5-year exemption of the tax for new mines, an idea that was frowned upon by Alaska's mining leaders.

"Since no new large mines have received permits to start construction, it is clear that this change will not result in any new revenue in the near term. On the contrary, it sends a negative message to potential investors and possibly tips the scale for economic feasibility of some developing projects so it could actually have a negative impact on future state revenue," Mathias argued.

Again, the resource committee found a compromise, this time weighted in favor of the industry.

Instead of eliminating the tax credit altogether, the committee members shaved six months off the grace period.

Crockett told Mining News that she was "pleased" this exemption designed to encourage companies to develop new mines in Alaska was put back in the bill.

"There is not any direct benefit to state revenue by getting rid of that exemption, yet it exists as an incentive to bring new mines online," she explained.

Before HB 253 was sent to the House Finance Committee, Rep. Paul Seaton, R-Homer, added an amendment to establish a legislative working group to study the tax structure for mining.

Crockett is optimistic that such a review would give Alaska lawmakers better insight into what is a fair mining tax rate for a mineral rich but remote state like Alaska.

"I am hopeful that the intent on that is to have more time to sufficiently review the mining tax structure," Crockett said.

With five more stops in the House and Senate, it is unclear whether HB 253 will make it to the governor's desk before the April 17 end of the legislative session. ●

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NEWS NUGGETS

of particular value over the past five years during the exploration phase of the Niblack project," Cousens said. "On behalf of the board of directors, I would like to thank Pat for his leadership and his contribution to the company. We wish him every success in his future endeavors." As director of Graphite One Resources Inc. and Great American Minerals Exploration Inc., Smith continues to maintain close ties to Alaska's mining sector. Graphite One is focused on the exploration and development of the Graphite Creek project north of Nome, Alaska. Great American Minerals is exploring the Uncle Sam gold project located about 40 miles southeast of Fairbanks. ●

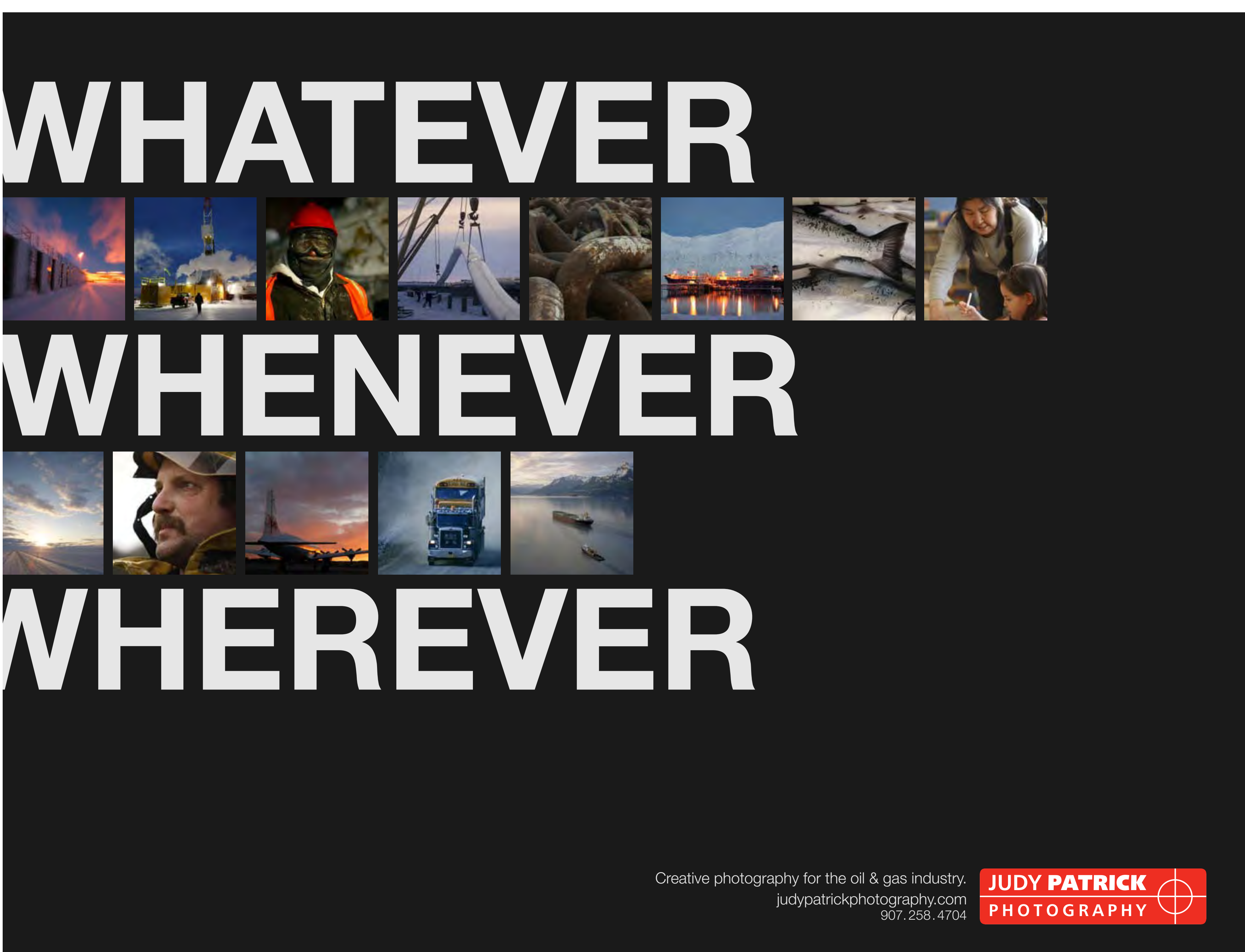
continued from page 11

NORTHERN NEIGHBORS

tested, 300-meter area between the Olive and Shamrock targets. Victoria has partnered with SGS Minerals to provide a mobile on-site prep lab to ensure timely assay results are received. A maiden resource estimate at Olive is anticipated to be included in an updated Eagle Gold Feasibility Study scheduled to be released this fall. With three rigs turning, the roughly 8,000-meter drill program is expected to run for ten weeks.

Golden Predator extends high-grade gold at 3 Aces

Golden Predator Mining Corp. March 31 said it has collected 750 tons of gold-quartz vein material from the Sleeping Giant vein at its 3 Aces project in the Yukon Territory. Identifying visible gold mineralization in the lowest bench of the bulk sample program, the company has initiated a reverse circulation drill program to test the expansion of this high-grade gold to depth and along strike. The Sleeping Giant zone, which can be accessed via an exploration dirt road from the Nahanni Range Road in south-eastern Yukon, encompasses roughly 33,000 square meters (8.15 acres) as defined by float and outcrops of quartz veins. The Sleeping Giant vein, as exposed at surface, contains coarse visible gold. A multi-phase 2016 bulk sample program is being undertaken to accurately determine the grade, distribution, and metallurgical aspects of this mineralization. The exact tonnage of the first phase of this sampling, now collected, will be determined upon weighing during the processing phase. Final arrangements are being made for the processing of the bulk sample. The RC drilling, which began on March 25, is testing down-dip and along strike of the bulk sampled portion of the Sleeping Giant vein. Trenching to the north-east revealed a slightly offset portion of the vein which has been exposed over roughly 20 meters. Visible gold was noted in two locations within the north-eastern extension. Additional field work is planned across the property to determine the extent and potential for additional occurrences of high-grade gold. ●



● PIPELINES & DOWNSTREAM

Keystone pipeline spill hits TransCanada

By GARY PARK
For Petroleum News

TransCanada has shut down its existing Keystone pipeline because of an oil spill in South Dakota, giving the anti-pipeline faction a fresh load of ammunition to aim at the safety record of transporting crude in North America.

The company said the system was shut down April 2 within minutes of a local landowner reporting signs of a leak, raising questions about the reliability of Keystone's own fail-safe systems.

For now, the cause of the spill and the volume discharged will not be known until TransCanada has completed its own investigation.

However, a TransCanada spokesman said the spill covered a "small surface area" with no evident impact on the environment.

The probe into the incident will also involve the U.S. National Response Center and the Pipeline and Hazardous Materials Safety Administration.

Anthony Swift, a spokesman at the U.S. Natural Resources Defense Council, said the spill reinforces the need for the Obama administration to require exhaustive environmental reviews of Enbridge's planned Alberta Clipper line and other proposals to expand the Midwest pipeline network.

The first two phases were affected by the shutdown during the investigation and cleanup, but the connection to Texas remains active.

He said that what happened with Keystone is the "latest stark reminder that all too often with pipelines it's not whether they will leak but when."

Greenpeace campaigner Keith Stewart said it was troublesome that a landowner and not TransCanada's spill detection system raised the flag.

Keystone was commissioned in 2010 and has been operating three phases — two with capacity of 590,000 barrels per day to refineries in Illinois and the trading hub at Cushing, Oklahoma, and one to deliver 700,000 bpd to the refining region at Port Arthur Texas.

The first two phases were affected by the shutdown during the investigation and cleanup, but the connection to Texas remains active.

Keystone XL, which has been shelved for at least the remainder of President Barack Obama's term of office, was designed to carry another 800,000 bpd (including 100,000 bpd from the North Dakota Bakken) to Gulf Coast refineries.

Stewart said TransCanada has also been making big claims about the safety standards incorporated into its 1.1 million bpd Energy East project from Alberta to refineries in Ontario, Quebec and New Brunswick, and an export terminal on the Atlantic coast.

He said the company's assertion that it can identify a leak within minutes is inconsistent with "the truth that most pipeline spills aren't detected until the oil makes its way to the surface where it can be seen and smelled." ●

Contact Gary Park through publisher@petroleumnews.com

● GOVERNMENT

AGDC board member bill advances

By KRISTEN NELSON
Petroleum News

A bill to include legislators as nonvoting members of the Alaska Gasline Development Corp. board of directors has passed the Senate, been amended in the House and was in House Rules April 6.

Different versions of the proposal originated in the House and Senate. The Senate version, Senate Bill 125 sponsored by Sen. Mia Costello, R-Anchorage, passed the Senate and was amended in the House to include elements of House Bill 282, sponsored by House Speaker Mike Chenault, R-Nikiski.

Costello proposed that one member from the House, appointed by the speaker, and one from the Senate, appointed by the president, be added to the AGDC board as nonvoting members.

Chenault's bill added two legislators to the board as nonvoting members, but his bill also required that four of the public members appointed by the governor shall have "expertise and experience in natural gas pipeline construction, operation, and marketing; finance; large project management; or other expertise and experience that is relevant to the purpose, powers, and duties of the corporation."

Under existing law the governor is only required to consider the qualifications of the public members he appoints, but is not bound by any qualifications in making his public-seat appointments.

In addition to changing the basis for the governor's selection of public members, the bill was also amended in the House to include adding a non-voting member of the minority, appointed jointly by the president and the speaker.

Financing and policy decisions

In a sponsor statement for the amended bill Costello said the state "will face increasingly complex financing and policy decisions" as the Alaska LNG project moves forward.

"AGDC is the state's primary representative in the project and will be a focal point for these discussions in the coming years. It is essential the state have a transparent, clear decision making process in place," Costello said.

"Senate Bill 125 helps accomplish this by giving all parties a seat at the table."

She noted that legislators serve on a dozen state commissions, including the boards of state corporations such as the Knik Arm Bridge and Toll Authority, the Alaska Aerospace Corp. and the board of the Alaska Seafood Marketing Institute.

The constitutionality of legislators serving on boards has been a topic of discussion as the bill moved through committees, with no resolution, although the facts that the legislators would be nonvoting members and would receive no compensation were viewed favorably by some members.

The bill had not yet been scheduled for the House floor when this issue of Petroleum News went to print. ●

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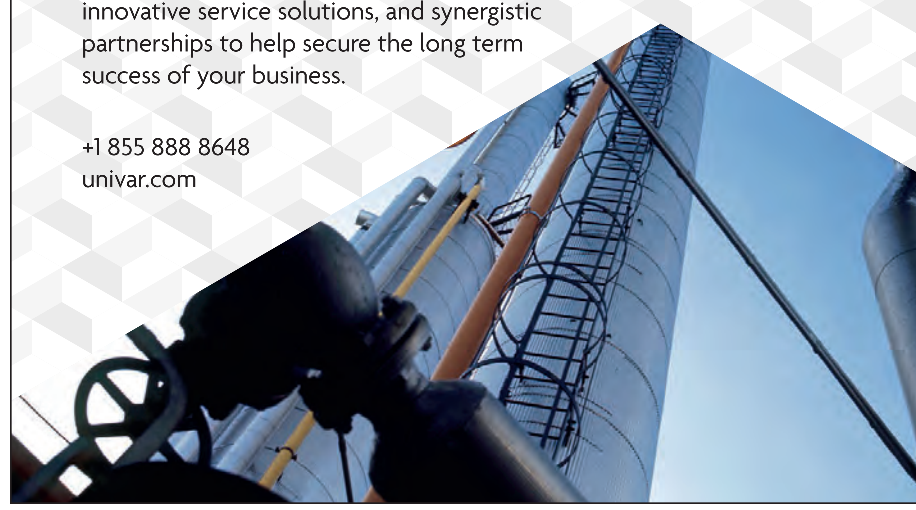


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FINANCE & ECONOMY

Expanding oil sands net

Williams Companies, the versatile Oklahoma-based energy firm, is building a new plant in the heart of Alberta's oil sands region to boost petroleum production while reducing greenhouse gas emissions from the oil sands operations.

The facility, which will serve a Canadian Natural Resources plant to upgrade raw bitumen to synthetic crude, is predicted to curtail annual carbon dioxide emissions by 200,000 metric tons.

It is also designed to reduce emissions of sulphur dioxide, a source of acid rain, by about 2,800 metric tons a year, according to the company's website.

Williams' Canadian President David Chappell said the project will be a "very positive story for the oil sands in general" as the industry works to lower greenhouse gas emissions.

Williams' Canadian President David Chappell said the project will be a "very positive story for the oil sands in general" as the industry works to lower greenhouse gas emissions.

"You don't hear about many projects that reduce emissions without government assistance," he said.

Although he would not provide an estimated price tag, he said the end cost would be different from an original US$900 million figure the company provided last year.

Similar plant in service

Williams already has a similar plant serving a Suncor Energy upgrader.

The two facilities recover high-value ethane, propane, butane, propylene and other liquids from gases that the facilities would otherwise have burned as fuel, supplying cheaper natural gas to burn instead.

The project includes plans to ship liquids by a Williams pipeline to its expanded Redwater plant near Edmonton where it will be purified and turned into a variety of products, including propane for a plant Williams plans to build to manufacture polypropylene, a form of plastic.

A final decision on whether to add this phase will be made later in 2016.

Williams is part of an industry and labor group that was established in March as the non-profit Resource Diversification Council to seek financing for refinery and petrochemical development in Alberta — a major objective of the provincial government.

Chappell said the new plant will be an important step in the process of developing value-added projects.

—GARY PARK

● ALTERNATIVE ENERGY

FERC issues Battle Creek project DEA

Says creek diversion to boost Bradley Lake hydropower output would have little environmental impact; not a major federal action

By ALAN BAILEY
Petroleum News

The Federal Energy Regulatory Commission has published a draft environmental assessment, saying that the agency does not think that a planned upgrade to the Bradley Lake hydroelectric facility in the southern Kenai Peninsula will have a significant environmental impact. The upgrade involves diverting some water from a creek called Battle Creek into Bradley Lake, thus providing more water for hydropower generation and increasing the power output capabilities of the facility. Provided that appropriate environmental protection measures are taken, the creek diversion would not significantly impact the quality of the human environment, FERC said in a March 29 notice.

Public comments on the draft assessment are required within 30 days of the issue of the notice.

The Alaska Energy Authority owns the 120-megawatt Bradley Lake facility, which is operated under contract by Homer Electric Association. The draft environmental assessment says that the facility on average generates about 380,000 megawatt hours per year of energy and that the Battle Creek diversion would increase that output by 36,160 megawatts. Bradley Lake currently provides the cheapest power on the Railbelt transmission grid — power from the system displaces the use of natural gas in Southcentral Alaska gas-fired power stations.

According to the draft environmental assessment the modifications to the hydropower system would involve constructing a new diversion on the west fork of upper Battle Creek, and laying a 1.7-mile buried pipeline and 1,000-foot canal to carry the diverted water to Bradley Lake. The existing hydropower system has a 125-foot-high dam that raises the natural level of Bradley Lake by 100 feet, with water entering the lake coming from the upper Bradley River and a diversion on the upper Nuka River. A 18,610-foot-long tunnel carries water from Bradley Lake to a powerhouse with two 45-megawatt generating units, on the shore of Kachemak Bay, about 22.5 miles northeast of the town of Homer.

The plan for the Battle Creek diversion includes measures required by the Alaska Department of Fish and Game both during construction and then during operation. Those measures include a diversion flow release management plan that would ensure water flow at a minimum level to Battle Creek and that would ensure the transport of the sediment load on the bed of the creek. AEA, as the licensee for the project, would develop a plan for monitoring the stream flow and for monitoring the impacts on fish habitat in lower Battle Creek, the draft environmental assessment says. The project would have no impact on endangered or threatened species in the area, such as the Cook Inlet beluga whale, the draft document says. ●

Contact Alan Bailey at abailey@petroleumnews.com

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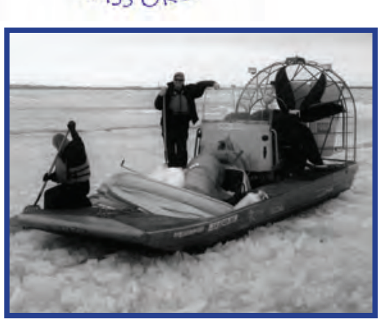


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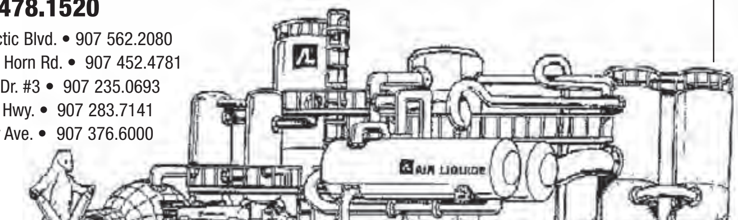

● FINANCE & ECONOMY

Airships back in vogue, mainly for cargo

By GARY PARK

For Petroleum News

It's almost 80 years since the Hindenburg disaster which put airships in the same transportation realm of infamy as the Titanic.

When the German Zeppelin caught fire while trying to dock from its trans-Atlantic flight at New Jersey, killing 36 people, the age of airships as passenger carriers was shelved.

But the concept has never been abandoned, especially as a workhorse in remote northern regions.

Time has also allowed the evolution from highly flammable hydrogen as the fuel source for Zeppelins to helium, an inert gas that does not burn.

Now airships also hold out the prospect of economic and environmental benefits, resulting in Lockheed Martin announcing it has a letter of intent to sell 12 hybrid airships to Straightline Aviation of the United Kingdom, with the two companies working on a purchase agreement that has a potential value of US$480 million.

Straightline said it expects to start receiving airships, which would have a maximum speed of about 65 miles an hour and a cargo capacity of 200,000 pounds, over the 2018-21 period.

Interest expressed

The hybrid aircraft are expected to be deployed in Canada's North, Alaska, Southeast Asia and the Middle East.

Mike Kendrick, Straightline co-founder and chief executive officer, told reporters that a number of prospective customers have already expressed interest in several hundred airships.

He said the current focus is on "low-hanging fruit," primarily the oil, natural gas and mining sectors, which "have to find ways" of extracting their resources more efficiently without compromising safety.

Kendrick said the airships offer the prospect of economies and reduced carbon footprints.

Rob Binns, chief executive officer of Hybrid Enterprises, Lockheed Martin's hybrid airship reseller, said the timing for the airships is ideal as an alternative to companies cutting their budgets, laying off thousands of workers and eliminating projects that are "cash flow negative."

"One of their biggest issues is that when they build a new site, huge amounts of cash are invested in infrastructure before companies see a dollar in revenue," he said. "This fits their goals perfectly."

Straightline spokesman Mark Dorey said his company is well aware that the northern regions are "very sensitive from an environmental point of view."

What airships eliminate is the need to build ice roads or bridges or wait for environmental approval.

Binns said airships can also service work sites almost year-round.

Another United Kingdom company, Hybrid Air Vehicles, is exploring the passenger side of the business, using lighter model airships than Lockheed Martin.

HAV Chief Executive Officer Stephen McGlennan told the Wall Street Journal that the passenger version could be used for tourism, leisure, disaster relief, communications and agriculture. ●

Contact Gary Park through publisher@petroleumnews.com

● FINANCE & ECONOMY

Layoffs from 2 oil field support firms

By ALEX DEMARBAN

Alaska Dispatch News

Job losses continue to mount in the Alaska oil patch, with Parker Drilling and CH2M Hill recently informing the state, in separate announcements, of large cutbacks to their workforces on the North Slope.

Parker Drilling is cutting 55 employees, a "mass layoff" associated with a recent decision by BP to idle three rigs at Prudhoe Bay. The Texas-based company was a contractor that worked on the rigs.

"Parker Drilling did not anticipate this unfortunate turn of events and it is having a devastating impact upon our business operations," James Yaw, the company's human resources manager, said in a letter to the state Department of Labor and Workforce Development. Companies are required to notify the state of large layoffs.

Beset by low oil prices and reduced income, the oil and gas industry shed about 1,000 jobs in 2015, labor officials have said. That's about 7 percent of the industry's workforce.

Unemployment benefits are up sharply. The number of former industry workers receiving the benefits rose to 1,209 in February, up from 545 the year before.

Response to rig count cut

Parker Drilling's letter was sent in response to a federal law requiring notice of mass layoffs, known as the Worker Adjustment and Retraining Notification Act.

BP announced in March it would reduce its working rig count from five to two, affecting rig operators Parker Drilling, Nordic-Calista Drilling and Doyon Drilling.

Yaw said the layoffs began March 19 and would continue until mid-May. Because the reductions are so large, Parker Drilling cannot offer severance pay or provide bumping rights to other positions in Parker Drilling, the letter said. Bumping rights give employees a chance to find other work in a company based on seniority, forcing less-senior workers out.

Officials with Parker Drilling did not return phone calls seeking comment on April 4.

Eni contract lost

Colorado-based engineering company CH2M Hill, which employs about 2,000 people in Alaska, said in a letter sent to the state labor department in mid-March that it was laying off 58 employees because it "was not selected" by Italian oil company Eni to provide "embedded manpower" for the company's operations on the North Slope.

The company was only recently informed of the lost contract that ends March 31, said Jeff Doyle, vice president of North Slope operations for CH2M Hill.

There are no bumping rights, the letter said.

"CH2M will also be working with affected employees to try and locate other opportunities within CH2M," the letter said.

Eni has announced it would delay additional drilling at its Nikaitchuq field until the end of this year. Production at the field was about 28,000 barrels of oil daily in 2015.

It was uncertain if that delay or other factors led to the loss of the contract for CH2M Hill.

"I don't have any details on the client business decision," said Lorrie Paul Crum, vice president of communications for CH2M Hill, based in Denver.

But Crum said the decision is related to low oil prices that have battered the oil and gas industry.

The layoffs come on top of roughly 20 office workers recently cut by CH2M Hill that were also tied to low oil prices. The company employs more than 24,000 people around the world, Crum said. ●

PIPELINES & DOWNSTREAM

Pipeline tariff still in negotiations

The Regulatory Commission of Alaska has received connection documentation for the PTE Pipeline and given parties to the tariff proceeding for the line until April 22 to file a report on settlement negotiations.

The new pipeline runs between the Point Thomson unit and the Badami unit on the North Slope. Point Thomson has not yet gone into production.

PTE Pipeline LLC, owner of the Point Thomson Export Pipeline, is owned 68 percent by ExxonMobil Pipeline Co. and 32 percent by BP Transportation (Alaska) Inc.

PTE Pipeline filed a proposed $20.39 per barrel tariff with RCA in September. The Alaska Department of Law protested the tariff and RCA suspended the proposed rate for an initial six-month period. ConocoPhillips Alaska subsequently filed to intervene as a future shipper with a direct financial interest.

Settlement negotiations are underway on both the in-state rates which RCA oversees and the interstate rates overseen by the Federal Regulatory Energy Commission.

Counsel for PTE Pipeline told RCA in February that settlement discussions are ongoing on both the RCA and FERC tariff proceedings, with a status report due to FERC April 18. RCA granted a request that a status report to RCA be due April 22.

RCA has suspending the proposed tariff and established an initial tariff as proposed by PTEP.

—KRISTEN NELSON

GOVERNMENT

Sara Fisher-Goad to leave AEA

Sara Fisher-Goad, executive director of the Alaska Energy Authority, announced during an AEA board meeting on March 31 that she will be leaving AEA on July 1. Fisher-Goad has been AEA executive director since February 2011.

She told the board that she and her husband have decided to move to the Washington, D.C., area.

"It's been a pleasure and an honor to be director of AEA and also to be associated with AEA for over 15 years," Fisher-Goad said. "I look forward to working on a smooth transition with the board."

During her time as executive director of AEA Fisher-Goad has overseen a number of energy programs, including a major program supporting renewable energy developments across Alaska; assessments of the future management and development of the Railbelt power transmission grid; and a project aimed at developing a major hydroelectric facility at Watana on the Susitna River.

—ALAN BAILEY

Petroleum news

Oil Patch Bits

PND names new president, senior VP, shareholder


JIM CAMPBELL


DEMPSEY THIEMAN


TORSTEN MAYRBERGER

The board of directors of PND Engineers Inc. has elected Jim Campbell, P.E., to the position of president, and Dempsey Thieman, P.E., S.E., to senior vice president. Campbell and Thieman succeed John Pickering, P.E., and Mike Hartley, P.E., respectively.

Campbell, who joined PND in 1995, brings pride and enthusiasm to his new role. "PND is a premier civil and structural engineering company with a focus on serving our clients and engineering innovation" he said. "Our company's gradual but steady growth over the past 37-plus years is a result of clients' trust and return business. Our staff is top-notch, and our customers deserve no less. I see great things in PND's future."

Thieman looks forward to helping perpetuate the culture of leadership that has shaped PND into the successful company it is today. "We have grown since I came aboard more than 20 years ago, and with growth has come opportunity and challenge," Thieman said. "Nonetheless, our values have remained constant. Our staff is committed to client service and satisfaction, and working with integrity as a team to provide innovative and cost effective design solutions. Our motivation, and inspiration, come from our customers."

PND's board has also selected Torsten Mayrberger, P.E., PhD, to be a principal in the firm. Mayrberger has 15 years of professional engineering experience, and joined PND's Anchorage office in 2009. He specializes in geotechnical investigations and deep foundation design in permafrost soils, as well as geotechnical investigations in marine and non-permafrost soils. He was also instrumental in establishing PND's AASHTO-accredited state-of-the-practice geotechnical lab testing facility in Anchorage.

Nabors first quarter 2016 conference call invitation

Nabors Industries Ltd. invites you to join Anthony G. Petrello, chairman and chief executive officer and William Restrepo, chief financial officer April 26 at 10 a.m. central standard time for a discussion of operating results for the first quarter 2016. Nabors will release earnings after the market closes on April 25.

Dial-in-number(s): domestic 888-317-6003; international 412-317-6061; Canada 866-284-3684. Participant elite entry number: 7389298. Please call 10 to 15 minutes ahead of time to ensure proper connection.

The conference call will be recorded and available for replay for one week, by 1 p.m. central standard time on April 26. To hear the recording, please call 877- 344-7529 domestically or 412-317-0088 internationally and enter participant elite entry number: 10083445.

Nabors will have a live audio webcast of the conference call available on its website at www.nabors.com. Navigate to the investor relations page and then select events calendar to join the webcast. An electronic version of the earnings release and supplemental presentation will also be available to download from the website.

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

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

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

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GIESSEL Q&A

credits are doing what we want them to do. The fact is we've got to figure out how we afford them.

Petroleum News: How do you afford them?

Giessel: Well, therein lies the challenge. I appreciate what House Resources did in reducing the credit/rebates incrementally over time, the well lease expenditures slowly going away, reducing the capital expenditure credit. Those are good. At some point — and I know it comes off the books in 2022 — and at that point we can institute production tax on oil in Cook Inlet. I feel like probably that time should be shorter, maybe 2018 or 2019. It is true with no production tax in Cook Inlet, it does look bad. It is bad. So I think that is a piece I think we can change.

Petroleum News: One member of the House said, after hearing all the testimony, it was almost as if everyone is right.

Giessel: In a way that is what Commissioner Hoffbeck said to the working group when he said it seems like Cook Inlet credits have worked and it's time to declare victory. I understand where he is coming from. At the same time, we made a promise to at least two companies, three actually. But the new companies, BlueCrest and Furie, we wanted companies like that to come. Furie has got gas they are bringing online; BlueCrest has got a lot of oil and the prospect of gas. That's who we want here. So we need to be faithful to the promise that we made that brought the companies here. So how do we do that and still meet the financial demands the citizens require of the state government? Incrementally reducing the credits over time, allowing BlueCrest and Furie to adjust their financial and development plans going forward is one way to do that.

Petroleum News: Do you worry if there are a high number of credits in the budget that you could face another veto?

Giessel; The governor has proposed $73 million in the tax credit fund, which complies with the law. It has a formula in it. The price of oil is X. This is how much the credits are. It is true that $200 million (vetoed last year), we are either going to have to appropriate it out of savings or it will continue to carry forward. And there likely will be more than $73 million in credits asked for. So that will be challenging for the companies and their lenders. I don't know how we appropriate more money into that general fund. The money just isn't there unless we take it out of savings.

Petroleum News: So given all of that, what is your plan for the bill with less than two weeks remaining and the House's version still in House Finance?

Giessel: My hope is to get the bill appropriately modified and to the Senate Finance Committee in enough time to pass it. What that looks like, I don't exactly know. It's tough to tell at this point.

Petroleum News: OK, so you alluded to AKLNG earlier. What is your 30,000-foot view of where things stand now, given the updates you've received from the partners and the news conference the governor and the partners had a month ago?

Giessel: I look forward to any day now hearing about the evaluation of the 48-inch pipeline versus 42 inches. So that's expected to come any day and that's going to inform further the work plan that's going to complete pre-FEED by October or November. The governor in that press availability, with the two companies standing there and the third online, said we are still on track and we're working together. That's what I'm dedicated to as well and hoping to see continue forward.

Petroleum News: So what is your take on that? Is it a slowing down in the current environment or is it more cautionary than that?

Giessel: What I have heard in conversations with the producers is that this is the time where it is more critical than ever that the cost of supplies be reduced, be brought down. And you might remember from AKLNG updates, (ExxonMobil's) Steve Butt saying if this is a $65 billion project, it's not going to go forward. That's just too much. The cost of the supply, the LNG coming out of the end of the project, is not going to be sellable. Even $55 billion is too much. But at $45 billion you're getting closer. Talking to the producing companies, they are working for $40 billion or lower. I know that BP has talked about projects they've worked on around the world in this price environment, and they've been able to drop the cost of supply by one-third and even one-half in some scenarios.

This is a time when steel is costing less and the workforce is available. We have a significant partner in Exxon, important partners in the form of BP and ConocoPhillips. They have done this before and they are successful because they know how to get the cost of supply down.

Petroleum News: You've talked about the pipeline size study. What else would you like to learn by year's end?

Giessel: Well, by the end of the year, I'm looking forward to hearing what the actual cost is because they will refine the numbers. Probably in May we will have another AKLNG update. I'm looking forward to hearing the companies' report on how this is going. We are hearing appointment confirmations for AGDC so those are important things that are going on. The joint body will vote on those very soon (April 15). And we have a vacancy on AOGCC (Alaska Oil and Gas Conservation Commission) that I'm hoping will also arise here before we adjourn. That's another important seat. Three commissioners: One seat hasn't been filled for about another year and a half. We need that filled. I'm looking forward to hearing a name for that.

Petroleum News: Are you getting nervous that a name hasn't been brought forward?

Giessel: It's been very nerve wracking. In fact I know the Senate President (Kevin Meyer) sent a letter to the governor about a month and a half ago expressing his concern. I believe the governor has been diligently looking for folks to fill that position. I regret how there was a capable person filling that role who had just been appointed and was removed when this administration came in and that was unfortunate. But it is what it is and we move on.

Petroleum News: Back to AGDC for a second, there is a bill moving quickly through both chambers that will put one member from the House and Senate on the AGDC board as a non-voting member. You voted yes on the floor. What do you like about the bill?

Giessel: Well as several members of the Senate have verbalized they have served on state boards and commissions and have been a valuable addition to those state boards and commissions because they bring the perspective of a lawmaking body into what is otherwise a lay board of citizens so there is value there.

Some of the controversy around this bill is that wait a second this is an executive branch entity. AGDC is part of the executive branch. My response to that is they are not. It says so on their website that they are an independent body. In fact, the board president (David Cruz) in confirmation hearings last week in the Senate articulated again, "we are an independent agency, not connected with the executive branch."

To me that opens the door to appropriately putting some legislators as non-voting members. It would allow not only the board to be more informed from the legislative perspective of what's going on but help the legislators themselves move the project forward for the legislative viewpoint.

Petroleum News: You also just moved HB 100, also known as the Agrium bill, which would provide 6.5 years of credits against the corporate income tax once the company resumes production. What are your thoughts on it?

Giessel: I am a big fan of it. I think this is a good opportunity for the state. Not just for the jobs but because of the gas Agrium is going to buy. They are going to bring in $15 million to $18 million more in royalty just by virtue of the gas they will be able to use for this project. It's manufacturing. I keep hearing from my constituents all the time, we need to diversify our economy. We need to manufacture something in Alaska. Well, here is an opportunity.

Petroleum News: Do you see where some believe it's tough to give credits at a time when the state has this $4 billion deficit?

Giessel: It's not a credit. It's a tax deduction from corporate income tax. It's capped. It cannot exceed, in other words, the amount of money the state brings in for royalty on that gas. So it cannot exceed what the state has taken in and it likely will not even match the amount the state has already gained in royalty money from the gas that Agrium will be using. That means it's a tax deduction from corporate income tax after they have done the work, used the gas and the state has been paid their royalty. ●

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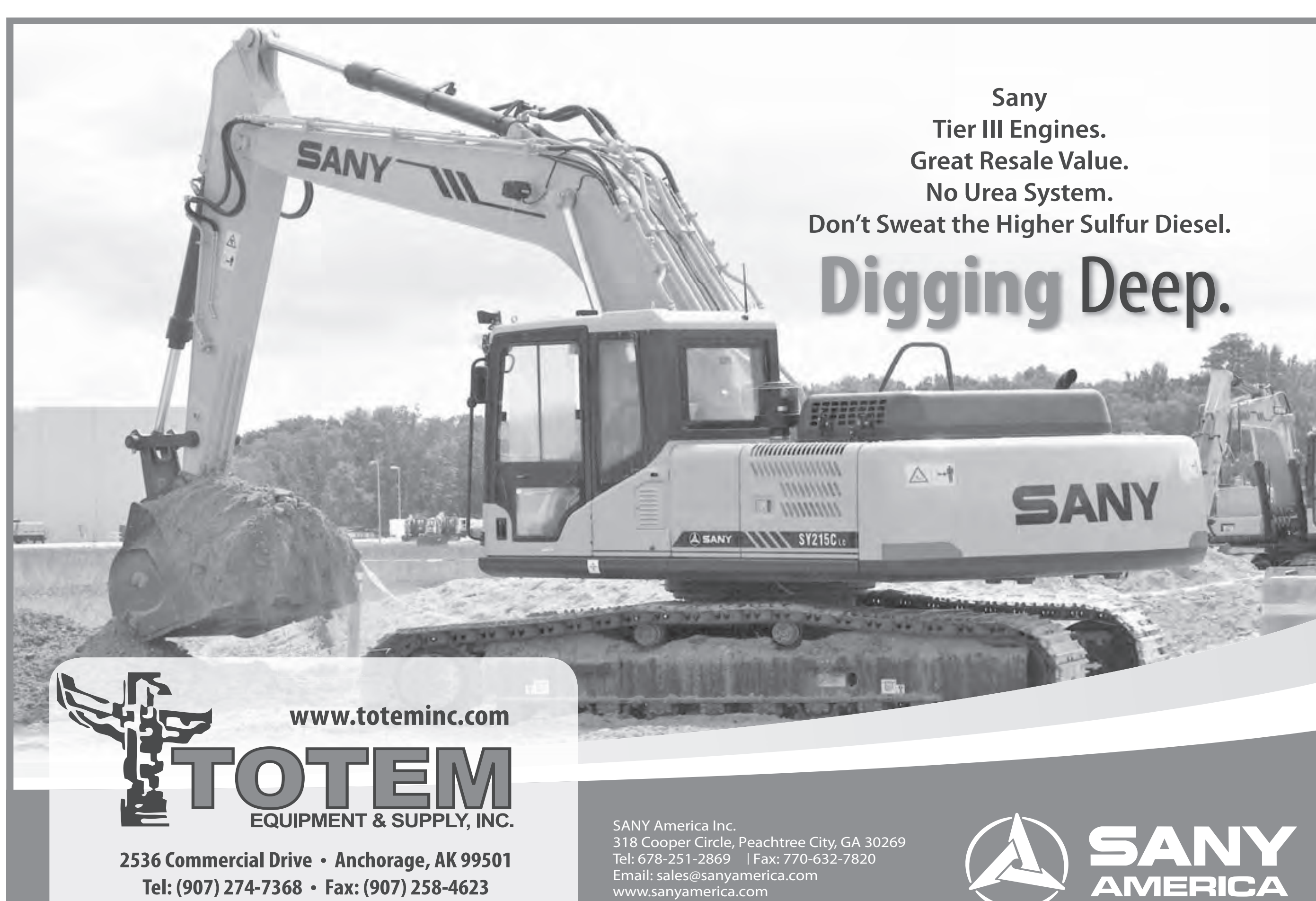

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OIL TAXES

floor for North Slope production taxes so that no credits can reduce that floor below 2 percent of the gross value at the point of production for any producer, including those qualifying for small producer status because they produce fewer than 50,000 barrels per day.

The revenue change from the Finance CS is about halfway between the administration's bill and the House Resources version, Tax Division Director Ken Alper told the Finance Committee, largely due to the hard floor for the North Slope being set at 2 percent as opposed to the hardening at 4 percent and increase to 5 percent proposed by the administration.

Other changes

Changes to the Resources' version of HB 247 also include the interest rate on delinquent taxes to be compounded quarterly at 5 percent above the rate charged for members banks of the 12th Federal Reserve District for the first four years after the tax becomes delinquent; the rate will not be compounded after the first four years.

Qualified capital expenditures are reduced from 20 percent to 10 percent beginning Jan. 1, 2017.

The CS keeps the Middle Earth carried-forward annual loss credits at 25 percent, but reduces Cook Inlet net operating loss credits from 25 percent to 10 percent effective Jan. 1, 2017. If the producer or explorer has not taken a credit prior to Jan. 1, 2017, they are not eligible.

Cook Inlet NOLs are consistent with the House Resources version of the bill.

Cook Inlet well lease expenditure credits are reduced from 40 percent to 30 percent effective Jan. 1, 2017, and to 20 percent on Jan. 1, 2018. Middle Earth credits reduce from 40 percent to 30 percent on Jan. 1, 2017.

Under the Finance CS small producer credits conform to the floor, so even companies eligible for the small producer credit will pay production tax.

The CS also changes the limit on the amount of tax credit certificates that the Department of Revenue may purchase in a single year from a single company. The amount was $25 million in the administration bill, was raised to $200 million in the Resources CS and is set at $100 million in the Finance CS.

As to how much would actually be paid in a single year, Revenue Commissioner Randall Hoffbeck told House Finance that is a combination of how much the Legislature appropriates and how much the governor leaves in the appropriation. On that issue, Hoffbeck said the governor has indicated it will depend on what the entire revenue and tax package looks like.

And, dealing with an issue which has been of considerable concern to some legislators, the gross value reduction for new oil is capped at five years for oil and gas first produced after Dec. 31 of this year, and capped at Jan. 1, 2021, for oil and gas first produced prior to Jan. 1, 2017.

House Finance is scheduled to consider amendments to the CS April 8.

—KRISTEN NELSON

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LNG SHORT LIST

Coast favor Pieridae Energy's Goldboro LNG venture in Nova Scotia, where three other proposals are in the works along with one in New Brunswick, with Bear Head LNG gaining some traction by acquiring an additional 72 acres at its terminal site.

Bear Head is also working on deals to source gas feedstock from Atlantic Canada's offshore, the Utica shale basins and TransCanada's mainline from Western Canada.

Less likely

Headed in the opposition direction in British Columbia are Kitimat LNG (Chevron and Australia's Woodside Petroleum) and Prince Rupert LNG (now owned by Shell after it completed its acquisition of BG Group).

World Gas Intelligence candidly rated those two as being on "life support."

Others in retreat include Triton LNG headed by AltaGas and Aurora LNG, a scheme by China's CNOOC.

The article noted that the British Columbia government is "still clinging to hopes that a major LNG export project will go ahead," with its greatest hopes pinned to Pacific NorthWest LNG, despite being stalled by the Canadian government's "glacial decision-making process."

What adds strength to that project is the investment of more than C$2 billion a year in the 2013-2015 period on establishing natural gas supplies in northeastern British Columbia.

World Gas Intelligence made a concession to the British Columbia government of Premier Christy Clark, noting that "to be fair, the (plight facing LNG proponents) is not peculiar to Canada, as cratering oil and gas prices have combined with a growing LNG supply glut to paralyze new liquefaction projects almost everywhere."

Woodfibre breakthrough

For Woodfibre, there was a breakthrough in late March when federal environmental approval was granted, representing a "milestone" on the way to a C$1.8 billion plant for exporting a modest 2.1 million metric tons a year of LNG to Asia.

Byng Giraud, said his company — which is privately held by Singapore-based RGE Pte. Ltd. — has now established a strong case for proceeding.

"People say, 'We don't trust their science,'" he told the Globe and Mail. "Well, we've gone to three different agencies. We've gone above and beyond. It's three decisions."

Even so, Woodfibre still needs a range of permits if it is make a final investment decision this year to become operational in 2020.

Giraud also said the company needs to lower its capital budget by negotiating better deals with contractors and suppliers, along with settling long-term contractors with buyers.

Eoin Finn, research director for the My Sea to Sky organization, said the federal approval means there are now few options available for stopping the project other than the "dismal" economics facing LNG.

But he said that pinning opposition on the LNG outlook leaves critics "helpless," beyond staging protests and possibly taking legal action to protect fisheries.

West Vancouver Mayor Michael Smith said LNG tankers would travel through a vital recreation area for the growing population of Greater Vancouver.

"No one can guarantee our residents that there will not be a catastrophic incident either at the LNG terminal (which is a converted pulp mill) or at one of the tankers. Even though the risk might be small, it is not one that is worth taking."

Passing straws

Canada's Environment Minister Catherine McKenna said the federal government is committed to ensuring that the energy sector remains a source of jobs, prosperity and opportunity amid a demand for sustainable practices.

"Natural resources are important to the Canadian economy," she said. "There are a number of projects undergoing environment assessments under existing legislation (which is being revised) and it is not fair to any proponent to send them back to the starting point."

Those clutching at any passing straws for LNG derive hope from evidence that a number of proponents are continuing to refine their applications.

WCC LNG has filed a request to extend its export permit to 40 years from 25 years covering annual shipments of 30 million metric tons.

ExxonMobil is taking advantage of government incentives to improve the project's economics and said it has "entered into confidentiality agreements with several pipeline companies relating to services for the delivery of gas to the LNG terminal" at either Kitimat or Prince Rupert.

The state of the global LNG market was captured by Platts, a provider of energy data, which said spot prices in northeast Asia averaged US$4.46 per million British thermal units in March, compared with US$18.11 two years ago.

Michael Mott, chief financial officer of LNG Ltd., said Western Canadian producers continue to hunt for buyers despite the oversupplied market.

"At a macro level markets are oversupplied, but at a micro level there are niche players who want to monetize now," he said. ●

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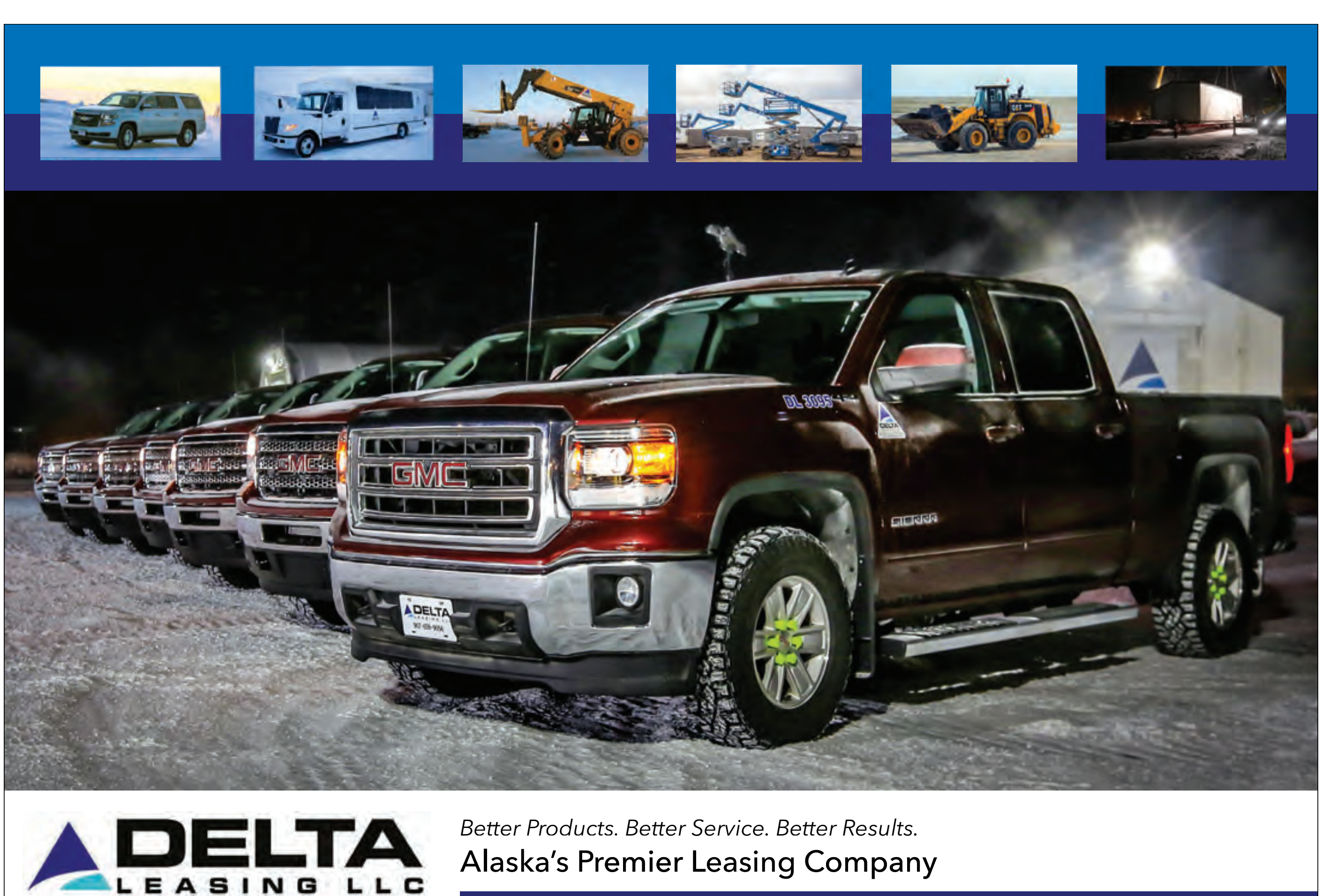

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UNIT EXTENSION

ever, DNR only extended the POD to the end of 2016.

Drilling

The Southern Miluveach unit's initial plan of operation was approved through the end of 2013 and required BRPC to drill, evaluate and test three wells in the Kuparuk formation by May 31, 2012. Two wells, North Tarn No. 1A and Mustang No. 1 were drilled by that date.

At the company's request DNR's Division of Oil and Gas extended drilling requirements for the third well but when the deadline was missed, the DNR commissioner issued a notice of default in November 2014. Drilling of the third well was required to cure the default, which BRPC appealed.

BRPC cured the default by drilling the third well in early 2015 and attempted to drill a new well and a horizontal lateral from one of the existing wells, but both encountered drilling difficulties and had to be suspended prior to reaching the reservoir interval.

Facilities construction

The company began facilities construction in 2014, work which continued in 2015.

DNR said BRPC reported fabrication of 470 piles and vertical support members for module, pipeline and platform support in 2015, with 284 piles installed in the field. Two off-pad pipeline platforms, the Alpine pipeline tie-in platform and a pipeline pigging platform were fabricated and installed. BRPC also shipped two 5 megawatt dual-fueled turbine power generation packages to Alaska.

Other facility packages and equipment have been ordered or bid upon and BRPC reported engineering 65 percent complete for work yet to be completed.

BRPC plans to use managed pressure drilling "to facilitate controlled drilling in over-pressured conditions," DNR said, and may modify Nabors Rig 16E or contract for another suitable rig.

Drilling activities are likely to be deferred until the winter of 2016-17 while reservoir studies are completed and rig modification or acquisition conducted.

Unit extension

DNR said BRPC has conducted exploration under an approved plan, so the unit extension request meets regulatory requirements for consideration of a discretionary extension.

The unit extension approval allows BRPC the opportunity to complete Southern Miluveach faculties and bring wells online in 2017, resulting in increased production and increase in tax and royalty revenue for the state, DNR said, noting that most of the on-pad production facility modules have been completed, as well as a majority of engineering.

DNR said BRPC reported fabrication of 470 piles and vertical support members for module, pipeline and platform support in 2015, with 284 piles installed in the field. Two off-pad pipeline platforms, the Alpine pipeline tie-in platform and a pipeline pigging platform were fabricated and installed. BRPC also shipped two 5 megawatt dual-fueled turbine power generation packages to Alaska.

"Further understanding of the Kuparuk Reservoir and new lessons from neighboring units on drilling techniques in over-pressured reservoirs also supports the likelihood of oil production at the SMU in the near-term. Providing a unit term extension in this instance is in the state's best interest and protects all parties," DNR said.

Investment made

In its December request for unit extension BRPC President and CEO Bart Armfield said some $145 million had been spent on construction of the Mustang gravel road and pad, drilling of wells, engineering studies, reservoir evaluation, economic analysis, permitting, camp facilities and production facilities to be placed on the Mustang pad. He also said BRPC has cooperated with other area operators by sharing the Mustang road and pad to further other North Slope exploration and development activities.

The third plan of development, which has now been extended through the end of the year, includes completion of well technical work, finalizing well design and drilling protocols to address overpressure reservoir conditions, undertaking rig modifications or securing a new rig contract, continued reservoir studies to aid in the placement of the remaining development wells and completion of remaining engineering and issuances of remaining process modules for fabrication.

In its December request for extension of the term of the unit BRPC said earliest oil would be in the fourth quarter of 2016. ●

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GOVERNMENT

Voters recall NSB Mayor Brower

Residents of the North Slope Borough have voted to recall Mayor Charlotte Brower.

Anchorage television station KTUU (http://bit.ly/22cC4GN) reports 62 percent of voters backed Brower's ouster in a special election April 5.

The mayor was not immediately available to comment.

Brower came under fire after revelations that borough money had been spent on purchases from and for her family members, including sending her grandchild to a basketball camp sponsored by NBA great Michael Jordan.

Brower in February paid an unusually large fine for campaign finance violations. The Alaska Public Offices Commission in September approved the $34,970 penalty for what it called "egregious" violations of campaign finance laws.

A group called People for Responsible Government organized to urge voters to replace Brower.

The borough assembly president will take over as interim mayor.

—ASSOCIATED PRESS

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SMITH BAY

ized the well as a stratigraphic test well and had indicated that it anticipates keeping the drilling results confidential.

Offshore NPR-A

Smith Bay is on the Beaufort Sea coast, about 59 miles southeast of Barrow, in state waters offshore the National Petroleum Reserve-Alaska. The drilling is taking place from circular ice pads in an area where water depths are 4 to 6 feet, using the Doyon Arctic Fox drilling rig. An onshore camp connected to the drill sites by an 11-mile ice road is supporting the drilling. To conduct the drilling, Caelus had to stage equipment, including the drilling rig, at Point Lonely, to the east of Smith Bay. The company has also had to construct a snow road to Smith Bay from the central North Slope.

The exploration program, called the Tulimaniq project, is a joint project between Caelus and Nordaq Energy, with Caelus being operator and having a 75 percent interest in the Tulimaniq leases.

The geology of the Smith Bay area, although remote, appears very prospective for oil. There are known oil seeps nearby. And the bay lies close to the westward extension of the Barrow Arch, the major geologic structure associated with the producing oil fields of the central North Slope.

Caelus has commented that, at Smith Bay, it is seeking oil in Brookian turbidites. Turbidites are rocks consisting of sandstone layers and channels, laid down as a consequence of periodic submarine sand flows in ancient marine basins. The Brookian refers to the youngest and shallowest of the major rock sequences under the North Slope.

—ALAN BAILEY

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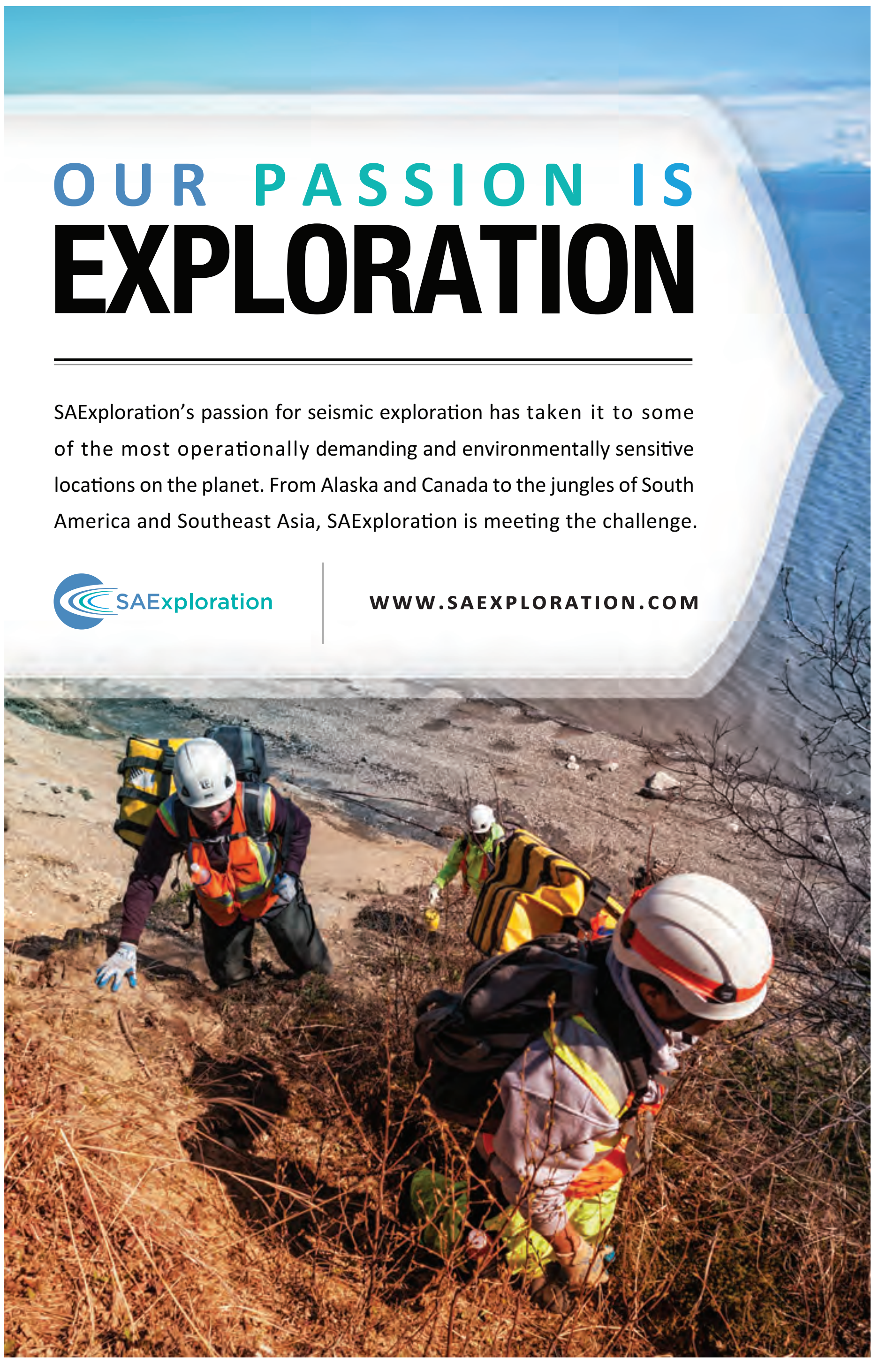

PIPELINES & DOWNSTREAM

Regulators allow Exxon to restart refinery

Regulators agreed April 2 to let ExxonMobil resume operations at an oil refinery in Torrance more than a year after an explosion crippled the plant and led to higher gas prices in California.

The South Coast Air Quality Management District board voted 3-2 to allow the refinery to produce emissions that will exceed pollution limits as it restarts the plant.

The refinery has sat largely idle since the February 2015 blast injured four contractors, caused heavy damage at the plant and rocked nearby neighbors.

The plant's shutdown led to a shortage of gas that meets California's stricter pollution regulations and caused higher prices at the pump.

During the restart, the refinery is expected to pump emissions into the air for about six hours longer than allowed by AQMD rules. So regulators ordered ExxonMobil not to restart during school and business hours, when people could be exposed to excess pollution, and pay $5 million in penalties for air pollution violations after the explosion.

Residents will also be notified at least 48 hours before the restart occurs.

"This approved order ... puts in place stringent measures designed to protect the health and safety of nearby residents while the refinery resumes normal operations," Kurt Wiese, general counsel for the AQMD, said in a statement.

The board voted the night of April 2 following a daylong public hearing at City Hall attended by an overflow crowd of about 450.

ExxonMobil is selling the refinery for $537 million to New Jersey-based PBF Energy Inc., though the plant must be operational before the sale is completed.

An opponent of the plant criticized ExxonMobil for getting the plant up and running so it can complete the sale.

—ASSOCIATED PRESS

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MORAINE POOL

sand flows in an ancient marine basin. The Moraine oil pool lies at depths between 4,940 feet and 6,190 feet below the surface.

The 3S drill site was originally developed to support the Palm satellite field, which came on line in 2003, producing from the Kuparuk C4 interval below the Moraine. The Palm No. 1 well penetrates the Moraine and provides a type section for the Moraine reservoir.

Layered reservoir

ConocoPhillips says that reservoir sands within the Moraine members vary in thickness from less than a few inches to a few feet, with the sand grains typically being very fine grained to fine grained, but with rare occurrences of medium sands. The porosity ranges from 15 to 30 percent. Oil is trapped in the sands as a consequence of mudstone layers between the sand bodies, although the strata lie in a broad anticline that has contributed to the trapping mechanism.

The company anticipates the Moraine development requiring the drilling of horizontal wells through the reservoir rocks, with staged hydraulic fracturing used to stimulate oil production in the highly laminated reservoir. Well bores may extend horizontally as far as 20,000 feet from the 3S drill site location. Well lengths within the reservoir will range from 3,000 to 8,000 feet, in alternating rows of production and injector wells. The company anticipates using waterflood as the primary method for maximizing oil recovery, although the injection of lean gas or miscible gas injectant may be needed at some stage. The first injector/producer well pair drilled will enable testing of the fluid communications through the reservoir, the company told AOGCC. Gas lift will enhance well productivity.

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Sand continuity

Turbidite rock sequences of the type involved in the Moraine oil pool tend to be compartmentalized. But tests from existing wells indicate lateral reservoir sand continuity of 1,000 to 2,000 feet, ConocoPhillips says. A high initial water saturation does present an initial risk to production — this risk will be addressed through the potential application of water-alternating-gas injection techniques.

For the development from the 3S drill site and one additional site, ConocoPhillips estimates original oil in place to be somewhere in the range of 200 million to 800 million barrels. With an anticipated recovery factor in the range of 10 to 40 percent, oil recovery may range from 20 million to 320 million barrels from the two sites.

Encountered in 1965

According to information provided in ConocoPhillips' pool rules application, the Moraine reservoir was first encountered in 1965 by Sinclair Oil Corp., when drilling the Colville No. 1 well, targeting a deeper horizon. Tests of the reservoir by Texaco in the 1980s, using the Colville Delta No. 2 and No. 3 wells resulted in insignificant oil flow rates, although fracture stimulation of the No. 3 well upped the rate to modest levels. ARCO Alaska, ConocoPhillips' predecessor company, evaluated the reservoir in the 1990s using the Kalubik No. 1 and No. 2 wells — unstimulated flow from the No. 1 well showed minimal oil production.

Between 2010 and 2012 Pioneer Natural Resources drilled and completed three production wells in the upper Moraine member in the Oooguruk unit, to the immediate northwest of the Kuparuk unit. Those wells achieved initial production rates of 350 to 600 barrels of oil per day.

Then, in 2013, ConocoPhillips hydraulically stimulated the upper Moraine member from the 3S-19 well, a well that targeted the Kuparuk C-sands but which presumably penetrated the Moraine. That test resulted in a flow rate of 250 to 300 barrels per day from the Moraine reservoir. In 2015 the Moraine No. 1 well further evaluated the characteristics of the reservoir. Also in 2015, ConocoPhillips drilled the 3S-620 well, with a 4,200-foot lateral through the Moraine reservoir, using an eight-stage hydraulic fracturing program to achieve a production rate of 1,575 barrels of oil per day — there was a relatively high rate of water production along with the oil. ●

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