Petroleum news

Vol. 24, No. 43 • www.PetroleumNews.com | A weekly oil & gas newspaper based in Anchorage, Alaska | Week of October 27, 2019 • $2.50

page 3 SB 21's competitiveness review board, created in '13, back at work

Trudeau wins; results create bleak outlook for Canada's oil provinces

JUSTIN TRUDEAU

Canadians gave Justin Trudeau a second four-year term as prime minister on Oct. 21, under major changes to his tenancy contract that have seen the country sharply divided along political fault lines.

Pending a final vote count, his Liberals captured 157 seats in the House of Commons, 13 short of an outright majority, trailed by the Conservatives at 121, Bloc Quebecois at 32, New Democratic Party at 24, Greens at 3 and one Independent.

Tainted by the stains of ethical scandals and broken promises,

see **ELECTION RECAP** *page 13*

Hilcorp files new plan for Milne Point, Ugnu heavy crude in play

Hilcorp Alaska, operator of the North Slope Milne Point unit, filed a 38th plan of development with the state Division of Oil and Gas on Oct. 15, which will be effective Jan. 13 through Jan. 12, 2021.

The company, which took over operatorship of the mature oil field in November 2017, has drilled 19 new wells at Milne so far this year, including one S pad Ugnu heavy oil producer, and expects to drill another seven wells before the end of the current plan of development, or POD, including two S pad Ugnu wells (producer and injector).

Unlike the Schrader Bluff viscous oil already produced from the unit, Ugnu crude is much thicker, colder and more difficult to

see **NEW PLAN** *page 10*

BP has produced water release at Flow Station 3 in EOA at Prudhoe

The Alaska Department of Environmental Conservation's Division of Spill Prevention and Response said Oct. 22 that BP Exploration (Alaska) Inc. had a produced water release at Flow Station 3 at Prudhoe Bay on Oct. 21.

The volume is still being assessed, DEC said in its initial situation report.

FS3 is in the Eastern Operating Area at Prudhoe, about a mile east of Pump Station 1. The spill was discovered at 7:35 a.m. inside Module 4941, DEC said, and reported at 9:39 a.m., as soon as personnel were allowed access and confirmed that the produced water had escaped the module.

DEC said produced water is a byproduct of oil production which normally contains a small amount, less than 1%, crude

see **WATER RELEASE** *page 10*

Mat-Su continues fight for Port MacKenzie, citing Corps comments

The Federal Energy Regulatory Commission continues to hear opposition to and support for the route of the Alaska LNG project to a liquefied natural gas facility in Nikiski, the project analyzed in the draft environmental impact statement FERC issued earlier this year, and on which it has been taking public comments.

The agency has two requests for supplemental DEISs (see stories in Oct. 6 and Oct. 13 issues of Petroleum News), both of which argue that an alternative was not adequately evaluated, one from Valdez, which favors a route along the right of way of the trans-Alaska oil pipeline to an LNG facility in Valdez — the other from the Matanuska-Susitna Borough for a line terminating at

see **MACKENZIE FIGHT** *page 11*

NATURAL GAS

North Slope LNG

Direct export of Point Thomson gas to Asia on ice breaking LNG tankers

By STEVE SUTHERLIN
Petroleum News

Alaska-based Qilak LNG Inc., a subsidiary of Lloyds Energy of Dubai, has signed a heads of agreement with ExxonMobil, under which ExxonMobil will provide natural gas from its Point Thomson field to Qilak's proposed nearshore liquefied natural gas facility several miles north of Flaxman Island, Qilak announced in Anchorage Oct. 23.

ExxonMobil would provide at least 560 million standard cubic feet per day of gas to Phase 1 of the Qilak LNG 1 Project, Qilak said.

"ExxonMobil sees the development of the Qilak LNG 1 Project as an opportunity to develop Alaska's gas resources," said Darlene Gates, president of ExxonMobil Alaska. "As the largest holder of discovered gas resources on the North Slope, ExxonMobil has been working for decades to tackle the challenges of bringing Alaska's gas to market."

"The other thing that we're looking at is a way to supply gas to Alaskans." —Qilak President and COO David Clarke

The LNG would be shipped directly from the North Slope via ice breaking LNG tankers.

Initially, the project will take natural gas at "sufficient volume to export at least 4 million tons per

see **NORTH SLOPE LNG** *page 14*

EXPLORATION & PRODUCTION

Borealis is gearing up

Company plans North Slope Brookian exploration in NPR-A, south of Badami

By ALAN BAILEY
For Petroleum News

RICHARD GARRARD

Borealis Alaska Oil Inc, the company that is a re-brand of NordAq Energy, has set its sights on some new exploration on Alaska's North Slope. The company is focusing on two areas, one in the National Petroleum Reserve-Alaska and the other in the more easterly part of the Slope, to the south of the Badami oil field, Richard Garrard, Borealis chief technical officer, told Petroleum News in an Oct. 11 interview. Both areas have prospects in the Brookian sequence, the youngest of the petroleum bearing rock sequences in the region and the sequence that holds recent major oil finds in the Nanushuk and Torok formations. Findings from wells drilled quite a few years ago point to the likely existence of light oil in the prospects, Garrard said.

NordAq had previously formed a joint venture with Golden Eagle Petroleum Ltd. for ownership of both sets of leases, with NordAq having a 30% interest. Following a negotiated settlement, Borealis now holds a 100% interest in 70 leases covering 280,633 net acres in federal land in the NPR-A and in state land to the east. However, the company is seeking joint ventures, to share the cost and risk of the proposed exploration work.

see **BOREALIS OIL** *page 7*

EXPLORATION & PRODUCTION

It's official: 150,000 bpd

Oil Search bumps North Slope Pikka production to 150,000 barrels of oil per day

By KAY CASHMAN
Petroleum News

Bruce Dingeman is taking over Keiran Wulff's position as president of Oil Search Alaska.

In the Oct. 22 release of its third quarter results, Oil Search upped its North Slope Pikka project production from 120,000 barrels of oil per day to as much as 150,000 bpd.

Over the years company officials have hinted of an increase — and a value engineering goal in a slide from a September presentation noted 135,000 bpd, but the rest of that presentation referred to 120,000 bpd.

This is the first time 150,000 bpd has come up — and it's in the introductory highlights.

"Potential debottlenecking opportunities for the full field development facilities were reviewed, which could increase throughput from 120,000 barrels of oil per day to up to 150,000 bopd," Oil Search said, noting startup for the full field development would likely begin at the end of 2024.

Excitement just ahead

The third quarter report revealed more about Oil Search's upcoming winter wells that will test Nanushuk analogues — Stirrup in the Horseshoe block

see **PIKKA PRODUCTION** *page 12*

● ENVIRONMENT & SAFETY

PWSRCAC reports low contamination levels

2018 sampling covered areas around terminal, an expanded area in Prince William Sound generally following Exxon Valdez impacts

By KRISTEN NELSON

Petroleum News

The Prince William Sound Regional Citizens' Advisory Council said Oct. 22 that long term monitoring in Prince William Sound shows oil contamination in the sound and Gulf of Alaska "has reached all-time low values."

The council said its efforts to monitor long term environmental impacts of operation of Alyeska Pipeline Service Co.'s Valdez Marine Terminal and associated tankers began in 1993.

Improvements implemented by Alyeska and its owner companies over the years, including elimination of single hulled tankers and "Alyeska's ability to effectively operate their Ballast Water Treatment Facility" have contributed to reduction of pollutants being discharged.

"The council's long-term monitoring program helps fulfill one of our responsibilities under the federal Oil Pollution Act of 1990 and is one of the longest running studies of its kind," said Donna Schantz, executive director for the council. "The council is pleased to be able to recognize, through the results of this study, the efforts and commitment by Alyeska and the Trans Alaska Pipeline System shippers to reduce hydrocarbon releases into the waters of Prince William Sound and the Gulf of Alaska."

Three types of samples were retrieved and analyzed in 2018: blue mussels, marine sediments and passive sampling devices.

Monitoring program

The monitoring report, "Long-Term Environmental Monitoring Program: 2018 Sampling Results and Interpretations," dated August, by James R. Payne, PhD, and William B. Driskell, attributed the two decade decline in hydrocarbon found in the testing to a combination of reduced volumes from the Ballast Water Treatment Facility due to decreased North Slope oil production as well as the transition to double hulled tankers with segregated ballast tanks and improved BWTF operating efficiencies.

The report says the BWTF at peak was discharging some 15 million gallons per day (this report measures in gallons, rather than barrels) down to only 1.1 million gallons per day currently, with an estimate that "more than half of the current BWTF effluent discharge in summer is from the terminal's stormwater runoff."

The new double hulled tankers have segregated ballast, the report says, with empty cargo tanks "typically used for supplemental ballast only when operationally necessary" such as in winter storms. Also, "normal segregated ballast waters are uncontaminated seawater that do not require treatment for hydrocarbons."

The report summarizes the ballast water situation as "less tanker traffic, cleaner ballast, and an improved ballast-water-treatment configuration at the Alyeska terminals" as all contributing to "substantial reductions in detected hydrocarbon concentrations and composition in the field samples."

Samples

Three types of samples were retrieved and analyzed in 2018: blue mussels, marine sediments and passive sampling devices. The council said samples are sent out to laboratories for chemical analysis and after lab analysis is complete, the data is interpreted by environmental forensic scientists.

In most years sampling is limited to Port Valdez, but

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contents

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● GOVERNMENT

Competitiveness review board back at work

Created by SB 21 in 2013, 11-member board preparing score card to show where Alaska stands compared to O&G producing areas elsewhere

By KAY CASHMAN
Petroleum News

Alaska's Oil and Gas Competitiveness Review Board has been reactivated after being relatively dormant for four years. Created in 2013 by Senate Bill 21, the board was designed as a resource for the Alaska Legislature, tasked with establishing and maintaining salient data on oil and gas exploration, development and production. It was to advise the Legislature on the fiscal system, labor pool and regulatory competitiveness; its role to provide factual information not policy.

The competitiveness review board's first report was delivered to the Legislature in March 2015, comparing Alaska's competitiveness to oil and gas producing peers around the world.

Now it's back in action, review board chairman Wyche Ford told Alaska Support Industry Alliance attendees at the association's Oct. 10 industry forum in Fairbanks.

"We're engaging in an update …. developing a score card that simplifies where Alaska stands with its competitors," Ford said, noting the board met the previous week and planned another meeting Nov. 19, just prior to the Resource Development Council's annual conference — that meeting and all future meetings would be public, he said.

What or who prompted the board's revival?

The current administration, specifically Alaska Department of Revenue Commissioner Bruce Tangeman, Ford said.

The commissioner is a member of the current review board and directly participates, Ford noted.

Board members

The board was set up to have two public members, three administration department heads (including Alaska Department of Revenue, or DOR), one commissioner from the Alaska Oil and Gas Conservation Commission, or AOGCC, three oil and gas subject matter experts and two industry trade group representatives.

Current review board members are Ford, project director for Fluor Corp.; Tangeman; Lynn Kent, deputy commissioner of the Alaska Department of Environmental Conservation, or DEC; Jeremy Price, chair of AOGCC; Sara Longan, deputy commissioner of the Alaska Department of Natural Resources, or DNR; Tom Maloney, financial analyst and CEO of Ahtna Netiye'; Kara Moriarty, president and CEO of the Alaska Oil and Gas Association, or AOGA; Bob Pawlowski, public member, owner of Applied Ocean Services, member of the Cook Inlet Citizens Advisory Council; David Reaves, public member, business manager of the International Brotherhood of Electrical Workers, or IBEW; Tom Walsh, public geologist, executive and co-founder of Petrotechnical Resources of Alaska, or PRA; and Bill Van Dyke, public petroleum engineer, and former director of Alaska's Division of Oil and Gas.

Some review board members were appointed by the current governor, Mike Dunleavy, and others by former governors.

What is competitiveness?

Competitiveness is the cost of supply, Ford explained. "It's more than just fiscal policy" — royalties, property taxes, severance taxes, and state corporate income taxes.

"Some factors are controllable," he said, others less so.

Giving fiscal policy a five star rating, it is the quickest to fix, Ford said, ranking the federal, state and local regulatory environment and infrastructure as next in line with two stars each.

The least controllable factors impacting competitiveness were those with a one star:

- Labor, equipment and service resources.
- Logistics.
- Time and distance to market.
- Proven and undiscovered potential oil and gas reserves.

"Existing well-maintained oil and gas facilities serve as a platform to enable nearby prospects and the likelihood of additional discoveries," a slide in Ford's presentation explained.

All of these factors affect the cost of supply, he said.

How does Alaska compare?

In almost all the factors that impact cost of supply, Alaska has higher costs and increased risks, Ford said, noting more than once that the primary controllable factor is Alaska's fiscal policy.

Before turning the presentation over to Walsh, Ford identified one other resource made available by Tangeman — a website page at dor.alaska.gov and a review board liaison, Genevieve Wojtusik, the primary contact for anyone interested.

The review board page includes its history, meetings scheduled, including an audio teleconference access phone number for the public, and a link to the review board's 2015 competitiveness report.

History of SB 21

Passage in April 2013 of Gov. Sean Parnell's oil tax change, SB 21, which eliminated the fiscal system enacted under the previous governor, Sarah Palin, was designed to make Alaska more competitive with comparable oil and gas producing areas, eventually leading to more investment by oil and gas companies, and ultimately increasing — or at least slowing the decline — of North Slope oil production.

> *"I think we need to make it very clear that this industry is critical to the state of Alaska and benefits the state of Alaska. We have $66 billion dollars in our investment fund right now and that's all generated by the activities of the oil and gas industry."—Tom Walsh*

The complicated progressivity under ACES was replaced with a 35% base rate and a per-barrel credit, Parnell said at the time, "ensuring Alaska's treasury is not exposed to the risk of paying $1 billion and more in tax credits when oil prices are low, and keeping the state competitively positioned when prices are high."

Immediate results were not expected because, as the Parnell administration said, additional investment would take time and added production wouldn't come for several years.

That said, several oil companies have either entered Alaska's North Slope since then or become more active; the biggest spenders being ConocoPhillips, Eni, Hilcorp, Oil Search and Repsol.

According to Alaska economist Ed King, once the new North Slope Pikka and Willow projects come online, production could "top out at 700,000 barrels of oil per day" (see story in Oct. 20, 2019 issue of Petroleum News).

Following passage of SB, there was an immediate call for a state-wide ballot referendum to dump the new production tax. It failed. But because of it, the competitiveness review board didn't hold its first meeting until Oct. 15, 2014.

Walsh, a bird's eye view

Walsh was pleased with the composition of the board, he said Oct. 10.

"It is very broad-based. … There are a number of members from the administration in key areas … key stakeholders for oil and gas competitiveness."

"I think there are several criteria that need to be met by this board in order to be effective and those are really broad perspective and we've got that … (for example) input from landowners is critical," Walsh said, noting in Alaska the land is primarily owned by the state of Alaska, the federal government and the Native corporations.

see **REVIEW BOARD** page 6

EXPLORATION & PRODUCTION

Pantheon buys Halliburton out of Alkaid

Pantheon Resources plc, the AIM-listed oil and gas explorer that works through its affiliate Pantheon Alaska Petroleum Operating LLC on the North Slope, said Oct. 18 it has entered into an agreement with Halliburton to acquire the service company's 25% interest it its Alkaid/Phecda prospect.

The deal gives the London-based Pantheon 100% interest in the six-lease prospect and is "important" to the company's farm-out discussions.

"The Alkaid/Phecda project … contains an estimated 900 million barrels of oil in place, and a P50 technically recoverable resource estimated at 90-135 million barrels of oil based upon primary recovery assumptions of 10-15%," Pantheon's CEO Jay Cheatham was quoted as saying in the press release.

"The location of this project, sitting immediately below and adjacent to the Dalton Highway and trans Alaska (oil) pipeline offers significant cost and timing advantages over other North Slope projects, with the possibility of year round activity and targeted first production as early as 2020," Cheatham said.

Pantheon's data room is open and it's working to find the right partner for the development, he said.

—KAY CASHMAN

FINANCE & ECONOMY

XCD raising funds for North Slope project

XCD Energy Ltd. emerged from a trading halt Oct. 23 to say it has commitments to raise $2 million through a dual tranche placement on the Australian stock exchange, the proceeds of which will be used to advance its onshore Peregrine project in the National Petroleum Reserve-Alaska.

"Tranche" is a French word meaning portion. In the investment world, it is used to describe a security that can be split into smaller pieces and sold to investors.

In this case Tranche 1 uses XCD's existing shareholders to raise approximately $500,000 through the issue of 48 million shares at 1 cent per share with 24 million free attaching options — one free option for every two paid shares, exercisable at 2 cents per option with a three-year expiration.

Under the same terms, Tranche 2 seeks to raise approximately $1.5 million through the issue of up to 152 million shares at 1 cent per share.

The second tranche placement will be around Nov. 29, pending stockholder approval.

XCD told Small Caps it expects to have approximately $3.2 million in cash following completion of Tranche 2.

The money will mainly be used to advance XCD's 149,590-acre Peregrine project and kick-off its farm-out campaign at the end of the year on the acreage.

XCD managing director Dougal Ferguson told Small Caps the funds may help advance a "low-cost drilling opportunity at Project Peregrine that, if successful, could result in the timeframe to drilling being significantly reduced."

XCD is "investigating the option of using innovative drilling options that would not only be significantly cheaper than traditional methods but could result in the drilling being done much quicker than the market is currently expecting," Ferguson said.

"This may actually allow us to drill, potentially, during next northern summer, which is July to September next year."

"There are still a few hurdles but it's something that … could add a lot of value."

—KAY CASHMAN

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REVIEW BOARD

“We have … representation from the industry in terms of the major oil companies, independents and even smaller companies” to help identify “where we fit in the global industry.”

The review board’s composition lends to its credibility, Walsh said.

“It’s not just about being competitive to BP, ConocoPhillips and ExxonMobil for bringing money to the state of Alaska. … It is much broader than that. I think we need to make it very clear that this industry is critical to the state of Alaska and benefits the state of Alaska. We have $66 billion dollars in our investment fund right now and that’s all generated by the activities of the oil and gas industry,” Walsh said.

“I would like to put this in the context of the colloquialisms that seem to surround this discussion and those are things like ‘open for business.’ We always like to say we’re open for business but what does that mean? It’s a great line, it’s a catchall … we all like to think we’re open for business but if the folks” that explore and develop “don’t think we’re open for business then we really aren’t,” he said.

Another colloquialism is “fair share” — “a very common theme … I am going to start using that term in every sentence just to make clear it’s silly because what does that mean? … Is our fair share when we run the oil and gas companies out of business, out of Alaska, because we’ve taken all the profit?”

To Walsh fair share “is not a time-transient idea. If a company comes in and leases land, explores and develops it, and then some time down the road their fair share changes, I don’t think that’s fair.”

Walsh described his comments as pie in the sky or an overview: “Basically we’re going to be crunching data to see where Alaska stands.”

Moriarty there from start

Moriarty said she and Walsh had been on the board since it was created.

“I will tell you that when Senate Bill 21 was passed I testified against (creation of) the board every chance I got because from the industry’s perspective we were nervous that if we had a competitive review board constantly reviewing our competitiveness the … intention would be to always constantly make changes but if you talk to the framers of Senate Bill 21, the board was modeled after the competitive review board in Alberta, which was created after the industry collapsed after there was a major tax change,” she said.

“Since that time, I would also argue the board has really been underutilized. It kind of went into dormant status right after 2013 because of course the (ballot) referendum came and there was a question whether Senate Bill 21 was going to be the lay of the land.”

After the referendum was defeated “we got a new administration and oil prices crashed and there was all this knee-jerk reaction when I think the original intent was that if there was an idea that a legislator or administration official had that this board could be the sounding ground … (offering) a very broad perspective, analyzing different components.”

Moriarty said she was “really excited to see an attempt by the Department of Environmental Conservation — they are about to launch … regulatory improvement process through DEC that could help increase the ability to do business (in Alaska).”

Given current budget restraints, Moriarty hoped the board would be able to utilize the consultants in place that work for the Legislature. ●

Contact Kay Cashman at publisher@petroleumnews.com

Oil & Gas Competitiveness Review Board

CURRENT BOARD MEMBERSHIP

NAME	APPOINTED	REAPPOINTED	EXPIRES
Ford, G. Wyche Non-Profit Trade Association, Chair	03/14/2016	07/01/2018	07/01/2022
Tangeman, Bruce Commissioner/Revenue/Designee	08/28/2019		
Kent, Lynn Commissioner/DEC/Designee	12/14/2018		
Price, Jeremy Chair of AOGCC/Designee	10/01/2019		
Longan, Sara Commissioner/Natural Resources/Designee	01/10/2019		
Maloney, Tom Public Financial Analyst	07/01/2014	07/01/2016	07/01/2020
Moriarty, Kara Non-Profit Trade Association	07/01/2014	07/01/2017	07/01/2021
Pawlowski, Bob Public	3/14/2016	07/01/2016	07/01/2020
Reaves, David Public	09/25/2019		07/01/2021
Walsh, Tom Public/Geologist	3/14/2016	09/19/2019	07/01/2023
Van Dyke, William Public/Petroleum Engineer	6/21/2016		07/01/2019

EXPLORATION & PRODUCTION

US drilling rig count, at 851, down by 5

Baker Hughes reports the number of rigs drilling for oil and natural gas in the U.S. was down by five the week ending Oct. 18 to 851, following an uptick of one rig the previous week.

In its weekly rig count the Houston oilfield services company said the active rig count was down 216 from 1,067 active rigs a year ago.

The company reported that 713 rigs targeted oil (up one from the previous week; down 160 from a year ago) and 137 targeted natural gas (down six from the previous week; down 57 from a year ago). There was one miscellaneous rig active (unchanged from the previous week and also unchanged from a year ago).

The company said 55 of the U.S. holes were directional, 745 were horizontal and 51 were vertical.

Texas, with the largest number of active rigs in the country, 423, was up by three from the previous week.

Wyoming and Ohio were each up by one rig.

The number of rigs active in Alaska, California, Colorado, North Dakota and Utah was unchanged from the previous week.

New Mexico and West Virginia were each down by one rig.

Louisiana and Oklahoma were each down by two rigs; Pennsylvania was down four.

Baker Hughes shows Alaska with eight rigs active for the week ending Oct. 18, up from three a year ago.

The U.S. rig count peaked at 4,530 in 1981. It bottomed out in May 2016 at 404.

—KRISTEN NELSON

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OIL CONTAMINATION

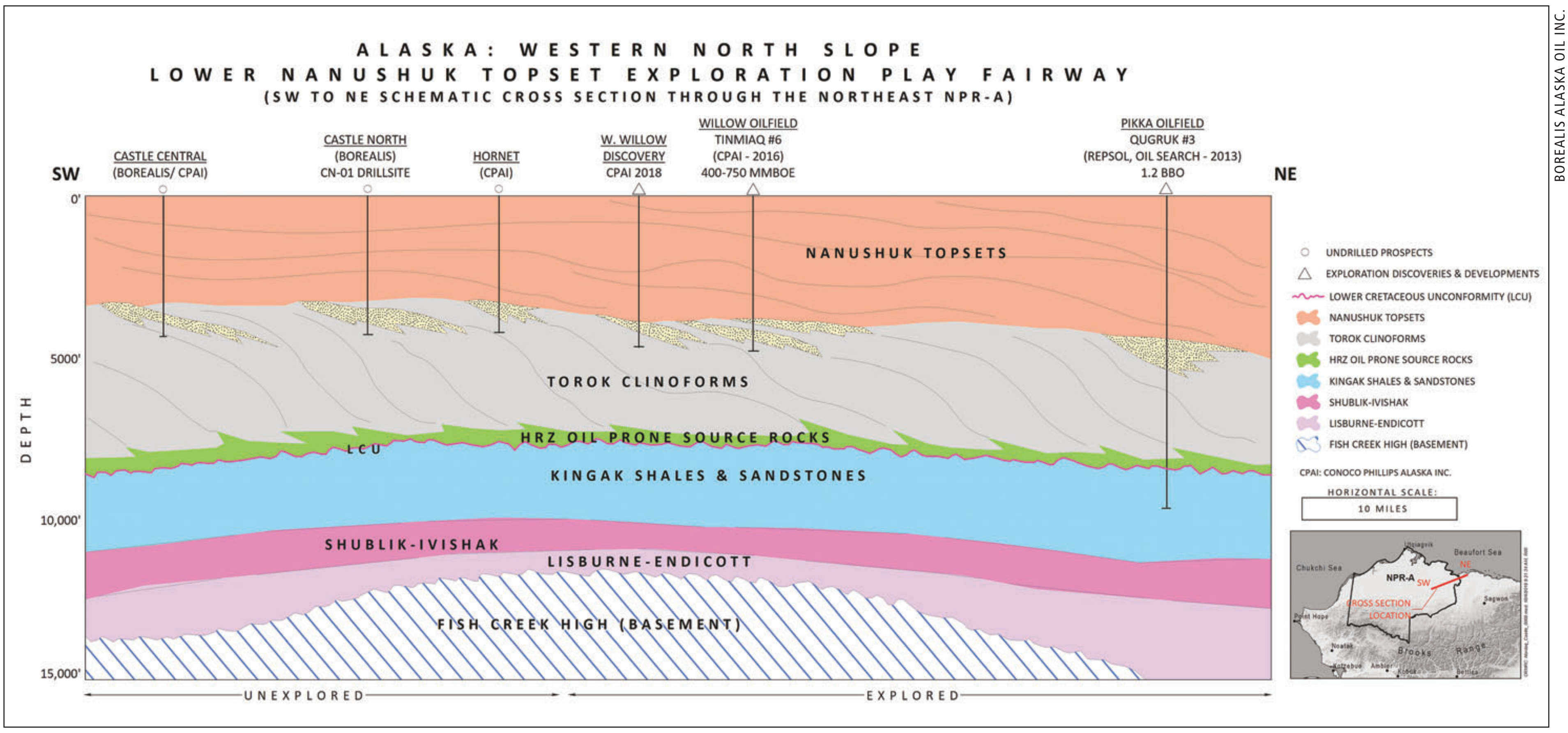
every five years, including 2018, sampling is expanded throughout Prince William Sound and the Gulf of Alaska, the council said, largely following the path of the 1989 Exxon Valdez oil spill.

Port Valdez monitoring is mostly focused on assessing environmental impacts of the Valdez Marine Terminal with focus elsewhere on assessing impacts of oil tankers and possible lingering oil from the Exxon Valdez oil spill, with unoiled sites included for control.

“The 2018 samples showed overall oil contamination in the sampled region was very low,” the council said, with oil concentrations measured in mussel tissue samples “below laboratory detection limits,” and oil contamination measured with passive sampling devices below any know toxicity thresholds for sensitive marine organisms.

“Compared to the historic range, dating back to 1993, oil concentrations on the marine sediments near the Valdez Marine Terminal and a clean control site were also low in 2018.” ●

Contact Kristen Nelson at knelson@petroleumnews.com



BOREALIS ALASKA OIL INC.

The Borealis Castle prospects in the National Petroleum Reserve-Alaska lie in a series of lower Nanushuk sand bodies that include the Willow and Pikka reservoirs.

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BOREALIS OIL

"We're actively talking to a number of companies right now that are interested," Garrard said.

Borealis, rebranded from NordAq in June, is based in Anchorage, Alaska.

Castle Prospect Trend

The NPR-A leases lie on what Borealis refers to as the Castle Prospect Trend, a series of six individual prospects in the lower Nanushuk, directly analogous to the geologic setting for major recent oil discoveries at Pikka and at ConocoPhillips' Willow discovery. The Castle leases lie directly southwest of Willow. Borealis is now the second largest lease owner in the NPR-A, after ConocoPhillips, Garrard said.

The Nanushuk finds lie in deltaic sands deposited on the shelf edge of an ancient marine basin. With the influx of massive quantities of sediment into the basin, the basin edge moved west to east over time, leaving a series of distinct sigmoidal sand bodies, each of which has the capability to form an oil reservoir. The Castle Prospect Trend contains sand bodies of this type. Moreover, seismic data indicate that the more easterly of these bodies, referred to as the Castle East prospect, lies in the same major sand body as the Harpoon prospect that ConocoPhillips has recognized to the north of the Borealis leases, Garrard said.

"We own a number of leases within that opportunity: one in the middle and three down at the southern end," he said.

Garrard commented that NordAq had recognized the potential of the trend and had obtained leases in the area three years before ConocoPhillips announced the Willow discovery.

Modern 3D seismic data are key to identifying these new exploration opportunities, with analysis of the data enabling the mapping of subsurface details while also enabling assessments of reservoir quality and possible fluid types in the reservoir, Garrard emphasized.

Inigok well

The drilling of the Inigok No.1 well in the Castle trend area many years ago by the U.S. Geological Survey

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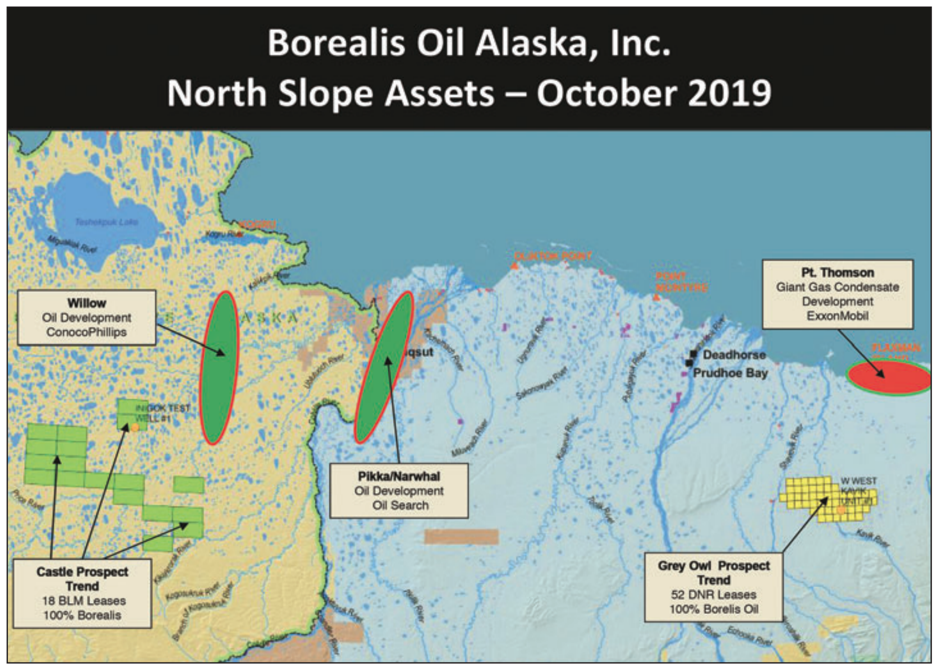
BOREALIS OIL

and Husky Oil points to a strong possibility of finding oil in the trend. The well was drilled very deep, to around 20,000 feet, to test for oil in the Ellesmerian sequence, the rock sequence that hosts the main oil reservoir for the Prudhoe Bay field. But the upper part of this well, down to a depth of about 4,000 feet, encountered sands with gas shows, Garrard said. These gas shows had heavy to light gas ratios indicative of the presence of light oil in the Brookian rocks of the region. The oil that ConocoPhillips found at Willow was light, with an API gravity of 40 to 44 API, Garrard said.

The presence of the Inigok well provides another benefit for exploration of the Castle trend: The drillers back in 1978-79 built a large gravel pad and a 6,500 foot runway to support their operations. The Bureau of Land Management has subsequently maintained these facilities as the Inigok Operations Center. And companies exploring in the area can use this center as an operations base, thus obviating the need to construct an ice pad or ice runway.



BOREALIS ALASKA OIL INC.

"It really does help, because there's not a lot of infrastructure as you go west," Garrard said. "That can make drilling operations and seismic operations much cheaper."

Equipment would be transported to the Inigok Operations Center by snow road from the central North Slope, he said.

Drilling potential

But, once the equipment is located at Inigok, it should be possible to drill several wells relatively quickly. Testing the Brookian prospects only requires drilling to depths of around 4,000 feet, with a single well perhaps taking around a week to drill, Garrard said.

So, Borealis has planned and is in the process of staking four Castle trend drilling sites, in what it refers to as its Castle North prospect. Drilling would start in the more northerly of the sites in the prospect. The tentative plan is to drill this first well and potentially a second well to depths of about 4,000 feet at Castle North in the winter of 2020 to 2021, once permitting and preparations for the drilling have been completed, Garrard said.

The intent is then to drill the Castle East and Castle Central lower Nanushuk prospects in the winter of 2021-22. These wells would need to be drilled to depths of around 4,800 feet.

Great Owl Prospect Trend

Borealis refers to the area of its leases to the south of Badami, to the west of the western border of the coastal plain of the Arctic National Wildlife Refuge, as the Great Owl Prospect Trend. Prospects in this trend, while also Brookian in age, are geologically different from those in the Castle trend. The Great Owl prospects lie in layered sandstones, referred to as turbidites, in the Canning formation. The turbidites, laid down on the floor of a deepwater basin, are analogous to the reservoir rocks at Badami.

And, as in the Castle trend, there is evidence from a previous well, the West Kavik Unit No. 1 well, drilled by Texaco in 1969, that there is light oil in the Canning formation at Great Owl. That well was again targeting deep rocks in the Ellesmerian but encountered significant shows of light oil in the Canning.

Advantageous location

The potential reservoir rock at Great Owl is directly analogous to the Badami field reservoir. But, whereas oil production at Badami has proven challenging, the location of possible Great Owl reservoirs, more in the axial region of the marine basin in which the potential reservoir sands were deposited, is advantageous: There should be bigger basin-floor rock sequences, with more stacked reservoirs, Garrard said.

"That's exactly what you see from the West Kavik Unit No. 1," he said.

Moreover, not only did the Kavik well encounter plentiful quantities of light oil, but the reservoir section was over-pressured. This suggests that there would be pressure to help drive oil from a reservoir rock to the surface, Garrard said.

And the low density of the oil should aid production, even if reservoir rocks are compartmentalized. Elsewhere on the North Slope people have found that if a challenged reservoir holds light oil, modern drilling and completion technologies can enable oil production at commercial rates, Garrard said. He said that reservoir modeling for the Great Owl trend supports the likelihood of commercial flow rates from production wells.

Following a comprehensive petrophysical analysis of data, including information from well logs, well test results and geologic samples, Borealis has identified a number of subsurface zones where commercial oil production looks possible, Garrard said.

And the area is just 25 miles south of existing oil infrastructure at Badami.

Garrard said that Borealis has licensed all of the available 2D seismic data for the Great Owl area and would like to acquire 3D seismic. TGS and SAE conducted field studies this summer, looking at archaeological sites, as a precursor to possible 3D surveying operations next winter, he said.

Smith Bay divested

NordAq had interests in leases in

see **BOREALIS OIL** *page 12*

Congratulations

Congratulations Oil Search!

Congratulations Keiran Wulff and Bruce Dingeman on your recent promotions.

Keiran Wulff

Bruce Dingeman

ABR Inc.
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Petroleum Equipment & Services, Inc.
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PRA (Petrotechnical Resources of Alaska)
Price Gregory International
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Resource Development Council
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Soloy Helicopters
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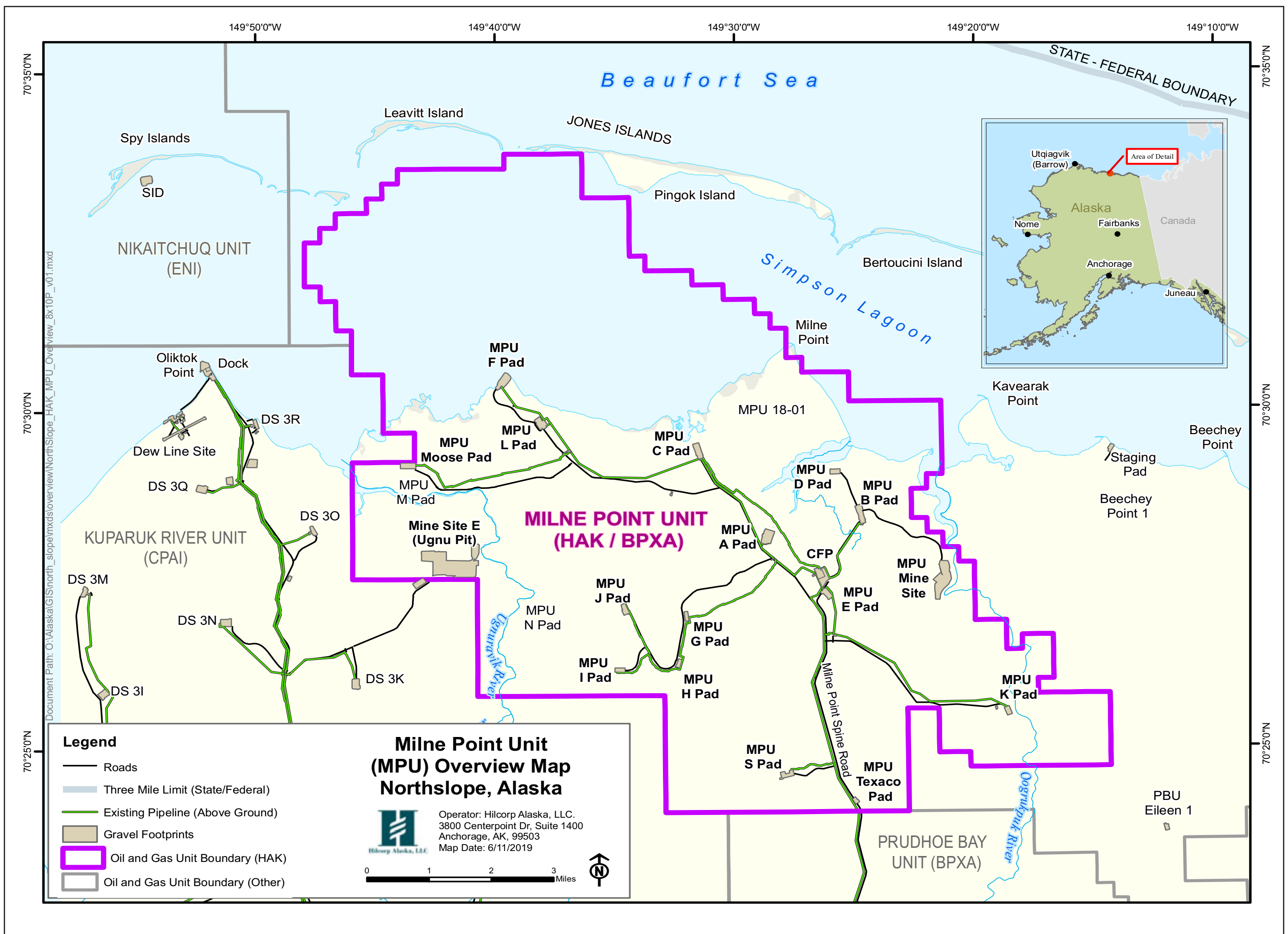
Strategic Action Associates
Summit ESP, A Halliburton Service
Tanks-A-Lot
The Local Pages
TOTE – Totem Ocean Trailer Express
Udelhoven Oilfield System Services Inc.
Weona Corp.
Weston Solutions
Wolfpack Land Co.
Worley



This Milne Point unit map was released prior to Hilcorp filing any applications referencing its new Raven pad, the general location of which is found in this story.

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NEW PLAN

extract.

Hilcorp also said it would be doing S pad "facility upgrades and infrastructure" to support 2020 Ugnu crude development yet this year — specifically by the end of the current and 37th POD, which is Jan. 12.

The Milne Point field has four oil pools. Starting with the shallowest, they are Ugnu, Schrader Bluff. Kuparuk River and Sag River. Currently, oil produced from Milne is the viscous Schrader Bluff and the lighter Kuparuk oil.

Hilcorp said last year that not only would the field soon again be producing from the Ugnu pool, but also from Sag River.

The state-designated Milne Point unit involves the Kuparuk participating area, or PA, the Schrader Bluff PA and the Sag River PA. Additionally, the unit includes tract operations C-15A, S-90, C-23, K-33, MPS-37, MPS-39, MPS-41, MPS-43, B-30, C-46 and S-203.

Oil output rises

In the 38th POD filed Oct. 15 were a list of major facilities projects completed in the unit under the 37th POD, including Moose

see **NEW PLAN** *page 15*

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WATER RELEASE

oil, "any additives introduced during the production/treatment process, and brine."

Preliminary indications are that the release "was due to the separation of expansion joints on a suction header that connects to two produced water injection pumps within module 4941," and it is believed the separation occurred "due to a 'water hammer' that was created when the two pumps shut down during a power outage."

DEC said the source of the release has been controlled.

BP and Alaska Clean Seas responders have been on scene conducting containment and recovery actions since about 9 a.m. Oct. 21, DEC said, focusing on recovering pooled product on and off pad using vacuum trucks. While the release occurred in Module 4941, it leaked out of that module to two adjoining modules, the underlying and adjacent gravel pad, and then east across the pad onto the snow covered tundra.

Alaska Clean Seas conducted an unmanned aerial vehicle overflight with forward looking infrared radar capabilities to delineate the affected area. DEC said responders built a gravel berm on the pad to prevent further migration of fluids to the tundra and "product that migrated off pad appears to be contained on already existing ice within the polygonal troughs of the tundra. There have been no reports of impacts to wildlife."

Pooled product on and off the pad will continue to be removed, after which "flush and recover" tactic will be used to remove produced water on and off the pad.

DEC said FS3 remains shutdown while BP works on plans for a repair.

BP spokeswoman Megan Baldino told Petroleum News Oct. 23 that the company is working closely with state and federal regulators to mitigate any environmental impacts.

"BP remains committed to safe, compliant and reliable operations," Baldino said.

—KRISTEN NELSON

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MACKENZIE FIGHT

Port MacKenzie on the west side of Cook Inlet, with an LNG facility there.

Alaska Gasline Development Corp., the project proponent, responded to the Mat-Su request for issuance of a supplemental DEIS, arguing that the borough "mischaracterizes the facts."

AGDC said the Port MacKenzie alternative is described and evaluated in the DEIS and proposes that Mat-Su "is merely commenting about where in the DEIS this analysis is found."

Mat-Su argued that a pipeline terminating at Port MacKenzie would meet project objectives; AGDC said that while the project objectives don't specifically include a Kenai Peninsula connection to the Enstar system, a terminus on the Kenai with a connection to Enstar is encompassed by the project objective of providing gas interconnections and gas to users in the state. With a terminus at Nikiski, AGDC argues, the system would connect to both ends of the Enstar system, at Beluga on the west and in Nikiski on the east, enhancing Enstar's "ability to balance its system and serve the high demand for natural gas in Anchorage and surrounding areas."

Mat-Su cites Corps

Mat-Su responded to AGDC's comments, and those of the Kenai Peninsula Borough, saying it wanted to "correct certain errors" in those comments and citing comments by the U.S. Army Corps of Engineers, noting the Corps has said the DEIS Alternatives Analysis "contains certain statements that may be 'inaccurate,' 'misleading,'" and even indicate bias on FERC's part for the proposed plan.

The Corps, a cooperating agency, also needs to issue its own permits under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899, that agency said in the Oct. 3 comments. The Corps' comments cover a range of issues from a question whether a reference to BP Exploration (Alaska) Inc. should be revised to Hilcorp to identifying typographical errors in the DEIS to requests for clarification of terms such as unlikely and requests for more specifics.

On alternatives, the Corps notes that related to Port MacKenzie: It does not annually dredge the Knik Shoal, although, it said, it does monitor the shoal to assess the need for dredging.

Among the Corps' requests for clarification it asks FERC to explain why the additional distance to Port MacKenzie would require 12 additional vessel transits annually. "Would not the same size LNG carriers be transiting to a Port MacKenzie facility? If not, why not?"

Among the Corps' requests for clarification it asks FERC to explain why the additional distance to Port MacKenzie would require 12 additional vessel transits annually.

The comments also cite a sentence which begins: "The proposed Project is superior in certain other …" saying "use of the word 'superior' indicates an extreme bias on FERC's part for the proposed Project. The Corps recommends the use of a more neutral word or phrase such as, 'more beneficial,' or 'has less impacts to other specific resources than the Port MacKenzie Alternative.'"

The Corps also discusses a statement on Beluga whale impacts which asserts they would be greater with the Port MacKenzie Alternative and "would persist for the life of the Project as opposed to the short-term impact presented by the Cook Inlet pipeline construction for the proposed route," calling the statement "an inaccurate, or misleading, summary of Beluga whale impacts."

The Corps said the FERC discussion of the impact on Beluga whales was based on a statistical analysis of the probability of whale strikes and construction in habitat critical to the Belugas.

The Corps told FERC: "Your summary makes it seem as though after construction of the Cook Inlet crossing, impacts to beluga whales would cease for the proposed Project; however, there is still a potential for beluga whale vessel strikes in that location." The FERC summary should acknowledge this, the Corps said, "but should also state the probability of vessel strikes is significantly lower than that of the Port MacKenzie Alternative location."

The DEIS cites the marine environment at Port MacKenzie — high tidal fluctuations, related strong current, ice foes — as a limiting factor. The Corps requested "further discussion in this analysis about the conditions at the site, what measures would be needed in order to operate there safely due to those conditions, and whether or not implementation of those measures are reasonable and practicable."

—KRISTEN NELSON

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PIKKA PRODUCTION

and Mitquq in what the company dubbed the "Pikka East Block."

The Mitquq prospect is approximately 6.2 miles from the proposed Pikka unit ND-A pad.

If successful, Oil Search said Mitquq has the potential to be tied-back to the proposed Pikka unit central processing facility, while success at the Stirrup prospect could help underpin a standalone central processing facility for Horseshoe.

The report's introductory highlights on third quarter activities were:

* Pikka unit development on track to enter FEED by the end of this year.

* Maturing plans for previously announced early 2022 production of 30,000 bpd.

* Investment bank engaged to assist in a partial sell-down of Alaska equity interest.

Reducing equity to 35%

Oil Search currently holds a 51% working interest in much of its Pikka unit, Horseshoe block and area exploration leases, most of which are west of the central North Slope, with Repsol SA owning 49%.

The two partners have an AIPN model joint operating agreement that allows Oil Search to retain approximately a 35% interest in the core assets and maintain its position as operator. (AIPN is the Association of International Petroleum Negotiators, an independent not-for-profit professional membership association that supports energy negotiators.)

The partial sell-down of Oil Search's Alaska interest is targeted to take place in mid-2020, just ahead of the company's final investment decision on the Pikka development

Oil Search and Repsol originally intended take on a third partner "back-to-back with the exercise of the Armstrong purchase option," Oil Search acknowledged in a June 27 statement.

"Despite not running a formal process, in late 2018/early 2019 Oil Search received strong expressions of interest from third parties, including an attractive conditional offer to acquire an interest from the joint venture in the Pikka unit development project and adjacent leases," the company said at that time.

The process was "suspended in early 2019 due to a change in partner views … following the positive results of the 2018/19 appraisal drilling and the increase in resource potential recognized in the Horseshoe area, both within the existing field extension and in newly identified Nanushuk prospects within the Horseshoe block," the company said, validating rumors and remarks from Repsol executives that the Madrid-based major was interested in increasing, not decreasing its North Slope investments.

A couple of months later Oil Search said it wanted to do the same thing with early results from the 2019/20 winter drilling season: "We believe this timeframe will enhance the value of our selldown, by incorporating the expected resource upgrade within the Pikka unit, optimized drilling information and early results from the 2019/20 winter drilling season."

Oil potential increasing

The third quarter report also mentioned the resource upgrade, noting "early seismic reprocessing results and additional data from analogous formations indicate a likely material upgrade of resource estimates for the Pikka unit Nanushuk reservoir and satellite fields, above the 500 million barrels (gross) acquisition case. This data is currently undergoing evaluation by an independent expert and the company will issue updated resource figures when the development enters FEED." (FEED stands for front-end engineering and design.)

The company that put the Pikka and Horseshoe area lease position together and first recognized the immense potential of the Nanushuk formation, Armstrong Energy, and the first partner it brought into the deal, Repsol, have previously estimated that the Nanushuk reservoir under Pikka and nearby leases could hold 1.2 billion barrels of recoverable light oil.

Targeting 50,000 bpd early?

Regarding early production in mid-2022 of 30,000 bpd, the third quarter report said the output will come from a single drill site, but it did not mention the company's previously announced deal with Kuparuk River unit operator ConocoPhillips to utilize the Kuparuk central processing facility 2 for early Pikka production until Oil Search's own processing facility is ready for oil.

Further, the report did not mention the information contained in a September presentation slide that said Oil Search's Alaska team through a value engineering process is looking to increase early production to 50,000 bpd. ●

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BOREALIS OIL

Smith Bay, off the western end of the North Slope, where Caelus Energy Alaska made a major oil find in 2016. However, Borealis has divested of its Smith Bay assets, having determined that the logistical costs of operating in that area are too high for a relatively small company, Garrard said. Also, although NordAq had conducted exploration activities in the Cook Inlet region, Borealis is now focusing on the North Slope rather than the Cook Inlet, he said.

Garrard commented that the presence of NordAq, now Borealis, in the Alaska oil industry represents a trend towards activity by smaller oil companies seen in a number of petroleum basins around the world.

"New companies with new ideas and more activity are needed to stimulate fresh exploration and hopefully new discoveries," Garrard commented, while also reflecting on the success of tax incentives in encouraging wildcat exploration in regions faced with declining oil production. ●

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ELECTION RECAP

Trudeau lost 27 of the parliamentary seats he won in 2015, mostly in his home province of Quebec, while the Conservatives under Andrew Scheer gained 22.

The most telling blow to the Liberals' confidence occurred in the resource-driven Prairies, where the Conservatives won 33 of 34 seats in Alberta, all 14 in Saskatchewan and seven of 14 in Manitoba, while adding 17 of 42 in British Columbia from mostly rural electorates.

Thus, Trudeau, who is unlikely to seek a formal coalition, can only govern with votes from the socialist NDP, since he has no chance of support from the separatist/nationalist Bloc Quebecois, whose unspoken objective is to pull Quebec out of Canadian Confederation.

In those circumstances, he will be forced to bargain for votes on an issue-by-issue basis, while possibly appointing outsiders to his cabinet if he hopes to maintain a pretense of caring for all Canadians.

That boils down to a simple case of Canada's tail wagging its dog, causing the greatest unease in Alberta and Saskatchewan, who have been threatened by the NDP and the Greens with a winding down of Canada's fossil fuel industry over the next 10 to 30 years.

The two key minority parties have shown no desire to reverse the Liberals ban on tanker traffic off the northern British Columbia coast or the sweeping changes to environmental review legislation for major resource projects.

Nor is it likely that they will adopt Scheer's campaign pledge to build an energy corridor across Canada to replace about C$11 billion a year of oil imports from the Middle East and Africa to Quebec and open up oil exports from Canada's East Coast.

Trans Mountain expansion

The NDP and Greens are also resolutely committed to what one newspaper columnist called Trudeau's Goldilocks Policy which introduced a national carbon-pricing policy in return for getting Canadian oil to offshore markets through an expanded Trans Mountain pipeline system, TMX.

What that means for TMX will be the first test of the minority regime.

The most telling blow to the Liberals' confidence occurred in the resource-driven Prairies, where the Conservatives won 33 of 34 seats in Alberta, all 14 in Saskatchewan and seven of 14 in Manitoba, while adding 17 of 42 in British Columbia from mostly rural electorates.

The Liberals already have a bundle of public money tied up in TMX, having spent C$4.5 billion to acquire the existing 300,000 barrels per day Trans Mountain pipeline, and started down the road to spending about C$9 billion to deliver another 590,000 bpd of capacity from the Alberta oil sands to export tanker terminals in the Vancouver area.

Trudeau is virtually assured of Conservatives backing in the House of Commons to any efforts he makes to advance TMX and might even get support from the NDP whose leader Jagmeet Singh has presented Trudeau with a long list of demands that pointedly sidestep any call to kill TMX.

Alberta concern

The overriding concern for the Alberta government is to improve the province's ability to reverse the trend in capital spending which is expected to shrink by 7% this year to C$36 billion as drilling drops 18% to 5,000 wells, which Energy Minister Sonya Savage said is vital to achieving "our main objective ... getting market access" for crude bitumen and LNG.

"We are tired of being a punching bag," she told the Calgary Herald. "All we want is to get our resources to market. We have a constitutional right to develop them."

Tim McMillan, president of the Canadian Association of Petroleum Producers, said Alberta is in a "terrible spot as far as global investment goes."

"A minority government doesn't send a clear signal to the market, to global investors, that we're getting a shift in direction that would change their view of us," he said.

Rafi Tahmazian, a senior portfolio manager at Canoe Financial, said the new federal government will see Canadian energy shares stuck with "dirt cheap valuations and we will bounce along the bottom for an extended period of time. We are paralyzed."

The election result is a "sad day for Western Canada. It probably means more job losses for Alberta," said Robert Cooper, with the Calgary-based investment firm Acumen Capital Partners.

"When you have a government that is strangling you out of existence, your risk tolerance just went out the door," he said.

Grant Fagerham, chief executive officer of Whitecap Resources, echoed those views, suggesting companies have no choice but to be "more restrictive on spending" until they are sure production has a market.

Now he said the question is "where do we go from here? We definitely have to look at pulling back from spending."

Bob Geddes, president of Ensign Energy Services, said an oilfield service company is going bankrupt every week and that is unlikely to change given the election outcome.

Grim picture

The grim overall picture has been painted by Trevor Tombe, an associate economics professor at the University of Calgary, in a new analysis that asked what the impact would have been on the Canadian economy if Alberta's growth rate had kept pace since 2014 with British Columbia.

He projected that Canada's economy would be C$130 billion (or 5.7%) greater, its unemployment rate would be 0.8% lower and the federal deficit nearly C$13 billion a year smaller, which would be close to balancing the federal budget.

Tombe said that when Alberta employment was at its peak in 2014, before Trudeau was first elected, it provided jobs for 150,000 out-of-province Canadians who generated good incomes that boosted the tax revenues of their home provinces.

When Alberta was booming it was responsible for spending C$75 billion a year on total domestic internal trade of C$380 billion. The current consensus is that those days are long gone.

—GARY PARK

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NORTH SLOPE LNG

year of LNG," Qilak President and COO David Clarke told Petroleum News.

"The agreement at the moment is exclusively with Exxon; once we're able to talk to Hilcorp, once they take over the BP interests, then we hope to have enough gas to increase that to at least 6 million tons," Clarke said.

Hilcorp is slated to purchase the 32% share of Point Thomson currently owned by BP, under a $5.6 billion sale of BP's North Slope assets and operations announced in September.

If all goes well, first gas would ship in 2025 or 2026, Clarke said.

An extensive feasibility study, including preliminary permitting, will begin in 2020, with a target of reaching final investment decision by 2021, said former Alaska Lt. Gov. Mead Treadwell, Qilak chairman and CEO.

The project is to "be supported by Japan's Bank for International Cooperation (JBIC), as it helps fulfill Japan's commitment to foster investment in U.S. LNG production capacity and to bring new LNG supplies to Indo-Pacific region," Qilak said. "This cooperation is expected to grow as the next phase project feasibility is determined."

Double acting ships

The LNG tankers, designed in Finland, are double acting ships with an efficient bow for open water and thin ice cover, and a heavy ice breaking stern. The ship is run in reverse in heavy ice. The design has better open water performance than traditional ice breaking ships.

Similar vessels have been successfully employed to carry LNG from the Yamal LNG plant located in Sabetta on the Yamal Peninsula, in Arctic Russia.

"The company that designed them has come up with a Mark II version that we would use, very similar but improved performance and LNG capacity," Clarke said. "We're very fortunate to have the learning from the Yamal project, and those LNG carriers have really exceeded the expectations in their ability to transit ice."

"The Russian vessels have successfully broken through ridges that have ice of 10 to 12 meters thick," he said. "They have the ability to actually mill on the ice with their props."

Unlike the Yamal project, Qilak will have a much shorter distance through ice to reach the open waters of the lower Bering Sea and North Pacific Ocean — 600 nautical miles versus 2,600 nautical miles.

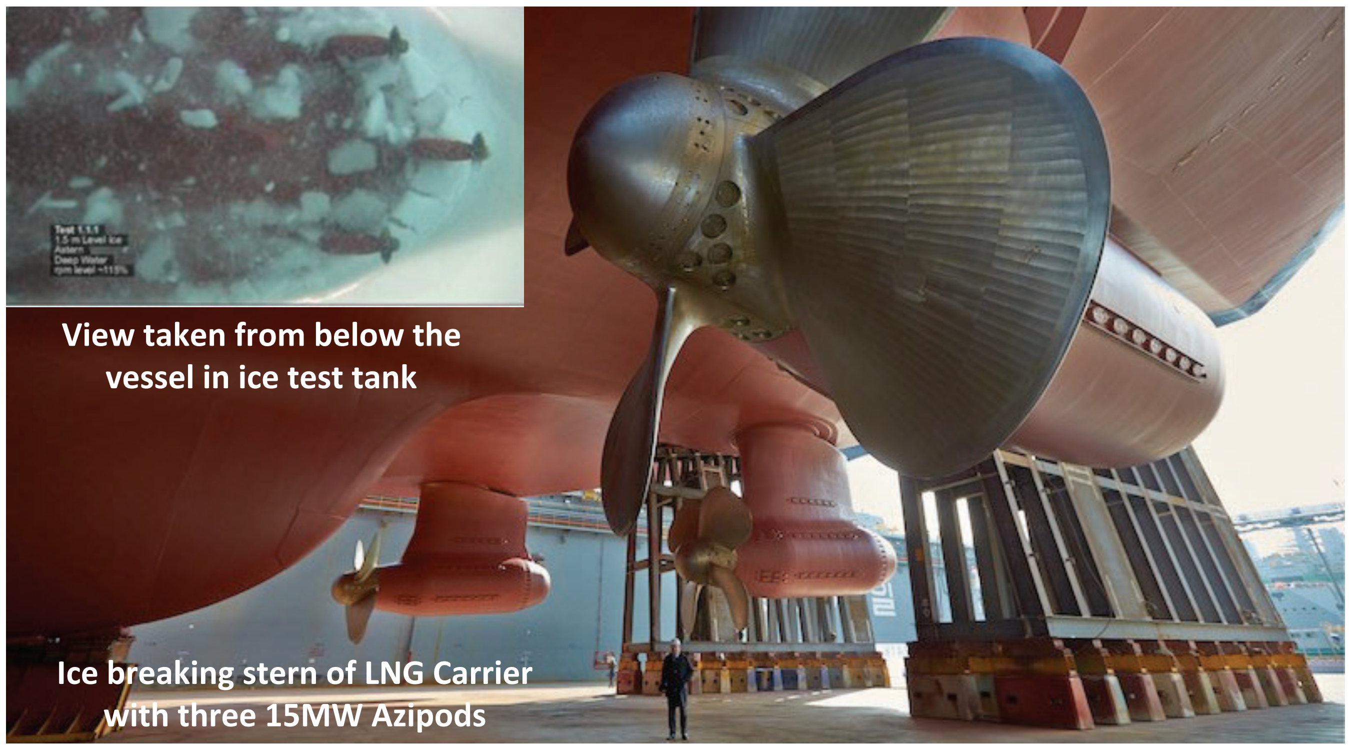
Aker Arctic Technology Inc. of Helsinki, Finland, did the design work for the vessels the Russians are using, Clarke said.

"They're the experts in icebreaker design and ice management," he said. We'll be kicking off a contract with them shortly to do an ice management study."

Qilak won't run ships itself, rather it will contract with experienced major international shipping companies to own and operate its tanker fleet, Clarke said.

Depending on routes and contracts, the fleet will likely number between four and 10 new ships, Qilak said.

Yamal Dual Acting LNG Carrier Azipods



COURTESY QILAK LNG

Massive ice breaking props can mill through ice ridges.

Gravity based structure

The LNG plant will be a large gravity based structure, which will be floated into place and ballasted down on the seabed.

"They put hematite, or iron ore, and water in it to weigh it down and it's possible to refloat it once the field is depleted, and redeploy it elsewhere," Clarke said.

"Basically, its weight is what keeps it in position," Clarke said, adding that the structure has LNG storage in its base, the liquefaction plant on the top deck and offloading arms to load the ships.

"Depending on the soil conditions, it may have a skirt around it, but those systems generally have some kind of an air bubbler type thing to release the friction when they want to refloat it," he said.

"It would be very similar to the design that the Russians are using on the Arctic LNG 2 project, where they're building three very large 6 million tons per year gravity based structures."

Clarke said the structure will be built "in a shipyard in Asia, where it's built under controlled conditions, and you can get a lump sum contract."

"We're looking to use a similar type design for Prudhoe Bay in the next phase, and a similar design might work in the Mackenzie Delta in Canada," Clarke said. "The concept is to design one and build many. It just makes the whole project more manageable; it's easier to finance; it's easier to match the supply of LNG to the demand in Asia."

It is yet to be determined if the LNG plant will be in state or federal waters. It must be far enough offshore to have sufficient depth for year round operations of the LNG tankers.

The location will be "probably about six to 10 miles north of the Point Thomson field," Clarke said.

The gas pipeline from Point Thomson will be trenched and buried to avoid ice scour, he said.

A gas treatment plant would be located onshore at Point Thomson, adjacent to existing facilities.

"It's almost like we incorporate the gas treatment facility into the Point Thomson expansion," he said.

"It's more efficient to do that from a process perspective, then Exxon is responsible for disposing of the CO2 and H2S," Clarke said. "It would be what is called pipeline quality gas; it would have the contaminants removed, it would be dry, and we would be able to liquefy 100% of that gas."

There is a possibility that other entities could sell gas to the LNG facility.

"We could actually go up to 8 million tons, so we could take another 250 or so million cubic feet of gas a day, for example, from Endicott," Clarke said. "Endicott is a little bit closer to Prudhoe Bay, but it's roughly midway between the two fields."

LNG experience

Qilak's parent company, Lloyds Energy of Dubai, is involved in multiple phases of the natural gas and LNG indus-

see **NORTH SLOPE LNG** *page 15*

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NORTH SLOPE LNG

try worldwide.

"Lloyds actually handles all parts of the supply chain, so they have upstream projects, but they also have several downstream projects in Asia, where they take the LNG and re-gasify it and put it into local gas grids or use it to generate power and sell power to local grids," Clarke said. "They recently announced a project in the Philippines with the Philippines national oil company, for a 1,200 megawatt gas powered power plant. It would be a barge mounted, nearshore facility, and could take all the supply from this project, and basically we would be selling electricity."

"It would be replacing a coal powered plant, so basically we'd have a significant reduction in greenhouse gasses as a result," Clarke said.

"We've got a contract with the Philippines at the moment; there's another one in China," Clarke said, adding, "we're also talking to the Japanese, Koreans, Vietnamese, and Jakarta."

Clean air synergies are woven throughout the Qilak LNG 1 Project, according to Kalb Stevenson, Qilak permitting specialist.

"When you wean off coal and go to a cleaner burning fossil fuel like LNG, you have about a 45 to 50% reduction in CO_2, you get rid of those environmentally damaging sulfides, particulates, and a significant reduction in nitrous oxide," Stevenson said. "LNG is ... the cleanest burning fossil fuel, and it goes a long way with not only local health impacts related to air, but also global impacts that would be beneficial to reduce CO_2 — and those vessels themselves run on LNG, so it's a cleaner burning transport fuel as well."

"There's practically no pollution risk from the transit of the vessels," Clarke said. "There is a little bit of diesel as a backup, but no heavy fuel oil, and of course the product would evaporate if there was a spill."

COURTESY QILAK LNG

North Slope surprisingly close to Asia by sea

Gas for Alaskans

"The other thing that we're looking at is a way to supply gas to Alaskans," Clarke said.

"We're looking to see if there's an option where we could supply LNG to communities on the west coast," he said. "We can't use our LNG carriers because they're not Jones Act compliant, but we're looking at either using a smaller vessel to deliver the LNG or putting it in ISO containers."

Stevenson said the project would open pipeline-based opportunities to supply Alaska communities and projects.

"As Dave mentioned, not only Point Thomson, but if Prudhoe Bay was developed, you take a big first step towards having a gas treatment plant there, so if the state, or the Ambler mining district, or someone decided they wanted to bring in energy, you would already have treated gas at Prudhoe Bay; you would have treated gas at Point Thomson," Stevenson said. "It wouldn't be too difficult for a different entity that wanted to pipe gas, let's say over to Ambler mining district, or even down to Fairbanks, to do something like that because that big expensive facility would already be in place, and all you would really need to do is link in a pipeline to it." ●

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NEW PLAN

pad facility and pipeline startup, permitting and planning activities for the new Raven pad (see article in the Oct. 20 issue of Petroleum News), and polymer injection activities, such as engineering for Moose pad, discharge pressure upgrades for J pad, filter pot addition for J and L pads, and engineering and procuring for the F pad polymer injection facility.

During the eight months ending Aug. 31, Milne's average daily production rate was 23,322 barrels of oil per day, Hilcorp said. During the same period last year, the nearly 40-year old field's daily average was 20,590 barrels. Hilcorp said the Milne Point unit has not historically, and is not currently, equipped to sell natural gas liquids; rather, all oil produced is conventional black oil.

Next year's plans

During the 38th POD from Jan. 13 through Jan. 12, 2021, Hilcorp anticipates completing the following drilling, workover and facility projects.

- Drill up to 28 new wells.
- Complete up to 20 well workovers with the ASRI workover rig.
- Undertake eight key facility projects.
- Undertake another four or more projects.

Potential drilling candidates include 16 Moose pad Schrader Bluff wells (half injectors, half producers), two Moose pad Kuparuk wells (producers M-57 and M-58), three S pad Ugnu wells (one producer, two injectors) and seven S pad Schrader Bluff wells (four producers, three injectors).

The key facility projects Hilcorp expects to undertake include Moose pad upgrades to the test header and production header, J and L pad polymer silo upgrades, F pad polymer facility installation and startup, Moose pad polymer facility installation, 2020 shutdown for A-train process vessel inspections and upgrades, LM2500 turbine overhaul completion, portable heater for test separation and portable test separator.

Other Milne Point projects might include, "but are not limited to," Raven pad design and civil work, S pad facility future expansion, S pad polymer engineering and purchasing and diesel to slop oil tank conversion.

Long-range activities

Hilcorp said it is continuing to evaluate future drilling opportunities and plans to continue to evaluate potential undeveloped resources in the field.

During the 38th POD period, the big independent intends to advance design and civil work for construction of the new Raven drilling pad.

In an April application to the U.S. Army Corps of Engineers to expand gravel mining at Milne, Hilcorp told the Corps it needed "enough gravel for 2 to 3 pads initially."

The 38th POD was filed by Jim Shine, a senior landman at Hilcorp.

—KAY CASHMAN

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