



page 4 ANS production flat from January, but down 3.4% from February 2020

Cook Inlet geothermal exploration proposed by Craig's GeoAlaska

Alaska's Division of Oil and Gas has issued a preliminary finding, proposing the issuance of a permit to GeoAlaska LLC for geothermal exploration on state land tracts on the southern flank of Mount Spurr, an active volcano about 80 miles west of Anchorage. The permitted tracts are adjacent to land tracts for another geothermal exploration permit, recently issued to Raser Power Systems LLC. The state's finding is subject to revision based on public comments on the permit proposal.



PAUL CRAIG

The proposed permit involves three land tracts covering

see **INLET GEOTHERMAL** page 11

Court finds determination on tug noise arbitrary and capricious

In a March 30 decision U.S. District Judge Sharon L. Gleason upheld the National Marine Fisheries Service mitigation and monitoring measures for seismic surveying in Cook Inlet but found arbitrary and capricious the agency's determination that noise from tugs towing a drilling rig would not cause take or harassment of Cook Inlet beluga whales.

Gleason granted a request from defendants for supplemental briefing on an appropriate remedy with briefs due from each party within 14 days of the March 30 order and responses to the other parties' proposed remedies with seven days after that.

Plaintiffs Cook Inletkeeper and the Center for Biological Diversity challenged NMFS' incidental take regulations

see **SEISMIC SURVEYS** page 10

UAF-led research team finds Milne Point polymer injection a success

A project researching the effectiveness of polymer injection for enhanced heavy oil recovery in the Milne Point field on Alaska's North Slope is verifying significant benefits from the use of this injection technique. The \$9.7 million project, primarily funded through a \$7.1 million grant from the U.S. Department of Energy, is led by the University of Alaska Fairbanks and involves Milne Point operator Hilcorp Alaska, New Mexico Tech, Missouri S&T and the University of North Dakota.

"It's a great example of government, academia and industry collaboration," Abhijit Dandekar, professor and chair of petroleum engineering at UAF, told Petroleum News.

As previously reported by Petroleum News, Hilcorp has

see **POLYMER INJECTION** page 10

Supreme Court of Canada rules against provinces on carbon tax

Almost one-third of Canada's provinces — Ontario, Alberta and Saskatchewan — representing one-half of the national population have been left licking their wounds following a landmark verdict by the Supreme Court of Canada that the federal government has the authority to tax carbon emissions across the country.

But what they suffered was far from a resounding defeat, with three of nine judges on the nation's top court challenging the Greenhouse Gas Pollution Pricing Act imposed by Prime Minister Justin Trudeau in 2018.

One said the law gave the federal cabinet the power to override the provinces ownership and control over development of their natural resources.

The other two were even more sweeping in their dissenting

see **CARBON TAX** page 12

EXPLORATION & PRODUCTION

Results look good

Preliminary information in from North Slope's two winter exploration wells

By **KAY CASHMAN**

Petroleum News

Early data from the North Slope's two winter exploration wells are encouraging, operators say.

88 Energy, whose subsidiary Emerald House drilled the Merlin 1 well in the National Petroleum Reserve-Alaska, said March 29 that "interpretation of logging while drilling data indicates multiple potentially hydrocarbon bearing zones" were encountered in the Nanushuk formation.

The company said March 31 that wireline logging is underway with preliminary results expected April 3-4.

Pantheon Resources, whose affiliate Great Bear

Pantheon is currently testing "the deepest" of the horizons encountered in Talitha A, the Kuparuk, where it ran into "higher than expected reservoir pressure which is very good news."

Pantheon drilled the Talitha A well on state land this winter, said that it encountered five zones in the central North Slope well, "all of which are hydrocarbon bearing and warrant testing."

Prior to drilling the company said Talitha A's target was "the shallowest Shelf Margin Deltaic

see **WINTER WELLS** page 12

FINANCE & ECONOMY

WTI closes under \$60

Oil tankers on the move in Suez Canal, fears of weaker demand take stage

By **STEVE SUTHERLIN**

Petroleum News

A bullish supply disruption fear trade has given way to caution.

A massive, marooned container ship, sideways and blocking the Suez Canal, was refloated March 29, making way for oil cargoes and other freight to traverse the vital waterway.

The NASA Earth Observatory said its satellite imagery showed the traffic jammed up around the canal's two ends March 31 was substantial and likely to take some time to disperse.

But once oil began to move again on the Suez, markets returned to demand worries over new waves of COVID-19 infections, and hiccups in

vaccine rollouts.

Alaska North Slope crude fell March 30 by \$1.15, closing at \$64.11 per barrel, while Brent fell by 84 cents to \$64.14 and West Texas Intermediate fell \$1.01 to close at \$60.55.

The slide continued March 31, ANS falling \$1.04 to \$63.07, Brent down 60 cents to \$63.54, and WTI down \$1.39 to \$59.16.

It was a lucky moon and a mighty tide that saved the day and prevented a much longer, more complicated salvage operation of the 1,312-foot-long ship Ever Given.

A full moon, known as the full Worm moon, delivered a high spring tide — about 18 inches

see **OIL PRICES** page 8

NATURAL GAS

Hope for Canada's Arctic

Partnership files plan with regulators to convert Mackenzie Delta gas to LNG

By **GARY PARK**

For Petroleum News

It's been the classic case of a line from the Rhyme of the Ancient Mariner — "water, water everywhere, but not a drop to drink."

With some of the world's richest oil and natural gas deposits on their doorstep, it has been a mystery and a source of deep frustration to communities in Canada's Far North that they have been forced to truck energy over thousands of miles from the Vancouver region.

For decades, they have been challenged by endless hoops and barriers to access the oil and natural gas they need to heat their homes and keep their businesses operating.

Take the example of Inuvik, the Mackenzie

Delta's largest town with a population of 3,500, which has been forced to transport costly truckloads of propane from southern Canada to heat their homes and keep businesses operating.

Eight years ago, faced with a drastic decline in their only producing gas well, Inuvik even invited proposals to buy propane from Alberta.

Floyd Roland, a former premier of the Northwest Territories and mayor of Inuvik, wryly observed at the time that "it's like me ordering up a truckload of ice from Alberta."

"We are surrounded with snow and ice, the same way we are surrounded by natural gas ... and we are having to truck it in because the cost of developing another site is too extreme for our customer base," he said.

see **MACKENZIE GAS** page 9

● EXPLORATION & PRODUCTION

No current Pretty Creek gas production

Hilcorp has increased production at Ivan River, another west side field, and is looking at ways to restore Pretty Creek production

By **KRISTEN NELSON**
Petroleum News

Pretty Creek, one of Hilcorp Alaska's three small west side natural gas fields, last produced in 2019, the company said in the 43rd plan of development for the Pretty Creek unit, a revised version of which was submitted to the Alaska Division of Oil and Gas March 22.

Alaska Oil and Gas Conservation Commission records show a 1979 discovery well, the Pretty Creek Unit 2, drilled by Chevron USA Inc., with measured and true vertical depths of 12,025 feet. Production began in December 1986 and continued through January 1999, resuming in December 2001 with some breaks until April 2011 when it became more sporadic — months with no production — becoming quite sporadic until it was resumed on a regular basis from February 2018 through August 2019. Total production for

Hilcorp did a regional study in 2020 of the Sterling sands in its west side gas fields — Pretty Creek, Ivan River and Lewis River.

the year in 2017 was 2,540 thousand cubic feet, with production in only five months. In 2018, with production in 11 months of that year, the total was 52,703 mcf and in 2019, with substantial production in only the first seven months of the year, the total was 46,208 mcf.

The company's 2020 POD called for an evaluation of shut-in wells and for maintenance of production from the Beluga participating area.

"Hilcorp did not conduct any big projects for the 2020 POD period," the company told the division in reviewing what had been done during the 2020 plan year. "There was no gas production from the Beluga PA during the

2020 POD period."

No native gas was produced from the Beluga PA during the 2020 POD period, Hilcorp said, after the PC 02 wells saw several months of increasing water production.

Hilcorp said it has attempted to flow the PC 02 well, but efforts were unsuccessful.

"It is predicted that the well is currently filled with a combination of water and sand," the company told the division.

Regional study

Hilcorp did a regional study in 2020 of the Sterling sands in its west side gas fields — Pretty Creek, Ivan River and Lewis River.

"The first Sterling perforations from this study took place in Ivan River in Q3-Q4 2020, which proved to be very

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● EXPLORATION & PRODUCTION

February ANS production flat from January

At average 504,460 bpd, down 3.4% from February 2020; Cook Inlet production also flat from January, but down 22% year-over-year

By **KRISTEN NELSON**

Petroleum News

Alaska North Slope production averaged 504,460 barrels per day in February, up 382 bpd, 0.1%, from a January average of 504,078 bpd and down 3.4% from a February 2020 average of 522,421 bpd.

Crude oil was 88.4% of the ANS total, averaging 445,713 bpd in February, down 1,585 bpd, 0.4%, from a January average of 447,298 bpd and down 3.6% from a February 2020 average of 452,549 bpd.

Natural gas liquids, 11.7% of the total, averaged 58,747 bpd in February, up 1,967 bpd, 3.5%, from a January average of 56,780 bpd and down 1.9% from a February 2020 total of 59,872 bpd.

Production data come from the Alaska Oil and Gas Conservation Commission which reports production by field and well on a month delay basis.

Month-over-month increases

The largest month-over-month increase was at ConocoPhillips Alaska's Colville River unit, which averaged 46,874 bpd in February, up 2,995 bpd, 6.8%, from a January average of 43,879 bpd, but down 8.5% from a February 2020 average of 51,206 bpd.

In addition to oil from the main Alpine pool, Colville production includes satellite production from Nanuq and Qannik.

The largest month-over-month percentage increase was at the Hilcorp Alaska-operated Endicott field, which aver-

aged 6,772 bpd in February, up 17.3%, 997 bpd, from a January average of 5,774 bpd but down 6.3% from a February 2020 average of 7,225 bpd. Crude oil at Endicott, 88.1% of the field's production, averaged 5,963 bpd in February, up 17.2%, 874 bpd, from a January average of 5,089 bpd but down 5.6% from a February 2020 average of 6,316 bpd. NGL production averaged 809 bpd in February, 11.9% of the field's production, up 18.1%, 124 bpd, from a January average of 685 bpd but down 11% from a February 2020 average of 909 bpd.

Production at Hilcorp's Northstar field averaged 9,563 bpd in February, up 9.6%, a gain of 840 bpd, from a January average of 8,722 bpd, but down 3.7% from a February 2020 average of 9,925 bpd. Crude oil production at Northstar, 59.1% of the field's production, averaged 5,650 bpd, up 30 bpd, 0.5%, from a January average of 5,620 bpd and down 18% from a February 2020 average of 6,888 bpd. NGL production at Northstar, 40.9% of the total and the highest NGL production level on the Slope, averaged 3,913 bpd in February, up 811 bpd, 26.1%, from a January average of 3,102, and up 28.9% from a February 2020 average of 2,036 bpd.

Eni's Nikaitchuq field averaged 17,265 bpd in February, up 7.2%, 1,164 bpd, from a January average of 16,101 bpd but down 13.9% from a February 2020 average of 20,044 bpd.

The Hilcorp North Slope-operated Prudhoe Bay field, the Slope's largest, averaged 276,236 bpd in February, up

Cook Inlet natural gas production up in February

Natural gas production from the Cook Inlet basin averaged 233,624 thousand cubic feet in February, up 3.5%, 7,863 mcf per day, from a January average of 225,761 mcf per day and up 4.6% from a February 2020 average of 223,304 mcf per day.

This data is from the Alaska Oil and Gas Conservation Commission, which reports production on a month-delay basis. For natural gas AOGCC reports measurements in thousands of cubic feet, mcf.

The inlet's nine largest gas fields accounted for 88.6% of production in February, led by Hilcorp's Kenai gas field at 23.8%, averaging 55,606 mcf per day, up 6,880 mcf per day, 14.12%, from a January average of 48,727 mcf per day and up 61.3% from a February 2020 average of 34,471 mcf per day.

Hilcorp's Ninihchik accounted for 13% of inlet volume, averaging 30,386 mcf per day in February, down 897 mcf per day, 2.9%, from a January average of 31,284 mcf per day and down 29.5% from a February 2020 average of 43,083 mcf per day.

Hilcorp's McArthur River, the inlet's largest oil field, accounted for 11.3% of natural gas production, 26,494 mcf per day in February, up 5.4%, 1,357 mcf

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PRETTY CREEK

successful," the company said.

AOGCC records show that Ivan River natural gas production increased substantially beginning in July 2020, with production growing to almost 10,000 mcf per day in February, the most recent month for which production data are available.

Hilcorp said "the same Sterling sands have been correlated to Pretty Creek and Lewis River's structures," and said it plans to begin perforating additional Sterling sands at Lewis River and Pretty Creek this year.

AOGCC records show five wells drilled at Pretty Creek, three of which are plugged and abandoned.

Pretty Creek Unit 2 is a single completion gas well; Pretty Creek Unit 4 is a gas storage well.

In describing plans for the 2021 POD — effective June 1 through May 31, 2022 — Hilcorp told the division that some of the Sterling sands in the PC 4 well "appear to

have commercial potential," but said that well "is not currently setup for native gas production, as it's currently being utilized for gas storage." The company said it is evaluating a "twin" well to PC 4 to access the Sterling sands and said the well would either be a sidetrack of PC 2 or a grassroots well. Drilling would likely take place in the winter months of 2022-23 if proposed additional perforations in PC 2 are unsuccessful.

Hilcorp said there are two additional target Sterling sands in the PC 2 wells "that appear to have commercial potential," but are not accessible by wireline "due to fill in the well."

A coiled tubing fill cleanout on PC 2 is planned to access the sands and following that, "the current producing sands will be shut off, in order to isolate the existing water/sand production," Hilcorp said. "Wireline will then be brought out to perforate the additional Sterling intervals," work currently planned for the third quarter of this year. ●

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● EXPLORERS MAGAZINE PREVIEW

Looking for natural gas, not oil in Alaska

Explorers magazine preview: Gardes aims to produce, sell natural gas, a clean burning fuel, plus build gas powered infrastructure

By **KAY CASHMAN**
Petroleum News

Bob Gardes of Lafayette, Louisiana, entered Alaska last year with the three-fold purpose of becoming a natural gas producer by acquiring bypassed and/or underdeveloped gas deposits in the Cook Inlet basin, securing off-take commitments to sell gas to Alaska utilities and large industrial end users on a long-term basis, and developing, building and operating gas and power infrastructure that supports the use of the clean burning fuel.

Gardes Holdings' website further indicates that compressed natural gas, or CNG, and liquefied natural gas,



LNG, also play a part in the company's plan for Alaska.

Gardes purchased the southern Kenai Peninsula North Fork unit in September 2020 from Cook Inlet Energy, a Glacier Oil and Gas company. The 2,601.84 acre, five-lease unit produces from a single participating area covering 800 acres.

While Gardes is "currently negotiating" additional "potential acquisitions in the Cook Inlet region," its operations crew on the ground, led by Mark Landt, has its attention focused on enhancing production from the company's first natural gas acquisition — the North Fork unit that Bill Armstrong first brought online in 2011, even though the field was

first unitized by Standard Oil Co. of California in 1965. In a deal with utility Enstar Natural Gas Co., North Fork supplied southern Kenai Peninsula residents with their first natural gas in 2014 — prior to 2014, the area was not serviced by a gas pipeline.

What's next

"For the next year or more" Gardes operating subsidiary Vision Resources is "focused on North Fork," Landt, vice president of land and upstream business development for Gardes, told Petroleum News on March 10. "We see some definite opportunities to pursue there," he said, noting the company has a "full G&G staff"

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ANS PRODUCTION

0.1%, 199 bpd, from a January average of 276,037 bpd, but down 1.1% from a February 2020 average of 279,241 bpd. Crude oil at Prudhoe, 80.4% of the field's production, averaged 222,210 bpd in February, down 0.4%, 834 bpd, from a January average of 223,044 bpd and down 0.5% from a February 2020 average of 223,314 bpd. Prudhoe NGL volumes averaged 54,026 bpd in February, 19.6% of the field's total, up 1,033 bpd, 2%, from a January average of 52,993 bpd but down 3.4% from a February 2020 average of 55,927 bpd.

In addition to the primary reservoir, production volumes from Prudhoe include Aurora, Borealis, Lisburne, Midnight Sun, Niakuk, Polaris, Point McIntyre, Put River, Raven and Schrader Bluff.

Month-over-month decreases

All other North Slope fields reported month-over-month production declines from January to February.

The largest per-barrel decrease was at the ConocoPhillips-operated Kuparuk River field, which averaged 94,090 bpd in February, down 2,437 bpd, 2.5%, from a January average of 96,527 bpd and down 7.7% from a February 2020 average of 101,913 bpd.

In addition to the main Kuparuk pool, Kuparuk produces from satellites at Meltwater, Tabasco and Tarn, and from West Sak.

The largest percentage drop was at Eni's Oooguruk field, which averaged 6,368 bpd in February, down 1,187 bpd, from a January average of 7,555 bpd and down 26.6% from a February 2020 average of 8,672 bpd.

Hilcorp's Milne Point field averaged 34,118 bpd in February, down 1,448 bpd, 4.1%, from a January average of 35,566 bpd but up 6.8% from a February 2020 average of 31,960 bpd.

The ExxonMobil Production-operated Point Thomson field averaged 8,402 bpd in February, down 519 bpd, 5.8%, from a January average of 8,921 bpd but up 45.5% from a February 2020 average of 5,774 bpd.

ConocoPhillips' Greater Mooses Tooth in the National Petroleum Reserve-Alaska averaged 3,307 bpd in February, down 4.4%, 151 bpd, from a January average of 3,457 bpd and down 35.2% from a February 2020 average of 5,105 bpd.

Badami, operated by Savant Alaska, a Glacier Oil and Gas company, averaged 1,466 bpd in February, down 4.7%, 72 bpd, from a January average of 1,538 but up 8% from a February 2020 average of 1,357 bpd.

Cook Inlet down marginally

Cook Inlet production averaged 11,078 bpd in February, down 0.4%, 39 bpd, from a January average of 11,117 bpd and down 21.5% from a February 2020 average of 14,116 bpd. Cook Inlet production is 98.6% crude oil, which averaged 10,927 bpd in February and 1.4% NGLs, which averaged 151 bpd in February. NGL production, which has only been reported for a few months, was up 24.9%, 30 bpd, from a January average of 121 bpd. Crude production was down by 69 bpd, 0.6%, from a January average of 10,996 bpd.

Hilcorp's Beaver Creek averaged 296 bpd in February, up 477.6%, 245 bpd, from a January average of 51 bpd and up 33.7% from a February 2020 average of 222 bpd.

Hilcorp's Granite Point averaged 2,760 bpd in February, down 104 bpd, 3.7%,

from a January average of 2,865 bpd and down 17.6% from a February 2020 average of 3,348 bpd.

BlueCrest's Hansen field averaged 976 bpd in February, down 4.1%, 42 bpd, from a January average of 1,018 bpd and down 14.3% from a January 2020 average of 1,140 bpd.

Hilcorp's McArthur River, Cook Inlet's largest field, averaged 3,777 bpd in February, down 46 bpd, 1.2%, from a January average of 3,823 bpd and down 11.7% from a February 2020 average of 4,275 bpd.

Hilcorp's Middle Ground Shoal averaged 1,236 bpd in February, down 36 bpd, 2.8%, from a January average of 1,272 bpd and down 1.9% from a February 2020 average of 1,260 bpd.

Hilcorp's Swanson River averaged 831 bpd in February, down 106 bpd, 11.3%, from a January average of 937 bpd and

down 27.5% from a February 2020 average of 938 bpd. NGL volumes have recently begun to be reported for Swanson River. For February Swanson River had 680 bpd of crude and 151 bpd of NGLs, representing 81.8% and 18.2% of volume, respectively, and with crude down 136 bpd, 16.6%, from a January average of 816 bpd and NGLs up 30 bpd, 24.8%, from a January average of 121 bpd.

Hilcorp's Trading Bay averaged 1,201 bpd in February, up 50 bpd, 4.3%, from a January average of 1,151 bpd but down 7.6% from a February 2020 average of 1,300 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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PIPELINES & DOWNSTREAM

Final decision on conditional ROW leases

In January the commissioner of the Alaska Department of Natural Resources issued an analysis and proposed decision for conditional right-of-way leases for the Alaska LNG project.

Following a public comment period and review of written comments and testimonies at public hearings, DNR Commissioner Corri Feige issued a final decision March 18.

The ROW applications are for the Point Thomson transmission line, a proposed 63-mile 32-inch natural gas pipeline and related facilities from Point Thomson to a gas treatment plant near Deadhorse and for the Alaska LNG 42-inch mainline which would run some 807 miles from a gas treatment plant near Deadhorse to a liquefaction facility near Nikiski on the Kenai Peninsula.

In the January analysis and proposed decision, the commissioner found review of existing uses was complete and acceptable, but because the Alaska Gasline Development Corp. did not have project funding for the proposed Alaska LNG Project, financial and technical reviews could not be completed, and AGDC could not be found fit, willing and able to construct the project, which meant the leases offered to AGDC were conditional.

During the public comment period DNR received seven written comments on the proposed leases, and three public hearing testimonies, with six of the written comments and all of the public hearing testimonies supporting the project and one written comment "a generic objection to all oil and gas development," the commissioner said in the final decision.

The findings were reviewed and considered, Feige said in the final decision, and offering two conditional ROW leases "is consistent with constitutional and statutory intent for state land."

Upon review of the administrative record, the January decision "is not revised," she said.

AGDC has 30 days to formally accept the conditional ROW leases or the offer will be withdrawn.

A person with standing under Alaska law has 20 days to request reconsideration from the commissioner, after which the decision becomes the final administrative order and decision. There is then a 30 day period for appeal to the Superior Court.

—PETROLEUM NEWS

EXPLORATION & PRODUCTION

US rotary rig count up by 6, now at 417

The Baker Hughes U.S. rotary drilling rig count, 417 for the week ending March 26, was up by six from the week ending March 19 and down 311 from a count of 728 a year ago.

When the count bottomed out at 244 in mid-August last year, it was not just the low for 2020, but the lowest the count has been since the Houston based oil-field services company began issuing weekly U.S. numbers in 1944.

Prior to 2020, the low was 404 rigs in May 2016. The count peaked at 4,530 in 1981.

The count was in the low 790s at the beginning of 2020, where it remained through mid-March, when it began to fall, dropping below what had been the historic low in early May with a count of 374 and continuing to drop through the third week of August when it gained back 10 rigs.

The March 26 count includes 324 rigs targeting oil, up six from the previous week and down 300 from 624 a year ago, 92 rigs targeting gas, unchanged from

see **RIG COUNT** page 8

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COOK INLET GAS

per day, from a January average of 25,137 mcf per day and up 27.9% from a February 2020 average of 20,718 mcf per day.

The Beluga River field, operated by Hilcorp, averaged 24,568 mcf per day in February, 10.5% of inlet production, up by 596 mcf per day, 2.5%, from a January average of 23,972 mcf per day and up 31.3% from a February 2020 average of 18,717 mcf per day.

Hilcorp's Swanson River averaged 18,853 mcf per day in February, 8.1% of inlet production, up 99 mcf per day, 0.5%, from a January total of 18,754 mcf per day but down 45% from a February 2020 average of 34,254 mcf per day.

Furie's Kitchen Lights averaged 15,024 mcf per day in February, 6.4% of inlet production, up 453 mcf per day, 3.1%, from a January average of 14,571 mcf per day and up 4.6% from a February 2020 average of 14,360 mcf per day.

Hilcorp's North Cook Inlet field averaged 14,930 mcf per day in February, 6.4% of inlet production, down 1,440 mcf per day, 8.8%, from a January average of 16,369 mcf per day and down 21.7% from a February 2020 average of 19,071 mcf per day.

Hilcorp's Beaver Creek averaged 11,178 mcf per day in February, 4.8% of inlet production, down 1,349 mcf per day, 10.8%, from a January average of 12,526 mcf per day but up 58.5% from a February 2020 average of 7,051 mcf per day.

Hilcorp's Ivan River, where production has been increased substantially in recent months, accounted for 4.2% of inlet production in February at 9,901 mcf per day, up 3,634 mcf per day, 58%, from a January average of 6,267 mcf per day, and up 2,531.9% from a February 2020 average of 376 mcf per day.

Inlet's smaller fields

The inlet's smaller gas fields cumulatively accounted for 11.4% of gas production in February.

AIX's Kenai Loop averaged 4,934 mcf per day in February, down 98 mcf per day, 2%, from a January average of 5,032 mcf per day and down 5.5% from a February 2020 average of 5,219 mcf per day.

Hilcorp's Cannery Loop averaged 4,818 mcf per day in February, down 750 mcf per day, 13.5%, from a January average of 5,568 mcf per day and up 0.8%

from a February 2020 average of 4,779 mcf per day.

Hilcorp's Granite Point averaged 3,603 mcf per day in February, down 141 mcf per day, 3.8%, from a January average of 3,744 mcf per day but up 4% from a February 2020 average of 3,465 mcf per day.

BlueCrest's Hansen averaged 3,309 mcf per day in February, up 106 mcf per day, 3.3%, from a January average of 3,204 mcf per day but down 27.5% from a February 2020 average of 4,566 mcf per day.

Hilcorp's Deep Creek averaged 3,051 mcf per day in February, down 317 mcf per day, 9.4%, from a January average of 3,368 mcf per day and down 25.8% from a February 2020 average of 4,113 mcf per day.

Gardes Holdings' North Fork averaged 3,037 mcf per day in February, down 11 mcf per day, 0.4%, from a January average of 3,048 mcf per day and down 18.3% from a February 2020 average of 3,715 mcf per day.

Hilcorp's Trading Bay averaged 2,037 mcf per day in February, down 271 mcf per day, 11.7%, from a January average of 2,307 mcf per day and down 30.3% from a February 2020 average of 2,920 mcf per day.

Hilcorp's Lewis River averaged 1,095 mcf per day in February, up 142 mcf per day, 15%, from a January average of 953 mcf per day but down 1.6% from a February 2020 average of 1,113 mcf per day.

Hilcorp's Nikolaevsk averaged 354 mcf per day in February, up 31 mcf per day, 9.6%, from a January average of 323 mcf per day but down 18.3% from a February 2020 average of 434 mcf per day.

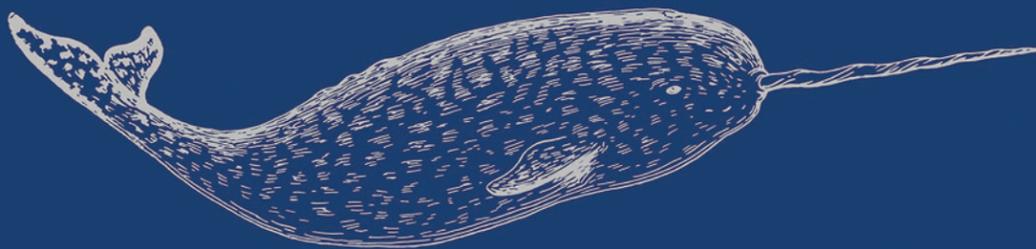
Amaroq's Nicolai Creek averaged 266 mcf per day in February, down 121 mcf per day, 31.3%, from a January average of 387 mcf per day but up 0.2% from a February 2020 average of 265 mcf per day.

Hilcorp's Middle Ground Shoal averaged 182 mcf per day in February, down 40 mcf per day, 18.2%, from a January average of 222 mcf per day and down 34.7% from a February 2020 average of 278 mcf per day.

Cook Inlet natural gas production peaked in the mid-1990s at more than 850,000 mcf per day.

—KRISTEN NELSON

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EXPLORERS PREVIEW

working on North Fork.

“Now that we have our plan of development for the unit approved with the Division of Oil and Gas and have purchased 3D seismic ... we are going to be working the 3D data and generating our own ideas going forward.”

Landt said Vision sees “additional gas to be recovered” at North Fork, mentioning the possibility of “additional sands” in the field and more workovers.

The plan of development approved by the division was the 56th POD for North Fork.

Gardes is waiting on more decisions from the division.

The first was approved in mid-March and that was to delay for one year a unit contraction; requested because it would allow the new owner time to assess opportunities for additional drilling targets outside the participating area and other methods of enhanced production from the unit.

Unit contraction is required after a unit has been in production for 10 years, at which point the unit is contracted to areas actually in production.

With North Fork having only one participating area, the contraction was a logical step; until Gardes came into the picture, that is.

The other two requests are to assign interest in the North Fork leases and unit operatorship to Gardes. As of March 31, both requests, which were made in November, were under review.

Through the end of 2020, North Fork had cumulative production of 21.46 billion cubic feet of natural gas and 27,414 barrels of water, all from the original participating area.

Deal with Enstar

Gardes has also been working on its North Fork gas sales agreement. In February, Vision entered into a five-year natural gas sales and purchase contract with Alaska Pipeline Co. that will result in APC’s utility affiliate Enstar continuing to distribute gas from North Fork after Cook Inlet Energy’s contract expires on May 10.

Vision’s starting price will be \$7.30 per thousand cubic feet. After the first year the gas price will increase annually by 7 cents per mcf through the end of the contract for a final price of \$7.60 per mcf.

North Fork gas production averaged



BOB GARDES



MARK LANDT

3,037 mcf per day in February, down 11 mcf per day, 0.4%, from a January average of 3,048 mcf per day and down 18.3% from a February 2020 average of 3,715 mcf per day.

Major gas province

Bob Gardes views the Cook Inlet basin as one of the four top gas regions in the world.

Gardes Holdings website said he has “over 40 years engineering, drilling, completions in the oil and gas industry” and is “a pioneer in lateral drilling and completions and coalbed methane development world-wide with more than 3,000 wells drilled under his management and supervision.”

Bob Gardes’ companies own “multiple drilling patented methodologies related to lateral drilling and completions.”

He views natural gas as the “fuel of the future,” the website said.

“We hope to be gold star presence among oil and gas companies in Cook Inlet,” Gardes told Petroleum News in early November. (Landt said the company will not thumb its nose at an oil discovery, but gas is most important to it.)

“For the last 20 years we’ve been coming to Alaska. ... There is a lot of bypassed gas here because the deposits weren’t big enough” for the companies to bother with them.

There also wasn’t a major market for gas in Alaska for many years. But eventually gas became the fuel of choice for heating buildings in much of Southcentral, while gas-fired generation became the favored source of electrical power.

“We think the future in the U.S. is gas. It burns 98% cleaner than oil and coal. It is a transformational resource,” Gardes said. ●

Editor’s note: See full story in the upcoming annual Explorers magazine.

Contact Kay Cashman
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ENVIRONMENT & SAFETY



Sea ice extent tied for seventh lowest

Arctic sea ice has likely reached its maximum extent for 2021, scientists at the National Snow and Ice Data Center at the University of Colorado Boulder said March 30, an extent tied with 2007 for the seventh lowest in the 43-year satellite record.

NSIDC said the maximum Arctic sea ice extent was likely reached March 21 at 5.7 million square miles, an extent 338,000 square miles below the 1961 to 2010 average maximum of 6.04 million square miles.

The 5.7 million square miles is 139,000 square miles above the lowest maximum of 5.56 million square miles set on March 7, 2017.

“Prior to 2018, the four lowest maximum extents occurred from 2015 to 2018,” NSIDC said.

The March 21 preliminary date for maximum ice is also nine days later than the 1981 to 2010 median date of March 12.

The agency said the number is preliminary as continued winter conditions could push the ice extent higher. A formal announcement will be issued at the beginning of April which will include a full analysis of possible causes for this year’s ice conditions.

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OIL PRICES

above normal, which eased the process of straightening out and dislodging the ship in efforts with tugboats, dredging equipment, and backhoes, according to NASA.

“Spring tides occur when tides ‘spring forth’ during new and full moons — when the Earth, Sun, and Moon are in alignment,” NASA said in a March 27 report.

As the Ever Given drifted from the headlines, traders tuned in to signs that throw expectations on the schedule of the pandemic recovery into question.

New infections flared up, while snafus in vaccine programs were further complicated by a trend of non-participation in vaccine programs.

In Europe, concerns over rare blood clotting seen in recipients of the Astra Zeneca vaccine have cooled public enthusiasm for the medicine, and some governments have restricted or discontinued the use of it.

Bullish on flying

In the United States, passenger air travel — as measured by travelers passing through TSA checkpoints — has maintained a pattern of recovery from pandemic-induced downturns of 2020, hitting a high of 1,574,228 passengers March 28, up from only 180,002 on the day in 2020. In 2019, 2,510,294 travelers passed checkpoints on the day.

In France, however, a month-long lockdown will keep travel plans closer to the ground.

President Emmanuel Macron ordered France into its third national lockdown March 31, saying schools would close for three weeks to avert a third wave of COVID-19 infections threatening to overwhelm hospitals, according to a March 31



NASA EARTH OBSERVATORY

demand recovery, based on a release from its 50th Joint Technical Committee meeting via videoconference March 30.

OPEC Secretary General Mohammad Sanusi Barkindo said in opening remarks to the committee that the group must remain cautious and attentive to changing market conditions, after a month that saw many positive developments but also revealed ongoing uncertainties and fragility caused by the COVID-19 pandemic.

The secretary general said that the prospects for global economic growth for 2021 had improved, based on OPEC’s Monthly Oil Market Report which projected growth of 5.1% in 2021, with world oil demand estimated to rise by 5.9 million barrels per day.

But the committee later revised down oil-demand estimates for 2021.

“Global oil demand in 2021 is revised slightly to stand at 5.6 million bpd, and we need to keep in mind that demand contracted by a huge 9.6 million bpd in 2020,” the secretary general said at the OPEC 28th Meeting of the Joint Ministerial Monitoring Committee March 31.

“There is also a continuing divergence between the first and second half of 2021. The first half has again been adjusted lower, mainly due to extended measures and new lockdowns in many key parts of Europe,” he said. “In contrast, oil demand prospects in the second half have remained relatively steady, reflecting expectations for a stronger economic recovery and positive impact of vaccination rollouts.”

OPEC+ must decide whether to extend its production cuts into May, the primary matter to be worked out over the Joint Ministerial Monitoring Committee meeting, and the 15th OPEC and non-OPEC Ministerial meeting April 1. ●

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Reuters story.

“The announcement means that movement restrictions already in place for more than a week in Paris, and some northern and southern regions, will now apply to the whole country for at least a month,”

Reuters said.

OPEC+ caution

The Organization of the Petroleum Exporting Countries signaled that it expected to continue along a curve of

continued from page 6

RIG COUNT

the previous week but down 10 from 102 a year ago, and one miscellaneous rig, unchanged from the previous week and down one from a year ago.

Fifteen of the holes reported March 26 were directional, 380 were horizontal and 22 were vertical.

Alaska unchanged from previous week

Texas (205), with the most active rigs in the country, was up by three rigs from the previous week.

Colorado (9), North Dakota (14), Oklahoma (17) and Utah (4) were each up by a single rig.

Louisiana (46) was down one rig from the previous week.

Rig counts for all other states were unchanged from the previous week: Alaska (3), California (7), New Mexico (67), Ohio (9), Pennsylvania (18), West Virginia (12) and Wyoming (5).

Baker Hughes shows Alaska with three rigs active March 26, unchanged from the previous week and down by six from a year ago, when the state’s count stood at nine.

The rig count in the Permian, the most active basin in the country, was up by five from the previous week at 221, but down by 161 from a count of 382 a year ago.

—KRISTEN NELSON

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MACKENZIE GAS

Roland said the shelving of the Mackenzie Gas Project — once the Far North’s best hope of a limitless fuel supply — has presented northern leaders with no choice but to “do other things to create a more sustainable scenario for our communities.”

Delta gas fields

Help may be at hand. An ambitious LNG project has been unveiled that could bring energy security to the region.

Inuvik is close to the three giant Delta fields that underpinned the C\$16 billion MGP. They contain trillions of cubic feet of gas.

Until now, only a small field named Ikhil has been developed for Inuvik, but its reserves fell short of anticipated volumes, cutting its operating life to power a gas-fired plant to the 1999-2012 period.

That opened discussions involving the Northwest Territories government, Inuvik and other widely scattered communities with the MGP’s anchor partners on ways to tap into the Parsons Lake field with an estimated resources 1.8 trillion cubic feet — making it the smallest of the MGP fields. But he estimated capital costs of up to C\$70 million to produce that stranded discovery, was deemed to be too high.

Inuvik then decided to switch to a synthetic natural gas system that would have involved vaporizing propane and mixing it with air.

The advantage of synthetic gas was that consumers could have continued to use their natural gas appliances.

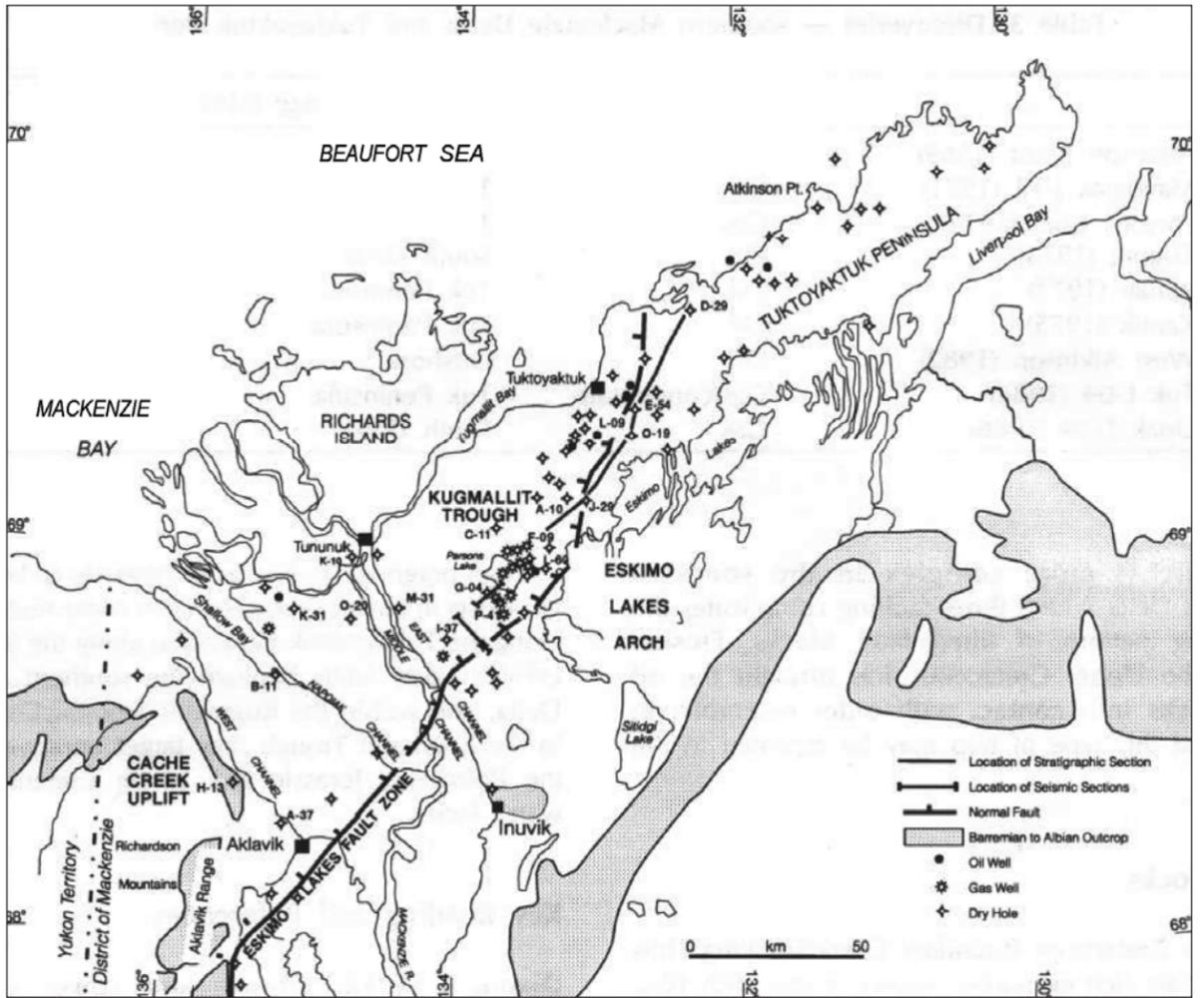
The disadvantage is that consumers were told to expect rates of C\$37 per gigajoule, double what they were paying before and up seven-fold from the cost of propane in Edmonton.

The desperate search for a made-in-the-Arctic solution turned to solar and wind options, but again nothing solid took shape.

The best hope yet may have surfaced in mid-March with a plan to restore development of natural gas, led by Indigenous-owned Inuvialuit Petroleum Corp. and Texas-based Ferus Natural Gas Fuels.

The partnership has applied to the Canada Energy Regulator to approve the plans for a C\$100 million Inuvialuit Energy Security Project to produce LNG.

Ferus, a unit of Energy & Minerals Group, aims to build



Wells penetrating Mesozoic strata on Tuktoyaktuk Peninsula and south Mackenzie Delta.

a plant to produce LNG, propane and synthetic diesel, similar to a facility it currently operates in Alberta.

The partners said the Arctic operation could come on stream in early 2023, relying on Tuk M-18, a well discovered in 2002, 6 miles south of the Beaufort Sea community of Tuktoyaktuk.

The single well could yield an estimated 200 billion cubic feet of gas, enough to serve the region for 50 years, according to an application filed with CER, with output estimated at up to 8 million cubic feet per day.

The filing said the project is targeted at countering “chronic energy insecurity” in the region.

The gas extracted from M-18 would be converted at the

well-site to LNG and trucked to customers in the region.

Those overland fuel deliveries have recently been made possible by completion of an all-weather road covering 83 miles between Inuvik and Tuktoyaktuk, which has a population of almost 1,000.

Doug Matthews, an energy consultant and principal of Matthews Energy Consulting, told the Canadian Broadcasting Corp. that the Tuk M-18 project could not have been contemplated without the highway.

“The local market, which is Tuk, is not big enough to cover the costs of developing the field. With the road, you can reach other markets (by truck or barge) ... and provide a cheaper alternative to diesel,” he said. ●



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SEISMIC SURVEYS

authorizing Hilcorp Alaska to conduct oil and gas exploration and production activities in Cook Inlet from 2019 to 2024. Defendants are the U.S. Secretary of Commerce and the National Marine Fisheries Service. Hilcorp Alaska and the State of Alaska are intervenors in the case.

Hilcorp's application

In background Gleason said NMFS received an application from Hilcorp in 2018 for authorization under the Marine Mammal Protection Act to take marine mammals by harassment caused by noise generated by oil and gas activities, including 2D seismic exploration throughout Cook Inlet and drilling of exploration and development wells from a rig to be transported by tugboats — activities that would produce significant underwater noise. She said the company planned two to four exploration wells in lower Cook Inlet and one to two exploration wells in the Trading Bay area, with the rig towed to drilling sites by up to three ocean-going tugs. The company also planned to plug and abandon a discovery well in the North Cook Inlet unit, also requiring up to three ocean-going tugs to tow a jack-up rig.

Gleason said the Marine Mammal Protection Act “places a moratorium on the ‘take’ of marine mammals, including by harassment, however, it also directs the Secretary of Commerce to authorize takes of ‘small numbers’ of marine mammals incidental to specified activities for up to five-year periods, provided that the Secretary finds that the takes will have a ‘negligible impact’ on the species and prescribes regulations ‘effecting the least practicable adverse impact’ on the species, along with monitoring and reporting requirements.”

NMFS granted Hilcorp's request in July 2019, estimating that with mitigation and monitoring measures the activities would harass some 31 beluga whales each year. The incidental take regulations authorized the taking by harassment of up to 35 Cook Inlet beluga whales a year.

“NMFS's take estimate did not include any take resulting from tug operations,” Gleason said.

NMFS prepared a biological opinion under the Endangered Species Act which determined the activities would not jeopardize the existence of any endangered marine mammal or destroy or adversely modify any critical habitat and an environmental assessment under the National Environmental Policy Act which determined the activities would not significantly impact the quality of the human environment.

Issues in suit

Plaintiffs sued the federal defendants in September 2019, Gleason said, “alleging violations of the MMPA, ESA, National Environmental Policy Act ... and the Administrative Procedure Act.” Hilcorp moved to intervene that same month; the State of Alaska moved to intervene in November 2019.

One issue raised by plaintiffs was an objection to the annualized approach taken by NMFS in making its determination on the numbers of beluga whales which might be harassed. Gleason said plaintiffs did not raise the issue with methodology with the agency and could not raise the objection for the first time before the court.

What the court did consider was objections to consideration of tug vessel noise by NMFS. The court considered those claims on the merits.

Plaintiffs contend, Gleason said, that NMFS “disregarded take caused by tugs towing the drill rig and other vessel noise” in determining that take is not likely from that

cause.

“The Court finds that NMFS failed to provide a reasoned explanation or identify adequate support in the record for its determination that tug noise from Hilcorp's activities would not take beluga whales,” Gleason said.

“On remand, NMFS should consider whether any additional mitigation measures for tugs towing the drill rig are necessary to comport with the MMPA's lease practicable adverse impact requirement,” she said.

Gleason also ruled that the biological opinion “failed to adequately consider the potential effects of tugboat noise on Cook Inlet beluga whales,” and said, “on remand NMFS should include any such effects in considering the cumulative effects of the action.”

She also found that the environmental assessment “failed to take the requisite hard look at the effects of Hilcorp's tugs towing the drill rig on Cook Inlet beluga whales.”

“On remand, NMFS should consider the cumulative effects of Hilcorp's tug operations in the context of past, present, and future activities in Cook Inlet,” Gleason said.

She granted in part and denied in part plaintiff's motion for summary judgment, upheld the NMFS's mitigation and monitoring measures for seismic surveying but found “the agency's determination that noise from Hilcorp's tugs towing the drill rig would not cause any take by harassment of Cook Inlet beluga whales is arbitrary and capricious” and said NMFS “relied on this erroneous determination in its issuance of the Incidental Take Regulations, the Biological Opinion, and the Environmental Assessment.”

—KRISTEN NELSON

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continued from page 1

POLYMER INJECTION

been implementing polymer injection at several well pads in the Milne Point field, to improve production of heavy oil from the Schrader Bluff formation. In parallel,

the research project is using a four-well configuration — two horizontal production wells and two horizontal injection wells — at the Milne Point J pad, to determine and evaluate the characteristics of the injection technique. The research also involves building a reservoir model for designing the field tests and forecasting

production results.

The fact that the wells being used were already in existence, operating using a waterflood oil production technique, has presented a major benefit for the project.

“It was a perfect opportunity to try out injecting polymer,” Dandekar said.

The research project began in June 2018 and is scheduled to run to the end of September 2022. Results to date indicate that polymer injection significantly increases oil production while also causing major reductions in the water cut from the production wells. The research team reported in February that the polymer injection technique could as much as double Schrader Bluff oil production, relative to the use of waterflood. Although the use of polymer involves additional operational costs, these costs are more than outweighed by the benefits from increased oil production and the reduced water cut.

Heavy oil on the North Slope

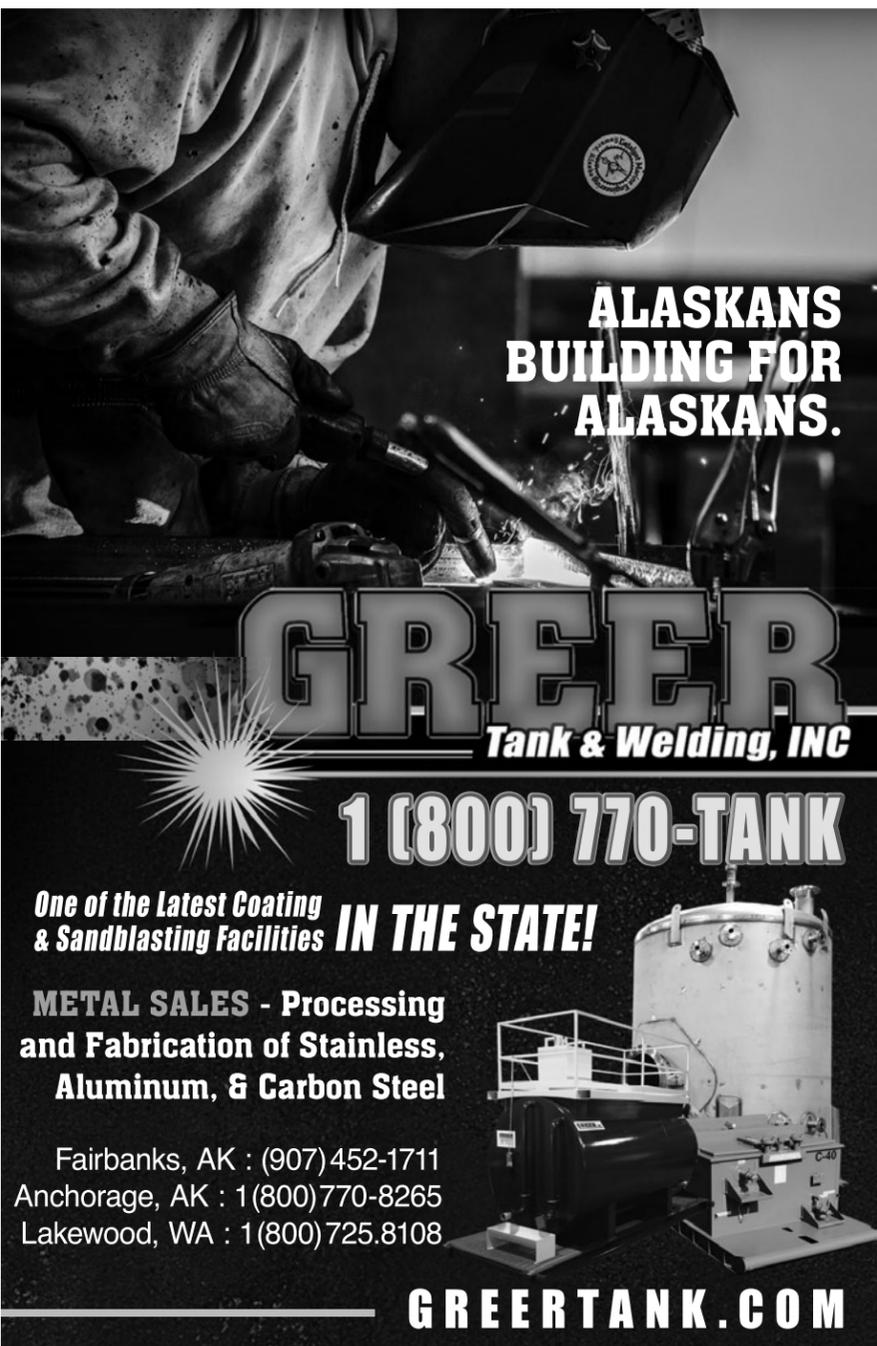
There are huge quantities of heavy oil, oil with particularly high viscosity, under the North Slope, especially in the relatively shallow Schrader Bluff (or West

Sak) and Ugnu formations. The oil is thought to have migrated from deeper rock formations into these shallower formations. Microbes, which become increasingly active at shallower depths, are thought to have degraded the oil in the shallow reservoirs, thus rendering the oil more viscous. The relatively low temperatures at shallow depths below the permafrost also impact the viscosity. And, with the Ugnu being shallower than the Schrader Bluff, the Ugnu oil is significantly more viscous than the Schrader Bluff oil.

But enticing this viscous oil to the surface through conventional oil wells presents major technical challenges.

A significant breakthrough in Schrader Bluff development at Milne Point came in 2001 with the use of long horizontal wells that could thread through the reservoir rock formation and hence access relatively large areas of oil reservoir surface. Jet pumps proved effective in moving the oil to the surface. A further development in subsequent years involved the drilling of injector wells, to use water injection to

see POLYMER INJECTION page 11



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INLET GEOTHERMAL

6,376 acres on the south flank of Crater Peak, the volcano's most recently active crater, and on land at the foot of the volcano and extending south to the Chakachatna River. GeoAlaska, based in Anchorage, is owned by Paul Craig, an Alaska energy investor.

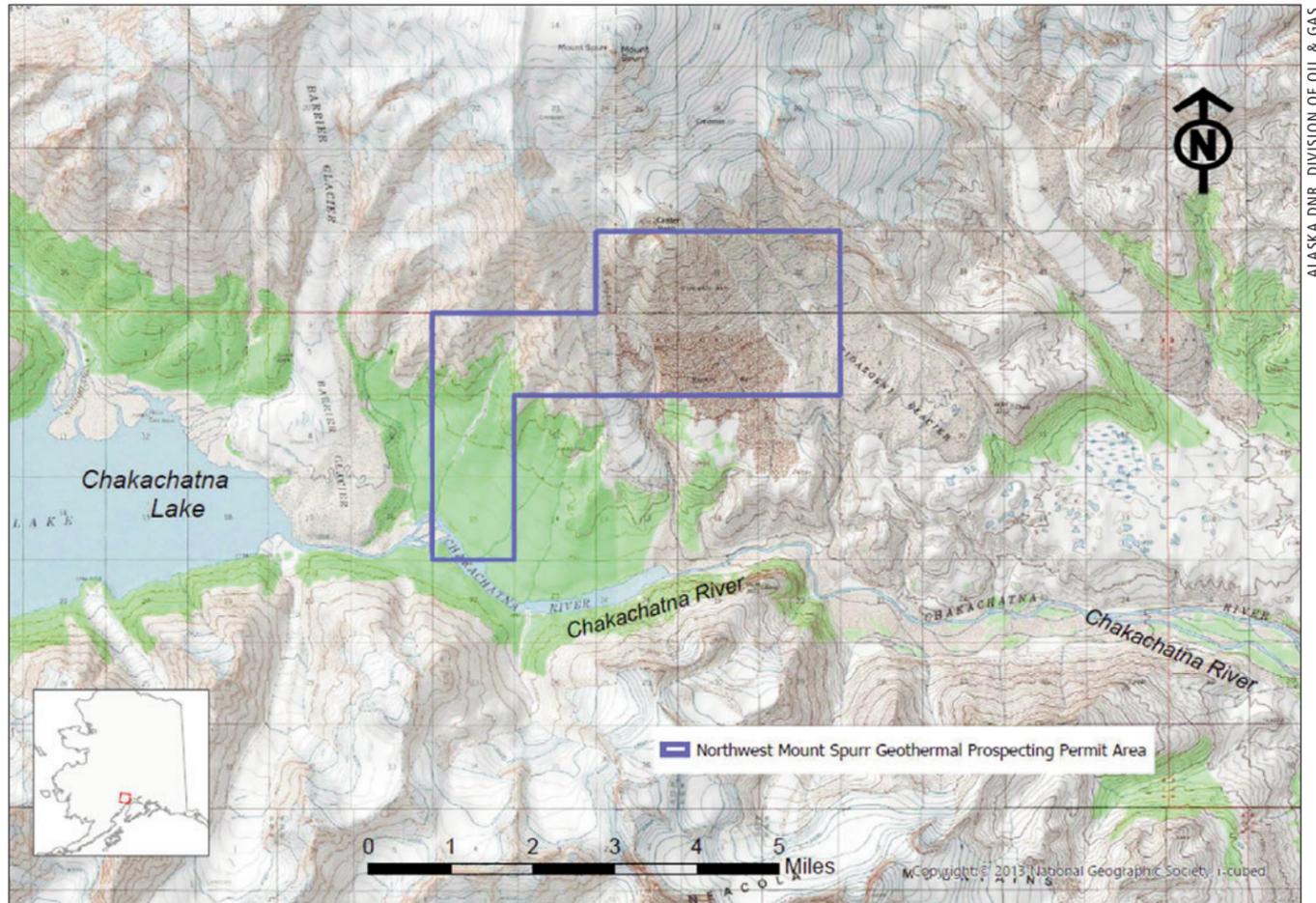
Craig has confirmed to Petroleum News that GeoAlaska was formed in May 2020 to identify and develop geothermal energy resources in Alaska. The company's management and technical team has been encouraged by support over the past year at the federal and state levels for geothermal development, he said.

"GeoAlaska's team is very appreciative of the state's efficient and diligent work and looks forward to interfacing with government agencies regarding permitting, after the company has been issued a license to explore," Craig said.

Extendable two-year permit

The division would initially issue the permit for two years. However, the agency may extend the permit for a further year if GeoAlaska has been unable to discover a viable geothermal resource despite reasonable diligence in conducting exploration activities. The state's preliminary finding includes specifications of some general mitigation measures needed to ensure that exploration activities do not have unacceptable impacts on environmental and cultural resources. Exploration activities within the land tracts would require an approved plan of operations and all relevant permits.

As an active volcano, Mount Spurr clearly represents an area of geothermal heating, with potential for geothermal power generation. And the area of proposed geothermal exploration lies only about 40 miles from the Beluga gas-fired power generation facility, the nearest



ALASKA DNR, DIVISION OF OIL & GAS

point on the Alaska Railbelt electricity grid. There were three explosive eruptions from Crater Peak over a period of four to seven weeks in 1992, the preliminary finding says. More recently, in 2004 and 2006, increased seismic activity and heat flux were observed at Mount Spurr's summit. There is weak geothermal activity, including warm seeps, springs and fumaroles, in a zone that extends from south of Crater Peak to north of Mount Spurr, the finding says.

A study conducted in the 1980s determined that the temperature in a warm spring and seeps on the southwest side of Crater Peak was 40 C, with a total warm water flow for the valley bottom estimated

at 1,000 liters per minute, the preliminary finding says.

Previous exploration

In a previous Mount Spurr exploration effort, following a 2008 lease sale, Ormat Technologies, a Lower 48 geothermal company, conducted aerial surveys, gravity and electromagnetic measurements, and some exploratory drilling in state leases between 2008 and 2011. The company failed to find a viable geothermal resource and subsequently relinquished the leases.

But the results of this exploration project do not preclude the possibility of finding a viable geothermal resource at some location not tested during previous explo-

ration efforts. For example, Ormat did not pursue exploration options in the more westerly part of the prospective area, closer to the volcanic center, the preliminary finding says.

However, persistent ice cover and dangerous topography at high elevations on Mount Spurr have caused the state to limit its leasing opportunities to the mountain's southern flank — the land tracts involved in the proposed permit are subsets of the tracts offered in the 2008 lease sale, the preliminary finding says.

—ALAN BAILEY

Contact Alan Bailey at abailey@petroleumnews.com

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POLYMER INJECTION

drive oil towards the production wells.

Water viscosity

Dandekar explained that a constraint in the use of waterflood in the Schrader Bluff arises from the fact that water has a significantly lower viscosity than the heavy oil. As a consequence, the mobility of the water reduces the efficiency with which the oil is driven towards a production well. However, the addition of a polymer of an appropriate composition to the water renders the fluid more viscous. This slows down the movement of the water, thus making the fluid more effective in pushing the oil through the rock formation.

According to a paper published in association with the research project an appropriate choice of polymer type and concentration is critical to improving the movement of oil through the reservoir, while ensuring that the polymer does not itself clog the reservoir pores.

Major benefits

The wells at J pad have demonstrated an oil production increase of about 1,000 barrels per day as a consequence of using the polymer injection technique, Dandekar said. And, given the properties of the polymer laced injection fluid, the polymer has taken a little over two years to start appearing in the production fluids, having slowly flowed from the injection wells.

While the slow rate of polymer flow confirms the effectiveness of the polymer

technique, the benefits from the polymer injection take a while to build up, with increasing benefits accruing as the polymer flood matures. The researchers are continuing to monitor what is happening and evaluating the benefits of the technique.

Dandekar also commented that, although there are several techniques for producing heavy oil, the polymer injection is the clear technique of choice at Milne Point. It is not, for example, possible to use steam injection on the North Slope because injecting steam from the surface would cause the subsurface permafrost to melt.

"That is something that is unthinkable here in Alaska, especially on the North Slope, because of the permafrost," Dandekar said.

Gas injection is another possible technique, but lab tests have indicated some challenges with this method. Moreover, at Milne Point there is a source of low salinity water that supports the polymer injection approach, Dandekar said.

Hilcorp extending injection program

Meanwhile, given the clear benefits of polymer use, Hilcorp has been forging ahead with its polymer injection program in the Schrader Bluff at Milne Point — in its latest Milne Point plan of development the company indicated an intention to extend Schrader Bluff polymer injection beyond the pads where the technique is already in use.

"We're proud of our partnership with UAF and the Department of Energy on this first-of-its-kind Arctic heavy oil polymer flooding project," said Dave Wilkins,

Hilcorp senior vice president, Alaska. "UAF and DOE provide outstanding Arctic and industry expertise, as well as technical and project support. As we build on our initial success, we're expanding polymer flooding to additional patterns and reservoirs at Milne Point and continue to evaluate new opportunities across the North Slope."

Ugnu development

Producing the thicker oil in the Ugnu formation is significantly more challenging than producing from the Schrader Bluff. In recent years Hilcorp has been producing a small amount of Ugnu oil through

the S-203 horizontal well drilled from the S pad. The company has been evaluating the performance of this well, with a view to determining a possible future Ugnu development strategy.

Between 2011 and 2013 BP succeeded in producing Ugnu oil on a test basis at Milne Point S Pad, using a downhole pump to drive a slurry of oil and sand to the surface from the unconsolidated reservoir, and then separating the oil in a tank. But BP did not further pursue this endeavor.

—ALAN BAILEY

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CARBON TAX

votes, rating the act as unconstitutional.

Provinces ponder next moves

Having apparently exhausted their legal fight against Trudeau's tax — which University of Calgary economist Trevor Tombe declared is now "here to stay" — the three provinces are now pondering new consumer carbon pricing regimes, including extra fuel charges.

Alberta Premier Jason Kenney said his government will "consult with Albertans and also talk to our allied provinces to determine the best way forward to protect jobs and our economy." In other words the fight is now turning political.

Regardless of the Supreme Court's belief, contained in a 3,500-page judgment, that a carbon tax is essential to combat climate change as an existential threat to Canada and the globe, Alberta and Saskatchewan will not back down from their hard line that a carbon tax raises questions about Canada's continuing ability to compete against other energy producers around the world.

The court ruling sets the stage for a shift in power over the development of natural resources to the federal government and away from the provinces that have the most expertise in regulating and promoting the industry, said Richard Masson, an executive fellow at the University of Calgary's School of Public Policy.

"If we don't see production growth (of oil and natural gas) it doesn't mean the world is better off, it just means

somebody else is producing the oil because its overall demand has to be satisfied," he told The Canadian Press.

Higher costs projected

Other analysts and industry leaders said the ruling means higher costs for both consumers and industry if the Trudeau government carries out its pledge to raise the carbon tax from C\$50 per metric ton in 2022 to C\$170 by 2030.

The current federal carbon price adds 8.8 cents to every liter of gasoline, or about C\$3.50 to fill a 40-liter tank and about C\$15 on a monthly natural gas bill.

The idea of a carbon price is to make it more expensive to pollute, putting pressure on the provinces to find ways to reduce emissions attributable to individuals or industries.

Canada returns 90% of revenues from the tax to families through income tax rebates, with the other 10% going in grants to smaller businesses, schools, hospital and municipalities.

The decision facing Kenney is whether to go along with the federal program, or meeting the Trudeau government's greenhouse gas emissions objective through a made-in-Alberta consumer tax, expanding the province's existing carbon levy on large industrial emitters or joining a cap-and-trade program like Quebec which allows emitters to buy and sell credits based on their emissions over or under a set cap.

Kenney told the Canadian Association of Oilwell Drilling Contractors he will talk with Ontario and Saskatchewan to determine whether there is "broader interest" in cap-and-trade that avoids "being captive to the California market like Quebec currently is."

New reality?

While Kenney grapples with his response to the court verdict and his ongoing battle with the Trudeau administration, others indicate they are more willing to accept a new reality. Tim McMillan, chief executive officer of the Canadian Association of Petroleum Producers, said in a statement that his industry is developing "world leading technology" to lower emissions.

"Based on the Supreme Court of Canada's decision, it will be important for the federal government and provinces to work together to support Canada's environmental and economic objectives.

"In Canada, each province has very different opportunities to mitigate climate change based on their unique circumstances and we support continued flexibility to allow for provincial input," he said.

Goldy Hyder, chief executive officer of the Business Council of Canada, welcomed the Supreme Court ruling, but said convincing business to invest the billions of dollars needed to cut emissions will require a stable and predictable regulatory environment, not just carbon pricing.

Federal Environment Minister Jonathan said provinces and the three northern territories "have the flexibility to be able to introduce their own carbon-pricing mechanisms, so long as they meet certain national minimum standards."

He said the federal government is "open to conversations with provinces."

—GARY PARK

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WINTER WELLS

horizon as the primary objective" and would also "drill through a number of secondary objectives including: (i) the 'Slope Fan System', (ii) the 'Basin Floor Fan', and (iii) the 'Kuparuk' horizons."

"Since the pressure exceeded our predrill estimates we are proceeding cautiously with all well bore and testing operations and will report results to shareholders once available," Pantheon said.

Pantheon is currently testing "the deepest" of the horizons encountered in Talitha A, the Kuparuk, where it ran into "higher than expected reservoir pressure which is very good news."

The company said that this "along with the exceptionally light oil we have collected as samples during circulating gives us optimism."

Pantheon, however, said it cannot draw any definitive conclusions until testing operations have been completed in the Talitha unit well.

Prior to drilling Pantheon estimated the Talitha well would target approximately 1 billion barrels of recoverable oil across the multiple stacked (primary and secondary) objectives. An independent

expert's report was completed on the updip section of the Shelf Margin Deltaic, the primary target, and confirmed a prospective resource of 302 million barrels of recoverable oil, the company said.

About 500 feet thicker

88 Energy said the Nanushuk formation was "encountered at ~600' low to prognosis and is interpreted to be ~500' thicker than that encountered in the wells drilled into the Willow oil field" analogue wells to the north of the company's Peregrine project acreage.

"Encouragingly, the gamma log indicates the presence of more sand packages than those in the analogue wells and ... the sand packages in Merlin 1 are generally cleaner in nature. ... Oil shows were recorded over multiple intervals in the Nanushuk while drilling, including the primary targets," 88 Energy reported.

Fluorescence "ranged from relatively weak to moderate 'dry' ... with slow to moderate sometimes fast streaming cut when exposed to solvent. Mud gas peaks were also recorded and, although generally not of the same scale of the increase in total gas above background as that seen in the analogue wells, one of the prospective horizons in Merlin 1 did have substantially elevated total gas, similar to that in the

analogue wells," the company said.

Heavier gas components, "including C5, were observed over multiple intervals," 88 Energy said. "Resistivity was elevated over these intervals and is encouraging, particularly in the context that the Nanushuk is considered a low resistivity play type."

Fluorescence, the company said, was also "observed in the drilling mud ('pops') accompanied by a petroliferous odor over three of the target intervals. Significantly, one of these intervals is interpreted to be part of a potentially separate, sand package that is also present in the Harrier prospect," which is also part of the Peregrine project.

Merlin 1 is targeting 645 million barrels of gross mean prospective resource. A second well, Harrier-1, expected to be drilled in winter 2022, is targeting gross mean prospective resource of 417 million barrels.

Umiat acquisition update

In its March 31 update, 88 Energy announced that its acquisition conditions have all been satisfied for the Umiat oil field.

"The final condition related to the acquisition of the ... oil field is now complete with cement work associated with plugging and abandoning of two historical

wells at the field now executed," the company said, noting "remedial site work will be finalized in the near-term."

Umiat is an historic oil discovery made in 1945 in shallow Brookian (Nanushuk) sandstones, located immediately adjacent to the southern boundary of the Peregrine project.

The field is covered by two leases totaling 17,633 acres that are in a unit formed in September 2019 with an initial 10 year term.

"The current conditions of the unit stipulate a well commitment (exploration or appraisal) by Aug. 31, 2022," 88 Energy said.

Eleven appraisal wells were drilled in the Umiat field by 1953, several of which were tested, the company reported: "Umiat 5 flowed 268 barrels per day on a 3-month test and Umiat 8 had a peak flow rate of 5.9 million cubic feet per day of natural gas during a 4-day test."

Little work was done until 2013-14 when Linc Energy drilled two wells, Umiat 18 and Umiat 23H. Umiat 23H was tested with a maximum flow rate of 800 barrels per day and sustained flow of 200 barrels per day, 88 Energy said. ●

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