



page 2 May ANS production up 0.5% from April; Cook Inlet output down 3%

Gialopsos replaces Feige; SOA to pay off oil, gas tax credits; more...

AKIS GIALOPSOS, aide to former Sen. Cathy Giessel, a strong supporter of the oil and gas industry, was appointed by Alaska Gov. Mike Dunleavy to take the place of outgoing Alaska Department of Natural Resources Commissioner Corri Feige.

Gialopsos becomes acting commissioner effective July 1. Currently, he serves as deputy chief of staff and legislative director for the governor.

"I know from his time on my staff that Akis Gialopsos has both the management skills, and knowledge of resource development issues to run the department effectively," Dunleavy

see **INSIDER** page 10



Cautious approach: global O&G investing up, but well below 2019

Global investment in oil and gas projects is rising, but it's still far from the pre-pandemic total of \$500 billion reached in 2019, according to a new report from the International Energy Agency. Plus inflation is eating away at what those investments can buy.

Capital spending by oil and gas companies is expected to total \$417 billion in 2022, up nearly 10% from \$380 billion in 2021, says the IEA's World Energy Investment 2022, released June 22.

Net income for the world's oil and gas producers is set to double in 2022 to an unprecedented \$4 trillion. Much of that income goes to the big Middle Eastern national oil companies,

see **O&G INVESTING** page 9

bp Statistical Review finds energy consumption up by some 6% in '21

bp has released its 2022 Statistical Review of World Energy, covering data through 2021, and found energy consumption in 2021 increased by almost 6%, which, the company said, more than reverses the 2020 fall in energy usage due to COVID-19.

With the increase in energy use, global emissions were up by 5.7%, bringing them close to 2019 levels.

Oil consumption was up 5.3 million barrels per day and natural gas demand grew 5.3% to above pre-pandemic levels.

see **BP REVIEW** page 10



SPENCER DALE

Polar bear subspecies found by scientists in southeast Greenland

A team of scientists has reported the discovery of a subpopulation of polar bears in southeast Greenland that lives on and around glaciers, rather than on sea ice, the National Snow and Ice Data Center has reported. The bears, which are more genetically distinct than any other polar bear subpopulation, survive by hunting from freshwater ice associated with glaciers that flow into the ocean. The bears live in a remote region of Greenland that has been poorly studied because of its unpredictable weather, jagged mountains and heavy snowfall, NSIDC reported.

In the United States polar bears have been listed as threatened under the Endangered Species Act, because of concerns about the shrinkage of Arctic sea ice under the impact of climate

see **BEAR SUBSPECIES** page 11

EXPLORATION & PRODUCTION

Drilling levels low

Pandemic related drop in activity in 2020 continued in 2021 on the Slope

By **ALAN BAILEY**

For Petroleum News

Drilling activity on the North Slope remained low in 2021, continuing a trend observed in the previous year as a consequence of the impact of the COVID pandemic, according to data published by the Alaska Oil and Gas Conservation Commission.

In total 26 development wells were completed on the Slope in 2021. This data does not include ConocoPhillips well CD2-310, the ultra extended reach well for accessing the Fiord West satellite field — this well was begun in 2021 but was not completed until 2022.

The relatively low number of development

In 2021 the Cook Inlet region saw the drilling of eight development wells, all of them drilled by Hilcorp. That compares with 14 development wells drilled in 2019 and 10 in 2020.

wells on the North Slope contrasts with the 91 development wells completed in 2019. In 2020 drilling was fairly active during the first four months of year, but tailed off as the pandemic hit, with just 39 development wells being completed for the year as a whole.

Prominent in the 2021 data was drilling by

see **DRILLING LEVELS** page 11

EXPLORATION & PRODUCTION

Oil Search unit approved

New 81,110-acre Quokka unit on Alaska's North Slope contains Placer leases

By **KAY CASHMAN**

Petroleum News

On June 22 the Alaska Department of Natural Resources' Division of Oil and Gas approved Oil Search (Alaska)'s application to form the Quokka unit in the central North Slope. OSA, a subsidiary of Santos Ltd., will be the operator of the new unit.

The Quokka unit lies adjacent to the Southern Miluveach unit (Mustang), the Kuparuk River unit and the Pikka unit.

Three working interest owners are parties to the new unit: OSA, Repsol E&P USA and Finnex.

The Quokka unit covers approximately 81,110 acres of state land that includes eight Placer unit



BRUCE DINGEMAN

leases on 8,768 acres held by OSA (51%) and Repsol (49%).

Finnex holds four leases on 6,999 acres (100%) that fall within the newly unitized Quokka area.

The balance of the leases on 65,343 acres are owned by OSA and Repsol.

The Placer unit was terminated in conjunction with the June 22 Quokka unit approval.

In his decision to approve the new unit, division Director Derek Nottingham wrote: "A unit must encompass the minimum area required to include all or part of one or more oil or gas reservoirs, or all or part of one or more potential hydrocarbon

see **UNIT APPROVED** page 8

FINANCE & ECONOMY

June trading volatile

Prices gyrate as demand and COVID closures face off with supply constraints

By **STEVE SUTHERLIN**

Petroleum News

It has been difficult to tell which way oil prices are going to move on a given day lately. When a trend begins to develop, it is whipsawed into reverse in short order. The only constant is change.

Uncertainty in markets is driving high volatility, as traders' focus swings from fears of demand destruction to concern over supply capability.

Alaska North Slope crude fell \$1.98 June 29 to close at \$116.84 per barrel, while West Texas intermediate fell \$1.98 as well — to close at \$109.78 and Brent fell \$1.72 to close at \$116.26.

During the trading session WTI jumped as high

Credit Suisse said in a June 21 report that it doesn't think Biden has the votes in Congress to place the ban, but "in the event he does use his executive powers and evoke National Emergency Act to temporarily ban crude exports, it could actually have an adverse effect."

as \$114.05 before falling back into the close. Over the month of June WTI rose as high as \$122.11 on June 8 to a low of \$104.22 on June 23.

ANS closed at \$112.61 on Wednesday June 22,

see **OIL PRICES** page 7

EXPLORATION & PRODUCTION

May ANS production up 0.5% from April

North Slope crude, NGLs average 493,179 bpd, up 1.1% from May '21 average; Cook Inlet average of 9,674 bpd is down 3% from April

By **KRISTEN NELSON**
Petroleum News

Alaska North Slope production averaged 493,179 barrels per day in May, up 2,437 bpd, 0.5%, from an April average of 490,741 bpd and up 1.1% from a May 2021 average of 487,672 bpd.

ANS production for May includes 437,313 bpd of crude oil, 88.7% of the total, up 5,632 bpd, 1.3%, from an April average of 431,681 bpd, and up 0.6% from a May 2021 average of 434,569 bpd. ANS natural gas liquids averaged 55,866 bpd in May, 11.3% of the total, down 3,195 bpd, 5.4%, from an April average of 59,061 bpd and up 5.2% from a May 2021 average of 53,102 bpd.

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

ConocoPhillips increases

The largest month-over-month increases by volume were at ConocoPhillips Alaska's Colville River and Greater Mooses Tooth units.

The Colville River unit, which includes production from the main Alpine pool and as well as Nanuq and Qannik, averaged 37,426 bpd in May, up 5,333 bpd, 16.6%, from an April average of 32,092 bpd, but down

The largest month-over-month increases by volume were at ConocoPhillips Alaska's Colville River and Greater Mooses Tooth units.

20.1% from a May 2021 average of 46,838 bpd.

Production from the field dropped in early March after production wells at CD1, which provided 4% of the field's production in January and February, were shut down following discovery of a gas release at that pad. There was some production from CD1 early in March, but nothing in April or May.

Month-over-month increases from April to May occurred at the field's most productive pads, CD2 and CD5, with CD2 production totaling 346,261 barrels in May, 30% of the field's production of 1.16 million barrels in that month, up from a 163,948 barrel total for April, 17% of the field's total volume of 962,711 barrel in that month.

At CD5, Alpine's most productive pad, production totaled 627,243 barrels in May, 54% of the field's production, up from 608,104 barrels in April, 63% of Alpine production for that month.

Greater Mooses Tooth, in the National Petroleum Reserve-Alaska, averaged 20,349 bpd in May, up 2,868

bpd, a 16.4% increase, from an April average of 17,480 bpd and up 730.8% from a May 2021 average of 2,449 bpd. GMT has production from two pads, GMT1 and GMT2. Sustained production began from GMT2, the field's newest pad, in mid-December. In May GMT1, producing from the Lookout pool, averaged 1,845 bpd, 9% of GMT production, while GMT2, producing from the Rendezvous pool, averaged 18,503 bpd, 91% of GMT production.

Other month-over-month increases

Hilcorp Alaska's Milne Point averaged 37,484 bpd in May, up 955 bpd, 2.6%, from an April average of 36,529 bpd and up 2.3% from a May 2021 average of 36,637 bpd.

Eni's Oooguruk averaged 5,816 bpd in May, up 816 bpd, 16.3%, from an April average of 5,000 bpd but down 15.2% from a May 2021 average of 6,856 bpd.

Eni's Nikaitchuq averaged 18,574 bpd in May, up 540 bpd, 3%, from an April average of 18,034 and up 7.7% from a May 2021 average of 17,250 bpd.

Savant Alaska's Badami averaged 1,012 bpd in May, up 26 bpd, 2.6%, from an April average of 986 bpd but down 11.5% from a May 2021 average of 1,143 bpd.

see ANS PRODUCTION page 4

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Alaska-Mackenzie Rig Report

Rig Owner/Rig Type Rig No. Rig Location/Activity Operator or Status

Alaska Rig Status

North Slope - Onshore

All American Oilfield LLC IDECO H-37	AAO 111	Deadhorse, Stacked in Cruz Yard	Available
Doyon Drilling Dreco 1250 UE Dreco 1000 UE Dreco D2000 Uebd AC Mobile OIME 2000	14 (SCR/TD) 16 (SCR/TD) 19 (SCR/TD) 25 141 (SCR/TD) 142 (SCR/TD)	Milne Point, MPU M-28 Standby Kuparuk, 35 Pad Modification Alpine, MT7-07 Maintenance Standby Alpine, CD4-597 Maintenance	Hilcorp Alaska LLC ConocoPhillips ConocoPhillips ConocoPhillips
TSM 700 ERD	Arctic Fox #1 26	Standby Alpine, CD2-361 Warm Stack	 ConocoPhillips
Hilcorp Alaska LLC Rotary Drilling	Innovation	Milne Point, S Pad	Hilcorp Alaska LLC
Nabors Alaska Drilling AC Coil Hybrid AC Coil Ideco 900 Dreco 1000 UE Mid-Continental U36A Oilwell 700 E Dreco 1000 UE Oilwell 2000 Hercules Oilwell 2000 Hercules Emsco Electro-hoist Oilwell 2000 Canrig 1050E Oilwell 2000 Academy AC Electric CANRIG OIME 2000 Academy AC electric CANRIG Academy AC electric Heli-Rig	CDR-2 (CTD) CDR-3 (CTD) 3 (SCR/TD) 7-ES (SCR-TD) 3-S 4-ES (SCR) 9-ES (SCR/TD) 14-E (SCR) 16-E (SCR/TD) 27-E (SCR-TD) 33-E 99AC (AC-TD) 245-E (SCR-ACTD) 105AC (AC-TD) 106AC (AC-TD)	Prudhoe Bay Kuparuk Deadhorse, Stacked Kuparuk Stacked Stacked Stacked Deadhorse Stacked Stacked Deadhorse Stacked 12 Acre Pad, stacked Alkaid 2 Stacked	Hilcorp Alaska LLC ConocoPhillips Available ConocoPhillips Available Available Available Available Available Brooks Range Petroleum Available Available Available Available Greatbear/Pantheon Available
Nordic Calista Services Superior 700 UE Superior 700 UE Ideco 900 Rig Master 1500AC	1 (SCR/CTD) 2 (SCR/CTD/TD) 3 (SCR/TD) 4 (AC/TD)	Deadhorse Deadhorse Deadhorse Oliktok Point	Available Available ASRC ENI
Parker Drilling Arctic Operating LLC NOV ADS-10SD NOV ADS-10SD	272 273	Deadhorse, Stacked Deadhorse, Stacked	Available Available

North Slope - Offshore

Doyon Drilling Sky top Brewster NE-12	15 (SCR/TD)	Spy Island SP40-E4	ENI
Nabors Alaska Drilling OIME 1000	19AC (AC-TD)	Oooguruk	ENI

Cook Inlet Basin – Onshore

BlueCrest Alaska Operating LLC Land Rig	BlueCrest Rig #1	Stacked	BlueCrest Alaska Operating LLC
Glacier Oil & Gas	Rig 37	West McArthur River Unit Workover	Glacier Oil & Gas
Hilcorp Alaska LLC TSM-850 TSM-850	147 169	Stacked Seaview	Hilcorp Alaska LLC Hilcorp Alaska LLC

Cook Inlet Basin – Offshore

Hilcorp Alaska LLC National 110	C (TD) Rig 51 Rig 56	Platform C, Stacked Steelhead Platform, Stacked Monopod A-13, stacked	Hilcorp Alaska LLC Hilcorp Alaska LLC Hilcorp Alaska LLC
Nordic Calista Services Land Rig	36 (TD)	Kenai, stacked	Available
Spartan Drilling Baker Marine ILC-Skidoff, jack-up		Spartan 151, Tyonek Platform	Hilcorp Alaska LLC
Furie Operating Alaska Randolf Yost jack-up		Nikiski, OSK dock	Available
Glacier Oil & Gas National 1320	35	Osprey Platform, activated	Glacier Oil & Gas

Mackenzie Rig Status

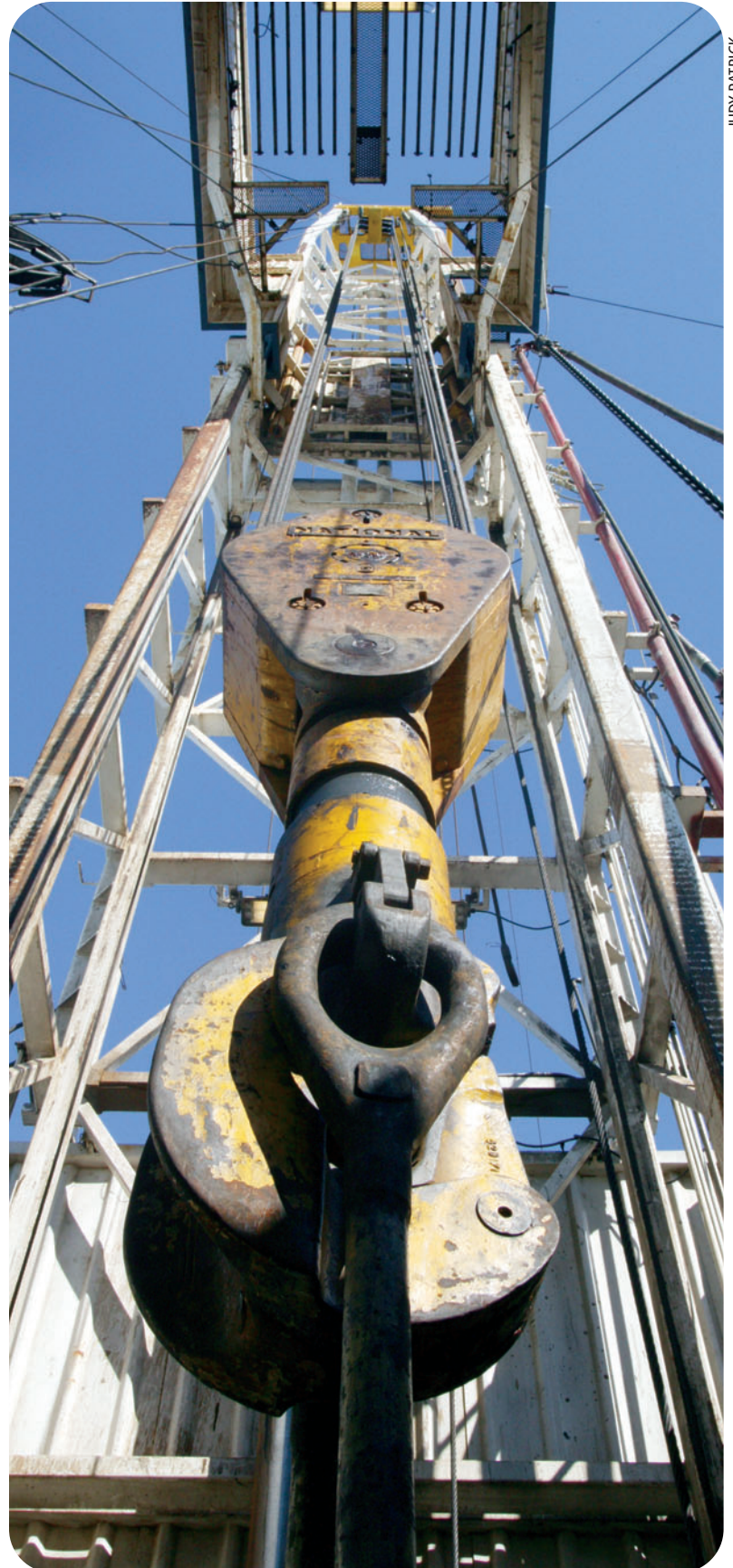
Canadian Beaufort Sea

SDC Drilling Inc. SDC Mobile Offshore Drilling Unit Rig #2		Set down at Roland Bay	Available
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The Alaska-Mackenzie Rig Report as of June 29, 2022.
Active drilling companies only listed.

TD = rigs equipped with top drive units WO = workover operations
CT = coiled tubing operation SCR = electric rig

This rig report was prepared by Marti Reeve



JUDY PATRICK

Baker Hughes North America rotary rig counts*

	June 24	June 17	Year Ago
United States	753	740	470
Canada	154	156	126
Gulf of Mexico	15	15	14

Highest/Lowest

US/Highest	4530	December 1981
US/Lowest	244	August 2020

*Issued by Baker Hughes since 1944

The Alaska-Mackenzie Rig Report
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Cook Inlet natural gas up 5% in May

Natural gas from Cook Inlet averaged 216,384 thousand cubic feet per day in May, up 10,599 mcf per day, 5.2%, from an April average of 205,786 mcf per day and down 1.6% from a May 2021 average of 219,912 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.

Nine fields accounted for 88.3% of Cook Inlet natural gas production in May, each producing 5% or more of the total.

Hilcorp's Ninilchik averaged 33,804 mcf per day in May, 15.6% of inlet production, up 1,276 mcf per day, 3.9%, from an April average of 32,528 mcf per day and up 14.2% from a May 2021 average of 29,595 mcf per day.

The Beluga River field, operated by Hilcorp for itself and majority owner Chugach Electric Association, averaged 31,837 mcf per day in May, 14.7% of inlet production, down 389 mcf per day, 1.2%, from an April average of 32,226 mcf per day and up 50.5% from a May 2021 average of 21,158 mcf per day.

Hilcorp's North Cook Inlet averaged 29,586 mcf per day in May, 13.7% of inlet production, up 1,226 mcf per day, 4.3%, from an April average of 28,360 mcf per day and up 96.1% from a May 2021 average of 15,086 mcf per day.

Hilcorp's Kenai gas field averaged 25,494 mcf per day in May, 11.8% of inlet production, down 1.5%, 393 mcf per day, from an April average of 25,887 mcf per day, and down 40% from a May 2021 average of 42,453 mcf per day.

Hilcorp's McArthur River averaged 18,431 mcf per day in May, 8.5% of inlet production, down 145 mcf per day, 0.8%, from an April average of 18,577 mcf per day, and down 28.5% from a May 2021 average of 25,781 mcf per day.

Hilcorp's Beaver Creek averaged 15,144 mcf per day in May, 7% of inlet production, up 4,558 mcf per day, 43.1%, from an April average of 10,586 mcf per day and up 51.8% from a May 2021 average of 9,975 mcf per day.

Hilcorp's Ivan River averaged 13,196 mcf per day in May, 6.1% of inlet production, up 3,741 mcf per day, 39.6%, from an April average of 9,455 mcf per day and up 29.6% from a May 2021 average of 10,182 mcf per day.

Furie's Kitchen Lights averaged 12,479 mcf per day in May, 5.8% of inlet production, up 978 mcf per day, 8.5%, from an April average of 11,500 mcf per day but down 23.4% from a May 2021 average of 16,294 mcf per day.

see **INLET GAS** page 7

continued from page 2

ANS PRODUCTION

Savant is a Glacier Oil and Gas company.

Hilcorp Alaska's Endicott averaged 7,077 bpd in May, up 3 bpd, 0.04%, from an April average of 7,074 bpd and up 8.2% from a May 2021 average of 6,542 bpd. Endicott crude, 85.7% of the field's May production, averaged 6,067 bpd, up 109 bpd, 1.8%, from an April average of 5,958 bpd and up 6.7% from a May 2021 average of 5,684 bpd. Endicott NGLs, 14.3% of the field's production in May, averaged 1,010 bpd, down 106 bpd, 9.5%, from an April average of 1,116 bpd and up 17.8% from a May 2021 average of 857 bpd.

Fields with month-over-month declines

The Hilcorp North Slope operated Prudhoe Bay field, the Slope's largest, averaged 268,367 bpd in May, down 6,206 bpd, 2.3%, from an April average of 274,574 bpd and up 2.7% from a May 2021 average of 261,449 bpd. Crude, 80.8% of Prudhoe production in May, averaged 216,738 bpd, down 3,338 bpd, 1.5%, from an April average of 220,075 and up 2% from a May 2021 average of 212,582 bpd. Prudhoe NGLs, 19.2% of the field's production in May, averaged 51,629 bpd, down 2,869 bpd, 5.3%, from an April average of 54,498 bpd and up 5.7% from a May 2021 average of 48,866 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.

ConocoPhillips' Kuparuk River averaged 80,743 bpd in May, down 1,347 bpd, 1.6%, from an April average of 82,090 bpd and down 11.1% from a May 2021 average of 90,855 bpd.

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

Hilcorp's Northstar averaged 7,218 bpd in May, down 542 bpd, 7%, from an April average of 7,760 bpd and down 13% from a May 2021 average of 8,300 bpd. Crude, 55.3% of Northstar production in May, averaged 3,992 bpd, down 321 bpd, 7.5%, from an April average of 4,313 bpd and down 18.9% from a May 2021 average of 4,921 bpd. Northstar NGLs, 44.7%

of the field's production in May, averaged 3,226 bpd, down 220 bpd, 6.4%, from an April average of 3,447 bpd and down 4.5% from a May 2021 average of 3,379 bpd.

Cook Inlet averages 9,675 bpd

Production from Alaska's Cook Inlet averaged 9,674 bpd in May, down 303 bpd, 3%, from an April average of 9,977 bpd and up 9.2% from a May 2021 average of 8,857 bpd. The majority of Cook Inlet production, 99.2%, is crude oil, with NGLs making up just 0.8% of production in May, all from the Swanson River unit.

Hilcorp's McArthur River averaged 3,046 bpd in May, up 175 bpd, 6.1%, from an April average of 2,870 bpd and down 1.1% from a May 2021 average of 3,079 bpd.

Hilcorp's Granite Point averaged 2,369 bpd in May, down 2.2%, 54 bpd, from an April average of 2,423 bpd and down 11.1% from a May 2021 average of 2,664 bpd.

Hilcorp's Beaver Creek averaged 923 bpd in May, up 32 bpd, 3.6%, from an April average of 891 bpd and up 357% from a May 2021 average of 202 bpd.

Hilcorp's Trading Bay averaged 887 bpd in May, up 29 bpd, 3.4%, from an April average of 858 bpd and down 16.6% from a May 2021 average of 1,063 bpd.

Cook Inlet Energy's Redoubt Shoal averaged 828 bpd in May, down 304 bpd, 26.9%, from an April average of 1,132 bpd. The field was not in production last May. CIE is a Glacier Oil and Gas company.

Hilcorp's Swanson River averaged 801 bpd in May (721 bpd of crude and 80 bpd of NGLs), down 66 bpd, 7.6%, from an April average of 867 bpd and down 11.8% from a May 2021 average of 909 bpd.

BlueCrest's Hansen field averaged 799 bpd in May, up 38 bpd, 5%, from an April average of 760 bpd and down 13.9% from a May 2021 average of 928 bpd.

CIE's West McArthur River averaged 21 bpd in May, down 154 bpd, 88%, from an April average of 175 bpd. The field was not in production last May.

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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● LAND & LEASING

Gas exploration licenses offered to ANG

Susitna Valley tracts total 915,493 acres on two leases, 10 year term, \$6.3 million work commitment, one-time rent of \$1 an acre

By **KAY CASHMAN**
Petroleum News

A final written finding and decision was issued June 23 by the director of the Alaska Department of Natural Resources' Division of Oil and Gas for two Susitna Valley gas exploration licenses totaling some 915,493 acres (434,835 acres in license area 1 and 480,658 acres in area 2).

Each license area was granted a 10-year term, and the director established a work commitment of \$3.3 million for one area and \$3 million for the other.

The two licenses were offered to Alaska Natural Gas Corp., or ANG, originally Cook Inlet Oil & Gas Corp. ANG has an Anchorage address.

Exploration incentives are issued for various terms at a one-time rental rate of \$1 per acre. Applicants make a financial commitment to explore the license area. In the case of these licenses, the division said that because the area was larger than the maximum 500,000 acres allowed for a license, ANG applied for two adjacent licenses, with a work commitment of \$500,000 for each license, an amount deemed insufficient by the director. (The company has 30 days from the issuance of the final finding to accept or reject the licenses.)

Both license areas are west of the George Parks Highway. License area 1, the more southerly of the two, is west of Willow and adjacent to the highway for part of its eastern border. License area 2 is adjacent to area 1 to the north, extends west beyond Skwentna and appears to share no border with the highway on its eastern edge.

Exploration licenses are used by the state of Alaska to encourage oil and gas exploration on lands outside known hydrocarbon basins.

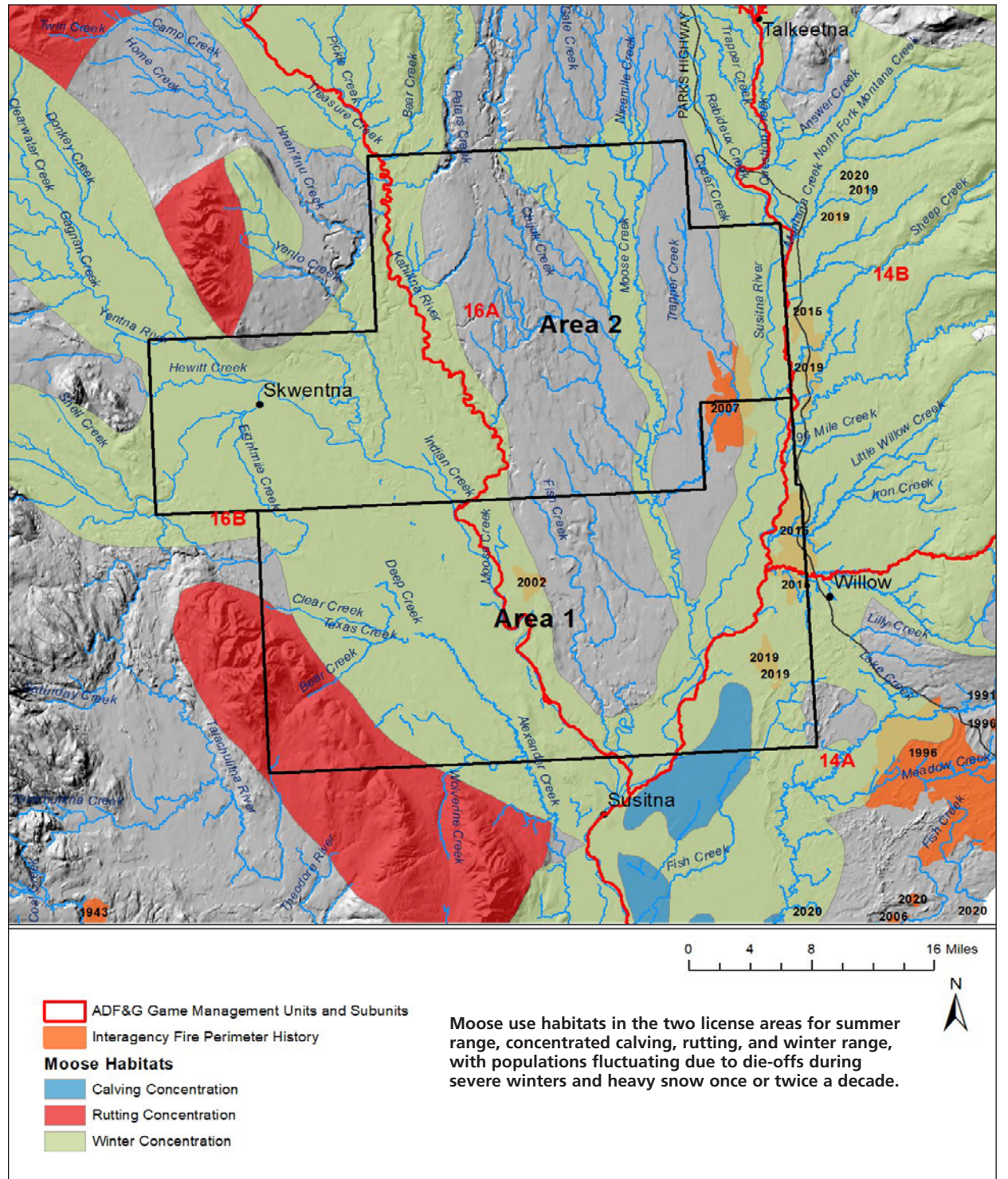
The applicant

ANG is a private company registered in Alaska. Information on the Division of Corporations, Business, and Professional Licensing website shows Robert Fowler as president and Jean-Robert Pronovost as secretary and treasurer.

On the company's website, <https://alaskanatgascorp.com/>, the company says: "Our goal is to play an important economic role in Alaska by developing a new supply of natural gas for the benefit of the community and our shareholders."

The company's mission is "to become a significant and environmentally responsible natural gas producer."

ANG says it is developing itself into a coalbed methane producer. CBM "is a form of pipeline grade natural gas extracted from underground coal seams while keeping the geological horizon intact" and the company says it "is using proven horizontal well designs



that have the advantage of having a minimal environmental footprint while maximizing the length of underground pipes producing gas."

Requirements

After a license is issued, the licensee must pay the

one-time \$1 per acre license fee.

Each year, the licensee must post "a bond equal to the work commitment, less the cumulative expended, divided by the years of the remaining License term."

The bond is released upon fulfillment of the work see **EXPLORATION LICENSES** page 6

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LAND & LEASING



Division renews Kenai LNG tidelands lease

A tideland lease originally issued to Marathon in 1967 for a primary term of 55 years — the site of the marine terminal at the Kenai LNG facility — has been renewed by current leaseholder Kenai LNG.

The Alaska Department of Natural Resources' Division of Oil and Gas issued a director's decision approving the renewal on June 22 for a term of 20 years, rather than the 55 years requested by Kenai LNG.

The division said Kenai LNG requested the renewal "to allow for continued use of the marine terminal in support of the adjacent Kenai LNG facility." There are some 76.6 acres of tidelands in the use. Kenai LNG is the current upland owner of the parcel adjacent to the lease, the division said.

The division said there is a 1,300-foot causeway at the marine terminal, connecting the shore to a 50-foot by 100-foot breasting platform which houses a storage room, control room, LNG loading arms and fire suppression equipment. No new infrastructure or changes are proposed at this time.

Division Director Derek Nottingham approved the renewal, finding it "necessary for the practicable development and production of energy resources in the Cook Inlet region."

In its renewal application Kenai LNG said the "existing Wharf on ADL-34729 is designed primarily for LNG vessels to support the neighboring Kenai LNG Facility."

The company said the Kenai LNG facilities are currently idle, with the marine facility not continuously staffed, although they are checked by operations personnel perform twice daily.

—KRISTEN NELSON

EXPLORATION & PRODUCTION

US rotary drilling rig count up 13 to 753

The Baker Hughes' U.S. rotary drilling rig count was 753 on June 24, up by 13 from the previous week and up by 283 from 470 a year ago.

When the count dropped to 244 in mid-August 2020 it was the lowest the domestic rotary rig count has been since the Houston based oilfield 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 2020 when it gained back 10 rigs.

The June 24 count includes 594 rigs targeting oil, up by 10 rigs from the previous week and up 222 from 372 a year ago, with 157 rigs targeting natural gas, up by three from the previous week and up 59 from 98 a year ago, and two miscellaneous rigs, unchanged from the previous week and unchanged from a year ago.

Forty-one of the rigs reported June 24 were drilling directional wells, 685 were drilling horizontal wells and 27 were drilling vertical wells.

Alaska rig count unchanged

The rig count in Texas (362) was up six from the previous week.

Colorado (19) was up by three rigs week over week.

Louisiana (63), New Mexico (111), Oklahoma (60) and Wyoming (19) were each up by a single rig.

Rig counts in all other states were unchanged week over week: Alaska (8), California (6), North Dakota (35), Ohio (12), Pennsylvania (25), Utah (14) and West Virginia (14).

Baker Hughes shows Alaska with eight rotary rigs active June 24, unchanged from the previous week and up by four from a year ago, when the state's rig count stood at four. Seven of the rigs in Alaska were onshore, one was offshore — also unchanged week over week.

The rig count in the Permian, the most active basin in the country, was up by four from the previous week at 349 and up by 113 from 236 a year ago.

—KRISTEN NELSON

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EXPLORATION LICENSES

commitment.

If the work commitment is not fulfilled, the bond is forfeited to the state.

The licensee is required to submit an annual report.

The licensee is required to complete at least 25% of the total work commitment by the fourth anniversary of the license and 25% of the license area will be deleted if less than 50% of the work commitment is completed, with an additional 10% relinquished each successive year until half of the original acreage has been relinquished.

Once the work commitment has been met, the licensee may request conversion of all or a portion of the license areas to a standard gas lease.

Susitna geology

The division said only nine oil and gas exploration wells and four core holes have been drilled within the proposed license areas in the Susitna basin. The exploration wells were plugged and abandoned as dry holes "though some did have minor gas shows."

The Union Texas Pure Kahiltna Unit No. 1, completed in March 1964 to a total depth of 7,265 feet, and the Unocal Trail Ridge Unit No. 1, completed in October 1980 to 13,708 feet, were drilled near the deepest part of the basin, bottoming "in possibly the Talkeetna formation of volcanic rocks," with coal beds becoming prominent in the lower part of both wells, "suggesting a correlation with the coal-bearing formations in the Cook Inlet basin that produce natural gas."

Subbituminous coal seams are abundant in the Susitna Valley basin, the division said, and coalbed methane can occur. Multiple coal seams were documented at shallow depths in the AK-94 CBM-1 wells, a DNR coalbed methane evaluation well in the Matanuska Susitna valleys "that encountered relatively high gas content."

The division said that while five wells in

The two licenses were offered to Alaska Natural Gas Corp., or ANG, originally Cook Inlet Oil & Gas Corp. ANG has an Anchorage address.

the Susitna basin found coal seams, "none proved to have coalbed methane in economic quantities."

There are mostly lignite and subbituminous coals in the Susitna basin, and they pose problems, including having "minimal fractures to allow methane to escape when the coalbed is dewatered."

Well tests were done at the Pure Kahiltna Unit No. 1, Trail Ridge Unit No. 1, Fish Creek No. 1, Sheep Creek No. 1 and Kashwitna Lake No. 1. At Willow Fishhook No. 1, the division said, "various techniques were attempted to produce methane however none were proven to be economical."

The division said the potential for conventional oil and gas, as well as coalbed methane, is "low to moderate" in the Susitna basin.

Cook Inlet Energy work

Cook Inlet Energy LLC conducted an exploration program in the Susitna basin beginning in 2003, planning for two gas exploration wells near the Susitna River, and, in 2011, acquired a 10-year exploration license, Susitna Basin Exploration License No. 4, covering 62,909 acres with a \$2.25 million work commitment.

The company acquired a second license, Susitna Basin Exploration License No. 5, in 2012, covering 45,764 acres with a \$250,000 work commitment. The company began work but it was not completed, and the company surrendered the last of its licenses in 2016.

The division said the previous licenses overlapped much of the area covered by the new licenses. ●

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OIL PRICES

a week later it was up \$4.23 at its close of \$116.84 June 29. ANS closed at \$127.77 on June 8 and \$111.30 on June 23.

The indexes were buffeted June 29 by a report from the U.S. Energy Information Administration showing that motor gasoline inventories rose an unseasonably high 2.6 million barrels for the week ending June 24, perhaps reflecting a hit to demand from consumer price sensitivity. Over the past four weeks, motor gasoline product supplied averaged 8.9 million barrels per day, down by 2.0% from the same period last year.

Commercial crude oil inventories — excluding the Strategic Petroleum Reserve — fell by 2.8 million barrels from the previous week, the EIA said. At 415.6 million barrels, U.S. crude oil inventories are 13% below the five-year average for the time of year.

ANS rose \$2.44 June 28 to close at \$118.82, as WTI rose \$2.19 to close at \$111.76 and Brent rose \$2.89 to close at \$117.98.

ANS was up \$2.11 June 27 to close at \$116.37, while WTI was up \$1.95 to close at \$109.57 and Brent increased \$1.97 to close at \$115.09.

Prices were supported June 27 by a proposal by the Group of Seven leaders to cap prices on Russian crude.

Supply issues also arose.

Libya's National Oil Corp. said it was on the verge of declaring force majeure on oil exports from key eastern oil terminals as an ongoing political crisis restricts production. Half of Libya's oil production is offline as its two rival governments struggle for power and oil revenues.

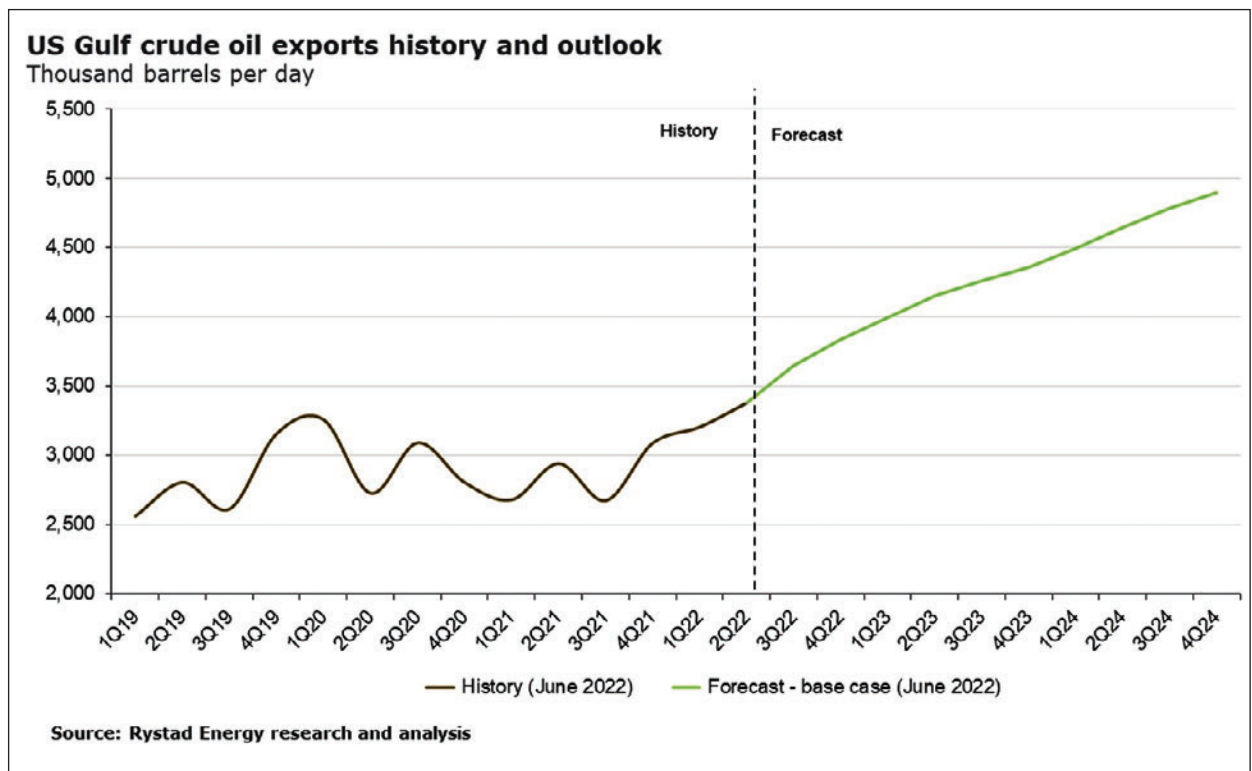
Ecuador's energy ministry said anti-government unrest could hammer oil production there also.

ANS jumped \$2.96 June 24 to close at \$114.26, as WTI leapt \$3.35 to close at \$107.62 and Brent popped \$3.07 to close at \$113.12.

On June 23, ANS fell \$1.31 to close at \$111.30, WTI fell \$1.92 to close at \$104.28 and Brent fell \$1.69 to close at \$110.05.

The Biden administration is considering a ban on oil exports from the United States to boost domestic supplies and relieve gas prices at the pump.

Credit Suisse said in a June 21 report that it doesn't



think Biden has the votes in Congress to place the ban, but “in the event he does use his executive powers and evoke National Emergency Act to temporarily ban crude exports, it could actually have an adverse effect.”

The bank said the United States is still dependent on imports, and it imports twice as much oil as it exports.

“If the US were to stop exporting these barrels, it would cause further global shortages in an under supplied crude market,” Credit Suisse said. “Again, this would have a bigger impact in global supply of crude than Russian invasion of Ukraine.”

A ban would cause crude prices to move up significantly and prices of U.S. imported barrels will go up with it, the bank said. While mid-continent refiners will benefit from a wider Brent-WTI spread, overall prices for coastal refiners will go up and might cause gasoline and diesel prices to spike.

“Banning crude exports will also cause U.S. producers to pull back capital leading to production decline in the Lower 48,” the bank said. “This will basically leave the

world more dependent on crude from countries like Russia and Iran.”

Oil exports from the U.S. Gulf Coast are set to hit an all-time high of 3.3 million bpd in the second quarter of 2022, as refining capacity outages limit operators' ability to meet demand and releases from the Strategic Petroleum Reserve boost supply, Rystad Energy said in a June 27 release.

The unintended consequence of federal intervention is that more barrels than ever before are being sold to international buyers, Rystad said.

“Domestic refining capacity in the U.S. remains depressed compared to pre-Covid levels, so it's no surprise that government intervention to support crude supplies has resulted in an increase in exports of domestically produced light barrels,” said Artem Abramov, Rystad head of shale research. “It means the U.S. is able to support global markets amid the most challenging energy crisis in at least 30 years.” ●

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INLET GAS

Hilcorp's Swanson River averaged 11,038 mcf per day in May, 5.1% of inlet production, down 523 mcf per day, 4.5%, from an April average of 11,561 mcf per day and down 47.2% from a May 2021 average of 20,916 mcf per day.

Fourteen smaller fields accounted for a combined 11.7% of inlet production in May.

Hilcorp's Cannery Loop averaged 6,989 mcf per day in May, down 17 mcf per day, 0.2%, from an April average of 7,006 mcf per day but up 25.5% from a May 2021 average of 5,568 mcf per day.

AIX's Kenai Loop averaged 3,630 mcf per day in May, down 35 mcf per day, 1%, from an April average of 3,665 mcf per day and down 24.6% from a May 2021 average of 4,816 mcf per day.

Hilcorp's Granite Point averaged 3,531 mcf per day in May, up 33 mcf per day, 1%, from an April average of 3,498 mcf per day but down 0.8% from a May 2021 average of 3,558 mcf per day.

Hilcorp's Deep Creek averaged 3,186 mcf per day in May, up 18 mcf per day, 0.6%, from an April average of 3,168 mcf per day but down 24.9% from a May 2021 average of 4,242 mcf per day.

Vision Operating's North Fork averaged 3,080 mcf per day in May, down 87 mcf per day, 2.8%, from an April average of 3,167 mcf per day and down 5.6% from a May 2021 average of 3,264 mcf per day.

BlueCrest's Hansen field averaged 1,768 mcf per day in May, up 204 mcf per day, 13%, from an April average of 1,564 mcf per day but down 44.1% from a May 2021 average of 3,161 mcf per day.

Hilcorp's Trading Bay averaged 1,359 mcf per day in May, up 134 mcf per day, 11%, from an April average of 1,224 mcf per day but down 38.2% from a May 2021 average of 2,198 mcf per day.

Hilcorp's Lewis River averaged 770 mcf per day in May, down 25 mcf per day, 3.2%, from an April average of 795 mcf per day and down 29.5% from a May 2021 average of 1,092 mcf per day.

Amaroq's Nicolai Creek averaged 380 mcf per day in May, up 16 mcf per day, 4.4%, from an April average of 364 mcf per day but down 10.7% from a May 2021 average of 425 mcf per day.

Hilcorp's Seaview averaged 258 mcf per day in May, down 18 mcf per day, 6.4%, from an April average of 275 mcf per day. The field was not yet in production in May 2021.

Cook Inlet Energy's Redoubt Shoal averaged 217 mcf per day in May, down 7 mcf per day, 3.2%, from an April average of 225 mcf per day. The field was not in production last May. CIE is a Glacier Oil and Gas company.

Hilcorp's Nikolaevsk averaged 199 mcf per day in May, up 82 mcf per day, 70%, from an April average of 117 mcf per day and up 35.3% from a May 2021 average of 147 mcf per day.

CIE's West McArthur River averaged 8 mcf per day in May, down 29 mcf per day, 78.2%, from an April average of 17 mcf per day. The field was not in production last May.

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

—KRISTEN NELSON

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UNIT APPROVED

accumulations. ... OSA has submitted confidential geological, geophysical, and engineering data” that supports these requirements.”

OSA’s Dec. 30 application to form the Quokka unit, which was signed by OSA President Bruce Dingeman and was last amended June 17, includes the following: a unit operating agreement; the unit agreement form legally describing the requested unit area, its leases, and ownership interests; a map of the unit; and a plan of exploration.

The application also includes confidential economic and technical data.

No comments received

The division notified OSA by email Feb. 1 that the initial application was incomplete because it did not include all pertinent geological, geophysical, engineering and well data and interpretations of those data directly supporting the application.

Once this information was received, the division deemed the application complete on March 14.

The division then published a notice in two newspapers, which invited members of the public to submit comments by April 23. The agency also sent copies of the application and the public notice to the following interested parties: North Slope Borough, City of Utqiagvik, City of Nuiqsut, Kuukpik Corp., Arctic Slope Regional Corp., Nuiqsut and Utqiagvik postmasters, radio station KBRW in Utqiagvik, Alaska Department of Environmental Conservation, Alaska Department of Fish and Game, Alaska Oil and Gas Conservation Commission and the ADF&G Division of Habitat.

The division received no comments regarding OSA’s application to form the Quokka unit.

Prior exploration

Per the division’s approval, the Quokka unit area has been part of “scattered exploration efforts since 2001 and remains lightly explored outside of the Placer unit area.”

Seven exploration wells have been drilled in the new unit’s acreage.

The area is covered by several proprietary and multi-client 3D seismic surveys. OSA obtained licenses to these sur-

veys as well as surveys covering the Pikka and the Horseshoe units and exploration acreage.

Starting in 2018, OSA undertook a multi-stage reprocessing effort combining 15 separate surveys into one contiguous 3D survey. The resulting volume encompasses more than 1,700 square miles and more than 95% of the operator’s acreage including the Quokka unit acreage.

A crucial element of the reprocessing/merge of multiple seismic volumes covering a large geographic area is the incorporation of acoustic log data from wells. All relevant wells within the merged survey, which had the appropriate well log types, were evaluated to determine seismic phase and tie geologic formations to the seismic data.

OSA has interpreted the merged 3D volume and constructed geomodels incorporating well and seismic data. The geomodel analysis was used to develop maps of reservoir characteristics defining the unit area

Exploration from 1967-2019

The majority of the wells drilled in the Quokka unit are in the northern end of the acreage and have targeted Kuparuk or

Brookian prospects.

The central part of the new unit has seen some exploration activity for Kuparuk and Brookian targets, but the southern portion of the proposed area has not been drilled.

Following are the wells that were drilled:

Kookpuk 1 well

The earliest well drilled in the Quokka acreage is the Kookpuk 1 well, which was drilled in 1967 by Union Oil Co. of California to evaluate the Ellesmerian interval.

The well was logged and both sidewall and conventional cores were taken. It was not flow tested, was plugged and abandoned.

Cirque 1 well

Atlantic Richfield Co. (ARCO) drilled the Cirque 1 in 1992. The well experienced a blowout prior to reaching the target interval (Kuparuk) due to elevated pore pressure in the K-10 sands and poor drilling methods. A relief well was drilled during the response (Cirque 1X), and the well was successfully plugged and abandoned.

Cirque 2 well

Cirque 2 was drilled by ARCO in 1992 to evaluate the Kuparuk target that Cirque 1 was unable to reach.

Atlas 1 & 1A wells

Phillips Alaska drilled the Atlas 1 and Atlas 1A wells in 2001, targeting both the Brookian section and the Kuparuk C. The Brookian was conventionally cored in Atlas 1, and sidewall cores were taken in the Brookian and Kuparuk in the Atlas 1A sidetrack. Neither Atlas 1 nor Atlas 1A were flow tested in any zone, and both have been plugged and abandoned.

Placer 1 & 2 wells

ConocoPhillips Alaska drilled the Placer 1 well, which targeted the Kuparuk in 2004. The well logged oil in the Kuparuk C, but it was not flow tested.

Placer 1 was suspended in 2004. The Placer acreage was acquired by ASRC Exploration in 2011, and the Placer 1 well was abandoned in 2016

Immediately after suspending Placer 1 in 2004, ConocoPhillips drilled the Placer 2 well, which also targeted the Kuparuk interval. This well did not find high quality reservoir and was plugged and abandoned.

Cronus 1 well

Pioneer Natural Resources drilled the Cronus 1 well in 2006, targeting Kuparuk and Brookian (Torok) prospects. The well was logged, and rotary sidewall cores were taken in the Torok and Kuparuk, but no flow tests were attempted, and the well was plugged and abandoned.

Cronus 1 is the farthest south well drilled in the Quokka unit acreage.

Placer 3 well

The Placer 3 well was drilled in 2016 by ASRC to evaluate the Kuparuk C in the Placer unit. Sidewall cores were taken in the Kuparuk, and the Kuparuk interval was successfully flow tested, reaching an average rate of 815 barrels of oil per day.

Mitquq 1 & ST1 wells

In December 2019, OSA drilled the Mitquq 1 well approximately 6 miles east of the planned Nanushuk Central Processing Facility in the Pikka unit. The primary target, the Brookian Nanushuk reservoir, had 211 feet of net oil pay, along with 24 feet of net gas pay.

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see **UNIT APPROVED** page 12

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O&G INVESTING

which also are making the biggest investments in new projects, while the majors and independent oil companies are treading more softly.

In the bigger energy picture, total capital spending — including electric generation, renewables and all the rest of the energy sector — is six times as big as the oil and gas figure alone.

“Our updated tracking, across all sectors, technologies and regions, suggests that world energy investment is set to rise over 8% in 2022 to reach a total of \$2.4 trillion, well above pre-Covid levels,” the report says. “Investment is increasing in all parts of the energy sector, but the main boost in recent years has come from the power sector — mainly in renewables and grids — and from increased spending on end-use efficiency.”

Even coal, once written off for dead, will have an increase of 10% in capital allocations for 2022, after a similar increase last year, as possible interruptions of Russian gas supplies lead to reopening of mothballed coal plants and other measures.

In the petroleum realm, “investment by national oil companies (NOCs), especially in the Middle East, accounted for about 80% of the increase in upstream investment in 2021,” IEA reports. “The majority of conventional sanctioned projects are natural gas projects, underpinned by a strong recovery in investment in upstream fields linked to new LNG projects.”

30% boost by US majors

U.S. majors are expected to show an increase in

U.S. majors are expected to show an increase in upstream investment of 30% for all of 2022, while European majors are essentially running at about the same investment rate as in 2021.

upstream investment of 30% for all of 2022, while European majors are essentially running at about the same investment rate as in 2021.

The shale oil companies, burned by their gung-ho approach a few years ago, are not biting so far, IEA notes, even though shale projects can add new volumes quickly to take advantage of today’s high prices. For the shale industry, investment “has been relatively slow to pick up, held back by tight supply chains as well as a continued focus among operators on profitability and capital discipline.”

Investment in new refineries and refinery upgrades was up about 30% in 2021, but it didn’t bump up throughputs, as a near-record level of refining capacity was retired in the last two years.

Middle Eastern countries are looking to boost their dwindling spare capacity, the report notes, with increased investments of 15-30% by Saudi Aramco and Abu Dhabi’s ADNOC.

Russia is more of an open question, with all the complications arising from sanctions imposed after the Ukrainian conflict exploded earlier this year.

“Russian companies, led by Rosneft, had also announced significant investment hikes for 2022, but are now reviewing their investment programs in the light of sanctions, increasing restrictions on access to Western markets, and the announced exit of international players

and service companies that have supported Russian production growth in the past,” the report says.

“Prior to the invasion, Russian oil and gas players had signaled large year-on-year increases in planned investment for 2022, but these are now under review. A number of planned projects to expand LNG liquefaction and install steam crackers have been delayed or canceled.

“Banks headquartered in Europe and North America have withdrawn, limiting the availability of finance, and oilfield service and international oil companies have limited their operations or announced that they will make no new investments. In recent years, an increasing share of investment in Russia has been in projects looking to export to Asia; this share is likely to increase further,” the IEA noted.

Industry profits to double

“A huge windfall awaits the oil and gas industry in 2022 from high prices,” the report says. “While this may come as a relief to producer economies that were starved of income in the immediate aftermath of the pandemic, further volatility and exposure to downside risks should not be discounted, particularly as reducing dependence on fossil fuel imports becomes as much a geopolitical priority as a climate-related one.”

Thus, while there is a huge uptick in revenues and profits for the oil and gas industry, the approach of the shale companies is muted and the majors are being cautious. They can see that the world’s energy usage — and the world’s economy — are in a period of major realignment.

—ALLEN BAKER

Contact Allen Baker through publisher@petroleumnews.com

Petroleum NEWS

Oil Patch Bits

Cook Inlet Tug & Barge welcomes new tug to its fleet

Cook Inlet Tug & Barge LLC said June 28 that the Dr Hank Kaplan, an immensely versatile and powerful harbor tug, has joined its fleet. Built in 2017, the Dr Hank Kaplan is named in honor of the chief of medical oncology at Swedish Cancer Institute in Seattle, Washington, who has worked throughout his entire career on cancer research and treatment.

The tug entered service in Alaska earlier in June. Designed by Robert Allan Ltd., this RAmports-2400 series tugboat has 5,350-hp and was the first built in North America with Caterpillar integrated propulsion systems featuring CAT engines and z-drives. CAT also supplied electrical generators powering the 79-by-36-foot vessel.

“This tug is built well, extremely powerful and complements the incredibly capable tugs we have in our fleet. It will help us grow our business while meeting our expanding customer needs,” said Mike O’Shea, vice president business development and planning at

Cook Inlet Tug & Barge.

Capt. Mark Theriault, Cook Inlet Tug & Barge’s director of operations, is excited to see the Dr Hank Kaplan join the fleet. “The tug packs 30,000 gallons of fuel, 2,800 gallons of fresh water, and 370 gallons of lube oil — and not only opens up our operating window, but it is also just what our customers have been asking for”.

The Dr Hank Kaplan is homeported in Anchorage, Alaska and painted with the recognizable blue and white colors of Cook Inlet Tug & Barge. For more information go to www.cookinlettug.com.



COURTESY COOK INLET TUG

Companies involved in Alaska’s oil and gas industry

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Alaska Dreams	12	Denali Universal Services (DUS)	4	North Slope Borough	
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BP REVIEW

Renewable energy, primarily wind and solar power, grew strongly in 2021, accounting for 13% of total power generation, while renewable generation — excluding hydro — was up by almost 17% and accounted for more than half the increase in global power generation in 2020 and 2021.

Spencer Dale

In an introduction to the Statistical Review, Spencer Dale, bp's chief economist, noted the impact of the events in Ukraine and said that in addition to the impact on lives and communities in that country, shortages of food and energy could result from the war, with a worldwide impact on health and wellbeing.

"From an energy perspective," Dale said, "the growing shortages and increasing prices highlight the continuing importance of energy 'security' and 'affordability' alongside 'lower carbon' when addressing the energy trilemma."

He contrasted the continuing rise in carbon emissions, which he termed "unsustainable," with sharply increasing energy consumption as COVID-19 restrictions are lifted, "sharply increasing the demands on available energy supplies and highlighting the fragilities in the system."

In discussing the data in this year's review, Dale said use of primary energy (commercially traded fuels, including modern renewables used to generate electricity) in 2021 is estimated to be more than 1% above that in 2019.

He highlighted growth in wind and solar and said those, along with biofuels, blue and green hydrogen, CCUS (carbon capture, use and storage) and carbon dioxide removals all exist as the low-carbon sources and technology needed for "fast and deep decarbonization."

"The challenge is to apply them at unprecedented pace and scale," Dale said.

Primary energy, crude oil

Along with the 5.8% increase in primary energy demand in 2021, up 1.3% from 2019, renewable energy increased by more than 8 exajoules, EJ, from 2019 to 2021, while fossil fuel consumption was basically

unchanged, the review said.

The growth of primary energy by 31 EJ in 2021 was the largest increase in history, more than reversing 2020 declines. "Primary energy in 2021 was 8 EJ above 2019 levels."

Primary energy use came 82% from fossil fuels in 2021, down from 83% in 2019 and down from 85% five years ago.

The average oil price in 2021, \$70.91 per barrel, was the second highest since 2015, while oil consumption was up 5.3 million bpd but still 3.7 million bpd below 2019 levels, with most consumption growth from gasoline and diesel.

Areas seeing the most growth in consumption were the U.S., up 1.5 million bpd; China, up 1.3 million bpd; and the EU, up 570,000 bpd.

On the production side, oil was up by 1.4 million bpd in 2021, with more than three-quarters of the increase from OPEC+, while among countries, the largest increases were from Libya, up 840,000 bpd, Iran up 540,000 bpd and Canada up 300,000 bpd. The largest crude production declines were Nigeria, 200,000 bpd, the UK, 170,000 bpd and Angola, 150,000 bpd.

Natural gas

The price of natural gas "rebounded strongly across all three major gas regions in 2021," the review said, up fourfold in Europe to near record levels, up threefold in the Asian LNG spot market and nearly doubling in the U.S.

While the share of natural gas in primary energy at 24% was unchanged, global natural gas demand grew 5.3% in 2021, "recovering above pre-pandemic 2019 levels and crossing the 4 tcm (trillion cubic meter) mark for the first time."

Liquefied natural gas supply grew 5.6% (up 26 billion cubic meters to 516 bcm). LNG supply from the U.S. grew by 34 bcm, the review said, "accounting for most of the new incremental supplies and more than offsetting declines from mainly other Atlantic Basin exporters."

China became the largest LNG importer, surpassing Japan, and "accounted for close to 60% of global LNG demand growth in 2021."

Coal

The review said coal prices rose dramatically last year

and coal consumption grew more than 6% to 160 EJ, slightly above 2019 levels and the highest since 2014, with China and India account for more than 70% of the growth in demand.

Production matched consumption with China and India accounting for much of the increase in production, largely consumed domestically.

"Notably, both Europe and North America showed an increase in coal consumption in 2021 after nearly 10 years of back-to-back declines," the review said.

Renewables, hydro, nuclear

The review said renewable primary energy — including biofuels but excluding hydro — increased some 5.1 EJ in 2021, an annual growth rate of 15%, "stronger than the previous year's 9%, and higher than that of any other fuel in 2021."

Solar and wind continued to grow rapidly, increasing by 226 gigawatts, close to the 236 GW record increase in 2020.

"China remained the main driver of solar and wind capacity growth last year, accounting for about 36% and 40% of the global capacity additions, respectively," the review said.

There was a 1.4% decrease in hydroelectricity generation, the first fall since 2015, while nuclear generation increased by 4.2%, its strongest increase since 2004, led by China.

Electricity

The review said a strong increase in electricity generation in 2021 — up 6.2% — was "similar to the strong bounce back seen in 2010 in the aftermath of the financial crisis (6.4%)."

Wind and solar provided 10.2% of power generation in 2021, surpassing 10% for the first time and also surpassing nuclear.

The dominant fuel for power generation continued to be coal, the review said, with its share increasing to 36% from 35.1% in 2020.

The share of natural gas in power generation increased by 2.6% in 2021, "although its share decreased from 23.7% in 2020 to 22.9% in 2021."

—KRISTEN NELSON

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INSIDER

said.

In a June 24 press release from the governor's office Gialopsos' past experience was described as, "chief of staff to the president of the Alaska State Senate during the 31st Alaska Legislature. Prior to that, Gialopsos served as the committee aide to the Senate Resources Committee for the 29th and 30th Alaska Legislatures."



AKIS GIALOPSOS

A lifelong Alaskan, Gialopsos was born and raised in Anchorage, where he attended Gladys Wood Elementary and Dimond High School before moving to Greece and receiving his diploma.

He later studied at the University of Alaska-Anchorage.

—KAY CASHMAN

Alaska to pay off oil & gas tax credits

ALASKA GOV. MIKE DUNLEAVY signed the FY23 state operating and capital budgets into law on June 28 that he said will pay off Alaska's lingering oil and gas tax credits, honoring the state's commitment to pay off debt abandoned by a

previous administration

Dunleavy also said the budget invests in areas such as public safety, education and infrastructure.

Senate Minority Leader Tom Begich, an Anchorage Democrat, said Alaska "can move forward with this budget."

House Speaker Louise Stutes, a Kodiak Republican who leads a bipartisan House coalition, in a statement said while she was disappointed that there were "vetoes to projects and grants that really matter to Alaskans, I was pleased that the governor agreed with the work our coalition did in crafting a budget that prioritizes funding education, public safety, other essential services, and that puts money towards savings."

The press release from the governor's office said the spending plan "moves Alaska into a new direction with prudent and fiscally responsible investments in public safety, public education, the University of Alaska, and infrastructure projects that create jobs and economic development. It accomplishes all that while saving \$1.6 billion dollars of the budget surplus to shield the economy when oil prices eventually decline. In addition, the budget includes a historical 2022 Permanent Fund Dividend for every eligible Alaskan."

Protecting all Alaskans

Protecting Alaskans has been Dunleavy's number one public policy priority since taking office in December 2018.

• The budget authorizes 10 new Alaska State and Wildlife Troopers and 10 Village Public Safety Officer positions.

• Higher salaries for VPSOs and

Troopers to attract the most qualified and motivated candidates to a career in law enforcement.

• New housing for public safety officers in rural communities.

• Additional funding to hire more criminal prosecutors and support staff.

• Creates a Crisis Stabilization Center test program to treat Alaskans experiencing a mental health crisis.

Public education

• The FY23 budget not only increases funding for Alaska's public school and university systems; it also brings long-overdue accountability for students' and parents' sake.

• \$117 million investment in education, including funds dedicated to the Alaska Reads Act, a comprehensive reading intervention program so all students can read at grade level by the end of third grade. Increased resources include \$57 million in one-time funds to schools, \$2.5 million for Pre-K and an increase to the BSA.

• The Alaska Reads Act will be culturally responsive to rural and Alaska Native students.

• Forward funds K-12 education in FY24 with \$1.2 billion.

• Delivers tax relief for local taxpayers by funding school bond debt reimbursement.

• Enhancements to Alaska's student loan program.

• Innovative research in drone technology, critical minerals, heavy oil, and maritime culture at the University of Alaska.

Investing in infrastructure

• Funds critical repairs to the Port of

see INSIDER page 11

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DRILLING LEVELS

Hilcorp Alaska in the Milne Point unit, where Hilcorp is pursuing the use of polymer injection for the development of viscous oil in the Schrader Bluff formation. Hilcorp drilled 10 wells at Milne Point, six of them into the Schrader Bluff and four into the deeper Kuparuk River oil pool.

In January Hilcorp told the state that the Prudhoe Bay working interest owners had not approved a drilling program for 2021, because of the COVID pandemic. However, in July the company announced that it anticipated drilling up to six new wells, including production and injection wells, in the Orion participating area of the Prudhoe Bay Western Satellites. Ultimately the company completed three development wells into the Schrader Bluff in the Orion participating area.

Apart from its drilling program, Hilcorp has been actively focusing on increasing Prudhoe Bay production through well remediation, together with the repair and improvement of oilfield equipment.

ConocoPhillips completed eight development wells, not including the CD2-310 well, in 2021. Two of these wells were in the Greater Mooses Tooth unit, while the remainder were in the Kuparuk River field.

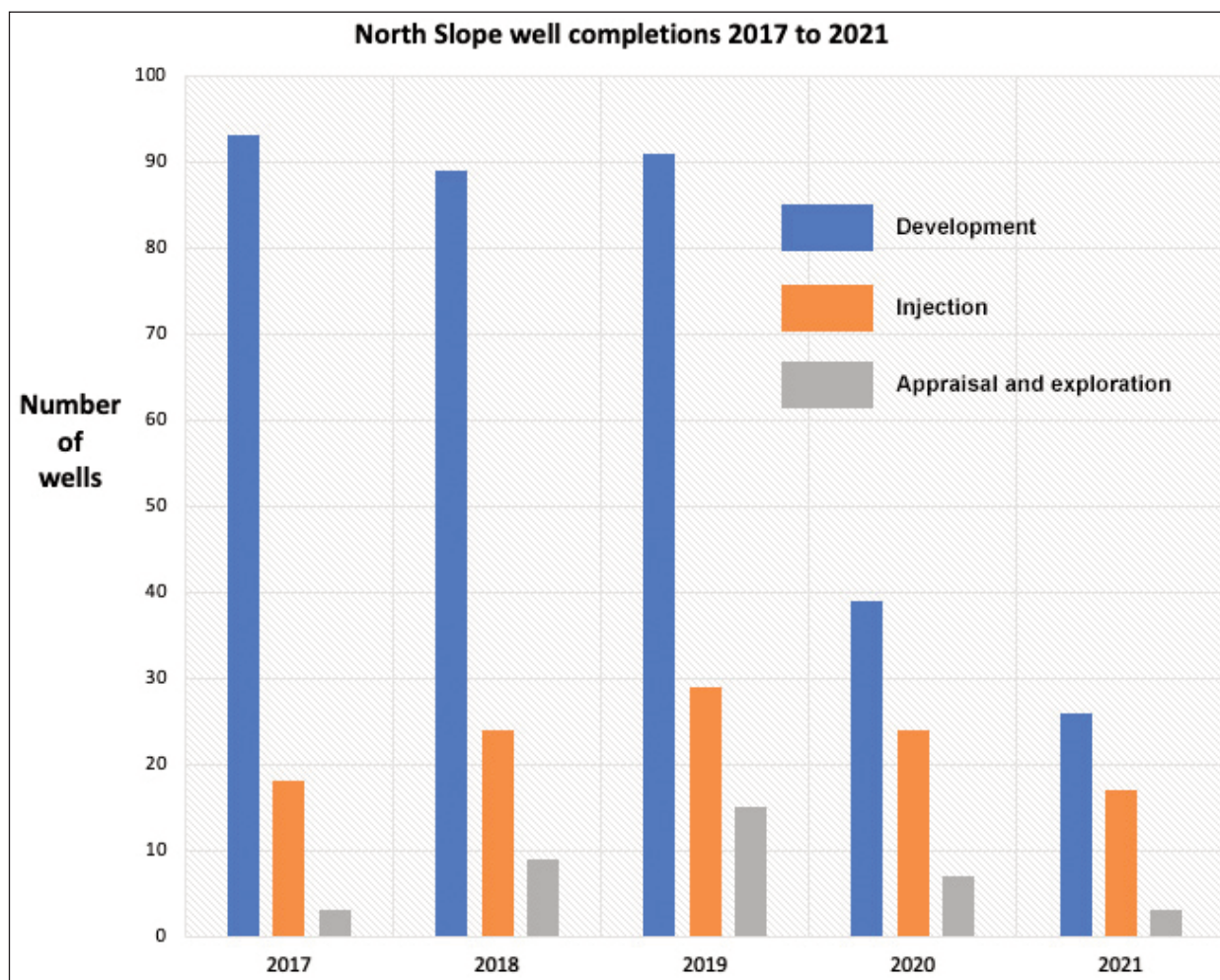
Injection wells

A total of 17 injection wells were completed on the North Slope in 2021. That compares with 29 injection wells completed in 2019, and 24 in 2020. Hilcorp drilled nine of the wells completed in 2021, with one drilled in the Prudhoe Bay unit and the remainder in the Milne Point unit. Most of the Hilcorp injection wells accessed the Schrader Bluff. ConocoPhillips drilled four injection wells in the Alpine field, two in the Greater Mooses Tooth unit and one in the Kuparuk River field.

Sparse exploration drilling

As in 2020, North Slope exploration drilling in 2021 was very sparse. Only two exploration wells were formally completed in 2021. One was ConocoPhillips' Kuparuk River Unit 3S 24-B well, a side-track well designed to test the Coyote prospect, west of the Kuparuk River field. The other was 88 Energy's Merlin 1 well, drilled in the National Petroleum Reserve-Alaska, north of Umiat. Great Bear Pantheon drilled the Talitha No. 8 well near the Dalton Highway, south of Prudhoe Bay, although this well was not formally recorded as completed until this year.

By comparison, the drilling of exploration wells on the North Slope had been increasing between 2017 and



Drilling on the North Slope, especially development drilling, dropped sharply in 2020, as a consequence of the COVID pandemic.

2019, before dropping from 15 wells completed in 2019 to seven wells in 2020 and three in 2021.

Overall, the drilling on the North Slope in 2021 was spread across the year, in contrast with 2020, when much of the drilling occurred early in the year, before the COVID pandemic hit.

Drilling in Cook Inlet

In 2021 the Cook Inlet region saw the drilling of eight development wells, all of them drilled by Hilcorp. That compares with 14 development wells drilled in 2019 and 10 in 2020. One of the development wells in 2021 was designed to support gas storage in the Swanson River field, while the others targeted gas resources in the North Cook Inlet, Granite Point and Kenai fields. Hilcorp also drilled a service well to support gas storage in the Kenai field.

Hilcorp completed three exploration and appraisal

wells in the Cook Inlet region in 2021: one in the Beluga River unit, one in the Whiskey Gulch unit and one in the Seaview unit. By comparison, Hilcorp completed four shallow stratigraphic test wells at Whiskey Gulch in 2019 and eight similar stratigraphic test wells at Whiskey Gulch in 2020. In 2019 Hilcorp also suspended an appraisal sidetrack well at Trading Bay.

The only other drilling program in Alaska in 2021 consisted of the completion of 13 shallow stratigraphic test wells by Hilcorp in the Yukon Flats basin in the Interior. According to AOGCC data, Hilcorp had applied to drill 15 of these wells, but two of the permits had been cancelled. The drilling of these wells followed a Hilcorp strategy of drilling shallow stratigraphic test wells to evaluate the possibility of discovering oil and gas resources through the drilling of deeper wells. ●

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Alaska.

- Invests in a new deep-water port in Nome — a strategic Arctic port for the United States.
- Upgrades and improvements for multiple airports across the state.
- Funds repairs for roads and bridges statewide.
- \$117.3 million in state and federal funds for the Village Safe Water program, so more rural communities have safe, clean drinking water and sanitation.
- Sets state on course to pay off oil tax credits once and for all by this year.
- Invests in the Alaska Marine Highway System with a new mainline vessel and maintenance funds to keep ships on the water serving coastal communities.

Fiscal responsibility

Dunleavy “carefully examined” the increased spending made by lawmakers this year. His objective was to preserve the temporary surplus from higher oil revenues to the greatest extent possible. Reductions were made without harming essential state services. The line-item vetoes total \$400 million, and those unspent funds will be deposited into the Constitutional Budget Reserve, or CBR, a rainy-day savings account for years when state revenues are down, the press release said.

• All state agency budgets other than public safety and education are down 10% from 2019.

- The FY23 budget deposits \$1.6 billion in the CBR.
- The bottom line: Alaska's CBR account balance increases from \$1.3 billion to approximately \$3 billion — enough to cover the state budget if oil prices collapse.

—KAY CASHMAN

Sullivan honors Alyeska's Jeff Streit

ON THE FLOOR of the U.S. Senate June 23, U.S. Senator Dan Sullivan, R-Alaska, recognized Jeff Streit of Fairbanks, the longest-serving employee of the Alyeska Pipeline Service Co. that operates and maintains the 800-mile-long Trans Alaska Pipeline System.

At the same time Alyeska is celebrating the 45th anniversary of TAPS, which was built in just three years and has moved more than 17 billion barrels of oil.

Streit's career with TAPS spanned 48 years, beginning in 1974 when he was one of the 70,000 individuals who had a part in building the engineering marvel.

Since working on TAPS construction, Streit worked for Alyeska as a technician at three pump stations, as a task force supervisor, as a project supervisor, as a pump station operations supervisor, as a pipeline technician trainer and much more.

He was recognized as part of Sullivan's

series, “Alaskan of the Week.”

—PETROLEUM NEWS

Brune appointed to Permanent Fund board

ON JUNE 24 Alaska Gov. Mike Dunleavy announced the appointment of Alaska Department of Environmental Conservation Commissioner Jason Brune to the Alaska Permanent Fund Corp.'s

Board of Trustees.

Brune will replace outgoing DNR Commissioner Corri Feige.

Brune joined the Dunleavy administration in December 2018. He has served in a variety of roles in both the public and private sectors, including one of Alaska's regional Native corporations.

The appointment takes effect July 1. ●

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BEAR SUBSPECIES

change. Polar bears normally live and hunt on the sea ice. A subject of debate revolves around the question of the extent to which the bears may be able to survive by adapting to changing sea ice conditions.

However, the scientists who made the new polar bear discovery caution about reading too much into the adaptation involved in the southeast Greenland discovery.

“Polar bears are threatened by sea ice loss due to climate change,” said Kristin Laidre, lead author of the report and a polar scientist at the University of Washington's Applied Physics Laboratory. “This new population gives us some insights into how the species might persist into the future.

But we need to be careful about extrapolating our findings, because the glacier ice that makes it possible for Southeast Greenland bears to survive is not available in most of the Arctic.”

The researchers found that for two-thirds of the year, when the Southeast Greenland polar bears have no access to sea ice, the bears hunt seals from chunks of freshwater ice that have broken off from glaciers. The bears tend not to migrate far, tending to walk on land back to their home fjords after floating perhaps 120 miles south along the coast on small ice floes.

The research paper documenting the discovery was published in the June 17 issue of Science.

—ALAN BAILEY

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UNIT APPROVED

The well also penetrated the Alpine C reservoir, which found 31 feet of net oil pay (39.1° API oil) and 21 feet of net gas pay. The well was logged, and fluid samples were taken.

Mitquq 1 ST1 was sidetracked from the Mitquq 1 well. It encountered 172 feet of net hydrocarbon pay including a gas cap of 29 feet. The well was logged, cored, and flow tested. The flow tests included a clean-up, flow period, and a pressure build-up prior to the final flow test to access deliverability. The well flowed at a stabilized rate of 1,730 bpd from a single stimulated zone.

Reservoirs and accumulations

Geologic, geophysical, and engineering data submitted by OSA to the division include confidential interpretations of 3D seismic data, seismic attribute analysis, structure maps, interval isopachs, net pay maps integrating seismic and well data, interpreted well logs and proprietary petrophysical analyses, well correlations, and geologic cross sections from wells within the new unit and surrounding area.

Based on non-confidential well control and other data, there are multiple reservoirs in the northern part of the new Quokka unit around the Mitquq and Placer wells, and multiple potential hydrocarbon accumulations across the rest of the Quokka acreage, the division said in its unit approval.

Alpine reservoir potential

Per the division's Quokka unit approval, the Jurassic Alpine sands are productive in several fields across the North Slope, including the Colville River unit and Greater Mooses Tooth unit.

The Alpine sandstone has also been identified as prospective in other locations, such as the Pikka unit.

These shallow marine sandstones were shed generally southward from a northern provenance area that foundered during late Jurassic to early Cretaceous rifting and opening of the Canada basin.

The Alpine interval records the last significant sandstone pulse of Jurassic sedimentation. Alpine sandstones are Quokka unit relative to their counterparts in the Colville River unit.

Kuparuk C reservoir potential

Per the division's Quokka unit approval the Kuparuk C sandstone is one of the major reservoirs on the North Slope with a long history of production from numerous fields, most notably within the Kuparuk River unit.

The sandstones were deposited on a shallow marine shelf in paleo-topographic lows that formed primarily as a result of late Jurassic and Cretaceous aged rift faulting.

This depositional setting results in dramatically variable sand thicknesses and aerial extent of individual sand bodies. The sandstones were deposited directly above the lower Cretaceous unconformity, or LCU, one of the major unconformities on the North Slope.

The sandstone in the Kuparuk C interval is believed to be sourced primarily from erosion of older sandstones that subcrop below the LCU.

Within the Kuparuk River unit, erosion and re-working of the underlying, aerially pervasive Kuparuk A sandstones provided much of the source sediments, though increased chert content in the Kuparuk C sandstones argues for contribution from provenance areas with Ivishak and older Ellesmerian formations exposed at the LCU, the division's June 22 approval said.

Outside the Kuparuk River unit, Kuparuk C sandstone is distributed irregularly.

OSA integrated available subsurface control from well data with various seismic attributes to predict the presence of Kuparuk C sandstone within the Quokka unit.

Kuparuk C sandstone generally displays high impedance that may produce a strong peak amplitude anomaly above the LCU when present.

However, due to interference effects of different underlying subcropping strata and the limits of seismic data to resolve both the top and the base of the sandstone when the interval is thin, the amplitude patterns can be complex and sometimes misleading. This can be further complicated by the common presence of dense secondary siderite cement, either in the Kuparuk sandstone or in a thin transgressive lag deposited at the unconformity, which can give a strong amplitude signature, but have significantly diminished reservoir quality.

Siderite cementation and glauconite content are the primary controls on reservoir quality in the Kuparuk River unit causing great variability in porosity and permeability.

Core data reveal that porosity can range from 8 to 30%; permeability can range from less than 0.1 mD to over 3,000 mD.

In areas with little cementation, the Kuparuk C sandstone has demonstrated the capability to produce at very high rates from relatively thin sandstones.

The Kuparuk C sandstone is in production in the Kuparuk River unit, including the 3S drillsite, north of the Quokka unit acreage. Numerous smaller accumulations of Kuparuk C have been discovered and developed outside the unit.

Currently, Kuparuk C sandstone is in production at the Ooguruk unit, three accumulations at the Prudhoe Bay unit (Aurora, Borealis and Midnight Sun), the Milne Point unit, and two separate accumulations in the Colville River unit (Fiord-Kuparuk and Nanuq-Kuparuk participating areas).

The Kuparuk C reservoir is the main target of the Mustang project in the Southern Miluveach unit.

The Kuparuk C is also prospective in the Pikka unit.

This interval was a key objective for the formation of the Placer unit.

As previously mentioned, Placer 3 well in the northern end of the Quokka was tested in the Kuparuk C and determined by the division to be capable of producing in paying quantities.

Brookian reservoir potential

The Brookian sequence has become the focus of much of the exploration activity on the North Slope in recent years. The sections of the Brookian that have drawn the most interest from explorers have been the shelf edge deposits (e.g. Nanushuk formation) and the time-equivalent slope and basin floor fans (e.g. Torok formation), both of which can be distinguished at the seismic scale.

The sandstones consist chiefly of quartz, chert, sedimentary and metamorphic lithic grains (rock fragments), with varying amounts of clay matrix and accessory minerals. Soft lithic components make these Brookian sands susceptible to compactional porosity reduction upon deep burial.

However, this is not a major issue near

the Barrow Arch, where potential Torok and Nanushuk reservoirs lie mostly about 4,000 feet and 6,000 feet and were never buried to dramatically greater depths by younger Brookian strata.

In areas where the sandstones are buried deeper, reservoir quality, particularly permeability suffers.

Brookian deep water sandstones are compositionally like their equivalents on the shelf edge but the deposition is controlled more by sediment gravity processes and turbidity flows, rather than deltaic or shelf processes.

For this reason, deposits of basin floor fan sandstones may consist of thinner individual sandstones interbedded with finer-grained siltstone and shale, depending on sediment supply, local basin floor topography, and other factors.

The hydrocarbon potential of the Brookian interval across the North Slope basin cannot be ignored. Within the Colville River unit, one zone of the Nanushuk group, the informally designated Qannik sandstone, is currently being developed with seven producing wells and three injection wells, the division said in its approval of the Quokka unit.

Based on interpretation of available seismic data, regional subsurface mapping, and multiple flow tests, OSA believes that several Nanushuk sandstones are prospective within the Pikka unit, which is currently in the early development stage.

The Colville River unit Nanuq-Nanuq PA and the modest development of the Ooguruk unit Torok PA represent the only long term Torok formation production to date.

ConocoPhillips' Moraine program at the Kuparuk River unit also produces from the Torok formation but it is still early in development.

OSA drilled the Mitquq 1 and ST1 to test the Nanushuk shelf edge play in the acreage that would become the Quokka unit.

The successful Mitquq ST1 well test demonstrates the potential of the Nanushuk to be an important reservoir in the development of the new unit.

Plan of exploration

Per the non-confidential part of the June 22 Quokka unit approval, OSA submitted a broad outline of a plan of exploration as part of its application.

In its proposed plan, OSA lists several "non-drilling" activities that it intends to undertake, including interpretation of newly merged seismic data, addition of legacy seismic data into a new merged volume, refining static reservoir models and creation of a dynamic model for the Nanushuk 9 in the Mitquq area, a petrography study, and summer field studies to support drilling activities and ice roads.

The plan of exploration includes drilling two appraisal or exploration wells in the Quokka unit. One well will be drilled by second quarter 2026, and the other well by second quarter 2027.

One well will be located within one of the following townships: T10N., 7E., U.M.; or T10N., 6E., U.M. The other well will be located within one of these townships: T9N., 7E., U.M.; T9N., 6E., U.M.; T8N., 7E., U.M.; or T8N., 6E., U.M.

Each of the wells will be drilled to a depth sufficient to fully test the Nanushuk section 9 (5,500 feet true vertical depth subsea).

Exact location for the wells will be determined from results of previously detailed "non-drilling" activity, third party exploration results on adjacent leases, and data gathered from the first well. ●

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