Petroleum news

page 4 USCG's Adm. Zukunft questions Arctic spill response capability

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This week's Mining News


NORTH OF 60 MINING news

www.MiningNewsNorth.com — The weekly mining newspaper for Alaska and Canada's North — Week of July 30, 2017

page 6 North Arrow samples kimberlite source of Q1-4 yellow diamonds

NEWS NUGGETS

Compiled by Shane Lasley

With a drill turning in the background, geologists inspect outcrop samples during the 2016 exploration program and Endurance Gold's Elephant Mountain property in interior Alaska.

Endurance Gold identifies new Elephant Mountain drill targets

Drills turning at Shorty Creek

MINING POLICY

Future of US mining

House minerals subcommittee looking for ideas to foster domestic mining

By SHANE LASLEY
Mining News

Taking 19 years to permit, Coeur Mining's Kensington gold project in Southeast Alaska served as a poster-child for permitting delays in the United States.

MITCHELL KREBS

PAUL GOSAR

House minerals subcommittee looking for ideas to foster domestic mining. Read more in North of 60 Mining News, page 5.

Pacific NorthWest LNG stalls; Petronas cites depressed prices

Petronas said July 26 that it and its partners have decided not to proceed with the Pacific NorthWest LNG project. The project, proposed for Lelu Island in the Port Edward district in British Columbia, received a permit from Canada's National Energy Board in December to export some 3.35 billion cubic feet per day of natural gas, as liquefied natural gas, for a 40-year term.

In announcing the decision, Petronas cited changes in market conditions.

"We are disappointed that the extremely challenging environment brought about by the prolonged depressed prices and shifts in the energy industry have led us to this decision," Petronas Executive Vice President and CEO Upstream Anuar

see **PROJECT STALLS** *page 11*

AOGCC lowers proposed NordAq fine, requires abandonment within a year

The Alaska Oil and Gas Conservation Commission has reduced proposed fines for NordAq Energy's failure to permanently abandon two Cook Inlet basin exploratory wells prior to expiration of its leases at the wells. The proposed penalties were $100,000 per well for the initial violation and $1,000 per day thereafter, bringing the penalties to $150,000 for violations at Tiger Eye Central No. 1 on the west side and $621,000 for Shadura No. 1 on the Kenai Peninsula, a total of $771,000.

In July decisions the commission reduced each fine to the $100,000 amount for failure to permanently abandon the wells before the leases expired, and changed requirements for checks in the amount of expected abandonment costs to bonds in the expected cost of abandonments, should NordAq not do that work, requir-

see **NORDAQ FINE** *page 11*

NATURAL GAS

IGU takes a pause

Stops work on Interior Energy Project following disagreement over funding

By ALAN BAILEY
Petroleum News

The Interior Gas Utility told a meeting of the Fairbanks North Star Assembly on July 20 that the utility had stopped all meaningful work on the Interior Energy Project as a consequence of a disagreement with the Alaska Industrial Development and Export Authority over AIDEA funding for some of the work involved in the project. IGU told the assembly that it projects a funding shortfall of $41,838 in the current budget cycle if the utility continues its IEP activities.

The funding dispute dates back to February of this year and relates to the interpretation of a state statute spelling out how AIDEA can issue loan financing for the IEP. AIDEA says that it cannot legally provide money from an AIDEA Sustainable Energy Transmission and Supply, or SETS, loan for the IEP for the IGU work in question.

Thus, in the absence of a contract with a Cook Inlet gas producer for a gas supply, further SETS funds cannot be released to IGU for the work activities in question.

Enlarged Fairbanks gas supply

The IEP has an objective of greatly expanding

see **IGU PAUSE** *page 12*

EXPLORATION & PRODUCTION

Slope production up

ANS crude averaged 527,000 bpd for FY 2017, up from 514,900 bpd in FY 2016

By TIM BRADNER
For Petroleum News

North Slope oil production is running above last year based on new data from the Alaska Department of Revenue. Based on preliminary information, production from the Slope has averaged 527,000 barrels per day for the state's fiscal year 2017, the budget year that ended June 30.

"It's definitely a year-over-year increase," said Dan Stickel, chief petroleum economist at the revenue department.

The figures are up from a 514,900 bpd average for FY 2016, the 12-month period which ended June 30, 2016, and 501,000 bpd for the previous year, FY 2015.

Most of what is driving the increase, however, is superior performance at the BP-operated Prudhoe Bay field, which supplies about half of total North Slope production.

The FY 2017 increase would be the second year in which output climbed for the North Slope, and it appears to have ended, at least temporarily, a long slide in Slope production, which was at 2 million bpd in 1988.

How long it can be sustained is uncertain, however. Although crude oil prices are down, North

see **SLOPE PRODUCTION** *page 10*

NATURAL GAS

NEB report sees slowdown

Canadian energy board cites LNG volumes available, low commodity prices

By KRISTEN NELSON
Petroleum News

Advantages, challenges and uncertainties for Canada's liquefied natural gas industry are analyzed in a report released July 18 by Canada's National Energy Board, "Canada's Role in the Global LNG Market: Energy Market Assessment."

Issues impacting and slowing down potential Canadian LNG projects — costs, LNG price and competition — are the same general issues facing an Alaska LNG project.

While there are no operating LNG export facilities in Canada, projects are proposed for both coasts, with the West Coast dominating — 18 of 24 projects are based on the British Columbia coast, and British Columbia reports that some C$20 billion has been spent on LNG projects in the province. The remaining six are on the country's East Coast.

"The current market environment is trending towards short-term or spot price-based transactions that generally make it more difficult to finance multi-billion dollar investments in new LNG facilities."
—NEB LNG report

The NEB has received 43 LNG export license applications since 2010, and approved 35, with 24 distinct projects.

Canada does have a small-scale LNG industry,

see **NEB REPORT** *page 10*

● GOVERNMENT

AOGCC fines Eni $110,000 for late tests

By KRISTEN NELSON
Petroleum News

The Alaska Oil and Gas Conservation Commission has proposed fining Eni US Operating Co. $110,000 for late mechanical integrity tests. The commission said in a July 26 order that the notice of proposed enforcement action was based on Eni's failure to test injection wells at its Nikaitchuq unit for mechanical integrity as required by regulation.

The commission said a review of injection well activities at Nikaitchuq found that 11 wells were not tested for mechanical integrity after initial tests at injection startup.

Eni met with the commission April 13 to discuss its internal review, outlining the root cause for missing mechanical integrity test deadlines and solutions.

The commission said Eni did not dispute the violation, but "referenced confusion about ownership of the mechanical integrity testing responsibilities within its drilling and production groups as a contributing factor to the missed tests."

Eni said it was aware last October that 11 injection wells were past due for mechanical integrity testing, and alleged it began the process to complete required tests at that time. But the commission said the wells that were past due were not tested until Dec. 9-10.

Tests due beginning April 2016

The mechanical integrity tests were due beginning in April 2016, the commission said, and from April 1 through Dec. 1, 2016, an AOGCC inspector was at Nikaitchuq to witness various tests on six separate occasions. The commission was not notified that the injection well mechanical integrity tests were late — nor did Eni

see **ENI FINED** *page 3*

contents

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GOVERNMENT

NAS reports on US icebreaker needs

Tells Homeland Security that the country should construct four polar icebreakers to meet national obligations in polar regions

By ALAN BAILEY
Petroleum News

In response to a mandate in the Coast Guard Authorization Act of 2015 the National Academies of Sciences, Engineering and Medicine has delivered to the secretary of Homeland Security an assessment of strategies for minimizing the federal government costs incurred to procure and operate heavy polar icebreakers. Based on an investigation by a committee of experts in ship design and construction, and in polar vessels and icebreakers, the NAS report recommends U.S. construction of four new heavy polar icebreakers, with an acquisition strategy that ensures best value for the use of public funds.

In 2010 the U.S. Coast Guard identified the need for three heavy and three medium polar icebreakers, but this new report suggests that four heavy icebreakers would be a more cost effective option.

Insufficient capability

The NAS report says that the United States currently has insufficient icebreaker capability to protect its interests, implement its policies, execute its laws and meet its obligations in the Arctic and Antarctic. The U.S. Coast Guard currently only has one operational heavy polar icebreaker, the Polar Star, a vessel build in 1976 and now well past the end of its design life.

"The nation is ill-equipped to protect its interests and maintain leadership in these (polar) regions and has fallen behind other Arctic nations, which have mobilized to expand their access to ice-covered regions," the report says.

Four heavy icebreakers

The report recommends that Congress should remedy the situation by funding the construction of four heavy polar icebreakers that would be owned and operated by the U.S. Coast Guard. To minimize costs, the icebreakers should all be built to the same design. This consistent approach to design and construction would mean that the fourth of the heavy icebreakers could be build more cheaply than could a smaller lead ship for a fleet of medium-sized icebreakers. And a fleet of four heavy icebreakers could fulfill mission needs at less cost than the mixed fleet of up to six vessels that Homeland Security has been considering, the report says.

The report also says that, while the expert committee viewed the Coast Guard's own estimates for the cost of construction of heavy icebreakers to be reasonable, the agency had underestimated the cost of acquiring medium icebreakers. The committee estimates the order-of-magnitude cost of the first heavy icebreaker to be $983 million, with the subsequent heavy icebreakers perhaps costing $791 million each. The vessels would be 433 feet in length, with a beam of 89 feet.

Having vessels of common design will

see **ICEBREAKER REPORT** *page 4*

continued from page 2

ENI FINED

request additional time to complete the tests.

The commission said that "Eni failed to act in good faith because it knew the wells were out of compliance and failed to notify the AOGCC."

The commission said the 11 injection wells passed the tests Dec. 9-10, tests which were witnessed by AOGCC. That mitigates the penalty, the commission said, to a single $10,000 civil penalty for each well.

In addition to the penalty, "Eni is required to develop and implement a tracking system for regulatory obligations, including an automated alert for approaching and past-due obligations, with notifications provided to Eni personnel responsible for the regulatory obligation," the commission said, with results to be presented to AOGCC within three months of the July 26 decision. ●

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continued from page 3

ICEBREAKER REPORT

also minimize vessel maintenance and operating costs, the report comments.

The report suggests that chartering rather than owning the icebreakers is not viable because of the limited availability of polar icebreakers on the open market and would only be practical for specific short-term missions.

Cost minimization strategies

In commissioning the construction of the new icebreakers the Coast Guard should use a block buy rather than piecemeal contracting strategy, coupled with a fixed price incentive for the contract, the report says. And vessel life cycle costs should be included in the evaluation criteria for construction proposals. The acquisition of the vessels should also incorporate other factors such as technology transfer from designers and builders with recent experience, the maximum use of off-the-shelf equipment, and the reduction of any "buy American" provisions to enable the use of the most appropriate equipment available.

Given the use of efficient modern technologies and hull forms in new icebreakers, and given the age-related, high maintenance costs of the Polar Star, the essential operating costs of the new icebreakers should be lower than those of the Polar Star, the report says. However, comparisons of operating costs need to take into account potential costs associated with the complexities of new capabilities of modern vessels, with the cost of those capabilities evaluated against the benefits that the capabilities bring.

The report recommends that at least one of the new icebreakers should be capable of supporting scientific missions, including built-in features that could accommodate science personnel and technologies.

Pending the commissioning of at least two new icebreakers, the Coast Guard should keep the Polar Star operational by means of an enhanced maintenance program, the report says. In fact, given the fact that the Polar Star may only have a further three to seven years of service life, the United States is currently at risk of entirely losing its heavy icebreaking capability, thus causing a critical capacity gap, the report comments.

Support from Alaska lawmakers

Alaska's congressional delegation has been taking an active interest in the U.S. icebreaker situation. In March Rep. Don Young participated in the introduction of legislation that would authorize the procurement of up to six new icebreakers, the three heavy and three medium icebreakers that Homeland Security has proposed. Sen. Lisa Murkowski has advocated for funding for a new polar icebreaker. And on June 29 Sen. Dan Sullivan announced that he had authored a provision for the procurement of up to six Coast Guard polar icebreakers as part of the 2018 National Defense Authorization Act that had just passed out of the Senate Armed Services Committee. ●

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● ENVIRONMENT & SAFETY

USCG chief questions spill response ability

Commandant comments on general lack of support infrastructure for handling a major offshore oil spill emergency in the Arctic

By ALAN BAILEY
Petroleum News

During a July 18 talk at the Symposium on the Impact of an Ice Diminished Arctic on Naval and Maritime Operations Adm. Paul Zukunft, commandant of the U.S. Coast Guard, expressed concern about the practicalities of conducting a major oil spill response in the Arctic offshore. Zukunft, who had been the federal on-scene commander during the response to the Deepwater Horizon disaster in the Gulf of Mexico, questioned the possibility of recovering much oil following an Arctic spill, and wondered how a major response effort could be launched, given the general lack of support infrastructure in the Arctic region.

PAUL ZUKUNFT

Zukunft said that, faced with diminishing sea ice in the Arctic and increased offshore activity in the region as a result, the Coast Guard has prepared a strategy for the Arctic, setting out the agency's priorities for its involvement in the region.

Offshore oil spills

Zukunft commented that despite the large-scale and successful use of oil dispersants and the use of in-situ burning in the Deepwater Horizon response, only about 15 percent of the Deepwater Horizon oil had been recovered. Referencing the seawater microbes that can devour dispersed oil, he questioned how much oil might in reality be recovered in response to a major Arctic offshore spill.

"I don't know what the microbial action up there (in the Arctic) is in the event that you do have an oil spill, but I can assure you that if there is an oil spill we're not going to recover all that oil," he said.

And the Deepwater Horizon response involved a fleet of more than 6,000 ships conducting oil recovery operations, with an infrastructure capable of supporting that massive operation.

"You put that many people up in Barrow, Alaska, and they'd better be carrying polar bear spray because they're going to be camped out with the mosquitos, because we don't have the infrastructure up there," Zukunft said.

Zukunft also questioned how much is known about the environmental impacts of an Arctic offshore oil spill.

"We don't know what the long-term impacts will be to one of the most pristine environments in the world and it's not an area we would want to oil and find out after the fact," Zukunft said.

He said he has concerns about building new Coast Guard infrastructure in a region where the permafrost is becoming unstable and where there are problems with coastal erosion.

Zukunft also questioned how much offshore Arctic oil development is likely to take place with the current price of oil and with the high cost of producing oil in the Arctic region.

"Maybe some of the policy barriers are coming down but, if the price of oil is down as well, we will probably not see oil and gas move in any significant way offshore in the Chukchi Sea," he said.

Marine tourism

Zukunft also expressed concern about the growing interest in marine tourism in the Arctic, given the lack of infrastructure to mount a response in the event of an accident. The cruise ship Crystal Serenity, with some 1,700 passengers, is planning a second round trip through the Northwest Passage this year. And ecotourism vessels ply Arctic waters in the region of Iceland. However, only about 4.7 percent of Arctic waters have been adequately charted, Zukunft said.

In preparing for a search and rescue exercise in 2016 in Nome, ahead of last year's Crystal Serenity cruise, the Coast Guard planned to have 200 people play roles as cruise ship passengers. The city of Nome responded that having more than 20 role players would overwhelm the city's resources, Zukunft said.

On the other hand, the United States is

see **SPILL RESPONSE** *page 9*

NORTH OF 60 MINING news

page 6 North Arrow samples kimberlite source of Q1-4 yellow diamonds

www.MiningNewsNorth.com *The weekly mining newspaper for Alaska and Canada's North* **Week of July 30, 2017**

NEWS NUGGETS

Compiled by Shane Lasley

ENDURANCE GOLD CORP.

With a drill turning in the background, geologists inspect outcrop samples during the 2016 exploration program and Endurance Gold's Elephant Mountain property in Interior Alaska.

Endurance Gold identifies new Elephant Mountain drill targets

Endurance Gold Corp. July 24 said induced polarization and ground magnetic surveys carried out at its Elephant gold property in Interior Alaska have identified four prioritized geophysical anomalies that warrant drilling. The largest of these is a linear east-west trending low that entirely bisects the area covered by 43 line-kilometers of IP and 39 line-kilometers of magnetic surveying completed during the program. This dominant anomaly is interpreted to represent the resistivity expression of the Elephant Mountain Fault traversing the intrusive. In addition, at least three linear northwesterly trending resistivity lows intersect the Elephant Mountain fault complex. A well-defined chargeability feature extends northwest from the Elephant Mountain fault. For targeting purposes, this chargeability feature has been broken into two separate lobes – North Zone and Pump Zone – defined by east-west oriented areas of higher chargeability. This anomaly is directly associated with a large gold-in-soil anomaly. Hole EL 16-13, drilled in the North Zone in 2016, cut 147.1 meters averaging 0.40 grams per metric ton gold. Endurance said portions of the stronger chargeability features associated with the North Zone target remain untested by drilling. The Pump Zone Target is newly recognized and remains untested by either trenching or drilling. A resistivity anomaly identified south of the Elephant Mountain Fault is associated with the South Zone. Hole EL 16-14A, the 2016 South Zone discovery hole, cut 4.6 meters averaging 4.09 g/t gold in an altered shear zone with bands of massive arsenopyrite and stibnite. Adjacent and on the east side of this resistivity feature and discovery hole is a near surface chargeability feature that remains untested by drilling. Endurance said the size of the North Zone and Pump Zone chargeability targets, combined with the associated wide low-grade gold intersections and gold-in-soil anomalies, indicates the potential for a large-tonnage low-grade gold resource. Drilling at these targets is recommended to focus on discovery of the feeder zones and oxidized lower grade gold zones. At the South Zone target, drilling is recommended to focus on expanding on the South Zone Discovery drill hole and identifying the source of the near surface chargeability anomaly which may represent a currently unrecognized sulfide-bearing shear zone. Located 76 miles northwest of Fairbanks, the Elephant property anchors three properties – Elephant, Trout and Wolverine – that form the Elephant Mountain gold project. The project is situated upland from a number of placer gold bearing streams in the Rampart-Eureka-Manley Hot Springs mining district and is easily accessed by the all-weather Elliott Highway.

Drills turning at Shorty Creek

Freegold Ventures Ltd. July 19 announced the start of

see **NEWS NUGGETS** *page 8*

MINING POLICY

Future of US mining

House minerals subcommittee looking for ideas to foster domestic mining

By SHANE LASLEY
Mining News

U.S. House Subcommittee on Energy and Mineral Resources sought input on how to foster a more robust domestic mining sector during a July 20 hearing, "Seeking Innovative Solutions for the Future of Hardrock Mining."

"Hardrock mining on federal land in the United States has a storied past, a challenging present and multiple needs for reform," Subcommittee Chairman Paul Gosar, R-Arizona, said. "From rocks to roads, rare earths to green technologies, and iron ore to wind farms, all infrastructure projects rely upon a mining operation."

While everybody at the hearing agreed that the domestic mining sector is in need of reform, there were vastly different views about what needs to be done.

MITCHELL KREBS

Rep. Alan Lowenthal, D-California, ranking member of the subcommittee, made the case for modernizing the Mining Law of 1872, suggesting this law that allows the staking of mining claims on federal lands is outdated.

"The West has been settled," he said.

PAUL GOSAR

Others that testified at the hearing, however, see streamlining mine permitting, eliminating increases to the bonding requirements being proposed by the U.S. Environmental Protection Agency, and better public data on the domestic mineral potential as ways to spur domestic mining.

"It is important that we don't lose sight of the connection between the mining activities we carry out and what these metals are needed for," Coeur Mining President and CEO Mitchell Krebs stated. "By eliminating the unnecessary duplication that currently takes place at multiple levels of government and by tackling the lack of coordination and communication among various regulatory agencies, we could bring certainty and a level of common sense to the process."

More geo data

Roughly $75.6 billion worth of non-fuel minerals were produced in the United States last year, Murray Hitzman, associate director for energy and minerals, United States Geological Survey, told the committee.

While producing much of its mineral needs, Hitzman said "the U.S. is also increasingly reliant on foreign sources for processed mineral materials."

This reliance includes being a net importer of 50 non-fuel mineral materials, valued at $32.3 billion. This includes 20 minerals for which the U.S. is 100 percent import-reliant.

Among the growing list of minerals for which the United States completely relies on foreign sources for its supply are critical and strategic minerals such as rare earth elements, manganese and niobium; and

COEUR MINING INC.

Taking 19 years to permit, Coeur Mining's Kensington gold project in Southeast Alaska serves as a poster-child for permitting delays in the United States.

important technology minerals such as graphite and yttrium.

Hitzman said the United States is rich in many of these minerals but less than one-third of the country has been mapped and further public geophysical data is needed to spur exploration.

"The nation's land undoubtedly contains additional deposits of critical and strategic minerals, but mineral exploration by the private sector is hampered by the lack of modern geological and geophysical data," he told members of the subcommittee.

"For example, Alaska and large portions of the mid-continent represent some of the most prospective ground for mineral discovery in the world, however, the favorable rocks from the deposits and not visible at surface – geophysical surveys are required for such areas," he added.

Hitzman said other mineral producing countries which have undertaken the geophysical surveys needed to provide a peek of the buried potential, such as Canada and Australia, report that a $1 governmental investment has resulted in $5 of investment by private sector companies exploring the intriguing prospects revealed.

Streamlining permitting

Once a feasible deposit has been identified and delineated in the U.S., it takes nearly a decade to gain the permits necessary to develop a mine to extract the minerals, according to SNL Metals & Mining reports referred to by the subcommittee.

In a 2015 report, SNL detailed three mines – HudBay Minerals' Rosemont copper-gold-molybdenum mine in Arizona, Coeur Mining's Kensington gold mine in Southeast Alaska and Antofagasta's Twin Metals copper-nickel-platinum group metal project in northeastern Minnesota – as case studies for permit delays in the United States.

Of the three, only Kensington is currently in operation – albeit, it took nearly two decades and an arduous court battle for permit approvals.

"I was just up at our Kensington Mine in Alaska earlier this week, which I think serves as a posterchild for our country's inefficient and unpredictable permitting process," Coeur CEO Krebs told the committee. "It took us over 19 years; 1,000 separate studies; and, ultimately, a trip here to D.C. and the U.S. Supreme Court, to secure the 90 separate state, federal and local permits necessary to place that mine into production."

While not every mining project will face the same

see **MINING FUTURE** *page 6*

NORTHERN NEIGHBORS

Compiled by Shane Lasley

NORTH ARROW MINERALS LTD.

This summer's surface sampling has identified two distinct phases of the Q1-4 kimberlite at North Arrow's Naujaat project in Nunavut.

North Arrow collects Q1-4 kimberlite sample

North Arrow Minerals Inc. July 24 reported the collection of a 234-metric-ton mini-bulk sample from the Q1-4 kimberlite at its Naujaat (formerly Qilalugaq) diamond project in Nunavut. With the Q1-4 kimberlite lying beneath a 0.5- to 1-meter layer of glacial till, this sample could be collected with a mini-excavator. Initial evaluation of the exposed kimberlite identified a north trending internal contact between distinct kimberlite phases. Kimberlite to the west of the contact, known in the field as Green Kimberlite, accounted for roughly 30 percent of the pit area and is described as a dark green, very olivine rich kimberlite with fine to very coarse macrocrysts (predominantly olivine) and a good mantle sample. The remainder of the pit, known as Blue Kimberlite, is comprised of a blue, poorly sorted olivine rich volcaniclastic kimberlite with fine to very coarse olivine and a moderate mantle sample. As a result of the presence of two distinct kimberlite units, the sample was divided into three subsamples: Blue Kimberlite (60 bags), Green Kimberlite (31 bags) and mixed Blue-Green Kimberlite (159 bags). The sample will be processed for the recovery of commercial sized diamonds this fall. The resultant diamond parcel will be used to provide a better understanding and indication of the diamond content, size distribution, and fancy color diamond population within the sampled units. Results of the sample, and the current delineation drill program, will be used to plan collection of a larger bulk sample in 2018. This sampling and drilling is part of North Arrow's C$3.2 million summer exploration program at the Naujaat and Mel diamond projects in Nunavut.

Kivalliq explores new Nunavut gold project

Kivalliq Energy Corp. July 25 reported the start of a summer exploration program at the Baffin Gold property in Nunavut. This C$775,000 program will include ground-truthing, geological mapping, prospecting, and rock and

see **NORTHERN NEIGHBORS** *page 8*

Petroleum news

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continued from page 5

MINING FUTURE

challenges as Kensington, SNL found that the U. S. permitting process is unduly long.

"The sheer number of permits required and the lack of coordination among the relevant agencies results in a seven- to 10-year permit timeframe for mining projects in the U. S.," the mining researcher wrote.

SNL found that more time does not necessarily result in stronger environmental protections.

"Like the U.S., the environmental permitting process in other developed world mining countries, such as Australia and Canada, is very stringent. These countries also require consultation with local communities and give stakeholders the right to raise objections and appeals. However, in both countries, the processes for obtaining permits are swifter than those observed in the U.S.," the research firm wrote.

In fact, mine permitting in these countries takes about a third the time as it does in the U.S.

"In Canada and Australia, a similar process takes 2 to 3 years. In Mexico, the average time to permit a new mine is about 18 months," Krebs said.

"By eliminating the unnecessary duplication that currently takes place at multiple levels of government and by tackling the lack of coordination and communication among the various regulatory agencies, we could bring certainty and a level of common sense to the process and save a tremendous amount of time and expense without sacrificing thoroughness or completeness," he added.

Legislation introduced to the House and Senate by Rep. Mark Amodei and Sen. Dean Heller, both Republicans from Nevada, aim to reduce the time it takes to permit a U.S. mine to around 30 months, which would put the U.S. on par with other Western Mining countries such as Canada and Australia.

New Mining Law of 1872

Others at the hearing want to see changes made to the Mining Law of 1872, which authorizes and governs mineral prospecting and mining on federal lands.

"It is long past time to reform hardrock mining rules in this country," said California Rep. Lowenthal.

A sentiment shared by Earthworks Policy Director Lauren Pagel.

"Meaningful reform of the outdated 1872 Mining Law is the innovative solution that will bring our mining laws and practices into the 21st century, giving the mining industry the certainty it needs, while providing a fair return to the taxpayer, maintaining community involvement in mining decisions and adequately balancing mining with other uses of public lands," she told the subcommittee.

Gross royalties on minerals extracted from federal lands is among the reforms Earthworks is calling for.

Jim Cress, a lawyer that specializes in negotiating mining royalties, said mining companies with operations in the U.S. already pay a number of local, state and federal taxes.

"Any discussion of federal hardrock royalties should focus not only on the amount of the royalty, but on the entire tax and royalty burden applicable to mining," he said.

The mining lawyer said the U.S. is comparable to other mining countries in terms of taxes, fees and royalties under the current system. He suggested that streamlining the permitting process should be addressed before any federal royalty is considered.

"The U.S. ranking would be higher if not for the permitting delays. So if you're going to add a royalty, it will be a discouragement," he said.

One of the innovative ideas considered at the hearing is to revisit an old idea – re-establish the U.S. Bureau of Mines.

Stopping CERCLA bonding

Arizona Department of Environmental Quality Director Bret Parke said EPA's proposed bonding requirements under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) would be an added financial burden that would make the U.S. less competitive as global mining jurisdiction.

Commonly referred to as Superfund, CERCLA was enacted by Congress in 1980 in response to releases or threatened releases of hazardous substances that may endanger public health or the environment.

In 2016, EPA proposed hefty CERCLA financial responsibility requirements for the hardrock mining and mineral processing industry.

Parke argued that in the nearly four decades since CERCLA was passed, states have set up financial assurance programs that surpass the issues being addressed by Congress when it passed the Superfund act.

"These mature and sophisticated state and federal regulatory programs have made the requirement to promulgate the proposed rule duplicative and unnecessary," Parke said.

Krebs made a similar point, noting that Coeur already has roughly $200 million million of bonding in place to cover the estimated cost of closure and post-closure activities at its three U.S. mines.

"Last December, EPA issued a proposed rule to require hard rock mining companies to demonstrate and maintain financial responsibility 'consistent with the degree and duration of risk associated with their mining operations', which sounds like a great idea. The only problem is, it already exists," the Coeur CEO said.

If implemented, it is estimated that EPA's proposed CERCLA financial requirements would cost the U.S. mining industry $7.1 billion.

"Mining is a global competition. Every additional regulation upon the industry to operate in the United States should be carefully considered by policymakers," Parke advised.

Re-open Bureau of Mines

One of the innovative ideas considered at the hearing is to revisit an old idea – re-establish the U.S. Bureau of Mines.

"The U.S. Bureau of Mines was a federal entity within the Department of Interior that operated from 1910 until 1996. The purpose of the bureau was to promote the health, safety and economic viability of the mining industry. Many from the mining community have pointed to the disbandment of the USBM as the beginning of the decline of mining in the U.S," said Committee Chair Gosar.

The Bureau of Mines is still authorized but currently unfunded.

"The U.S. is the only developed country in the world without a federal entity promoting responsible mineral development and conducting important research," Krebs said.

The mining CEO suggested that a revamped Bureau of Mines could serve as a coordinator for the permitting process.

This could revitalize the future of U.S. mining, providing more domestic sources of the minerals increasingly needed in the modern world.

"We all may have a different view about mining, but I think it is important for people to not lose sight of the connection between the mining activities we carry out and what these metals are needed for in our society," Krebs said. ●

NORTH OF 60 MINING | Mining Directory

Mining Companies

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Located 25 miles northeast of Fairbanks, Fort Knox is the largest gold producing mine in Alaska. During 2016, Fort Knox celebrated two milestone events, the seven-millionth-ounce of gold produced and the 20-year anniversary of commercial operations.

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continued from page 6

NORTHERN NEIGHBORS

till sampling. In May, Kivalliq announced that it had signed agreements with Nunavut Tunngavik Inc., a group that oversees Inuit land claims in Nunavut, and Commander Resources Ltd. to acquire the Baffin Gold property, a 408,982-hectare (1 million acres) land package that blankets the Foxe Fold greenstone belt on Baffin Island. BHP-Billiton, Falconbridge, Commander Resources and AngloGold Ashanti completed more than C$25 million of exploration on this property over a decade starting in 2001. This work includes drilling 158 holes at four prospects on the property. Highlights from include 4.2 meters of 21.3 grams per metric ton gold; 4.5 meters of 10.2 g/t gold and 6 meters of 9.2 g/t gold. Kivalliq said there is excellent potential to make new discoveries and demonstrate continuity of mineralization at unexplained gold occurrences along strike of favorable geology and structural settings on this expansive property and this summer's program will focus on multiple geological and structural settings hosting significant gold mineralization primarily on Inuit owned land parcels. This work will include the exploration of gold anomalies along at least 100 kilometers (62 miles) of strike which were not followed up by resampling or drilling by earlier explorers; prospect, infill and characterize broad till and geochemical gold anomalies; geochemical sampling in areas of cover where existing geophysical data suggests extensions to known gold zones and favorable geology; review and resample historic drill core; drone surveys over Kanosak and Central belt areas to produce high resolution photos and digital elevation models; and collect roughly 1,000 rock and till samples to evaluate known occurrences and evaluate areas of anomalous geochemistry. The company said future drilling will further assess known prospects, new structural targets, untested areas of outcropping mineralization and blind targets in covered areas based on till geochemistry and geophysics.

continued from page 5

NEWS NUGGETS

2017 drilling at its Shorty Creek copper-gold project about 75 road miles northwest of Fairbanks, Alaska. The company first tapped porphyry style copper-gold mineralization at Shorty Creek in 2015 and expanded upon its find last year. Hole SC 16-01, drilled last year at the property's Hill 1835 target, cut 434.5 meters averaging 0.57 percent copper-equivalent, which accounts for the value of the copper, gold and silver. This hole is 125 meters southwest of SC 15-03, which cut 292.6 meters averaging 0.38 percent copper-equivalent. Hole SC 16-02, drilled 120 meters southwest of SC 16-01, cut 409.6 meters grading 0.41 percent copper-equivalent. In addition to the copper, gold and silver, the 2016 drilling also tapped significant tungsten in the form of wolframite. SC 16-01 cut 2017 meters averaging 0.045 percent tungsten trioxide; and SC 16-02 cut 409.6 meters averaging 0.03 percent tungsten. Freegold said this year's drilling is focused on further expansion of mineralization at Hill 1835 and initial drill testing of the Steel Creek and Quarry targets. Steel Creek is a large magnetic and geochemical target directly northeast of Hill 1835. Quarry, situated about 5,000 meters east of Hill 1835, is a northeast trending magnetic high that is more than 10,000 meters (six miles) long and associated with stockwork veined quartz-feldspar porphyry. Ground magnetics and soil geochemistry over a small portion of this very large anomaly were also completed. The soil sampling returned both strong copper and molybdenum values. ●

Aben eyes high-grade zones at Forrest Kerr

Aben Resources Ltd. July 26 said a 2,100-meter drill program is slated to begin at its Forrest Kerr gold property in northwestern British Columbia during the first week of August. This drilling will follow up on exploration carried out earlier this season at Forrest Kerr, where crews completed soil geochemical sampling, ground-truthed historic data and evaluated mineralization potential on a property-wide basis. Focus was placed on areas containing historic high-grade precious- and base-metal occurrences. Drilling will target extensions of known mineralized high-grade horizons located in the Carcass Creek and Boundary zones. These zones reported some of the best grades on the Forrest Kerr property and the company feels there is the potential for the expansion of these known zones based on recent data compilation and field reconnaissance work. There are also some more conceptual targets to be tested south of Boundary, including areas of outcrop with multiple shear zones and abundant sulfides. Historical drill has encountered high-grade intercepts such as 29 meters of 9.97 grams per metric tons gold in the Carcass Creek zone and 11 meters of 33.4 g/t gold in the Boundary zone. Aben has not been able to independently verify the methodology and results from historical work programs but believes that the historical work programs have been conducted in a professional manner and the quality of data and information produced from them are relevant.

Continued success west of Victoria's Eagle Gold

Victoria Gold Corp. July 24 reported the results from an additional 17 holes drilled at Eagle West, a zone of gold mineralization situated 500 meters northwest of the main Eagle Gold deposit at the company's Dublin Gulch project in the Yukon. Highlights from this latest batch of results include 31.5 meters of 0.99 g/t gold from 56.4 meters in hole DG17-809C; 35.3 meters of 1.03 g/t gold from 34.2 meters in hole DG17-821C; and 31.5 meters of 0.77 g/t gold from 7.6 meters in hole DG17-833C. These results are similar to and correlate well with the initial 22 holes from Eagle West released earlier this year, which included 21.3 meters of 2.11 g/t gold in hole DG17-805C; 58.5 meters of 0.87 g/t gold in hole DG17-805C; and 21 meters of 0.88 g/t gold in hole DG17-783C. Mineralization at Eagle West is geologically similar to Eagle and represents a potential satellite deposit accretive to the main Eagle deposit.

"The Eagle West drilling this season clearly demonstrates that additional, near-Eagle gold mineralization exists at Dublin Gulch and underscores Victoria's ability to continue to build out new gold resources within the shadows of the Eagle Gold Mine infrastructure," said Victoria President and CEO John McConnell. A total of 3,682 meters of diamond drilling was completed at Eagle West in 2017, with assays from 39 of the 41 drill holes from the drill-out received to date. While the majority of holes were 60-70 meters in length, eight holes deeper than 100 meters targeted and found gold mineralization continuity to depth. Drilling west of Eagle continues with the focus now shifted to the Eagle Extension Zone, an area on the northern contact margin of the intrusive units immediately adjacent to the western pit wall of the Eagle Gold Mine. Victoria said this area, like Eagle West, had previously received only cursory exploration drilling and represents an under-tested area contiguous to the Eagle Gold Mine that fits into the Potato Hills Trend exploration model.

Startup zinc explorer begins Yukon drilling

Fireweed Zinc Ltd. July 21 announced the start of a 2,000-meter drill program at the Macmillan Pass zinc-lead-silver project in southeastern Yukon. The primary objectives of this initial phase of drilling is to verify historic mineral resources at the Tom and Jason deposits, and step-out drilling to expand the deposits. Together, these deposits host 6.43 million metric tons of historical resources averaging 6.3 percent zinc, 5.5 percent lead and 56.6 grams per metric ton silver in the indicated category; and 25.55 million metric tons averaging 6.7 percent zinc, 3.5 percent lead and 33.9 g/t silver. Fireweed, a new public mineral exploration company focused on zinc, has the option to acquire full ownership of Macmillan Pass by investing C$1 million on property exploration and paying C$1 million in cash to Hudbay Minerals Inc. Fireweed has already paid C$250,000 and the balance is due upon exercise of the option. Additionally, upon exercise of the option, Fireweed must issue shares to Hudbay equal to 15 percent of Fireweed's issued and outstanding shares at the time. The Macmillan property has a camp, road and airstrip, which has allowed Fireweed to get off to a quick start on exploration. Fireweed plans to complete at least C$1.2 million of exploration at the project this year with the aim of bringing the historical resources on both the Tom and Jason deposits to current standards and seek new discoveries across the 2,864-hectare (7,077 acres) property. In addition to drilling, the company's initial phase of 2017 exploration will include resampling of select historic drill core to confirm assays from previous work; surface mapping and geochemical sampling in exploration for new discoveries; surveying to accurately locate old and new drill hole locations; airborne LiDAR surveying to produce an accurate topographic map of the property; and compilation of historical data. The results of this year's program will be used to complete an updated NI 43-101 resource estimate before year end. Fireweed then plans to undertake a preliminary economic assessment to evaluate project economics which is expected to be completed in the first half of 2018. ●

PIPELINES & DOWNSTREAM

Exxon, UW-Madison research collaboration

ExxonMobil and the University of Wisconsin-Madison have renewed for two years an agreement to research the chemistry involved in the conversion of biomass into transportation fuels, the two organizations announced July 17. Under the agreement, George Huber, professor of chemical and biological engineering at UW-Madison, is working with ExxonMobil scientists to better understand the basic chemical transformations involved in generating diesel and jet fuels from biomass.

"The renewal of our agreement with the University of Wisconsin-Madison will continue ExxonMobil's work with top universities and scientists to discover and advance next-generation energy solutions," said Vijay Swarup, vice president of research and development for ExxonMobil Research & Engineering Co. "We look forward to continuing our collaboration with the university as we enhance our scientific understanding of advanced biofuels and explore potential new technologies."

The two organizations say that the research has revolved around a multistep process for converting biomass to transportation fuels.

The two organizations say that the research has revolved around a multistep process for converting biomass to transportation fuels. The work will now focus on reducing the number of processing steps involved by using solvents to dissolve the biomass, thus enabling the conversion of the biomass into fuel-sized molecules in a single reactor.

Huber commented that the research will likely involve the use of catalytic technologies already used in the petrochemical industry for the conversion of oil into fuels and chemicals. Apparently it may be possible to use catalysts to transform bio-derived ethanol into diesel and jet fuel. Ethanol is already produced as an additive to gasoline. However, the research is focusing on the use of non-food sources of ethanol, such as corn stover (stalks, leaves and cobs that remain in fields after the corn harvest) and other cellulosic feedstocks, the two organizations say.

"Biofuels have the potential to become a significant option for meeting growing global demand for diesel and jet fuel if low cost and scalable technologies can be developed," Huber said. "The focus of this fundamental research is to demonstrate technologies that could make such a scenario possible."

ExxonMobil says that it has formed partnerships with a number of universities around the world to conduct biofuel research.

—ALAN BAILEY

continued from page 4

SPILL RESPONSE

planning the launch of some new geostationary satellites next year, to provide new communications capabilities in the Arctic, including the handling of distress calls, Zukunft said.

The Law of the Sea

Zukunft argued for the need for the United Stated to accede to the United Nations Convention on the Law of the Sea, the international treaty that sets, for example, rules for determining the outer limits of a nation's outer continental shelf. While the Coast Guard Cutter Healy has been engaged in mapping of the extended continental shelf off Arctic Alaska, Russia is laying claim to much of the Arctic Ocean. And, while Russia and Canada view the Northern Sea Route and the Northwest Passage as internal waters, the U.S. views these waterways as international straits, Zukunft said.

He also said that he views as part of the U.S. strategic reserves the perhaps $1 trillion worth of oil, gas and minerals thought to exist in the U.S. Arctic economic exclusion zone and the extended continental shelf. In addition, with fish stocks tending to move north under the impact of global warming and a U.S. moratorium on fishing in the Beaufort Sea, the U.S. needs the capability to enforce fishing regulations.

However, to be able to exert sovereignty in high latitudes, the United States needs icebreakers, Zukunft said, referencing a continuing debate over government funding for new U.S. icebreaker construction. Currently there is only about $150 million in funding set aside for the icebreaker construction program. But it is necessary to build the first new icebreaker by 2023, Zukunft said.

Moreover, Russia anticipates commissioning two icebreaking corvettes, vessels with combat capability, in 2020, he said.

Climate change

Zukunft also commented on climate change, saying that there are 31 Alaska villages threatened by the retreat of the sea ice that has in the past provided natural protection from buffeting of coastal storms. Given this situation, and the impacts of rising sea level in places like the Marshall Islands, the world is starting to see the emergence of what might be termed environmental refugees, he said.

Zukunft said that in August 2016 he had visited the huge Jakobshavn Glacier in Greenland to observe the impact of global warming on the Greenland ice sheet. Local Inuit elders told him that after 1,000 years of stability, the glacier had suddenly retreated 25 miles in the past five years. There is now year-round open water in nearby Disko Bay, where previously there had been ice, Zukunft said.

Thanks to icebergs calving off Greenland glaciers, in particular the Jakobshavn, there has been a sharp increase in the number of icebergs drifting south into shipping lanes in the North Atlantic, he said. The Coast Guard operates the International Ice Patrol that monitors the presence of icebergs in the North Atlantic region.

With the melting of land-based ice in polar regions, global sea level is rising. Zukunft said that he is now using a six-foot sea rise this century as a factor for planning what the Coast Guard may have to contend with in the coming years. Houses in some coastal communities are already being impacted by the sea level rise, he said. ●

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ENVIRONMENT & SAFETY

Bearded seal listing appeal to high court

Organizations appealing the National Marine Fisheries Service's listing of the Beringia population of bearded seals as threatened under the terms of the Endangered Species Act have petitioned the Supreme Court of the United States to review the appeal. The Supreme Court has yet to indicate whether it will accept the case.

The request to the Supreme Court follows a decision in October last year by the U.S. Court of Appeals for the 9th Circuit to uphold the listing of the seals, a decision that overturned an earlier order by the federal District Court in Alaska that had rejected the listing on the grounds that the listing decision had been arbitrary and capricious. In February the 9th Circuit court turned down a request by the appellees for an en banc hearing of the case, a hearing that would involve all of the 9th Circuit judges.

The listing of the bearded seals has come as one of a number of wildlife listings related to the projected loss of Arctic sea ice as a consequence of global warming. Bearded seals live around the sea ice, which they use for resting, feeding and rearing their young. Worried about the potential impact of the listing on economic activity in the Arctic and questioning the listing of an apparently healthy species based on long-term climate projections, several entities, including the Alaska Oil and Gas Association, the American Petroleum Institute, the state of Alaska, the North Slope Borough and other local government and Alaska Native organizations appealed the decision in District Court.

—ALAN BAILEY

NATURAL GAS

Corps holding ASAP public meetings

The U.S. Army Corps of Engineers has issued a draft supplemental environmental impact statement for the Alaska Stand Alone Pipeline and began holding public meetings in July in the northern part of the state.

Remaining meetings are Aug. 1 in Anchorage at the Alaska Pacific University lecture hall from 6:30-9:30 p.m.; at the Tri-Valley Community Center in Healy Aug. 2 from 5:30-8:30 p.m.; at the Cantwell Community Hall Aug. 3, 5:30-8:30 p.m.; and at the Trapper Creek Park Building Aug. 4, 5:30-8:30 p.m.

The draft supplemental EIS addresses changes proposed since the Corps published the final EIS in October 2012. The National Environmental Policy Act process was initiated in December 2009 and the draft EIS issued in January 2012.

Since 2012, the Corps said, the Alaska Gasline Development Corp. has selected locations for material sites, access roads and other infrastructure, and proposed changes to the project to improve efficiency, make the natural gas more accessible and affordable and reduce environmental impacts.

The Corps said it determined a supplemental EIS was necessary based on a revised application from AGDC in July 2014, an application which was amended in January 2016 and July 2016.

Changes include: use of lean natural gas rather than enriched natural gas; need for a 23-barge sealift, which requires dredging of a navigation channel at West Dock; reduction in length of the mainline by 4 miles; reduction in the Fairbanks lateral by 4 miles; pipeline diameter increased to 36 inches from 12 inches; refinements in number and locations of materials sites, access roads and other infrastructure and support facilities; and route refinements.

—KRISTEN NELSON

GOVERNMENT

BLM proposes withdrawal of fracking regs

On July 25 the Bureau of Land Management filed a notice in the Federal Register, announcing the agency's intent to rescind regulations introduced by the Obama administration for the hydraulic fracturing of wells. A final rule for the regulations was published in March 2015, but the regulations have never gone into effect because of litigation challenging the rule.

The regulations, which apply to drilling in federal land administered by the BLM, include the mandated filing of information about a hydraulic fracturing drilling operation, a requirement for a public list of chemicals used, performance standards for the well casing and cementing, and requirements for the storage of used hydraulic fluids. Oil industry groups criticized the regulations as being too restrictive and for duplicating state and local rules.

BLM says that its proposal to rescind the regulations comes as part of President Trump's strategy to remove the burden of federal regulations that hinder economic growth and energy development. Public comments on the proposal are due by Sept. 25.

During a recent review of the regulations BLM found that all 32 states with federal oil and gas leases have their own regulations for hydraulic fracturing and that since the publication of the 2015 final rule an increasing number of companies have been publicly disclosing the chemical content of their fracking fluids, the agency says.

"America's public lands offer outstanding commercial, recreational, and conservation opportunities, and energy development is one of them," said Katharine MacGregor, acting assistant secretary for land and minerals management. "Maintaining positive, productive working relationships with our state and tribal partners is a top priority of this administration. We are committed to working collaboratively with them to ensure the safe and environmentally responsible development of our nation's energy resources."

BLM says that it estimates that about 90 percent of some 2,800 production wells drilled in federal and Indian land in 2013 used hydraulic fracturing techniques to stimulate production.

—ALAN BAILEY

continued from page 1

SLOPE PRODUCTION

Slope operators are still getting the benefit of new projects begun during high price years in 2014 and 2015, state officials said.

Prudhoe the driver

Some of these are producing above expectations, such as ConocoPhillips' CD-5 project near the Alpine field. Most of what is driving the increase, however, is superior performance at the BP-operated Prudhoe Bay field, which supplies about half of total North Slope production.

"Prudhoe's production so far in 2017 is comparable to 2016's yearly average of 280 mbopd, and much better than the expected 2017 average," said Scott Digert, one of BP's reservoir development managers for the field.

If the trend holds Digert is cautiously optimistic BP may be able to hold Prudhoe's production essentially flat in 2017, for a third year in a row. Digert spoke in an interview.

In previous years decline rates of 4 percent to 6 percent were common for Prudhoe and other North Slope fields. In 2016 BP held production with less than 1 percent decline, Digert said.

What's unusual is that BP has been able to hold up Prudhoe's production despite having to lay off drill rigs and reducing the drilling of new production wells and rig-assisted workovers on wells in 2017, a response to lower oil prices.

'Smart' technologies

Much is this is being accomplished through the use of new "smart" technologies and information systems.

Three years ago BP had five rigs at work in Prudhoe. That is now down to two.

Typically, drilling new production wells is a common way for field operators to maintain production, along with waterflood and enhanced oil production, but at Prudhoe BP has been able to sustain output with less drilling through very careful management of wells and facilities in the field. Drilling of new wells, when they are drilled, are in places that are more productive.

"We've been able to accomplish a lot by focusing on operating efficiencies and maximizing the use of facilities and wells, and doing it safely. It's the sum total of a lot of little things, like improving the reliability of our surface production equipment," Digert said in an interview.

"For example, the overall field is operating at an 85 percent efficiency compared with a historical average of 82 percent," he said.

40 years of operating data

This is facilitated by having 40 years of operating data at Prudhoe, which began production in 1977. "We have all of that available to us as well as new computer technology that allows us to analyze trends and do a better job of prediction. It's the use of 'Big Data' analysis with a large pool of information," Digert said.

The bottom line is that BP has more wells on line and less wells and equipment down for maintenance at Prudhoe, despite the aging of the field. "We have about 50 to 60 more wells on line this year compared with last year which gives us a lot more capacity," Digert said.

Typically about 650 to 680 wells are needed online to fill the facilities and maintain Prudhoe's production, and field operators like to have 700 wells available so a few can be taken off-line to "recharge" with oil and to reduce gas or water which is used to drive production.

"It is typical to have a number of wells temporarily shut-in, or idled, in a large, mature field like Prudhoe. Now the operators like to have a large pool of operating wells, up to 800 this year, they can call on to make up production," Digert said. This greatly increases the operators' options and flexibility, he said.

New seismic

What is also helping at Prudhoe is new three-dimensional seismic done over northern parts of the field that now helps BP spot small pockets of oil bypassed in earlier production.

Being smart about where to place wells that are drilled, mainly in underdeveloped parts of Prudhoe, has been a very productive strategy. In its drilling in the main part of the field BP has also found it is largely accelerating production of reserves in place, oil that would be produced anyway from nearby wells. The new wells are carefully targeted at getting "new" oil that wouldn't be otherwise produced. ●

—Tim Bradner is editor of the Alaska Legislative Digest and Alaska Economic Report

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continued from page 1

NEB REPORT

composed of liquefaction and regasification facilities serving local markets — LNG used to smooth fluctuating demand, the report says — with has some LNG transported by truck in remote areas for industrial customers and to provide heat in rural areas.

British Columbia focus

The focus for Canadian LNG export projects is in British Columbia because of a significant natural gas supply in northeast B.C. and Alberta, the report says, with many of the largest project proponents also gas producers.

Another reason for the West Coast focus is because of the shorter distance to prime Asian markets, with many projects attracting investors from Japan, Korea, China and India.

West Coast projects with regulatory approvals include the now derailed Pacific NorthWest (see story on side of page 1), Kitimat LNG, LNG Canada and Woodbine LNG. Most projects, the report says, are "waiting for market conditions and project economics to improve before reaching a final investment decision."

None of the projects which have received NEB export licenses have reached the construction stage, although dozens are at various stages of planning and the small Woodfibre LNG project near Squamish, B.C., has reached a final investment decision. That project would export just 0.3 bcf per day of LNG.

NEB has estimated that Canadian LNG exports from the B.C. coast would start in 2021 and increase by 0.5 bcf per year, reaching 2.5 bcf per day by 2025, making Canada a relatively small contributor to LNG supply.

Canadian advantages

Canada's LNG industry has a number of advantages, the NEB report says. West Coast projects are fairly close to gas supply from shale and tight gas in western Canada, including the Montney, Deep basin and Horn River plays.

The most competitive of the gas plays, the report says, "supply relatively low cost production," improving economics of the Canadian LNG trade.

The West Coast projects are also closer to Asian markets than facilities on the U.S. Gulf Coast and do not require passage through the Panama Canal. Canada is also closer to Asia than West African LNG sources such as Nigeria.

On the East Coast of Canada, projects are closer to Europe than U.S. Gulf Coast projects and exporters such as Australia, Qatar and Malaysia.

The report says there is also "a significant financial advantage" to Canadian LNG because of LNG facility tax incentives.

Canadian challenges

The NEB report said there are a number of challenges facing Canada's LNG industry, beginning with historically low natural gas prices and ample supplies, which make it challenging for Canadian LNG project to secure long-term contracts. "The current market environment is trending towards short-term or spot price-based transactions that generally make it more difficult to finance multi-billion dollar investments in new LNG facilities," the report says.

Because most proposed Canadian LNG projects would rely on supplies from inland northeast B.C. and Alberta, new long-haul pipelines or expansions would be required. Transportation adds major costs to projects, the report says, and requires regulatory approvals, compared to many global supply regions, such as Australia, which use offshore gas.

Compared to the United States, most Canadian projects would be greenfield, whereas in the U.S. there are projects which have and would be built on existing LNG import facility sites.

The report also cites "growing public concerns over competing uses for land and marine resources, local impacts from hydraulic fracturing, pipeline hauling, safety, and GHG emissions, among other issues," with an evolving regulatory environment which could impact future LNG project approvals.

And while West Coast Canada is closer to Asia than some projects, the report notes that Australia, Malaysia and Indonesia are significantly closer than Canada to major Asian markets.

Competition is increasing, the report says, with some U.S. LNG facilities already operating and others progressing to final investment decisions — and would be in operation before most Canadian projects. This is in addition to fiscally stable regions such as Australia which already have many operating facilities.

Uncertainties

The report also lists a number of uncertainties for Canadian LNG projects.

One is whether Canada can become an LNG exporter before West Coast U.S. projects, none of which have yet reached final investment decisions.

Then there is the issue of future LNG contracting and pricing, "an area of uncertainty that will dramatically impact global LNG project economics," the report says.

Another uncertainty the report lists is what the role of natural gas will be in addressing global climate change over the coming decades. "Natural gas and LNG demand may strengthen as economies become less reliant on more carbon-intensive fossil fuels such as oil and coal. Alternatively, natural gas and LNG demand could decline if renewable and/or nuclear energy sources become more prevalent at the expense of all fossil fuels."

Then there is the competition among LNG projects for labor, expertise and materials — which means LNG projects "could face inflated development costs." Canadian project proponents are already concerned, the report says, about cost overruns in global LNG projects. ●

continued from page 1

NORDAQ FINE

ing the state to do it. The bond amount for Tiger Eye was reduced from $1.3 million to $800,000, based on available road access to that well site. The commission said the surface owner, Salamatof Native Corp., wants the existing road and pad at Tiger Eye left in place.

The Shadura bonding requirement, $1.2 million, is the same as the initial requirement for a check.

In its orders the commission noted that the delay in plugging and abandoning the wells "resulted in no hydrocarbon leakage, well integrity problems, or other problems other than a time delay."

In April 4 hearings (see story in April 9 issue of Petroleum News), Bob Warthen, senior advisor to NordAq Energy, told the commission that the company had delayed abandonment work at the wells because it was trying to negotiate other uses for them. NordAq had discussions with Cook Inlet Energy about that company using the Tiger Eye well as a utility well, discussions which ended following Cook Inlet Energy's bankruptcy when new management, now operating as Glacier Oil & Gas, said it wasn't interested in using Tiger Eye.

On the Kenai, NordAq had discussions with Cook Inlet Region Inc. about CIRI holding onto Shadura, which is on a CIRI lease, as a cased well asset. By the end of 2016, however, CIRI said it wasn't interested.

Tiger Eye was an oil prospect, and Warthen said while there were oil zones, the well failed to produce oil. When the well was tested for gas, it produced significant water, he said.

NordAq announced Shadura as a natural gas discovery and permitted an appraisal well, but that was never drilled.

Tiger Eye

The commission said NordAq's effort to start plug and abandon work at Tiger Eye in June was delayed until Aug. 1 because Chevron was using a dock on the west side of Cook Inlet. Warthen discussed timing at the commission hearing in April and said the company needed to confirm that eagles weren't nesting in the area, which could delay the work to mid-July. If there were no eagles nesting, work could begin as soon as snow was off the site and equipment could be barged in, Warthen said.

The commission cited road access to Tiger Eye from the Cook Inlet dock area in reducing the required bond for that work.

The commission required the surety bond within 30 days of the July 20 issuance of the Tiger Eye order, and said the bond would be returned to NordAq following permanent abandonment of the well and clearance of the well location.

The bond would be forfeited if the Tiger Eye well is not permanently plugged and abandoned and the well location cleared within one year of the order, the commission said.

Shadura

In a July 21 order the commission said information from NordAq at the April public hearing and at an informal review June 27 indicated the company began operations to permanently abandon the Shadura well in March, but had to postpone further operations until December because the site has winter-only access and winter conditions were deteriorating.

The order requires NordAq to provide the commission with a surety bond for $1.2 million within 30 days of receipt of the decision. This is the amount required as a check in the proposed enforcement action issued in December and the commission said in its July 21 order that NordAq "has presented no evidence that a reduction in the bond amount is appropriate."

The commission said the bond would be returned to NordAq following permanent abandonment of the Shadura well and clearance of the well location, and the bond would be forfeited to the commission if the well is not permanently plugged and abandoned and the well location cleared within a year of the date of the decision.

—KRISTEN NELSON

continued from page 1

PROJECT STALLS

Taib said in a statement.

Pacific NorthWest is majority owned by Petronas, Japan Petroleum Export Corp., PetroleumBrunei, Indian Oil Corp. and Sinopec-China Huadian.

Natural gas was to come from the North Montney Joint Venture between Progress Energy Canada Ltd., Japan Petroleum Export Corp., PetroleumBrunei, Indian Oil Corp. and Sinopec-China Huadian to develop resources in the North Montney formation in northeast British Columbia.

Progress Energy is a wholly owned subsidiary of Petronas, and the operator of the North Montney JV, which has some 800,000 acres of largely contiguous mineral rights with more than 52 trillion cubic feet of reserves and contingent reserves and more than 15,000 identified drilling locations.

The companies said total gas initially in place is more than 200 trillion cubic feet of unconventional gas and liquids.

A related transportation system was also affected.

TransCanada said it was reviewing its options for the proposed Prince Rupert Gas Transmission project, and said that as part of its agreement with Progress Energy, TransCanada would be reimbursed for costs incurred to advance the Prince Rupert Gas Transmission project, a planned 540-mile, C$5 billion pipeline to Lelu Island.

—KRISTEN NELSON

continued from page 1

IGU PAUSE

the supply of natural gas at an affordable price to the city of Fairbanks and the surrounding Interior, to help address the high cost of energy in the region and to reduce winter air pollution that results from the widespread use of wood burning stoves. The idea is to obtain natural gas from the Cook Inlet basin; convert the gas into liquefied natural gas in an expanded version of an existing LNG facility near Port MacKenzie; ship the LNG to Fairbanks by road trailer or rail; hold the LNG in expanded LNG storage facilities in Fairbanks; and distribute gas to consumers through a greatly expanded gas distribution pipeline network.

Also as part of the plan, AIDEA and IGU have signed a memorandum of understanding, setting a goal for IGU to purchase Pentex Natural Gas Co., a company which AIDEA currently owns. Pentex owns the Port MacKenzie LNG facility, the current trucking operation for shipping LNG to Fairbanks, and Fairbanks Natural Gas, a utility that currently supplies gas in central Fairbanks. The prime objective of the Pentex purchase is to consolidate IGU and FNG as a single Fairbanks gas utility, thus enabling operating efficiencies and economies of scale through the operation of a single gas distribution system.

Funding for the project comes from a $42.5 million state capital appropriation, $135 million in SETS loans, and $150 million in AIDEA bonds.

IGU is owned by Fairbanks North Slope Borough and receives a grant from the borough to cover some of the utility's costs. The utility does not currently have an operational gas supply.

Legislation in 2015

The original concept for the IEP had been to obtain LNG from the North Slope. However, when the economics of that concept did not pan out, the Legislature passed a bill in 2015, House Bill 105, authorizing a change of direction for the project. That change ultimately led to the current concept of a Cook Inlet gas supply.

But the project has become delayed in trying to firm up an appropriate gas supply from a Cook Inlet gas producer. The price of the gas needs to be low enough to result in a workable delivered gas price in Fairbanks, while supply volumes need to be flexible, given major uncertainty over future gas demand growth in the Fairbanks region.

The dispute between IGU and AIDEA revolves around the legal interpretation of the language in HB 105.

The dispute between IGU and AIDEA revolves around the legal interpretation of the language in HB 105. IGU wants to use SETS funding to fund the $850,000 cost it is incurring in its work on the required gas supply, conducting due diligence for the Pentex purchase, planning the integration of the two Fairbanks utilities and working on Pentex purchase agreements.

In June Jomo Stewart, IGU general manager, sent a letter to John Springsteen, AIDEA executive director, requesting clarification of the loan agreement between AIDEA and IGU, and requesting an amendment of the loan documentation to incorporate up to $600,000 in Pentex acquisition costs and up to $150,000 in costs involved in establishing a gas supply. Springsteen responded that, under the terms of HB 105, AIDEA cannot currently change the terms of the loan agreement with IGU. Stewart responded by claiming that the terms of the loan agreement do not preclude the requested changes.

However, during its June 29 meeting the AIDEA board did pass a resolution to allocate up to $150,000 in funding for IGU's gas supply negotiations, with that money coming from AIDEA's approved capital budget for the IEP. The board also approved $1.5 million in capital funding for the front-end engineering and design for LNG storage expansion in Fairbanks — AIDEA is anxious not to miss a Jan. 1, 2020, deadline for obtaining a state LNG storage construction tax credit for the project.

Plan required

Gene Therriault, AIDEA's IEP team leader, has told Petroleum News that HB 105 requires AIDEA to prepare an IEP plan that is approved by the AIDEA board. That plan, informally referred to as the 105 plan, must include an identified source of gas for the gas supply, the cost of the various components of the gas supply chain, and an expected delivery price for gas in Fairbanks. AIDEA has taken advice from the state's Department of Law and understands that HB 105 prohibits any AIDEA approval of further IEP SETS funding until the 105 plan has been completed and approved, Therriault said.

Thus, in the absence of a contract with a Cook Inlet gas producer for a gas supply, further SETS funds cannot be released to IGU for the work activities in question. Moreover, the purchase of Pentex by IGU also requires access to financing that cannot be released until a gas supply contract is in place, Therriault said.

Meanwhile AIDEA is considering further capital funding that might be released to IGU.

"We're working with IGU now to figure out which costs fit into which category, and the timing of when they could be paid," Therriault said.

And Therriault characterized the question over the release of SETS funding to IGU as essentially a timing issue relating to the completion of a gas supply contract. AIDEA is now taking the lead position on establishing that contract.

"We're getting close," Therriault said.

Report to the Legislature

On July 15 the IEP team published its latest quarterly report on the project to the Alaska Legislature. That report comments that the team anticipates establishing a new Cook Inlet gas supply contract that would start in early 2018. Pentex's current gas supply agreement with Hilcorp Alaska for obtaining gas for Fairbanks Natural Gas's current customers expires in April 2018.

The report also says that by the end of July Pentex will take delivery of two of three new, large capacity LNG trailers that the company ordered to improve the efficiency of its LNG transportation to Fairbanks. Delivery of the third trailer is expected by the end of August, the report says.

During its June 29 meeting the AIDEA board approved a 2018 budget for Pentex: The new budget involves a 3 percent gas rate increase for FNG's existing gas customers. However, after AIDEA purchased Pentex in 2015 it was able to reduce FNG's gas rate by 13.5 percent for residential customers.

The IGU work stoppage was first reported by the Fairbanks Daily News-Miner. ●

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