



page 3 Q&A: Westlake says Resources is a natural fit, has hit ground running

This week's Mining News



NEWS NUGGETS
Compiled by Shere Endy

Ucore has option to acquire IBC OWN REE separation technology
Ucore Rare Metals Inc. (NYSE:UCR) announced that it has secured an option to acquire the outstanding shares of IBC in designing and developing a rare earth separation process for Ucore. Ucore paid US\$650,000 to enter the two-year option. Under the terms of the agreement, Ucore will have the right to purchase the outstanding shares of IBC for US\$10 million cash and half of a purchase warrant. The agreement also includes performance incentives for key IBC personnel. "This option to purchase agreement is a major milestone for IBC as it already a world leader in molecular recognition technology for the mining industry, with an existing customer base spanning several continents and including majors such as Anglo Chinese Metals (USA), Inpex Platinum of South Africa, Tenka Kibiko K.K. of Japan, Sino Platinum of China and US Nickel of Korea. Remarkably, this initiative places us as a licensee agreement between Ucore and IBC calls for the creation of a joint venture that would have the exclusive rights to earth separation, certain recycling applications, and mining processing. To complete the license agreement, Ucore agreed to pay IBC US\$2.5 million and pay US\$1 million for the completion of the licensing agreement to a requisite for Ucore to complete the option to buy IBC."

Public Partnership Begins to assemble mine permit team
Northern Dynasty Minerals Ltd. March 8 said Public Partnership has selected HDR Alaska, Inc. to serve as lead regulatory and permitting consultant for the world-class Pebble, copper-gold-molybdenum project in Southeast Alaska. HDR will assist in preparing the documentation of the country's strategy to address the U.S. Environmental Protection Agency's pre-proposal regulatory and technical consulting services to Northern Dynasty and Public Partnership since 2004 with a specific focus on wetlands, water, aquatic habitat and fish streams. Much of this work was represented in the US\$150 million, 27,000-page Pebble Environmental Impact Statement published in 2012. In its current role, HDR will continue select environmental baseline field studies and analysis of the mine at Public Partnership as it finalizes the engineering, design, environmental planning and documentation required to the permit applications with the US Army Corps of Engineers. "HDR is one of the many regional Alaska-based consulting firms that have provided professional services to the Pebble project for well over a decade, so they're already intimately familiar with the issues and challenges and approved by our project," said Public Partnership CEO Tom Collier. "As a firm, HDR not only has an excellent track record for helping permit some of Alaska's most prominent mines, energy and infrastructure development projects, their strong personnel are also familiar federal and state regulations, with a deep understanding of regulatory processes and requirements for permitting success in Alaska and the United States." **SEE NEWS NUGGETS PAGE 8**

GOVERNMENT

HB 111 moves

On 5-4 party-line vote, Resources passes tax, credit bill to Finance

By KRISTEN NELSON

Petroleum News

A bill to make changes in the state's oil taxes and credits has moved out of its first committee in the House.

On a March 14 party-line vote of 5-4, the House Resources Committee moved House Bill 111, a committee substitute introduced March 10 by committee co-chairs Geran Tarr and Andy Josephson, both Anchorage Democrats.

The bill has been contentious since it was introduced, with Republican members of the committee objecting when HB 111 was introduced as a committee bill, saying they had not seen it prior to its introduction.

They continued to object as the bill moved

DNR would develop regulations to establish a review process for pre-approval of those lease expenditures which would generate a carry-forward annual loss.

through the committee process.

Tarr has described the bill as representing finishing up work from last year, items that weren't included in the final version of HB 247; she also said the bill reflects ideas from legislative consultant Rick Ruggiero of Castle Gap Advisors, but does not reflect elements from HB 133, introduced by Rep. Les Gara, D-Anchorage, and heard by Resources March 6.

see HB 111 page 16

EXPLORATION & PRODUCTION

Applying for expansion

ConocoPhillips explains to AOGCC a request for Alpine oil pool modifications

By ALAN BAILEY

Petroleum News

The Alaska Oil and Gas Commission conducted a public hearing on March 14 to review ConocoPhillips' application to modify the Alpine Oil Pool in the Colville River unit. Drilling from the CD5 pad in the National Petroleum Reserve-Alaska has revealed the westward extension of the Nanuq Kuparuk reservoir in the unit and the company wants to begin development of the oil pool in the reservoir to the west of the pool's current boundary.

The Alpine Oil Pool involves oil trapped in the Alpine and Kuparuk sands in the Beaufortian sequence, one of the major North Slope petroleum bearing rock sequences.

Recent horizontal drilling from ConocoPhillips' new CD5 pad, the first production pad in the National Petroleum Reserve-Alaska, has proved particularly successful.

The pool modifications would involve the addition of six land sections on the west side of the current pool boundary and the removal of 16 full and partial sections from the pool's eastern side.

Drilling results

ConocoPhillips geologist Doug Knock told the

see EXPANSION PLANS page 15

FINANCE & ECONOMY

Shell shrinks sands role

Reaches deal with CNR as it shifts focus to natural gas, offshore oil, downstream

By GARY PARK

For Petroleum News

Royal Dutch Shell, committed to unloading assets worth US\$30 billion, has made a bold move in the Alberta oil sands — towards the exit door.

The Anglo-Dutch giant announced an US\$8.5 billion cash-and-shares deal with Canadian Natural Resources on March 9 to reduce its stake in the Athabasca Oil Sands Project to 10 percent from 60 percent.

Although the two companies also agreed to pay US\$1.25 billion each for Houston-based Marathon Oil's 20 percent interest in the venture, there was an unmistakable message from Shell: The oil sands no

GMP FirstEnergy analyst Michael Dunn said the purchase "is a few billion (dollars) less than historical costs," while Morningstar analyst Joe Gemino said it was a very favorable valuation for CNR.

longer fit its global growth plans, regardless of its claims that the Alberta government's carbon pricing regime was not a factor.

For Shell the scale back affects its 154,000 barrels per day Muskeg River mine, its 126,000 bpd Jackpine mine, rights to the Jackpine expansion which has regulatory approvals for 100,000 bpd and

see SANDS ROLE page 16

Strategic Metals Bill aims to bolster strategic metals in U.S., keep them out of foreign hands. Read more in Mining News, page 7.

Colville expansion requested

ConocoPhillips Alaska Inc. is requesting another expansion of the Colville River unit.

The expansion would add approximately 239.93 acres from one federally managed lease to the North Slope unit. The lease — AA 84140 — is located in the center of the unit.

The expansion is the seventh proposed for the Colville River unit and is a different matter from the fifth expansion, which would incorporate leases from the former Tofkat unit.

In its sixth expansion, ConocoPhillips requested and received permission to expand the unit to the west to include a bundle of acreage between the Colville River unit and the neighboring Greater Mooses Tooth unit, which the company also operates. The company is currently developing the GMT-1 project and is permitting a potential GMT-2 project.

The Alaska Department of Natural Resources is taking comments through April 17.

—ERIC LIDJI

Arctic sea ice at record low for February, data center reports

The extent of the Arctic sea ice cover remained at record low levels during February, the National Sea and Ice Data Center has reported. Above average temperatures resulted in a continuation of the already low sea ice extent that existed at the start of the month.

According to an NSIDC map, February temperatures in Southcentral Alaska and western Alaska were about normal, with temperatures across much of the eastern Bering Sea being below average.

But the picture was very different in the Arctic Ocean, where average temperatures across the region remained 4 to 9 degrees F above average during February. The Barents Sea

see SEA ICE page 14

ENVIRONMENT & SAFETY

Hilcorp continues to monitor gas leak

Company waiting for sea ice to clear before repairing damaged subsea pipeline; new environment monitoring program to go into action

By **ALAN BAILEY**
Petroleum News

In preparation to conduct repairs, Hilcorp is continuing to monitor a leak in an eight-inch subsea pipeline that supplies fuel gas to the production platforms of the Middle Ground Shoal oil field in Cook Inlet. On March 14 the Alaska Department of Environmental Conservation gave preliminary approval to Hilcorp's latest environmental sampling and monitoring program — the company anticipates implementing the program in several stages, as conditions allow, using marine vessels, buoys and other equipment, Hilcorp has announced.

Hilcorp says that its response team is ready to carry out repairs to the line, with the necessary equipment staged, ready for the repair operations. But sea ice conditions in the inlet continue to render diving conditions too dangerous to commence the repairs — Hilcorp anticipates sending divers down to the damaged pipeline to carry out the repairs. The company says that it anticipates it taking several days to complete the work, once the repair operation has started.

To minimize the leakage rate, the company has reduced the gas pressure in the line by shutting down non-essential operations on the offshore platforms. Hilcorp has said that it does not want to completely stop the gas flow through the line, lest residual crude oil that may exist in the line escapes to the sea. The line had previously been used for the carriage of oil.

Discovered Feb. 7

The leak was discovered on Feb. 7 after Hilcorp had noted abnormal gas pressure in the line and had sent a helicopter along the pipeline's route to check for a problem. According to a letter sent to Hilcorp by the Pipeline and Hazardous Materials Safety Administration, proposing a May 1 deadline for completing the repair, pipelines of this type in Cook Inlet are susceptible to damage as a consequence of rock abrasion, at locations where a line is not supported by the seabed. A vortex effect as a consequence of tidal currents can cause a line to vibrate, with the vibrations resulting in the line moving relative to the rocks. Apparently this particular pipeline has suffered leaks twice in the past. Conducting repairs

involved installing bolt-on, split-sleeve clamps, PHMSA said.

PHMSA, recognizing the problem of diving safety in sea ice conditions, also commented that a complete shut-down of the gas line at this point could cause problems with a subsea oil transportation line freezing, given current seawater temperatures, should the lack of fuel gas cause oil transportation to cease.

Hilcorp has previously said that no significant impacts to wildlife or the environment have been observed as a consequence of the leak and that the gas release does not pose a threat to the general public. The fuel gas that the leaking pipeline carries consists of almost pure methane.

ADEC has been involved in the response effort as part of the incident management team. In a situation status report issued by ADEC on March 14, ADEC confirmed that, weather permitting, Hilcorp will commence environmental sampling and monitoring when the necessary sampling platforms and sensors arrive on site. ●

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● GOVERNMENT

Westlake: Resources slot a natural fit

Kotzebue Democrat, Resources vice-chair says he's enjoyed hitting the ground running with ANWR resolution, intense oil tax debate

By **STEVE QUINN**

For *Petroleum News*

Rep. Dean Westlake wasted little time rolling up his sleeves and getting to work — once the courts offered the final word on his election. Westlake, of Kotzebue, narrowly won his election over incumbent Bennie Nageak, in a race that required the Alaska Supreme Court handing down a decision on what ballots should be counted.

Westlake landed a post on the House Resources Committee as the vice-chair alongside co-chairs Geran Tarr and Andy Josephson. The Democrat also became chair of the House Arctic Policy, Economic Development and Tourism Committee. He quickly introduced HJR5, a resolution endorsing ANWR exploration. One day before the House Resources Committee passed the committee's oil tax and credit bill, HB 111, Westlake sat down with *Petroleum News* and discussed his first few months in office.



REP. DEAN WESTLAKE

Petroleum News: You're among five freshman lawmakers on the Resources Committee. What made you go for a seat on Resources?

Westlake: Because in House District 40, we provide the resources for the rest of the state of Alaska. It's my house district and I want to have a seat at that table — period.

Petroleum News: Again, among five freshmen plus an incumbent serving her first year on Resources, so what have you learned so far, slightly more than half way through the session?

Westlake: That you need to build a consensus in whatever you're doing, and bringing your perspective, your professional perspective in my case. I was the director of village economic development.

Taking it from the village level to the state level, and knowing the barrier issues out there in rural Alaska: Its' been a tremendous boost. Not many legislators can say they went over to the U.N. and presented on barrier issues to rural economics. These things are important to us in rural Alaska.

Petroleum News: You quickly got busy with an ANWR resolution. Talk about that: What made you jump on that right away?

Westlake: Because we need jobs. For me there are two competing values when we start to talk about

ANWR or any kind of resource development. My perspective, a lot of what I see is through a lens of wages versus the optic of taxes. I don't know how to explain it any better. As I'm looking at wages, a vast majority are looking at taxes.

Because the wages you pay, they are going to be spending that money here; you've got such terrific local hire and it's spent within the state so it helps us all.

Petroleum News: Did it help you that Lisa Murkowski told the Legislature there is value in resolutions while many have long felt they are simply formulaic that pile up and end up in the trash?

Westlake: On this one, there is absolute value in the resolutions. It's expressing the will of the people. We can only take it to that expression, then it's up to, say in this case, the federal government on whether they think it's worthy to pursue. We here in the state think it's been worthy for quite a while.

Petroleum News: So when you go down south, what do you tell people about ANWR?

Westlake: I tell them that the perception is that it's the whole refuge and that isn't the case. If you shrank it on a one-to-one scale to the size of a football field, the place for the drilling itself is about the size of a postage stamp on that very same football field.

Petroleum News: Are you hopeful that you have an administration and a Congress that can advance this?

Westlake: Absolutely. I think it's crucial for the nation and it's also beneficial for Alaska. We are a resource rich state. There is so much more we can enjoy by responsibly developing our resources.

Petroleum News: It was your committee (Arctic, Economic Development) that had the ANWR bill first. You got some helpful amendments from Rep. (David) Talerico to advance that. So those first few hearings as chair, what kind of learning curve was that for you?

Westlake: Thank goodness for Rep. Talerico. It was a very learned experience. We turned around and worked it together. It's been a wonderful first year for me having people from both the majority and minority side coming over to say this is what you might want to reconsider or this might be helpful. So the conversations I've had with both sides have been fulfilling.

Petroleum News: So what was your reaction to President Obama removing the Beaufort and Chukchi from the five-year plan?

Westlake: That is where I think we missed the boat

when we didn't have coastal zone management in place. It's where if you had coastal zone management, you could have a federal authority who could work with local entities at that level. There would be no middle man. You could do that and get the will of the people who reside there.

Petroleum News: Then, there is the argument of state's rights versus the federal oversight and some feel the state won't afford the local communities the same rights they want from the feds. Are you seeing that?

Westlake: You know I see that a lot where the differences between the state agencies and the federal agencies play out very differently because we have so many federal lands around us in House District 40, so yes there certainly are issues there.

Petroleum News: Now Obama's removing the Beaufort and the Chukchi from the five-year plan, that can't be fixed quickly, so when you think back to Shell's efforts and them withdrawing, does that reduce your confidence that it can be drilled?

Westlake: For me personally and professionally is when I sat on the Northwest Arctic Borough Assembly, is we had the offshore oil companies coming to us. You had Statoil; you had Conoco; you had Shell. They were all there. What was so gratifying to me was they said you are concerned about your seals, here is money to go study it and we are hands off so the Native village of Kotzebue did that: Did a fantastic job. They funded the beluga whale commission. We found out things we didn't know before. They turned around and helped the schools as well. They said do what you will with the money, we just want to see the results with what you're doing. State government has never done that. The federal government has never done that. It took private industry to come out and make that happen. For that we are grateful.

Petroleum News: Shell encountered what some supporters say were too many regulatory hurdles but they also had the mishap with the rig down near Kodiak. Does that give you concern?

Westlake: Any mishaps that involved our oceans, absolutely. House District 40, we are very adamant about that. That's why we always start with subsistence first. This can be based on a bottom line. Our line goes one more past the corporate bottom line. It's what do the people get. For us it's the bounties received from the land.

Petroleum News: You were immersed in HB 111 for

see **WESTLAKE Q&A** page 13

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FACILITIES

USCG proposes new port access routes

Shipping routes through Chukchi Sea, Bering Strait and Bering Sea would avoid grounding accidents and reduce collision risks

By **ALAN BAILEY**
Petroleum News

The U.S. Coast Guard has published its preliminary findings for the establishment of commercial shipping routes through the southern part of the Chukchi Sea, through the Bering Strait and across the Bering Sea. The idea is to improve marine safety by keeping vessels away from areas where shallow water and inaccurate charts pose vessel grounding risks, and where there is particular environmental sensitivity. And the proposed four-nautical-mile-wide, two-way route would provide adequate sea room to avoid vessel collisions while also providing vessels with flexibility in avoiding sea ice, the Coast Guard says in a report on its findings.

Increased shipping traffic in the region

The analysis of vessel movements, historic accident causes and current risks associated with commercial traffic led the Coast Guard to its proposed establishment of designated commercial shipping routes.

is causing concerns about the heightened risk of a shipping accident, with the potential for an oil spill that could cause environmental damage and impact subsistence hunting. But, given the international nature of the shipping, the Coast Guard anticipates pursuing its proposals through the International Maritime Organization. Meanwhile, the agency is inviting comments on its report.

Shipping patterns

As part of its route study, the Coast Guard conducted a detailed analysis of shipping patterns in the region in recent years. The most common traffic has been ore carriers, 500 to 965 feet in length, carrying ore from the Red Dog Mine near Kivalina on the Alaska Chukchi Sea coast north of the Bering Strait. These vessels do not follow consistent routes in their passages from and to the south: In some cases they have come close to areas of heightened concern for subsistence harvesting, or they have transited areas where the water is not particularly deep and the charted depths are unreliable, the report says.

In 2012 and 2015 there was significant vessel traffic in conjunction with Shell's Chukchi and Beaufort Sea oil exploration program. And there is frequent tug and barge traffic along the Alaska coast, delivering cargoes to coastal communities — this type of traffic is destination specific along the coast and would be unlikely to follow a prescribed route some distance offshore, the report says. There are fishing operations in the region, particularly in the southern Bering Sea.

Analysis of risks

Because there have been relatively few marine accidents in the area of the Coast Guard study, the agency conducted an analysis over a broader region under U.S. jurisdiction, north of 50 degrees latitude and west of 155 degrees longitude. The agency found that the most common type of accident was grounding, with vessel complete loss of maneuverability also coming relatively high on the accident cause list. Vessel collisions were unusual.

The analysis of vessel movements, historic accident causes and current risks associated with commercial traffic led the Coast Guard to its proposed establishment of designated commercial shipping routes.

The Coast Guard considered several options for assuring the safety of shipping

traffic, including options such as a regulated traffic separation scheme or a recommended route. The agency eventually determined that the best arrangement for addressing the various risks is a defined two-way route, supplemented by avoidance areas, areas where there is the particular potential for the disruption of subsistence activities and where the pollution risk is particularly high.

Preferred alternative

The Coast Guard's preferred alternative is the establishment of a two-way route extending north-south through the Bering Strait south to Unimak Channel, an opening in the Aleutians through to the North Pacific. This main route would pass east of St. Lawrence Island. However, another route component would branch to the southwest, from a point on the north-south route south of the Bering Strait. This branch would pass between St. Lawrence Island and the Russian mainland. The long north-south route would flex its way around areas of shallow water or environmental sensitivity — because the curvature of the Earth would impact navigation over such a long distance, the inflections in the route would be marked by defined waypoints, the Coast Guard says.

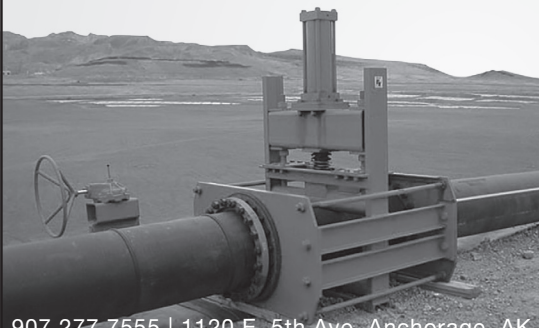
An alternative route possibility would be to just have the north-south route and not to have that branch to the southwest off the Russian coast. And yet another alternative is to cut off the southern end of the north-south route, ending the route at a point in the Bering Sea where the tracks of vessels bound for Unimak Pass and Dutch Harbor tend to merge.

There would be four avoidance areas: one in a near central section of the Bering Strait; one around King Island, to the southwest of the Seward Peninsula; one around and extending south of St. Lawrence Island; and one around Nunivak Island, southwest of the Yukon-Kuskokwim Delta. ●


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● EXPLORATION & PRODUCTION

DGGS publishes Yukon Flats results

Geologic fieldwork conducted on the perimeter of the Interior basin finds evidence hinting at the basin's oil and gas potential

By **ALAN BAILEY**
Petroleum News

Alaska's Division of Geological and Geophysical Services has published the results of some fieldwork that its geologists carried out around the perimeter of the Yukon Flats basin. The basin lies to the north of Fairbanks, between the Dalton Highway and the Canadian border, and is prospective for oil and gas.

The DGGS fieldwork was done in 2002 in conjunction with a U.S. Geological Survey assessment of hydrocarbon resources in the basin. The USGS assessment was published in 2004 and suggested that there might be 173 million barrels of undiscovered, technically recoverable oil and 5.5 trillion cubic feet of natural gas in the basin. There may be nearly 127 million barrels of natural gas liquids in the basin, the USGS estimated.

Doyon Ltd., the Native regional corporation for the Interior, owns some subsurface land within the basin and in recent years has become interested in exploring for oil and gas in the area.

Tertiary basin

The basin is associated with movement along a major fault system, the Tintina fault system, which runs along the southern side of the basin. The basin is thought to contain sediments of Tertiary age. These sediments are understood to be terrestrial in nature, deposited from an ancient system of rivers and lakes. There are similarities between the geology of this basin that of other Tertiary basins around Alaska, including the Tertiary component of the Cook Inlet basin with its prolific oil and gas fields.

The DGGS geologists conducted some reconnaissance geology around the perimeter of the Yukon Flats basin, at locations where some of the sedimentary strata of the basin are exposed at the surface.

In places, significant thicknesses of strata can be seen. For example, at one location on the east bank of the Yukon River, north

of the village of Rampart, the rock succession is more than 5,000 feet thick, with the strata dipping steeply to the north.

Rock types and sedimentary structures observed confirmed that the sedimentary material was deposited from a system of rivers.

Reservoir potential

The DGGS report says that, with most of the rocks examined having been deposited at the basin margin, or in troughs extending away from the basin, the nature of the rocks indicates that coarse grained detritus was available for deposition in the basin, and that rivers had existed that could transport this detritus into the basin. The porosity and permeability of the sediments, key factors in their suitability as hydrocarbon reservoirs, would have been excellent at the time of depositions but would have degraded when buried at depth. Although the quality of potential reservoir rocks buried deep in the basin is unknown, rock samples collected during the DGGS fieldwork showed porosities and permeabilities ranging from negligible to good, the report says.

Fine-grained relatively impermeable rocks observed at the surface are also presumed to exist at depth. These rocks could act as oil and gas seals, leading to the existence of stratigraphic hydrocarbon traps.

"Fair to good reservoir quality combined with good potential for stratigraphic traps suggests that viable reservoir rock is present in the subsurface of the Yukon Flats basin," the report says. "Test holes at Fort Yukon demonstrate the presence of coal seams in the shallow subsurface. If coals, carbonaceous mudstones or other petroleum source rocks are present in the deeper stratigraphy of the basin, a functioning petroleum system may be present." ●

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GOVERNMENT

Legislature debates fuel tax increase

The Alaska Legislature is debating increases to state taxes on motor fuels. Gov. Bill Walker introduced bills for the proposed tax increase: House Bill 60 in the House and Senate Bill 25 in the Senate. In both chambers the bills have been passed to the respective finance committees for consideration.

The bill proposes increasing the taxes in two stages, on July 1, 2017, and on July 1, 2018.

The first stage would involve a tax increase from 8 cents to 16 cents for vehicles used on highways; 4.7 cents to 9.4 cents per gallon for aviation gasoline; 3.2 cents to 6.4 cents per gallon for jet fuel; and 5 cents to 10 cents per gallon for watercraft motor fuel. In the second stage, highway fuel tax would go up to 24 cents per gallon; aviation gasoline to 14.1 cents; jet fuel to 9.6 cents; and watercraft fuel to 15 cents. A discount of 6 cents per gallon for fuel blended with alcohol, if that blended fuel is required to attain state or federal mandated air quality standards, remains unaltered.

In letters to the House and Senate, Walker acknowledged that the proposed tax increases appear high.

"While the proposed tax increase may appear to represent a significant increase, the tax rates on motor fuel sold or transferred within the state have not been raised in many years; for example, the tax on highway fuel has remained at 8 cents a gallon since 1970," Walker wrote. "This bill would bring Alaska's tax rate on highway fuel very close to the current national average of 25 cents a gallon."

The legislation would also establish a new transportation maintenance fund within the state's general fund. The new fund would incorporate the existing special highway fuel tax account, the special nonpublic highway use account, the special nonpublic highway use account and the special watercraft fuel account. The new fund would clarify how motor fuel taxes are accounted for, to allow the Legislature to make appropriate use of the tax revenues. Funds collected from motor fuel taxes are preferentially used for the maintenance and upgrade appropriate sectors of state transportation infrastructure.

—ALAN BAILEY

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HISTORY

Christmas at Prudhoe Bay

Personal reflections from Alaska geologist Gil Mull, who sat on the Prudhoe discovery well for Humble, ExxonMobil predecessor

By GIL MULL

For Petroleum News

It was totally unexpected; it was mid-December 1967, not long before Christmas, and there I was, suddenly on an airline flight from Los Angeles to Fairbanks, where I transferred to a bush flight heading for the Prudhoe Bay State No. 1 drill site.

Although ARCO was the operator on the well, Exxon's Humble Oil & Refining was a 50 percent partner in the well and wanted to have its own geologist there to observe operations and to assist the ARCO geologists with sample examination and evaluation of the stratigraphy encountered in the well.

The well was a rank wildcat, located 60 miles from the nearest well or outcrop control, so that prediction of the stratigraphy to be expected in the hole was based on seismic control and projections from what we had seen in our outcrop mapping during our summer field work.

I'm sure management had not originally planned to send me up as the Humble well site geologist, because I was a relatively inexperienced, recently hired junior geologist with less than six months with Humble. But, unexpectedly, my colleague Bill Schetter, who was the Humble well site geologist on the well, announced that he had accepted a college faculty position to teach geology, and suddenly the company needed someone to replace him.

I had had three years of field mapping experience with Richfield Oil (ARCO Alaska/ConocoPhillips predecessor) in the Brooks Range and on the North Slope before I joined Humble and thus was familiar with the North Slope stratigraphy and the Prudhoe prospect. And, I also had well site experience as one of the ARCO well site geologists the previous winter on the Susie Unit No. 1 well — a dry hole in



An oil-splattered C.G. "Gil" Mull, Humble Oil (predecessor to ExxonMobil) geologist at drill stem test No. 5, Prudhoe Bay State No. 1 discovery well on March 15, 1968. The oil flow measured 1,152 barrels per day. Mull was one of several geologists who actually "sat" on the discovery well. The photo was taken by Bob Jacobs of Interior Airways.



Workers flared the first gas flow from the Ivishak (Sadlerochit) formation during drill stem test No. 2 of the Prudhoe Bay State No. 1 well on Dec. 27, 1967. No oil flowed to the surface during the test, but natural gas flowed from the well with a rumble and roar that sounded like a jet plane overhead.

the foothills 60 miles south of Prudhoe Bay.

Thus, although my specialty was outcrop geologic mapping, I was nominated to spend Christmas on the North Slope for the second year in a row, to represent Humble and assist ARCO geologist Marv Mangus and his alternate Bill Pentilla.

Things were becoming interesting

As the bush flight crossed the Brooks Range and out onto the North Slope in the mid-winter darkness, a single light in the distance became visible — the rig lights at the Prudhoe Bay well site — our destination. The airstrip was a snow and ice strip on the tundra, and in the mid-day twilight the plane taxied up to an unloading ramp right outside the camp and the drill rig.

The camp consisted of two parallel rows of ATCO trailers strung together end-to-end and roofed over with sheets of plywood, and was about three quarters buried by drifting snow. The drill rig stood about 100 yards away at the east end of the camp.

Only a short time before my arrival, the well had reached the top of the Sadlerochit formation (also known as the Ivishak formation) at a depth of 8,208 feet, and things were beginning to become interesting. In the nearest outcrops 60 miles to the southeast in the Brooks Range, the Sadlerochit is hard dense sandstone, but at Prudhoe the bit penetrated porous sandstone and conglomerate.

And, even more interesting — although there had been some oil and gas shows higher in the well, methane gas readings in



the drilling mud abruptly went off-scale in the Sadlerochit — which was a really encouraging sign. Inasmuch as there was no way of predicting with any level of confidence how thick this interval might be, drilling progressed slowly, we cut several cores, and wire-line logs were run in order to get a better idea of the reservoir quality of the sandstone and conglomerate.

Communication limited to radio

In the early stages of drilling at Prudhoe Bay, the only means of communication between the rig and the ARCO and Humble offices was by single side band HF radio — there were no telephones on this part of the North Slope and the nearest public telephone was at Barrow, 200 miles to the northwest.

The daily drilling reports and geological reports were transmitted to the ARCO office in Anchorage on an open radio frequency that anyone could listen in on. On a few occasions when the single sideband radio signals were out, a ham radio operator who had his ham set there in camp was sometimes able to contact someone on the ham network. In these cases, the daily drilling and geological reports were

relayed to the ham radio operator on the other end, whoever and wherever he was, who then placed a collect phone call to the ARCO office in Anchorage to relay the reports.

Inasmuch as the radio link was often unreliable, company management gave the drilling and geological personnel on the rig a great amount of autonomy to proceed using their best judgment. This was a level of autonomy that is unheard of today in an era in which satellites enable continuous communication between remote rigs and the headquarters offices. But in 1967, the management folks in Anchorage and Los Angeles, where the Humble office was located, knew that if they did not receive a daily report from the rig, it was undoubtedly due to poor radio signals, and assumed that things were okay at the rig. They

knew that if the rig personnel needed help or advice, they would be contacted somehow.

A thousand mile daily commute

But after the well penetrated into the Sadlerochit Formation with its high gas readings in the drilling mud, it was obvious that things were getting more interest-

see PRUDHOE DISCOVERY page 15

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NEWS NUGGETS

Compiled by Shane Lasley

Ucore has option to acquire IBC, own REE separation technology

Ucore Rare Metals Inc. March 13 reported that it has secured an option to acquire the outstanding shares of IBC Advanced Technologies, a company that has been instrumental in designing and developing a rare earth separation process for Ucore. Ucore paid US\$650,000 to enter the two-year option. Under the terms of the agreement, Ucore will have the right to purchase the outstanding shares of IBC for US\$10 million cash and 10 million Ucore units, which includes one Ucore share and half of a purchase warrant. The agreement also includes performance incentives for key IBC personnel. "This option to purchase agreement is a major milestone for Ucore," said Ucore President and CEO Jim McKenzie. "IBC is already a world leader in molecular recognition technology for the mining industry, with an existing customer base spanning several continents and including majors such as Asarco Grupo Mexico (USA), Impala Platinum of South Africa, Tanaka Kikinzoku K.K. of Japan, Sino Platinum of China and LS Nikko of Korea. Remarkably, this initiative places us in a position to assume and accelerate a business platform that IBC has established over almost 30 years in business." A 2015 licensing agreement between Ucore and IBC calls for the creation of a joint venture that would have the exclusive rights to IBC's Superlig molecular recognition technology for rare earth separation, certain recycling applications, and tailings processing. To complete the license agreement, Ucore agreed to pay IBC US\$2.9 million and has paid US\$1.9 million so far. Completion of the licensing agreement is a requisite for Ucore to complete the option to buy IBC.

Pebble Partnership begins to assemble mine permit team

Northern Dynasty Minerals Ltd. March 8 said Pebble Limited Partnership has selected HDR Alaska, Inc. to serve as lead regulatory and permitting consultant for the world-class Pebble copper-gold-molybdenum project in Southwest Alaska. HDR will assist in preparing the documentation Pebble Partnership will need to initiate federal and state permitting by the end of the year, in anticipation of a successful outcome of the company's strategy to address the U.S. Environmental Protection Agency's pre-emptive regulatory action that placed cumbersome restrictions on Pebble prior to the project entering the permitting process. HDR has provided environmental and technical consulting services to Northern Dynasty and the Pebble Partnership since 2004, with a specific focus on wetlands, water, aquatic habitat and fish studies. Much of this work was represented in the US\$150 million, 27,000-page Pebble Environmental Baseline Document published in 2012. In its current role, HDR will continue select environmental baseline field studies and analyses at the Pebble project, as well as provide strategic regulatory guidance to the Pebble Partnership as it finalizes the engineering design, environmental planning and documentation required to file permit applications with the US Army Corps of Engineers. "HDR is one of the many respected Alaska-based consulting firms that have provided professional services to the Pebble project for well over a decade, so they're already intimately familiar with the unique challenges and opportunities presented by our project," said Pebble Partnership CEO Tom Collier. "As a firm, HDR not only has an enviable track record for helping permit some of Alaska's most prominent mines, energy and infrastructure development projects, their senior personnel are also former federal and state regulators, with a deep understanding of regulatory processes and requirements for permitting success in Alaska and the United

see NEWS NUGGETS page 8

MINING POLICY

Strategic Metals Act

Bill aims to bolster strategic metals in U.S., keep out of foreign hands

By SHANE LASLEY

Mining News

A Swiss investment fund with ties to Russia-born billionaire Vladimir Iorich has put in a bid to buy the shuttered Mountain Pass rare earth element mine in California, raising red flags for U.S. lawmakers concerned about the United States' dependence on foreign countries for REEs and other metals necessary to maintain the U.S. military's high-tech arsenal.

To help promote domestic production of these strategic metals and block foreign firms from buying rare earth mines on U.S. soil, Rep. Duncan Hunter, R-California, introduced the Materials Essential to American Leadership and Security, or Metals, Act to the House on March 7.

"The U.S. must no longer be wholly dependent on foreign sources of strategic and critical materials," explained Duncan. "The risk of this dependence on national security is too great and it urgently demands that we re-establish our depleted domestic industrial base."

If passed, this legislation could be advantageous for Ucore Rare Metals, which has a rare earth element project in Southeast Alaska and is developing a system to recover strategic metals from other domestic sources.

"The act promotes the development of a domestic industrial base for the production of strategic and critical materials, and is in direct keeping with our present objective of establishing a U.S.-based strategic metals complex," Ucore President and CEO Jim McKenzie said in a statement of support for the Metals Act.

Blocking foreign buyers

Like previous strategic metals bills introduced into Congress over the past decade, the Metals Act recognizes that "China dominates the supply chain for the production of rare earth elements, controlling more than 90 percent of the world's production and that they have used this dominance geopolitically in the past by selectively enacting a de facto embargo on the export of rare earth elements."

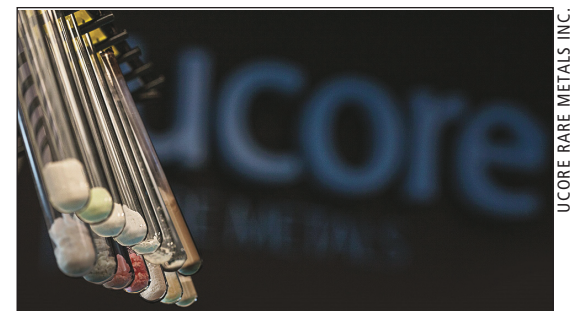
The 2009 re-opening of the Mountain Pass Mine in the Mojave Desert of eastern California was hailed as a critical first step in breaking the United States' dependence on foreign sources of the rare earths used in many high-tech consumer goods and military devices.

Due to a drastic drop in rare earth prices, however, this mine was short-lived. By the end of 2015, Molycorp, the company that was operating the mine, filed for bankruptcy and put the REE operation on care and maintenance.

As a result of the bankruptcy and restructuring of Molycorp, the Mountain Pass Mine and associated land and equipment is slated to put on the auctioning block this month.

In February, the Wall Street Journal reported that a Swiss investment fund connected to Iorich, who amassed billions investing in Russia mining ventures, has made a bid to buy Mountain Pass.

The article went on to say that any new owner-



UCORE RARE METALS INC.

Ucore Rare Metals and IBC Advanced Technologies have developed a technology for separating the tightly interlocked rare earth elements that is more economical and environmentally sound than the methods that are currently being used.

ship of Mountain Pass would likely need the approval of the Committee on Foreign Investment in the U.S., a body which reviews transactions that could have an effect on U.S. national security.

Wording in Hunter's Metals Act would prohibit the Committee on Foreign Investment from allowing the sale of Mountain Pass, or any other rare earths mine in the United States to Iorich.

Bridging the valley of death

The meat of the Metals Act is the creation of a working capital fund that "would allow domestic companies to access the capital they need to bridge the 'Valley of Death' and develop new, advanced, green technologies for the production of strategic and critical materials," according to Hunter.

This valley of death referenced by the California congressman has been especially perilous for companies trying to develop rare earth mines in the U.S., or anywhere outside of China.

This is because the Middle Kingdom has been able to leverage a nearly four-decade monopoly on these metals to hold prices low enough that companies outside its borders could not compete, especially in countries with stronger environmental laws and the higher production costs that go with them.

For a few years, starting in about 2008, China severely restricted its REE exports, pushing the prices of these various high-tech metals skyward. This triggered a rush for non-Sino supplies of the metals and resulted in the re-opening of Mountain Pass. A combination of the global economic slump in 2009 and China dumping cheaper rare earths back into the global marketplace, the prices plummeted nearly as fast as they climbed, making numerous feasible REE projects outside of the Middle Kingdom once again uneconomic.

Levels playing field

The Metals Act is designed to level this playing field for U.S. companies hoping to produce these metals in the United States through the creation of the "Strategic Materials Investment Fund," which would provide five-year, interest-free loans to companies that succeed in developing new production or manufacturing techniques for strategic and critical materials.

"The bill supports the U.S. domestic industrial base by aiding domestic investment opportunities

see METALS ACT page 9

NORTHERN NEIGHBORS

Compiled by Shane Lasley



PRETIUM RESOURCES INC.

In preparation for the commissioning of the mill at Brucejack, crews have already stockpiled 144,000 metric tons of ore from this high-grade underground gold mine in northwestern British Columbia.

Brucejack gold mine is nearly ready for start

Pretium Resources Inc. March 9 reported that construction at its high-grade Brucejack gold mine in northern British Columbia is ahead of schedule. The company said it plans to begin dry commissioning of the mill this month and wet commissioning is expected in early April, well ahead of the mid-2017 commissioning plan. In preparation for startup, Pretium has stockpiled more than 144,000 metric tons of high-grade ore from the underground gold mine. The company is reporting smooth progress on the finalization of construction at Brucejack. The 330-person camp has been commissioned and is fully operational. Crews have finished installing the mills and should have the electrical and mechanical work within the mill building completed and ready to be energized by the end of the month. Construction of the 57-kilometer (35 miles) transmission line, feeding electricity to the mine from the British Columbia power-grid, is nearing completion and is expected to be energized later this month. Additionally, the company has ample diesel generated power on-site to maintain full mill and underground production in the event of any grid power interruption. Construction continues on the Valley of the Kings portal building. External structural steel erection is complete and internal structural steel, mechanical and electrical installation is progressing. The portal will serve as the primary access point to convey the gold ore from the underground crusher to the mill. With the US\$540 million construction financing, available cash on hand and the proceeds from the convertible senior subordinated notes, Pretium says it has sufficient capital to complete the construction of the Brucejack Mine and fund initial start-up costs. The Valley of the Kings deposit at Brucejack hosts 15.6 million metric tons of proven and probable reserves grading 16.1 grams per metric ton (8.1 million ounces) gold. This includes 3.3 million metric tons of proven reserves averaging 14.5 g/t (1.6 million oz) gold, enough ore for the first three years of production.

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NEWS NUGGETS

States." While HDR will play a leading role, the Pebble Partnership intends to assemble a team of additional engineering, environmental and regulatory experts to support the project's 2017 work program and permitting requirements over the next several years. "We

expect to be making further announcements in the weeks and months ahead about our 2017 field program and the work required to prepare the project to initiate permitting," Collier said. "We're very pleased the project is moving forward, and that we're in a position to begin to re-hire local residents and Alaska firms that have contributed so much to Pebble's advancements in years past." ●



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• COLUMN

Alaska holds Klutina Lake Road in trust

It's usually cheaper and more fun to stand in a cold shower for an hour and tear up hundred dollars bills than to fight a lawsuit

By J.P. TANGEN

Special to Mining News

In almost fifty years of having practiced law, it has consistently been my counsel to my clients to avoid litigation wherever possible, subject to a lengthy list of qualifications. Certain miscreants are entitled to a trial of their peers before lengthy incarceration or worse. Some bad actors simply don't understand the law. Occasionally, there are issues that require a referee in the personae of a judge. And then, there are matters of principle.

Principles are tricky things. Oftentimes, in matters of principle, the ultimate question is how much justice a complainant can afford. The issue becomes moot when someone is going against the federal government over a matter of principle, because the government gets to print money. The wicket is a tad stickier when the State government is involved because the hard-earned dollars of the affected taxpayers have to be voted on by politicians who are concerned about re-election by folks they actually have to live among.

Politics is where the plot thickens.

Take the case of the Klutina Lake Road which traverses 26 miles of undeveloped Ahtna land from the Richardson Highway to the outlet of Klutina Lake. The Klutina Lake Road is part of the access route pioneered by sourdoughs starting in 1898 headed from Valdez to Copper Center. By

Mining & the law

The author, J.P. Tangen has been practicing mining law in



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dint of that historic usage, the right-of-way belonged to the state, as of the moment of statehood, under the provisions of Revised Statute 2477. RS 2477 was repealed in 1976 with the passage of the Federal Land Management and Planning Act; however, that repealer did not extinguish valid existing rights. Title to the Klutina Lake Road was formally asserted by the state with the adoption of AS 19.30.400.

In 2001, a little over 250,000 acres of land were patented to Ahtna, Inc. under the Alaska Native Claims Settlement Act. This patent included a "17(b) easement" that corresponded to the Klutina Lake Road.

The relative rights of the state and Ahtna have been in contention ever since. In 2008, Ahtna filed a complaint for declaratory relief against the State of Alaska. In 2014, Ahtna unsuccessfully

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TANGEN

attempted to secure legislation to have the state relinquish its property rights under RS 2477. In January of this year, Ahtna and the state stipulated to a stay of the litigation pending a settlement.

This case illustrates an instance where principles and politics collide. Ahtna obviously wants exclusive right to the Klutina Lake area. The state owns those rights, and as a matter of law cannot relinquish them without either obtaining a reasonably comparable alternate right-of-way or the approval of the state legislature. Since there is no reasonably comparable alternate right-of-way, and since the legislature has declined to approve the relinquishment of the RS 2477 right of way, any settlement that satisfies

Ahtna is unlikely to be legal.

Any such relinquishment would not be in the public interest, because it would foreclose the existing access to Klutina Lake to the general public. The state does not hold access routes, whether by road or by water, as a casual property interest. It holds such corridors in trust for the general public.

As such, the legal principles affecting Ahtna's private rights must be construed as subordinate to the higher interest of all the people of the state. In this case and for this reason, Ahtna's patent makes it clear that the conveyance from the United States to Ahtna is subject to valid existing rights. Further, the attorney general of Alaska has opined that §17(b) easements and RS 2477 rights of way may overlap and that neither supplants the other.

While it is easy enough to understand why the private

landowner may not want public access to the lake within its holdings, what is somehow lost in the sauce is the recognition that the 600 odd RS 2477 rights of way that the state has asserted on behalf of the public comprise over 20,000 miles of trails and potential roads to otherwise inaccessible and remote areas of northern and western Alaska.

Alaska is a resource-rich state; our ability to exist depends upon the development of our resources. Our ability to harvest those resources depends upon access. If private landowners are able to thwart access along the RS 2477 rights of way that the state has asserted, our future is placed at risk.

As a matter of principle, this pending litigation must be pursued to a judicial precedent and not be settled prematurely. ●

continued from page 7

METALS ACT

and consequently mitigates the risk of a supply chain interruption for materials that have become essential for American military superiority," according to a March 7 statement announcing the introduction of the Metals Act.

The money for this fund would come from the use of about 1 percent of the Department of Defense's overhead costs for major defense acquisition programs that are reliant upon strategic and critical materials.

The Metals Act prohibits the U.S. military from lowering the number of weapons it procures and the fund would reimburse defense programs that face higher costs for acquiring domestically-sourced strategic and critical materials.

Good news for Ucore

Ucore, which already has an advanced exploration staged rare earth project in the United States and is working to pioneer a new technology that could transform the way rare earths and other strategic metals are processed, is already making strides towards meeting the objectives of the Metals Act.

The Dotson Ridge deposit at Ucore's Bokan Mountain project in Southeast Alaska contains an indicated resource of 4.79 million metric tons averaging 0.6 percent (63.54 million pounds) total rare earth oxides. What sets this deposit apart from higher grade deposits such as Mountain Pass is that about 39 percent of the contained rare earths are of the heavy variety, a subset that includes dysprosium, europium, terbium and yttrium.

In a 2011 study, the U.S. Department of Energy named these four heavy rare earths among the five most critical and supply-risky materials in the country.

These same REEs are critical ingredients to much of the high-tech U.S. mili-

tary hardware.

A 2011 paper published by the Center for Strategic Leadership, U.S. Army War College, highlighted the need to secure strategic materials.

"The vitality of a powerful nation depends upon its ability to secure access to the strategic resources necessary to sustain its economy and produce effective weapons for defense. This is especially true for the world's two largest economies, those of the United States and China," the authors inked in the report.

The report concluded that the United States should up its stockpile of strategic materials such as rare earths and promote the development of strategic metals deposits.

Since that paper was published, the Defense Department has both upped its stockpile of certain rare earths and completed a mineralogical and metallurgical study on the heavy rare earths-rich deposit at Bokan Mountain project.

Strategic Metals Complex

While Bokan Mountain could provide a domestic source of heavy rare earths, the need for an economic and environmentally sound way to separate these strategic metals thrust Ucore on the path of pioneering a better way to process REEs and other specialty metals.

By 2014, this quest had led Ucore to IBC Advanced Technologies, a Utah-based company that specializes in molecular recognition technology, or MRT, a highly selective process that had already solved other tough metals recovery problems.

In the MRT process, SuperLig resins are engineered to grab ions based on a number of traits such as size, chemistry and geometry. These resins are loaded into a column and latch onto the targeted material suspended in a solution that is pumped through the column. Simply rinsing the resin with a mildly acidic solution releases a nearly pure version of the mate-

rial the resin is engineered to bind to.

IBC developed resins for Ucore that specifically bind with ions associated with rare earths and have proven them to be highly effective in separating the REEs from Bokan Mountain at the pilot plant scale.

By August of last year, the pilot plant, dubbed SuperLig-One, had successfully separated scandium and dysprosium from a solution derived from Bokan. This process proved to be so effective that the plant recovered more than 99 percent of the scandium and dysprosium that was in the solution at greater than 99 percent purity.

These pilot results were confirmed by an independent third-party laboratory, paving the way for the Strategic Metals Complex, a planned full-scale plant to process high demand specialty metals.

The same molecular recognition technology used to separate the notoriously tightly interlocked rare earth elements is also being applied to recycle platinum group metals – rhodium, palladium and

platinum – from discarded catalytic converters in the United States. These metals, especially rhodium, are also considered critical.

At full capacity, the PGM separation part of the Strategic Metals Complex is expected to produce 750,000 troy ounces of virtually pure rhodium, palladium and platinum.

The PGM facility is expected to encompass about 25,600 square feet of a planned three-acre complex that Ucore hopes to build soon.

The rare earths explorer turned metals separation pioneer said it is nearing final selection of feedstock for the rare earths side of the Strategic Metals Complex. Once the source material is identified, Ucore and IBC will engineer a facility specifically for the material.

Logistics will play a crucial role in determining the site of this first strategic materials complex being planned by Ucore and the company has indicated that Houston, Texas, is one of primary locales under consideration. ●

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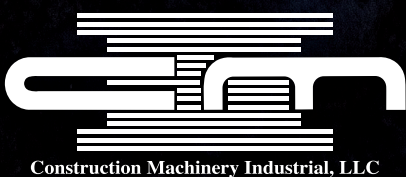


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• GOVERNMENT

Competitiveness board changes tack

Group assessing how Alaska's oil, gas environment compares with other regions delays Cook Inlet report; preparing statewide report

By **ALAN BAILEY**
Petroleum News

During a March 10 meeting of the Alaska House Resources Committee, Randall Hoffbeck, commissioner of the Department of Revenue, updated the committee with the status of Alaska's Oil and Gas Competitiveness Review Board. Hoffbeck said that the board has asked the Legislature to approve the postponement of a report on the Cook Inlet oil and gas industry that had been scheduled for publication in January. Meanwhile, the board and the Alaska Oil and Gas Association have commissioned studies into Alaska's competitiveness, with a board assessment of the results of those studies expected soon.

Created in 2013

The board was created in 2013 in conjunction with the Senate Bill 21 oil tax bill. The idea was to gather data about the competitiveness of Alaska's oil and gas industry, from the perspective of taxes on the industry, the regulatory environment and other issues, Hoffbeck said. Ultimately the purpose was to present findings and recommendations in the form of written reports to the Legislature on the competitiveness of the state's fiscal system, labor pool and regulatory system, compared with other oil and gas production regions.

The board has two public members, not from the oil and gas industry; three state department heads, from the departments of Environmental Conservation, Revenue and Natural Resources; a commissioner from the Alaska

Oil and Gas Conservation Commission; three oil and gas subject matter experts: a petroleum engineer, a geologist and a financial analyst; and two industry trade group representatives.

In March 2015 the board delivered an initial report, a general overview of the state's competitiveness using all of the data that the board had compiled. The report presents an overview of the data rather than an analysis of findings from the data, Hoffbeck commented.

Cook Inlet report delayed

As part of a statutory requirement for the board, another report was due to be published in January of this year, a review of the Cook Inlet tax regime. But since House Bill 247, passed last year, completely restructured the Cook Inlet oil and gas production tax system, with 2017 representing a transition phase for the new tax arrangements, the board saw little purpose in publishing a Cook Inlet analysis at this time and requested a delay until January 2019, by which time the board would have some idea of the impacts of the new tax regime before delivering the report, Hoffbeck said.

But there was another report due in 2021, which some members of the board thought could be worked on and delivered early. That report is intended to present an analysis of the competitiveness of the entire state.

However, the board lacks resources with which to prepare this next report, having only been given one staff position and an allocation of \$25,000 per year to carry out its activities. And the staff position was subsequently eliminated. The funding is insufficient to hire the neces-

sary analysts, Hoffbeck said.

Joint effort with AOGA

So the idea emerged of working with the Alaska Oil and Gas Association to contract the preparation of a joint report. The concept recognized the likelihood that some in the Legislature might consider an AOGA report as biased toward the oil industry, while, if the administration prepares the report, some might also consider that to be biased. A combined report would likely have broader acceptance, Hoffbeck said.

The board was unable to progress this concept because of procurement issues in the state administration for a joint effort. So, instead, AOGA has contracted with Wood MacKenzie to prepare an overview of the state's competitiveness, while the state has contracted with Black and Veatch for a similar report. The board will take the two reports and consolidate their findings as a comparative analysis, highlighting areas of agreement and areas where the findings differ.

Those two reports have not yet been delivered. The hope is to have something before the end of this legislative session, but the board will not be able to deliver anything in time to contribute to the tax decisions that the legislators are about to make, Hoffbeck said.

Voluntary efforts

During a Feb. 1 presentation to the Senate Resources Committee by Hoffbeck and Wyche Ford, chairman of

see **REVIEW BOARD** page 13

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NORTHERN NEIGHBORS

Colorado expands North ROK copper-gold project

Colorado Resources Ltd. March 14 reported a deal to acquire full ownership of ROK-Coyote, a northern British Columbia copper-gold property that lies between Colorado's North ROK property and Imperial Metals' Red Chris Mine property. The ROK-Coyote porphyry prospect has been intermittently explored since the late 1960s. Work on the ROK portion of the property from 1976 to 1991, included mapping, geochemical surveys, geophysics, trenching and drilling. One hole drilled during this historical exploration cut 38.7 meters averaging 1.03 percent copper and 1.54 grams per metric ton gold. Little follow-up exploration was carried out until the discovery of the North ROK porphyry in 2013. Colorado said a review of the historical geophysical data suggests that the North ROK sulfide system trends onto the ROK-Coyote property for at least 1,200 meters, nearly doubling the immediate prospective strike. A number of other magnetic and induced polarization anomalies are noted along other separate historical grids and have not

been drill tested. To acquire full ownership of ROK-Coyote, subject to underlying 2 percent net smelter return royalty agreements, Colorado has agree to issue Firesteel Resources Ltd. 1.5 million company units, with each unit consisting of one Colorado share and one warrant. Each warrant will entitle Firesteel to purchase a Colorado share at C45 cents for a period of two years. The underlying vendors' NSR royalty includes a 2 percent NSR agreement on three claims, which can be purchased for C\$2 million, and a 2 percent NSR on 16 claims, of which 1 percent can be purchased for C\$2 million.

Darnley Bay explores new Pine Point mine

Darnley Bay Resources Ltd. March 9 said it is ready to begin a 3,500-meter initial phase of 2017 drilling at its Pine Point lead-zinc project near Hay River, Northwest Territories. Home to the historical Pine Point Mine, this property hosts 54 undeveloped zinc-lead deposits over a strike length of roughly 68 kilometers (42 miles), 15 of which have zinc-lead resources that meet NI 43-101 standards and are included in a technical report completed earlier this month. Several of the remaining 32 deposits have historical resources, which make them

potential additions to a long term mine plan, according to the report. Roughly 1.3 million meters of core drilling in 18,406 holes has been completed by past explorers of the Pine Point property. Darnley Bay has three objectives for this year's drilling at Pine Point: upgrade some of the historical resources to NI 43-101 standards; explore for additional deposits; and obtain sufficient samples for metallurgical testing for a feasibility study. From 1964 to 1987, former operator Pine Point Mines Ltd and Cominco (now Teck Resources) mined 64 million metric tons of ore grading 7 percent zinc and 3.1 percent lead along three trends – North, Main and South. Roughly 30 percent of the ore was mined along South, a trend that was discovered after the town of Pine Point was built across a portion of it in 1964. As a result, certain parts of South Trend remain largely unexplored. The town of Pine Point has been largely abandoned and reclaimed and Darnley Bay's new claims cover approximately 10 kilometers (six miles) of the South Trend. Darnley Bay intends to begin an induced polarization geophysical survey on the new claims, followed by drilling of any targets which are found, once permits are obtained for the newly staked property. The first phase of 2017 drilling at Pine Point is scheduled to begin soon and will be followed by at least two additional phases this year. ●

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COURTESY NORTH SLOPE TELECOM

NSTI's 'No-Layoff' approach survives 2016 recession

In the face of declining oil prices and a statewide economic recession, North Slope Telecom said it has a lot to be grateful for in the last year! 2016 was a tough time for Alaskans, losing about 6,800 jobs and thereby netting the first annual jobs loss for the state since 2009. Then, in October of 2016, Alaska recorded the nation's highest unemployment rate at 6.8 percent. However, it is with great pride that NSTI announces that zero of the 6,800 lost jobs belonged to NSTI employees. In fact, NSTI ended up with more employees at the end of 2016 than the beginning. "Everyone who worked for NSTI at the beginning of 2016 and wished to maintain that employment, still had their job at the beginning of 2017; and we are very proud of that!" said David Smith, vice president. NSTI can attribute some of that success to its focus on strategic diversification. By taking on new challenges, new clients and new types of work consistent with its core compe-

tencies, skills and values, NSTI has expanded its market to keep its company healthy and whole during the economic downturn in its primary market, Alaska oil and gas. Another way NSTI was able to grow in 2016 was by taking something it was already very good at and expanding the size and scope of the work it offered. NSTI has been known for installing high quality fiber optic communication networks throughout the state for years; in 2016 it stepped into the "long haul fiber" market with a 125 mile fiber installation along the northern part of the Dalton Highway. NSTI was able to complete all project objectives for 2016 ahead of schedule. NSTI is excited to form new connections and continue our contribution to a healthy economy in this great state!

Fluor on one of world's most admired companies list

Fluor Corp. recently announced that the company was named by Fortune magazine as the top-ranked engineering and construction company in the magazine's 2017 world's most admired companies list. It is the sixth year in a row Fluor has earned the top designation among its peers in the engineering and construction market sector. "To be recognized as a World's Most Admired Company and first in our sector for six straight years is a tremendous honor and a testament to our 60,000 employees who work hard every day to make a difference in some of the most extreme conditions and locations all over the globe," said David Seaton, Fluor's chairman and chief executive officer. Fortune's world's most admired companies list is considered a definitive report card on corporate reputations. Fortune collaborates with Korn Ferry Hay Group, a global management consulting firm, to identify, select and rank the world's most admired companies. The rankings are compiled by querying thousands of executives, directors and analysts to measure corporate reputation and performance against nine criteria, from investment value and quality of management and products to social responsibility and ability to attract talent. This year marks the 34th year of Fortune's world's most admired companies list. The 2017 World's Most Admired Companies list will be featured in Fortune's March issue. For more information go to www.fortune.com/worlds-most-admired-companies.

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

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

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WESTLAKE Q&A

about three weeks. Many people in this building 8 or 10 years, they are used to this kind of debate. I'm sure you've heard about or read about it, but now it's right there in your face. What are you making on the debate over oil tax debate on taxes and credits?

Westlake: Thank God I'm over here because I'm here at a time when we get to redefine Alaska. Not many states get to do that. Here we are. We are running out of money quickly. We need to bring in spending. We need to stop the hemorrhaging. I'm so grateful people sent me here to be part of this.

Petroleum News: so what are your observations as things are now?

Westlake: Well ultimately it's going to go to the Senate side. I'm sure there could still be amendments to it. Meanwhile, more than likely it could be a thing between the majority and the minority. When it's coming out of the House and going to the Senate, you can only point it in a direction. They are the ones who ultimately aim it. Then it comes back to us. That's when I believe the real work will be done.

Petroleum News: What areas trouble you?

Westlake: There are some things that are troubling. It's about compromise. The oil and gas industry is our bread and butter as is the mining industry. I'm not ashamed of that. I try to work with them as diligently as I can, then we can move forward with a compromise where no one is really happy where we can live with the results. Like I said, once it comes back from the Senate, we all are going to have to roll up our sleeves.

Petroleum News: What changes can you accept?

Westlake: I was particularly struck by Rich Ruggiero. There were some great ideas in there. I thought it was a great presentation. I'd like to see more give and take. We look at the oil industry as deep pockets and this is how much you made and this is what you made this quarter. Sometimes we forget the upfront costs. If they are going to move a drill rig or if they are going to sink \$100,000 into the economy with no guarantee of getting results that is a very, very big proposition. Looking at what they have to spend and what we get in return, there certainly is room for improvement.

Petroleum News: What about the credits? Some believe it's not affordable, particularly if prices stay at this level; others say it's what's driving the successful finds.

Westlake: For me the cashable credits are troublesome. You look at the non-producers, those who are vigorously searching for that oil pocket. We would like to see that oil in the pipeline. There is no one who wouldn't like to see that oil in the pipeline. It's a matter of how do we incentivize that.

Petroleum News: That seems to be a question that comes around every year or every two years.

Westlake: It is. I won't second guess the legislators before me. They acted on the information they had — just like I'm doing the same now. I'm sure behind me there is going to be someone who has to deal with it. Worldwide this is a changing structure. I'll leave it at that, this is so dynamic.

Petroleum News: You like to speak

from the perspective of economic development, but you are in the majority which is pursuing some significant changes. Can there be areas where you may be torn between the two priorities?

Westlake: The wonderful thing is we find ways to work around it. It's not as big a challenge is what I thought it was going to be of this is what we are going to need and this is why we need it, then bringing that village perspective into the equation.

Petroleum News: Local knowledge seems to be a theme that gets played out and sometimes gets forgotten. Where does local knowledge help either in Juneau, perhaps D.C. or even Paris which you spoke of?

Westlake: I really want to make a distinction here. You have local knowledge and you have traditional knowledge. The world as we know it is changing so quickly in our traditional world. There were two hunters who went out in the ocean in their 60s and things have changed so much they didn't come back. For us, you see the ice leaving earlier. I've got at least three villages where it's spotty. We have had some barge service but not very much. The rivers have dropped so low. In another village, we have not had barge service in 30 years because the channel shifted and everything has to be air lifted. It's a changing world out there. We use traditional knowledge and we use local knowledge because it's been changing so quickly. People look at the temperatures today with all the snow we are getting this time of year and 50 below temperatures — they forget this used to be normal. Now you are seeing less and less of it.

Petroleum News: When you are sharing the traditional knowledge, what kind of shock is there to people hearing it for the first time?

Westlake: For traditional knowledge is where the caribou is coming through, when the caribou are mating, when the seal are around — all of those things that have been with us since they came around. We knew their cycles. Now caribou are breeding later if it's warmer. Things like this, it's just changing. Traditional knowledge is when do the lesser coho hit; when do the greater coho hit; when do the rest of the salmon come through?

Petroleum News: Whether you guys are here or not, you have a May trip to Fairbanks for Arctic Council business. The U.S. hands over duties as chair to Finland. Some deem it very important as closure for the two years as chair. Why was this important to the state?

Westlake: I don't think we can or will completely disassociate ourselves when our fishing is at stake, when our subsistence way of life is at stake and when all this traffic is flowing. I recently read that Panama Canal is losing money because ships are starting to do the pole crossing, the Northwest Arctic passage if you will. We need to be at the forefront of this. You look at Russia building all the infrastructure over there. Granted, they have deep water while we don't for the most part. The Arctic is where the resources are at. The Arctic is free from any kind of real protection. There is nothing out there. You don't have a Coast Guard station. I'm thinking about the barge with no people out there and a transmitter dropped. We learned more from an empty derelict barge that was floating free, went to the Russian side and drifted back over here than we did from anything else. That should be our warning that we need to know more about the Arctic. It would

place everybody in good stead.

Petroleum News: The Trump administration's views on climate change differ from those who signed the Paris Agreement and those who have years of involvement with the Arctic Council. Do you have any concerns the U.S. could either withdraw or be a voice against the work that's being done?

Westlake: On the federal level, I don't know what's going on. From the local perspective, for us, I know our world is changing. Unequivocally, I can say that. I'm not going to say what the cause is. For me that seems to be where the difference is on the federal perspective. It's a causal issue rather than if it's an issue. For me, I can say unequivocally when you see salmon dying on the river because there is less volume and they are not getting enough oxygen. I can say when I've got four villages when you either get no barge service anymore or it's sporadic at best, that for us, it's a changing world and we live in it.

Petroleum News: So the chairmanship goes to Finland for the next two years and the Finish government has said it will use the Paris Agreement to drive its agenda, what kind of role would you like to see the U.S. or Alaska have these next two years?

Westlake: I think Alaska, being the reason for the U.S. in there, has to be involved, absolutely has to be involved. I don't know if this means the governor's office doing something over there, but we certainly need to follow within those

parameters and speak as a unified voice. Our concerns are also Canadian concerns and Greenland concerns. Everyone who lives out there, we all have the same issues.

Petroleum News: Back closer to home in Juneau, what are your goals for your two years here?

Westlake: I've been invited to the ICC meeting (Inter Circumpolar Council) in April, so up there to listen to them and taking lead from them. Meanwhile, I've got several issues. When we talk about ANWR, I'm also working on a bill to keep the caribou sustainable because if you have business in there, we have a vested interest to make sure the caribou stock do well.

These are things I've learned from being on the ground, being in the Assembly when big business came into town. So I'm working on a couple of things there. For next year, I'd like to see, with possibly this year filing the bill, I would like to see some form of coastal zone management coming back, and talking with industry about it. I'd like to have a local authority where there is no middle man but if the feds want to talk, they can go directly to that source and consult with the state and move forward together rather than a unilateral Washington decision or a unilateral Juneau decision. You need the local input because we are the ones who live there. ●

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REVIEW BOARD

the Oil and Gas Competitiveness Review Board, there was discussion about the challenges of achieving the board's objectives with little funding beyond what would cover essential costs such as travel.

The original board put in many voluntary hours to prepare the report that came out in 2015, including holding multiple meeting and doing multiple edits of the report, Hoffbeck said. DOR staff compiled the report as "other duties," he said. Perhaps in part as a consequence of the amount of voluntary effort expended, in 2015 the board started hemorrhaging members. Two commissioners had to leave the board, but five other members left because of personal commitments. By mid-2016 when attention shifted to the Cook Inlet report due in early 2017, the board had been completely reconstituted,

Hoffbeck said.

Ford commented that, with resources stretched in the timely preparation of the 2015 report, there were some gaps in the data reported, in particular in the data relating to oil and gas regimes that compete with Alaska. Hoffbeck said that almost all the information about competing regimes related to regions within the United States.

Ford also expressed concern about a lack of evidence that legislators had actually been using the results of the board's work. What is the method of engagement for having legislative committees use the information that the board had developed, he wondered.

Senate Resources Chair Cathy Giessel responded that, although the original legislation establishing the board had been well intended, legislators seemed to have forgotten that the resource was there. ●

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EXPLORATION & PRODUCTION

Upper foothills opens for tundra travel

On March 15 the Alaska Department of Natural Resources opened the upper foothills area of state land for tundra travel. The agency said that the soil temperatures and snow cover in the area had met the required criteria of a 9-inch snow depth and temperatures below minus 5 degrees C. However, a vehicle operator wanting to drive off road needs to have a state off-road travel permit.

DNR cautioned that, although the overall snow cover is adequate, the snow may be thin in some places. These locations should be avoided, or special construction methods should be used to protect the tundra. Operators also need to comply with stipulations for operating vehicles off-road in the winter.

The western coastal area of state lands opened in late December, while the eastern coastal area opened on Jan. 9. The lower foothills area remains closed.

—ALAN BAILEY

ENVIRONMENT & SAFETY

Researchers test oil burning technology

In a project funded by the Bureau of Safety and Environmental Enforcement, researchers from the Worcester Polytechnic Institute have been testing new technology for burning oil spilled on water, BSEE has announced. The technique involves the use of a new heat feedback system that improves the efficiency of the burn, thus reducing the amount of soot emitted and reducing the amount of unburned residue that may sink into the water column.

In-situ burning of the oil is a key component of the toolbox used to respond to an offshore oil spill. When oil burns, most of the oil is converted to carbon dioxide and water vapor. However, incomplete burning results in sooty smoke and can leave an oil residue in the water.

In the final phase of a three-phase study into improved oil burn efficiency, the researchers are testing new burn technology in the U.S. Coast Guard's Joint Maritime Test Facility on Little Sand Island off the coast of Mobile, Alabama. The researchers will use data collected from the tests to develop a prototype device, deployable in the field for improved in-situ burning, BSEE said.

—ALAN BAILEY

EXPLORATION & PRODUCTION

US drilling rig count increases 12 to 768

The number of rigs drilling for oil and natural gas in the U.S. increased by 12 the week ending March 10 to 768.

A year ago, 480 rigs were active.

Houston oilfield services company Baker Hughes Inc. said 617 rigs targeted oil (up eight from the previous week) and 151 targeted natural gas (up five from the previous week). There were no rigs listed as miscellaneous (down from one the previous week).

Louisiana increased by five rigs, Colorado and Oklahoma each were up three, Ohio and Wyoming rose by two and California gained one.

Alaska declined by three and New Mexico dropped one.

Arkansas, Kansas, North Dakota, Pennsylvania, Texas, Utah and West Virginia were all unchanged.

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

—ASSOCIATED PRESS

GOVERNMENT

Judge rules against halting new name

Transition from Barrow to Utqiagvik can continue; Superior Court judge says opponents failed to show they would probably succeed

ASSOCIATED PRESS

A judge in Alaska dealt a legal blow March 10 to opponents of the new Inupiat Eskimo name approved by voters for the northernmost town in the U.S.

Superior Court Judge Paul Roetman denied a request to halt implementation of the transition from the old name of Barrow to Utqiagvik until a lawsuit filed by a local Alaska Native corporation is resolved.

Name change opponents argued the city broke its own laws by failing to publish a public notice before the renaming question was put on the local ballot in October. The measure won by a six votes.

Roetman said the opponents failed to show that continuing the transition process would harm them or that they would probably succeed in making their case.

He also agreed with the city's stance that publishing notices for elections is optional, but not mandatory for anything except tax-related ordinances, and noted its long history of posting notices at seven known places around town.

"This achieves the purpose of a publication requirement to advise those interested

that the matter is up for consideration, avoid hasty or ill-considered actions and to provide a reflective process giving citizens an opportunity for expression of their opinions," the judge said at the court hearing held in the town of more than 5,000.

He noted that both supporters and critics testified at the City Council meeting where the name-change ordinance was adopted.

Roetman set a hearing for March 22 on the civil lawsuit filed by Ukpeagvik Inupiat Corp., among scores of village and regional corporations that were created by a 1971 federal law on behalf of Alaska Natives to compensate them for the loss of their lands. The compensation for all corporations included nearly 44 million acres of land and \$962 million.

Matt Singer, an attorney for the village corporation, said afterward that it was too soon to say what's next for his client, which filed the lawsuit just before the name change became effective in December.

Attorney Louann Cutler, who is representing the city, said her client was pleased with the ruling even though it did not resolve the lawsuit.

"This wasn't a question of the City Council moving off into the dark of night," she said. "This was something subjected to quite a bit of public discussion. Even if the public is divided, there was a vote. So I was pleased the judge recognized that in his ruling."

The corporation has argued that a lack of input from the public led to a flawed law being passed, one that didn't even use the correct traditional name for the city. Plaintiffs say the correct word is Ukpeagvik, which means "the place where we hunt snowy owls."

Mayor Fannie Suvlu, who was voted into office in the same October election, had proposed an ordinance to consider asking voters if the new name should be repealed. The City Council turned down the proposal in January.

Suvlu has said the council rejected her proposal after local residents had several opportunities to address the issue.

City Council member Qaiyaan Harcharek, who attended the March 10 proceeding, introduced the ordinance in August that began the process ultimately ratified by voters. Harcharek, who is Inupiat on his mother's side, has said the new town name essentially means a place for gathering potatoes. ●

continued from page 1

SEA ICE

was particularly warm at temperatures of 8 to 9 degrees F above average. The warm temperatures appear to have been associated with low air pressures — in the Bering Sea, by contrast, the air pressure was relatively high.

The average Arctic sea ice extent in February was 5.51 million square miles. This was 15,400 square miles below the previous lowest February extent, recorded in 2016, and 455,600 square miles below the long-term February average for 1981 to 2010.

The Arctic sea ice extent did grow in February, but most of that growth took place in the Bering Sea, NSIDC reported.

The average Arctic sea ice extent in February was 5.51 million square miles.

However, despite that growth, the Bering Sea ice extent was still below average at the end of February. The ice extent in the Sea of Okhotsk decreased substantially by mid-month but rebounded to an almost normal level by the end of the month. The ice extent in the Barents and Kara seas remained low throughout February, with little change observed in the location of the ice edge, NSIDC reported.

—ALAN BAILEY

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ENERGY INFRASTRUCTURE
CONSTRUCTION SERVICES

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EXPANSION PLANS

commissioners that his company had drilled the CD5-313 pilot hole in 2015, sidetracking a 7,400-foot production lateral from that well. West of that well the company drilled the CD5-315 pilot hole, sidetracking a 10,000-foot lateral from that well. These laterals extended through continuous Kuparuk C oil reservoir sands, about eight feet thick. Knock said that the CD5-315 well had encountered a thickness of seven to 12 feet of continuous sand with very good reservoir quality: The estimated permeability is well over 100 millidarcies.

Based on these promising drilling results, ConocoPhillips wants to continue drilling to the west, with plans to drill the CD5-314X and CD5-316 wells by the end of this year. But the second of these wells, an injection well, would penetrate reser-

voir rocks outside the western limit of the current Alpine Oil Pool, hence the application for a pool expansion to the west.

During a confidential section of the hearing Knock presented to the commissioners evidence from seismic data and geological analysis that the Kuparuk Nanuq oil pool does extend beyond the current Alpine Oil Pool boundary.

Change to orders

For the Alpine pool ConocoPhillips has also requested the removal of a conservation order, the introduction of a new injection order, and a change to an existing injection order.

The conservation order relates to subsurface safety valves for producing wells and gas injection wells. ConocoPhillips says the existing conservation order is superfluous to requirements, having been superseded by a more recent order that applies to all western North Slope fields.

The proposed injection order would

place a pressure limit of 0.81 pounds per square inch per foot for fluids injected into injection wells, a pressure limit high enough to allow effective fluid injection into field reservoirs but not high enough to damage shale units above the reservoirs. ConocoPhillips petroleum engineer Anu Sood described modeling that showed fluids being contained in subsurface Alpine and Kuparuk reservoir sands at that 0.81 level of injection pressure.

The amended area injection order for the Alpine Oil Pool specifies all of the various fluids that ConocoPhillips may inject into the pool reservoirs, in particular for pressure management. The primary injectants would be water from the Kuparuk seawater treatment plant, produced water from the Alpine Central Facility, and miscible injectant, also from the Alpine Central Facility, Sood explained. Miscible injectant consists of a mixture of natural gas and natural gas liquids. Seven other fluids of various types

may be used in much smaller volumes.

Formed in 1998

The Alpine Oil Pool, encapsulating oil in the Alpine sands, was originally formed in 1998. It was expanded west in 2004. And, in 2009, following the discovery of pressure communication between the Alpine and Nanuq Kuparuk reservoirs, a Kuparuk pool was combined with the Alpine pool to form a single pool.

Recent horizontal drilling from ConocoPhillips' new CD5 pad, the first production pad in the National Petroleum Reserve-Alaska, has proved particularly successful. In late 2015 the pad was producing oil at rate of about 20,000 barrels per day using a combination of injection and production horizontal wells. Production from CD5 is processed through the Alpine Production Facilities. ●

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PRUDHOE DISCOVERY

ing by the day, and this sort of casual communication between rig and town came to a screeching halt.

Thus began a new daily routine. The first thing the geologists did in the morning was to update our sample logs and reports, and then picked up the daily drilling report from the tool pusher. Then one of us, usually me — leaving the ARCO geologist to monitor the drilling activity — hopped in the Interior Airways Beach Kingair that pilot Bob Jacobs was warming up.

Depending upon the weather, we flew to either Barrow or to Fairbanks to phone the reports in to the offices in Anchorage and Los Angeles. When we flew to Fairbanks, this was a daily commute of over a thousand miles to make two or three telephone calls, and I was usually back to the rig by early afternoon.

By Christmas day, the well had penetrated over 350 feet of predominantly sandstone and conglomerate, accompanied

by continued high gas readings in the drilling mud, and oil shows in some of the lower core samples.

This was a phenomenal thickness of potential reservoir beds and the decision was made to run an open-hole drill stem test to determine the flow capability of the lower 180 feet of the Sadlerochit formation.

The test tool was opened early in the morning of Dec. 27, 1967, with a result totally unlike anything I had ever previously experienced in a drill stem test, or DST. In the tests that I had witnessed in the past on other wells, all that happened when the tester was opened was a weak puff of air flowing from the drill pipe, which then died to nothing. In this test, there was an immediate roar of high-pressure gas flowing to the surface, which was diverted to a flow pipe and ignited to make a flare that was up to 30 feet long blowing into the teeth of a headwind.

The gas flow was estimated at 1.25 million cubic feet per day (1.25 MMCF/D) through a 1/8 inch choke at a pressure of

over 3,000 psi; this continued all day, with a rumble that shook the rig and resembled the sound of a jet plane overhead. The pressure was so great that after the test tool was closed late in the afternoon, the flare burned most of the night as the high pressure in the drill pipe bled down.

Looks like gas discovery

By the morning of Dec. 28, the gas pressure in the drill pipe was finally exhausted and at last the drill crew was able to begin to come out of the hole with the drill pipe and test tool.

But by that time, the bottom of the hole had begun to cave, and the 8,500 feet of drill string and DST tool could be moved only a few feet up and down. The tester and lower part of the drill string were stuck in the hole, and a fishing job was begun.

Although no wire-line logs were available for the lower part of the hole and the charts in the test tool could not be recovered, the test showed that the well had penetrated a high-pressure gas reservoir that was at least 385 feet thick,

with no indication of either a gas-oil or gas-water contact.

It was beginning to appear that Prudhoe Bay might very well be a significant gas discovery. This was exciting, but oil, not gas, was the objective and the full significance of the discovery was going to have to await further drilling — and that was not going to occur until the fishing job was completed.

Clearly, there was going to be no need for geologists at the well site for some time, so I flew back to Anchorage and then on to the office in Los Angeles. The results of the DST were headline news in the Jan. 16 Anchorage Times.

Part 2 of this story will appear in the March 26 issue. ●

Editor's note: Gil Mull submitted the above in March 2011, when it was first published by Petroleum News in a special publication, Exxon in Alaska.

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HB 111

Republican members of the committee, all of whom voted against moving the bill, had a number of concerns, with the primary focus a belief that the existing system has resulted in increased production and needs an opportunity to work before being changed.

Other concerns included that of Rep. George Rauscher of Palmer about the legality of making confidential data available and a belief that the people included were too broad a group. He was also concerned about moving the bill without complete fiscal notes, a concern shared by Rep. Chris Birch of Anchorage. Birch objected to regulations which the Department of Natural Resources wouldn't write until after the bill went into effect, and to unknown costs — DNR's fiscal note said the fiscal impact of proposed changes was unknown.

More revenue

In a fiscal note on the original bill the Department of Revenue said that under the proposed changes "the state would expect

to collect substantially more revenue from oil and gas production given current production estimates," but cautioned that the estimate did "not include any changes in company behavior as a result of this proposal."

Revenue's estimate of the total fiscal impact for the original bill was \$70 million for fiscal year 2018, rising to \$195 million for fiscal year 2019 and topping out at \$305 million in fiscal year 2027, the last year shown.

In similar data for the committee substitute Revenue showed \$45 million in total fiscal impact for FY 2018, \$140 million for FY 2019, topping out at \$265 million in FY 2026 and dropping to \$260 million in FY 2027.

NOL changes

Both the original bill and the committee substitute make changes in how North Slope net operating losses are handled.

The original bill changed the North Slope carry-forward annual loss, the net operating loss, credit rate from 35 percent to 15 percent.

The committee substitute eliminates net

operating loss credits for the North Slope.

Net operating losses would continue to be applicable against taxes, with the addition of uplift in the committee substitute. A carry-forward lease expenditure provision in the committee substitute would allow a company to carry forward 50 percent of lease expenditures approved by DNR and not deducted against tax, with the carry-forward amount earning interest for up to 7 years. DNR would develop regulations to establish a review process for pre-approval of those lease expenditures which would generate a carry-forward annual loss.

The committee substitute establishes a dry hole credit of up to 15 percent for exploration expenditures from a dry hole if all service contracts are paid, the lease is returned to the state and the explorer has no oil or gas production.

Other changes

Among other changes in the committee substitute is a provision that certain confidential taxpayer information could be disclosed to legislators, staff and consultants in executive session after required confidentiality agreements are signed; and establish-

ment of a working group on the Cook Inlet fiscal regime.

In the original bill the minimum tax was not less than 5 percent when the average Alaska North Slope price was \$25 per barrel or more for production after Jan. 1, 2018; in the committee substitute the minimum is set at 5 percent when the average ANS price is \$50 or more and 4 percent when the average ANS price is less than \$50.

The committee substitute requires DNR to write regulations and in a fiscal note DNR said that because regulations have not yet been written, the amount of analysis required is not clear, so the fiscal impact on the department could range from minimal to significant.

The dry hole data and applications would be managed by DNR and the department said it has no idea how many dry hole credit applications there might be, but said additional staff time would be required.

The other change which would impact DNR would be intent language establishing a Cook Inlet Working Group, which would require an unknown amount of staff time. ●

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SANDS ROLE

its wholly owned stake in the shelved Carmon Creek development in northwestern Alberta's Peace River region.

Long-term strategy

Shell's Chief Executive Officer Ben van Beurden said the transaction, which is due to close around mid-year, fits with the company's long-term strategy to reduce its exposure to high-carbon assets and reflects "how we continue to drive to be a world-class investment.

"We felt the position we had in oil sands mining was not material and we were not advantaged enough for it to fit in our long-term portfolio design," he told reporters at

IHS Markit's CERA Week conference in Houston, adding Shell had now been freed to concentrate on natural gas, offshore oil and downstream operations such as refining and chemical manufacturing.

The deal excludes Shell's interests in the Scotford Refinery near Edmonton and a chemicals plant, but turns over to CNR its 70 percent stake in the 204,000 bpd Scotford Upgrader (which converts oil sands bitumen into synthetic crude for refining) and its ownership of the Quest Carbon Capture and Storage project that can sequester 1.1 million metric tons a year of carbon emissions.

In other circumstances the shuffle of assets might have been seen a clear case of the inevitable winding down of the oil sands sector.

But that is never the case when Canadian

National Resources is involved. The Calgary-based independent, after decades under the astute guidance of chairman Murray Edwards, has consistently marched to its down drumbeat, snapping up oil and gas assets when they were out of favor and shutting in gas production when others were frantically scrambling to pump their reserves at all costs.

Mindful of that history, investors gave a sharp vote of confidence to the deals, boosting CNR shares by 10 percent on March 10.

GMP FirstEnergy analyst Michael Dunn said the purchase "is a few billion (dollars) less than historical costs," while Morningstar analyst Joe Gemino said it was a very favorable valuation for CNR.

Calgary-based investment banker Peters & Co. estimated the original cost/capital that was invested in the Shell assets was likely more than C\$20 billion, implying that CNR acquired the assets for the equivalent of about 60 percent of book value

Two bitumen mines

CNR President Steve Laut said the purchase, the largest in his company's history, will allow it to operate two bitumen mines — the 255,000 bpd Athabasca operation and CNR's own Horizon, which has found its stride after a bumpy initial run, noting that the acquisition "cost us less than it cost to build Horizon."

CNR entered the oil sands in the late 1990s through a C\$1.6 billion purchase of BP holdings.

Once the deal closes, CNR, Suncor Energy and Imperial Oil (69.6 percent owned by ExxonMobil) will dominate mining operations, with Teck, France's Total, Chevron and China National Offshore Oil Corp. subsidiary (which it bought to US\$15.1 billion in 2012), will be marginal players in northern Alberta.

Different strategies

However, Total and Norway's Statoil, buckling under pressure from environmentally conscious European stakeholders, have been cutting their exposure to the high-cost oil sands, opting instead for shale prospects and other ventures that offer quicker returns.

CNR and Suncor have taken a more aggressive stance by adding to their oil sands assets, betting that a large presence will improve their chances of negotiating cheaper operating costs and boost profits even if oil remains stuck around US\$50 a barrel.

Some are less certain about this strategy, with Martin Pelletier, portfolio manager at TriVest Wealth Counsel in Calgary, telling the Globe and Mail that U.S. shale plays such as the Permian in Texas will continue to yield faster returns than the oil sands.

"That's important, because there is so much uncertainty with oil prices that the quicker you get your return on capital the better and the less risky it is," he said. ●

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