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A glowing orange tent is pitched in a snowy field at night, surrounded by tall, dark evergreen trees. The tent's interior light is visible through the entrance. The sky is dark blue with a few stars and a bright comet or meteor streaking across it.

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aluminum wheels, no

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Next year it's The Producers

By **MARTI REEVE & KAY CASHMAN**

*Petroleum News special publications director
& Petroleum News publisher and executive editor*

Next year, in November 2013, Petroleum News is replacing The Explorers with The Producers, a magazine that will carry the same subtitle, "Oil & gas companies investing in Alaska's future," but focus on companies that operate producing fields in the state.

The magazines will alternate year-to-year, with The Explorers making a return appearance in November 2014.

Some of the companies featured will be the same, as several are both explorers and producers, but there will be no crossovers such as articles on "looking for new oil in old places."

In addition to The Producers, two other new full-color magazines will debut in 2013: A history of Shell in Alaska from Petroleum News, and The Bakken Explorers from Petroleum News Bakken.

A schedule for the Shell magazine is being worked out as we pen this editorial.

The Bakken Explorers will be released in May at the 21st Annual Williston Basin Petroleum Conference.

The biggest exploration news from Alaska: After six years of battling political and logistical obstacles, Shell is finally drilling in the federal outer continental shelf, or OCS, of the Chukchi and Beaufort seas off northern Alaska.

The company is drilling top holes, bringing the drill bit down to depths of 1,400 to 1,500 feet, some distance above any hydrocarbon zones. The idea is to save a significant amount of time in subsequent drilling seasons.



MARTI REEVE



KAY CASHMAN

In the Chukchi, three top holes are expected to be completed this fall (2012) for Burger A, J and B wells. In the Beaufort, where a different drilling unit is being used, one top hole each is being drilled in the Sivulliq and Torpedo prospects.

In the Cook Inlet basin of Southcentral Alaska there are two jack-up rigs for the first time in almost 20 years: one is drilling its second well. Onshore several companies are pursuing natural gas and oil prospects.

Onshore and nearshore the North Slope explorers are looking at a relatively busy winter 2012-13 season:

- Brooks Range Petroleum — Plans one delineation well and one or two sidetracks offsetting its Tofkat No.1 Kuparuk discovery, as well as the possibility of one or two exploration wells in the company's undeveloped Kachemach unit.
- ConocoPhillips — Has filed permits to drill two wells in its Bear Tooth unit in NPR-A.
- Linc Energy — Plans to drill five wells, including one disposal well, at the Umiat field on the NPR-A border.
- Pioneer Natural Resources — One of Pioneer's Nuna appraisal wells for the 2012-13 season, the Nuna No. 2, is an exploratory well.
- Repsol — Plans to complete the five-prospect drilling program it began in the winter of 2011-12, when Repsol drilled two prospects. Using three rigs the company expects to get at least one vertical well drilled at Qugruk 1, Q6 and Q3 ice pads. Q-1 and Q-6 will have horizontal sidetracks. Q-3 will have a geologic sidetrack.
- UltraStar Exploration — Looking to drill the North Dewline No. 1 well.

And finally, there is Great Bear, which is pioneering the possibility of oil production on the North Slope using the hydraulic fracturing techniques in source rocks that have proved successful elsewhere. Unlike other North Slope explorers, it is able to drill year-round because its six well locations are in a transportation corridor. As of Oct. 15, 2012, the company has drilled two test holes and is pleased with the results.

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The Explorers

Released Nov. 14, 2012

THE EXPLORERS is a special biennial supplement to Petroleum News, which is owned by Petroleum Newspapers of Alaska LLC.

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*Cover photos courtesy
Judy Patrick Photography*

*Printed by Journal Graphics,
Portland, Oregon*



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WATCH FOR IT IN MAY

The Bakken Explorers

from Petroleum News Bakken

For more information on this new annual magazine, which will feature those oil companies exploring vertically or laterally in the Bakken petroleum system, email Kay Cashman, publisher and executive editor, at publisher@petroleumnews.com.

A special publication from Petroleum News Bakken



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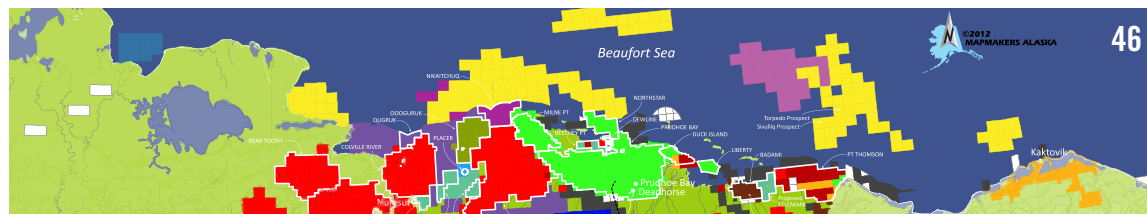
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Why Alaska? ...Why not!

By **BILL BARRON**

*Director, Alaska Department
of Natural Resources, Division of Oil and Gas*

Whether you are just planning to visit Alaska for fun, or to start a new business venture here, the success of your venture will depend on whether you are relying on good information or second-hand images and stories.

So what facts make Alaska attractive to investors and E&P companies looking for their next big objective?

1. Alaska still possesses underexplored world class hydrocarbon basins

To date, North Slope fields have produced over 16 billion barrels of oil, with approximately 4 billion barrels in remaining reserves. Federal agencies estimate that Alaska's state and federal lands and waters still hold 40 billion barrels of undiscovered, technically recoverable oil and more than 200 trillion cubic feet of gas.

Alaska is also on the cusp of what could potentially be the next large shale development in North America, with the U.S. Geological Survey assessing a mean resource of 940 million barrels of oil and 42 trillion cubic feet of gas in shale source rocks on the North Slope.

And then we have still not included other unconventional resources like heavy and viscous oil, tight gas, and gas hydrates, which are likely to add to the already sizeable resource base.

According to the U.S. Geological Survey, this means Alaska's Arctic holds more undiscovered oil than any other comparable Arctic region, including northern Russia. At a point in time where all eyes are on an increasingly accessible Arctic for resource development, this opens many possibilities.

However, not all of Alaska's world-class hydrocarbons are in the Arctic. Cook Inlet — Alaska's first major oil province — has been producing onshore since the 1950s and offshore since the 1960s. USGS studies of the Cook Inlet region found it still has enormous undiscovered, technically recoverable hydrocarbon



BILL BARRON

resources, including mean estimates of 19 trillion cubic feet of natural gas, 600 million barrels of oil and 46 million barrels of natural gas liquids.

The state of Alaska is also reviewing the potential for hydrocarbons in regions that have seen little or no exploration outside the five established state lease sale areas (Cook Inlet, Alaska Peninsula, North Slope, North Slope Foothills, and Beaufort Sea state waters). Areas not included in lease sales are open to exploration licensing under a program that allows an approved licensee exclusive rights to explore the area during a set licensing time, as well as the opportunity to turn licenses into leases once work commitments have been fulfilled.

It's clear that Alaska possesses the resources to attract oil and gas development. It is also clear that there are companies that are taking advantage of these opportunities. The question is, "Why?"

2. Alaska has a stable infrastructure and a cadre of stable, knowledgeable service companies

Oil and gas exploration and development in Alaska has a robust history. Over time, and with the big discoveries in both Cook Inlet and on the North Slope, entrepreneurs have created businesses paving the way for explorers and developers. Alaska boasts a stable, experienced cadre of world class support service companies that know the climate, know the state, and can provide the logistics that allow an incoming player to focus on the rocks and resources. Some support services companies are well-known worldwide, while others are Alaska companies that have excelled through gaining the trust and respect of existing operators for their expertise, knowledge, and professionalism. In 2010, 49 different private sector companies reported employment in the Prudhoe Bay area (not counting government agencies).

3. The Trans-Alaska Pipeline has capacity

The decline of oil production from existing fields on the North Slope is bad news for the pipeline owners, bad news for the state, and bad news for America. It is, however, good news for new producers. TAPS is an engineering marvel that crosses three major mountain ranges and connects Prudhoe Bay and the North Slope to the beautiful community of Valdez in Prince William Sound. TAPS production peaked at

2.1 million barrels of oil per day in 1988, transporting nearly 24-percent of the nation's crude oil production. Today production has declined to 500,000 barrels of oil per day — which means there is plenty of capacity, and an established delivery system in place, to transport new production to market.

4. Alaska is big — but you don't have to be big to be in Alaska


The largest oil and gas corporations doing business in Alaska are household names: ExxonMobil, BP and ConocoPhillips. Over the past decade, several smaller companies have also found Alaska to be a good place to do business.

In 2008, Pioneer Natural Resources became the first company to join with BP and ConocoPhillips as an operator on the North

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Alaska boasts a stable, experienced cadre of world class support service companies that know the climate, know the state, and can provide the logistics that allow an incoming player to focus on the rocks and resources.

Slope, producing oil from its offshore Oooguruk unit. The unit, located in the Colville River delta and the Beaufort Sea north-west of the Kuparuk River Unit, is expected to produce over 100 million barrels during its lifetime, and has been producing 8,000-9,000 barrels per day this summer.

Eni, which owns a 25 percent interest in the Oooguruk field, started production from its offshore Nikaitchuq field in February 2011. The company said Nikaitchuq, which is 100 percent owned and operated by Eni, is estimated to hold 220 million barrels of recoverable oil and expected to produce over 30 years with a peak production of 28,000 barrels of oil per day.

In 2011, Savant Alaska succeeded BP as operator of the Badami unit, located on the coast between Prudhoe Bay and Point Thomson. Denver-based Savant is now the fifth owner-operator on the North Slope, and the smallest of the five.

Potential new producers are lining up. Brooks Range Petroleum, Anadarko Linc, and Repsol are actively exploring and/or testing wells in different parts of the North Slope and North Slope Foothills.

Great Bear Petroleum and Royale Energy have both arrived on the North Slope in the past two years, attracted by the possibilities of shale developments.

Farther south, in Southcentral Alaska, Armstrong Cook Inlet LLC took over as the operator of the North Fork gas unit a few years ago, and has expanded the unit. Between early 2011 and summer of 2012, the field has produced 1.8 billion cubic feet of natural gas from Tyonek Formation sands. This development has also resulted in infrastructure extensions into the Southern Kenai Peninsula, through an Enstar-constructed pipeline to Anchor Point. Expanding the Southcentral gas market will provide additional investment incentive to successful gas explorers.

Apache leased around 515,000 acres of tracts in the 2011 Cook Inlet lease sale, adding to the 300,000 acres of Alaska Mental Health Trust Land the company had already leased, as well as Alaska Native corporation lands. In 2012, Apache added another 40,000 acres of state land to its leases. The company is in the process of shooting seismic over its holdings, and company representatives have said they believe there is substantial oil potential in the region.

Furie and Buccaneer have both invested in bringing jack-up rigs to Cook Inlet to drill their leaseholds. In 2011, Hilcorp acquired all of Chevron's leases in the Cook Inlet, and is now in the process of acquiring Marathon's assets in the area.

Alaska's oil and gas future is dependent upon operators of all sizes; it's not just for the majors anymore. Increasing the diversity of operators brings new insight and creativity to an area with a sound and proud history. Alaska is on the precipice of major changes and opportunities, new geologic plays, new technologies, and new adventures; Alaska is once again, the next great opportunity.

William C. Barron is the director of the Alaska Department of Natural Resources, Division of Oil and Gas. For more information about the division, its leasing program, or geological information, please go to <http://dog.dnr.alaska.gov>

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ConocoPhillips sanctions CD-5

With partner approval, construction could begin as soon as 2014 with first oil by 2016; project would be fourth Alpine satellite

By ERIC LIDJI
For Petroleum News

After years of permitting delays, ConocoPhillips Co. is moving ahead on CD-5, the fourth satellite of its Alpine field on the North Slope, the company announced Oct. 25.

The ConocoPhillips board sanctioned the project in October, according to Executive Vice President for Exploration and Production Matt Fox. "The project is now pending partner approval, which is expected in November," Fox said during a third quarter earnings call.

ConocoPhillips expects CD-5 production to begin in 2016, Fox said. The company previously estimated construction would begin in 2014 with first oil in late 2015.

ConocoPhillips operates the Colville River unit and owns a 78 percent working interest in the leases, while partner Anadarko Petroleum Corp. holds the remaining 22 percent.

After bringing the Alpine field at the Colville River unit into production in 2000, ConocoPhillips and Anadarko brought three Alpine satellites online over the following decade: Fiord in August 2006, Nanuq in December 2006 and Qannik in 2008.

Also known as Alpine West, the CD-5 satellite would be the

first development in the National Petroleum Reserve-Alaska, located just across the Colville River from Alpine.

Bridging the gap

The plans for how best to cross the river caused major delays.

In 2005, ConocoPhillips applied for a permit to build a utility bridge across the Nigliq Channel of the Colville, but withdrew the application in early 2008 after officials in Nuiqsut and the North Slope Borough questioned the proposed location of the bridge.

Once the parties agreed on a new location, ConocoPhillips resubmitted its application in 2009, but the U.S. Army Corps of Engineers denied the permit in early 2010, suggesting that ConocoPhillips use horizontal directional drilling to go under the Nigliq Channel.

Backed by state and congressional leaders, ConocoPhillips appealed the ruling. In late 2011 the Corps approved the bridge "with special conditions to ensure that all appropriate and practicable steps to minimize potential adverse impacts to the aquatic ecosystem have been taken, and to ensure the project would not be contrary to the public interest."

The CD-5 drill site would be located some five miles west of

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Conoco stakes nine wells in NPR-A

By ERIC LIDJI
For Petroleum News

ConocoPhillips Co. has staked nine wells in the National Petroleum Reserve-Alaska.

ConocoPhillips staked the Flattop No. 1 and No. 2 well locations in the Mooses Tooth unit and the Cassin No. 1, 3, 3A, 5, 6, 8 and 8A well locations in the Bear Tooth unit.

The notices, published by the U.S. Bureau of Land Management in September, show where ConocoPhillips is interested in drilling and how many wells it might drill. But because ConocoPhillips must approve drilling plans internally and with its partner Anadarko Petroleum Corp. and because the company must also get state and federal permits before beginning any work, the notices are not a measure of actual drilling plans.

"We have not announced any firm plans for NPR-A exploration," ConocoPhillips told Petroleum News on Oct. 3. "Filing notice of staking (NOS) forms is a routine action to provide flexibility as we evaluate and try to obtain regulatory approvals for possible activity in those areas, but it is not a given that anything will move forward."

The nine locations target prospects ConocoPhillips eyed in previous drilling programs.

In the environmental assessment for its 2006-11 drilling program in NPR-A, ConocoPhillips staked three Cassin well locations. And ConocoPhillips included one Cassin location in its 2007-12 program but never actually drilled any of those wells.

Bear Tooth unit

Since then, ConocoPhillips formed the Bear Tooth unit around the Cassin area leases.

The Bear Tooth unit sits to the southeast of Teshekpuk Lake.

The Bear Tooth unit agreement, approved in 2009, required ConocoPhillips to drill a well in Unit Area A by June 1, 2012, to evaluate the sandstone encountered in the West Fish Creek No. 1 well. Unit Area A includes the seven recently staked Cassin well locations.

The agreement also required Cono-

coPhillips to test the Scout No. 1 well by June 1, 2012.

In June 2011, BLM granted a one-year extension to those deadlines, the federal agency told Petroleum News. BLM granted the request because ConocoPhillips showed "diligence" in evaluating the area, including drilling the Scout No. 1 well, reprocessing seismic information in 2009 and refining hydrocarbon

prospects in 2010.

ConocoPhillips "has established that producible hydrocarbons have been encountered in the Scout No. 1 well sufficient to demonstrate that a prudent operator would maintain the lease for future development," the BLM wrote in its decision to extend the unit terms.

Contact Eric Lidji at ericlidji@mac.com

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13G-10-022

Furie finishes sidetrack at KLU No. 2 well

Company says it is testing gas zones in the Beluga formation; wants to continue offshore Cook Inlet operations into November

By ALAN BAILEY
Petroleum News

Furie Operating Alaska has completed a sidetrack well to its Kitchen Lights Unit No. 2 well in Alaska's Cook Inlet and plans to test gas productivity from several natural gas zones in the Beluga formation, according to an Oct. 17 letter from Furie President Damon Kade to Alaska's Division of Oil and Gas. Kade's letter requested the division to allow Furie's Spartan 151 jack-up rig to remain on site at the well location until Nov. 10 while the testing is completed.

The current plan of operations for Furie's drilling requires the jack-up rig to depart any well location by Oct. 31, in anticipation of winter ice starting to appear on the waters of the inlet. However, the plan also gives the division director the discretion to allow operations to continue beyond that date, provided Furie can demonstrate that it can operate "safely and prudently." Kade said that the company is taking the necessary steps to ensure safety.

Gas find

At around this time last year Furie announced a major gas find at relatively shallow depths in its Kitchen Lights Unit No. 1 well, with

the company later scaling back its estimates of the size of that discovery: In late March Kade said that the find probably held about 750 billion cubic feet of gas, with a potential gas production rate of up to 30 million cubic feet per day.

At the end of the 2011 drilling season Furie suspended the KLU No. 1 well at a depth of 8,805 feet. And in May of this year the Spartan 151 rig returned to the well site, to re-enter the well and continue drilling. Furie has said that it wants to test multiple horizons at Kitchen Lights, seeking oil in the deeper horizons as well as looking for new gas resources. The company has also said that it wants to penetrate what is referred to as the "pre-Tertiary" at depths of around 16,500 feet. Cook Inlet geologists have speculated that the pre-Tertiary rocks, older and deeper than the Tertiary strata that host the operational Cook Inlet oil and gas fields, may contain substantial oil resources.

However, in early August Furie stopped drilling the KLU No. 1 well at a depth of 15,298 feet before reaching the base of the Tertiary. And, to meet a commitment to drill a second well in the Kitchen Lights unit by Nov. 30 this year, the company moved the jack-up rig to the KLU No. 2 well location to start drilling there.

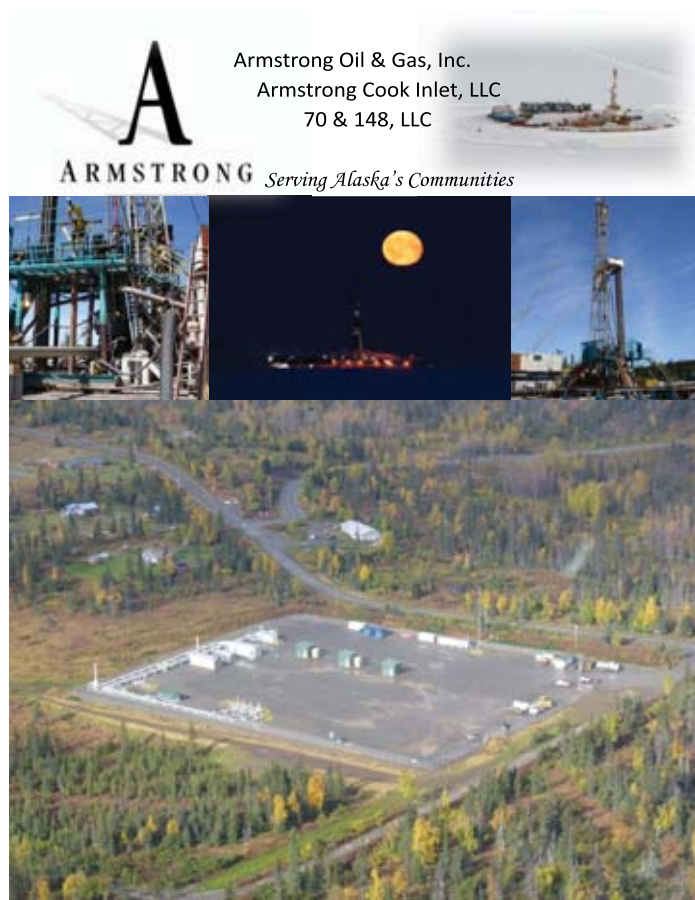
Drilling proceeded. But according to information obtained by Petroleum News the KLU No. 2 well has not reached a depth below 9,000 feet.

Earlier this year Kade told Petroleum News that, in addition to seeking new oil and gas resources, the drilling of the KLU No. 2 well would provide an opportunity to delineate the gas discovery that Furie made last year. It is not clear whether the well tests that Furie is now conducting apply to that same gas resource.

Furie has not responded to requests for information about the recent developments in its drilling at KLU No. 2. However, given the nature and likely depth of the testing, it appears that the company is focusing on gas rather than oil in its current drilling efforts.

The company has said that it plans to install a monopod production platform at one of its Kitchen Lights well locations, to develop last year's gas find. In April of this year the Division of Oil and Gas gave Furie permission to use the Spartan 151 rig drill a geotechnical borehole at the KLU No. 1 well site and another at the KLU No. 2 site, before drilling these wells, to obtain information for the engineering of a permanent production facility.

Contact Alan Bailey at abailey@petroleumnews.com



CD-5 continued from page 10

the main Alpine facilities.

Fiord, or CD-3, is an isolated drill site located some three miles north of the Alpine facilities accessed by air or a temporary winter ice road. Nanuq, or CD-4, is a drill site some four miles south of the Alpine facilities accessed by gravel road. Qannik is an extension of the CD-2 drill site located some two miles west of the main Alpine facilities.

Contact Eric Lidji at ericlidji@mac.com

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Anadarko still on hold in foothills

Following historic work in 2008, 2009, independent has been evaluating drilling results, refining portfolio

By ERIC LIDJI
For Petroleum News

Anadarko Petroleum Corp. drilled four historic wells in 2008 and 2009, the first exploration wells in northern Alaska to explicitly target natural gas instead of oil, but the years since have brought only minimal activity from the company in that region.

The large Texas independent drilled the wells in the Gubik Complex, a wide expanse of state, federal and Native leases across the foothills of the Brooks Range Mountains.

Anadarko had hoped to prove up several smaller natural gas fields capable of



MARK HANLEY

justifying development as a group. All four wells encountered natural gas, including one well flowing at 15 million cubic feet per day, but as plans for a North Slope natural gas pipeline lagged in the years following the campaign, so did those exploration efforts.

Anadarko did not drill in the Gubik Complex in 2010 or 2011, and during those years it relinquished considerable acreage in more remote corners of its leasehold farther south.

Anadarko partially ended its hiatus in 2012, returning to Gubik conduct a "rigless test" at one of its wells, but the company has not yet released results from the program and does not have on-the-ground exploration work planned for the region this coming winter.

Additionally, Anadarko recently lost some acreage about 20 miles to the east of the easternmost Gubik wells because the



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ALASKA OIL PRODUCTION, NET: ~14,000 bpd (second quarter 2012)

leases expired at the end of their primary terms.

The leases near where Anadarko drilled don't expire until dates in 2014, 2017 and 2018.

Long lasting partnerships

Over the past two decades, Anadarko established a unique presence in Alaska.

As a large independent, the company arrived in the years after North Slope oil production peaked eager to develop a large field that would make it a major player in the state.

Anadarko launched those efforts by partnering with the existing operators on the North Slope, offering its agility as an independent in return for experience in the Arctic.

The most successful of those partnerships remains in effect today.

Anadarko and Phillips Alaska (now ConocoPhillips Alaska) brought the Alpine field into production in 2000, followed by three satellites brought online over the following decade.

The companies are currently working to bring a fourth satellite online.

Aside from a very small ownership interest in Pioneer Natural Resources' Oooguruk unit, Alpine constitutes Anadarko's production base in Alaska, some 14,000 barrels per day.

The company spent \$39 million on its operations in the state in the first half of 2012.

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Optimistic on the inlet

Apache's Hendrix says that Cook Inlet basin offers many untested possibilities

By ALAN BAILEY
Petroleum News

When it comes to exploring in Alaska's Cook Inlet basin, Apache Corp. is clearly not a company that believes in half measures, or for that matter in hanging about. Since starting to acquire state Cook Inlet leases in 2010, the company has already shot around 316 square miles of a multi-year high-resolution 3-D seismic program, with the intention of using the resulting data to identify new drilling targets in the underexplored oil and gas basin. The company is now the biggest leaseholder in the Cook Inlet region, and is preparing to drill its first Cook Inlet exploration well.

In early August Apache significantly increased its already extensive exploration acreage by signing an exploration agreement with Cook Inlet Region Inc., or CIRI. CIRI, the Native regional corporation for South-central Alaska, owns substantial land holdings on both the west and the east sides of the Cook Inlet — under the agreement with Apache, the oil company can explore on CIRI land not already under lease, John Hendrix, Apache's general manager in Alaska,



JOHN HENDRIX

JUDY PATRICK

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told Petroleum News Sept. 26.

Plenty of opportunity

Hendrix said that he does not agree with a commonly held view that most of the major structures in the basin have already been drilled. The geology of the basin is characterized by complex folds and faults, giving rise to what geologists refer to as "structural traps," situations in which oil and gas become caught in folds in the rock strata, or where a potential hydrocarbon reservoir rock is juxtaposed against a geologic fault. And, with old seismic data from the basin being notoriously difficult to interpret, Apache thinks that its new state-of-the-art seismic will reveal hitherto unseen opportunities.

continued on next page



Our Future

The easy oil on the North Slope is gone, and getting to the remaining oil will be a challenge that will require the state and the industry to work together — for Alaska's future.

ConocoPhillips

Alaska's Oil & Gas Company

APACHE *continued from page 17*

"That's what we're looking for – folds and faults to drill," Hendrix said. "The seismic will show that. No-one's ever shot this much seismic (in the basin). People will shoot maybe 40 square miles. We're shooting hundreds of square miles with 3-D technology, not 2-D."

And the results of the seismic surveying done to date look good.

"We hope to have reviewed, looked at and matured our data enough in the next 30 days to have a target or two," Hendrix said.

Apache is primarily searching for oil, to stem the precipitous decline in Cook Inlet oil production since the early 1970s. However, the company also anticipates encountering natural gas during its exploration drilling operations and will develop that gas if the development is economically viable, Hendrix said.

So far, Apache has completed seismic surveys up the west side of the Cook Inlet and across a 15-mile wide fairway in the northern waters of the inlet, to connect the survey on the west side over to the northern Kenai Peninsula.

First well

And, on the back of the completed survey on the west side of the inlet, the company is now preparing to drill its first Cook Inlet oil exploration well, the Kaldachabuna No. 2, in CIRI subsurface land in uplands near Tyonek. Reversing a recent trend in which oil equipment and personnel have tended to be sucked into the North American shale oil boom, Apache has moved a drilling rig, the Patterson Rig 191, from North Dakota to Alaska, with the rig arriving in Southcentral Alaska on Sept. 11.

"It's being mobilized from Nikiski ... over to Tyonek, where we'll be drilling our first exploration well in Alaska," Hendrix said. Patterson is supplying the rig crew, he said.



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The well will be drilled from a gravel pad on Tyonek surface land.

Simasko Production Co. drilled the Simpcos Kaldachabuna No. 1 well in 1980, reaching a vertical depth of 12,890 feet in the West Foreland formation. Simasko found oil and gas in the Tyonek formation, but abandoned the well after reporting that commercial production was not possible because of "low permeabilities and low structural position." Tests also showed large quantities of water in the formation.

Hendrix said that if Apache's Kaldachabuna well encounters a commercial oil pool he hopes to see initial oil production in the spring of 2013. Lisa Parker, Apache Alaska's manager, government relations, said that Apache is considering options for shipping oil to market from the well site, with the oil probably going to Granite Point on the coast of the inlet.

Apache had hoped to drill two wells in the Cook Inlet basin in 2012, but the drilling timeframe has moved back a bit, given the time needed to process and interpret the seismic data and the subsequent time required for permitting.

"We're trying to process and interpret the data and we want to do things the right way," Hendrix said.

Nodal seismic

For its seismic surveys Apache is using state-of-the-art technology involving sealed nodes that can independently record signals from the seismic sound source while using global positioning system technology and satellite-based timing to accurately position and time the recordings. With no requirement for cabling to connect the nodes to a central recording device, the recording system has minimal environmental impact and does not, for example, require the cutting of seismic trails on land.

Nodes used on land weigh about five pounds, are about the size of a large food can, and are carried from location to location by backpack. The marine nodes are disk shaped and are tethered to lines on the seafloor.

Permitting delays

Apache wants to extend the seismic survey that it conducted in the northern Cook Inlet across into the northern Kenai Peninsula, where CIRI has substantial land holdings that are prospective for oil and gas. However, the land is within the Kenai National Wildlife Refuge — Apache has had to place its plans on hold while it prepares an environmental assessment ahead of applying for a special use permit from the U.S. Fish and Wildlife Service, the agency that administers the refuge. Apache anticipates it taking until late April

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ANADARKO *continued from page 16*

In addition to Gubik, Anadarko has also pursued other projects to varying levels of success. The Altamura No. 1 well in the National Petroleum Reserve-Alaska found oil, but low permeability kept Anadarko from moving forward. A well at the geologically unique Jacob's Ladder prospect just southeast of the Prudhoe Bay unit found "no commercial hydrocarbons." Lone Creek No. 1 in Cook Inlet discovered commercial quantities of natural gas, but Anadarko ultimately sold its Cook Inlet assets in 2002.

Contact Eric Lidji at erclidji@mac.com

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to complete the assessment and obtain the permit. The company could not begin preparing the environmental assessment until after signing the CIRC agreement in August, Parker said.

In the absence of a permit, the Fish and Wildlife Service would not allow Apache to place any seismic nodes on land in the northwestern part of the refuge while Apache was conducting its offshore survey, a situation that prevented the collection of data along a three-mile zone along the eastern edge of the survey, a loss of 30 to 50 square miles of potential seismic data, Hendrix said.

"All we're asking for now is the exploration rights of way to lay and deploy nodes and drill three-inch diameter holes, 35 feet deep, to provide sound sourcing in the area that CIRC owns the sub-surface rights to," Hendrix said.

IHA needed

Also because of permitting issues, Apache has had to place on hold its planned seismic surveying operations down the western side of the southern Kenai Peninsula, including nearshore waters of the inlet. Before laying nodes offshore the company needs an incidental harassment authorization, or IHA, from the National Marine Fisheries Service for the minor incidental disturbance of marine mammals, including Cook Inlet beluga whales, a whale subspecies that has been listed under the Endangered Species Act.

The Fisheries Service has already published an environmental assessment and a biological opinion covering the entire inlet for Apache's surveying operations. Based on these assessments, the agency issued an IHA for Apache's operations in the northern part

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Apache donates seismic to UAF, DGGS

Apache Corp. has agreed to share its raw 3-D seismic data from the Cook Inlet basin with Alaska's Division of Geological and Geophysical Surveys, and with the University of Alaska Fairbanks. The idea is to enable the state and the university to better identify seismic hazards in the Cook Inlet region. Apache is shooting hundreds of square miles of 3-D seismic across the basin as part of an oil exploration program.

In a Sept. 24 release announcing the data donation, DGGS said that the university had begun accepting and processing the data. The division said that the data will include three-dimensional recordings of all seismic activity, most of it normally undetectable, during the recording period.

"Data sets like these are much too expensive to be acquired for basic scientific research and we greatly appreciate Apache's generous donation," said Bob Swenson, director of DGGS. "This is a great example of how public-private partnerships can generate public benefits that go far beyond state revenue and jobs created through exploration and development of our natural resources."

Quantum leap

"This data set has the potential to generate a quantum jump in scientists' overall understanding of earthquake hazards in Southcentral Alaska – one of the most seismically active and densely-populated regions of the state," said Rod Combellick, DGGS hazards geologist and division operations manager. "Better understanding these hazards can lead to improved earthquake planning and risk mitigation."

"Apache is pleased to share the product of our seismic surveys – continuous monitoring to be recorded over two to three years – because the data will provide the State of Alaska with the ability to map the locations of earthquakes and surface faults and study ground motion over the large, earth-

continued on next page

APACHE *continued from page 20*

of the inlet. But apparently a separate IHA is needed for the operations to the south, and it is unclear when the Fisheries Service will issue a decision on that second IHA.

Three environmental groups and a Native tribal organization have appealed in the federal District Court in Alaska against the issue of the IHA for the northern part of the inlet, and that appeal has not yet been resolved, a factor that may play into the delay in issuing the second IHA.

Corps of Engineers

The U.S. Army Corps of Engineers has also told Apache that seismic nodes that Apache plans to place on the seafloor off the southern Kenai Peninsula constitute a hazard to shipping and will require a permit under the Rivers and Harbors Act, Parker said. But Apache cannot obtain the Corps of Engineers permit until it obtains the IHA from the Fisheries Service, she said.

At the time when Apache had to pause its seismic operations the company also needed a Corps of Engineers' permit for working in the intertidal areas along the coast — Apache has subsequently received that permit, Parker said.

continued on next page

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Earlier Kaldachabuna well made a splash

Apache Corp. plans to drill its first Cook Inlet exploration well, the Kaldachabuna No.2, in the fourth quarter of this year.

Long forgotten in the annals of Alaska oil history is the story of the original Kaldachabuna well, the Simpcoco Kaldachabuna No.1 — that well caused something of a stir in 1980 when word got out that the well had struck oil when being drilled in by Simasko Production Co.

"Large Alaska find by two firms halts trading in their stocks," read the headlines in the Oil Daily on Sept. 11, 1980, after the two companies, presumably partners in Simasko, had let it be known that the well had made a hefty oil discovery.

"Trading in the companies' stock was halted in London, Vancouver and on the over-the-counter market in the U.S. after sharp rises in the companies' stock," the Oil Daily said.

Investors in oil company stocks might have done better waiting until Simasko performed tests on the discovery, something that did not take place until November 1980. Those tests confirmed the presence of oil and gas, but also found copious quantities of water in a fairly impermeable reservoir rock. Simasko concluded that there was no "commercial accumulation of hydrocarbons," and subsequently plugged and abandoned the well.

With the benefit of new high resolution 3-D seismic data, and with modern drilling and oil production techniques, Apache can perhaps vindicate those earlier explorers' initial enthusiasm.

— Alan Bailey

APACHE *continued from page 23*

Frustration

Expressing his frustration at permit-related delays, Hendrix commented that Apache employs about 250 people when conducting a seismic shoot.

Apache's survey in the northern part of the inlet did not cause a single disturbance to a beluga whale, Hendrix said. For that survey, Apache provided appropriate environmental training for its people, deployed licensed marine mammal observers with listening equipment, and conducted reconnaissance flights before carrying out each seismic shoot, he said. The reconnaissance flights were not required under the terms of Apache's permits, he said.

"Alaskans need to realize that Apache is a responsible explorer and developer, and wants to partner for the long term here," Hendrix said. "But they also have to understand if they want gas for Alaskans and they don't want to continue importing propane from Canada, we're going to have to have some balanced development and the only way we're going to get that is with permits in a timely fashion."

However, the state agencies have been "great to work with," Parker said.

"From that standpoint it's been very positive," she said.

Importance of safety

And Hendrix voiced the importance his company attaches to a safe drilling operation for its first Cook Inlet well.

"When it comes to drilling, we have to drill a very safe and environmentally sound well," Hendrix said. "We have to show Alaskans that Apache can come here and drill a well and drill it successfully."

In June Hendrix told Petroleum News that his company sees a future of at least 30 years for its Alaska venture.

"You don't come in and buy this much acreage with a short-sighted plan," Hendrix said. "We're not a one-well wonder and we don't have to bet the farm on one well. ... It's a proven basin and we think it's been underexplored. But it's not an easy basin. It's a very complex basin. It's very complex to drill and it's very complex from the geology (standpoint)."

APACHE DONATION *continued from page 23*

quake-prone area in the northern Cook Inlet," said John Bedingfield, Apache's vice president for worldwide exploration and new ventures.

As another "good neighbor" initiative, Apache has organized what the company hopes will become an annual "Rainbow Challenge," a fishing competition for rainbow trout on the Kenai Peninsula. The idea was to raise money for the Tustumena 200 sled dog race that takes place on the peninsula each winter, Lisa Parker, Apache Alaska's manager, government relations, has told Petroleum News. The race had been in danger of cancellation because of a shortage of purse money, Parker said.

One factor that sparked interest in this particular race was a discovery that the race route goes through the homestead where the family of John Hendrix, Apache's Alaska manager, used to live, Parker said. Although the primary focus of the Rainbow Challenge is funding for the sled dog race, it is possible that some proceeds from the fishing competition could go to other organizations and activities on the Kenai Peninsula in future years, she said.

— Alan Bailey

Contact Alan Bailey at abailey@petroleumnews.com



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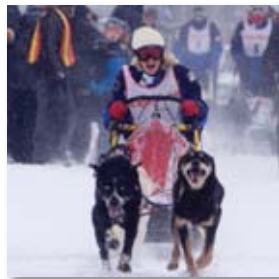
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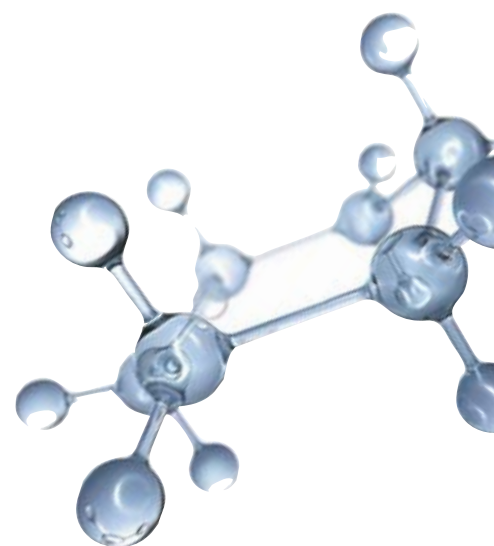
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Armstrong producing, partnering

Denver-independent has brought 4 new players to North Slope in past decade; now bringing gas to southern Kenai

By ERIC LIDJI
For Petroleum News

Armstrong Oil & Gas Inc. has been at the front of two revivals in the Alaska oil industry.

Through its exploration in the 2000s, the Denver-based independent proved up two North Slope prospects later brought online by larger companies new to the state at the time.

And in 2007, Armstrong acquired the North Fork unit, a Cook Inlet natural gas field in the southern Kenai Peninsula discovered in the 1960s but never developed. By the time Armstrong brought the field online in 2011, half a dozen other independent companies were exploring prospects across the basin after years of relatively modest activity.

Today, Armstrong is continuing on both fronts.

On the North Slope, it is partnering with the Spanish-major Repsol on a wide-reaching exploration campaign, and evaluating what it believes to be its own attractive leasehold.

In Cook Inlet, it is expanding its efforts at North Fork by increas-



BILL ARMSTRONG

NAME OF COMPANIES:

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Armstrong Cook Inlet

COMPANY HEADQUARTERS:

Denver, Colo.

TOP ALASKA EXECUTIVE:

Bill Armstrong, CEO

TELEPHONE: 303-623-1821

ALASKA OIL PRODUCTION, NET: (Armstrong Cook Inlet) Between 2.5 million cubic feet of natural gas per day and 10 million cubic feet per day gross, depending on seasonal and market restrictions



ing the size of the unit, drilling additional wells and helping to establish into new markets in the region.

More work at North Fork

This fall, a subsidiary, Armstrong Cook Inlet, plans to drill two wells at North Fork.

Armstrong began drilling the NFU No. 23-25 well in September and — once work on the first well is completed — planned to subsequently drill the NFU No. 22-35 well.

(Armstrong permitted four locations total, but only plans to drill two wells for now.)

Both wells aim to increase natural gas production at the southern Kenai Peninsula field, Vice President of Land and Business Development Ed Kerr told Petroleum News Sept. 18. Additionally, Armstrong plans to upgrade facilities to accommodate the changing composition of its production stream and to install compression to increase deliverability.

Both wells start from the existing North Fork facilities. The NFU No. 23-25 well extends to a bottom-hole location to the east while the NFU No. 22-35 well would extend to bottom hole location to the south, according to filings Armstrong made to state agencies.

The two-well program this fall goes beyond Armstrong's requirements to the state.

Under its current plan of development — the 47th for North Fork, in place until March 2013 — Armstrong must test additional zones in the NFU No. 34-26 well and drill at least one additional well at the field to target a previously untested segment of the Tyonek.

North Slope matchmaker

Because Armstrong is a small company that prefers to operate without debt, it took a novel approach to exploring the complex and expensive world of northern Alaska.

Starting around late 2001, Armstrong began pursuing small prospects overlooked by BP and ConocoPhillips, the two producer-operators on the North Slope at the time. Because these prospects

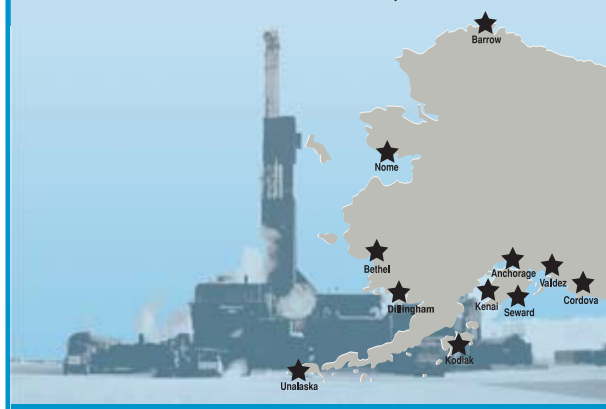


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"Alaska continues to be on the forefront of many oil companies' minds. We believe that it will take a modification of the current (Alaska's Clear and Equitable Share) tax law on the North Slope to create the interest in Alaska that many hope for."

—Armstrong's Vice President of Land and Business Development Ed Kerr

were small only in comparison to the giants of northern Alaska, they proved attractive to large independents and super-majors not yet active in the state.

Through its exploration and partnering efforts, Armstrong brought Pioneer Natural Resources, Kerr-McGee and Eni Petroleum to Alaska by proving up the Northwest Kuparuk, Nikaitchuq and Tuvaq prospects in the nearshore waters of the Beaufort Sea.

Today, a decade later, the Northwest Kuparuk prospect is the Pioneer-operated Oooguruk unit, and the Nikaitchuq and Tuvaq prospects are the Eni-operated Nikaitchuq unit.

In addition to stemming production declines, those two units helped diversify the historically small world of northern Alaska oil developments. Pioneer became the first independent operator in North Slope history, and Eni became the first company on the North Slope to operate production facilities independent of BP and ConocoPhillips.

Becoming a producer

Armstrong took a different approach at North Fork.

The unit differed in many ways from earlier projects. It was located in Cook Inlet, not on the North Slope. It was onshore, not nearshore. And it was primarily gas prone.

And this time, Armstrong would be the operator in charge of development.

Standard Oil Co. of California discovered North Fork in 1965 with the NFU 41-35 well, but the field remained fallow until a series of independents attempted to bring it online throughout the 1990s. Those efforts did not yield production, but began regulatory proceedings for extending the gas distribution grid into the southern Kenai Peninsula.

Armstrong has since re-entered NFU No. 41-35 and drilled three wells of its own.

The NFU 34-26 well in the summer of 2008 discovered enough natural gas to justify additional drilling and to negotiate a supply contract with Enstar Natural Gas Co. The NFU No. 14-25 and NFU No. 32-35 in the summer of 2010 delineated the reservoir.

Following up on minor amounts of oil in the original Standard Oil NFU 41-35 well, Armstrong also tested the oil potential of the Hemlock formation at North Fork, but was "unsuccessful in obtaining commercial production," Kerr told Petroleum News.

The drilling results justified natural gas development, though.

Alongside four small independent partners — GMT Exploration Co., Dale Resources Alaska, Nerd Gas Co. and Jonah Gas Co. — Armstrong brought the field online in 2011.

The North Fork unit currently produces between 2.5 million cubic feet and 10 million cubic feet per day, depending on the season and the market needs, according to Kerr.

The four wells at North Fork currently produce from six separate Tyonek sandstones, according to Alaska Division of Oil and Gas information. The most productive well, accounting for almost

continued on page 29

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Nabors Alaska rig 27E one of two rigs Kerr- McGee and partner Armstrong Alaska had under contract on the North Slope in the winter exploration season of 2004-05.



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ARMSTRONG *continued from page 27*

half of cumulative production, remains the NFU No. 41-35.

The NFU No. 41-35 produces from the Tyonek 8000 and Tyonek 8500 sands.

As it begins testing additional zones in the Tyonek, Armstrong is propelled by two recent developments at the North Fork unit: one technical and one administrative.

Armstrong recently shot 3-D seismic that "greatly improved the regional structural definition of the four-way anticlinal North Fork closure," according to state filings.

The trick at North Fork is to find productive patches within the sandstones.

"Depositionally, these are lenticular sands, so they come and go," Kerr told Petroleum News, referring to layers of sands and mud. "We're drilling through a package of sands."

Additionally, and in part because of the seismic results, the state recently agreed to expand the North Fork unit and its Gas Pool No. 1 participating area to the west.

Regional development efforts

The North Fork unit could become increasingly important as an anchor development for the southern Kenai Peninsula, a region with many known but undeveloped prospects.

North Fork is now the southern terminus of the regional natural gas system.

Through their midstream subsidiary Anchor Point Energy LLC, Armstrong and its partners built the 7.4-mile North Fork Pipeline from the unit to the coastal community of Anchor Point. The North Fork Pipeline connects to the Anchor Point Pipeline, which Enstar built to connect to the southern terminus of the Kenai Kachemak Pipeline.

North Fork also kick started long running efforts to bring natural gas to Homer.

After local communities agreed to shoulder around a quarter of the roughly \$11 million project, state policymakers approved an \$8.15 million allocation in the fiscal year 2013 capital budget for a transmission line to Anchor Point, Homer and Kachemak City. And through a separate grant, the state funded a pipeline into the tiny village of Nikolaevsk.

Additionally, North Fork is making it easier for other leaseholders in the area.

The Enstar affiliate Alaska Pipeline Co. recently announced plans to build a 10-mile pipeline to the Red pad at the Hilcorp-operated Nikolaevsk unit, northeast of North Fork.

The \$8.4 million Red Pad Pipeline would connect to the Anchor Point Pipeline.

Union Oil Company of California discovered natural gas at the unit in 2004 with the Red No. 1 well, but said inadequate pipeline infrastructure kept it from developing the field.

Although lease expirations recently shuffled the deck in the area, other large leaseholders in the southern Kenai Peninsula include Buccaneer Energy Ltd. and Apache Corp.

Another North Slope match

Concurrent to these efforts, Armstrong also returned to the North Slope in 2008.

Through a new affiliate called 70 & 148 LLC — named, in a cosmic bid for good fortune, after the coordinates of Prudhoe Bay — Armstrong acquired leases around its original acquisition in 2001: northeast, northwest and south of Kuparuk. In 2009, Armstrong further expanded its leasehold in northern Alaska. For a time, Arm-

strong and its affiliates held the distinction of having the largest portfolio of state leases.

As it had done before, Armstrong found a partner to help it explore this acreage.

Along with fellow Denver independent GMT Exploration, Armstrong brought the Spanish super major Repsol YPF on board in March 2011. Through their agreement, Repsol acquired a 70 percent interest in 494,211 acres across the North Slope and planned to spend around \$768 million, with the vast majority going toward exploration.

Although a gas kick and other challenges forced Repsol to downgrade its five-well program to a two-well effort in 2012, the company plans to drill three wells this winter.

As it works alongside Repsol, Armstrong is also keeping an eye on its other interests in the region. Kerr previously told Petroleum News that Armstrong has "more than a dozen ideas outside of existing producing units" it hopes to drill and test in the coming years.

In some cases, "we know the oil is in place," Kerr said.

Asked in September how potential partners viewed the investment climate in Alaska, Kerr said, "Alaska continues to be on the forefront of many oil companies' minds. We believe that it will take a modification of the current (Alaska's Clear and Equitable Share) tax law on the North Slope to create the interest in Alaska that many hope for."

While that opinion is ubiquitous among industry, it remains a point of debate among the lawmakers ultimately responsible for approving any modifications to this tax code. They have been debating potential revisions for years, but have yet to make any major changes.

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ASRC Exploration working on Placer

*2004 discovery part of 2011 state unit; expansion requested
based on seismic, economic need for larger area*

By KRISTEN NELSON
Petroleum News

ASRC Exploration LLC, an Arctic Slope Regional Corp. company, is between exploring and producing as a non-operating working interest owner in the Badami field on the east side of the North Slope and the operator at the under-development Placer unit west of the Kuparuk River unit.

ASRC Exploration has recently told the state it believes the best way to develop Placer is in concert with other development under way in the area, which lies between the Kuparuk River and Colville River units on the western side of the North Slope.

Last year ASRC Exploration proposed an 8,769-acre unit at Placer, but the Alaska Department of Natural Resources, Division of Oil and Gas, ultimately approved a much smaller, 1,480-acre unit last September.

ASRC Exploration has now applied to expand the unit, offering seismic evidence of a larger extent of the Kuparuk sands than was recognized last year and asking to defer drilling.

Teresa Imm, vice president of resource development for Arctic



TERESA IMM

NAME OF COMPANY:

Arctic Slope Regional Corp.

COMPANY HEADQUARTERS: P.O. Box

129, Barrow, AK 99723

3900 C St., Ste. 801, Anchorage, AK 99503

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CHIEF EXECUTIVE OFFICER: Rex A. Rock Sr., president and CEO

IN CHARGE OF OIL & GAS LEASES:

Theresa Imm, vice president of resource development

COMPANY WEBSITE: www.asrc.com



Slope Regional, told the division in the Aug. 20 application that "interpretation of the sand indicates that the Kuparuk sand at Placer extends well beyond the current unit boundaries."

She cited "seismic attributes" indicating the Kuparuk sand is present in each section of the four Placer leases.

"Based on the modeling and analysis of the re-processed seismic data," the company is requesting that the Placer unit be expanded to include all of the acreage in the four leases: ADLs 391023, 391024, 391027 and 391028. ASRC Exploration owns 100 percent of the working interest in the leases and portions are already committed to the Placer unit under the September 2011 division decision.



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The company's earlier application had included all of the acreage in the leases, but the division only approved a small portion of that acreage.

The Appaloosa connection

Imm told the division the Placer sand "is, at best, only marginally large enough to develop," so placing a single pad development at the most advantageous location "is critically important."

She also said the Kuparuk sand at Placer "appears to merge with the BRPC Appaloosa prospect to the south," referring to a prospect lying between Placer and Mustang.

BRPC, Brooks Range Petroleum Corp., plans to bring its Mustang project into production by 2014, and has said it wants to explore a potential Kuparuk formation extension of Mustang to the northwest called Appaloosa that could add reserves and field life to a Mustang development.

Imm said that because of BRPC's interest in Appaloosa, it may be prudent to involve BRPC in unit expansion discussions "and in the locating of the delineation well so that the area from Placer to Mustang can be developed in an optimal manner in order to maximize the economic recovery of these thin sands."

She said ASRC Exploration believes it is in the state's best interest for ASRC Exploration and BRPC to work together in determining delineation well positions "so that the region from Placer to Mustang can be developed efficiently. The two companies are currently working toward that goal," Imm said.

ASRC Exploration is also requesting a one-year deferral of the Placer well obligation — currently set for 2013 — to further the company's evaluation of the Placer unit and to allow it "to work with

continued on next page



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BRPC on developing the most efficient plan for delineating and developing this area."

E&P business

Arctic Slope Regional Corp. got into the exploration business in March 2003 when it entered into a "mentoring" agreement with BP Exploration (Alaska), allowing "for sharing data and technical knowledge" between the two companies, including information on unit and near-unit oil and gas investment opportunities.

For ASRC the benefit of the deal was expected to be jobs close to home for shareholders; ASRC is the Native corporation representing the business interests of Inupiat Eskimos on Alaska's North Slope.

In 2004 ASRC bought into its first prospect — Placer — farming into BP's acreage and assuming a portion of the cost of the Placer No. 1 well in exchange for a 35 percent working interest.

When Placer was drilled, it was in a Kuparuk River unit expansion area. In addition to Kuparuk operator ConocoPhillips, BP, Unocal, ChevronTexaco and ExxonMobil were partners in the Placer area. The Placer No. 1 well was a requirement of the unit expansion. ConocoPhillips had until 2007 to either relinquish the Placer leases or get them into a participating area and submit a plan of development.

The Placer No. 1 well was suspended; a second well, Placer No. 2, was drilled, but, the state said, the partnership ultimately decided the reservoir discovered in Placer No. 1 was not economic and the leases were dropped.

ASRC Exploration acquired the four Placer-area leases in a 2006 lease sale with a five-year primary term, and subsequently acquired ownership of the Placer No. 1 well bore from Cono-

ASRC Exploration is also requesting a one-year deferral of the Placer well obligation — currently set for 2013 — to further the company's evaluation of the Placer unit and to allow it "to work with BRPC on developing the most efficient plan for delineating and developing this area."

coPhillips to maintain the option for testing. The state said in 2011 that ASRC Exploration has also pursued acquiring 3-D seismic over the area.

The division said in its 2011 decision that the Placer No. 1 well "demonstrated that decent quality oil is present in a thin, but high quality reservoir in the Placer area. Additional work and delineation is required to determine if this reservoir has sufficient volume to be commercially viable."

The division's 2011 unit decision required reprocessing and reinterpretation of newly licensed seismic data shot across the unit acreage by Dec. 31, 2011, and drilling and logging of an exploratory well or re-entry and testing of the Placer No. 1 by June 30, 2013.

By Dec. 1, 2013, ASRC is required to provide a plan of development for Placer and submit an application for an initial participating area, or submit a second plan of exploration describing plans to drill a unit well by June 30, 2014.

The Badami connection

ASRC is also a working interest owner in a producing unit, Badami.

When BP signed a deal with Savant Alaska to take over Badami in 2008, Savant agreed to bring ASRC Energy Services in as a partner at BP's request.

All ASRC state oil and gas lease acreage, some 20,000 acres, is now listed under ASRC Exploration.

ASRC also has a pipeline position, owning a share of the Alpine pipeline. As a royalty owner in the Alpine field, ASRC had an option under its leases to purchase a portion of the transportation system.

In 2003, ASRC acquired 16.667 percent of Alpine Transportation Co., which owns the 34-mile, 14-inch pipeline connecting ConocoPhillips' Alpine field to North Slope pipelines to the east.

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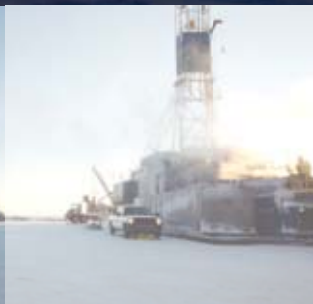
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Brooks Range on road to development

Most active independent North Slope explorer of recent years is conducting first development activity

By ERIC LIDJI
For Petroleum News

Brooks Range Petroleum Corp. is planning activities on its North Slope acreage this winter unlike any it has undertaken in its nearly 14 years in Alaska: development.

After more than a decade acquiring prospects, drilling exploration wells and shooting seismic, the operating arm of the Kansas-based independent Alaska Venture Capital Group LLC is now working to bring its Mustang project into production by 2014.

Brooks Range Petroleum is also deciding how much exploration it can maintain this winter and is planning between three and five penetrations across three North Slope units.

The work at Mustang follows two exploration seasons at the prospect in the Southern Miluveach unit — southwest of the Kuparuk River unit — and a third party audit.

According to the global consulting firm DeGolyer and MacNaughton, the Mustang prospect contains proved (P1) gross reserves of 24.7 million barrels of recoverable oil.

The firm also estimated the field contained 43.6 million barrels of proved and probable (P2) reserves and 51 million barrels of proved, probable and possible (P3) reserves.

"These estimates confirm commerciality and a favorable rate-



JOHN J. "BO"
DARRAH, JR.

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AVCG/Brooks Range
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Anchorage, AK 99501
TOP ALASKA EXECUTIVE: John J. "Bo" Darrah, Jr.
PHONE: 907-339-9965
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of-return to proceed with development," AVCG lead member Ken Thompson told Petroleum News in August.

Brooks Range Petroleum plans to complete engineering on its standalone facilities this year, lay gravel this coming winter and start building the modular facilities in 2013. The company expects production will begin in the first half of 2014 and peak at 14,000 barrels per day in 2016. Brooks Range Petroleum is estimating a 20-year field life.

Currently, Brooks Range Petroleum is exploring and developing the region through a joint venture with the Nabors Industries subsidiary Ramshorn Investments Inc.



KEN THOMPSON

Gathering momentum

With Mustang online, Brooks Range Petroleum would become the first small and privately held independent to take a North Slope prospect from exploration to production.

It would be a long time coming.

When long-time oilmen John Jay "Bo" Darrah Jr. and Barton

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BROOKS RANGE *continued from page 34*

Armfield formed Alaska Venture Capital Group in 1999, they intended to go after North Slope oil fields too small to interest the majors, but large enough to be profitable if developed correctly.

AVCG acquired several exploration properties across the North Slope, but struggled for years to find partners and to negotiate access agreements with the facility operators.

Then, in 2004, AVCG formed Brooks Range Petroleum Corp. and over the course of 2006 this subsidiary became the operator of a four-company joint venture alongside the Calgary-based independents TG World Energy Corp. and Bow Valley Energy Ltd. and the Nabors subsidiary Ramshorn Investments Inc. (The British independent Dana Petroleum eventually bought Bow Valley and ultimately sold its Alaska assets back to the joint venture. TG World remained a partner for many years, but eventually sold its assets back to the joint venture after being acquired by a Canadian junior mining company.)



BART ARMFIELD

An active drilling program

Today, Brooks Range Petroleum is among the most active companies in Alaska.

The company holds 119,900 gross acres in three regions across the North Slope. It operates four units with a fifth proposed. Since 2007, it has drilled 11 penetrations across its prospects. And during that time it has also shot 330 square miles of 3-D seismic across its acreage, and acquired another 240 square miles of 3-D

seismic from other companies.

In early 2007, Brooks Range Petroleum spud North Shore No. 1 and Sak River No. 1, both in the Gwydyr Bay region. While Sak River No. 1 turned out to be a dry hole, North Shore No. 1 found "approximately 70 feet of oil-charged Ivishak sandstone formation."

Brooks Range Petroleum re-entered North Shore No. 1 in early 2008 to test the Ivishak and the shallower Sag River formations. The Ivishak flowed at 2,092 barrels of oil per day, but a mechanical problem down hole compromised the Sag River test. One partner estimated the Sag River could have flowed at 1,000 barrels per day, if unencumbered.

That winter, Brooks Range Petroleum also drilled the Tofkat No. 1 well and two sidetracks east of Nuiqsut. The well collected 10 oil samples from four sandstone reservoirs and found six feet of net pay in the Kuparuk formation, the deepest zone tested. The company also acquired 210 square miles of 3-D seismic over the prospect.

A dispute between partners kept the joint venture from drilling in the winter of 2009, but it returned to Gwydyr Bay in early 2010. The Sak River 1-A sidetrack led partner TG World Energy to relinquish some of its interest in the exploration program. The remaining companies drilled North Shore No. 3, but have not yet released results.

A quick turnaround

For the past two winters, Brooks Range Petroleum has focused on Mustang.

In early 2011, Brooks Range Petroleum drilled North Tarn No. 1, the only exploration well any company drilled on the North Slope that winter. The well tested targets in the Brookian formation and the deeper Kuparuk formation. Brooks Range Petroleum originally estimated the Brookian reservoir might contain some 35 million barrels of oil and the Kuparuk reservoir might contain an additional 6 million barrels of oil.

North Tarn No. 1 found oil, but well control challenges kept the company from testing the well at the time. The joint venture began a sidetrack, North Tarn No. 1-A, but suspended the well at the end of the winter drilling season. In early 2012, Brooks Range Petroleum completed the sidetrack and drilled the Mustang No. 1 delineation well.

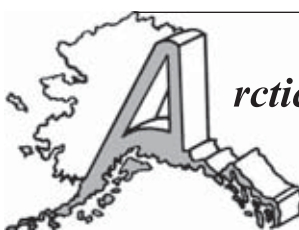
While the joint venture originally planned to drill as many as three Mustang exploration wells, it said it learned what it needed to learn after just one well and released its rig.

What Brooks Range Petroleum learned was the Kuparuk sands at Mustang held more recoverable oil than it originally estimated. "The Kuparuk is good quality sands with excellent

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pressure and oil flow capability," Thompson told Petroleum News in April.

At the time, the company announced a 40 million barrel oil discovery at Mustang, estimating the field could produce for 15 years and peak at 13,500 barrels per day.

And while the oil shows in the Brookian sands were of "lower permeability than anticipated," Brooks Range Petroleum plans to test ideas for the formation during development. Those ideas include long horizontal wells completed with fracturing, or recompleting depleted Kuparuk producing wells into the Brookian using horizontals.

Additionally, Brooks Range Petroleum wants to explore a potential Kuparuk formation extension to the northwest called Apaloosa that could add reserves and field life.

Exploration still a focus

With a successful development plan, Mustang would make Brooks Range Petroleum a producer after more than a decade as one of the most prolific explorers in Alaska.

And while Thompson estimated that some 80 percent of future capital would go toward developing proved oil reserves, the company still plans to remain an active explorer.

Brooks Range Petroleum currently operates four North Slope units — Southern Miluvecch, Kachemach and Tofkat in the fairway between the Kuparuk River unit and the Colville River, and Beechey Point in the Gwydyr Bay region north of Prudhoe Bay.

The company once operated another unit called Putu, also located between the Kuparuk River unit and the Colville River, but dropped the 21,947-acre unit in September 2012 to focus its near term resources on Mustang. Brooks Range Petroleum also dropped 42,119 acres from the west side of Beechey Point, total-

According to the global consulting firm DeGolyer and MacNaughton, the Mustang prospect contains proved (P1) gross reserves of 24.7 million barrels of recoverable oil.

ing some 80 percent of the unit area.

The company is awaiting approval of a fifth unit, the proposed Telemark unit over leases on the eastern North Slope, in the area south of the Badami and Point Thomson units.

This winter, Brooks Range Petroleum plans to drill a delineation well and one or two sidetracks in the Tofkat unit, offsetting the discovery it made with the Tofkat No. 1 well.

The wells would test 3-D seismic anomalies in the Brookian formation, confirm the size of the previous discovery in the Kuparuk and test the deeper Jurassic by "offsetting two high flow rate Jurassic wells in ConocoPhillips' Nanuq Field area," Thompson said.

Brooks Range Petroleum is also evaluating whether to drill as many as two exploration wells this winter at the Kachemach unit, and expects a decision by fall or early winter.

While operating five units again would bring the independent Brooks Range Petroleum back into a tie with the global giant BP for most units on the North Slope, Thompson believes the company can continue geoscience and engineering work on all its units simultaneously and stagger its operations year by year to meet its work commitments.

"The state has allowed us to time various work over the next few years to manageable levels each year for development and exploration, although some exploration locations might be better

continued on next page



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technically with less chance of being dry holes if drilled in 2014 after seeing results from exploration wells in 2013," Thompson said. "We plan to talk to the state about this as they are also exposing exploration risk dollars via their tax credits."

But, Thompson added, "After further geosciences' review and prioritizing the capital budget, working interest owners may also elect to not proceed with certain unit commitments, and if so, will drop units if that is deemed the best business decision."

Additionally, the joint venture is evaluating what to do about the roughly 38,700 of its 119,900 gross acres not held by units. Some of those leases are set to expire this fall, and others would expire in subsequent years, if the companies don't drill and form units.

Eyeing source rocks

As it pursues conventional targets, BRPC is also interested in source rock.

The potential for source rock development is "excellent" under its Tofkat, Kachemach and Southern Miluveach units, and possibly Beechey Point as well, Thompson said.

"As an example, an older well just north of our Southern Miluveach and Kachemach Units flowed clean oil into the drill pipe on a drill stem test from the Shublik shale," he said.

Brooks Range Petroleum is currently talking to independents and service companies interested in source rock, and plans to hire consultants to evaluate its acreage.

Meanwhile, the company is "closely following" the work Great Bear Petroleum is currently undertaking. "We see Great Bear Petroleum as the 'leader,' and we see BRPC strategy as the 'fastest follower' in regard to source rock exploitation," Thompson said.

The state of the industry

Brooks Range Petroleum believes its schedule can accommodate all these exploration efforts, but it is looking for partners to help it tackle the workload at all its prospects.

As such, it can offer a glimpse into how its potential partners views Alaska — particularly the balance of exploration credits and progressivity in the current tax code.

The potential for source rock development is "excellent" under its Tofkat, Kachemach and Southern Miluveach units, and possibly Beechey Point as well, Thompson said.

Some companies simply wouldn't even consider working in Alaska because of that tax code, called Alaska's Clear and Equitable Share, or ACES, according to Thompson.

"We could not get even our toes in the doors with those companies," he said.

Others believe the tax code is among the most complicated for any oil-producing region, and "not fair" when added on royalties, permitting fees and other state and federal taxes.

"Quite honestly, the momentum of partnering interest recently slowed dramatically when ConocoPhillips announced their second quarter 2012 earnings," Thompson said.

In its first full quarter as an upstream company, ConocoPhillips released taxation information alongside earnings in its report. ConocoPhillips earned \$551 million in Alaska in the second quarter, but paid \$1.25 billion in obligations, including \$983 million to the state. "This is the highest take of any state in the U.S., and has been the single biggest fear we hear most often," Thompson said. "It is the reason most companies do not want to put their capital in Alaska and will not consider partnering with BRPC."

Policymakers frequently discuss the impact of North American unconventional gas supplies on Alaska natural gas development, but Thompson suggests they should also be considering the impact of domestic unconventional oil on North Slope oil development.

Alaska once justified a high government take because it boasted larger resources than other states, Thompson said. "This is simply not true any longer when you consider the huge potential in unconventional source rock resources with much easier and lower cost access in the Lower 48," he said, pointing to the Bakken, the Eagle Ford and the Permian Basin as well as smaller plays and emerging plays "yet unnamed but easily accessible."

Many upsides remain

But these potential partners are hopeful, too.

As the debate in Alaska proves, industry favors the revisions Gov. Sean Parnell proposed in House Bill 110 and companies outside the state feel the same way, Thompson said.

And Alaska's benefits have kept some companies interested, he said.

While Alaska is known for its geologic advantages, Thompson said many potential partners are impressed with its policy advantages. He said some companies, Brooks Range Petroleum among them, consider the ACES tax credits "the best in the nation."

Those credits are "one of the key reasons why BRPC persists in exploration drilling on the Slope versus just development." Specifically, Thompson said, the credits allowed Brooks Range Petroleum to add entire wells to its exploration programs some winters.

He considers it a good investment, too: "We calculate the state will fully recover back all the tax credits they paid us on all proprietary seismic acquired and wells drilled by BRPC on the Slope, and then some, within the first two years of oil production at Mustang."

Additionally, Thompson said, "The state is to be highly complimented in regard to the streamlining of permitting and for fa-



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ilitating the formation of exploration and development units with clear expectations and commitments on both sides.” He praised the annual areawide lease sales as a model for the federal government and other states.

Geologic advantages

And Thompson said some companies still see geologic advantages for oil exploration and development in Alaska, although perhaps not in the way Alaska is used to hearing.

Some companies are interested in conventional exploration targets and some are interested in source rocks. “We believe there are still come ‘company makers’ to be discovered and developed on the Slope. This hope has kept some other producers and private equity firms assessing the possibility of partnering with BRPC,” he said.

But some companies believe the “sweet spots” in the Lower 48 unconventional plays have already been drilled, or at least have already been leased, forcing new entrants to drill in less-productive regions within the plays if they want in, according to Thompson.

“Many source rock operators disagree with this and believe the potential will be as good because the horizontal drilling and fracking technologies continue to improve,” he said.

If future wells in the Lower 48 are less productive than expected, though, it “may make the potential of not only the source rocks but also oil from the lower-permeability sands in the Brookian on the North Slope of more interest to companies,” Thompson said.

To improve the case for Alaska, “the state would need to build gravel access roads to key areas on the southern part of the Slope both east and west if the scale of low-permeability sands and

source rock development is to reach the high potential it could be,” he said. “Without the state paying for that basic road infrastructure as other states have done, achieving the logistical scale necessary for those oil resources may not happen.”

How best to proceed

As the North Slope matures, Brooks Range Petroleum is one of a handful of smaller privately held independents trying different strategies for operating on the North Slope.

For more than a decade, Armstrong Oil & Gas Inc. found success by bringing in much larger partners to develop North Slope prospects. And Savant Alaska became the first privately held operator on the North Slope after acquiring the Badami unit from BP.

Brooks Range Petroleum is considering two options.

The first is to partner with a larger company able to bring capital, technical expertise and manpower to the portfolio. “One example of expertise is that our BRPC staff does not have experience in assessing or completing low-permeability sands and source rocks with the modern geosciences’ and engineering technologies available today,” Thompson said. “While we have some of the best conventional exploration expertise on the North Slope, we are honest with ourselves that we lack unconventional play expertise.”

The second is to pursue near-term private equity and potentially take the company public after Mustang comes online. “This would create the first, Alaska-only public oil company which could access capital from the equity markets and allow us to ‘go it alone,’” he said.

Contact Eric Lidji at erichidji@mac.com

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Buccaneer Alaska in E&P mode; jack-up here

Independent has Cook Inlet basin exploration onshore, offshore prospects; Cosmo to be first offshore well

By **KRISTEN NELSON**
Petroleum News

One of Cook Inlet's newer explorers, Buccaneer Alaska has multiple exploration prospects, onshore and offshore, in the Southcentral Alaska Cook Inlet basin, has gone into production at its onshore Kenai Loop natural gas field and has the Endeavour — Spirit of Independence jack-up rig undergoing modifications in Cook Inlet.

A statement by the company on Oct. 5 indicates that the Cosmopolitan prospect off the southern coast of the Kenai Peninsula will be the first well Endeavour will drill, with a well expected to spud in late November to early December.

The parent company, Buccaneer Energy, is a Sydney, Australia-based independent founded in 2006. Buccaneer came to Alaska in March 2010 when it acquired assets, and some executives, of Stellar Oil & Gas LLC, a sister company to Renaissance Alaska LLC. The company has since



JAMES WATT

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ALASKA OFFICE: 215 Fidalgo Ave, Ste. 100, Kenai, AK 99611
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PHONE: 713-468-1678
COMPANY WEBSITE: www.buccenergy.com
ALASKA GAS PRODUCTION, NET: 5 million cubic feet a day



added to its Alaska acreage and currently has some 75,000 acres of Cook Inlet state oil and gas leases, both onshore and offshore.

The company's first producing field, Kenai Loop, is selling natural gas to Cook Inlet Natural Gas Storage Alaska, the new storage facility on the south side of the City of Kenai owned by Semco Energy, MidAmerican Energy Holdings Co., Cook Inlet Region Inc. and First Alaska Capital Partners.

Buccaneer brought the Kenai Loop No. 1 online in January. When it began selling natural gas from the well in April, the com-

continued on page 42



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BUCCANEER *continued from page 40*

pany said its contract requires it to provide at least 5 million cubic feet per day to CINGSA, but it can sell as much as 15 million cubic feet per day.

Buccaneer also has an agreement to sell Kenai Loop natural gas to ConocoPhillips for use at its Nikiski liquefied natural gas facility, should the storage facility shut down.

The Kenai Loop 3 was a dry hole; Buccaneer is currently drilling Kenai Loop 4, which spud in mid-September.

Cosmopolitan

Buccaneer now plans its first offshore drilling at Cosmopolitan, off the coast of the southern Kenai Peninsula near Anchor Point, some 30 miles northwest of Homer.

Buccaneer and BlueCrest Energy Inc., a privately held independent out of Fort Worth, closed on acquisition of Cosmopolitan from Pioneer Natural Resources Alaska in late August. Buccaneer has a 25 percent working interest in Cosmopolitan and is the operator in the two-lease prospect.

The company has said it will drill from offshore, using the Endeavour, and from an onshore drill site used by previous owners in recent Cosmopolitan drilling.

Cosmopolitan, then called Starichkof, was discovered by Pennzoil in 1967, when oil was found in the Lower Tyonek reservoir sands and produced at relatively low rates during a drill stem test. No further work was done at the field until 2001 when Phillips Alaska (now ConocoPhillips Alaska) drilled the Hansen No. 1, a sidetrack and shot 3-D seismic over the region. ConocoPhillips sold the prospect to Pioneer Natural Resources Alaska in 2006; Pioneer drilled a lateral off the sidetrack and conducted a flow test, but decided not to pursue full-scale development. Alaska Oil and Gas Conservation Commission

records show cumulative production of 33,504 barrels of oil, 10,122 barrels of water and 119 million cubic feet of natural gas.

Buccaneer has said in the past that it plans to use the jack-up to conduct shallow gas drilling from offshore, while directional wells would be drilled from an existing onshore pad targeting oil.

Southern Cross, Northwest Cook Inlet

Buccaneer has deferred drilling at the Southern Cross and Northwest Cook Inlet units in Cook Inlet until next year.

While the Alaska Division of Oil and Gas found Buccaneer Alaska in default under its Southern Cross and Northwest Cook Inlet unit agreements for failure to drill at the two offshore Cook Inlet units this year, it did not terminate the units, but set conditions for the company to cure the defaults, including completing the first wells at both units by Oct. 31, 2013.

Buccaneer requested extensions until next year for drilling the first wells at the units, requesting the Southern Cross extension in July and the Northwest Cook Inlet extension in September.

The company's plans of exploration called for beginning wells at both units by Sept. 30, 2012.

Division Director Bill Barron said in Oct. 1 letters to Buccaneer that while the units are in default, failure to drill the wells this year will not result in unit termination, the penalty proposed by Buccaneer in its plans of exploration.

Barron said the state's approval of the units was based not only on the work commitments, but also "on the exploration and development benefits of Buccaneer bringing a jack-up rig to Cook Inlet that would not only serve Buccaneer in drilling its prospects, but could also create a unique circumstance where the rig could be shared with other operators, thereby promoting exploration and development of other off-

shore Cook Inlet fields and providing increased potential for economic growth and employment opportunities."

Delay related to jack-up

In requesting a delay for the Southern Cross unit well, Barron said Buccaneer cited the delayed arrival of the Endeavour jack-up, the unavailability of another jack-up drilling rig in upper Cook Inlet and the requirement to discontinue drilling by Oct. 31. He said Buccaneer provided a schedule of costs and additional shipyard work that resulted in the delay of arrival. The up-graded Endeavour arrived in Cook Inlet Aug. 24.

In requesting the delay for drilling at Northwest Cook Inlet Buccaneer cited the delayed arrival of the Endeavour, delays due to additional work required on the rig in Homer and severe weather in September that prevented Buccaneer from beginning drilling operations on or before Sept. 30.

Buccaneer said Oct. 5 that the jack-up has been undergoing final work and regulatory inspections since it arrived in Cook Inlet and listed three "critical path items" needed for the jack-up to receive final permits to operate in Cook Inlet:

- Fast rescue craft: Buccaneer said the craft purchased and installed in Singapore was approved for Arctic service, but the manufacturer issued a recall notice on the craft due to undetected manufacturing deficiencies, requiring replacement with a factory-provided upgrade.

- General alarm system: Buccaneer said the system was repaired and certified in Singapore but failed during testing upon arrival in Homer. Repairs have been ongoing since, but the company said it is an old system and availability of parts has delayed repairs, resulting in a decision to order and install a new system.

- Firefighting system: The system installed and certified in Singapore developed a valve leak during transit which was discovered upon arrival in Alaska. The special fire suppressant refill and replacement valve have been ordered but delivery has been delayed.

The company said that while delays have been frustrating, "and largely outside of Buccaneer's control, our priority is to have a fully operational and efficient jack-up rig that ensures the safest possible working conditions for crews and the sensitive environment in which it will operate."



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The Kuparuk River oil field, the second largest oil field on Alaska's North Slope, is operated by ConocoPhillips.

ConocoPhillips: half full, half empty

Largest Alaska producer ends 2012 in better shape than 2011, but worried about future of investment opps

By ERIC LIDJI
For Petroleum News

For ConocoPhillips, the difference between this year and last year is striking.

In 2011, ConocoPhillips faced delays on its plans to develop the National Petroleum Reserve-Alaska and explore in the waters of the Arctic outer continental shelf. By 2012, federal agencies removed a key obstacle blocking the NPR-A program and showed willingness to allow leaseholders in the Beaufort and Chukchi seas to explore those areas.

In 2011, ConocoPhillips folded Denali — its joint venture with BP Exploration (Alaska) Inc. to market North Slope natural gas resources through a major pipeline through Canada — and planned to close its liquefied natural gas export terminal in Nikiski. By 2012, ConocoPhillips and other producers aligned around a plan to market North Slope natural gas as LNG and unexpected geopolitical issues kept the Nikiski terminal open.

And after two winters without a traditional exploration well on the North Slope, ConocoPhillips drilled the Shark Tooth No. 1 well on its state acreage in early 2012.



TROND-ERIK JOHANSEN

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ConocoPhillips Co.

COMPANY HEADQUARTERS:

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ALASKA OFFICE: 700 G St., Ste. 1950, Anchorage, AK 99501

TOP ALASKA EXECUTIVE: Trond-Erik Johansen

PHONE: 907-276-1215

COMPANY WEBSITE: www.conocophillipsalaska.com

ALASKA OIL & GAS PRODUCTION, NET: In 2011, 215,000 barrels of oil and natural gas liquids per day and 61 million cubic feet of natural gas per day.

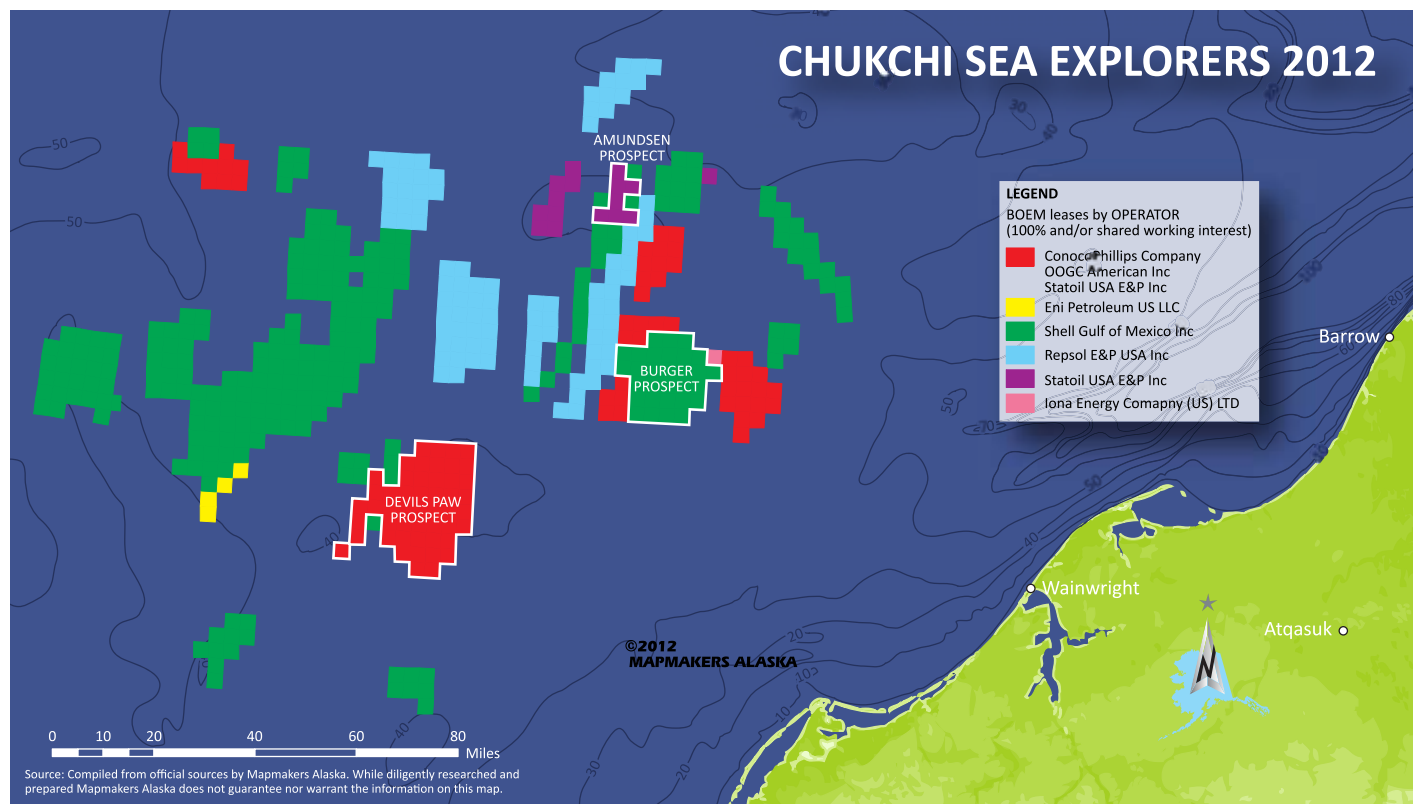
But some issues remain unchanged.

ConocoPhillips' legacy fields on the North Slope and in Cook Inlet still require capital to stem declining production. ConocoPhillips still believes the state fiscal regime is hampering its investment. ConocoPhillips is still earning large profits and paying large tax bills. And ConocoPhillips is still touting investment opportunities in the Lower 48.

A long corporate history

In 2012, ConocoPhillips took another step in its long evolu-

continued on page 49



BUCCANEER *continued from page 42*

Requirements to cure

Barron set similar requirements for each unit to cure the default.

By Oct. 31, 2013, Buccaneer must have drilled, logged, and completed, suspended or abandoned wells in block A of each unit.

At the Northwest Cook Inlet unit the well must be drilled to the base of the Beluga formation; at the Southern Cross unit the well will be drilled to the pre-Tertiary interval stratigraphically equivalent to the Jurassic interval from 9,042 feet measured depth to a total depth in the Shell MGS SRS State No. 1 well.

For both units second plans of exploration will be submitted by Sept. 1, 2013, with plans to drill the second unit exploration wells in block B of the units.

Endeavour investment

Barron said the state recognizes “the significant investment” Buccaneer made in acquiring and refurbishing the jack-up and mobilizing it to Cook Inlet, allowing “the potential to create numerous economic benefits” for the state.

By drilling the two wells in 2013, the unit operator and the units “will remain in good standing,” Barron said.

Buccaneer Energy and Ezion Holdings Ltd. formed Kenai Offshore Ventures in 2010 to acquire a jack-up for work in Cook Inlet.

The rig was purchased, modified and mobilized by Kenai Offshore Ventures through a public-private partnership with the Alaska Industrial Development and Export Authority.

Jim Watt, president of Buccaneer Alaska, said Buccaneer “spent a significant amount of time and effort outfitting the Endeavour to make it ‘fit for purpose’ for work in the inlet, and once it’s on station will stay for years to come, providing the citizens of South-central Alaska with the key to unlock the vast amounts of oil and gas locked in the Cook Inlet.”

While Buccaneer plans to make initial use of the jack-up, Kenai Offshore Ventures wants to eventually make the rig available to third parties in Alaska

Onshore exploration prospects

Onshore, Buccaneer has two exploration prospects — West Nicolai Creek on the west side of Cook Inlet and West Eagle north-east of Homer on the southern Kenai Peninsula.

West Eagle is east of the Red pad natural gas well Hilcorp Alaska is working to put into production and east-northeast of the North Fork natural gas field which Armstrong brought online in April 2011.

On its website Buccaneer describes West Eagle as an oil and gas prospect and says two wells included in the leased area show potential oil and gas pay on logs. The company estimates an upside of 10 million barrels of oil in the Hemlock formation and 100 billion cubic feet of natural gas in the Tyonek formation, with estimated initial production rates of 300 barrels of oil per day and 10 million cubic feet of gas per day per well.

The company said an in-house estimate for an initial well includes 5 million barrels of oil and 20 bcf of natural gas.

Buccaneer’s website listed 49,277 acres in this prospect, but the majority of Buccaneer tracts in this area expired at the end of September.

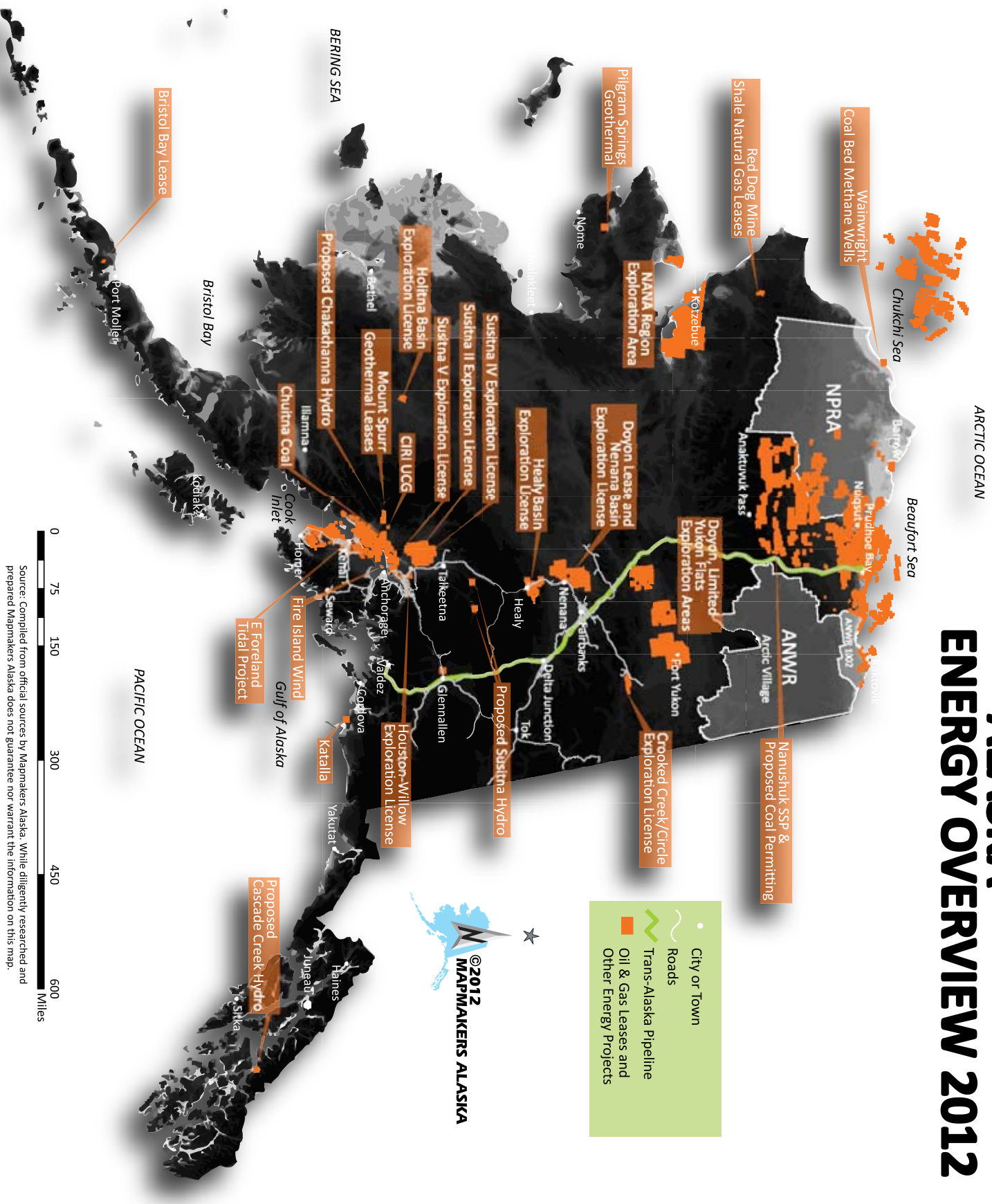
Buccaneer’s other onshore prospect, West Nicolai Creek, is west of the Aurora Gas-operated Nicolai Creek gas field on the west side of Cook Inlet. On its website Buccaneer estimates an initial rate of 6 million cubic feet of gas per well. Buccaneer says this is a 5,653-acre prospect and says an in-house resource potential for the prospect is 7 bcf of natural gas.

The lease at this prospect runs through early 2018.

—A copyrighted oil and gas lease map from Mapmakers Alaska was a research tool used in preparing this story.

Contact Kristen Nelson at knelson@petroleumnews.com

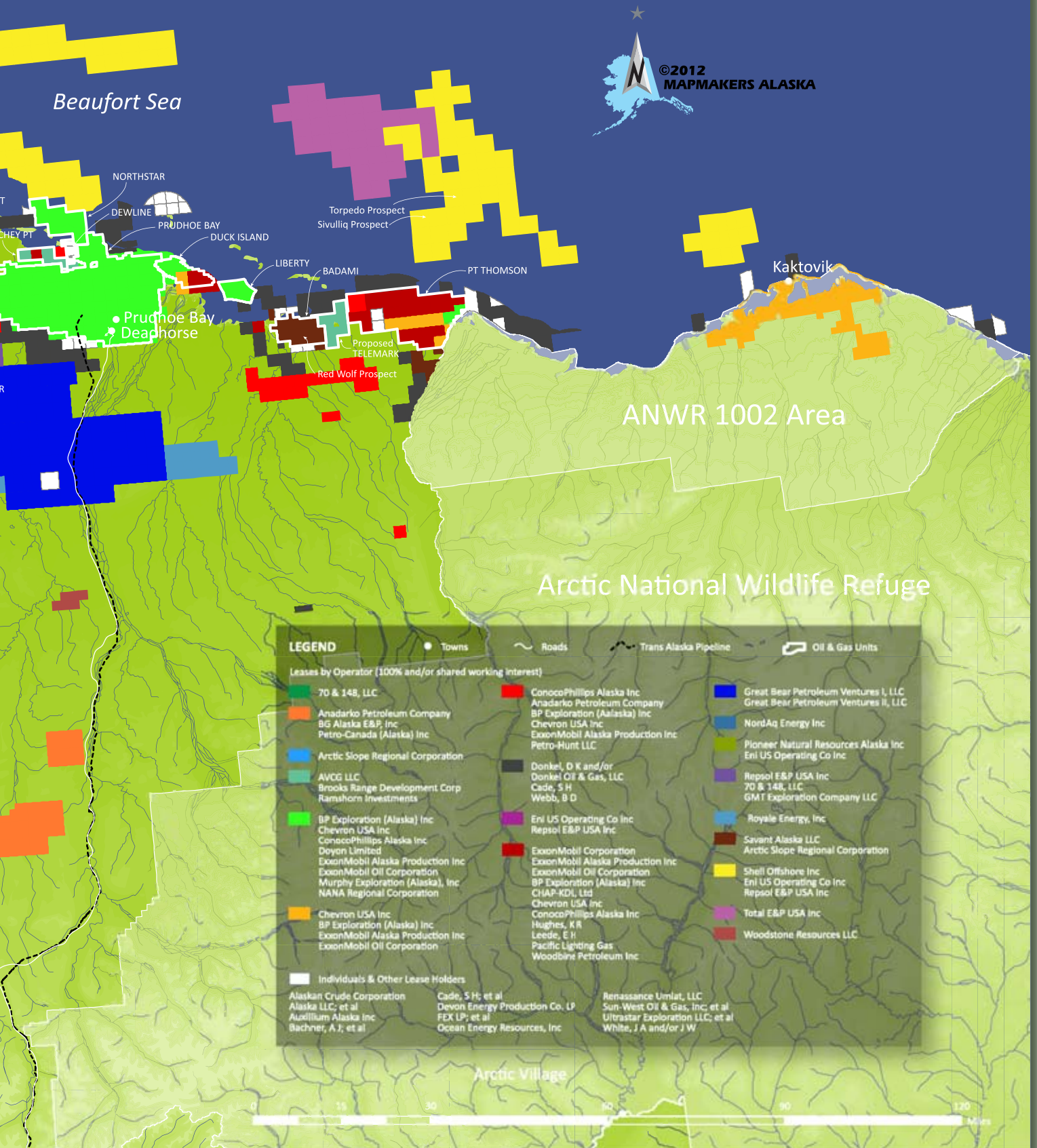
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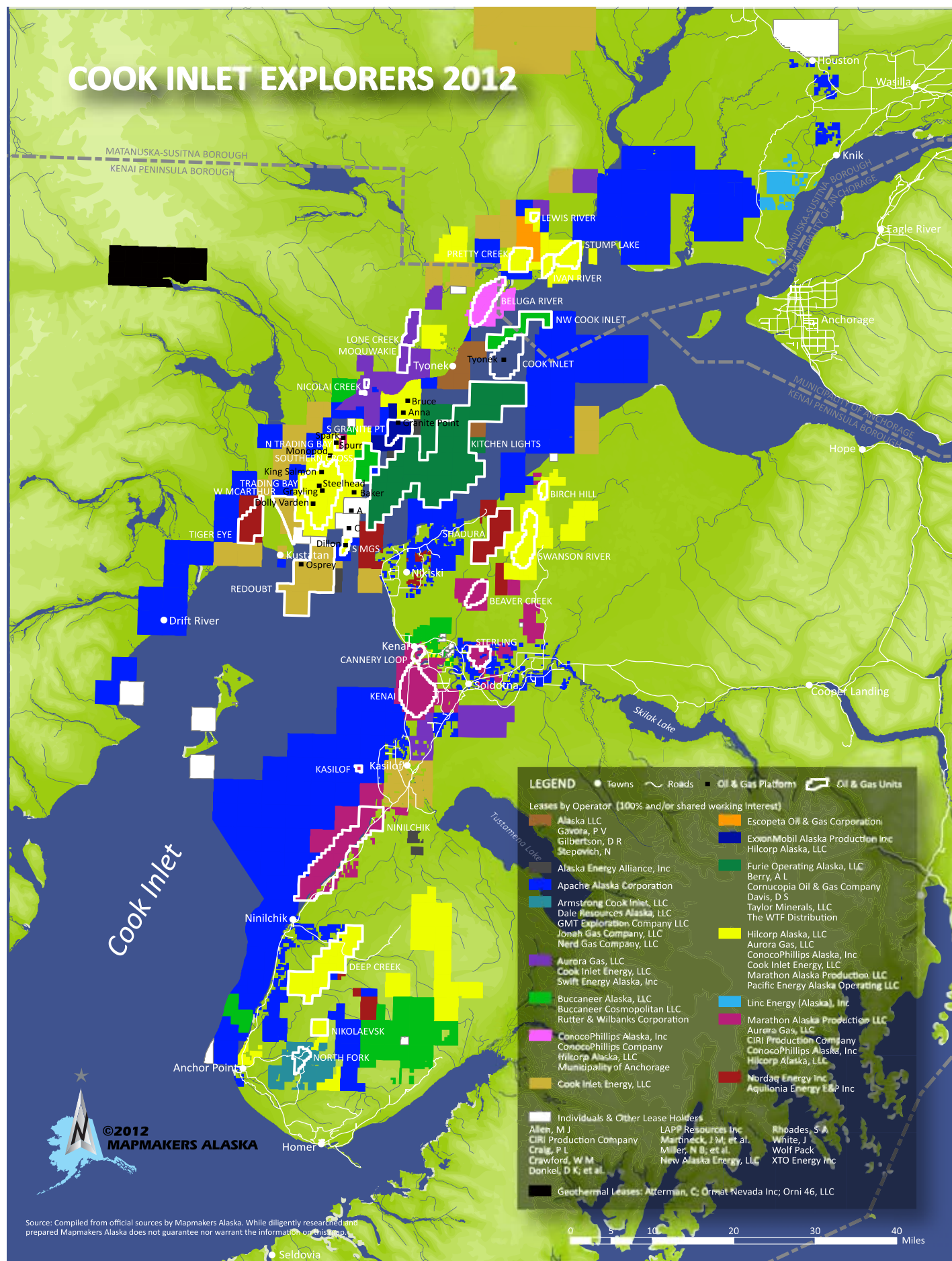
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NORTH SLOPE & BEAUFORT SEA EXPLORERS 2012



COOK INLET EXPLORERS 2012



Source: Compiled from official sources by Mapmakers Alaska. While diligently researched and prepared Mapmakers Alaska does not guarantee nor warrant the information on this map.

tion as a corporate entity, splitting into the upstream ConocoPhillips and the midstream and downstream Phillips 66. But the change meant little for Alaska directly, certainly less than previous changes.

The previous version of ConocoPhillips emerged from the merger of Conoco and Phillips Petroleum in 2002. Those companies and their predecessor companies were responsible for many of the early milestones in the history of the modern Alaska oil industry, including the discovery of Prudhoe Bay and the pioneering Kenai LNG export terminal.

After launching North Slope oil production, those companies initiated a westward expansion campaign on the North Slope that ConocoPhillips continues to pursue today.

Those initial western projects included the Kuparuk River unit in 1981 and the Alpine field at the Colville River unit in 2000, both of which ConocoPhillips operates today.

Since the merger, ConocoPhillips and partner Anadarko brought three Alpine satellites online: Fiord and Nanuq in 2006 and Qannik in 2008. ConocoPhillips also aggressively explored the NPR-A after federal agencies opened the region to leasing again, drilling 20 of the 29 exploration drilled wells in the 23 million acre reserve between 2000 and 2009 and forming the first units in reserve, Mooses Tooth in 2008 and Bear Tooth in 2009.

In September 2012, ConocoPhillips staked nine well locations in the two federal units.

ConocoPhillips staked the Flattop No. 1 and No. 2 wells on the eastern edge of Mooses Tooth, between the ARCO Clover A and the Phillips Alaska Mitre No. 1 wells. It also staked the Cassin No. 1, 3,

continued on next page



Discovered in 1999, Fiord was developed exclusively with horizontal well technology and will employ enhanced oil recovery, similar to the Alpine field.

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CONOCOPHILLIPS *continued from page 49*

3A, 5, 6, 8 and 8A wells in Bear Tooth, to the north.

In February 2008, ConocoPhillips continued westward by spending \$506.4 million for 98 tracts in the Chukchi Sea in north-west Alaska, as part of a record federal lease sale.

At the end of 2011, ConocoPhillips leased 1.2 million net undeveloped acres in Alaska.

Kuparuk and Alpine work

ConocoPhillips continues to maintain its North Slope developments.

At Kuparuk River, ConocoPhillips recently implemented a coiled-tubing drilling program that included 12 wells and 46 laterals, designed to generate a peak incremental oil rate of about 2,600 barrels of oil per day, the company told the state in annual filings for the unit.

And this coming year, ConocoPhillips is planning as many as 13 coiled-tubing drilling sidetracks and five rotary drilling sidetracks at Kuparuk River, according to the filings.

In early 2012, ConocoPhillips used Doyon rig 141 to drill the Shark Tooth No. 1 step-out well from an ice pad in southwest portion of the unit. "The well discovered hydrocarbons in the Kuparuk sands, in accordance with expectations, and confirmed mapped volumes. This area is being evaluated to assess further development potential," the company said.

In 2011, ConocoPhillips produced 58,000 net barrels of liquids per day at the Greater Kuparuk Area — covering the field and four satellites: West Sak, Tabasco, Tarn and Meltwater. ConocoPhillips holds a 52.5 to 55.4 percent working interest in the area.

At the main Alpine field, where ConocoPhillips produced 33,000 net bpd of liquids in 2011, the company is using 3-D seismic acquired in 2010 to find new drilling opportunities.

And at the satellites, responsible for 18,000 net bpd in 2011, ConocoPhillips is focused on bringing the Alpine West, or CD-5, satellite into production after years of delays.

CD-5 permitting resolution

Those delays concerned a utility bridge ConocoPhillips wanted to build across a channel of the Colville River. ConocoPhillips and local Native groups spent years negotiating a path for the bridge,

but the U.S. Army Corps of Engineers rejected the idea entirely in early 2010, telling the company to drill directionally underneath the channel instead.

After an appeal, in late 2011 the U.S. Fish & Wildlife Service and the Environmental Protection Agency reached "an agreement in principle" with ConocoPhillips on the bridge proposal and soon thereafter the Army Corps issued a permit for the project, albeit requiring some modifications to the original design to reduce impacts on floodplains.

ConocoPhillips is currently working on engineering and design, and hopes to sanction the project in 2012, begin construction in 2014 and bring the satellite online in late 2015.

Offshore plans progressing

With Shell Oil given clearance to drill in the Arctic OCS after years of delays, ConocoPhillips is following closely in its wake to explore the federal waters off Alaska.

After dropping much of its Beaufort Sea acreage in 2009, ConocoPhillips is now focused on the Chukchi Sea, where it holds an interest in the Devil's Paw and Burger prospects.

Shell is the lead on Burger exploration this year and was also responsible for drilling early wells at Devil's Paw in 1989 — calling it Klondike at the time. The prospect is some 120 miles west of the coastal village of Wainwright. ConocoPhillips acquired the Devil's Paw prospect in a February 2008 federal lease sale. It brought the Norwegian company Statoil on board as a 25 percent partner on 50 leases in the prospect in early 2010 and in 2011 brought a second unnamed partner on as a 10 percent partner in those same leases.

In early 2012, ConocoPhillips filed an exploration plan with the Bureau of Ocean Energy Management outlining plans to drill as many as two wells in the 2014 open water season.

The Devil's Paw program is far from a sure bet. The initial Klondike well did not encounter commercial quantities of oil and gas, but ConocoPhillips believes there is a good chance of finding an oil field large enough to justify development in the remote region, ConocoPhillips Chukchi Sea exploration project manager Mike Faust told the National Marine Fisheries Service's annual Arctic Open Water meeting on March 8.

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The Alpine field in the Colville River unit in 2000, operated by ConocoPhillips on Alaska's North Slope adjacent to NPR-A.

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Circling around a pipeline

Alongside those efforts to maintain existing oil developments and find more giant fields, ConocoPhillips continues to work on marketing North Slope natural gas resources.

After more than three years of environmental and engineering work on their Denali joint venture, ConocoPhillips and BP held an open season in 2010. But they discontinued the plan in May 2011, saying they couldn't find enough customers to justify moving forward.

In his State of the State address in January 2012, Gov. Sean Parnell presented a five point roadmap to get a gas pipeline built: resolving Point Thomson litigation, achieving alignment around a liquefied natural gas project under the Alaska Gasline Inducement Act, working to consolidate two state-sponsored gas pipeline projects and hardening numbers on the LNG project, and starting deliberations on natural gas tax legislation.

The administration reached points one and two on March 30. First, it announced a settlement on Point Thomson. Second, the CEOs of ExxonMobil, ConocoPhillips and

BP sent a letter to Parnell suggested they would be willing to consider and possible unite around an LNG project, provided the state provides competitive and stable fiscal terms.

To work with the state, ConocoPhillips and BP would need to participate in the Alaska Pipeline Project sponsored by TransCanada Alaska and ExxonMobil and backed by the state through AGIA. TransCanada launched a solicitation of interest in early September to find parties that might be willing to make future capacity commitments on a North Slope natural gas pipeline, either through Canada or to a liquefaction terminal.

Methane hydrates work

Alongside those efforts to develop conventional gas supplies, ConocoPhillips has been partnering with the government to develop unconventional North Slope gas supplies.

With the U.S. Department of Energy, ConocoPhillips drilled the Ignik Sikumi No. 1 well at the Prudhoe Bay unit in early 2011 to test a method for producing gas hydrates. The extensive deposits on the North Slope trap methane molecules in miniscule cages of ice.

To make methane hydrates a viable energy source, researchers must find a cost effective way to unlock those cages. Toward that goal, the Department of Energy, ConocoPhillips and Japan Oil, Gas and Metals National Corp. performed a production test on the well in early 2012, injecting large amounts of carbon dioxide and nitrogen into the formation.

The test yielded 30 days of continuous production, five times longer than the previous best demonstration (an attempt to depressurize a reservoir in northern Canada in 2008).

Though promising, the results are still a far cry from proving the technical and commercial viability of the technique. The Department of Energy has budgeted \$5 million for methane hydrate research, possibly including a longer North Slope test, as well as \$6.5 million for other methane hydrate projects, include a subsea research effort.

Holding in Cook Inlet

After spending more than \$200 million in Cook Inlet between 2008 and 2011, ConocoPhillips slowed the pace of activity at its legacy fields in the basin in 2012.

Between 2008 and 2010, ConocoPhillips spent more than \$80 million drilling four wells at the Beluga River unit. In 2008 and 2009, ConocoPhillips spent \$75 million drilling three wells at the North Cook Inlet unit, but called those wells disappointing. In 2011, ConocoPhillips spent \$60 million dispersing compressor stations at Beluga to improve the pressure and increase the quality of the machines at the 50-year-old field.

In late 2010, ConocoPhillips Cook Inlet Manager Dan Clark said ConocoPhillips likely wouldn't conduct exploration in the basin anytime soon because of the lack of a jack-up rig in the region. With two jack-up rigs now in the Cook Inlet, those plans could change.

The biggest development in Cook Inlet in 2012 involved liquefied natural gas.

In February 2011, ConocoPhillips and partner Marathon Oil announced plans to mothball the facility in the spring because they could not secure contracts in the Asian markets.

Because of unexpected demand, largely from increased reliance on gas as the Japanese moved away from nuclear power, the companies postponed the closure several times.

Toward the end of 2011, ConocoPhillips bought out its long time partner Marathon.

"We really believe that the plant has options for the future and we opted to purchase Marathon's share so that we could

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maintain those options ourselves,” ConocoPhillips Alaska spokeswoman Natalie Lowman told Petroleum News in October 2011.

Whether those options involved continued exports, future imports, some combination or something else entirely depends largely on the future of gas production in Cook Inlet.

While some companies have announced discoveries and a new third party storage facility will likely help level the strong seasonal swings, regional demand is still expected to outpace supplies by 2015, creating the potential need to import gas to Southcentral.

Meanwhile, ConocoPhillips resumed exports in the spring. In June, Lowman said ConocoPhillips expected the make four to five cargo shipments to Asia in 2012.

The current export license expires on March 31, 2013.

Debating oil tax reform

Meanwhile, a debate continues in Alaska about future investments.

ConocoPhillips and other companies insist the state must revise its fiscal regime if it wants industry to continue the investments needed to stem declining production. In particular, industry wants the state to change the progressivity feature that increases the production tax rate as oil prices increase, saying it takes away too much of the upside.

A bill to reduce production taxes across the board passed the state House in 2011 but died in the Senate. After studying several proposals, the state Senate moved a completely different bill in early 2012, but industry said the changes wouldn't do enough to make Alaska more attractive than other resource-rich regions. The bill died in the House.

Gov. Sean Parnell called a special session to address a new bill, but withdrew it a week later, saying the Senate “appears incapable

of passing comprehensive oil tax reform.”

Over the summer, both sides prepared their cases. The administration hired a consultant to advise it on oil and gas taxes while the public interest group Backbone re-emerged to defend the bipartisan coalition in the Senate that questioned the proposed reforms.

Other opportunities

Although lawmakers won't return to session until January, the debate continues to rear its head each time ConocoPhillips releases financial information about its Alaska operations.

ConocoPhillips earned \$551 million in Alaska in the second quarter, but paid around \$1.25 billion in taxes and royalties on its Alaska operations, including \$983 million paid to the state of Alaska in severance taxes, royalties, property taxes and state income tax.


Each side found support for their beliefs in the figures. While Sen. Bill Wielechowski, a Democrat, pointed to high profits at a time of high oil industry employment, Sen. Cathy Giessel, a Republican, pointed to high taxes and increased spending outside the state.

As policymakers decide what to do, ConocoPhillips is increasingly involved in Lower 48 unconventional oil plays, including the Bakken, the Eagle Ford and the Permian basin.

For years, ConocoPhillips predominately produced oil from its Alaska operations and natural gas from its Lower 48 operations, but unconventional oil is shifting that balance.

In 2011, ConocoPhillips produced 215,000 barrels of oil and natural gas liquids per day in Alaska and 168,000 bpd of liquids in the Lower 48. In the first half of 2012, the company produced some 216,000 bpd in Alaska and 199,000 bpd in the Lower 48.

Contact Eric Lidji at erclidji@mac.com



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Cook Inlet Energy lays foundation

Young E&P's main focus is reviving idle oil wells, yet has managed to find some success as natural gas explorer

By WESLEY LOY
For Petroleum News

For Cook Inlet Energy LLC, it's first things first. The young, Anchorage-based company certainly has big aspirations as an oil and gas explorer.

But to date, Cook Inlet Energy has needed to direct most of its efforts toward restoring production from shut-in assets acquired in late 2009 on the inlet's west side.

The company operates the West McArthur River oil field, as well as the Redoubt unit with its Osprey offshore platform.

In recent months, production has been modest at less than 1,000 barrels of crude per day. But the company hopes to stoke production now that its new drilling rig is up and running atop Osprey. The rig is working to recomplete several idle wells with problems such as collapsed casings.

Otter shows promise

Cook Inlet Energy hasn't stayed entirely on the exploration



DAVID HALL

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Cook Inlet Energy LLC

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TOP ALASKA EXECUTIVE: David Hall

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PARENT COMPANY WEBSITE: www.millerenergyresources.com

ALASKA OIL & GAS PRODUCTION, NET: ~1,000 bpd



sidelines.

In fact, the company this year drilled an exploratory well on its Otter natural gas prospect. Otter is about 10 miles north of the Beluga gas field, which has a long legacy as a major energy source for Anchorage, the state's largest city.

The Otter No. 1 well was drilled to a depth of 5,680 feet.

"The mud loggers reported two significant hydrocarbon gas shows in the zone of interest," David Hall, the company's chief executive, said during a July 25 investor conference call. "We're very excited about the Otter No. 1."

Otter has a chance to be "a very prolific gas field," Hall said. But he noted that additional work was needed to fully evaluate

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*Socialnomics, Erik Qualman.

the field. The plans included conducting a chemical treatment, a hydraulic fracture or both to stimulate the well.

Meantime, the Alaska Department of Natural Resources on Aug. 10 published a public notice that the company had applied for an easement to install a buried gas pipeline, 6 inches in diameter, to reach Otter.

In an Aug. 15 interview, Hall told Petroleum News the easement application didn't necessarily signify a commercial discovery at Otter.

Cook Inlet Energy has more gas prospects on the inlet's west side, including one known as Olsen Creek.

The company is using its own rig 34 to drill these shallow gas prospects. The truck-mounted Atlas Copco RD20 model rig was brought up from Tennessee and extensively modified for work in Alaska.

Company history

While Cook Inlet Energy is a

continued on next page

Company's new Rig 35 atop the Osprey platform. The shot was taken in mid-May 2012.



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COOK INLET ENERGY *continued from page 55*

youngster, formed in January 2009, its leaders are veterans of the local oil and gas scene.

The company launched as an oil and gas producer in December 2009, when it took over assets that formerly belonged to California-based Pacific Energy Resources Ltd., which went through a bankruptcy liquidation.

Hall and Cook Inlet Energy's president, JR Wilcox, were well-acquainted with the assets, having previously worked for Pacific Energy. Hall was vice president and general manager of Alaska operations for Pacific Energy.

A Tennessee company, Miller Energy Resources Inc., brought financing to bid for the properties in a bankruptcy sale, and Cook Inlet Energy became a Miller subsidiary as part of the transaction.

Miller has a long history in the Appalachian basin of East Tennessee. Although the company is quite small, its shares trade on the New York Stock Exchange. In its annual report filed with the U.S. Securities and Exchange Commission for the year ended April 30, Miller reported revenue of \$35.4 million with an operating loss of \$25.1 million.

Most of Miller's oil production comes from Alaska. During the first eight months of 2012, Cook Inlet Energy's production averaged as high as 1,604 barrels per day in April.

"The mud loggers reported two significant hydrocarbon gas shows in the zone of interest. We're very excited about the Otter No. 1."

—David Hall, Cook Inlet Energy CEO

Raising money

Miller has worked numerous financing deals to advance its Alaska development and exploration plans.

Most recently, Miller announced Oct. 5 it raised nearly \$15.8 million through the sale of 685,000 shares of preferred stock at \$23 a share. Prior to the sale, the company said it would use the proceeds for "general corporate purposes, which may include working capital, capital expenditures, development costs, strategic investments and possible acquisitions."

The company reported spending \$19.5 million for the Osprey rig, known as rig 35. The rig gained final regulatory approvals in August and went straight to work.

Hall and Cook Inlet Energy aim to recompleat five Osprey wells, which could greatly boost the company's oil production and cash flow.

Among the assets acquired in 2009 was the Kustatan production facility, an onshore complex that supports the Osprey platform. Cook Inlet Energy believes the facility, currently oversized, will be valuable in advancing its plans in the region.

Farther north, Cook Inlet Energy holds three state exploration licenses covering about 580,147 acres in the Susitna basin.

The licenses give Cook Inlet Energy the exclusive right over a period of years to search for oil and gas in the lightly explored basin. In exchange, the company has made certain work commitments to the state.

At the state's Cook Inlet areawide lease sale on May 16, Cook Inlet Energy bid more than \$2.7 million to win 74,880 acres.

Contact Wesley Loy at wloy@petroleumnews.com

Doyon takes next steps in Interior

Native regional corp plans new exploration well in Nenana basin, seismic survey in Yukon Flats basin

By ALAN BAILEY
Petroleum News

Doyon Ltd. is continuing to move forward with exploration for oil and gas in the Nenana and Yukon Flats basins in the Alaska Interior. For several years the corporation has been investigating the oil and gas potential of the two basins, in hopes of generating profits for the corporation's shareholders, creating employment opportunities and boosting Alaska oil and gas production.

On Aug. 27 the corporation announced three new initiatives that in total will cost something in excess of \$37 million:

- Converting 400,000 acres of a 485,000-acre state oil and gas exploration license in the Nenana basin into state oil and gas leases.

- Drilling a new exploration well in the Nenana basin, as early as this winter.

- Conducting a new seismic survey in the Yukon Flats basin during the coming winter.

"These projects show a lot of promise," said Doyon CEO Aaron Schutt in an Aug. 27 press release. "If successful, they could provide substantial benefits not just to our shareholders, but also to all Alaskans in terms of jobs and helping alleviate the energy crisis in interior Alaska."

Recent state legislation introducing new exploration tax credits and reducing the oil and gas production taxes for "frontier basins" in Alaska "were essential to us to move forward with these substantial projects," Schutt said.

Both the Yukon Flats and the Nenana basins consist of huge depressions in the Earth's crust that have resulted from movements along major geologic faults and that have become filled with river- and lake-borne sediments, primarily of Tertiary age.

The presence of coal seams, formed from decomposed vegetation in the basins, indicates the potential for the formation of natural gas, and Doyon has also found evidence that the corporation thinks indicates a potential for oil formation.

Nenana basin

Doyon's primary interest in the Nenana basin has been the possibility of finding nat-

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COMPANY WEBSITE: www.doyon.com



ural gas at a location close to the road, railroad and electricity transmission corridors between Anchorage and Fairbanks — the basin lies about 50 miles southwest of Fairbanks. The corporation has been exploring the basin in partnership with Rampart Energy Co., Arctic Slope Regional Corp., Usibelli Energy LLC and Cedar Creek Oil & Gas Co. Much of the exploration has been taking place in state land in the basin, under the terms of the state exploration license. Doyon is the current operator of the license.

Doyon licensed some seismic data acquired by Shell in the 1980s, reprocessing Shell's field recordings using up-to-date technology. The Nenana partnership conducted its own seismic surveys in the more southerly part of the basin in 2004 and 2005. And in 2009 the partnership drilled an exploration well, the Nunivak No. 1 well, about three miles west of the town of Nenana.

The well did not encounter an economic

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DOYON *continued from page 57*

gas accumulation but provided intriguing evidence for the hydrocarbon potential of the basin. In particular, coal samples contained hydrocarbons that appeared to have formed from the heating of the coal, rather than from the bacterial decomposition of organic debris. And the geochemical analysis of soil samples from land over the basin found trace quantities of a similar hydrocarbon mix: That all implies the possibility of oil forming in the basin, if temperatures at depth have reached appropriate levels.

Re-assessment

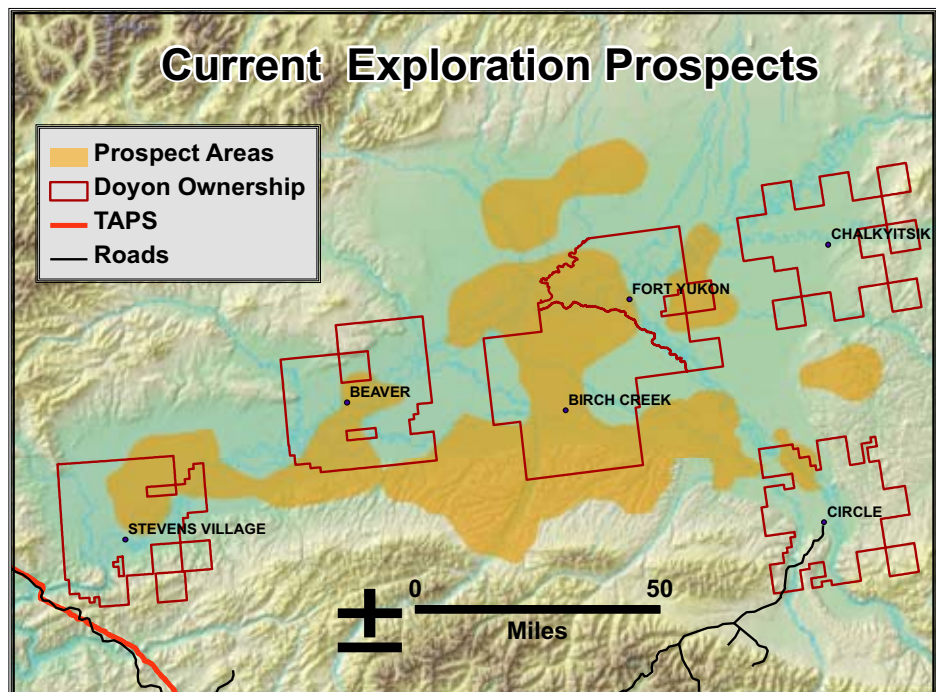
The merging of seismic data with proprietary gravity and magnetic data, and with data from the Nunivak well, have enabled a complete re-assessment of the basin, with that re-assessment pointing to much greater maximum basin depths than previously thought, as well as uncovering some hitherto unseen geologic structures.

And with some parts of the basin perhaps as deep as 25,000 feet, the possibility exists that oil could have formed in some places, Doyon says.

In the winter of 2011-12 Doyon conducted its own seismic survey in the more northerly part of the basin.

The state exploration license for the Nenana basin expires in September and, given the promising results of the work done so far, Doyon decided to convert the bulk of the license area to oil and gas leases, Jim Mery, Doyon Ltd. senior vice president, land and natural resources, told Petroleum News.

"We're going to take leases to everything that we still believe currently has connection



Prospective areas in sub-basins of the Yukon Flats basin. Doyon Ltd is planning to conduct a seismic survey this winter in either the area of Stevens Village or the area of Birch Creek.

to source rock," Mery said.

West of first well

Doyon's new exploration well will be located about seven miles west of the Nunivak No. 1 well, at a location with a large structural closure in direct contact with the deeper part of the basin, Mery said. The corporation is still seeking a drilling rig that it can contract for the drilling, he said.

"We're working on that," Mery said.

And at this point Doyon does not know whether its partners in Nenana basin exploration will buy into Doyon's new initiatives.

The partners, if they wish to participate, would need to first agree to a share of the expense of the lease conversion before agreeing to share in the cost of drilling the well.

"Those are unknowns just now," Mery said.

Doyon also sees some exciting possibilities in the northern part of the basin, having completed its new seismic survey in that area and re-assessed the basin using information already available. But, although there appear to be some very large geologic structures in that northern area, Doyon's

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analysis of the area has not yet developed any exploration concepts to the level of maturity of the evaluation done to the south, Mery said.

However, having made all of the exploration investment in the northern part of the basin, Doyon has, subject to some necessary paperwork, in effect acquired a 100 percent working interest in that part of the basin, Mery said.

Yukon Flats

The Yukon Flats basin underlies a 15,000-square-mile lowland area around the Yukon River, between the trans-Alaska oil pipeline and the Canadian border. The main basin consists of several sub-basins. An assessment of the basin, done a few years ago by Petrotechnical Resources of Alaska, suggested significant oil potential, in addition to natural gas potential, with the possibility of an oil field the size of the Alpine field on the North Slope.

Doyon has been investigating the resource potential in Native lands within the basin, seeing the prospect of oil and gas royalties for the corporation and its shareholders, as well as other economic benefits.

Survey decision

Doyon is still determining which of two possible seismic surveys to conduct in the Yukon Flats during the coming winter, Mery said.

"We're assessing both right now," he said.

One possibility is a reconnaissance 2-D survey over a sub-basin near the village of Birch Creek. Data from seismic gathered from this sub-basin many years ago by Exxon display some intriguing features, Mery said. The other possibility is a more focused 3-D survey on another sub-basin at Stevens Village, where Doyon shot a 2-D reconnaissance survey about three winters ago. The 3-D seismic

would be used to identify specific drilling targets.

Surface sampling and geochemical analysis of material on the ground above the Stevens Creek sub-basin has detected traces of oil and natural gas liquids that would have formed through a thermal process in the sub-surface. Doyon has said that traces of surface hydrocarbons are also prevalent over the Birch Creek sub-basin.

Investors

The Yukon Flats basin is particularly large and Doyon wants to attract investors, to share the exploration risk.

"Our ultimate objective, obviously, is to add enough value and prominence to make these areas attractive to other people, especially the Yukon Flats," Mery said. "You're basically really talking about three Nenana basins in the Yukon Flats."

Doyon's interest in exploration of the Yukon Flats basin goes back a number of years. In the mid-2000s the corporation was engaged in negotiating a land swap of some Doyon land for land belonging to the Yukon Flats National Wildlife Refuge, trying to acquire some refuge land over the deepest and, apparently, most prospective part of the basin. But after that land swap fell through in 2009, following strong opposition from some Interior communities, Doyon re-evaluated its position, realizing that new geologic and geophysical assessments pointed to the existing Doyon land in the flats being much more prospective than previously thought.

In essence, those new assessments pointed to the existence of the sub-basins that Doyon is now investigating, with most of those sub-basins being in excess of 8,000 feet deep. In addition to conducting a seismic survey over the sub-basin at Stevens village, Doyon has made new interpretations of existing gravity, magnetic and seismic data, to shed new light on subsurface structures.

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The Spartan 151 jack-up rig

STEVE SUTHERLIN

Furie drills second KLU well

Stops in first Cook Inlet offshore well at 15,298 feet; fall 2012 drilling to delineate last year's gas find

By ALAN BAILEY
Petroleum News

There is perhaps nothing more emblematic of the current resurgence in exploration interest in Alaska's Cook Inlet than the sight of two large jack-up rigs offshore the western Kenai Peninsula, their tall, latticed legs jutting vertically out of the inlet's gray waters.

Escopeta Oil Co., the firm that brought the first of these rigs, the Spartan 151, to Alaska caused something of a stir in November 2011 when it announced a massive gas find in the Kitchen Lights Unit No. 1 well, about 10 miles north of Nikiski. This was the first of five offshore wells that Escopeta planned to complete during a multiyear drilling program. Escopeta had started drilling the well in early September.

On Oct. 28, 2011, Escopeta had suspended drilling operations for the winter, with the well having at that point attained a depth of 8,805 feet.

Not long after this Escopeta, as operator of the Kitchen Lights unit, became Furie Operating Alaska LLC, a subsidiary of Texas-based Furie Petroleum Co., a private company owned by German investors. And the Spartan 151 moved to Port Graham, on the southwest corner of the Kenai Peninsula, to overwinter and to undergo a new paint job.



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Unit extension

In January 2012 Furie applied to Alaska's Division of Oil and Gas for a Kitchen Lights unit extension, to enable exploration in the unit to continue to Jan. 31 2016, rather than allowing the unit to terminate at the end of 2012 as originally required. The unit, formed in 2007 to consolidate prospects known as Kitchen, Northern Lights and Corsair, consists of three exploration blocks — the Central, North and Southwest Blocks.

Furie said that it wanted to re-enter the KLU No.1 well in the Central Block, in the summer of 2012, to complete the drilling of that well, potentially to a depth of around 16,000 feet to evaluate oil potential in the pre-Tertiary rocks of the Cook Inlet basin — the state had offered a tax credit of up to \$25 million for the first well drilled from a jack-up rig in the inlet to test for pre-Tertiary oil.

Furie told the state that it planned to drill a second well in the Central Block in 2012.

The company also proposed a plan for 2013 through 2015 involving the potential drilling of natural gas development wells, and the drilling of additional exploration wells in the North or Southwest Blocks.

Exploration status

In late March the division agreed to the extension of the unit. And at about the same time Furie's president, Damon Kade, spoke to the Alaska Senate Resources Committee about the status of his company's Cook Inlet exploration. Kade said that the gas discovery in the KLU No. 1 well amounted to a probable gas reserve of 750 billion cubic feet, with a potential gas production rate of up to 30 million cubic feet per day, substantially smaller figures than Escopeta had announced in November. Kade later told Petroleum News that the November figures had been based on a much larger gas drainage area than the 530 acres Furie was now using for its probable reserves estimate.

The total area of the prospect is 3,700 acres within the 83,700-acre Kitchen Lights unit, he said.

Kade said that Furie would re-enter the KLU No. 1 well in the summer of 2012, in hopes of drilling into pre-Tertiary rocks at a target depth of 16,500 feet. In that same drilling season the company would drill a second well, the KLU No. 2, in the same area, with that second well also potentially drilling into pre-Tertiary rocks, Kade said. The second well would also help delineate the gas resource encountered by the first well, he later told Petroleum News.

Monopod platform

Furie is moving forward with plans to install an offshore mono-

pod platform in 2013 for gas production from one of the two Kitchen Lights unit wells, Kade said. A monopod has well heads and other field facilities on a platform atop a single leg consisting of a steel caisson fixed to the seafloor, with well pipes passing down the inside of the caisson.

The caisson would likely be 14 to 20 feet across, capable of supporting a small completion rig and personnel housing, among other facilities. For the drilling of development wells, the jack-up rig would cantilever over the platform, Kade said.

The well casings would be capable of handling oil, rather than just gas, to accommodate the possibility of finding oil deep in the basin, perhaps in the West Foreland towards the bottom of the Tertiary, at a depth of around 15,500 feet, Kade said. There is also the possibility of finding additional gas pools, deeper in the rock sequence than the initial discovery, he said.

Safety first

Kade assured the state legislators that safety is a major concern for his company. Furie will not put a well before safety, he said. The company's drilling in 2011 had come under a good deal of scrutiny by state regulators, concerned about possible safety issues, given that a small company was undertaking a relatively complex drilling operation. After requiring suspension of drilling operations at one point, to evaluate "the reasonableness of going forward," the regulators allowed drilling to proceed.

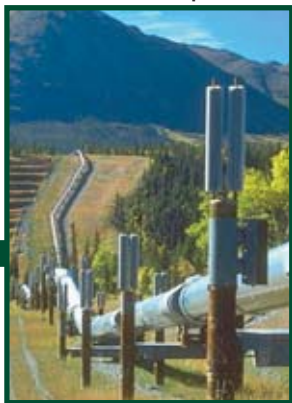
Kade also emphasized the importance attached by his company to environmental protection, saying that Furie had done underwater acoustic monitoring during its 2011 drilling, to ensure the protection of Cook Inlet beluga whales, a sub-species that is listed under the Endangered Species Act.

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FURIE *continued from page 61*

Plan of development

Furie is preparing a Kitchen Lights plan of development for approval by the Alaska Department of Natural Resources, has started the process of permitting for the offshore development and is moving forward with the engineering of the platform and subsea pipelines, Kade said. The most likely pipeline route would run to the south and east of the field, to the East Forelands area of the Kenai Peninsula. However, finalizing the route and obtaining the necessary U.S. Army Corps of Engineers permits would depend on a marketing agreement for the Kitchen Lights gas, he said.

Each Kitchen Lights unit well would cost \$25 million to \$30 million, while a two-well drilling season would cost about \$80 million, including the cost of overwintering the rig, Kade said. The development of the gas field would cost an additional \$50 million to \$65 million, he said. For the development, Furie is considering establishing a supply base in the Kenai and Nikiski area on the Kenai Peninsula, he said.

Back on site

In May the Spartan 151 rig was back on site, continuing the drilling of the KLU No. 1 well. And Kade told Petroleum News that gas shows in the well had confirmed the previous year's gas find. In early August Furie stopped drilling at a total depth of 15,298 feet, a long way below the depth reached in 2011 but short of the pre-Tertiary rocks that Furie had originally hoped to penetrate.

Kade declined to comment on any new findings from the continued drilling of the well.

Furie subsequently moved the rig to the site of the KLU No. 2

well and commenced drilling there. The company has not made any public comment on the progress of the drilling of that second well — Kade has told Petroleum News that Furie will announce the results of the drilling later in the year, once the company has finished drilling and assessed the findings. The company has said that it will likely take until late October to complete the well.

In early August Kade told Petroleum News that Furie had completed the initial design of a monopod platform for developing the Kitchen Lights unit gas discovery.

Long story

The story behind bringing the jack-up rig to the Cook Inlet goes back more than 10 years, with Escopeta, under its president, Danny Davis, pursuing a strategy of using a rig of this type to drill in what he referred to as the "Kitchen prospects," major structures under the middle of the inlet that Davis believes lie on the "kitchen" for Cook Inlet oil and gas generation. In 2006 Escopeta negotiated a contract for the use of a jack-up and obtained a Jones Act waiver to use a foreign heavy-lift vessel to bring the rig to Alaska from the Gulf of Mexico: Under the Jones Act, this type of shipment would normally have to be done using a U.S.-flagged vessel.

That 2006 deal eventually fell through. And, after negotiating another deal, in 2011 Escopeta brought the Spartan 151 rig to Alaska from the Gulf thus enabling drilling at Kitchen Lights to start. But with no new Jones Act waiver in place, the U.S. Department of Homeland Security slapped a \$15 million fine on the company for a violation of the act. Furie, Escopeta's successor company in the Kitchen Lights drilling, has been challenging the fine in federal court in Alaska.

Contact Alan Bailey at abailey@petroleumnews.com



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Great Bear to accelerate program

Has found expected oil in source rock and wants to shorten time to decision on full-scale shale development

By ALAN BAILEY
Petroleum News

Having found oil in source rock horizons when drilling its first shale oil test well, Great Bear Petroleum Ventures, Great Bear Operating LLC and its affiliated limited liability companies are moving ahead with the shale oil program that it is pioneering on Alaska's North Slope.

"I can tell you with absolute confidence that where we thought we would find oil in these source rocks, we found oil," Ed Duncan, Great Bear's top executive, told the Alaska Oil and Gas Congress on Sept. 19. Duncan was referring to tests carried out on rock cores collected from the Alcor No. 1 well, the first of six test wells that Great Bear has staked out along a north-south fairway, next to the Haul Road, to the south of Deadhorse in the central North Slope.

Proof of concept

Great Bear's plan has been to drill the wells vertically and, if tests of cores taken from the wells prove successful, drill horizontal sidetrack wells out from the vertical well bores, through source rock zones, to test the production of oil from the rocks. And, having completed the Alcor No. 1 vertical well, the most northerly of the planned wells, Great Bear has been drilling the next well south, the Merak No. 1 well.

Having seen the encouraging results of testing the core from the Alcor well, Great Bear wants to accelerate its Alaska shale oil program by moving a decision on whether to proceed to a full-scale development from 2014 to the middle of 2013. In order to achieve this, the company has requested approval from Alaska's Division of Oil and Gas for extended production testing from its test wells.

Merged testing

Originally the company was going to do a pilot well pad development, for extended production testing, before making a development decision — the company has now decided that it can eliminate that pilot project and hence gain some time by merging the extended testing into the testing of the wells currently being drilled, Pat Galvin, Great Bear's vice president of external affairs, has explained to Petroleum News.

Great Bear's existing plan assumes just 15 days of testing for each of those initial wells but the company now says that it wants to extend that testing period to up to 180 days. Extended testing will enable the evaluation of critical parameters, in particular the production rate decline curves for the targeted oil resources, the company says.

Great Bear has also asked permission to drill a second Alcor well, saying that a drilling problem in the No. 1 well resulted in the installation of well casing that is unsuitable for drilling the horizontal sidetrack needed for production testing.



ED DUNCAN

JUDY PATRICK



Nabors 105AC rig at Alcor 1.

GREAT BEAR PETROLEUM

NAME OF COMPANIES:

Great Bear Petroleum Ventures
(three LLC entities, I, II and III)
Great Bear Petroleum
Operating LLC

*Note: Leases formerly held by
Great Bear Petroleum LLC*

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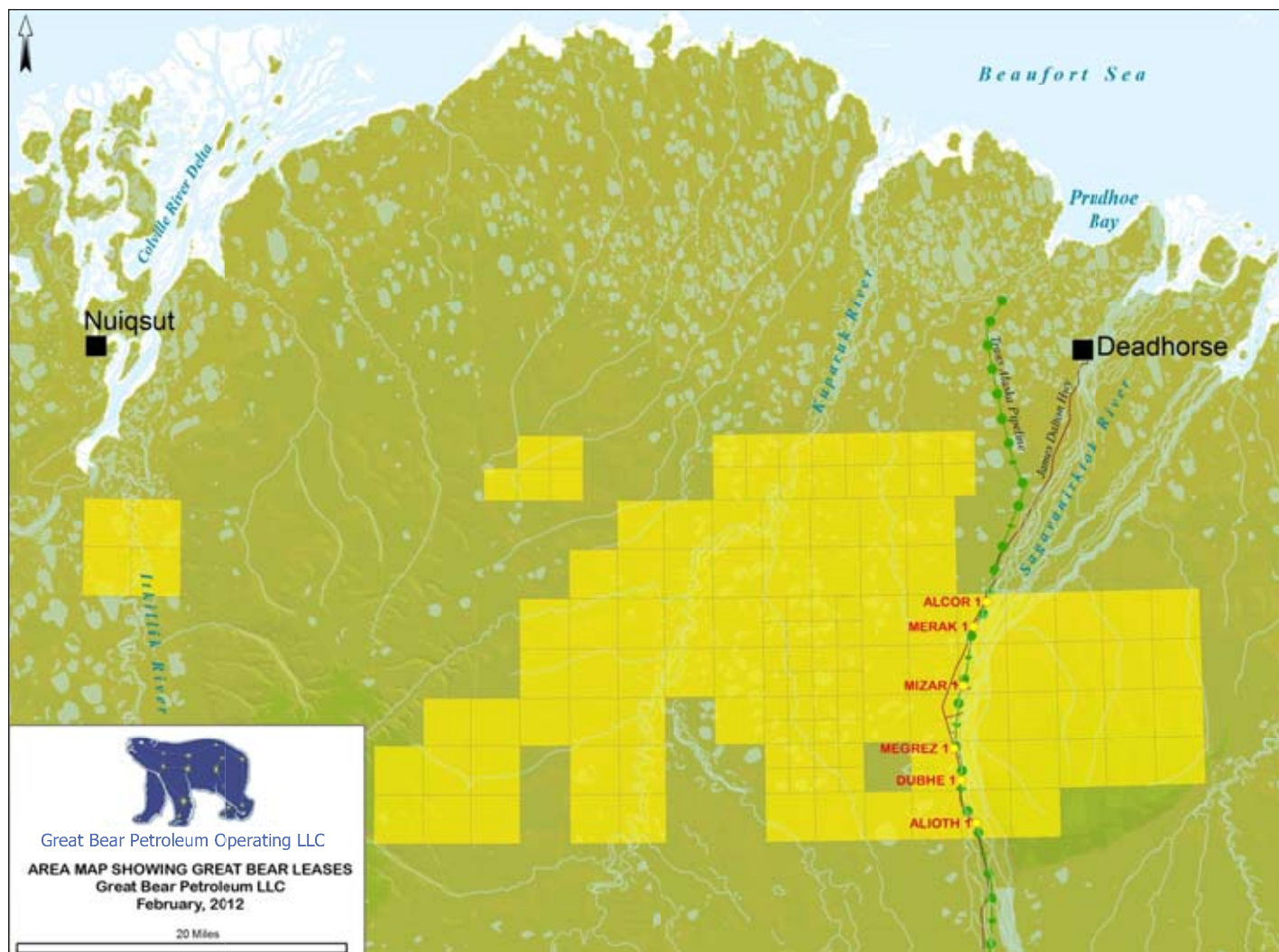


The shale oil phenomenon

The development of shale oil and gas has revolutionized the North American oil and gas industry, enabling an increase in domestic oil production and opening up prolific new natural gas resources. The Bakken play in North Dakota, the Eagle Ford in Texas and the Marcellus shale in Pennsylvania all exemplify this new era for energy production.

Shale production involves drilling a multitude of horizontal wells through the relatively impermeable rocks that have generated oil and gas. The pumping of water at high pressure into the wells to fracture the rocks then enables hydrocarbons to flow into the well bores. In this process, known as hydraulic fracturing, or "fracking," sand and other additives in the injected water keep open the rock fractures as the pressure drops, while also lu-

continued on next page



Great Bear has staked six shale oil test wells near the North Slope Haul Road and has successfully drilled the most northerly of those wells, the Alcor No. 1

GREAT BEAR *continued from page 63*

bricating the flow of hydrocarbons from the rock pores. And, in a technique known as multistage fracking, the fracking is carried out sequentially in a series of zones along the horizontal well bore, rather than being done along the entire length of the well as a single operation.

Although horizontal drilling and fracking have been carried out in North Slope oil fields for many years, to tease more and more oil up production wells, all of the fields are conventional in nature, involving oil trapped as discrete pools in porous and permeable reservoir rocks, the oil having flowed from source rocks into the reservoirs at some time in the past.

But northern Alaska has a reputation for being particularly source rock rich, with some world-class source rocks having created giant conventional oil fields such as Prudhoe Bay and Kuparuk River.

So, could those source rocks still contain oil, ripe for extraction using state-of-the-art shale oil development techniques?

Created a splash

Great Bear created ripples of interest through the Alaska oil industry when in October 2010 it plunged into the state's North Slope areawide lease sale, buying more than half a million acres in leases along a broad fairway south of the producing oil fields,

and saying that it hoped to pursue a program of shale oil development.

Duncan, who has in the past worked as a geologist in the Alaska oil industry, has said that in determining Great Bear's lease bids he used a model of the North Slope petroleum system developed by Schlumberger, based on science done by the U.S. Geological Survey and Stanford University. That model estimated that in the past the primary North Slope source rocks had been heated to the appropriate temperatures for oil formation along a zone right under the fairway of Great Bear's leases, Duncan said.

And an assessment of unconventional resources on the North Slope, published this year by the U.S. Geological Survey, has confirmed that view.

Three source rocks

Essentially there are three main North Slope source rock systems: the late Triassic Shublik, the Jurassic lower Kingak and an assemblage of rocks of Cretaceous age, including the Hue shale and HRZ or GRZ. The zone in which rocks were likely heated to oil generating temperatures dips northward under the Slope, apparently intersecting the source rock horizons along a fairway extending west to east in the northern part of the region, and including the area where Great Bear has its leases, to the south of the Prudhoe Bay and Kuparuk River fields, USGS geologist Dave

Houseknecht has told Petroleum News.

In the absence of any track record of shale oil production in Alaska, the prognosis for oil production from the North Slope source rocks is extremely uncertain — the USGS assessment points to the possibility of anywhere from zero to 2 billion barrels of undiscovered oil that might be produced using established shale oil development techniques.

The Shublik, a particularly prolific oil source containing brittle carbonate rocks that appear especially suitable for fracturing, is the prime candidate for shale oil development; the HRZ/GRZ would also appear to have significant potential; the lower Kingak, while being an excellent oil source, contains much ductile clay and may prove difficult to fracture effectively.

Great Bear's test wells along the Haul Road are penetrating and sampling all three source rock intervals.

Factory drilling

Because oil does not flow through impermeable source rocks, instead having to be jolted out through artificially created fractures, a shale oil development involves the drilling of many wells, with each well only accessing oil from a relatively limited area of the subsurface. Great Bear, assuming that the "proof of concept" drilling that it is now conducting pans out, has proposed a "factory drilling" program in its leases, involving the use of about 20 drilling rigs to drill perhaps 200 wells per year. That could lead to the drilling of as many as 9,000 wells over three 15-year phases, the company has said.

In concept, the company would build eight new well pads per year to keep up with the drilling program, with each well accessing about 160 acres of the subsurface, Duncan has said.

"I can tell you with absolute confidence that where we thought we would find oil in these source rocks, we found oil." —Ed Duncan, Great Bear's president and CEO

Many challenges

A drilling program of this type, completely unprecedented in scale on the North Slope, would present many challenges. Duncan has said that one of the biggest issues would be finding enough appropriately trained personnel to conduct the program.

A "factory approach" to the issuing of the necessary permits may also be crucial, to enable drilling to proceed at the necessary rate.

And what about the vast amount of water that would be required for the fracking?

Duncan says that there is a relatively shallow aquifer, charged with brackish and salty water, unsuitable for drinking but usable for fracking, under the North Slope. Consisting of multiple sands 50 to 100 feet thick, with a total thickness of 2,000 to 3,000 feet, the aquifer contains massive quantities of water, Duncan has said.

Duncan has also said that his company anticipates using water recycling technologies to minimize its water usage.

If the shale oil program proceeds as envisaged, oil production from the play could rise to 200,000 barrels per day by 2020, 350,000 barrels per day by 2035 and 450,000 barrels per day by 2041, peaking at 600,000 barrels per day by 2056, and with production continuing around 450,000 barrels per day through 2074, Duncan has said. The cost of the program would amount to \$2

continued on next page

All Seasons



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GREAT BEAR *continued from page 65*

billion per year, plus infrastructure, he has said.

Halliburton

Anxious to progress with some test drilling and initially working alone, trying to secure the use of a drilling rig for what proved to be an exceptionally busy exploration drilling season in the winter of 2011-12, on Nov. 1, 2011, Great Bear announced that it had formed a partnership with Halliburton, the world's second largest oil services company, to pursue the Alaska shale oil venture. Halliburton had already

accrued significant expertise in the use of shale oil technologies outside Alaska.

But exploration drilling rigs continued to prove elusive during that winter and it was not until the spring that Great Bear procured the use of the Nabors 105AC rig for its drilling project. With the Great Bear drill sites close to a highway, within an area already disturbed by industrial activity, the company had obtained permission to drill year-round, rather than just during the winter. And in early June Great Bear moved the Nabors rig to the Alcor No. 1 site, in preparation for drilling the first well.

3-D seismic

During the winter, in preparation for that drilling, the company had contracted with CGG Veritas to shoot a 3-D seismic survey across the area of its test drilling — Duncan has said that his company intends to expand that survey during the 2012-13 exploration season.

Great Bear has also conducted a Lidar survey, using a laser-base system for measuring surface topography but which, in the form used by Great Bear, can also measure the bathymetry of lakes. Duncan told the Alaska Oil and Gas Congress that the results of this survey will feed into an environmental assessment that Great Bear was just starting, with the ultimate aim of completing a regional environmental assessment and environmental impact statement for the company's program. Great Bear will also be conducting an aquifer study, Duncan said.

North Slope Borough

And the North Slope Borough, the local government with jurisdiction over the territory in which Great Bear is operating, seems happy with the company's environmental track record so far.

During a speech at the Alaska Oil and Gas Congress borough Mayor Charlotte Brower commented that during a visit to the Alcor No. 1 drilling site borough staff had noted the exemplary condition of the site, including the use of rig mats to protect the ground; the lining of the drill pad; and the voluntary placement of a berm around the site, to ensure protection of the nearby Sag River in the event of an accident.

At that conference Duncan extolled the advantages and potential benefits of the siting of his company's pioneering efforts, close to the existing oil infrastructure. Production facilities would enjoy access to the nearby trans-Alaska oil pipeline, a line that is currently running well below capacity and that is suffering from declining throughput. And oil service companies with appropriate expertise already operate in the state, Duncan said.

With the Alcor No. 1 well penetrating all three major source rocks, which turned out to be a bit thicker than expected at the well location, Duncan clearly feels optimistic about the future of his company's Alaska adventure.

"To date, at least, the outcome has been very, very, very good," he said.

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Contact Alan Bailey
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Linc pushing ahead on three fronts

Independent to drill Umiat oil field; underground coal prospects across state; natural gas in Cook Inlet basin

By ERIC LIDJI
For Petroleum News

Linc Energy (Alaska) Inc. is running a diverse operation in Alaska — not only in terms of the resources it hopes to find in the state, but where in the state it hopes to find them.

In the coming year, Linc plans to explore for oil in northern Alaska, underground coal deposits in Southcentral and the Interior, and potentially natural gas in southern Alaska.

That varied portfolio came from three quick acquisitions.

The local subsidiary of an Australian independent arrived in Alaska in March 2010 after acquiring acreage on both sides of Cook Inlet from the San Francisco-based independent GeoPetro Resources. In February 2011, the Alaska Mental Health Trust awarded Linc a major underground coal gasification exploration license in three blocks across Southcentral and the Interior. And in June 2011, Linc acquired the Umiat prospect, a long known but undeveloped oil accumulation in the foothills of the Brooks Range Mountains.

Currently, Linc Energy holds nearly 190,000 acres in Alaska: 19,358 acres at Umiat, almost 2,000 acres in the Cook Inlet basin and 167,917 acres of exploration licenses.

In the coming year, Linc plans to embark on a five-well exploration campaign at Umiat, drill three exploration holes across acreage in its underground coal gasification exploration license and potentially continue gas exploration on its Cook Inlet leases (although that final effort is hampered by an ongoing unitization dispute with the state).



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Another shot at Umiat

After acquiring the Umiat prospect in June 2011, Linc announced its intentions to conduct a multi-well exploration program at the field in the next winter drilling season.

With the onset of winter, though, Linc decided low snow levels in the foothills had impacted its ability to build a snow road. The road is crucial for accessing the remote prospect, some 80 miles west of the trans-Alaska oil pipeline and Dalton Highway.

Also, the "lack of timely availability of a suitable drill rig" challenged drilling plans.

So Linc delayed its program by one year.

The 2012 edition of the exploration program is slightly more robust than the 2011 edition, adding a horizontal well test to the original vertical drilling campaign.

This winter, Linc plans to drill as many as three vertical wells — two shallow and one deep — a horizontal well into the Lower Grandstand formation and a disposal well.

Linc said the program is also enhanced by a year of additional technical work. That includes 3-D seismic processing and inter-

continued on next page



ALASKA



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pretation, project development and community engagement such as launching a project specific website, www.lincenergyumiat.com.

The delay also gave Linc time to land a rig well in advance of its Umiat program. In April 2012, the company announced it had “first right of refusal” on the Kuukpik 5 rig.

Now, Linc has an “aggressive” timeline to bring Umiat online in five to seven years, saying it is “committed” to developing the field and is now studying facilities, pipeline and access scenarios “to determine the best, most efficient, plan for development.”

Known but undeveloped

The road to success at Umiat passes failed attempts by other companies.

The Umiat prospect is one of the white whales of northern Alaska.

The U.S. Navy discovered the field in 1946, during its epic drilling campaign across the National Petroleum Reserve-Alaska. But the field has remained undeveloped because of its remoteness from infrastructure, historically low oil prices and insufficient technology at the time to unlock the shallow oil in a reservoir partially located within permafrost.

With high oil prices and the state studying an all-season road to Umiat, interest in the prospect increased over the past decade. The small independent Renaissance Umiat LLC announced an exploration program in 2007 and conducted a 3-D seismic campaign in 2008, but ultimately delayed drilling on numerous occasions before selling the prospect.

Through the deal, Linc acquired Renaissance Alaska LLC — the independent company that holds an 84.5 percent interest in Renaissance Umiat — for \$50 million plus adjustments for working capital, deposits and inventory. The acquisition gave Linc 100 percent working interest in Umiat and an 80 percent net revenue interest in the project.

The prospect is estimated to hold 1 billion barrels of oil in place. The consulting firm Ryder Scott Co. LP recently estimated Umiat contains reserves of 154.5 million barrels of proved and probable (P2) oil equivalent and 194 million barrels of proved, probable and possible (P3) oil equivalent. When Linc acquired Umiat, it estimated the field held some 108 million barrels of P2 reserves and 201 million barrels of P3 reserves.

For the purposes of the reports, “probable” means at least a 50 percent chance of actual recovered volumes meeting or exceeding the P2 estimate, and “possible” means at least a 10 percent chance of actual recovered volumes meeting or exceeding the P3 estimate.

This winter, Linc plans to drill as many as three vertical wells — two shallow and one deep — a horizontal well into the Lower Grandstand formation and a disposal well at Umiat. The company intends to bring the field into production within five to seven years.

The prospect currently covers two state and two federal leases.

The state leases expire on Jan. 31, 2014, and Jan. 31, 2016, respectively. But in recent years the BLM renewed its two leases, giving Linc until 2018 and 2022, respectively.

State and federal policies

Because it straddles the boundary between state acreage and the federal National Petroleum Reserve-Alaska, the fate of Umiat is tied to state plans for expanding access to remote plays and to

federal plans for managing the 23 million acre petroleum reserve.

In 2009, the state chose a \$357 million route running 116.5 miles northwest from Galbraith Lake at milepost 278 on the Dalton Highway to Umiat. The U.S. Army Corps of Engineers began preparing a draft Environmental Impact Statement in May 2011.

But the project soon faced opposition.

At a Senate Finance Committee hearing in February 2012, Sen. Donny Olson, D-Nome, said the road had generated more opposition from his constituents than any transportation project in his 12 years on the committee. In particular, many locals worried the road could impact subsistence resources if opened to the public. And Sen. Johnny Ellis, D-Anchorage, said many of his constituents considered the project “corporate welfare” because its primary purpose would be to reduce the cost of industry exploration.

Because of those concerns, the Army Corps expanded the scope of its studies to include two additional routes and pushed back its record of decision for a final EIS to late 2014.

When Linc acquired Umiat, it cited the public commitment to develop the road as a “significant” factor in its decision. While the company still believes the road “would have a very positive impact on the Umiat development program” and help efforts to increase oil production, it now says “Umiat could be successfully developed without a road.”

On the federal front, Linc supported “alternative D” in the U.S. Bureau of Land Management’s integrated activity plan for the NPR-A, but in August the agency chose “alternative B-2” as its preference among the four alternatives included in a draft plan.

While alternative B-2 contained the strictest environmental protections of the four proposals, Linc said alternative D “most closely aligns with the original intent” of the petroleum reserve. The company also said it “understands first-hand the significant environmental protections already built into NPR-A leases through the lease stipulations, existing management practices, environmental protections, ‘best practice’ requirements and the additional oversight brought to bear by State of Alaska regulatory agencies.”

UCG online in five years

While it hasn’t received as much public attention as its Umiat program, Linc has also been pursuing an underground coal gasification exploration program over the past year.

In fact, Linc has been touting Alaska’s deep coal potential since its first days in the state.

Underground coal gasification is a way to “create” natural gas inside coal deposits too deep to mine. The process involves injecting air and water into an ignited coal seam to synthesize the carbon and hydrogen into methane, the main component of natural gas.

While it already planned to explore for underground coal gasification candidates on its state leases in the Cook Inlet, Linc greatly expanded its reach when the Alaska Mental Health Trust awarded the company an exploration license over three large blocks. The blocks are on the east side of Cook Inlet near Nikiski, on the west side of Cook Inlet near the Beluga Power Plant and in the Interior region around Anderson, Healy and Nenana.

In late 2011, Linc spud the first hole in its program, TYEX01/01X, on the west side of the Cook Inlet. Linc called the results of the 1,450-foot core hole “very encouraging.”

Linc also acquired 2-D seismic over its Interior and Cook Inlet underground coal gasification acreage between September 2011 and April 2012. The company also called those results “very en-

couraging,” pointing in particular to its acreage in the Interior “where there is very little previous exploration drilling and very few well logs exist.”

Linc planned to drill two more exploration holes on the west side of the Cook Inlet this summer and fall followed by one exploration hole in the Interior region, near Healy.

The goal of the program is to target specific sites for future commercialization.

For the upcoming exploration program, Linc commissioned a new, fit-for-purpose rotary-core rig from Buffalo Custom Manufacturing. The dual capabilities allow the rig to “drill at a faster rate and offer greater borehole stability and control than a traditional core rig.”

Linc is aiming to begin synthesis gas production in Alaska within five years.

Appealing unit decision

Linc continues to pursue conventional gas targets in the Cook Inlet, as well.

The 123,000-acre leasehold Linc acquired from GeoPetro included a block along the Knik Arm north of Pt. MacKenzie and a smaller block across the Inlet near Trading Bay.

Within six months of arriving in Alaska, Linc drilled LEA No. 1 in the Pt. MacKenzie region. The well followed up on gas prone intervals Pan American Petroleum Corp. encountered some 4,000 feet to the east with its Big Lake USA No. 1 well in 1968.

LEA No. 1 encountered several gas-bearing coal seams, but after subsequent tests Linc decided the structure was “too tight” to produce without “swabbing” the well with large amounts of formation water. “The conclusion from the testing is that although gas is trapped within the coal, there is not sufficient natural fracturing in the coal to allow for the recovery of commercial quantities of gas,” the company announced in May 2011.

Linc contemplated drilling a well on its leases in the Trading Bay region, where Shell encountered gas in the 1960s while searching for deeper oil, but after “extensive geologic and petrophysical due diligence” it decided the prospect “did not warrant drill testing.”

Much of the leases Linc acquired from GeoPetro in March 2010 reached the end of their primary term in June 2012. Prior to the expiration, Linc applied to form the Angel unit around one state and one Alaska Mental Health Trust lease in the Pt. MacKenzie region.

In September, the Alaska Department of Natural Resources denied the application, saying Linc hadn’t sufficiently defined the hydrocarbon accumulation it wanted to explore.

The proposed unit is just southwest of where Linc drilled LEA No. 1. Although Linc decided at the time the well couldn’t produce in commercial quantities, it told the state “incorporating the data gathered during the LEA No. 1 program into our exploration model resulted in an exciting play development within the proposed Angel Unit.” The program would have investigated a geologic “feature” of the Pittman Anticline that extends into both the Tyonek and Hemlock formations, according to the application.

The state found the proposal lacking.

“At this time,” Division of Oil and Gas Director Bill Barron concluded, “Linc Energy has not presented a structural trap that is reasonably defined and delineated, and therefore has not identified a potential hydrocarbon accumulation for the proposed Angel unit.”

Linc proposed a two-year exploration program for the unit.

In the first year, Linc would have acquired 3-D seismic over the

proposed unit area as well as 2-D seismic extending to the east, beyond the proposed unit boundaries. In the second year, Linc would have drilled a well into the Tyonek/Hemlock interval. With successful results, Linc would submit an application for a participating area within the unit and start building infrastructure sometime around late 2014 or 2015, at the earliest.

The company still believes it can make the case for unitization. “Linc Energy respectfully disagrees with the State of Alaska’s decision regarding the Angel Unit, and we do plan to appeal,” Linc’s general manager of Alaska operations, Corri Feige, told Petroleum News.


The state of the industry

When asked what policymakers could do support the oil and gas industry, Linc said creating and maintaining “a stable, competitive, investment-friendly business climate.”

“The current tax structure has resulted in the loss of service providers and skilled labor to more competitive regions in the Lower 48. Further, increasing costs that are being driven by those regions are having a direct impact on explorers and producers in Alaska,” it said.

When asked how players in the Alaska oil and gas sector could support their industry, Linc said, “Having a vital service industry goes hand-in-hand with a competitive business climate. When the market demands more equipment and more services, the service companies can increase their inventories and worker numbers — grow their businesses — to meet those demands. In Alaska, it is important for service companies and producers alike to strive for win-win business arrangements and contracts.”

Contact Eric Lidji at ericlidji@mac.com



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NordAq tackles 2nd inlet prospect

Tiger Eye unit approved, drilling begins on first well; company working EIS for Shadura discovery in refuge

By KRISTEN NELSON
Petroleum News

NordAq Energy Inc., with four Cook Inlet basin prospects and a block of tracts in Smith Bay off the North Slope of Alaska, is currently drilling its second Cook Inlet prospect, Tiger Eye onshore the west side, while an environmental impact statement is under way for Shadura, the company's natural gas discovery on Cook Inlet Region Inc. subsurface in the Kenai National Wildlife Refuge on the Kenai Peninsula.

A Cook Inlet map on the company's website shows two additional prospects, Akula southeast of Shadura on the Kenai Peninsula and Anakema, a mostly offshore prospect adjacent to Kenai.

NordAq is an independent oil and gas company based in Anchorage.

The company's website, www.nordaqenergy.com, says the company was established by the present board and management team in 2008 to explore hydrocarbon reserves in Alaska.

"NordAq was established to take advantage of the attractive geological, regulatory and service environment for energy exploration in Alaska," the website says, adding that as an independent exploration and production company, "NordAq aims to bring energy and entrepreneurialism to the Alaskan energy industry as well as to provide a vital function in opening and carefully developing frontier areas and sustaining E&P activity in mature basins."

The company said while its focus is on oil exploration and production, it "remains committed to bringing new natural gas reserves into production to continue to meet the energy needs of the Cook Inlet region."

Gas discovery at Shadura

NordAq drilled at Shadura in early 2011, a prospect on Cook Inlet Region Inc. subsurface in the Kenai National Wildlife Refuge northeast of Nikiski, saying the target was historic Cook Inlet gas



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producing zones in the upper and middle Tyonek formation with the Beluga formation a secondary objective. CIRI is the Alaska Native regional corporation for Southcentral.

A 2010 environmental assessment for the project said Shadura exploration activities were pursuant to an agreement with CIRI on 10,800 acres of CIRI subsurface estate holdings. The Alaska National Interest Lands Conservation Act allows for access to CIRI subsurface inholdings within the Kenai National Wildlife Refuge for exploration, testing and development of hydrocarbons.

The environmental assessment said CIRI has received entitlements to some 200,000 acres of subsurface estate adjacent to the leases being explored by NordAq under provisions of the Alaska Native Claims Settlement Act, and has development rights to oil, gas and coal resources on those lands.

NordAq indicated a natural gas discovery, but only reported late last year that it expected to produce "up to 50 million cubic feet" of natural gas per day over 30 years from Shadura, starting in February 2013.

NordAq has applied to the U.S. Fish and Wildlife Service, which manages the refuge, for a right-of-way permit to Shadura.

The Fish and Wildlife Service is preparing an environmental impact statement looking at different access alternatives for Shadura.

While NordAq cannot be denied access through the EIS process, certain conditions may be set, such as the route for the proposed gravel access road.

The schedule at a March scoping meeting projected release of draft and final EIS documents, with a record of decision in December.

NordAq has described Shadura as a six-well development.

Smith Bay acreage

In last December's state oil and gas lease sale NordAq took a block of leases in the shallow waters of Smith Bay, an area that, like Harrison Bay, sits on the Barrow Arch, making it highly prospective for oil.

On its website NordAq says it leased 11 tracts at Smith Bay, some 60,000 acres, at the sale, describing the region as at the western end of the North Slope within Alaska's Beaufort Sea.

The leases increased the company's acreage position in Alaska to more than 103,000 acres.

"NordAq is currently analyzing the lease prospects to determine how best to capitalize on the acreage's significant potential," the company says on its website.



Tiger Eye drilling

This year NordAq was scheduled to start drilling Oct. 9 at its Tiger Eye unit on the west side of Cook Inlet. The Alaska Department of Natural Resources, Division of Oil and Gas approved NordAq's application for the unit Oct. 4 at 7,680 acres, a reduction from the proposed 8,480 acres, and required drilling of the first well this year. Both leases in the unit, ADL 391103 and ADL 391104, would have expired Sept. 30 without unit formation. NordAq holds 100 percent working interest ownership in the leases.

Tiger Eye is at the mouth of the Kustatan River within the Redoubt Bay Critical Habitat Area, and NordAq located its pad and access on adjacent private Native surface land and will drill directionally to bottomhole locations under the critical habitat area.

In the Oct. 4 unit approval division Director Bill Barron said NordAq submitted a revised plan of exploration on Aug. 20, proposing to drill two exploration wells in 2012 and 2013, and to acquire 3-D seismic in 2013. In the company's May plan of exploration drilling was slated for 2013 and 2014, with road and pad construction in the summer of 2012 and 3-D acquisition in the winter of 2012-13.

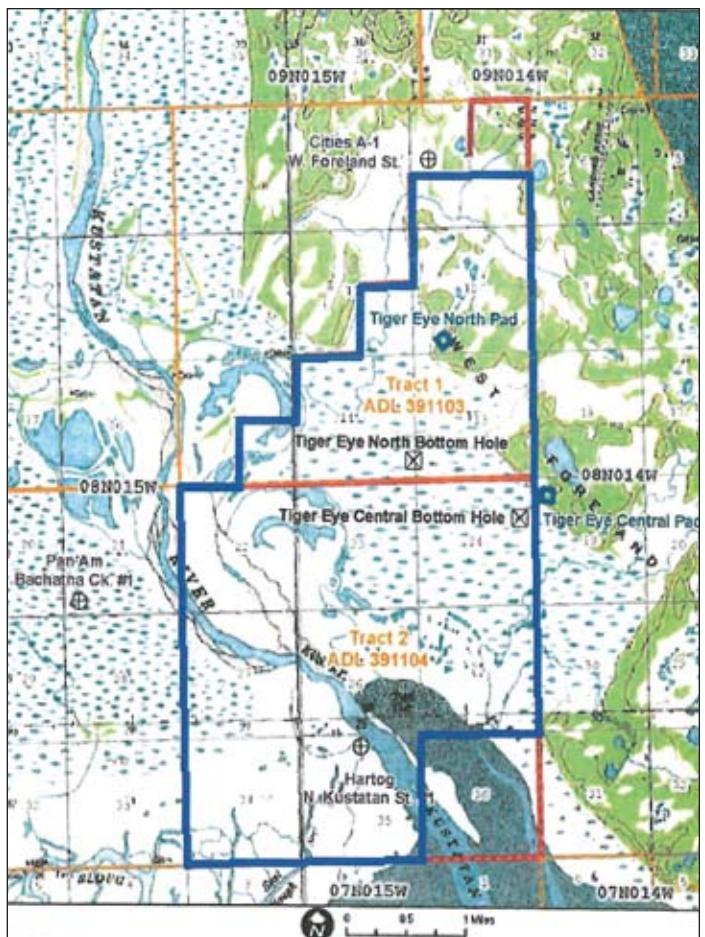
Under the revised plan of exploration the division said NordAq planned to spud the first well, Tiger Eye Central No. 1, before the end of September, "but had delays due to severe weather in the Cook Inlet area," and now expects to spud Oct. 9.

Under the approved plan, NordAq is required to drill, evaluate and test the Tiger Eye Central No. 1 and complete, suspend or abandon the well Dec. 31.

Apache interest

The division said that when it asked for comments on the appli-

continued on next page



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An advertisement for Era Helicopters. The top half of the image shows a red and white helicopter with 'Era' and 'N8130G' on its side, parked on a tarmac. In the background, an oil drilling rig is visible against a clear blue sky. The bottom half of the image features a red swoosh graphic. Below the swoosh, the 'Era' logo is displayed in a stylized red font with a star. Underneath the logo, it says 'HELICOPTERS LLC' and 'a SEACOR company'. At the bottom, the slogan 'Flying is our passion, Safety is our mission' is written in a serif font, followed by the phone number '907 550 8600' and the website 'erahelicopters.com'.

cation, Apache Alaska Corp. objected to the proposed unit, telling the division that three adjacent Apache oil and gas leases should be included in the unit. "Apache believes its leases share common reservoirs with the leases proposed" for the Tiger Eye unit, the division said.

Apache told the division it believes "common reservoirs" cross the boundaries of Apache leases and the proposed unit.

In response, NordAq told the division its proposed unit "encompasses the entire area that overlies a potential hydrocarbon accumulation."

The division said "information provided by Apache does not conclusively prove that the potential hydrocarbon accumulation" identified by NordAq extends onto Apache leases, so "there is no evidence that Apache has an interest in the potential hydrocarbon accumulation to be included in the unit."

The division said what while evidence provided did not demonstrate a potential accumulation that crossed lease boundaries, if a common reservoir was discovered by drilling and put on production, expansion provisions of the Tiger Eye unit agreement "will protect all parties of interest by allowing production from a producing reservoir to be allocated back to each tract contributing to production in paying quantities."

Prior exploration

The division said three exploration wells were drilled in the vicinity of the Tiger Eye unit: Pan Am Bachatna Creek State No. 1, completed in 1969; Hartog North Kustatan State Unit No. 1, completed in 1970; and Cities Service West Foreland State A-1, completed in 1973.

The Bachatna Creek and West Foreland wells, "updip of an interpreted northeast-southwest trending sealing fault that forms the potential hydrocarbon accumulation's northwest boundary," were plugged and abandoned. There were no oil shows in either well.

The North Kustatan well is "downdip of the mapped closure and had oil shows on the mudlog in the Tyonek formation." That well was also plugged and abandoned.

The division said the trapping mechanism within the Tiger Eye unit is both structural and stratigraphic.

"The structure is seismically defined as a northeast-southwest trending fault with three-way closure. Interpreted crossfaults subdivide the prospect. The stratigraphic component of the trap is the thinning or pinching out of the Tyonek sands up toward the sealing fault."

The division said principal objectives at Tiger Eye are sands within the middle and lower Tyonek formation; secondary objectives are in the deeper Hemlock and West Foreland formations.

"NordAq submitted sufficient technical data to support the approved unit area," the division said. "Because there is a seismically identified entrapping mechanism, there is a potential hydrocarbon accumulation."

Access issues

The division decision noted that access to the Redoubt Bay Critical Habitat Area "is restricted to ice roads and existing infrastructure for oil and gas exploration activities," and that no exploration drilling has occurred in the area since the critical habitat area was created in 1989.

"NordAq has successfully negotiated access across adjacent private and Native lands to allow for year-round access and has installed a gravel access road and pad to explore the state leases. NordAq intended to commence drilling operations before its leases expire and has plans to continue operations based on the results of its initial well," the division said.

In its application NordAq said the Tiger Eye Central pad is some 2.5 miles inland from Cook Inlet and 2.5 miles east of the Kustatan River, and said it would build a 2.27-mile single lane gravel access road from an existing lease road near the Cook Inlet shoreline.

NordAq said the road and Tiger Eye Central drill pad would be constructed on Salamatof Native Corp. lands.

First well on ADL 391104

Tiger Eye Central will be drilled into state lease ADL 391104 from a pad to the east.

"The entire project is located on private land until the well bore reaches a depth of 1,920 feet. From this depth to total depth of 11,500 feet TD, the well will be located on State land in ADL 391104," NordAq said in its Aug. 20, revised, plan of exploration.

NordAq said it will be using Nabors Alaska Drilling Rig 106AC, an Arctic class mobile rotary drill rig, which will be mobilized to the site in truckable modules and assembled.

The company said it would use "existing infrastructure and resources found on the west side of Cook Inlet whenever possible during the project," including barge landings, staging areas, gravel lease roads, gravel pads, airstrips, regulated landfills and water supplies.

NordAq said the majority of the well support services contractors have offices, shops and additional equipment in Kenai and Nikiski that will support their remote field operations for the Tiger Eye project.

For the second pad, to be constructed next year, Tiger Eye North, NordAq said it would build a 2.5-mile single lane gravel access road from the existing lease road to the Tiger Eye North well location, where it would construct a gravel exploration pad. "A portion of the road near the proposed well pad will be constructed on state land to access the drill pad," with the section on state land some 0.75 miles long and the remainder of the road on Salamatof Native Corp. lands.

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Pioneer doubling down on Oooguruk

Expanding its signature Alaska oil development in numerous ways, from exploration to drilling to completion

By ERIC LIDJI
For Petroleum News

A pair of successful wells in early 2012 is guiding the way Pioneer Natural Resources Alaska Inc. approaches its Oooguruk unit in 2013, and potentially for years to come.

After a completion technique used on one well helped the Texas independent post a 25 percent production increase, Pioneer now plans to use the technique on four more wells.

And an exploration well into a shallower interval at Oooguruk yielded a 50 million barrel discovery, setting the stage for a potential onshore development com-



TODD ABBOTT

ponent at the unit.

Testing fracture designs

Pioneer drilled three important wells at the Oooguruk unit this past winter: the Nuiqsut No. 1 development well, and the Nuna No. 1 and Sikumi No. 1 exploration wells.

After successfully using a mechanically diverted fracturing system at its Eagle Ford and Spraberry operations in Texas, Pioneer evaluated the method in Alaska earlier this year on a well into the Nuiqsut formation. Also known as “plug and perf,” the technique is thought to be more effective than a dynamic diversion fracturing system because it can focus more energy at the point of fracture and stimulate a larger portion of a reservoir.

The well produced at an initial rate of 4,000 barrels per day, making it “by far

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Pioneer Natural Resources
COMPANY

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Irving, Texas

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Anchorage, AK 99501

TOP ALASKA EXECUTIVE: Todd Abbott

PHONE: 907-277-2700

COMPANY WEBSITE: www.pxd.com

ALASKA OIL & GAS PRODUCTION, NET:

~5,000 barrels per day



our best Nuiqsut well,” Pioneer Chief Operating Officer Tim Dove said in May 2012.

Based on these initial results, Pioneer now plans use the technique on four new development wells at Oooguruk this winter. “Those fracs will not be done until well after the freeze,” Dove said during an earnings call in August. “We need space for the frac fleet and we need space for frac tanks and other equipment. We really need ice for space around the island. So we really won’t be getting to those fracs until probably February.”

With the help of the development well, Pioneer produced 5,000 net barrels of oil per day at Oooguruk in the second quarter, up from 4,000 net bpd in the first quarter. Although that represents the first quarter-over-quarter increase at the unit in two years, production remains below its peak of 7,000 net bpd from the second and third quarters of 2010.

Two wells, two outcomes

Nuna No. 1 tested at an initial production rate of 2,000 barrels per day from the southern extent of the Torok formation, the shallowest of the three producing formations at Oooguruk, underpinning what Pioneer believes is a 50 million barrel oil discovery.

While Nuna No. 1 is currently shut in pending future onshore production facilities, Pioneer plans to drill an “appraisal” well this coming winter to further test the Torok.

“The idea is offsetting the excellent

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well we drilled last winter and evaluating the potential for development,” Dove said, noting that the company has already begun front-end engineering and design work on onshore facilities needed to develop the prospect.

Pioneer drilled Nuna No. 1 directionally from a pad some 2.5 miles northwest of Kuparuk River unit drill site 3S, and said it expects to drill the appraisal well in a similar fashion.

The state expanded the Oooguruk unit last year to include four leases along its southern edge to bring the entirety of the Torok formation into the unit boundaries. In return, Pioneer must decide by June 30, 2014, whether it plans to sanction Nuna. If so, the company plans to build the Nuna DS-1 pad by June 30, 2015 and begin drilling in 2016.

The Sikumi No. 1 well, though, proved to be a dry hole.

Pioneer drilled the offshore well from an ice pad two miles southwest of Oooguruk Island as a “deep test” of the Ivishak formation. The well was wet, and although it encountered some gas in another zone, it was “basically non-commercial,” Dove said. Pioneer plugged and abandoned Sikumi No. 1 and wrote down a \$19 million loss for the well.

Pioneer is currently running a one-rig development program at the Oooguruk unit, targeting all three formations at the field: the Kuparuk, the Nuiqsut and the Torok.

Pioneer operates Oooguruk and holds a 70 percent working interest in the Oooguruk unit, and the Italian supermajor Eni Petroleum holds the remaining 30 percent interest.

All about Oooguruk

Over its first decade in Alaska, Pioneer sniffed around exploration ventures on the North Slope and in Cook Inlet before eventually focusing its attention on Oooguruk.

As one of the players Armstrong Oil and Gas brought to Alaska in the early 2000s, Pioneer decided it would work to shorten the time it took companies to bring new fields into production in the state. Toward that goal, Pioneer bought a majority stake in the offshore Northwest Kuparuk prospect — now known as Oooguruk — and became the first independent operator on the North Slope when it brought the field online in June 2008.

Pioneer racked up other prospects, too.

But in late 2007, after participating in five exploration wells with discouraging results, the company relinquished some 300,000 acres of federal leases in the National Petroleum Reserve-Alaska held in partnership with ConocoPhillips and Anadarko Petroleum, and doubled down on two nearshore developments efforts: the Oooguruk unit and the Cosmopolitan unit in Cook Inlet.

Through drilling results and improved techniques, Oooguruk exceeded expectations.

In early 2009, Pioneer increased its resource estimate at Oooguruk by 40 percent and in late 2010 it began developing the Torok, the third and shallowest formation at the unit.

After years of drilling wells through Torok to get to the deeper Kuparuk and Nuiqsut formations, Pioneer accumulated enough information to justify development. According to Pioneer, the Torok formation at Oooguruk consists of 200 to 250 feet of thinly laminated sands and shales



SCOTT SHEFFIELD

“All of our assets are for sale for the right price. So we will continue to look at performance of those assets and make that determination in the future, whether or not we should be selling an asset.” —Pioneer CEO Scott Sheffield

located some 1,000 feet above the Kuparuk formation.

Because the Torok reservoir extends past the southern boundary of Oooguruk, Pioneer proposed the Nuna Development Project to approach it from onshore facilities.

As envisioned, Pioneer would drill between 35 and 65 horizontal wells from two onshore pads, primarily targeting the Torok but also possibly the Kuparuk, Nuiqsut and Ivishak.

When the state approved the Torok participating area at Oooguruk in summer 2011, Pioneer estimated the area contained 690 million barrels of original oil in place and said it could recover as much as 25 percent using primary and enhanced recovery techniques.

But Pioneer also saw production de-

continued on next page

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GUIDE = G
SLIDE = S
ANCHOR = A

SUPPORT TYPE
VSM LENGTH (FT)
MINIMUM EMBEDMENT (FT)

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PIONEER *continued from page 75*

clines in the order of 1,000 barrels per day because of a shortage of seawater injected into the field as part of the enhanced oil recovery at Oooguruk. Pioneer said it is currently seeking options to increase its seawater supply.

Leaving Cosmopolitan

Cosmopolitan didn't make the cut, though.

Although discovered in the 1960s, the prospect off the coast of the southern Kenai Peninsula lay dormant until ConocoPhillips formed the Cosmopolitan unit in 2001.

ConocoPhillips encountered oil in a well in 2002, conducted a test on a sidetrack in 2003 and completed a 3-D seismic survey over the unit in 2005 before selling to Pioneer.

Pioneer drilled a lateral off the sidetrack in 2007 and re-entered the lateral in 2010.

A flow test soured the company somewhat on the viability of the prospect, but despite saying the reservoir was "lower quality than most other producing oil fields of the Upper Cook Inlet," Pioneer launched a pilot project to truck crude oil from flow tests up the Sterling Highway to the Tesoro refinery in Nikiski. In filings, Pioneer hypothesized it could produce up to 8,000 barrels per day from Cosmopolitan sometime after 2014.

But in early 2011, Pioneer left Cosmopolitan, saying that despite "encouraging" results from the workover and fracture stimulation, "subsequent flow test results and engineering studies indicated that the resource potential was not as large as originally estimated."

Pioneer dropped the unit and all the acreage except two leases held by wells capable of producing in paying quantities.

In February 2012, the Australian independent Buccaneer Energy Ltd. and the privately held Fort Worth-based company BlueCrest Energy Inc. announced plans to buy the prospect. The companies closed on the deal in August 2012.

Staying put in Alaska

Those plans have quieted talk among analysts that Alaska might be up for sale.

"It's important for us to sit there," CEO Scott Sheffield said when asked directly whether Alaska still remained a candidate for divestment for Pioneer. "We have a lot of upside. We need to understand that potential upside before we make any long term decisions."

For several quarters, analysts had presented Alaska and South Africa as potential capital-generating sales for Pioneer. While Pioneer recently sold its South Africa assets, Sheffield has said he sees Alaska "growing significantly over the next several years."

During the Aug. 1 call, Pioneer said it wants to form a joint venture in the Wolfcamp Shale and is offering between 33 to 50 percent working interest in around 200,000 acres in the southern portion of the Midland basin to help accelerate development there.

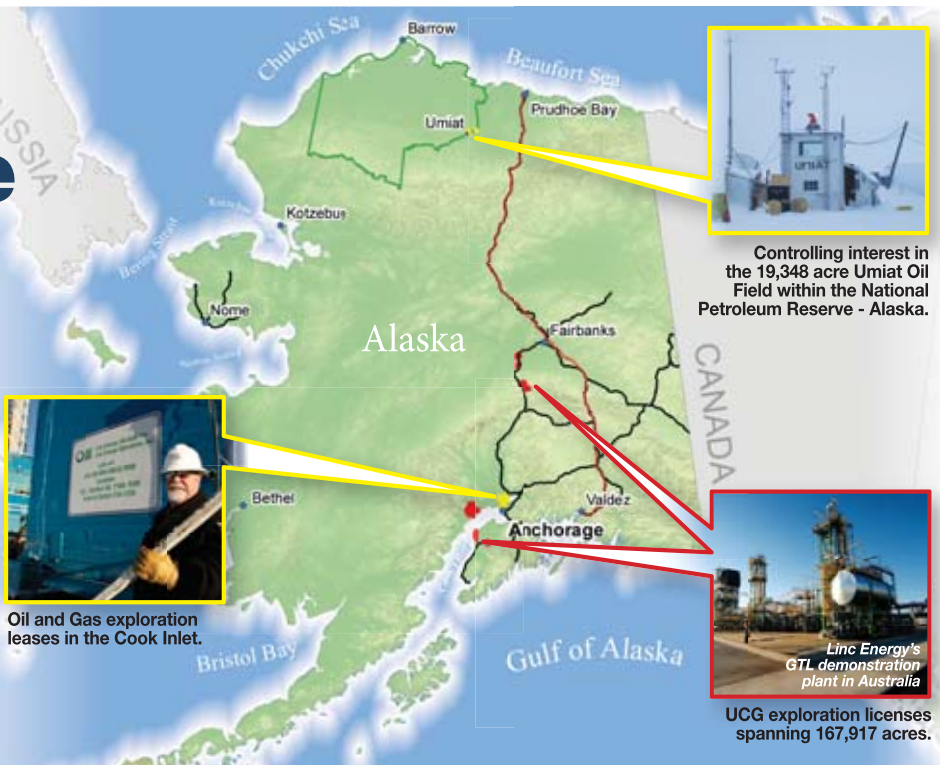
Asked whether that joint venture, and the potential capital associated with it, would put to rest talk of additional divestments through 2013, Sheffield said, "All of our assets are for sale for the right price. So we will continue to look at performance of those assets and make that determination in the future, whether or not we should be selling an asset."

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Repsol to drill three prospects

Wants 'meaningful changes' to Alaska production tax before moving forward with new development

By KAY CASHMAN
Petroleum News

In early 2011 the U.S. subsidiary of Spanish major Repsol YPF S.A. went from being a leaseholder without any definite exploration plans for Alaska to one of the most active exploration companies in the state.

Repsol E&P USA Inc. held federal leases in both the Beaufort and Chukchi seas for years, but didn't capture the attention of state policymakers until March 2011, when it launched a \$768 million exploration program across 494,211 acres of state land and water.

The acreage was assembled over a three-year period by Armstrong Oil & Gas subsidiary 70 & 148 LLC and GMT Exploration LLC, a fellow a Denver independent that Armstrong brought to Alaska in early 2010.

Armstrong was the independent responsible for bringing Pioneer Natural Resources and Eni Petroleum to Alaska.

Repsol's new acreage included everything Armstrong, bidding as 70 & 148 LLC, won in state areawide lease sales in 2008 and 2009.

All of GMT Exploration LLC's northern Alaska acreage was also picked up in the deal, leaving 70 & 148 and GMT with a 30 percent cut — 75 percent held by 70 & 148 and 25 percent by GMT — and operator Repsol with 70 percent.

"This deal is a perfect fit in our efforts to balance our exploration portfolio with lower risk, onshore oil opportunities in a stable environment," Repsol Chairman Antonio Brufau said in March 2011. "We are confident that our worldwide experience combined with a partner with an extensive local knowledge is going to deliver value in the near future."

First leases in OCS

Repsol traces its lineage to a state-owned petroleum industry monopoly created before the Spanish Civil War and reorganized often in the following decades. Repsol became a private company in the late 1980s and gradually expanded internationally.

With some 40,000 employees working in almost 30 countries, Repsol is one of the 10 largest private oil companies in the world.

Repsol first arrived in Alaska through two partnerships in the outer continental shelf Beaufort Sea. Although it did not bid in sale 195 or 202, Repsol later acquired a 20 percent interest in acreage held by Shell (40 percent) and Eni (40 percent), and a 20 percent interest in acreage held by Eni (80 percent) leased during those federal sales.

In February 2008, Repsol made \$14.4 million in high bids on 93 blocks in sale 193 in the Chukchi Sea.

"The North Slope of Alaska is an especially promising area for Repsol as it has already shown to be oil-rich and carries low exploratory risk. This acreage also helps increase the company's



GREG SMITH

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TOP ALASKA EXECUTIVES: Greg Smith, director U.S. Business Unit, and Bill Hardham, Alaska Project Manager

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Anchorage, AK 99515

PHONE: 907-375-6900

WEBSITE: www.repsol.com



presence in OECD countries," the company wrote in a press release in March 2011.

Using five rigs for program

The acreage Repsol acquired is clustered in three general areas: south of the Kuparuk River unit, in the White Hills region and near the offshore Oooguruk unit.

Initially, in the winter of 2011-12, Repsol planned to build five ice pads and drill a vertical well and as many as two sidetracks from each, with a measured well depth of some 12,000 to 16,000 feet.

But facing local Native opposition to such an unprecedented large program, Repsol's U.S. leadership Greg Smith, director of the company's U.S. Business Unit, and Bill Hardham, Alaska project manager, elected to go with four pads, with no more than three rigs working at one time.

The four proposed drilling locations would run down what is known as the "billion-dollar fairway," a rich, not fully explored, north-south trending long rectangle with a western edge a few miles inside NPR-A and an eastern boundary reaching the Kuparuk and Tarn oil fields. The fairway extends north to south from the nearshore Beaufort Sea to an area several miles south of Tarn. The Alpine oil field and its satellites lie inside the fairway.

A gas kick in 2012 at Qugruk No. 2 disrupted Repsol's drilling program. In the end two vertical wells were completed by the end of a short winter exploration season — Kachemach No. 1 (10,100 feet) and Qugruk No. 4 (7,700 feet).

The Qugruk well was located near the Beaufort Sea coast on the Colville River Delta, with the Kachemach well some distance to the south, just east of the Meltwater participating area of the Kuparuk River unit.

Following are Petroleum News questions answered by Hardham on Oct. 17, 2012:

Q. Are 70 & 148 LLC, an Armstrong affiliate, and GMT Exploration still 30 percent partners in your North Slope and near-shore Beaufort Sea acreage and wells in Alaska? If not, how has that percentage and relationship changed since March 2011?

A. Armstrong and GMT are still our 30 percent partners. To-

continued on next page



Bill Hardham, Repsol
Alaska project manager



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REPSOL *continued from page 77*

gether we have bid on additional North Slope leases within the last year.

Q. Please describe Repsol's current acreage position in Alaska:

A. Federal waters:

- 165 blocks in onshore exploration with a total surface area of 2,314.84 km² (square kilometers).

- 93 blocks offshore in Chukchi Sea with 2,142.72 km².

- 71 contracts in blocks corresponding to Beaufort Sea with a total area amounting to 1,511.33 km².

Onshore — 154 leases with a gross km² of 2,147.04, net 1,502.93 (503,545 acres)

- 11 Pending Assignments from 70 & 148 in NPR-A area with a gross km² of 251.08, net 175.76 (62,043 acres)

- 11 Pending Assignments from 70 & 148 North Slope Area, acreage has not been confirmed

- 25 New leases, awarded but still in the process of execution, gross km² of 164.275 and net 155 (40,593 acres) (Repsol will assign 30 percent)

Q. What is Repsol's take on Alaska, now that it has one exploration season under its belt?

A. We are committed and enthusiastic about our prospects in Alaska. However we will need to see some meaningful changes in the production tax structure in order to go forward with any new development projects.

Q. After listening to concerns expressed by residents of Nuiqsut, a community near the planned drilling locations, Repsol decided to scale back its 2011-12 winter exploration season drilling plan. Did Repsol lose any State of Alaska leases because it didn't drill from all five locations?

A. We fully understand that we need to work with the local communities in a sustainable way. Some North Slope residents had some legitimate concerns about our 2011 program, so we made some changes based on their input. We did not lose any leases because of the changes.

Q. This winter, 2012-13, will Repsol essentially complete the five-pad program it initially proposed for last winter?

A. We drilled two of five prospects last year, and plan to drill the remaining three this year.

Q. How many wells (individual penetrations) do you expect to drill this winter and from which pads (name and general location)? What will be the purpose/target(s) of each penetration?

A. The three wells we are planning this year are called Qugruk-1, Qugruk-3, and Qugruk-6. Q-1 and Q-6 are planned to be very similar with a pilot hole to about 7,000 feet, and then a horizontal sidetrack and well test. Q-3 is planned to be a vertical well to 9,000 feet, followed by a geologic sidetrack.

Q. Is one of the wells at the location of Qugruk 2, but with a slightly different bottomhole location?

A. Q-6 is targeting the same objective as the Q-2 well, but will be drilled from a different surface location.

Q. How many miles of ice road will you build to access these pads, and please provide a general description of each road, including start and stopping points?

A. We plan to build approximately 30 miles of ice road this

winter to reach the three drilling locations. We plan to start the road at DS 2M pad and head NW to the Colville River, at which point, one segment would head SW to our Q-3 location, while the other segment would head across the Colville River to the Q-1 and Q-6 locations.

Q. Will you be sharing any ice roads with other operators? If so, please provide a start and stopping point, as well as the other operator(s) name.

A. No.

Q. Which rig will be used on each of the pads?

A. We plan to utilize three Nabors drilling rigs for our program, the Nabors 9ES, 99AC, and 105AC.

Q. Which company is your general contractor this winter?

A. We will utilize and manage many different contractors.

Q. What did you find in the two wells you drilled last winter?

A. Resources were found in both of the wells. We will continue analyzing the results before going any further with either well.

Q. When will Repsol likely begin development drilling on its North Slope onshore and nearshore Beaufort Sea state leases?

A. We are performing preliminary studies to determine the feasibility of any development, but we are not ready to move forward on that yet.

Q. What type of exploration work do you have planned for your offshore federal leases?

A. It's too early to discuss plans for our offshore leases.

Q. If you could offer advice to the State of Alaska regarding its controversial leasing and taxation regimes, what would you say?

A. We do not have any material concerns with the leasing process. However, the current tax structure is a deterrent to future development. Meaningful tax reform would incentivize new oil field development, which would add significant state revenue and create thousands of local jobs. Alaska offers great exploration potential, but it is also a challenging and expensive operating environment. Repsol management will be evaluating the economics of developing Alaska projects and comparing these prospects with other worldwide opportunities.

Contact Kay Cashman at publisher@petroleumnews.com

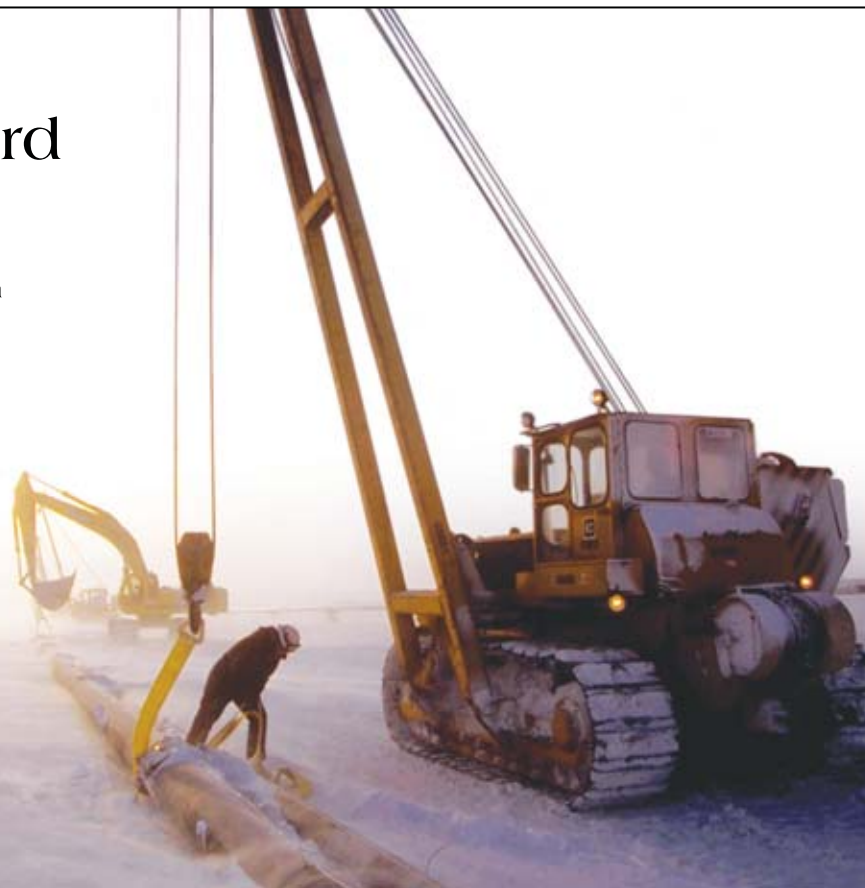
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Using exploration to boost Badami

*Savant is first small independent to operate oil field
on North Slope; looks deeper to bump output*

By KAY CASHMAN
Petroleum News

Savant Alaska LLC, an affiliate of Colorado-based Savant Resources LLC, first entered Alaska in 2006, when one of its founders, founder Pat Shaw, picked up leases in Foggy Island Bay some 20 miles west of the BP-operated Badami field, later transferring the leases to Savant's Alaska arm.

Savant drilled an exploration well from an ice island located in 16 feet of water in the Beaufort Sea into the Kupcake oil prospect in early 2008.

Kupcake No. 1 failed to uncover hydrocarbon resources worth pursuing. A



GREG VIGIL

NAME OF COMPANY: Savant Alaska LLC
COMPANY HEADQUARTERS: Castle Pines, CO
TOP EXECUTIVE OFFICER: Greg Vigil, president
PHONE: 720-328-7184

ALASKA OIL & GAS PRODUCTION, NET: Current oil production has averaged about 1,400 barrels of oil per day in first eight months of 2012.



partner on the program said the target interval in the Kemik formation "was thinner than anticipated" and the porous Cretaceous sandstone proved to be "water wet."

Savant re-emerged at Badami, taking on an even more formidable challenge in mid-2008 when it and partner ASRC Exploration signed a deal with BP to drill two wells in the unit, an exploration well and new horizontal sidetrack to improve production at a known reservoir in exchange for the right to earn certain additional working interest in the unit.

When BP first put Badami online in 1998, it expected the field to produce 30,000 to 35,000 barrels of oil per day, but the first wells proved to be disappointing. The Brookian turbidite formation at the field was a series of channels, like fingers on a hand. The trouble was getting them to "communicate" so that oil moves from one to the next.

A series of starts and stops followed, with production dropping off after a few months each time.

In September 2007 the field was taken off line for the last time by BP.

The 2008 deal with Savant and its partner led to the unit going back online in November 2010 with Savant as the operator, and BP transferring all but 4 percent of its revenue interest in several of its Badami leases to Savant Alaska and ASRC Exploration.

In early 2010, Savant drilled the B1-38 well into the Red Wolf prospect and found oil in two horizons. The first was the deeper Kekiktuk formation that also contains the oil reservoir for the Endicott field to the west. The second was the shallower late Cretaceous Killian sands interval that Savant used when it brought Badami back online later that year.

Savant has been able to keep production relative steady over the last two years, averaging about 1,400 barrels of oil per day in first eight months of 2012, versus an average of about 1,300 bpd in 2011.

Savant Alaska President Greg Vigil said in a September 2011 interview with Petroleum News, "We just want to increase production, period. We don't have a production target, if you will."

The company's attack on the production problems in the Badami sands has involved advanced technology, but it has also included exploring for oil in deeper

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Landmark year for Shell in Alaska

Delays highlight Arctic challenges while company finally succeeds in putting drill bits into Arctic OCS

By **ALAN BAILEY**
Petroleum News

For Shell, 2012 has been the year in which, after a six-year effort, the company finally succeeded in starting to drill exploration wells in Alaska's Chukchi and Beaufort seas. On the other hand, a combination of uncooperative sea ice and issues relating to a new oil containment system delayed the start of the Chukchi Sea drilling from July into early September, ultimately resulting in a decision not to attempt to drill into hydrocarbons in the Arctic outer continental shelf until 2013.

Top holes

At the time of going to press Shell was in the process of drilling a series of "top holes," the top sections of wells down to depths of 1,400 to 1,500 feet, some distance above any hydrocarbon zones. The idea is to save a significant amount of time in subsequent drilling seasons, Pete Slaiby,



PETE SLAIBY

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TOP ALASKA EXECUTIVE: Pete Slaiby, vice president
PHONE: 907-770-3700
COMPANY WEBSITE: www.shell.com



Shell's vice president in Alaska, told Petroleum News Sept. 28.

"When we talk about top holes we're talking about 14 days' worth of work on a well, and then literally another 10 days to get the well down through the objective. So this is a big deal," Slaiby said.

Given some uncertainty about ice movement in the Chukchi and Beaufort, as the winter approaches, Shell does not know exactly how many top holes it will complete, but "we've got our batting order," Slaiby said.

continued on next page

SHELL *continued from page 81*

"We're getting everybody to the on-deck circle," he said.

The drillship Noble Discoverer has been drilling the first well, the Burger A, in the Chukchi Sea. Shell anticipates the drilling of top holes at Burger J and Burger B after that, Slaiby said. Meantime in the Beaufort Sea, where Shell's floating drilling platform, the Kulluk, had been standing by, waiting for the end of the annual subsistence whale hunt in the area of Shell's drilling sites, drilling was under way for a top hole over the Sivulliq prospect, on the west side of Camden Bay. After drilling at Sivulliq the Kulluk will move to the nearby Torpedo prospect, Slaiby said.

And the effort to achieve this level of drilling activity has not come cheap — Shell anticipates its cumulative costs in Alaska to go past \$4.5 billion this year, Slaiby said.

Headwind of litigation

In the years that Shell has been trying to move forward with its Alaska outer continental shelf drilling program the company has faced a constant headwind of litigation against the permits that it needs, the litigation being fueled by concerns by environmental organizations and some Alaska Native groups about the potential risks posed to the Arctic marine environment by offshore oil drilling. And then the Deepwater Horizon disaster in 2010 in the Gulf of Mexico heightened many people's worries about offshore drilling safety, rapidly provoking the Department of the Interior into issuing new offshore drilling rules and causing the agency to take a critical look at its policies for offshore oil and gas development.

As the various lawsuits against Shell's permits wound their way through the appeals procedures and the court system, it began to appear that 2012 could be the year in which major challenges to Shell's Alaska plans would be resolved to a point where drilling could start. And, in response to Deepwater Horizon, Shell fitted its well blowout preventers with double shear rams and undertook to

build two new systems for its Arctic venture: a well capping system that could close a subsea well in the event of a blowout preventer failure, and an oil containment system that would gather leaking oil, should the blowout preventer and the capping system both fail to contain an out-of-control well.

The plan was for deployment of these two systems on a barge, near a midpoint between Shell's Beaufort Sea and Chukchi Sea drilling operations, ready to move into action should the need arise.

Plan approval

In December 2011 Superior Energy began work in Bellingham, Wash., on retrofitting the Arctic Challenger, an Arctic-class barge, to hold Shell's new containment system. And in that same month, the Bureau of Ocean Energy Management, or BOEM, approved Shell's exploration plan for drilling in the Chukchi Sea, although the agency also shortened the permitted length of Shell's Chukchi drilling season by prohibiting drilling into hydrocarbon zones after Sept. 24. BOEM had approved Shell's Beaufort Sea plan in August 2011.

The plans envisaged the drilling of up to two wells in the Sivulliq and Torpedo prospects in the Beaufort Sea, and the drilling of up to three wells in the Burger prospect in the Chukchi Sea. The Sivulliq prospect, previously called Hammerhead, has a known oil accumulation. Burger, a structure 25 miles in diameter, lies about 80 miles offshore the western end of the North Slope and is known to contain a major pool of natural gas — Shell, having conducted a 3-D seismic survey over the prospect, has said that it thinks there is a high probability of finding oil at Burger.

In February 2012 the Bureau of Safety and Environmental Enforcement, or BSEE, approved Shell's oil spill contingency plan for the Chukchi Sea. Also in February two appeals landed in the U.S. Court of Appeals for the 9th Circuit: one appeal against BOEM's

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SAVANT *continued from page 80*

horizons, such as Savant's first Red Wolf well.

In early 2012 Savant drilled the Red Wolf No. 2 exploration well, about two miles northwest of the bottom hole for B1-38, again targeting the Kekiktuk formation, which is deeper than the Brookian, where previous Badami development occurred.

"The well was a dry hole. ... Our target zone was wet (contained water)," Vigil said.

Will Savant continue to pursue the Red Wolf prospect?

Vigil said no.

Yukon Gold next?

But the company still holds some viable exploration acreage to the east of Badami.

In the December 2011 State of Alaska North Slope areawide oil and gas lease sale Savant fended off competing bids for two tracts, paying \$212,096 for 5,120 acres. One tract was adjacent to three existing Savant tracts on the edge of the 1002 area of the Arctic National Wildlife Refuge, and the second tract was to the north on the ANWR border.

Those existing tracts are ADL 391511, which contains BP's 1993 Yukon Gold 1 discovery well; ADL 391512 which is straight west of ADL 391511, bordering ANWR; and ADL 391513, directly south of ADL 391512 along the ANWR border.

Per the State of Alaska, Yukon Gold's recoverable reserves are



COURTESY SAVANT

120 million barrels of oil.

Why did Savant choose Yukon Gold, and what are its plans for the prospect?

"We like the area and feel like we understand the Brookian," Vigil told Petroleum News in mid-September 2012. "The biggest impediment is lack of infrastructure — i.e. roads."

When asked if Savant would like to comment on the State of Alaska's current production tax regime, Vigil said, "The regime encourages companies not to invest in new developments but rather harvest their existing production."

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Alaska: a strategic region for Shell

Shell has made it clear from the start of its current Alaska venture that it views Alaska's Arctic outer continental shelf as a strategic region for future business growth. The company sees Alaska as a long-term play and has indicated in words and actions its willingness to "stay the course" in pursuing what it believes to a rich source of new hydrocarbon resources.

The company purchased a substantial number of Beaufort Sea leases in 2005 and initially planned to drill at Sivulliq in the Beaufort in 2007. But, faced with a barrage of litigation against permits that the company needed, the company repeatedly postponed and modified its plans.

Chukchi leases

In the 2008 U.S. Minerals Management Service Chukchi Sea lease sale Shell paid \$2.1 billion for a series of leases across the Chukchi Sea, with \$1.5 billion of that massive sum going on leases around the Burger prospect. Shell subsequently conducted a 3-D seismic survey over its leases, following that survey with geotechnical and shallow hazards surveys of prospective drilling sites.

For several years litigation challenging the environmental impact statement, or EIS, for the Chukchi Sea lease sale held up progress towards Shell's drilling in its Chukchi Sea leases. However, after a partial rewrite of the EIS as a consequence of the appeal, in October 2011 Judge Ralph Beistline in the federal District Court in Alaska gave the go-ahead for lease related activities in the Chukchi. In February 2012 Beistline finally dismissed the appeal, which has since moved to the 9th Circuit court.

Beistline's October order enabled BOEM to review and approve Shell's Chukchi Sea exploration plan, thus enabling the permitting process to move to a position where Shell could drill in 2012.

Beaufort potential

Although Shell has said that it views Chukchi Sea exploration as its top priority in the Alaska outer continental shelf, the company also sees the Beaufort Sea as having excellent resource potential in relatively close proximity to the existing North Slope oil infrastructure. The company owns leases in the Camden Bay area and in Harrison Bay to the west of Prudhoe Bay. And, although Shell's exploration efforts in the Beaufort Sea have focused on the Torpedo and Sivulliq prospects in the Camden Bay area, the company has conducted a 3-D seismic survey in Harrison Bay where it is exploring in partnership with Eni Petroleum, the co-owner of the Harrison Bay leases.

— Alan Bailey

SHELL *continued from page 82*

approval of Shell's Chukchi Sea exploration plan, and the other against the Environmental Protection Agency's air permit for the Noble Discoverer drillship. An appeal against approval of Shell's Beaufort Sea exploration plan was already in progress in the same court.

Pre-emptive action

At the end of February Shell, anticipating further litigation ahead of its planned summer drilling, took pre-emptive action by asking the federal District Court in Alaska to rule that BSEE had correctly approved the Chukchi Sea oil spill response plan. The company also asked for, and was subsequently granted, a restraining order against environment activist organization Greenpeace, prohibiting Greenpeace from obstructing Shell's Arctic operations.

In March BSEE approved Shell's Beaufort Sea oil spill plan and Shell duly asked the District Court to add this plan approval to the existing lawsuit requesting confirmation of the legality of the Chukchi Sea spill response plan. And in that same month, Shell took delivery of the MV Aiviq, a brand new 360-foot ice-class anchor handler for use in the Arctic.

Mobilization

In late April Shell announced that it was starting to mobilize its Arctic drilling fleet.

At the beginning of May the National Marine Fisheries Service issued incidental harassment authorizations, allowing the unintended minor disturbance of whales and seals during Shell's drilling operations, and Shell promptly filed another lawsuit requesting the District Court to declare these authorizations valid.

In May the 9th Circuit court rejected the ap-

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Environmental and subsistence concerns

Environmental protection and respect for the rights of local subsistence hunters form key components of any endeavor to explore in the Alaska Arctic offshore.

And from the start of its recent Alaska Arctic exploration venture, Shell has had to face the concerns of the North Slope Native communities about the potential impacts of offshore industrial activities on the subsistence hunting of marine mammals, in particular bowhead whales — following some initial, ambitious plans for the simultaneous use of two drilling rigs in the Beaufort Sea, the company scaled back its expectations, committing to the use of just a single drilling rig in each Alaska Arctic sea, and to the drilling of a just a limited number of wells in each drilling season.

Mitigation measures

Shell has agreed to cease drilling in the Beaufort Sea during the annual subsistence whale hunt and to remove drilling waste from its Beaufort Sea drilling operations, for disposal outside the Arctic. The company has implemented a system of communications centers in North Slope villages, with the objective of achieving effective communications between offshore oil operations and community subsistence hunting activities.

In reflecting on experience in deploying Shell's drilling fleet in the 2012 open water season, Pete Slaiby, Shell's vice president in Alaska, told Petroleum News that local subsistence advisors, stationed in the villages, had proved particularly effective in notifying Shell about subsistence activities, to avoid conflicts between those activities and industrial operations. And Shell has investigated any reports of disturbance to caribou hunting, for example, he said.

Oil spill risk

With the risk of a major oil spill probably being the biggest environmental concern with Arctic offshore oil activities, Shell has adopted a policy of maintaining a self-sufficient oil spill response capability while also placing a high priority on spill prevention through factors such as effective well planning and

the remote monitoring of drilling progress.

In addition to its capping and containment systems, designed to prevent the flow of oil into the ocean, the company has a response fleet that includes a purpose-built, ice-capable response vessel, spill response barges and a 513,000-barrel capacity, ice-class, double hulled oil tanker.

The oil spill response fleet is designed for deployment in parallel with any offshore drilling operations, ready to swing into action in the event of an oil spill emergency. Shell's spill contingency plans also include the deployment of nearshore and onshore spill response assets.

Environmental monitoring

From the perspective of gathering environmental data for assessing and determining the environmental impacts of Arctic outer continental shelf oil exploration and development, Shell and other companies involved in exploring the Chukchi and Beaufort seas have been conducting a multi-year environmental monitoring program, primarily involving the collection of data about marine mammal activity through the use of offshore acoustic recorders.

Shell, ConocoPhillips and Statoil have also been conducting environmental research around their potential Chukchi Sea drill sites, obtaining detailed information about the marine environment in these areas.

And in November 2010 Shell and the North Slope Borough initiated a joint program of scientific research into the offshore environment.

NPR-A studies

In anticipation of the need for an oil pipeline across the National Petroleum Reserve-Alaska, to ship future Chukchi Sea oil production to the central North Slope, Shell has been conducting an environmental study across the reserve. Carried out by Shell scientists and working through an arrangement with Olgoonik Corp., the Native corporation for the Chukchi Sea coastal village of Wainwright, the study has been developing a baseline of biological data, as well as studying hydrol-

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SHELL *continued from page 84*

peals against both the Beaufort Sea and the Chukchi Sea exploration plans.

Also in May, while a nearly \$100 million upgrade to the Kulluk was nearing completion, environmental groups appealed the Kulluk's air permit to the 9th Circuit court. The Kulluk upgrades involved the installation of new equipment designed to meet new, stringent air emissions restrictions and the installation of a system for recovering drilling mud and cuttings.

But in early July, at around the time that Shell had originally planned to move its fleet, by then stationed at Dutch Harbor in the Aleutian Islands, up through the Bering Strait into the Chukchi Sea, the company announced that unusually heavy sea ice was delaying the start of the drilling program.

Arctic Challenger

At about the same time it became apparent that the retrofit of the Arctic Challenger was not yet finished. At this point, the only

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SHELL *continued from page 86*

remaining permits that Shell needed were BSEE drilling permits, but BSEE would not issue those permits without the Arctic Challenger being deployed.

And, in another complication, at the end of June Shell applied to the Environmental Protection Agency for some changes to the air permits for the Noble Discoverer and the Kulluk — the company said that testing of the vessels' exhaust systems had indicated problems with meeting some of the emissions stipulations in the permits, although the company also said that the requested changes were quite minor in nature.

Under the terms of its air permit the Kulluk would be able to operate, pending an EPA decision on the change request. But, with the Noble Discoverer having a major air permit, Shell had to obtain compliance order, to enable the Discoverer to go into operation in the summer of 2012.

On July 14 the Noble Discoverer dragged its anchor at Dutch Harbor and was towed by a tug back into position before drifting onto the shore.

Several weeks passed, with the ice eventually moving away from Shell's Chukchi Sea drilling site, but with the Arctic Challenger remaining in dock in Bellingham, awaiting completion of the containment system retrofit and vessel certification.

Site preparation

But around the beginning of August three vessels from Shell's fleet departed Dutch Harbor for the Chukchi and Beaufort seas to start preparing Shell's drilling sites. By that time, with the delayed start to the drilling, Shell had scaled back its 2012 drilling expectations to just one well in the Beaufort Sea and one well in the Chukchi Sea. However, the company said that it also anticipated drilling the top sections of some other wells, to achieve a head start to drilling in 2013.

On Aug. 20 the Kulluk departed Dutch Harbor for the Beaufort Sea and on Aug. 25 the Noble Discoverer left for the Chukchi Sea. On Aug. 30 BSEE issued a drilling permit, enabling the drilling of the top section of Shell's first Burger well, with drilling limited to depths substantially above any potential hydrocarbon bearing zone. Permission to drill into hydrocarbons would have to wait on deployment of the Arctic Challenger.



RICK WILSON, OFFSHORE SYSTEMS INC. (OSI)

Drilling starts

With all of the permits now in place to at least start drilling in the Chukchi, Shell moved the Noble Discoverer into place at Burger and finally started drilling at 4:30 a.m. on Sept. 9. But with time running short before the Sept. 24 drilling deadline in Shell's Chukchi Sea exploration plan, Shell asked if, in the light of up-to-date Chukchi Sea ice forecasts, the deadline could be extended by nearly two weeks — the purpose of the deadline was to allow sufficient time to drill a relief well before the encroachment of winter sea ice at the drilling site,

should there be a well blowout.

Meantime the Kulluk had taken up a holding position in the Beaufort Sea, waiting for the completion of the annual subsistence whale hunt.

But all came to naught for drilling into hydrocarbons.

On Sept. 10, less than two days after the start of drilling, Shell had to move the Noble Discoverer off the well site, as a 12-mile by 30-mile ice floe started drifting towards the drilling operation. And on Sept. 17 Shell announced that the containment dome on the Arctic Challenger had been damaged during testing of the

containment system and that, consequently, the company would only drill top hole sections of wells in 2012, a plan that BSEE subsequently approved.

Drilling eventually restarted at Burger, and the Kulluk moved into action at Sivulliq.

An 'interesting year'

Despite the problems with the Arctic Challenger, Slaiby characterized 2012 as an "interesting year" in which much was achieved.

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Statoil takes careful approach

Norwegian oil major watches progress of Shell's drilling project; prepares 2015 Chukchi Sea exploration plan

By ALAN BAILEY
Petroleum News

Norwegian oil major Statoil continues to see the Chukchi Sea as an exciting place in which to explore for oil but is carefully considering its next moves in the region, waiting to see what transpires in Shell's Chukchi Sea drilling campaign, Lars Andreas Sunde, Statoil's head of Alaska operations, has remarked in recent speeches to both the Alaska Support Industry Alliance and the Alaska Oil and Gas Congress.

The Chukchi Sea dovetails into Statoil's overall interest and experience in oil and gas development in the Arctic — the company already has an operating Arctic gas field at Snøhvit in the Barents Sea, as well as pursuing exploration and development plays in the Barents Sea, in the Russian Arctic offshore, offshore Newfoundland and offshore west Greenland.

Statoil had been hoping to drill its first Chukchi Sea exploration well in 2014 but, as Shell's program slowly moves forward, Statoil has deferred its drilling expectations to 2015 at the earliest. And decisions on additional drilling will depend on the results from that



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first well, Sunde told Petroleum News in a Sept. 20 interview.

"Our message has been that we were planning a well in 2014, but recent events and challenges experienced by others have caused us to re-evaluate our decision timeframe," Sunde said. "We are committed to improve our understanding of what it will take to successfully explore in Alaska and our team will continue its work in learning how to enhance the regulatory process and work with our industry partners."

Regulatory clarity

Sunde explained that Statoil's re-evaluation of its Chukchi Sea plans particularly stems from uncertainty over the government regulatory process. In particular, the outcome of the splitting of the Department of the Interior's oversight of outer continental shelf oil and gas activities into two agencies — the Bureau of Ocean Energy Management and the Bureau of Safety and Environmental Enforcement — has yet to settle, Sunde said. For example, the Bureau of Safety and Environmental Enforcement has been issuing new rules for offshore operations using notices to lessees. And improved communication and coordination between different regulatory agencies would be helpful, Sunde said.

"The main concern is always (regulatory) clarity and predictability," he said.

Meantime, Statoil has contracted with consultants to work on an exploration plan for Chukchi Sea drilling, with completion of the plan anticipated at some time in 2013.

Statoil entered the Alaska oil scene when it purchased leases in the U.S. Minerals Management Service's 2008 Chukchi Sea lease sale and in 2010 Statoil conducted a 3-D seismic program in its 16 leases located about 100 miles northwest of the Chukchi Sea coastal village of Wainwright. From this survey the company identified two oil prospects, called Augustine and Amundsen. Initially Statoil anticipates focusing its drilling efforts on Amundsen, the larger of the prospects.

Fieldwork results

In the open water season of 2011 Statoil conducted shallow hazards surveys and geotechnical coring at potential drilling sites in its leases — the company has now assessed the results of that fieldwork and has concluded that it can drill safely, Sunde said. Although yet to make a final decision on the type of drilling rig to use

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CONCERNS *continued from page 86*

ogy and archaeological sites, Pete Slaiby, Shell's vice president in Alaska, told Petroleum News Sept. 28.

But controversy continues about the merits or otherwise of exploring for oil on the Arctic outer continental shelf. Some say that cleaning up an oil spill in ice-laden Arctic waters would be impractical using current technologies. Some say that not enough is known about the delicate Arctic offshore environment.

Shell, for its part, says that it has the information, procedures and technologies in place to proceed safely with some exploration drilling, and government regulators appear at this point to concur with Shell's position.

—Alan Bailey

SHELL *continued from page 87*

"We've really had a huge success in getting all of our other assets up there," Slaiby said. "I don't think people should lose sight of the fact that we're moving 900 people every two to three weeks in and out of northern Alaska."

And lessons learned so far from the offshore operations in 2012?

Although there have been no work-related injuries, there have been several incidents in which people have had to be brought in from the field because of pre-existing medical conditions, Slaiby said.

"Fitness to work is an important issue," he said.

Shell also sees a need to upgrade its helicopters for instrument flight, to allow the aircraft to fly in conditions of poor visibility. And, although the logistics for the offshore operations have worked fairly well, there is always scope for improvement.

"We're going to work on getting people in and out," Slaiby said. "A big goal of mine is for people, when they've done their 21 days (in the field), to get them back home on that day."

Positive about progress

With a number of permits already in place for drilling in 2013, and with adequate time to have the Arctic Challenger and its containment dome fully operational for next year, Slaiby feels positive about Shell's progress in Alaska.

"We would have liked to have drilled through the objectives (in 2012), but I think we have done some really important things with respect to setting the precedent about being able to work safely in Alaska," Slaiby said. "Overall it's clearly the most success we've had in Alaska in the last six years."

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STATOIL *continued from page 88*

in the Chukchi, the company is considering the use of a jack-up rig, a configuration in which a drilling platform is held above the sea on legs lowered to the seafloor. The geotechnical survey results show that the seabed is capable of supporting a jack-up drilling platform, Sunde said.

Statoil is also partnering in the exploration of ConocoPhillips' Chukchi Sea Devil's Paw prospect, some distance to the south of Statoil's leases. ConocoPhillips has said that it plans to drill at Devil's Paw in 2014.

Community dialogue

Sunde said that his company is particularly anxious to work with North Slope communities, to address their concerns about offshore oil and gas activities.

"An open dialogue with the local communities about our plans is very important to Statoil," Sunde said. "We are committed to base our work on understanding the local environmental and cultural challenges. Through close dialogue, interactions, openness and transparency we wish to build trust in Statoil as a company and to listen to and address concerns for the environment expressed by local stakeholders. ... Over the past 36 months, we have held open-house informational meetings in eight communities — Barrow, Wainwright, Atkasuk, Point Lay, Point Hope, Kivalina, Kotzebue and Nome — and have participated in dialogue sessions with village leadership. In total we have held more than 120 meetings with Native villages and special interest groups."

Diversity of views

There is a wide diversity of views among North Slope residents when it comes to the merits or otherwise of offshore oil development and Statoil receives both statements of support for its plans and challenging questions, Sunde said.

"We wish to understand the concerns that the population on the North Slope has with offshore drilling, because it makes us able to respond better," he said. "And I appreciate the openness of these conversations that we've had in the villages."

Sunde said that the main concern among North Slope residents is the possibility of an offshore oil spill. There is also concern about the environmental disturbance from sound associated with offshore seismic surveys, although Statoil has already completed its Chukchi Sea seismic program.

Environmental monitoring

Statoil continues to work with Shell and ConocoPhillips in a multi-year program of Chukchi Sea environmental monitoring and research, designed to acquire data for the assessment and monitoring of the environmental impacts of offshore industrial activities. This program has included the deployment of subsea sound recorders for the monitoring of sounds from marine mammals; the program has also included field research into the marine environment in leased areas.

Sunde said that Statoil, as part of the company's own internal standards and procedures, will prepare its own environmental assessment of its planned Chukchi Sea work, in addition to any environmental assessment required under U.S. regulations for offshore oil and gas activities. These assessments will address concerns raised during meetings with North Slope communities, he said.

Incremental innovation

In the context of the Arctic offshore as a whole, Statoil sees the Chukchi Sea as a region where there is proven technology for drilling wells, but where incremental innovation will be needed to devise safe and effective technologies for field development and oil production, Sunde said. That is distinct from regions such as the Barents Sea and the Grand Banks off the east coast of Canada, where exploration has progressed successfully for many years and where there is current field production using established technologies.

On the other hand, an Arctic region such as offshore east Greenland, with relatively deep water and significant ice challenges year round, will require innovation for both drilling and development, Sunde said.

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UltraStar hopes to drill Dewline

PETROLEUM NEWS

UltraStar Exploration LLC, sister company to Winstar Petroleum LLC, is looking to drill a second well in its Dewline unit, which consists of four leases wedged into the coastline of the Prudhoe Bay unit.

The Alaska-based independent consists essentially of one man — Jim Weeks — and a group of investors.

Weeks helped found Winstar Petroleum LLC in the late 1990s, UltraStar in 2002 and Dewline Petroleum LLC in 2008 with an overlapping group of investors. Today, UltraStar holds some 4,533 acres over the four-leases that make up the Dewline unit.

Weeks was hoping to drill the North Dewline No. 1 well last winter, but rig availability was an issue.

This winter rig accessibility is less of a problem but Weeks said the company still needed half the money for the well.

As of Oct. 29, 2012, he was still chasing a couple of investor leads, but Weeks was doubtful they would materialize by early December, which is the latest point in time for mobilizing to drill this coming winter.



JIM WEEKS

JUDY PATRICK

First Dewline well 'typical'

Weeks and his people decided to pursue the oil-prone Dewline Deep prospect, believed to hold between 5 million and 20 million barrels of oil in the Ivishak and Sag River formations, after obtaining 3-D seismic over their leases west of Point McIntyre.

The seismic showed several prospects.

Following years of negotiations that included talk of possibly expanding the Prudhoe Bay unit to include Dewline Deep, UltraStar and BP came to terms on a framework for access to the drill site and for the future use of Lisburne facilities. UltraStar drilled the Dewline No. 1 well near Point Storkersen in early 2009 using the Akita-Doyon Arctic Wolf rig.

The 9,990-foot vertical well encountered its target in the Ivishak formation. Weeks declined to offer detailed results but called Dewline "a typical exploration well. Not a train wreck. We came pretty close to the operational amount we expected to spend."

Up against a deadline

The Alaska Department of Natural Resources formed the Dewline unit in June 2009 and expanded the unit in March 2011 to include an offshore section. Under the existing five-year plan of exploration, UltraStar must drill a second well at Dewline by May 31, 2013.

North Dewline No. 1 will be a 14,000 to 15,000-foot directional well with a 6,000-foot displacement to reach an offshore target from an onshore pad.

Like its predecessor, the North Dewline No. 1 well will target the Ivishak formation, but could also explore potential targets in the Sag River and Kuparuk formations, Weeks said.

The only other well drilled to date in the area now included in the Dewline unit is the Point Storkersen No. 1 well drilled by the Hamilton Brothers in 1969 to a measured depth of 11,473

NAME OF COMPANY: UltraStar Exploration LLC

ALASKA HEADQUARTERS: 1629 W. 11th Ave., Anchorage, AK 99501

PHONE: 907-258-2969

TOP ALASKA EXECUTIVE: Jim Weeks, managing member



The only other well drilled to date in the area now included in the Dewline unit is the Point Storkersen No. 1 well drilled by the Hamilton Brothers in 1969. ... That well tested an oil target in Sag River formation, flowing at 315 barrels per day and 735 bpd from two different depths in the Ivishak Sandstone.

feet. That well tested an oil target in Sag River formation, flowing at 315 barrels per day and 735 bpd from two different depths in the Ivishak Sandstone.

Tiny company, big voice

Through UltraStar, Weeks advocates for small independents in Alaska, be the issue facility sharing or taxes.

As former long-term senior vice president for ARCO Alaska, his opinion and experience carries weight with legislators and his colleagues in the state's oil and gas industry.

Weeks sees a document called the Charter for the Development of the Alaskan North Slope, signed between the State of Alaska, BP and ARCO in 1999, as critical for small companies wishing to explore on the slope.

The charter obligates BP and ConocoPhillips to provide access to their North Slope facilities for third-party satellite fields on "reasonable commercial terms."

And there's a requirement for binding arbitration in the event of stalled negotiations.

"Without the charter we wouldn't even be here," Weeks said.

The charter also requires BP and ConocoPhillips to purchase oil from small producers, thus enabling these producers to avoid the need to establish costly shipping arrangements for their oil.

Another provision of the charter, a requirement that BP and ConocoPhillips make seismic data available for license, has proved vital for Winstar and UltraStar.

It's simply too expensive for a small company to shoot 3-D seismic over a small lease area on the North Slope, Weeks said.

The seismic provision proved critical for Dewline, since UltraStar was able to obtain seismic from the Prudhoe Bay owners.

But don't expect another major oil field from UltraStar's Dewline unit.

Although the prospect shows good potential, the oil accumulations are likely to be modest in size — the drilling isn't going to find 100 million barrels, Weeks said.

But what's considered a very small field on Alaska's North Slope — the 5 million to 20 million barrel range — is a big coup anywhere else in the country. And at today's oil prices, he said.



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*True North Slope One-Stop Rental Shopping...
...and Industry-Leading Customer Service*

N C The Cat Rental Store is pleased to announce the opening of our newest rental facility in **PRUDHOE BAY**. Now more than ever, N C can offer you the true one-stop rental shopping you want, and the industry-leading customer service you need!

- We have **TRIPLED** our dedicated rental fleet size on The Slope, based out of our new Prudhoe Bay Rental facility.
- We have assembled the **MOST EXPERIENCED** local staff:

Gary Montague
*Prudhoe Bay Branch
Manager (Rotating)*
34 years industry experience

Jim Hollowood
*Prudhoe Bay Rental
Coordinator (Rotating)*
27 years industry experience

John Luick
*Prudhoe Bay Rental
Coordinator (Rotating)*
6 years management experience

- We have increased our **RENTAL FLEET SUPPORT** with 2 dedicated Prudhoe Bay Rental Store technicians.
- We provide true one-stop shopping featuring the **BROADEST RENTAL PRODUCT LINE** on The Slope.

As well as our N C The Cat Rental Store rental products, larger Cat heavy equipment rentals (through our N C Machinery division) and larger generator and air compressor rentals (through our N C Power Systems division) are **ALL COORDINATED FROM OUR PRUDHOE BAY FACILITY**. All three of our divisions have significant fleet on The Slope, so the new bottom-line is that none of our competitors can touch the breadth of our total rental line:

- Cat heavy equipment
- Ground heaters
- Air heaters

- Mobile generators to 2,000 kW
- Air compressors to 1,600 cfm
- Light towers

- Scissor and boom lifts
- Industrial forklifts
- **YOU NAME IT!**

- We have Rental Sales Representatives **YOU CAN TRUST**...experienced, knowledgeable, and highly responsive:

For N C The Cat Rental Store, call
Levi Hogan: 907-715-9365

For N C Machinery, call
Jeremiah Johnson: 907-748-1159

For N C Power Systems, call
Erick Pomrenke: 907-632-6700

Call us today to discuss how our increased scope on The Slope can mean increased dollars on your bottom-line!



N C

**CAT Rental
STORE**

**Prudhoe Bay Direct Line:
907-659-9600**

**Other Alaska Inquiries:
800-478-7000**



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