



## Nikiski: Refinery with a view



COURTESY TESORO

Tesoro's Alaska refinery on the Kenai Peninsula now uses crude oil from around the world, not just from Cook Inlet and the North Slope; see story on page 8.

## North Slope Borough plans hydrate wells at gas fields near Barrow in 2010-11

The North Slope Borough is looking to hire a contractor for a drilling program in the winter of 2010-11 to look for methane hydrates at two natural gas fields near Barrow.

The project is part of a larger effort to study methane hydrate resources in the Arctic. The North Slope Borough is working on the effort with the U.S. Department of Energy.

The North Slope Borough plans to hire a contractor to start work in September 2010.

The contractor will drill as many as two test wells at the East Barrow gas field near the end of 2010 to test for hydrates. The field is 14 miles east of Barrow on gravel roads.

In early 2011, the contractor will move the equipment down ice and snow roads to the Walakpa Gas field some 15 miles southwest of Barrow to drill four to five wells.

Drilling at Walakpa is scheduled to wrap up between mid-April and early May.

see **HYDRATE WELLS** page 19

## EXPLORATION & PRODUCTION

# Moving on Liberty

SDI, river bridge upgrade and drilling rig construction near completion

By **ALAN BAILEY**

Petroleum News

After years of planning and design there are now tangible signs on the ground of progress towards first oil from BP's 100 million-barrel Liberty field, offshore in the Beaufort Sea, about 15 miles east of Prudhoe Bay.

On the North Slope workers are putting the finishing touches to the extension of the Endicott satellite drilling island, where Liberty's drilling rig will be located, and to the upgrades to the Sagavanirktok River road bridge, an essential component of the transportation support infrastructure for the Liberty project; and in Vancouver, Wash., fabrication of Parker Drilling's massive



ALASKA FRONTIER CONSTRUCTORS

Setting the sheet-pile retaining wall for the Liberty extension to the Endicott satellite drilling island.

Liberty drilling rig is nearly finished, Darryl Luoma, BP's general manager for the Liberty project, told the Alaska Support Industry Alliance

see **LIBERTY** page 18

## NATURAL GAS

# Eresman: the future's a gas

EnCana CEO says North America 'flush' with resource costing less to produce

By **GARY PARK**

For Petroleum News

More competitive, friendlier regime is one reason why British Columbia threatens Alberta's once-unrivaled position as Canada's dominant oil and natural gas region.

But there's another, more compelling reason.

British Columbia has staggering untapped resources that are just starting to benefit from a technological "renaissance," while Alberta is grappling with declining conventional reserves and production rates.

Consider the assessment of executives from



**RANDY ERESMAN**

leading production and pipeline companies speaking at a Vancouver Board of Trade energy forum on April 24.

Mike Graham, president of EnCana's Canadian Foothills division, offered the most staggering projection of all.

He said the Horn River basin shale gas and Montney silt gas plays have combined gas in place of 800 trillion cubic feet — 800 years worth at British Columbia's current annual production rate.

But those volumes should grow by a factor of two or three times over the next 10 to 20 years, raising B.C. from its 20 percent share of total Canadian output and "challenging Alberta as

see **FUTURE** page 15

## PIPELINES & DOWNSTREAM

# FERC accepts 2007 rates

Orders refunds; sets rates; urges owners, shippers to settle remaining disputes

By **ROSE RAGSDALE**

For Petroleum News

The Federal Energy Regulatory Commission has issued another major decision in a long-running dispute between owners of the trans-Alaska oil pipeline and unaffiliated shippers on the line that appears to move the case closer to final resolution.

This time, the commission took up the question of interstate shipping rates proposed by the pipeline's carriers for 2007 and 2008 in compliance with its June 20, 2008, order, Opinion 502. That ruling endorsed an earlier administrative law judge ruling that established substantially lower rates for 2005 and 2006.

The FERC judge determined in May 2007 that

*This time, the commission took up the question of interstate shipping rates proposed by the pipeline's carriers for 2007 and 2008 in compliance with its June 20, 2008, order, Opinion 502.*

the 2005 and 2006 tariffs should be based on the pipeline owners' costs rather than a method that had been used to establish rates in a 1985 court settlement. The change resulted in a significant reduction in the tariffs. The judge also ordered limited refunds, which the commission upheld.

In its latest order, FERC concluded that the carriers' proposed 2007 tariffs met the requirements

see **FERC** page 17

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Petroleum News

A weekly oil & gas newspaper based in Anchorage, Alaska

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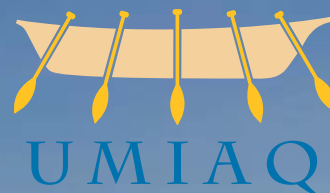
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ICE ROAD CONSTRUCTION

# Alaska - Mackenzie Rig Report

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

## Alaska Rig Status

### North Slope - Onshore

#### Doyon Drilling

Dreco 1250 UE	14 (SCR/TD)	Prudhoe Bay 12-07A	BP
Sky Top Brewster NE-12	15 (SCR/TD)	Kuparuk Rig maintenance	ConocoPhillips
Dreco 1000 UE	16 (SCR/TD)	Badami B1-28, moving	SAVANT
Dreco D2000 UEBD	19 (SCR/TD)	Fiord Nechelik CD3-304	ConocoPhillips
OIME 2000	141 (SCR/TD)	Stacked in Kuparuk	ConocoPhillips
TSM 7000	Arctic Fox #1	Mobilizing	ConocoPhillips
	Arctic Wolf #2	Mobilizing	Rampart Energy

#### Nabors Alaska Drilling

Trans-ocean rig	CDR-1 (CT)	Stacked, Prudhoe Bay	Available
Dreco 1000 UE	2-ES	Prudhoe Bay DS11-12	BP
Mid-Continental U36A	3-S	Milne Point MPUI-03	BP
Oilwell 700 E	4-ES (SCR)	Prudhoe Bay J-20B	BP
Dreco 1000 UE	7-ES (SCR/TD)	Prudhoe Bay A-44i	BP
Dreco 1000 UE	9-ES (SCR/TD)	DS 14-23A	BP
Oilwell 2000 Hercules	14-E (SCR)	Stacked	Available
Oilwell 2000 Hercules	16-E (SCR/TD)		Available
Oilwell 2000	17-E (SCR/TD)	Stacked, Point McIntyre	Available
Emsco Electro-hoist -2	18-E (SCR)	Stacked, Deadhorse	Available
Emsco Electro-hoist Varco TDS3	22-E (SCR/TD)	Stacked, Milne Point	Available
Emsco Electro-hoist	28-E (SCR)	Stacked, Deadhorse	Available
Emsco Electro-hoist Canrig 1050E	27-E (SCR-TD)	Point Thompson PTU-15	ExxonMobil
Academy AC electric Canrig	105-E (SCR-TD)	Chandler #1	Anadarko
Academy AC electric Heli-Rig	106-E (SCR/TD)	Demobilization rig shut down	Chevron

#### Nordic Calista Services

Superior 700 UE	1 (SCR/CTD)	Prudhoe Bay Drill Site 4-35a	BP
Superior 700 UE	2 (SCR/CTD)	Milne Point Drill Site G-31b	BP
Ideco 900	3 (SCR/TD)	Kuparuk Well 2K-22	ConocoPhillips

### North Slope - Offshore

#### Nabors Alaska Drilling

OIME 1000	19-E (SCR)	Oooguruk ODSN-36	Pioneer Natural Resources
OIME 2000	245-E	Oliktok Point OP04-P07	ENI
Oilwell 2000	33-E	Northstar NS-33A	BP

### Cook Inlet Basin - Onshore

#### Aurora Well Service

Franks 300 Srs. Explorer III	AWS 1	Pre-season maintenance west side Cook Inlet will move to Koala 3 in early May, spud date planned for May 12	Aurora Gas
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#### Marathon Oil Co. (Inlet Drilling Alaska labor contractor)

Taylor	Glacier 1	KBU 42-6x	Marathon
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#### Nabors Alaska Drilling

Continental Emsco E3000	273	Stacked, Kenai	Available
Franks	26	Stacked	Available
IDECO 2100 E	429E (SCR)	Stacked, removed from Osprey platform	Available
Rigmaster 850	129	Kenai SLU 41-33RD	Chevron

#### Rowan Companies

AC Electric	68AC (SCR/TD)	Stacked, Kenai	Pioneer Natural Resources
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### Cook Inlet Basin - Offshore

#### Chevron (Nabors Alaska Drilling labor contract)

	428	Rig shut down by operator request	Chevron
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#### XTO Energy

National 1320	A	Platform A no drilling or workovers at present	XTO
National 110	C (TD)	Idle	XTO

#### Kuukpik

	5	Tyonek platform well A-15 recompilation	ConocoPhillips
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## Mackenzie Rig Status

### Canadian Beaufort Sea

#### SDC Drilling Inc.

SSDC CANMAR Island Rig #2	SDC	Set down at Roland Bay	Available
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### Mackenzie Delta-Onshore

#### AKITA Equitak

Modified National 370	64 (TD)	Racked in Inuvik	Available
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### Central Mackenzie Valley

#### Akita/SAHTU

Oilwell 500	51	Racked in Norman Wells, NT	Available
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The Alaska - Mackenzie Rig Report as of May 3, 2009.  
Active drilling companies only listed.

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

This rig report was prepared by Marti Reeve



JUDY PATRICK

### Baker Hughes North America rotary rig counts\*

	April 24	April 17	Year Ago
US	955	975	1,842
Canada	65	74	88
Gulf	49	46	64

#### Highest/Lowest

US/Highest	4530	December 1981
US/Lowest	488	April 1999
Canada/Highest	558	January 2000
Canada/Lowest	29	April 1992

\*Issued by Baker Hughes since 1944

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## EXPLORATION &amp; PRODUCTION

# Aurora Gas working its latest plans

Company has run into a permitting glitch for proposed Hanna well; wants to develop a gas storage facility at Nicolai Creek

By **ALAN BAILEY**  
Petroleum News

After a 2008 drilling season that allowed a nearly two-year litigation-related hiatus in its exploration and development activities on the west side of Alaska's Cook Inlet, Aurora Gas is planning some more activity in 2009, with a new well in the Kaloa gas field kicking off a planned program of infield drilling, Aurora Gas President Scott Pfoff told Petroleum News April 28.

"We're still shooting for a May 12 spud date for that (Kaloa) well," Pfoff said.

Pfoff said that Aurora is asking Kaiser Francis Oil Co., Aurora's 90 percent owner, to fund three additional development wells in 2009. Aurora operates the Kaloa, Lone Creek, Moquawkie, Three Mile Creek and Nicolai Creek gas fields,

all on the west side of the inlet.

## Hanna prospect

The company is also close to securing funding to drill a wildcat exploration well at the Hanna prospect, on the west side of Cook Inlet northeast of Beluga. But a permitting snag with the Alaska Department of Fish and Wildlife is complicating the task of obtaining the remaining funds for this project.

"We've had several commitments to participate in the well, but we don't have 100 percent yet, so this is a critical time for us," Pfoff said. Pfoff declined to say who the Hanna participants are.

Aurora has a farmout agreement dating back to 2005 with Trading Bay Oil and Gas for the Hanna prospect. However, an



SCOTT PFOFF

JUDY PATRICK

initial plan to drill at Hanna was postponed in 2006, because Kaiser Francis had declined to invest further money in Cook Inlet exploration at that time. Now, with most of the money required for the drilling secured, and with the Hanna lease set to expire on Aug. 31, Aurora is anxious to move ahead.

"We're trying to get the well drilled this year," Bruce Webb, Aurora's manager of land and regulatory compliance, told Petroleum News April 28.

## Permit denial

But the planned Hanna drill site, adjacent to the Beluga Highway, sits inside the Susitna Flats State Game Refuge. Fish and Game has refused to issue a special area permit for drill pad construction, an exercise that involves leveling the 1.25-acre pad location with gravel before laying composite mats, Webb said. If the drilling results do not warrant a field development, mats and gravel would be removed after the completion of drilling. However, Fish and Wildlife has told Aurora that gravel may not be used inside the refuge for exploration activities, Webb said.

Aurora is contesting the Fish and Wildlife position, saying that the state's Best Interest Finding for Cook Inlet lease sales states that gravel can be used during exploration activities for pad and airstrip construction, and that there is no regulation prohibiting the use of gravel inside the refuge.

Webb said that Fish and Wildlife told Aurora that the proposed drilling pad would kill most of the vegetation under the pad, and that the habitat would not recover in any reasonable timeframe. However, the drill site is located in marshy land dominated by sphagnum moss, an extremely common plant that grows very readily, Webb said.

"We've appealed that to Commissioner Denby Lloyd and meanwhile I've sent a request to the DNR (Alaska Department of Natural Resources) for suspension of operations under the lease, so that the lease term is tolled until this is resolved," Webb said. "... We're also considering filing a unit application."

Aurora has also asked Kevin Banks, director of Alaska's Division of Oil and Gas, to elevate the issue to the DNR commissioner, if appropriate, Webb said.

At the time of going to press, Fish and Game had not responded to Petroleum News on the Hanna drill site issue.

## Gas storage

Pfoff also told Petroleum News that Aurora wants to establish a natural gas storage facility in its Nicolai Creek field, probably using an existing vertical well and adding a new horizontal well, with both wells used to inject and deliver gas.

Aurora is close to completing a technical analysis of the Nicolai Creek reservoir and plans to do a road show in May or June to promote the storage concept, with the intention of holding an open season to invite bids for use of the facility, which would be operated for the use of third-party entities rather than just Aurora.

"We do not have the contract base that would justify us building a private storage facility," Pfoff said.

The Nikolai Creek reservoir appears likely to hold a little less than 1 billion cubic feet of gas, with perhaps two-thirds to three-quarters of that capacity available as working gas, depending on the required gas deliverability; deliverability from the facility in excess of 40 million to 50 million cubic feet per day for several days looks possible, Pfoff said.

The question of whether the facility would be used for general winter deliverability support, or for the needle peaking supply during extremely cold winter conditions, would depend on who bids for storage capacity and how much they pay for the storage services, Pfoff said.

Aurora is monitoring a current Regulatory Commission of Alaska investigation into whether to regulate some gas storage, a move that Aurora worries might result in cost-plus pricing that could remove the incentive to build and operate the facility. The company doesn't see regulation as necessarily a stumbling block to its gas storage plans, but it wants to see market-based pricing for gas storage services.

"We're very much aware that the RCA is opening a docket on storage and they're trying to figure out what storage is subject to their jurisdiction and what isn't, and we certainly plan to keep them informed about our activities as we progress this thing," Pfoff said.


## Coalbed methane

Pfoff also said that Aurora is "still very excited" about the potential for coalbed methane production from the Cook Inlet basin. The company plans to do some coring and lab tests on selected coals, in addition to drilling into the conventional gas reservoir, in one of the wells that the company hopes to drill this year, he said.

"Assuming that the results from the lab come back positive, then we'll assess how best to go about commencing a coalbed methane development program," Pfoff said.


Pfoff anticipates using modern horizontal well, multilateral completion, coalbed methane production techniques that minimize the surface footprint and avoid the environmental pitfalls that have plagued coalbed methane production in the past. And, because Aurora's leases lie many miles from centers of population, the company would not be drilling in people's back yards.

"We think that coalbed methane has a huge reserve potential across Cook Inlet," Pfoff said. ●



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<b>Kay Cashman</b>	PUBLISHER & EXECUTIVE EDITOR
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<b>Kristen Nelson</b>	EDITOR-IN-CHIEF
<b>Susan Crane</b>	ADVERTISING DIRECTOR
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**ADDRESS**  
P.O. Box 231647  
Anchorage, AK 99523-1647

**NEWS**  
907.522.9469  
publisher@petroleumnews.com  
or Elidji@petroleumnews.com

**CIRCULATION**  
907.522.9469  
circulation@petroleumnews.com

**ADVERTISING**  
Susan Crane • 907.770.5592  
scrane@petroleumnews.com

Bonnie Yonker • 425.483.9705  
byonker@petroleumnews.com

**FAX FOR ALL DEPARTMENTS**  
907.522.9583

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● FINANCE & ECONOMY

# UTS Energy victorious — for now

Oil sands junior persuades shareholders to rebuff Total bid, but now must show it has a better plan; draws hope from reduced costs

By GARY PARK

For Petroleum News

Having successfully played the role of David in beating back Total, the French energy Goliath, Canadian-based UTS Energy has an even more daunting task ahead.

It now has to prove to its shareholders, who spurned Total's hostile C\$830 million takeover bid, that their trust in the company is not misplaced.

And it might have derived some comfort from oil sands powerhouses, Petro-Canada and Husky Energy, who have found ways to slice a large chunk off earlier cost estimates for megaprojects.

From the time Total launched its initial offer of C\$1.30 a share and even after raising that to C\$1.75, UTS investors were assured the proposal was "inadequate and not in the best interest of UTS."

Despite not having a single drop of oil production and despite the dramatic downturn in oil sands development, UTS management insisted Total was underbidding for the company's 20 percent stake in Petro-Canada's Fort Hills project and its joint stake in three other assets with Canadian zinc miner Teck Cominco.

Tristone Capital analyst Chris Feltin put a value of C\$2.10 a share on UTS, suggesting Total seemed intent on buying out UTS "essentially for free." Many others shared similar views.

Emboldened by that support, UTS shareholders failed to tender in sufficient volumes for Total to believe it could acquire all of the outstanding common shares, based on its belief that the certainty of cash would prevail over the uncertainty and risk of UTS's stalled, or slow-moving ventures.

## Total moving on

As a result, the multinational, worth US\$120 billion, decided to move on.

Michael Borrell, president of its Canadian unit, said Total will now concentrate on spending up to C\$20 billion on its other long-term oil sands projects, targeting production of 250,000 barrels per day from its three major projects, while keeping an eye out for other acquisition opportunities.

He said UTS shareholders have

*From the time Total launched its initial offer of C\$1.30 a share and even after raising that to C\$1.75, UTS investors were assured the proposal was "inadequate and not in the best interest of UTS."*

"clearly come back to us and said they didn't agree with our analysis (of UTS's worth). So we'll move on as an organization," he said.

Borrell said Total was "very rigorous and very disciplined in developing a number for UTS," noting the latest offer represented a 111 percent premium for UTS.

UTS Chief Executive Officer Will Roach said Total's withdrawal was a "good day" for his shareholders, allowing the company to continue running a data room for prospective buyers while pointing to a number of alternatives, such as unloading its stake in Fort Hills or other assets, selling the company outright, or exploring mergers or acquisitions.

Not everyone is sold on the chances of a transaction. BMO Nesbitt Burns analyst Randy Ollenberger suggested UTS has been "pretty well shopped and nobody stepped forward."

But Roach told the Financial Post that several "financially credible counterparties" are still pondering an offer for UTS.

Unless the junior can quickly unveil a plan it will face some disgruntled shareholders, such as Dennis da Silva, a fund manager at Middlefield Capital, who said a failure to deliver on that promise would be a source of "potential discontent."

## Fort Hills' costs down

The best bet for UTS may be a merger of Petro-Canada and Suncor Energy, scheduled for the third quarter, which could help steer Fort Hills out of its dead end.

Petro-Canada even dangled some shreds of hope April 28 when Chief Executive Officer Ron Brenneman disclosed that a review of costs during the current oil sands lull has slashed the estimated cost of the Fort Hills mine to under C\$10 billion from C\$14 billion just five months ago.

He attributed that dramatic rollback to lower costs for steel and pipe, a drop in expected wage rates and wage escalation and improved productivity because of the changed construction climate in Alberta.

Brenneman didn't mention whether the same factors have contributed similarly to the upgrader associated with Fort Hills, which carried a C\$10 billion price tag before it was shelved last year.

He said the "rough" revised estimate

is "pretty encouraging to us because, even on a standalone basis, we could probably generate a double-digit return at oil prices of \$60 per barrel."

Brenneman said that if the merger with Suncor goes ahead, there could be further cost-cutting opportunities through infrastructure sharing.

Pressed on whether Fort Hills could succeed as a standalone project, he said commodity prices would have to regain an economic threshold and there would have to be some "opening up in the financial markets" to assure Petro-Canada that it could go to those markets if needed.

Husky has had a similar experience in reviewing its budget for the Sunrise project, a joint venture with BP.

Chief Executive Officer John Lau said estimates for the first phase of 60,000 barrels per day (about one-third of the ultimate objective) have been reduced to C\$2.5 billion from C\$4.5 billion because of postponements and cancellations of about C\$100 billion in oil sands projects. ●

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Fig #3 on Matchiq #1 drilling for Pioneer Natural Resources Alaska Inc., March 2003

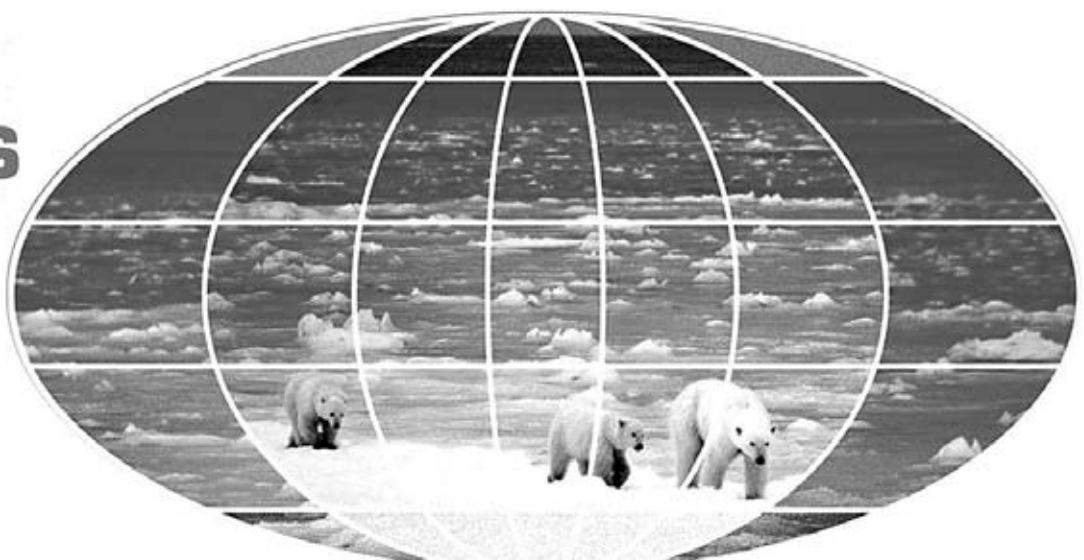


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• NATURAL GAS

# Chugach looking at backup contract

Contract with Aurora would replace gas taken from Beluga Pipeline during compressor trips, Enstar and Beluga Pipe Line skeptical

By ERIC LIDJI  
Petroleum News

Chugach Electric Association is seeking approval of a supply contract it says will help keep the lights on during supply disruptions, but two other companies with a stake in the Cook Inlet gas market say the contract doesn't go far enough to protect various interests.

Chugach is calling the contract with Aurora Gas a "Replacement Gas Contract" because it would replace volumes of gas drawn off the Beluga Pipeline during system failures.

Chugach uses Cook Inlet natural gas to make electricity for much of the Southcentral region. On any given day, the cooperative said, 60 to 100 percent of the fuel Chugach needs at its Beluga Power Plant comes through a compressor operated by ConocoPhillips.

The compressor is designed to offset declining pressure at the Beluga River field, but since being installed in April 2007, the compressor has suddenly failed, or "tripped," at least 12 times, according to reports from Chugach and from the Beluga Pipe Line Co.

These trips typically last only a few minutes, but because electricity generation is continuous, Chugach must find an alternative source of gas to keep its turbines running.

When these trips occur, a valve in the Beluga Pipeline automatically opens, providing an alternative source of gas to fuel the Beluga Power Plant until the compressor is restored.

The Beluga Pipeline, owned and operated by Marathon, runs from the Cook Inlet Gas Gathering System, or CIGGS, at Granite Point, north to the Beluga River gas field.

## Backup prevents blackouts

Chugach said the natural gas taken in these cases is a "small increment" typically taken from the "line pack," or the volume of gas stored within a pipeline at any given time.

Without this automatic backup supply, Chugach said a compressor trip "would otherwise cause Chugach's generators to fail, with an areawide blackout as the likely result."

The proposed contract with Aurora would give Chugach a supply of gas to replace the gas it draws from the Beluga Pipeline during these emergency situations.

Chugach said the contract favors "availability" over "volume." The contract would provide Chugach with up to 700 million cubic feet of natural gas each time a compressor tripped, an amount

that represents less than 1 percent of daily demand, Chugach said.

Chugach is proposing to price the gas based on a methodology set out by the Regulatory Commission of Alaska during an Enstar Natural Gas supply contract case last year.

For 2009, Chugach said that price would be \$8.99 per thousand cubic feet.

The RCA approved the contract on an interim basis.

## Beluga and Enstar skeptical

Beluga Pipe Line called the contract "a step in the right direction" and Enstar said "having some backup gas is better than having no backup gas," but both companies said the contract didn't go far enough to insure enough gas would be available when needed.

Beluga Pipe Line said it needs the gas taken from the pipeline to be replaced as it is being drawn in order to avoid a system outage of its own. The proposed Chugach contract only requires Aurora to replace gas to the line pack on the Beluga Pipeline within 24 hours.

Both Beluga Pipe Line and Enstar said that while Chugach claims in a letter to the RCA that the proposed contract obligates Aurora to provide gas, the language of the contract itself contains potential loopholes that could allow Aurora to get out of that obligation.

Enstar also said the proposed contract doesn't make enough gas available, saying recent reports indicate Chugach needs between 34 billion and 46 billion cubic feet during a trip.

Enstar also said Chugach should factor shipping costs into the price of replacement gas.

## Enstar to recover legal fees

In a separate case, Enstar asked state regulators to approve a "Gas Supply Acquisition Charge" of 1.87 cents per thousand cubic feet of gas to cover legal and consulting fees related to recent efforts to secure and get approval of a natural gas supply contract.

The charge would be added to all bills for around four years, allowing Enstar to collect \$2.4 million. Enstar estimated the charge would add 27 cents to an average monthly bill.

State regulators have approved similar charges for Enstar in the past, the utility said.

The RCA is taking comments on the request through May 22. •

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# Contracts and conditions at issue

Superior Court case between Alaska Venture Capital Group and TG World Energy focusing on contract signed late last year

By ERIC LIDJI  
Petroleum News

**A** lawsuit between two North Slope explorers is centering on a contract signed last fall.

Kansas-based Alaska Venture Capital Group and its subsidiary Brooks Range Petroleum Corp. asked state Superior Court Judge Craig Stowers on April 9 to rule that a 2008 contract signed by Calgary-based TG World Energy Corp. is "binding and effective."

TG World said the contract should not be considered binding. The company says it signed the contract based on the assumption that AVCG and BRPC would meet certain conditions, and withdrew its signature after the companies didn't meet those conditions.

The contract is a Joint Operating Agreement designed to guide where and how the companies will explore, develop, produce and complete prospects on the North Slope.

AVCG/BRPC and TG World Energy are part of a four-company joint venture.

The contract is part of a larger debate between the two parties. AVCG/BRPC asked for a quicker ruling on the contract, calling it "a core issue in dispute in this case" and saying "early decision of this issue may assist greatly in the ultimate resolution of the matter."

AVCG/BRPC believes the language of the 2008 JOA should stand on its own.

"There is not any provision of the 2008 JOA providing that TGWE's signature is effective only upon the satisfaction of certain specified conditions," Edgar Dunne, managing member of AVCG, wrote in an affidavit dated April 9, 2009.

TG World Energy believes AVCG/BRPC is not entitled to a so-called "summary judgment" on the contract question. Lawyers for TG World noted that Dunne, who provided testimony for AVCG/BRPC, wasn't present when the contract was signed.

TG World Energy also claims the 2008 JOA never became a binding "contract" because its signature was "provisional," in other words: based on conditions that were never met.

## A question of conditions

The companies formed a joint venture and signed a Joint Operating Agreement in 2006.

The agreement required the companies to complete a follow-up operating agreement within 10 days, Dunne wrote in his affidavit. Lawyers for TG World described the 2006 JOA as "bilateral" and said the parties considered replacing it with "a single JOA that would include other Working Interest Owners," adding, "Many drafts were exchanged."

Dunne said negotiations on the new operating agreement took two years. Representatives from the four partners ultimately signed the 2008 JOA in September and October 2008.

AVCG believes the 2008 agreement is binding because Clifford James, president and chief executive officer of TG World Energy, signed the document on Oct. 21, 2008.

TG World believes the 2006 contract is still valid, saying James' signature on the 2008 contract was "affirmatively withdrawn" when AVCG failed to meet certain conditions.

In an affidavit signed April 24, James

*EDITOR'S NOTE: A previous version of this article published in the April 26, 2009, issue of Petroleum News incorrectly reported that Judge Craig Stowers already ruled on the motion made by AVCG/BRPC. As of April 30, 2009, that ruling had not yet been made. Petroleum News regrets the error.*

wrote that AVCG and BRPC presented drafts of the 2008 JOA in July and September of 2008, but TG World Energy rejected both.

James said he still had concerns in October, but Bo Darrah and Jim Winegarner, with BRPC, told him the matter could be handled by amending the Joint Venture Agreement.

"As a good faith measure, I then offered to sign the 2008 JOA, subject to the express condition that the parties would also agree upon and sign mutually acceptable amendments to the JVA addressing issues of concern to TGWE," James wrote.

In his affidavit, James said both Darrah and Winegarner agreed to the condition.

In addition to the affidavits and statements from lawyers for each party, the April 9 motion by AVCG and BRPC and TG World Energy's April 24 response in opposition contain documents and e-mails traded between the companies last fall on the matter.

## Amendment issue

On Oct. 23, two days after signing the contract, James sent an e-mail to Bo Darrah and Jim Winegarner, executives with AVCG and BRPC respectively, saying the contract wouldn't become effective "unless all parties executed a mutually acceptable First Amendment" to a Joint Venture Agreement signed by the companies back in 2006.

"This condition was agreed by you before I signed," James wrote.

In an e-mail to James the next day, Darrah wrote, "I am not sure what you want here, what I proposed was on the

premise of you signing 2 (Authorizations for Expenditures) this year for drilling. If you are not going to drill, what else is there to agree upon?"

These correspondences back and forth came as the joint venture was planning an exploration program for the 2008-09 winter drilling season, now coming to a close.

On Nov. 6, 2008, AVCG sent a letter to James demanding TG World Energy either fund its share of two wells planned for Gwydyr Bay, or forfeit its interest in the prospect.

James responded, saying TG World Energy was withdrawing its signature from the 2008 JOA because the requested amendments had not been made to the 2006 JVA.

## Claims and counterclaims

In a Nov. 25 letter to all four members of the joint venture, James reiterated that the 2006 JOA should be considered binding until the companies met various conditions. James said TG World Energy would start legal proceedings if it didn't get an answer by Dec. 5.

On Nov. 26, 2008, TG World Energy issued a press release saying it was postponing its participation in "drilling and development programs" planned for this winter.

Brooks Range filed suit against TG World for breach of contract on Dec. 4. TG World Energy filed a counter claim against AVCG/BRPC in January, refuting

## On the Web



See previous Petroleum News coverage:

"TG World shies from winter drilling," in Dec. 7, 2008, issue at [www.petroleumnews.com/pnads/394719403.shtml](http://www.petroleumnews.com/pnads/394719403.shtml)

"TG World files counterclaim on AVCG," in Jan. 25, 2009, issue at [www.petroleumnews.com/pnads/420372071.shtml](http://www.petroleumnews.com/pnads/420372071.shtml)

"Judge orders mediation for North Slope explorers," in Feb. 15, 2009, issue at [www.petroleumnews.com/pnads/807858509.shtml](http://www.petroleumnews.com/pnads/807858509.shtml)

those claims.

In February, Superior Court Judge Craig Stowers ordered mediation.

The companies met with retired Anchorage Superior Court Judge Brian Shortell in March, but the mediation failed to produce a settlement, according to filings from TG World Energy, and now the companies are again preparing to go to trial.

A trial date has been set for early January 2010.

The lawsuit in effect canceled drilling work planned for this winter, and threatens to cancel plans for next winter as well if the companies can't resolve the issue before fall. ●

Contact Eric Lidji at 907-522-9469 or [elidji@petroleumnews.com](mailto:elidji@petroleumnews.com)



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## ● PIPELINES &amp; DOWNSTREAM

# Tesoro uses more crude oils at Nikiski

Refinery formerly used just Cook Inlet, North Slope crude oil; 14 new crude oils from around the world run at facility last year

By KRISTEN NELSON

Petroleum News

Tesoro's Nikiski refinery was built to process Cook Inlet crude oil and over the years as Cook Inlet production declined the refinery substituted Alaska North Slope crude oil and at one time was running 75 percent ANS crude, Tesoro's Lynn Westfall told Alaska legislators at a March 24 presentation.

Crude oil is made up of hundreds of chemical components, and there are hundreds of different crude oils, he said.

Westfall, Tesoro senior vice president and chief economist, said the hundreds of crude oils in the world have varied quality, price and shipping costs and one of the economic decisions a refinery makes is which crude to run.

"ANS has become a very illiquid market," he said. "Most of the producers of ANS are keeping it within their system and there is not a whole lot available to a nonproducer user of ANS."

Like Cook Inlet crude, ANS production has declined, dropping from a peak of more than 2 million bpd in the late 1980s to some 700,000 bpd currently.

Westfall said Tesoro was the largest single buyer of ANS on the spot market.

"We saw that as a strategic disadvantage," he said, because if a refiner is only buying from one supplier, "you have not done your best job in economics."

Tesoro, an independent refiner, owns no crude oil, Westfall said, but buys all of the crude it uses at its seven refineries in the United States on the open market. In addition to the Kenai Peninsula refinery, Tesoro owns refineries in Mandan, N.D.; Salt Lake City; Anacortes, Wash., north of Seattle; in Martinez, Calif., east of San Francisco; in



LYNN WESTFALL



COURTESY TESORO

Tesoro's Anacortes, Washington refinery

Wilmington, Calif., south of Los Angeles; and in Kapolei, Hawaii, on the island of Oahu.

About 4 years ago Tesoro reduced the amount of ANS it was running at Nikiski from 75 percent to about 50 percent. Since then the company has run crude oil from Russia, the Far East and the Middle East. "We can choose from any crude in the world that will fit into the refinery," he said.

But new crude oils are a challenge: you don't know exactly how that new crude will work, Westfall said.

"Running new crudes is a big deal for refiners" and Nikiski ran some 14 new crude oils last year. He said once you have experience with new crudes you know how they will run, "but it takes a while to go from one

crude to another."

### The crude variety

Two primary characteristics that vary among crude oils are gravity, how dense the crude is, and sulfur content. Gravity and sulfur content determine the price paid for crude oil.

The less dense a crude oil is, the more valuable it is, because "the more it already contains the desirable molecules we're looking for," Westfall said.

What refiners want is light oil and small molecules to

see TESORO page 9

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## TESORO

make into gasoline. If the crude already contains a lot of small molecules then the refinery doesn't have to do a lot of chemical work on those molecules, and can have a less sophisticated refinery to process very light crude oil.

"The opposite is also true," Westfall said. Heavy, low quality crude requires a lot of chemical work, "which means you have to have a more complex refinery."

Gravity is measured in API (American Petroleum Institute) degrees, with light crude having a gravity above 30 and heavy crude having a gravity below 30, he said.

Sulfur content is the other prime determinant of crude quality because "sulfur is actually a poison to the catalyst that we use in the refinery process," Westfall said, deactivating the catalyst.

"The more sulfur there is, the more work we have to do to take sulfur out, so the cheaper that crude needs to be," he said.

Crude oils are split between sweet crudes, less than 1 percent sulfur by weight, and sour crudes, more than 1 percent sulfur.

Westfall said that designation goes back to the days when kerosene from oil competed with kerosene from whale oil. The whale oil kerosene had a sweet taste if a drop was placed on the tongue; kerosene from crude oil had a sour taste because of the sulfur it contained.

### Marker crudes fading

Historically marker crudes have traded in large volume and sold to a lot of different refineries, providing a good idea of what the market price is for that crude, Westfall said.

West Texas Intermediate, Brent (North Sea crude), Alaska North Slope and Maya from Mexico range in gravity from almost 40 API for WTI to 22 for Maya, and from a sulfur content of 0.24 for WTC to 3.33 for Maya by weight percent.

Westfall's example used prices from 2005, ranging from \$56.43 per barrel to \$40.40 per barrel.

Westfall said he was using 2005 prices, "because that was the last year that these marker crudes really made a lot of sense."

The production of these crudes has fallen so much that they're almost specialty crudes, he said.

He said those crude oils aren't sold enough in the market today so "... there aren't enough deals so that you can price it day-by-day to use that as the basis for pricing other crudes."

And no satisfactory replacement method has been found, he said.

### Issues with Nymex

The predominant current pricing method is based on the New York Mercantile Exchange where futures contracts for crude are sold, but, Westfall said, between Nymex and the market in Europe, "They sell about 80 times the amount of crude that's run in the world."

So only about one contract in 80 is for refiners, people who actually run crude, he said, with the rest of the contracts used as financial instruments by hedgers and commodity funds.

Crude contracts are being bought the way people buy gold, he said: "They're not buying it to take possession of the gold; they're taking it as a hedge against inflation or a hedge against currency losses."

So pricing based on the Nymex doesn't reflect the value of crude oil to the refiner, Westfall said.

It's a transition out of the old way of pricing crudes "and we really haven't found a good substitute at this point in time."

### Other price factors

Crude oil can contain other things that



Tesoro's Nikiski, Alaska refinery

affect the price, such as nickel and vanadium. The price drops for crudes which contain those components because the refiner has to remove them.

Crude oil can also contain a lot of acid, Westfall said, which requires special metallurgy in the refinery so the acid in the crude doesn't "eat your refinery up in a short matter of time." Because of the cost to put in specialty steel to run such crude, the price will be lower to compensate the refiner for those extra costs.

And there isn't as big a market for high-acid crude as for normal crude, he said.

### Ranges of products

Since there are hundreds of chemical components in crude oil, most of the products refineries make are not pure components, Westfall said.

"What we make are ranges of products."

A basic refinery process distills products out by boiling them: "Gasoline in a refinery is everything that boils between about 100 degrees and 400 degrees (Fahrenheit). It's not a thing — it's a series of components," Westfall said.

And there is overlap: Jet fuel boils between about 300 degrees and 550

degrees, while diesel is "that combination of components that boil between about 350 and 650."

### Refineries are different

Each refinery is different based on what units it has to do chemical work and how big those units are, Westfall said.

"And that's determined by what crude you want to run and what products you want to make out of that crude."

There are three types of refineries, he said.

"Topping plants are plants that really don't do chemical work on crudes; they just separate out molecules that they're looking for, so they're very simple plants.

"Most of the refineries here in Alaska are topping plants," he said.

Cracking plants are the next type: These are refineries built to make gasoline. "They're built to take very heavy molecules and crack them apart into the smaller molecules that fit into gasoline."

Coking plants are the most complex: Westfall said those refineries "can take the worst quality of crudes and turn them into the highest quality products."

Westfall said he believes the only refinery in Alaska with a cracking unit is the Tesoro Nikiski plant; there are no coking plants in Alaska.

### Distillation process

There are three refinery processes, no matter how many units you have, Westfall said: distillation, conversation and desulfurization.

"Distillation is simply the separation of molecules because they have different boiling points," he said, and involves no chemical work.

Substances are heated until they reach the boiling point of certain compounds which vaporize out; the vapors are condensed and separated.

The big towers at refineries are distillation towers, he said.

Because of the overlap in the boiling point of products, part of what comes off can go, for example, to either gasoline or jet fuel; there is another overlap between jet fuel and diesel.

It's one of the first economic decisions a refiner makes, he said: how much of what can go in either place gets put into one place?

### Chemical conversion

Conversion is the second thing refineries

see **TESORO** page 10

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## TESORO

do and that “is where we start changing the chemical nature of the components that we take out of crude to get the products that we want,” Westfall said.

Refineries generally use catalysts because “we want to target the reaction very specifically to make one thing and not everything.”

Conversion is almost exclusively directed at producing gasoline, he said. About 80 percent of all the diesel and jet fuel that’s produced is simply separated from crude,

without any chemical work.

Gasoline generally has between three and eight carbon atoms, so components that are heavier than that are broken up chemically to make them lighter; components that are lighter than those needed for gasoline are combined. The other thing that conversion units do is improve octane.

A coker takes heavy components and uses high pressure and high temperature to break up the heaviest part of the crude.

The next heaviest molecules are broken up in a hydrocracker, using high pressure and catalysts.

FCC, fluidized catalytic cracking, breaks

up the next heaviest component.

Alkylation units bond together components that are too light for gasoline, using sulfuric or hydrofluoric acid.

Reformers and Isomerization units are used to improve the octane of naturally occurring molecules—making rings or branched molecules out of straight chains.

### The blended product

But there is no one unit in a refinery that produces gasoline, Westfall said, because gasoline is a blended product with from three to eight components.

And it’s all the same.

“As it comes out of a refinery gasoline is gasoline,” he said. Tesoro makes the same gasoline that Exxon makes and the same gasoline that Chevron makes.

“The industry really has to work that way because there is ... no company that has a refinery in every location where they have retail,” Westfall said, so gasoline is traded to meet the need.

Where the product is differentiated is in the additive package, one quart per 8,000 gallons. Additive packages are required by law, “so it’s a matter of is theirs that much better than anybody else.”

### Refining is expensive

Desulfurization, removal of sulfur, is done with hydrogen.

At 600 pounds of pressure you can remove sulfur down to about 500 parts per million, Westfall said, but to go all the way down to 5 parts per million it takes 1,800 pounds per square inch of pressure, which requires an expensive unit because of the pressure.

In the last 10 years the industry has spent in the neighborhood of \$40 billion for units to remove sulfur as regulations have required lowering the sulfur content of gasoline, he said.

It’s an example of why refineries are so expensive and why no new refinery has been built in the United States for a long time.

As for the cost to build from scratch, Kuwait wanted to build a new refinery about two years ago, a world-class refinery — about four times the size of Tesoro’s Alaska refinery, Westfall said.

Kuwait put the project out to bid, expecting bids at about \$8 billion, but the bids came back at about \$12 billion.

Not liking those results, they went out for another round of bids.

But when those bids came back at \$16 billion the project was cancelled. ●

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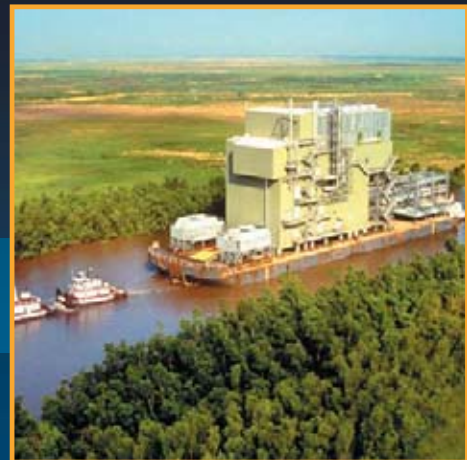


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• PIPELINES & DOWNSTREAM

# Petro Star Valdez plans ULSD upgrades

Upgrades will allow the plant to produce ultra-low sulfur diesel and ultra-low sulfur kerosene in time for 2010 federal deadline

By ERIC LIDJI

Petroleum News

**P**etro Star Inc. will upgrade its Valdez refinery this year to produce low sulfur fuels.

The upgrades involve constructing a new system for producing and storing ultra-low sulfur diesel and ultra-low sulfur kerosene, and to dispose of sulfur extracted from fuels.

The new fuels are required to meet federal air quality standards by the end of 2010.

The U.S. Environmental Protection Agency began a nationwide transition to lower sulfur diesel starting in 2006, but the federal agency extended the deadline for rural Alaska.

Rural parts of the state have until December 2010 to complete the transition.

Ultra-low sulfur diesel is defined as having a maximum of 15 parts per million of sulfur.

## Tesoro first ULSD refinery

The upgrades will make the Valdez refinery at least the second in Alaska making ULSD.

In May 2007, the Tesoro refinery in Nikiski became the first in Alaska to produce ULSD after building a unit with a "nameplate production capacity of 10,000 barrels per day."

Over the latter half of 2007, ConocoPhillips delayed and then canceled plans to upgrade a Kuparuk River unit topping plant to allow production of ULSD for local operations.

Without upgrades to the topping plant, producers will most likely have to truck ultra-low sulfur diesel from Southcentral refineries to the North Slope along the

Dalton Highway.

The North Slope is considered "rural" for the purposes of the ULSD requirements.

## Cause of fire still unknown

The Petro Star refinery in Valdez began operations in 1993.

The refinery draws roughly 48,000 barrels per day from the trans-Alaska oil pipeline and produces around 13,000 barrels per day of product, 70 percent of which is jet fuel.

A fire last December shut the refinery down for a period of time.

The State Fire Marshal Office conducted an investigation with the City of Valdez Fire Department, but that investigation, so far, has not yielded a public report on the cause. ●

• SAFETY & ENVIRONMENT

# Second tanker reduces crude in storage

By RICHARD MAUER

Anchorage Daily News

**C**hevron brought another tanker to the Drift River oil terminal April 28 to continue efforts to reduce the amount

of crude oil stored in the shadow of Redoubt volcano.

Chevron's Mississippi Voyager tied up at the Christy Lee platform about 9:30 a.m., the offshore loading dock for Drift River, and is expected to remain there

about 48 hours, said Petty Officer Sara Francis, spokeswoman for the Coast Guard. The tanker will take on an emulsion of crude, saltwater and sludge and deliver it to a Lower 48 plant capable of separating them, she said.

The Mississippi Voyager is the second tanker to dock there since Redoubt began erupting March 22.

Though the volcano hasn't exploded since April 4, it remains in an eruption phase and could deliver a blast at any time, scientists say. That poses a threat for the Drift River terminal, owned by Cook Inlet Pipe Line Co., a Chevron-operated company.

An explosion risks melting the glaciers that feed into Drift River, flooding it with ice, water and mud and threatening the terminal.

Two such floods, known by the Indonesian word "lahar," have gushed down the river since March, but a dike built in 1990 protected the terminal's tanks. The airstrip at the facility, which lies outside the dike, was flooded. Workers have cleared the mud from about 300 feet of the field, enough to bring in a load of fuel for the diesel gen-

*The long-term future of the terminal remains an open question, officials said. Chevron has been forced to suspend petroleum production at its platforms in Cook Inlet because there's no place to store the oil, though gas production continues normally, Chevron spokeswoman Roxanne Sinz said.*

erators there, Francis said.

About 6.2 million gallons of crude were in two active tanks when the volcano first exploded. The eruption forced the evacuation of terminal staff and a shut-down of its operations. In a lull earlier this month, a tanker picked up 3.7 million gallons, but couldn't drain the tanks because their pump intakes sit several feet off the bottom to avoid sucking up heavy sludge.

With as much oil removed as installed equipment allowed, the tanks were back-filled with 840,000 gallons of seawater to anchor them better in the event of a flood.

The intakes have not been modified, Francis said, but over the next day or two, two-foot propellers in the bottom of the tanks will stir up the mixture and suspend as much of the oil and sludge in the water as possible, like a food processor making mousse. The mixture will then be pumped from one tank to the other, further agitating the mix, before it's sucked out.

The pumps will run until they suck air, Francis said. At that point, Cook Inlet Pipe Line will take samples from the bottom of the tank to determine how much oil is left. Then the Mississippi Voyager will unload a cargo of freshwater from the Columbia River back into the tanks, once again weighing them down against the threat of flood.

The long-term future of the terminal remains an open question, officials said. Chevron has been forced to suspend petroleum production at its platforms in Cook Inlet because there's no place to store the oil, though gas production continues normally, Chevron spokeswoman Roxanne Sinz said.

No Chevron workers have been furloughed, she said, though some contractors have lost work. ●

## FINANCE & ECONOMY

### Crude price rises despite rising supplies

Oil prices rose even after the government reported that the nation is consuming less than it has in years and that inventories are the highest in nearly two decades.

Benchmark crude for June delivery gained \$1.05 to settle at \$50.97 a barrel on the New York Mercantile Exchange.

In recent weeks, the price of oil has followed action in the stock markets, with many traders looking for hints of an economic rebound that would give energy prices a boost.

The Energy Information Administration reported that oil inventories rose by more than 4 million barrels the week ending April 24. That was more than twice the gain expected by analysts.

Oil rose above \$51 a barrel April 30 in Asia as investors took heart from optimistic comments from the U.S. Federal Reserve that the worst recession in decades is likely easing.

Benchmark crude for June delivery was up 52 cents to \$51.49 a barrel by midday in Singapore, in electronic trading on the New York Mercantile Exchange.

—THE ASSOCIATED PRESS

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• EXPLORATION & PRODUCTION

# North Slope closed for off-road travel

By KRISTEN NELSON  
*Petroleum News*

All North Slope lands, state and federal, are now closed for winter off-road travel.

The latest closing was for National Petroleum Reserve-Alaska lands managed by the U.S. Bureau of Land Management.

Mike Worley of BLM's Arctic field office said April 29 that NPR-A tundra travel would close at 12:01 a.m. May 1. "Ice roads and snow-packed trails have become soft and impassable, requiring an end to their use. All stream crossings have been breached," he said in an e-mail.

The Alaska Department of Natural Resources' Division of Mining, Land and Water closed off-road travel in the upper and lower foothills areas as of noon April 26 and said that off-road travel in progress within the upper and lower foothills must be completed within 72 hours — by noon April 29.

State-owned North Slope coastal lands were closed for off-road winter travel effective noon April 28; the 72-hour completion window for off-road now in progress in eastern and western coastal areas is noon May 1.

Any exceptions must have prior approval from the division, Gary Schultz, Division of Mining, Land and Water natural resources manager, said in notices for closures issued April 26 and April 28.

## Spring on the slope

"Spring has come to the North Slope," Schultz said in an e-mail accompanying the April 26 closure notice. He said current temperatures in the foothills were above 40 degrees Fahrenheit with a chance of rain or snow forecast.

He said in an e-mail accompanying the April 28 closure notice: "Due to the record-breaking warm temperatures we are experiencing on the North Slope, snow has deteriorated to the point where DNR is closing state-owned lands to off-road travel."

Schultz said temperatures were forecast to moderate toward the end of the week of April 27 and ice roads might still be in good shape, so extensions for the continued use of ice roads might be available from the division.

Summer off-road travel on state lands will begin at 6 a.m. July 15 unless the division notifies otherwise. Summer off-road travel approval applies only to those holders of valid permits who obtain specific approval and is further limited to those vehicles approved by the division for summer off-road travel.

The division opened the upper foothills for tundra travel Feb. 10, the last of the North Slope state areas to be opened for travel. The eastern and western coastal areas opened Dec. 29; the lower foothills opened Jan. 14.

BLM opened NPR-A to tundra travel Dec. 19. ●

## GOVERNMENT

### Obama administration revokes Bush rule

Secretary of the Interior Ken Salazar and Secretary of Commerce Gary Locke announced April 28 that their departments are revoking an Endangered Species Act regulation change published in December, in the final months of the Bush administration.

The regulation change had given federal agencies a stronger role in determining when they had to consult with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service regarding agency actions that might affect an endangered species. When in 2008 the Interior and Commerce departments proposed the regulation changes they said that they were clarifying the ESA procedures as a follow-up to a Government Accountability Office 2004 report, in response to "new challenges we face with regard to global warming and climate change" and to avoid unwarranted consultations.

But environmental organizations called "foul," saying that the rule change undermined the effectiveness of the ESA.

And in March President Obama instructed government agencies to review the December regulation changes and, meantime, to "follow the prior longstanding consultation and concurrence practices" involving FWS and NMFS.

The ESA "reflects one of the nation's profound commitments," Obama said.

Following the decision announced April 28, government agencies will revert to the pre-December ESA procedures.

"By rolling back this 11th-hour regulation, we are ensuring that threatened and endangered species continue to receive the full protection of the law," Salazar said. "Because science must serve as the foundation for decisions we make, federal agencies proposing to take actions that might affect threatened and endangered species will once again have to consult with biologists at the two departments."

—ALAN BAILEY



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## FINANCE & ECONOMY

### Eni expects lower capital spending in '09

Eni s.P.a. expects decreased capital expenditures this year compared to last year, company management said in first-quarter financial filings released on April 24.

The Italian major did not quantify the decrease, but said capital spending for 2009 would be "directed mainly to the development of oil and natural gas reserves, the upgrading of construction vessels and rigs and the upgrading of natural gas transport infrastructures."

Eni spent about 14.5 billion Euros on capital expenditures last year. Presenting 2008 year-end results in February, Eni executives planned to spend 14.1 billion Euros in capital expenses this year, part of a four-year 48.8 billion-Euro capital program.

Earlier this year, Eni suspended drilling at the Nikaitchuq unit in the waters off the North Slope. If brought online, the project would be Eni's first production base in Alaska. After slowing down the project, Eni asked the state to extend the term of the Nikaitchuq unit agreement by two years. The comment period on the request closed April 27.

—ERIC LIDJI

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## ALTERNATIVE ENERGY

### Murkowski bill promotes ocean research

U.S. Sen. Lisa Murkowski, R-Alaska, introduced legislation April 29 to encourage development of renewable ocean energy, companion legislation to a bill introduced in the U.S. House by Rep. Jay Inslee, D-Wash., to authorize as much as \$250 million a year for ocean research.

"Coming from Alaska, where there are nearly 150 communities located along the state's 34,000 miles of coastline plus dozens more on major river systems, it's clear that perfecting marine energy could be of immense benefit to the nation," Murkowski said in a statement.

"It simply makes sense to harness the power of the sun, wind, waves and river and ocean currents to make electricity," said the senator, who is the ranking member of the Senate Energy and Natural Resources Committee.

The Marine Renewable Energy Promotion Act of 2009 and a companion tax provision would expand federal research on marine energy; take over the cost verification of new wave, current, tidal and thermal ocean energy devices; create an adaptive management fund to help pay for the demonstration and deployment of such electric projects; and provide a key additional tax incentive.

The senator's office said she has been promoting ocean energy: In 2005 Murkowski got a provision passed allowing ocean hydrokinetic energy to qualify for the federal purchase requirement and the federal production incentive. In 2007 she helped author more research funding and an ocean energy demonstration center provision.

Several companies have proposed projects to test current devices in Alaska rivers and in Cook Inlet, with projects under consideration at Eagle, Galena and Tanana, in addition to near Anchorage, and others being considered near Homer and in Southeast.

—PETROLEUM NEWS

## NATURAL GAS

# USGS plans CBM tests at Wainwright

Summer work involves production test of 2008 well and new wells to delineate extent of coal seams near North Slope village

By ERIC LIDJI

Petroleum News

The U.S. Geological Survey is planning to test the flow of natural gas produced from a well it drilled last summer into coal seams near the North Slope village of Wainwright.

The federal agency also plans to drill as many as two additional wells in the area this summer to get a better sense of the extent of the coal bed and the gas contained in them.

The drilling is part of a broader effort to determine whether coalbed methane can be used as an alternative to diesel fuel for heating and power in rural com-

In early to mid-June, USGS plans to begin a one- to two-month production test.

munities in Alaska.

Rising oil prices have created financial problems for diesel-based villages in recent years.

In February, residential customers in Wainwright paid \$1.50 for a gallon of heating oil. That isn't a market price, though; the North Slope Borough subsidizes residential fuel use. By comparison, commercial customers paid \$7.83 for a gallon of heating oil.

Wainwright sits on the coast of the Chukchi Sea some 70 miles south of Barrow.

As of 2007, the state listed the population of the village at 540.

The Northwest Arctic region of Alaska, which overlaps in part with the National Petroleum Reserve-Alaska, is believed to hold several trillion tons of coal.

### Program more than decade old

State and federal teams have been studying coalbed methane production in Alaska for at least 15 years, starting with a well drilled in the Matanuska-Susitna Borough north of Anchorage. The testing moved to more remote corners of Alaska in the early years of this decade with one test well in Fort Yukon in 2004 and another at Franklin Bluffs in 2005.

USGS drilled the first test well at Wainwright in the summer of 2007.

Preliminary test results from the well suggested that the methane produced from the coal seams could meet Wainwright's electric generation needs for the next 10 to 40 years.

USGS crews returned to Wainwright this past summer to drill a "central production well" and four "monitor wells," according to USGS co-project chief Art Clark.

Clark said the crews conducted a four-day test to check the equipment and to get information to help design a longer-term production test in the future. Over the winter, they used the wells to gather data about pressure and temperature in the well bore.

In early to mid-June, USGS plans to begin a one- to two-month production test.

The crews also plan to drill one or two wells to delineate the extent of the coal seams and measure the gas content of the coal. The crews originally planned to drill one of these delineation wells last year, but spent the time installing the array of monitor wells instead.

The testing will help USGS understand how gas and water move through coal seams.

USGS, an arm of the U.S. Department of the Interior, is permitting the two wells, Wainwright No. 10 and No. 11, with the Alaska Oil and Gas Conservation Commission. ●

Contact Eric Lidji at 907-522-9469 or elidji@petroleumnews.com

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# CONNECTION

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continued from page 1

## FUTURE

Canada's largest gas producer."

Graham said B.C. was the only Canadian province to record an increase in production last year and one of just three in North America, along with Texas and Louisiana, both of them also thriving on technological advances in shale gas extraction.

He said investment in the province is now about C\$8 billion a year, with gas displacing lumber and mining as the most significant component of its diversified industry and export base, accounting for upwards of C\$4 billion a year.

Graham said natural gas has "significant potential to displace coal for power-generation purposes."

### U.S. utilities look to gas

That optimism is shared by an increasing number of U.S. utilities, who estimate gas is a transitional fuel that could reduce greenhouse gas emissions by half, bringing North America closer to its emissions targets without even factoring in other technological advances.

Spectra Energy Vice President Gary Wellinger told the Vancouver forum that the "massive deposits of clean natural gas" in B.C. represent the fastest growing industrial sector in the province.

However much renewable energy may reduce dependence on fossil fuels, "we need to be realistic. ... Even by 2030, renewables are expected to account for only 8 to 10 percent of global energy supply."

"The reality is, natural gas is typically the backup at wind and solar facilities to deal with the fickleness of nature," he said.

Terasen President and Chief Executive Officer Randy Jespersion said gas is the "foundational energy form which will underpin the needs of society for the foreseeable future."

He said it is not possible to achieve the projected 80 percent reduction in greenhouse gases by 2050 by focusing only on large industrial emitters, because half of the emissions stem from the use of fossil fuels in homes, businesses and institutions.

### Abundance through technology

EnCana Chief Executive Officer Randy Eresman also seized on the gas theme at the big Canadian independent's annual general meeting on April 22, noting that technology has made natural gas more abundant than previously estimated, with profound implications for North America's energy supply.

"Ultimately this will mean there will be a large, abundant supply of natural gas available to North America; it can be utilized in a lot more ways and it will likely come in at a lower cost," he said.

He noted that a recent study by the U.S. Department of Energy said the U.S. alone has enough gas resources to cover 90 to

## Gas under scrutiny in merger deal

Despite the buzz surrounding the future of shale and tight gas, Suncor Energy is closely scrutinizing the role of "old" gas as its merger with Petro-Canada makes steady progress towards completion.

Suncor Chief Executive Officer Rick George, who will retain that post in the new entity, dropped some strong hints that the combined gas operations — which currently produce about 900 million cubic feet per day — could be headed for a shake-up.

"We're definitely going to take a look at the whole natural gas business," he told analysts.

But he cautioned the analysts not to "jump on the divestment bandwagon too quickly. ... I have not talked about divestment and I won't until we've had a look at the asset base."

George said the merger is a "chance to move us in some different directions," with an emphasis on a low-cost company that puts its emphasis on return on capital.

While restricted by the Canadian anti-trust review in what he could say, George said his objective is to achieve a "top-quartile cost position" to offset forecasts that there will be a "lot of gas around and prices are likely to remain relatively low ... for quite a period."

Once the two companies have received expected shareholder and Competition Bureau approval, he said the focus will be on cleaning up existing operations and freeing capital to invest in new opportunities.

For the near term, he said the focus will be on the "protected" assets, such as the oil sands holdings and the refineries, so that the new company can achieve its promised goals of lowering annual expenses by C\$300 million and capital spending by C\$1 billion.

Suncor alone is chasing a 10-15 percent reduction in total oil sands cash operating costs within 12 months, George said. For the opening quarter those costs were C\$33.70 per barrel, up C\$2.15 per barrel from a year earlier.

—GARY PARK

116 years of demand at current production levels and EnCana believes that will only grow as technology advances.

Eresman said that only two years ago shale gas was viewed as unproductive, but the technological key to accessing those reservoirs has been developed, starting a year ago when it was "broken wide open" with the use of long-reach horizontal wells with multiple-fracture stimulations.

"As a result, we believe that North America is basically flush with natural gas and will be for a very, very long period of time," Eresman said.

But he also argued that the "game has changed," limiting success to the lowest-cost producers.

Before the meeting, he told reporters that gas could displace coal and oil as a major energy source for power generation and transportation fuel in North America, for both long-haul trucks and domestic vehicles.

Environmentally, he said gas produces half the carbon dioxide of coal and one-third less CO<sub>2</sub> than oil, along with insignificant quantities of sulfur dioxide and mercury compared with coal and oil.

Eresman told a conference call that along with partner Apache it expects to drill 24 gross wells in Horn River (where EnCana has about 260,000 net acres) this year, down from the previously scheduled 40, while increasing the number of fractures along each well to about 14 from eight. By reducing the number of wells, the partnership can minimize its environmental footprint.

### Longer wells more economic

Graham said EnCana believes it is a "bit more economic" to extend the wells and increase the number of fracs and, in trading data between the company's Canadian Foothills and U.S.A. divisions, "it seems the bigger the frac the more productivity you can get out of them."

He said the latest well to come on stream had 10 fracs and yielded a 30-day initial production rate of 8 million cubic feet per day, declining to about half after eight months of production — a 50 percent first-year decline rate, which he described as "very encouraging," adding that 7 billion cubic feet should be recovered from the well.

Graham said the company estimates it can lower the cost per frac to C\$750,000 from C\$1 million.

In the Montney play, Graham said EnCana drilled 15.5 net horizontal wells in the first quarter and plans 60 for the year, buoyed by results that include 30-day initial production rates of more than 4 million cubic feet per day for each well, or 500,000 cubic feet on a fracture interval basis, Eresman said.

"The Montney is responding to the same technology we are using in the shale plays (the long-reach, multiple-fracture horizontal wells)," he said. The standard approach involves four to eight wells per section, with wells averaging a length of 5,200 to 6,600 feet, with about eight fractures per well.

In the emerging Haynesville shale play, straddling the Texas-Louisiana border, where its major partner is Royal Dutch Shell, EnCana has doubled its capital spending for 2009 to US\$580 million by transferring savings from elsewhere in the company as the result of an internal challenge to reduce budgeted spending by 10 percent.

Jeff Wojahn, president of the USA division, said the 50 net wells will be focused on understanding the resource and meeting deadlines to retain prospective lands, where EnCana holds a net 435,000 acres, including a net 63,000 acres of mineral rights.

Although cautious about potential outcomes, the initial productivity rates and pressures are "very strong and in line with industry reports," he said.

### Cost of wells lowered

In addition, by reducing its spud-to-rig release times, rig moves and the run time on directional tools, EnCana has lowered the cost of its latest three wells by about 30 percent to US\$9 million.

Getting Haynesville gas to market involves a commitment to 150 million cubic feet per day of capacity on the proposed Boardwalk Pipeline Partners' Gulf South Pipeline expansion and another 500 million cubic feet per day on the proposed Energy Transfer Partners Tiger Pipeline.

The objective is to make Haynesville "one of the most important pieces in the future of EnCana's gas production," said Eresman, adding that his company is "quickly moving to 50 percent (production from the U.S.). Based on our growth rate in the U.S., you could see the U.S. dominate our production in the future." ●



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Spring Jones was recently promoted to purchasing lead for DUS and is responsible for procurement and shipping of all food and supplies throughout Alaska and for overseeing logistics jobsites. Spring has been with DUS for 3 years, in the positions of purchasing assistant, cook and night supervisor. She is married with three children and is senior vice president of the Veterans of Foreign Wars Post 9365 Ladies Auxiliary.



FORREST CRANE

Spring Jones, Purchasing Lead

—MARTI REEVE

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Jennifer Warnken joined the Harris Group 3 years ago in Colorado, moving to the Alaska operation in 2008 and bringing 30 years' experience in drafting and design work. A member of the National Ski Patrol for more than 28 years, she joined the Alyeska Patrol when coming to Alaska. Jennifer and her husband have three grown daughters and one grandson.



FORREST CRANE

Jennifer Warnken, Manager

—MARTI REEVE

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All of the companies listed above advertise on a regular basis with Petroleum News





## Oil Patch Bits

### CH2M Hill among 2009 world's most ethical

CH2M Hill said April 15 that it has been named one of the 2009 world's most ethical companies by the Ethisphere Institute. CH2M Hill earned a place on the list by going beyond legal minimums, introducing innovative ideas to benefit the public and forcing its competitors to follow suit by consistently upping the ante for what it takes to be an ethical leader, the company said.

"CH2M Hill is honored to be named one of the world's most ethical companies," said Lee McIntire, CH2M Hill's chief executive officer. "This recognition is a testament to the values and integrity of our 25,000 employees who focus on respect for our customers, each other and the communities we serve," he said.

Headquartered near Denver, Colo., employee-owned CH2M Hill is a global leader in engineering, procurement, construction, management and operations for government, civil, industrial and energy clients. For more information visit [www.ch2mhill.com](http://www.ch2mhill.com).

### Alaska Computer Brokers Autodesk roadshow

Alaska Computer Brokers said April 23 that it was collaborating with Surveyors Exchange to host the annual Great Alaskan Autodesk Roadshow on June 24 at the Egan Center.

This annual show brings Autodesk speakers from across the U.S. and will feature information on several new and updated Autodesk products. Attendees can choose from two keynote addresses in the morning and several concurrent sessions in the afternoon.

Featured keynote speakers will include Lynn Allen, Autodesk technical evangelist. She has written three Autodesk books, is a columnist for Cadalyst and is a much-sought-after public speaker.

The event is free, but pre-registration is required. A buffet lunch will be provided.

Alaska Computer Brokers was founded by Russell Ball in 1986. Under his leadership it has grown over the years and now provides technical service around the state. ACB's people, systems and technical expertise provide the foundation to respond to customer needs. For more information visit [www.akcb.com](http://www.akcb.com).

### PGS rides 3D GeoStreamer wave to the North Sea

PGS said April 24 that it brought a 3-D dual-sensor seismic spread to the North Sea this spring, following a positive response from the industry.

"We expect data of unprecedented clarity from these surveys," said Per Arild Reksnes, PGS Marine president EAME. "Numerous results from surveys in 2008 have demonstrated that the GeoStreamer provides improved imaging in a wide variety of geologies," he said.

Enhanced seismic resolution, better deep imaging, operational robustness and excellent final results in all geological settings tested so far have demonstrated the GeoStreamer's potential to create a step change in seismic data quality, the company said. The North Sea 3-D GeoStreamer season will comprise both MultiClient and contract 3-D data. The first project is a 1,600-square-kilometer survey for Lundin Norway, based around the Luno discovery in the Norwegian North Sea. For more information visit [www.pgs.com](http://www.pgs.com).

*Editor's note: Expanded versions of these news items will appear in the next Arctic Oil & Gas Directory, which will be released in July.*

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## FERC

of Opinion 502, but that rates sought by the carriers for 2008 in the compliance filings were still too high.

### "2004" still best for refund floor

The Commission issued the order April 16, saying it would accept the proposed 2007 rates, but the 2008 proposed tariffs raised a number of issues of material fact and remained to be resolved in a public hearing before the Commission could rule in the matter. The five-member panel also established interim rates for 2008 and ordered the carriers — BP Pipelines (Alaska) Inc., ConocoPhillips Alaska, ExxonMobil Production Co., Unocal Pipeline Co. and Koch Pipelines (Alaska) LLC — to make refunds using the carriers' 2004 filed rates as the appropriate refund floor because "the 2004 rates were the last clean rates."

"The new just and reasonable rates for 2005 and 2006 were not established until November 20, 2008, the date of the Commission's Order on Compliance and Rehearing of Opinion No. 502. Instead, the Commission ordered the TAPS Carriers to submit a compliance filing establishing interstate rates for 2007 and 2008 under the ratemaking principles established in Opinion No. 502.

"The final 2005 and 2006 rates may become the refund floor for new rate filings, but they would not apply to previously filed and accepted rates, even if subject to refund. This means that in the 2007 and 2008 rate proceedings, refunds can be no more than the difference between the proposed (TAPS Settlement Methodology) rate increase and the 2004 rates," the Commission wrote.

This means the 2007 refunds will be for the entire amount of the difference between the originally filed settlement rate and the 2004 rates — \$3.00-\$3.20 per barrel — because the 2007 compliance filing rate (of \$2.77 per barrel) falls below the 2004 refund floor, the commission concluded.

"However, the 2008 compliance filing rate of \$3.45 per barrel is above the 2004 refund floor rate of \$3.00-\$3.20 per barrel, and so the 2004 refund floor will only come into play for the 2008 rate if the final just and reasonable rate determined in the hearing is below the refund floor," the commission explained.

### Issues must be resolved for 2008

The remaining issues to be resolved through hearing and settlement judge procedures for the 2008 rates include whether the return on equity and capital structure were properly determined; whether the test period or actual data should be used to calculate the rate; whether the dismantling, replacement and restoration expenses were improperly included in the rate; whether the correct rate base, operating expenses, and throughput were used in calculating the rate; and whether the rates improperly included imprudent costs related to the Strategic Reconfiguration Project.

The commission rejected a number of protests from the shippers, including requests from Anadarko Petroleum Corp. and Tesoro Petroleum Alaska for a technical conference and that the commission summarily rejected the carriers' ROE calculation for 2008.

FERC also disagreed with the State of Alaska's contention that the proposed 2007 and 2008 rates are unjustly discriminatory and unduly preferential in violation of the settlement that the carriers reached with the state in 1985. The commission also rejected several of the state's arguments, including the state's claim that the

## FERC ruling refunds \$440 million to state

An April 16 ruling by the Federal Energy Regulatory Commission will result in an estimated \$440 million in additional oil production tax and royalty payments flowing to the State of Alaska later this year, according to state officials.

This is in addition to about \$200 million in refunds awarded to the state under a previous commission ruling on protests of tariffs for 2005 and 2006, the officials said. They also noted that future trans-Alaska oil pipeline rates will have to comply with the FERC precedent.

Gov. Sarah Palin and Acting Atty. Gen. Rick Svobodny applauded the ruling.

"This is good news for Alaskans," said Palin. "Pursuing TAPS tariff rate cases is not only important for the state treasury, but it also encourages new exploration in our oil and gas resources. Explorers consider fair and stable tariff rates a key factor in favor of investing time and effort. One of my most important promises to Alaskans is getting fair value for our resources, while also encouraging new resource development."

Meanwhile, the carriers are appealing the FERC rulings to the United States Circuit Court of Appeals for the District of Columbia. Both the state and shipper Anadarko Petroleum Corp. are filing points on appeal that could result in even greater refunds, the state said.

—ROSE RAGSDALE

commission can order refunds below the refund floor pursuant to its ancillary powers and under authority granted by the Interstate Commerce Act.

### Interim rates will help shippers

The commission said it established interim rates for 2008 out of equitable concern for the shippers, "who should not have to continue to pay a rate (i.e., the 2008 TSM rate) that the Commission found to be unjust and unreasonable in the December 29 Order."

"Moreover, while there is no chance the final rate for 2008 will be higher than TAPS Carriers' 2008 compliance filing rate, there is a possibility that the final rate will be lower than the 2008 compliance filing rate. Thus, the Commission accepts the 2008 compliance filing on an interim basis, subject to refund, until all challenges to the 2008 compliance filing have been resolved through the hearing and settle-

ment procedures established herein.

"While the interim rates are subject to refund, the Commission orders the TAPS Carriers to issue preliminary refunds for 2008. Because the final rate for 2008 will not be higher than the 2008 compliance filing rate, there is no reason to wait until the end of the hearing to order initial refunds. Thus, the TAPS Carriers should issue preliminary refunds for 2008 in the amount of the difference between the 2008 TSM rate and the 2008 compliance filing rate," the Commission wrote.

The commission also urged all parties in the case to make every effort to settle their remaining disputes before the "trial-type evidentiary hearing" it ordered is held. To aid that effort, the commission also directed that a settlement judge be appointed and gave the parties a month to make some progress toward settlement before the procedure for scheduling the hearing would move forward. ●



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## LIBERTY

April 23.

"We're on track to begin drilling next year and that's exciting," Luoma said. First oil is expected in 2011, he said.

### Alternative plans

Following field discovery in 1997, the original concept for Liberty was a Northstar lookalike, a gravel island, armored against the ravages of the sea and ice and connected to shore by a buried subsea pipeline. But in 2005 BP came up with an alternative plan to develop the field using extended reach drilling from a shore location, perhaps at Point Brower, on the west side of Foggy Island Bay, and to connect the field production into the nearby Badami pipeline. That plan then morphed into the concept that the company eventually sanctioned, the drilling of ultra-extended reach wells from the satellite drilling island for the Endicott field, about 8 miles to the west of Liberty.

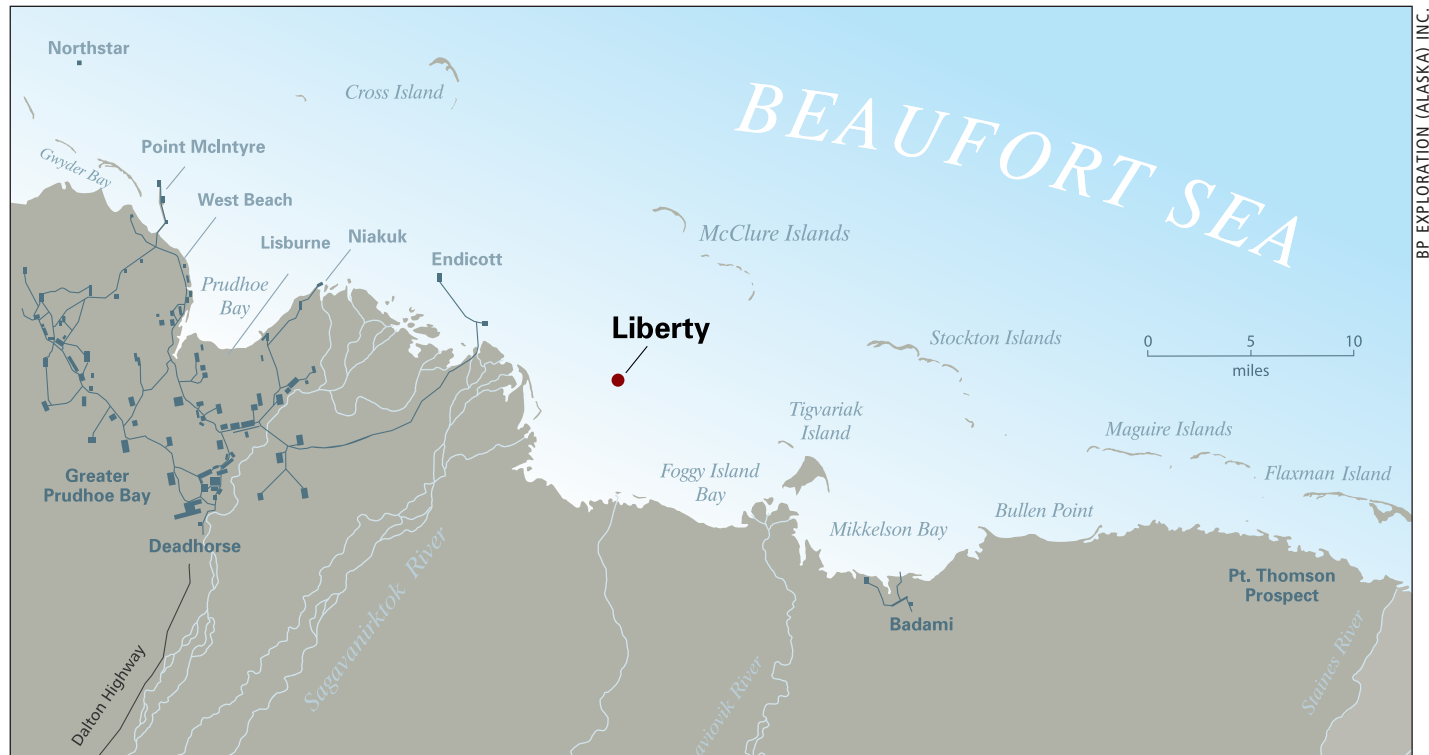
"In developing Liberty in this way we eliminated the need for new offshore islands; ... we eliminated the need to put new processing facilities in place; and we eliminated the need for new buried pipelines to bring processed crude back to shore," Luoma said.

And the use of the Endicott facilities will channel substantial new production through those facilities, thus extending the viable life of the facilities and, hence, the life of the Endicott field. Endicott, constructed in the mid-1980s, peaked at production rates of more than 100,000 barrels per day of crude oil but has since declined to rates of 13,000 to 14,000 bpd, Luoma said.

"So producing Liberty through a great existing facility like Endicott makes good sense," he said.

### Massive rig

But world record-breaking horizontal departures of 34,000 to 44,000 feet from the surface wellheads to the Liberty oil reservoir require a massive drilling rig: The rig that Parker Drilling has been fabricating in Vancouver, Wash., will be the world's most powerful land rig, a piece of kit that Luoma characterized as an enabling technology, a breakthrough design without which project success would be impossible. The design has to



The Liberty field is located 5 to 6 miles offshore in the Beaufort Sea, about 15 miles east of Prudhoe Bay. The Endicott field satellite drilling island that will host the Liberty drilling rig is located near the shore end of the causeway leading to the main Endicott island.

accommodate the need to handle huge lengths of drill pipe, apply enormous torques to the drill string and when necessary be able to pull the drill string from the well bore, an operation that by itself might take a week to accomplish, Luoma said.

"One of the key elements in designing the rig is the efficient handling of pipe," Luoma said. "... One of the big modules on that (rig) is a pipe barn. It's a pipe-handling efficiency machine."

The Liberty top drive, the electric motor assembly hung from the drill derrick for turning the drill string, now constructed, acceptance tested, and sitting at the rig site in readiness for the arrival of the rig, dwarfs conventional drive units.

"That will be the most ... powerful top drive operating anywhere in the world, putting out 105,000 foot-pounds of torque," Luoma said. "Typical top drives in Alaska are ... maybe 40,000 foot-pounds of torque."

### Drill pipe

And to handle the torque applied by the drive to the drill string, to turn the drill bit while overcoming the frictional forces in well bores up to more than 9 miles in length, without the drill string becoming excessively heavy, BP has had to come up with another enabling technology, the Liberty drill pipe, made of a new steel alloy that combines high strength with

light weight. Some of the pipe has already been delivered to the North Slope and has been undergoing field trials, Luoma said.

To accommodate the drilling rig, with its line of Liberty wellheads and a camp for on-site workers, BP has been expanding the Endicott satellite drilling island from an area of about 11 acres to about 30 acres by laying a new area of gravel skirted by a sheet-pile sea wall. Nanuq Inc. and Alaska Frontier Constructors, in a joint venture with Kuukpik Corp., the village corporation for Nuiqsut, are putting the finishing touches to this work and BP expects the drilling island extension to be completed by the end of April.

"This has been a challenging project completed in the heart of a cold and challenging Alaska winter," Luoma said.

Installation of the workers' camp on the island should start in May, with the camp becoming operational in July.

And on the mainland, contractor Alaska Interstate Construction is within days of completing the major upgrade to the Sagavanirktok bridge. The bridge is more than 30 years old and had been suffering from the effects of wear and tear — refurbishment has involved replacing the topsides of the structure, Luoma said.

### Rig completion

In Vancouver, Wash., structural assembly of the drilling rig is almost complete and outfitting of the rig is in progress. The

rig is being assembled into eight major pieces for transportation to the North Slope on two huge barges, scheduled to leave the construction site at the beginning of July and arrive at Endicott in August. Crowley Marine is handling the sealift operation, Luoma said.

"Once it arrives at the satellite drilling island this August, the rig will be assembled ... outfitting completed and the rig fully commissioned, we expect, by the end of this year, early next year," Luoma said.

That will enable drilling to start in early 2010.

The design and fabrication of the rig power module and fuel gas system have been completed, and ASRC Energy Services is outfitting this equipment in Anchorage, in preparation for transportation to the Endicott satellite island in June. BP plans to commission the equipment in August, to provide power for remaining project activities on the island.

Meantime BP is preparing the detailed plans and procedures for operating and maintaining the drilling rig, and for drilling the wells. The company is also in the process of assembling the team that will do the drilling.

"We're now in the process of building the ... well operations team," Luoma said. "... We're currently in the process of getting the team in place and starting the training. This will clearly be one of the most capable ERD teams operating anywhere around the world."

### On-site training

Once the drilling rig has been commissioned the team will spend about 90 days on the rig, going through extended on-site training and focusing on the key aspects of drilling extended reach wells.

"We'll also drill and complete a cuttings re-injection well in that period," Luoma said. "And once we deem that that team is ready to start the first ERD well, we'll authorize that well to start the program. We think that'll be in the 2Q of next year, about one year from now."

BP plans to drill up to six ultra extended reach wells to hit targets 2 miles underground, anywhere from 6 to 8 miles from the surface well location at Endicott. The drilling plans involve drilling downwards from the Endicott satellite island and then deviating the wells to the east into near horizontal configurations. Then, as the drill bits grind their way close to the Liberty field location, the drillers will deviate the wells down into the reservoir.

In the summer of 2008 CGGVeritas conducted a high-resolution 3-D seismic



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## LIBERTY

survey along the drilling corridor between Endicott and Liberty using a water-bottom cable technique, to provide the subsurface information that is essential to the planning of these difficult wells. The data from that survey have been processed and delivered to BP, Luoma said.

### Drilling complexities

And at an April 22 meeting of the Alaska Geological Society, BP development geologist Steve Jones explained some of the complexities that the drillers will face.

Jones said that for the well planning, in addition to using data from the 2008 seismic survey, BP commissioned Savant Resources to log the subsurface above the oil prospect in the Kupcake well that Savant recently drilled near Liberty.

The Liberty drilling will use rotary steerable technology, involving a rotating drill string that turns a drill bit, controlled from the surface through a communications technique that involves sending signals in the form of pressure pulses through the drilling mud. The composition of the mud itself has to be designed to work in the very long wells without causing pressure shocks that might damage the rock above the well bore, Jones explained. A single well will likely take about 180 days to drill, he said.

Some of the well casing, the steel tubing installed in the well bore, will be run into the well using conventional techniques, while some will be floated in, with air at the bottom of the casing string and mud at the top. During drilling, friction-reducing devices on the drill pipe will help the pipe turn and move inside the casing, Jones said.

The drillers will first drive a 26-inch hole near-vertically through a thick layer of unconsolidated sand and gravel under the rig, with deviation of the well bore towards Liberty starting about 300 feet below the surface. With every subsequent piece of drill pipe having eventually to pass through this section of the well, the deviated well trajectory needs to accurately follow a curve shape called a catenary, to minimize the drag on the pipe. The existence of permafrost to a depth of about 1,500 feet will add to the drilling challenges.

"There are issues with permafrost; there are big chunks of wood in there that can cause ... problems," Jones said. "It looks basically like stuff that's on the river bank, down on the modern Sag River."

### Hard layers

Then, as the drillers guide the drill bit along the near-horizontal section of the well, the bit will start to encounter a series of especially hard rock layers.

"Normally you just ... blow right through those," Jones said. "... The problem is that if you're drilling at these extreme inclinations and you're very sensitive to dog legs because of (drill pipe) drag considerations, you want to be very sure that you're not bouncing off these hard streaks."

Lignite-grade coal seams, further down along the drilling path and known from nearby wells, will cause well bore stability issues, especially since the low angle of the well bore relative to the near-horizontal coals will result in the well remaining within individual coal seams over distances of more than 150 feet.

The wells will also pass close to an ancient, buried subsea erosion channel, previously known from seismic data and clearly depicted in seismic cross sections from the 2008 survey.

"We've actually tried to avoid going through that because we couldn't image what was in there very clearly on the old seismic and we didn't have any wells that actually go through the middle of it," Jones said.

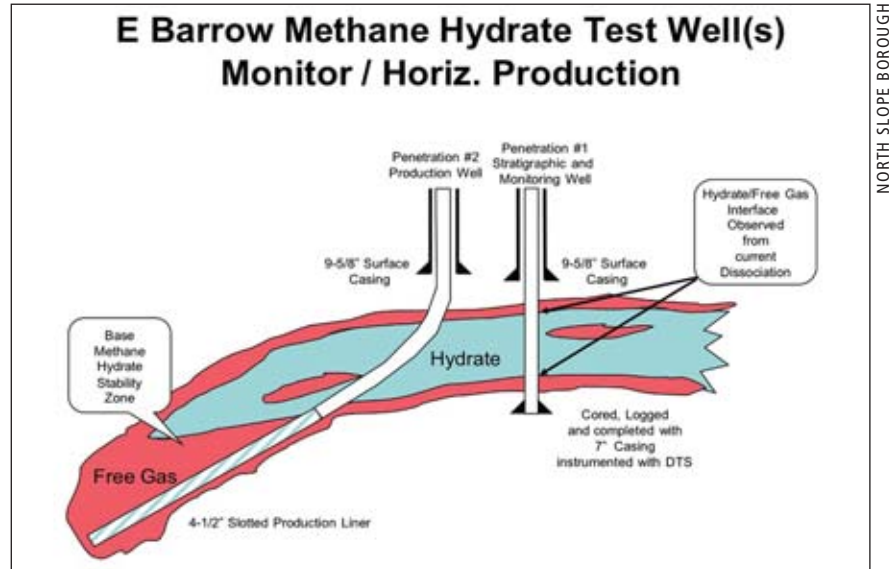
And the well designers envisage the well trajectories steepening as they approach the Liberty field, in part to avoid well bore stability problems in an interval known as the HRZ, an interval notorious for stability issues when drilling on the North Slope, Jones said.

### Challenging future

Luoma said that although Liberty faces many technical challenges, new technical challenge is probably going to become the norm for North Slope oil and gas projects, projects that are likely to involve modest-sized fields in a business environment where costs have risen and where there has been increased pressure from taxes.

On the other hand the more than \$1 billion dollars that BP will eventually plough into the Liberty development will produce many benefits, including Alaska jobs, contracts for many Alaska companies, and federal royalties, a portion of which will be shared with the state, Luoma said. (Because the field is located less than 6 nautical miles offshore, the state will receive 27 percent of the federal royalties from field production.)

To date, there have been more than 1,000 people involved in the project and once the drilling is under way 250 to 300 people will work on the field development, Luoma said. ●



continued from page 1

## HYDRATE WELLS

Petrotechnical Resources Alaska is working with the borough and DOE on the project.

### Broad application possible

Methane hydrates, also known as gas hydrates, are molecules of methane trapped inside "cages" of ice to form crystals. Methane is the primary component of natural gas.

Swaths of Arctic Alaska are believed to be well suited for generating these hydrates. In recent years government and industry have stepped up efforts to try to produce them.

These efforts have largely focused on existing oil fields in the central North Slope, but an unusual phenomenon at the fields near Barrow led researchers to broaden the scope.

The natural gas fields around Barrow have provided the largest community on the North Slope with a nearby fuel supply that is not subject to the price swings troubling smaller rural communities across Alaska dependant on diesel fuel for heating and electricity.

### Production hasn't declined

But despite producing for decades, these gas fields around Barrow have not seen the production declines typically associated with aging fields, like those in the Cook Inlet.

The leading theory is that the fields are regenerating themselves using methane hydrates.

The idea is this: Production of conventional gas supplies was, in fact, decreasing the pressure in the reservoir, but this pressure drop in turn

"unlocked" the methane hydrates from their icy cages, leading to an increase in pressure and therefore in production, too.

So the borough and the DOE set out to search for methane hydrates in the fields.

The first phase of the research project, which ran from October 2006 to November 2008, provided "strong evidence" of hydrates at two of the three gas fields near Barrow.

### Second phase in 2008

In December 2008, the DOE began the second phase of the project, which includes drilling a well to prove whether or not hydrates exist and can be produced commercially.

The DOE program will start with a well at East Barrow. If the well is unsuccessful, then DOE plans to drill at Walakpa. The North Slope Borough is planning some additional wells of its own, looking for a way to use East Barrow as a backup to Walakpa. That would allow the borough to shut the Walakpa field down in the summer for maintenance.

The project not only holds implications for the North Slope Borough, which subsidizes diesel for many of its communities and expects increased gas demand in Barrow, but also for developing methane hydrate resources in Canada, Russia and other parts of Alaska.

DOE is working on separate hydrate projects in Alaska with BP and ConocoPhillips.

In November 2008, the U.S. Geological Survey released a report saying the North Slope could contain between 25 trillion and 157 trillion cubic feet of methane hydrates.

—ERIC LIDJI

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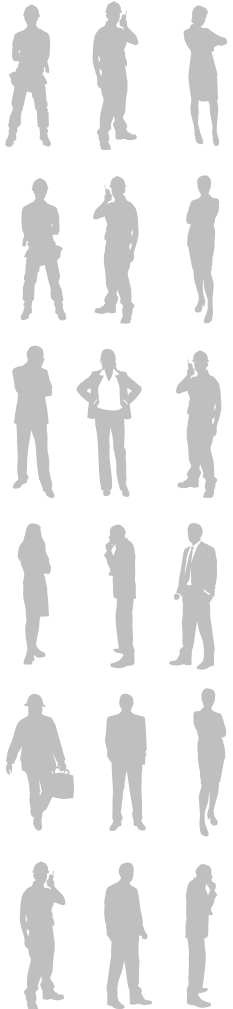
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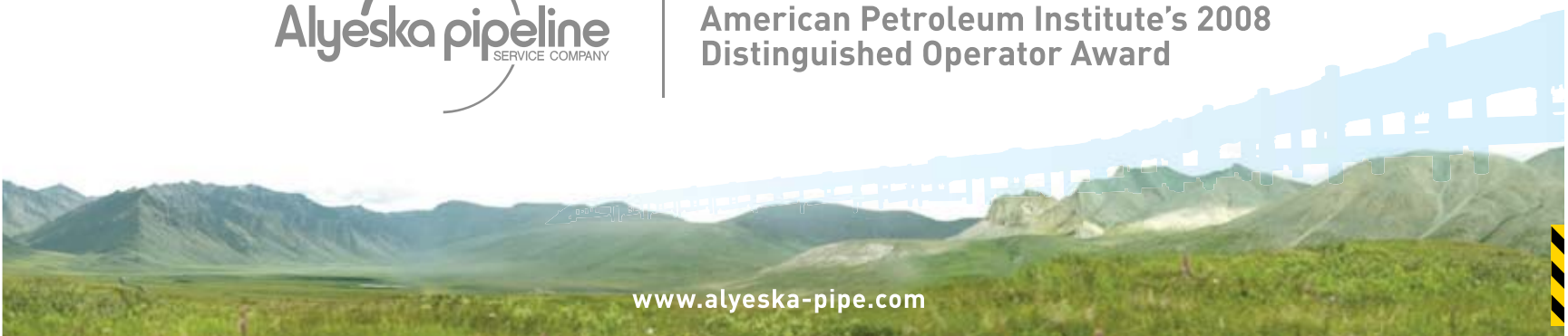
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