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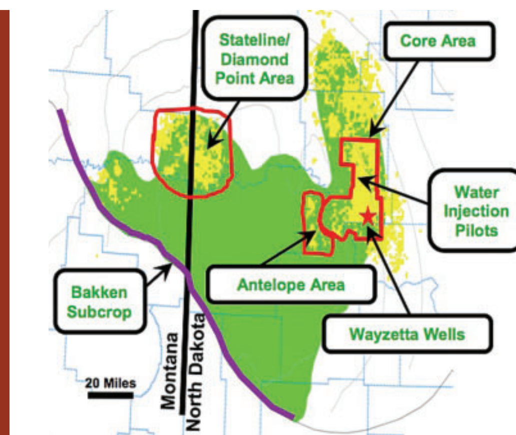

page 7 New drilling results finally make EOG optimistic about the Bakken

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Another record broken

VERN WHITTEN PHOTOGRAPHY

A drilling rig northwest of New Town, N.D., from July 2011. North Dakota reported record well counts and rig counts in March, leading to record production.

Occidental reducing Bakken rig count until service costs come down

Occidental Petroleum Corp. is reducing its exposure in the Bakken because of stubborn operating costs, but the company insists it still has long-term plans for the region.

"We're a domestic oil producer fundamentally." **—Occidental CEO Stephen Chazen**

Because the cost of drilling for oil in North Dakota has "still not come down to the level that's appropriate" the Los Angeles, Calif.-based company has "a lot better places to put money right now than the Bakken," CEO Stephen Chazen told analysts in late April.

In particular, Occidental will focus domestically on California and the Permian basin of West Texas and New Mexico, two regions where it is one of the most active players.

Although Occidental is reducing its rig count in the Bakken this year, "we don't plan to exit it," Chazen insisted. He invoked a famous bank robber to explain why the company still expects to eventually "add to the position and build it out as a long-term resource."

see **OXY RIG COUNT** *page 16*

Bakken oil to feed Kenai refinery?

AS COMPLETION OF TESORO'S RAIL TERMINAL to receive Bakken crude at its Washington refinery draws near, there's talk within the company of shipping the light, sweet oil to Tesoro's Alaska refinery where the company pays substantially more for both similar oil from the Cook Inlet basin and lower grade oil from the North Slope. If Cook Inlet basin oil explorers are successful, contract negotiations for their new oil could be tricky if Tesoro, the region's primary oil buyer, plays its Bakken card.

Alaska North Slope, or ANS, crude generally trades above Brent crude; Brent above West Texas Intermediate, or WTI; and WTI above the Bakken light, sweet crude despite the fact Bakken oil should trade at a premium because it is a better grade of oil than ANS crude, which has easy access to West Coast refinery markets. In addition to having other related transportation challenges, Bakken oil has almost no access to west or east coast refinery markets and restricted access to the Gulf coast.

Currently Tesoro's Anacortes, Wash., refinery, which can process 120,000 barrels of oil per day, receives 1,000 to 2,000

see **INSIDER** *page 15*

DRILLING & COMPLETION

Reserves rocket

Continental increases in-place oil reserves by 56 percent to 903 billion barrels

By RAY TYSON
Petroleum News Bakken

Continental Resources is redefining the Bakken petroleum system, raising its estimated in-place liquids reserves for the play by a whopping 56 percent, or from 577-to 903 billion barrels of oil equivalent. The increase is based primarily on numerous oil-saturated core samples taken at various locations, deep within the Three Forks formation, the company said.

"We've added a lot more oil. The question is how much of it is technically recoverable," Jack Stark, Continental Resources' senior vice president of exploration, said on the sidelines of the 12th Williston Basin Petroleum Conference, May 22-24 in Bismarck, N.D.

"We are looking at the total Bakken petroleum system. Before we were looking at pieces of it." **—Jack Stark, Continental's senior vice president of exploration**

"We are looking at the total Bakken petroleum system," Stark added. "Before we were looking at pieces of it. The actual definition of the Bakken will be redefined."

A major producer and the region's largest leaseholder, with 938,940 net acres at March 31, Continental produced 48,024 boe per day from the Bakken during the 2012 first quarter, more than half of the company's 85,526 boe per day in total output

see **RESERVES ROCKET** *page 14*

GOVERNMENT

Canada halts strike

Government imposes back-to-work legislation to end Teamsters walkout at Canadian Pacific Railway; system carries about 18,000 bpd

By GARY PARK
For Petroleum News Bakken

The Canadian government has shown it will not allow labor disruption to join the normal risks associated with using rail to ship natural resources.

Labor Minister Lisa Raitt introduced legislation May 28 to end a strike by 4,800 members of Teamsters Canada that halted all movement of goods on the Canadian Pacific railway network in North America, and expected service to resume no later than May 31.

Raitt said the economic costs were mounting rapidly after only five days of striking and would reach C$540 million a week if the stoppage was prolonged.

"We're only one link in a long supply chain." **—Canadian Labor Minister Lisa Raitt**

She said the government was not willing to see Canada's reputation with its foreign customers undermined.

"We're only one link in a long supply chain," she said. "What happens here affects inbound and outbound traffic. We cannot afford to be that weak link."

The strike tied up shipments of 18,000 barrels per day of crude production — mostly from the Bakken

see **LABOR STRIKE** *page 15*

GEOLOGY

Looming field declines

Whiting, Continental, Marathon, EERC studying ways to bolster future oil recovery

By RAY TYSON
Petroleum News Bakken

Field operators Whiting Petroleum, Continental Resources and Marathon Oil, faced with inevitable production declines, are seeking ways to adapt various oil recovery technologies to the tight, unconventional formations that make up the massive Bakken petroleum system.

Moreover, the Energy & Environmental Research Center, EERC, at the University of North Dakota, recently launched its own oil recovery study, as the time approaches when such technologies will be necessary to fend off production declines and prolong field life in the Bakken.

Bakken petroleum system is noted for low oil recovery rates of 3-to 5 percent

Petroleum News questioned executives from EERC and the three major Bakken producers separately on the sidelines of the 12th Williston Basin Petroleum Conference, held May 22-24, in Bismarck, N.D.

Industry's major concern appears to center on whether recovery methods typically used in conventional reservoirs will significantly improve Bakken recovery rates, given the complex geology character-

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● GEOLOGY

On the way to 1 million barrels

Bakken know-how spreading across North America and the globe, potentially changing global supply dynamic, employment figures

By RAY TYSON

Petroleum News Bakken

The Bakken petroleum system, rapidly emerging as the globe's premier tight oil play, is expected to approach or exceed 1 million barrels in daily production by as soon as the end of the decade, making it a true world-class oil province.

Moreover, if this production scenario unfolds the way many who attended the recent Williston Basin Petroleum Conference hope it will, oil from the Bakken and other unconventional liquids reservoirs would go a long way in reducing U.S. dependence on imports.

"I can envision a world in which the U.S. imports about one-third of the oil it uses," David Hobbs, chief energy strategist for IHS CERA, said during a meeting with reporters.

Still, the United States "continues to be a major importer even with its enormous energy efficiency success," Hobbs noted.

North of 1 million barrels

Hobbs believes that by the end of the decade, the Bakken will produce "north" of 1 million barrels per day from current output of around 575,000 bpd, which already makes North Dakota the second largest oil producing state behind Texas.

"In a global context, that makes it a significant producer in its own right," he added.

In North America, the top 20 tight oil plays, many of which have adopted technology developed in the Bakken, are expected to generate an estimated 3.5-to 5 million bpd over the next decade, Hobbs said.

At the same time, he added, Bakken know-how is being deployed worldwide, to a level that over the next decade could generate 10-to 15 billion barrels of oil per day from tight formations.

> *"I can envision a world in which the U.S. imports about one-third of the oil it uses."*
> **—David Hobbs, IHS CERA**

"If we take that to a global basis, the speed with which development of tight oil happens will depend in part on how governments encourage that investment," he said.

Bakken's big reach

But Hobbs cautioned that what transpires socially and politically in North Dakota's future regarding the Bakken will have an influence on tight oil development outside the state.

"If the residents of North Dakota turn against tight oil development, that would be very persuasive in other parts of the world," he added.

"On the one hand, I am incredibly impressed with the extraordinary logistical undertaking going on there. At the same time, I am concerned that the pace of activity could easily exceed what local stakeholders are prepared" to handle.

Hobbs said he doesn't like to refer to what's going on in North Dakota as an oil boom, "because it suggests that it's here today and gone tomorrow."

Rather, he added, there will be continuing development activity that probably will last at least a decade, or perhaps two decades.

"Even then, once you get beyond that, it's not that suddenly we've switched off the investment tap," Stark said, "because they will be looking at optimizing investments that could be made. And they are investments that you don't have to be imagining today."

Lynn Helms, North Dakota's director of mineral resources, presented three possible Bakken production scenarios during the Williston Basin Petroleum Conference, May 22-24 in Bismarck, N.D.

Helms' predictions took into account the following risk factors: changes in the global economy that could drop oil prices; proposed federal tax changes that would affect the oil industry; federal permitting regulations that slow oil development; and the federal Environmental Protection Agency overreaching on hydraulic fracturing regulations.

Outcome possibilities

DAVE HARBOUR

LYNN HELMS

If all the possible risk factors go wrong, North Dakota's production would be limited to around 650,000 bpd and hold at that rate for two to three years before declining.

Under a mid-case scenario, Helms predicts North Dakota would hit 800,000 bpd and hold for 10 to 12 years before declining.

And if all goes well in North Dakota's favor, the state would hit 1 million bpd.

"If everything works out, then we're going to chase Texas," Helms said. He noted that North Dakota is expected to level off at 225 rigs by the end of the year, and, if that rig count remains steady, it would take 16 years to drill all the needed wells in the Bakken.

Meanwhile, the North Dakota oil boom already has created thousands of jobs, and Helms said the figure would likely peak at 65,000 new jobs by 2020. Helms, using a multiplier for the number of additional jobs that will be required to support that population, said he could envision the state with 1 million people. The 2011 Census estimate put North Dakota's population at 683,932. ●

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FINANCE & ECONOMY

MDU Resources buys stake in Whiting

Looking to shift its midstream unit to liquids, MDU Resources Group Inc. is buying a stake in a Whiting Oil and Gas Corp. storage and transportation complex in the Bakken.

The $66 million deal will give the Bismarck, N.D.-based MDU Resources a 50 percent interest in Whiting-operated natural gas and oil midstream assets near Belfield, N.D.

> *The $66 million deal will give the Bismarck, N.D.-based MDU Resources a 50 percent interest in Whiting-operated natural gas and oil midstream assets near Belfield, N.D.*

Those assets include the new 35 million cubic-foot-per-day Belfield gas processing plant and a gathering pipeline system connected to the plant; a gas residue line connecting into a system operated by the MDU Resources subsidiary Williston Basin Interstate Pipeline Co.; a crude oil gathering system; a 20,000-barrel oil storage terminal scheduled to come online in the third quarter and a pipeline connecting the terminal to the Bridger Pipeline.

More liquids-based

"This transaction is an important step forward in executing our strategy to become more liquids-based in the midstream space," President and CEO Terry Hildestad said. "As production continues to ramp up and the storage terminal is completed later this year, we will be positioned nicely for the investment to produce accretive earnings and cash flow."

MDU Resources purchased an interest in the assets through its subsidiary Bitter Creek Pipelines, LLC and will be responsible for 60 percent of some capital expenditures.

The facilities will be supplied by oil and gas production from Whiting's seven-rig program Pronghorn acreage in Stark and Billings counties the MDU Resources subsidiary Fidelity Exploration & Production Co's acreage in adjacent Stark County.

MDU Resources operates in the Rocky Mountains and in the Gulf Coast region and produced 29,000 barrels of oil equivalent per day in the first quarter, 36 percent oil. The company is currently running 10 rigs across its assets, including five in the Bakken.

MDU plans to spend 40 percent of its capital budget, or $160 million, in the Bakken this year. The company operates around 124,000 acres in three North Dakota counties.

—ERIC LIDJI

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● MOVING HYDROCARBONS

Enbridge faces new pipeline showdown

Plans to enlarge and expand pipeline network in eastern Canada and U.S. arouses environmentalists, fueled by NTSB findings

By GARY PARK

For Petroleum News Bakken

Enbridge is opening a second front in its battle with environmentalists and First Nations over the movement of Bakken and oil sands crude to refineries in eastern North America and Asia.

Already immersed in an epic clash of wills over its proposed Northern Gateway link to Asia, Canada's second largest energy pipeline company is now facing a pitched battle over its sweeping plan to spend C$2.6 billion de-bottlenecking congested pipelines in the U.S. Midwest.

It doesn't help in either case that transcripts released by the U.S. National Transportation Safety Board on May 18 pointed accusatory fingers at Enbridge's role in a mid-2010 spill of 20,000 barrels of crude from its 290,000 bpd Line 6B between Sarnia, Ontario, and Griffith, Ind., which has cost about US$700 million to clean up.

The rupture resulted in crude escaping into the Kalamazoo River in southwestern Michigan, creating a costly and embarrassing headache for Enbridge that continues to put a cloud over its ambitious expansion plans.

The NTSB documents said the Line 6B rupture went undetected as shift changes occurred at its control room in Edmonton, Alberta.

One operator, who has been with Enbridge for 25 years, said in a transcript that there is a constant turnover of supervisors, reducing the accumulated experience of those doing the job.

Enbridge insists it has been working closely with the NTSB from the outset, but will not comment on the findings until the NTSB delivers its final report, although the company said it has made changes to operating procedures over the past two years.

Groups demand full assessment

However much Enbridge argues it has met or exceeded all applicable regulatory and industry standards, the Line 6B incident and other lesser events provide a prod for opponents of the Eastern Access program.

The flashpoint in Canada is the proposal to reverse Line 9, allowing Western Canadian and Bakken crude to flow from Sarnia to Montreal, giving refiners in Ontario and Quebec an alternative to the premium of US$20 per barrel they are currently paying for imported crude.

Public hearings by Canada's National Energy Board are under way, with environmental organizations demanding an assessment of Enbridge's complete expansion program.

That includes claims — despite Enbridge's emphatic denial — that the company is intent on reviving its Trailbreaker project to extend the pipeline reversal to Portland, Maine. Enbridge abandoned that project in 2009 as uneconomic.

Among the environmental spokesman, Equiterre's Steven Guilbeault and British Columbia-based ecologist David Suzuki said the interests of Quebecers will not be served by the proposals.

Guilbeault said the reversal of Line 9B from Westover, Ontario, to Montreal "would carry tar sands oil all the way from Alberta to Quebec and would go through some of the most densely populated areas of (Canada), such as the Greater Montreal area."

He noted that Quebecers have shown in polls that they are opposed to the oil sands operations because of that industry's environmental impacts.

Suzuki said Canadians should be reducing their reliance on oil and leave "tar sands oil in the ground, period."

"This whole battle over pipelines is masking the big question, which is why we don't have a national energy policy."

Environmental Defence and Equiterre issued a joint statement arguing that pumping oil sands crude will mean more air pollution and greater risks of toxic spills into waterways.

"Getting raw tar sands oil through pipelines is like moving hot, liquid sandpaper that grinds and burns its way through a pipe, thus increasing the chance that weakened pipelines will rupture," a joint press release said, contending that pipelines from the oil sands spill three times as much oil per mile in the United States as the average pipeline.

Michigan focus

The tussle in the United States is expected to center on Michigan because of the Line 6B episode.

"The expansion of this tar sands pipeline amounts to double-jeopardy for the community of Marshall, Michigan, which has faced over 20 months of a prolonged and expensive cleanup of their local river," said Danielle Droitsch of the Natural Resources Defense Council in a blog posting.

Steve Wuori, president of Enbridge's liquids pipeline division, told the Montreal Gazette that any claim that Enbridge is carrying "sandy crude through a pipeline is absolutely false."

He said crude carried by Line 9B will be either diluted bitumen or partially refined crude, similar to crude currently being processed at Quebec refineries.

Wuori said crude entering a pipeline is analyzed to ensure it is no more than 0.5 percent sediment and water.

"This project is really about light crude for refineries because they can get it at more attractive prices than their current sources," he said. ●

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Petroleum news

GOVERNMENT

North Dakota production up 3% in March

North Dakota reported record production in addition to record rig and well counts in March, according to preliminary figures from the Department of Mineral Resources.

Monthly oil production increased 3 percent in March to a record 17,840,177 barrels (or 575,490 barrels per day) and monthly natural gas production also increased by about 3 percent in March to 19.2 billion cubic feet total (or 621 million cubic feet per day).

"Mild weather continued into March resulting in increased hydraulic fracturing activity and increased production. …This trend may not continue into April and May as spring weather brings load restrictions and slows well site construction," DMR Director Lynn Helms wrote in his monthly "Director's Cut" report on statewide drilling information.

The DMR reported 214 rigs operating in North Dakota as of May 25 (up from a high of 209 in April) and 6,921 producing wells in March (up from 6,726 in February) with more than 95 percent of the drilling targeting the Bakken and Three Forks formations. "The idle well count fell a normal amount for the season leaving an estimated 248 wells now waiting on fracturing services," Helms wrote. Additionally, the DMR issued 181 drilling permits and one seismic permit to operators in March, up from 168 drilling permits and five seismic permits in February and an all time high of 245 permits in November 2010.

While oil production rose in March, average sweet crude oil prices fell to $76.29 per barrel from $83.26 per barrel in February and a high of $136.29 per barrel on July 3, 2008. Although shallow gas exploration in North Dakota remains "not economic at the current price" of $2.29 per thousand cubic feet for delivery at Watford City, the "high liquids content makes gathering and processing of Bakken gas economic," Helms wrote.

—ERIC LIDJI

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● PIPELINES & DOWNSTREAM

Capline reversal pondered

Gulf Coast line suffering from lack of demand for imported crudes as Patoka refineries turn to cheap Canadian crude for feedstock

By GARY PARK
For Petroleum News Bakken

Plains All American and Marathon Petroleum — the two key stakeholders in the under-utilized Capline crude oil pipeline — are weighing entry into the field that is delivering Canadian and Bakken crude to the Gulf Coast.

Their scheme would involve reversing the flow of Capline, which has capacity of 1.2 million barrels per day from the Gulf Coast to refineries in the Patoka area of Illinois, but has experienced a decline in average throughput to 12.08 percent in 2011 from 19 percent in 2010 and was shut down briefly in March when demand fell below 8 percent.

Plains owns 54 percent of Capline, Marathon 33 percent and BP 13 percent.

Plains Chief Executive Officer Greg Armstrong told analysts in May that reversal of the line requires an "alignment of interests" by the partners, which means "everybody has to agree before anybody can do anything."

Plains has the added advantage of owning storage and terminal facilities in Patoka, Cushing, Okla., and St. James, La., along with pipeline assets in West Texas, the Rockies and Midcontinent region.

But the line has suffered from a lack of demand for imported crudes from Patoka refineries, which have switched to using cheap Canadian crude as feedstock.

Reversing line complex

Armstrong said that reversing the pipeline is a complex matter because "there are certain flows that are currently going on Capline that we would need to reroute," while additional capacity is required to bring crude into Patoka from the north.

Mike Palmer, Marathon's senior vice president of supply, distribution and planning, told a conference call with investors his company is "looking into alternatives" for Capline along with other assets.

But Marathon Chief Executive Officer Gary Heminger took a low-key stance on reversing Capline, which delivers oil to the company's 212,000 bpd refinery in Kentucky.

He said the Midwest would continue to require a source of Gulf Coast crude to serve refineries.

"You would need to ensure that you have a large pipeline that can still move that type of supply," he said. "Maybe not 1 million bpd, but still move a significant amount of supply south to north if needed."

Tim Evans, an energy analyst at Citi Futures, said it might make economic sense to use Capline to carry heavy crude from Canada and light, sweet crude from the Midwest to the Gulf Coast if the pipeline is faced with "handling low volumes." ●

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● DRILLING & PRODUCTION

Horizontal lifeline for Canada drilling

Without horizontal drilling from the Saskatchewan Bakken, Canadian drilling would be in the tank; well count down 8 percent

By GARY PARK
For Petroleum News Bakken

Remove Saskatchewan's Bakken and its associated horizontal drilling from the equation and Canada's upstream sector would be in the doldrums, or heading in that direction.

For the January-April period, the industry drilled 3,937 wells, down 8.06 percent from a year earlier, as well completions and permitting sagged across the four western provinces.

However, the wells accounted for 27 million feet of hole, a year-over-year increase of 7.85 percent and the second-highest four-month tally on record, trailing only the 2006 count of 32.8 million feet.

Helping keep the sector's head above water is the Bakken activity in Saskatchewan, where operators completed 998 wells to the end of April, an increase of 19.38 percent over the same period of 2011, while regulators issued permits for 1,692 wells, the second highest total on record behind 1,831 in 2010.

In Manitoba, which includes the eastern edge of the Bakken formation, regulators awarded 169 well permits, up from last year's record of 161, while well completions were 195 compared with 194 in the comparable period last year.

Otherwise the traditional powerhouse provinces are in bad shape. Alberta well completions fell 15.74 percent to 2,526 and new well permits dropped 23 percent to 408 wells. British Columbia completions are down 12.03 percent to 212 wells and new well permits slumped 50 percent to 220.

More horizontal wells

The bleak outlook has forced the Petroleum Services Association of Canada to lower its average 2012 gas price to US$1.90 per thousand cubic feet at the AECO hub and reduce its well-count forecast for 2012 to 13,150 wells, down 200 from its previous forecast in January.

PSAC President Mark Salkeld said in a statement that "we have to bear in mind that the days of 20,000-plus boe/d wells are not likely to return any time soon."

"That's largely due to the fact that we are drilling longer and more complex wells now that are accessing plays once thought unreachable or fully tapped," he said.

PSAC expects horizontal wells will comprise 50 percent of all well types this year, compared with 13 percent in 2007.

It estimates the province of Alberta will complete 7,949 wells this year, down 2 percent from 2011, and gas-weighted British Columbia will post 591 wells, off 5 percent from last year, while Saskatchewan will increase 13 percent to 3,962 wells and Manitoba will gain 6 percent to 618 wells.

To the end of April operators licensed 2,904 horizontal wells, trailing the comparable period of 2011 by 103 permits.

Producers reported completion of 2,865 oil development and exploratory wells for the four months, up 20 wells from last year. ●

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FINANCE & ECONOMY

NGL Energy merger adds oil transport

The propane midstream and downstream outfit NGL Energy Partners LP is buying an interest in a crude oil gathering and marketing firm for $693 million in stock and cash.

Once finalized, the merger with Denver-based High Sierra Energy LP and its general partner will give the Tulsa, Okla.-based NGL Energy access to a crude oil segment that handles about 50,000 barrels per day and controls three crude oil terminals, including facilities in North Dakota; a water treatment segment that handles more than 80,000 barrels of water per day from a plant in Wyoming; and a natural gas liquids transportation and marketing segment that moves some 45,000 barrels per day "from coast to coast."

"Combining NGL and High Sierra creates a dynamic and diversified mid-cap (master limited partnership) that will provide multiple services to upstream customers including water treatment and transportation, crude oil gathering, transportation and marketing as well as natural gas liquids transportation and marketing," CEO H. Michael Krimbill said.

NGL Energy operates a vertically integrated propane company that serves 124,000 customers in 11 states with an estimated 5.7 million gallons of storage capacity.

—ERIC LIDJI

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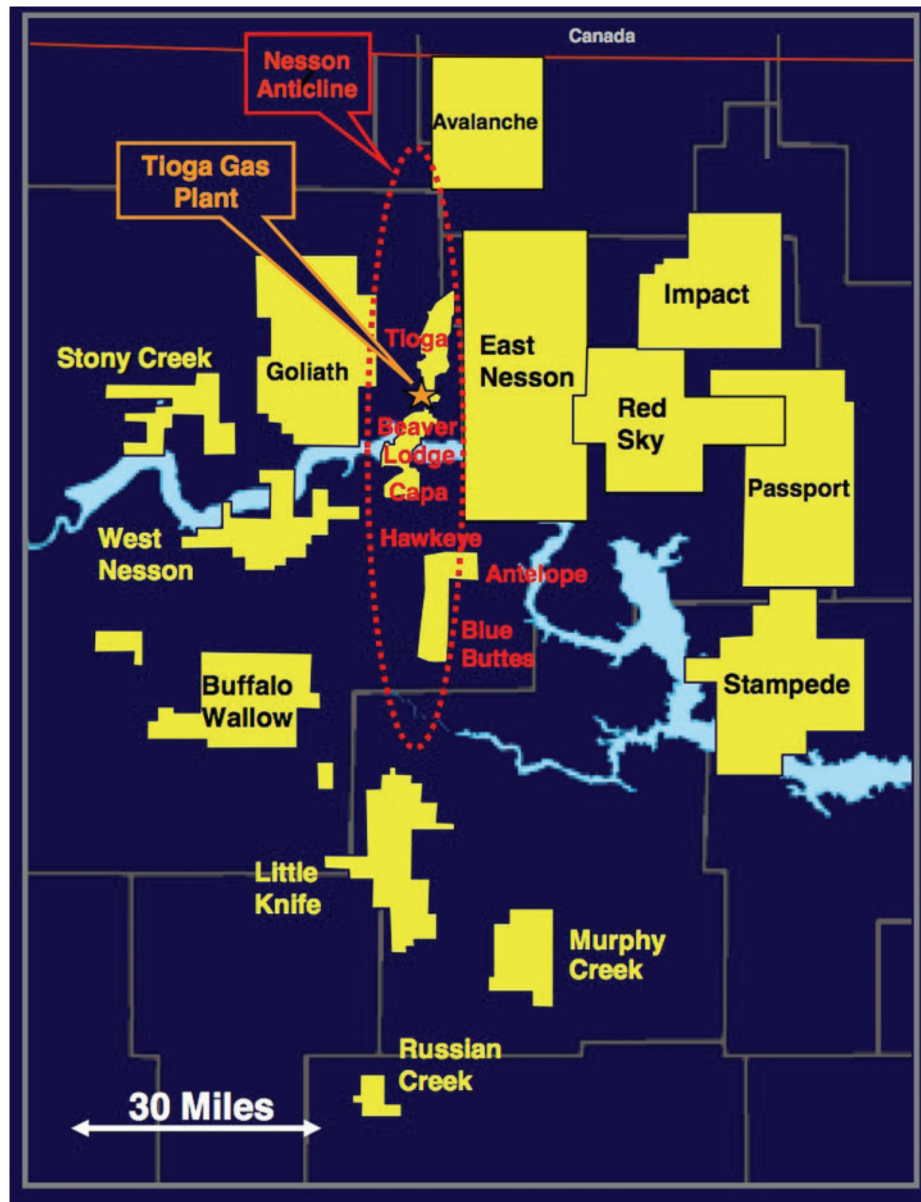
● DRILLING & COMPLETION

Hess backs off production goals

Cites less-than-ideal drilling targets, material shortages and permitting delays for inability to hit 60,000 bpd target this year



COURTESY HESS CORP.

By ERIC LIDJI

For Petroleum News Bakken

Hess Corp. doesn't expect to meet its production targets in the Bakken Shale this year, but said the short-term setback shouldn't overshadow its long-term goals for the region.

"It's early stages in a major investment for our company," CEO John Hess said in an earnings call. "It creates some volatility in being able to predict, both on the cost side and on the production side, but we're very confident that we're on a solid growth trajectory."

> *"We're very confident that we're on a solid growth trajectory."*
> —CEO John Hess

The traditionally international player is increasingly focused on domestic unconventional oil plays and plans to spend $2.5 billion this year, or 37 percent of its $6.8 billion budget, on the Bakken, Eagle Ford and Utica. That includes $1.9 billion to operate 16 rigs and five dedicated hydraulic fracturing crews in the Bakken and expand its Tioga gas plant.

Even with that major infusion of capital, Hess is in the process of selling overseas assets to direct even more money toward its domestic unconventional prospects. "We anticipate that proceeds from asset sales, along with internally generated cash flow, will fund the majority of our capital and exploratory expenditures in 2012," said Greg Hill, president of worldwide exploration and production. "Our principal focus this year continues to be on execution and the sustained profitable growth of our reserves and production."

Earlier in the year, Hill warned that daily production rates could fluctuate considerably because of the sharp decline curves that typically follow higher initial production rates from new wells, but said that "increasingly higher peaks, continued quarter-on-quarter improvement and continued reduction of the completion backlog ... give us pretty high confidence in our ability to achieve that 60,000-barrel a day average rate in 2012."

Although first quarter production from the Bakken was up 11 percent quarter-over-quarter and 68 percent year-over-year to 47,000 boe per day in April, that target now appears unattainable, Hill said. "While we expect the monthly average to continue to increase throughout the rest of the year, we now expect the average for the full year may come in somewhat lower than our original estimate of 60,000 boe per day," he said.

The company expects to issue a revised guidance in July.

Not drilling sweet spots

Hess blamed its weak performance on a combination of internal and external issues.

Internally, the company isn't drilling its best prospects.

"We're focused on getting acreage held by production rather than focusing on sweet spots," Hill said. In addition to centering activity in lower-performing areas, drilling simply to hold acreage can also be cost inefficient. Because it usually requires only the first well on a pad, drilling to hold acreage ties up manpower and rigs and bypasses the opportunities for economics of scale inherent in drilling multiple wells on a pad. Hess is currently reporting average well costs of $10 million for single wells in the Bakken.

Because of that need to drill for logistical reasons rather than to target sweet spots, "we still have a backlog of wells to complete," Hill said. "That backlog is coming down."

In the first quarter, Hess drilled 37 wells and completed 52 wells in the Bakken. Of the 142 wells Hess has drilled in the play to date, 112 are currently producing and 86 have been online for at least a month with an average initial production rate of 900 barrels per day. Hill described those figures as "obviously very encouraging results," but the company reported an average 30-day initial production rate of 1,000 bpd back in January.

Hess holds a 67 percent average working interest on its 800,000 net acres in the play.

Shortages and delays

Externally, Hess blamed permitting delays and material shortages for bumping up operating costs and tempering production growth during the first quarter.

First, Hess faced a shortage of white sand proppant, but the issue is "resolved," Hill said. He also bemoaned a permitting backlog in North Dakota, "which resulted in delays in getting wells on production. … We're working with the state to resolve these issues."

In addition to the savings Hess expects to see from resolving those issues, "We expect our costs to drop as we transition to a full (34-stage) sliding sleeve completion," Hill said.

From a midstream perspective, Hess is currently spending between $400 million and $500 million each year on major infrastructure projects in the Bakken, but expects those costs to alleviate toward the end of this year or early next year. Those infrastructure projects include $500 million on its Tioga gas plant and its recently commissioned rail facility to Louisiana that "is already showing its wisdom of revenue upgrade," Hess said.

With the rail facility, Hess is now sending 25,000 barrels per day to St. James, La., and expects to be sending between 50,000 and 54,000 bpd by the end of the year. The facility allows Hess to capture a differential between $25 and $40 per barrel in crude oil prices. ●

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● FINANCE & ECONOMY

EOG finally showing Bakken optimism

After a year of ho-hum activities, a combination of drilling results and pilot projects is making EOG excited about the Bakken

By ERIC LIDJI

For Petroleum News Bakken

Because of strong results from the Bakken and the Eagle Ford, EOG Resources Inc. bumped its liquids growth target for the year by three percentage points, to 33 percent.

Although EOG is a leading producer in both plays, the Houston-based independent has long been more optimistic about the Eagle Ford of south Texas than the Bakken.

IRR Chatter

"The Eagle Ford continues to be our 800-pound gorilla in terms of crude oil growth, and we still believe our position is the largest domestic net oil discovery in 40 years and generates the highest direct (after tax rate of return) of any current large hydrocarbon play," CEO Mark Papa told analysts during a first quarter earnings call in early May.

Still, after several quarters that Papa described as having a "business as usual tone," the call also found Papa suddenly bullish about the Williston basin. "We're considerably more optimistic about the next 10 years of this play than we were a year ago," he said.

So what gives?

Parshall downspacing

Earlier this year, EOG predicted Bakken production would fall in 2012 as the company pulled rigs from the play, but now it thinks production could actually increase slightly.

The optimism comes from several efforts this year.

The first is downspacing.

EOG initially drilled wells every 640 acres at its Parshall field in Montrail County, N.D., but recently has been drilling every 320 acres. The initial results showed not only higher production rates from the newer infill wells, but improved recovery from the initial wells.

The three wells drilled at 320-acre spacing — Wayzetta 156-3329H, 124-3334H and 157-2835H — produced 1,393 barrels per day, 992 bpd and 1,083 bpd with 600 thousand cubic feet per day, 300 mcf per day and 300 mcf per day of associated rich natural gas.

EOG holds a 51 percent to 61 percent working interest in the wells.

The company plans to test the impact of 160-acre spacing on its core acreage, as well as the impact of downspacing on its nearby Bakken Lite acreage, sometime later in the year.

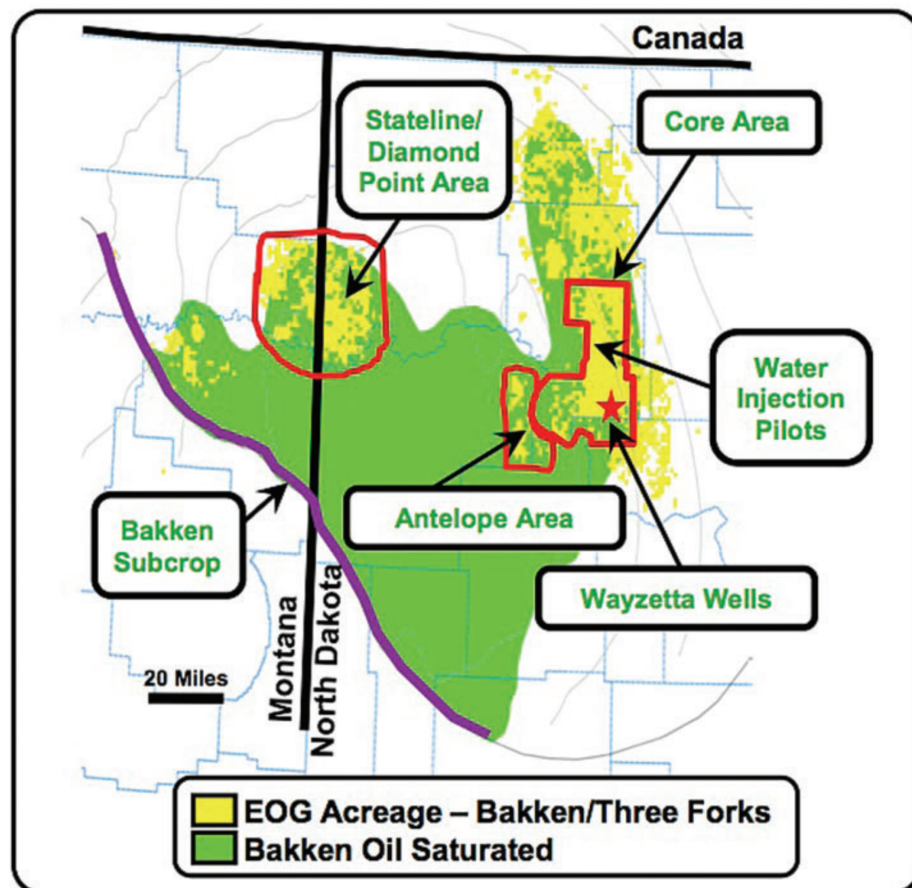
In addition to downspacing, EOG began an enhanced oil recovery waterflood pilot project at Parshall in mid-April and expects to have results by the end of the year.

Although EOG dropped its Parshall field recovery rate estimates to 8 percent from 10 percent after analyzing modeling data, the initial downspacing results suggest 12 percent recovery and a successful waterflood pilot could boost the rate even higher, Papa said.

Success outside core

Second, EOG is reporting success from its non-core fields.

A group of five wells in the Antelope Extension, some 25 miles to the southwest of the core area, confirmed the



EOG RESOURCES INC.

potential of both the Three Forks and the Bakken in the region.

EOG holds 100 percent interest in the five wells.

And in the Diamond Point/Stateline area of western North Dakota and eastern Montana, EOG completed seven wells with initial production rates between 540 and 1,100 bpd.

The results added 200 drilling locations to the region, according to EOG.

While pleased about its Bakken Core spacing and non-core drilling, Papa acknowledged that Bakken Lite downspacing and the waterflood remain question marks for now.

But EOG is claiming the benefit of a new crude-by-rail facility in St. James, La., that should be able to move 50,000 bpd by June and 70,000 bpd by the end of the year.

The facility allows EOG to deliver Bakken crude to either St. James or Cushing, Okla.

Although the facility will not be fully operational during the second quarter, it received its first shipment of Bakken crude in mid-April, allowing EOG to capture a $15 per barrel advantage from Light Louisiana Crude prices. "Based on current differentials, the best (net present value) for our rail tanker fleet is to move our EOG Bakken oil to St. James and sell our Eagle Ford in the Houston and Corpus Christi markets," Papa said.

The 1,000-pound gorilla

How does that stack up to Texas?

Although EOG isn't reporting its rates of return from the Bakken, the economics of its other unconventional plays offer some guidance. EOG is reporting a 40 percent after tax rate of return in the Barnett Shale and a 45-55 percent ATROR in the Permian basin.

But EOG is reporting an 80 percent after tax rate of return from the Eagle Ford.

With improved drilling and completion techniques, and greater operational control, the Eagle Ford is "an 800-pound gorilla developing into a 1,000-pound gorilla," Papa said.

First, by spacing wells every 65-90 acres instead of every 130 acres, EOG said it increased its potential net recoverable reserve estimate in the play by 78 percent to 1.6 billion barrels of oil equivalent, and also added 3,200 potential drilling locations.

The company is now testing the impact of 40-acre spacing.

Second, as the company and its contractors get better at placing laterals and designing hydraulic fracturing operations, EOG said it is reporting initial productions rates between 2,500 and 3,000 barrels of oil per day in areas that previously produced only 1,500 bpd.

And early next year, EOG plans to conduct a gas injection pilot project to determine whether it can further improve recovery rates in the Eagle Ford above 6 percent.

"The reason we're not accelerating the drilling of this unusually large well inventory is the technological improvements we're making. If we're making better wells than we were a year ago, who's to say we may not make even better wells a year from now? So why rush to drill wells that may not be technically optimum? We're closely focused on balancing the present value of this asset versus this technical well improvement," he said.

The Eagle Ford is also consistent. "We don't get a lot of geologic or reservoir surprises, and the few surprises we do get are generally more upside than downside," Papa said.

With a new plant in Wisconsin, EOG is now supplying all its own sand, cutting about $500,000 off the cost of each well, at an annual savings of $300 million. And Papa said EOG has been able to "dodge" transportation bottlenecks in the region, at least for now. ●

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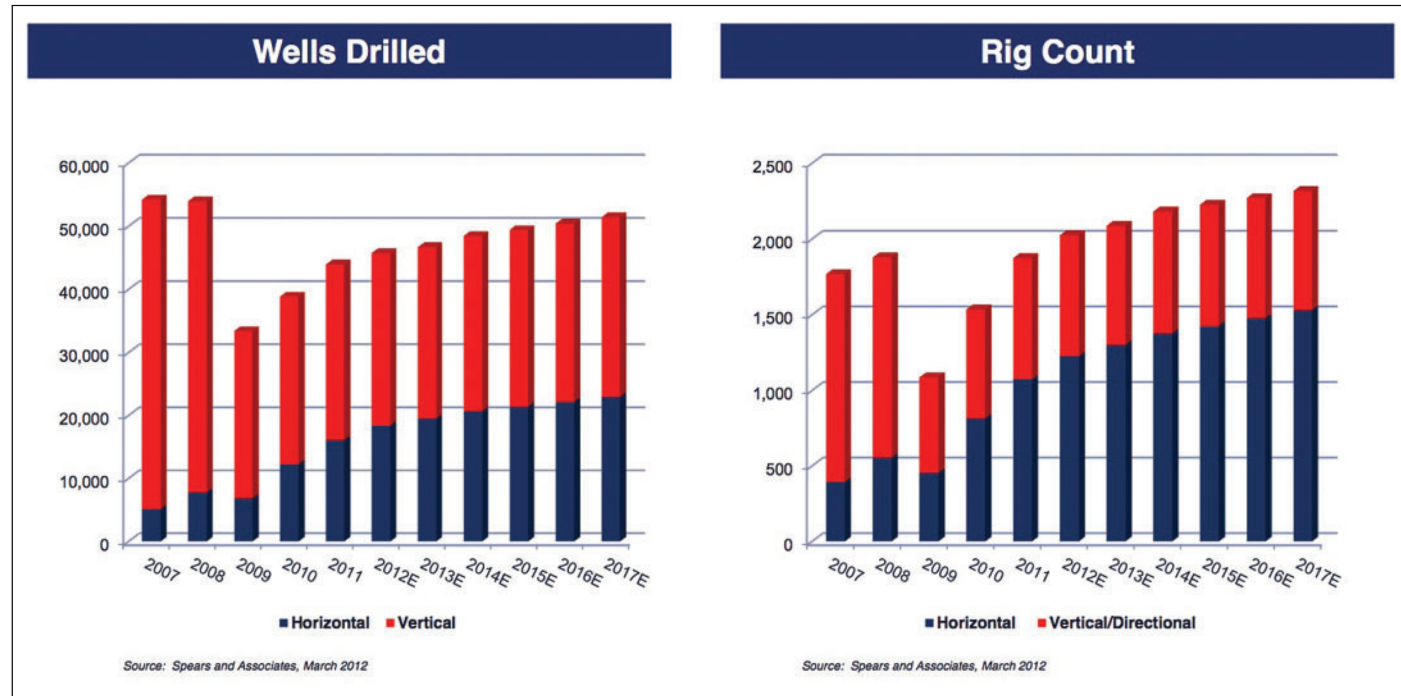
● DRILLING & COMPLETION

Pioneer walking to North Dakota

Texas drilling company building 10 new walking rigs over the coming year to accommodate pad drilling; seven going to Bakken



PIONEER DRILLING CO./SPEARS AND ASSOCIATES, INC.

By ERIC LIDJI
For Petroleum News Bakken

Pioneer Drilling Corp. is building more walking rigs to accommodate an increase in multi-well pad drilling in unconventional plays, particularly in the Bakken, the head of the San Antonio, Texas-based drilling company told a Texas audience recently.

"The tendency is going to be for more and more operators going to pad drilling," CEO Stacy Locke said at the UBS Global Oil and Gas Conference in Austin, Texas, May 24.

Multi-well pad drilling allows operators to reduce their unit costs by bundling drilling and completions crews and reduce their environmental impacts by building fewer pads.

To accommodate the demand, Pioneer plans to add 10 new-build walking rigs to its fleet over the coming year and "more walking features for pad drilling" to its existing rigs.

The walking rigs can move forward up to 100 feet on hydraulic shoes.

Of the 10 new rigs, seven are headed for the Bakken, while two will go to the Marcellus Shale and one will go to the Eagle Ford Shale. The rigs bound for the Bakken and the Eagle Ford are 1,500 horsepower rigs with 2,000 horsepower mud pumps, which Locke said "allows you a lot more gallons per minute across your down haul motor to increase your penetration rates and keep your bore hole clean in the long horizontal lateral plays."

With the additional delivery, Pioneer will operate 16 drilling rigs in the Bakken.

Walking, not skidding

Although some use the terms "walking rigs" and "skidding rig" synonymously, Locke insisted on making a distinction between the two technologies. With a skid rig, he said, "you have got to put your wellhead in a cellar" dug beneath the rig, but "gas accumulates in the low areas and it is a safety hazard and a lot of operators don't want to do it."

By comparison, "we build with our rigs with a festoon system. … You plant your backyard, your mud tanks, your mud pumps, your generator houses, your (variable-frequency drive) houses, all in one spot. ... It picks up and walks on its hydraulic feet as far as 75 to 100 feet forward and all the electrical just tracks along with this festoon system."

Additionally, some operators using AC rigs "will most likely have to retrofit some of their rigs to put some new mast and (substructure) on them that will walk instead of skid."

Don't ignore vertical wells

The rise of pad drilling shouldn't overshadow the market, though, Locke said.

While horizontal rigs accounted for almost 60 percent of the total domestic rig count last year, more than 60 percent of the actual wells drilled were vertical or directional wells less than 11,000 feet deep, according to information from Spears and Associates Inc.

"All of the new-build rigs that we are building and others that our competitors are building, they will not drill those wells," Locke said. "You do not need a 1,500 horsepower joystick top-drive rig to drill a 10,000 or 11,000-foot vertical hole."

That imbalance is creating a "bifurcated rig market" that will favor drilling companies willing to retain the high-end mechanical rigs in the fleets, in addition to building electrical rigs capable of drilling to 20,000-foor unconventional wells, Locke said.

"There is a huge segment of the market that people don't really talk about," he said. ●

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LAND & LEASING

Noble purchases Bakken royalties

Noble Royalties Inc. has entered the Williston basin with the acquisition of producing royalties from wells in seven North Dakota counties, the company announced May 25.

The $37.75 million acquisition is 81 percent oil, 15 percent natural gas and 4 percent natural gas liquids production, and includes producing wells in the Bakken, Three Forks, Mission Canyon, Duperow and Red River formations, according to the company.

Noble purchased the royalties from an undisclosed seller.

"We have been looking for the right asset to establish a strong initial position in the Bakken. This acquisition provides current production as well as potential growth through the hundreds of PUD (proven undeveloped) Bakken locations as operators continue to develop the asset," Noble President and CEO Scott Noble said in a prepared statement.

Noble is one of the largest private purchasers of oil and gas royalties in the country, with more than $1.3 billion in mineral, royalty and overriding royalty interests across hundreds of millions of acres in 30 states. The company was founded in 1997.

—ERIC LIDJI

MEDIA

Hart announces 2011 Excellence Awards

Oil and Gas Investor will recognize the winners of its 9th annual "Excellence Awards" at Hart Energy's 5th annual Energy Capital Conference on June 7 in Houston.

"The Excellence Awards recognize outstanding accomplishments in industry leadership, E&P success, and financial innovation," Oil and Gas Investor Editor-in-Chief Leslie Haines said about the reader nominated awards. "As supporters of the industry, we are delighted to honor these individuals and companies for their extraordinary efforts."

The 2011 honorees include:

• Executive of the Year: Tom L. Ward, chairman and CEO of SandRidge Energy Inc., for leading company growth through activities in the Mississippi Lime play in Oklahoma.

• Best Discovery: Chesapeake Energy Corp. for opening the Utica shale play in Ohio.

• M&A Deal of the Year: Petrohawk Energy Corp. for its $15 billion sale to BHP Billiton Petroleum Ltd. after a seven-year run of acquisitions, drilling and portfolio management.

• Best Field Rejuvenation: Energy XXI for its work in nine fields in the shallow-water Gulf of Mexico acquired from ExxonMobil in late 2010 for $1 billion.

• Corporate Citizen of the Year: Apache Corp. for its numerous community and sustainability programs, including the Apache Foundation's Trees campaign.

• Turnaround of the Year: Saratoga Resources Inc. for regaining momentum after emerging from bankruptcy in 2010, increasing its market cap tenfold, replacing its reserve by 200 percent and producing a record of 4,000 barrels of oil equivalent per day.

• Financing of the Year: Kodiak Oil & Gas Corp. for issuing common stock and senior notes during 2011 that enabled it to make a nearly $1 billion acquisition in the Bakken shale, doubling the size of the company and creating double-digit production growth.

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● ENVIRONMENT & SAFETY

Making way for grouse, Big Horn sheep

By KAY CASHMAN

Petroleum News Bakken

In 2010, the state of North Dakota's Department of Mineral Resources, or DMR, organized the entire "productive part" of the Bakken petroleum system along the western side of the state into north-south spacing units because state officials thought it was the most environmentally sensitive and sensible way to tap the oil-rich formations.

"We saw that there was a single, rational way to develop the Bakken and Three Forks," DMR Director Lynn Helms recently told a North Dakota interim legislative committee. "So we issued an order that organized the whole 15,000 square miles into north-south 1280s, and that has made development going forward have a lighter (environmental) footprint and a more rational development when we get into development and transmission."

It allowed a "prevailing pattern going forward, which is rows of wells located 4 miles apart with the 2-mile-long laterals drilled toe-to-toe as we extend these lines across western North Dakota. What we end up with … is a 5-acre road and well pad, removing the oil and gas from 1,280 acres, or a footprint of 4/10ths of 1 percent," Helms said, noting 10 years ago it would have been 10 percent.

But soon that environmental impact will be even more tempered.

"Now, as we move forward, we are being asked to start giving greater consideration to things on the landscape. For example, grouse leks (strutting grounds) and piping plover (small shore bird) nesting areas, and bighorn sheep lambing areas, and we're in the process of developing those concepts as we speak," Helms said.

NORTH DAKOTA TOURISM/DAWN CHARGING

Drain on DMR resources

But Helms said re-orienting the 1,280-acre spacing units to allow for such considerations is "going to put a pretty significant strain on resources to go in and do that sort thing."

He talked to lawmakers about how DMR resolved a situation at Blacktail Dam in Williams County in which DMR applied the process it developed in 2010.

"Through using this process we had a situation developing at Blacktail Dam where … we had a row of wells that were moving straight from Highway 85 towards Blacktail Dam, moving right down the section line. And so we were alerted to that by the Williams County Park and Rec people and we put that on a watch list. The end result was that when the permit came in for the next well, which would have been pretty much right in the spillway of Blacktail Dam, we got hold of the operator and said, 'no let's think about a different way of developing this area' and they were able to look at the maps and realize that they could move the wells two miles north of the dam and two miles south of the dam and put the toes under the dam and leave that area undisturbed," Helms said.

"There's a lot of tools in our toolbox going forward but it's going to take a lot of work and effort on everybody's part to make those work," he said. ●

Editor's note: The North Dakota Game and Fish Department's annual March bighorn sheep survey revealed a minimum of 283 sheep in western North Dakota where almost all the Bakken and Three Forks oil drilling is taking place in the state. That number is unchanged from last year and only 3 percent below the five-year average, likely due to three severe winters in a row prior to this past winter.

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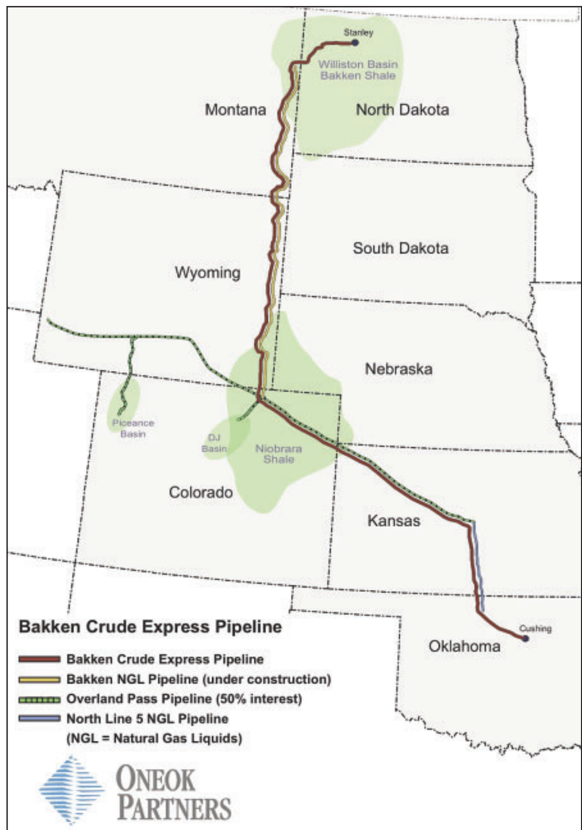
PIPELINES & DOWNSTREAM

KM starts Pony Express open season

Kinder Morgan Pony Express Pipeline LLC and Belle Fourche Pipeline Co. recently announced an open season for a system to carry Bakken-area crude oil to Oklahoma.

The proposed transportation system would carry 100,000 barrels of oil per day some 1,000 miles from Baker, Mont. — just across the state line from Bakken development in North Dakota — to Ponca City and Cushing, Okla., as soon as the fourth quarter of 2014.



ONEOK PARTNERS, L.P.

The open season closes at 5 p.m. MT on June 20. The companies have already secured a long-term anchor shipper commitment for a minimum of 30,000 barrels per day.

Through a separate open season, Pony Express will also offer local service from the Guernsey, Wyo., area and the Denver-Julesburg basin to the Oklahoma destinations.

The project involves a combination of new pipelines and converting existing pipelines.

Belle Fourche Pipeline operates a system that moves about 50,000 bpd from the Powder Rover basin of Wyoming and the Williston basin of North Dakota to Baker, Mont.

The project is one of at least three proposals to connect the Bakken area to Cushing.

In April, Oneok Partners L.P. announced plans to spend between $1.5 billion and $1.8 billion on the Bakken Crude Express Pipeline, a 1,300-mile pipeline to carry up to 200,000 barrels per day of light-sweet crude from Stanley, N.D., to Cushing by 2015.

"As producers continue to aggressively develop crude oil from wells in the Bakken Shale, more crude-oil pipeline takeaway capacity will be required. This proposed pipeline will provide producers with efficient and reliable transportation of their product directly to one of the largest crude-oil market hubs in the U.S," said Oneok President Terry Spencer.

Oneok expects to hold an open season this summer or in the early fall.

The Bakken Crude Express would also connect to the DJ basin and Niobrara formation.

And TransCanada Corp. is proposing the Bakken Marketlink to allow 100,000 barrels per day of Bakken-area crude to flow into the proposed and troubled Keystone XL pipeline.

—ERIC LIDJI

● DRILLING & PRODUCTION

Alberta Bakken prompts big change

Athabasca Oil Sands Corp. drops 'Sands' to reflect bullish view of Alberta's tight oil potential; CEO likens to Eagle Ford Shale

By **GARY PARK**
For Petroleum News Bakken

Sveinung Svarte is emphatic about where the "next Bakken" will develop — it'll be right in his Alberta backyard.

And the company he leads agrees so wholeheartedly with his forecast that tight oil properties in the province will develop between 500,000 and 1 million barrels per day that it agreed in mid-May to adopt a name change.

From now on Athabasca Oil Sands Corp. will be known simply as Athabasca Oil Corp., AOC.

The Duvernay, Montney and Nordegg plays "are probably going to be the most active development areas in Canada, similar to activities in the Bakken, with similar results," Svarte, the president and chief executive officer of the company, told reporters at AOC's annual meeting.

"I see huge potential in Alberta," he said, likening the prospects to the Eagle Ford in Texas as well as the Bakken.

Aiming for 10,000 boe per day

Svarte said Alberta's emerging tight oil plays and its more geologically complex shale oil plays are currently yielding about 50,000 bpd and will eventually lead to 1 million bpd, or more.

AOC is targeting 8,000-10,000 barrels of oil equivalent per day later this year from its tight play at Kaybob, part of the Duvernay oil pool, and is pressing ahead with a multi-well drilling program (deploying the usual combination of horizontal drilling and multi-stage fracturing) to affirm the commercial potential of leases in the Montney, Duvernay and Charlie Lake formations.

In the first quarter, AOC reported a discovery at its Kaybob property where one well produced 6,100 bpd of 44 degree API crude and tested at a final rate of 650 boe per day.

Svarte told shareholders that drilling results have been so encouraging that AOC could exit this year well above its guidance of 10,000 boe per day.

He said it has identified three significant development areas, including Kaybob East, Kaybob West and Saxon/Placid, and is now creating the infrastructure to tie those areas into its wholly owned Kaybob-Simonette 12-inch pipeline.

AOC has net rights-holdings of about 144,000 acres in the Kaybob property and about 2 million acres of petroleum and natural gas rights in the Montney, Nordegg and Duvernay formations.

Svarte said the slump in natural gas prices has worked to the advantage of companies such as AOC, which is expanding its payroll of 250 by about 10 employees per month.

"Light oil from shale is similar to shale-based natural gas," he said. "There is so much shut-in gas production we are able to absorb those people."

AOC's goal is now to achieve 250 boe per day by 2020, with half of that expected to come from tight and shale oil and liquids-rich gas properties.

Will remain in oil sands

Although the tight oil formations have delivered beyond his expectations, Svarte said they produce and decline quickly, unlike the oil sands which are slow to ramp up, but can produce for 50 years.

For that reason, he does not see the tight plays competing directly with the oil sands, meaning AOC will remain a leading participant in the oil sands, despite selling 60 percent stakes in its Dover and MacKay River projects, designed to produce a combined 400,000 bpd, to

see **ALBERTA BAKKEN** *page 15*

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● IN OTHER NEWS

Energy players recognized for safety

Bakken development sparking increased demand for Wyoming bentonite; environmental group claims Keystone gasoline price hike

By STEVEN MERRITT
For Petroleum News Bakken

In Other News

Several oil companies working in western North Dakota were recently recognized for their safety, environmental and community service records by the Three Affiliated Tribes, which make up the Fort Berthold Reservation.

According to the Minot Daily News, the companies included Marathon Oil, Enerplus Resources, WPX Energy, Petro Hunt and QEP Resources. The awards were presented during the MHA (Mandan, Hidatsa and Arikara) Nation's annual Bakken Oil & gas Expo in early May.

Enerplus was presented with the Best Management Practices Award, which recognized the company for its environmental practices such as placing housing on its flare stacks to contain gas contaminates and using hydro mulch rather than hay on the drill sites, according to the Minot newspaper.

Marathon Oil received the Safety Award based on the number of accident-free operations it has conducted since arriving on Fort Berthold in 2008, according to the Daily News.

WPX, Petro Hunt and QEP all received Community Service Awards for their financial contributions to local service clubs and programs.

■ Read full story here: http://bit.ly/N7TKif

Miners lining up for bentonite clay

IT'S CALLED "THE CLAY OF 1,000 USES" and one of those uses is drilling, which is why activity in the Bakken field of North Dakota is sparking an increased demand for bentonite from the mines of northcentral Wyoming.

According to the Billings (Mont.) Gazette, mining applications to the Bureau of Land Management are pouring in as firms try to meet the demand for the clay, which can swell to 16 times its original size and absorb 10 times its weight in water. Along with its use in the energy and transportation industries, bentonite also is used in cat litter, beauty supplies and as a binding agent for animal feed.

"Bentonite is considered an industrial mineral, and so it goes into a number of different products," Lyndon Bucher, a permitting and reclamation manager for American Colloid, told the Gazette. "You could say we're something of a bellwether for the national economy. For the most part, as the economy goes, so goes the bentonite industry."

According to the Billings newspaper, Wyoming's annual bentonite production has risen from 1,400 tons in 1927 to more than 4.5 million tons.

The Gazette reported that according to BLM, five companies are engaged in 19 active mining plans across several counties in northcentral Wyoming and across the border in Montana. The different beds of clay contain different qualities suited for a variety of industrial uses, such as drilling mud.

"If it's oil and gas drilling, we'll target a specific clay for that," Bucher told the

According to the Billings (Mont.) Gazette, mining applications to the Bureau of Land Management are pouring in as firms try to meet the demand for the bentonite clay, which can swell to 16 times its original size and absorb 10 times its weight in water. Along with its use in the energy and transportation industries, bentonite also is used in cat litter, beauty supplies and as a binding agent for animal feed.

Gazette. "We have many different customers, and we'll try to meet the market demand by mining in these different areas and getting the right quality of clay into the plant."

■ Read full story here: http://bit.ly/Kb4VXl

Keystone pipeline and gasoline prices

A PROPOSED PIPELINE to carry Canada's oil sands crude as well as Bakken-produced oil to the U.S. Gulf Coast has the potential to increase domestic gasoline prices, according to a report from an environmental group opposed to the project, Bloomberg News reported in late May.

The National Resources Defense Council report said TransCanada's Keystone XL pipeline would divert crude oil from the U.S. Midwest to Gulf Coast refineries geared to producing diesel fuel for export. In turn, that will decrease the amount of gasoline produced for U.S. consumers and raise production costs, making the fuel more expensive, according to Bloomberg's story on the report.

"This requires President Obama and his administration and the Congress to take a real look at the impact of tar sands to the environment and not have to worry about the political issue of gas prices," NRDC attorney and report author Anthony Swift told reporters in a conference call. According to Bloomberg, the NRDC and other environmental groups oppose expansion of Canadian oil sands production — which extracts the heavy oil by surface mining — saying that more greenhouse gases are produced compared to conventional processes for crude.

Obama denied the project in January, saying more environmental study was needed. TransCanada has since split the project and reapplied with a restructured plan to bypass some of the more environmentally sensitive areas.

According to Bloomberg, the NRDC report contradicts the findings of energy industry analyst IHS CERA, which released a report last year saying the pipeline would help lower fuel prices. Bloomberg also quoted TransCanada spokesman Shawn Howard, who said the U.S. imports 8 to 9 million barrels of oil a day.

"To somehow suggest that helping offset current imports from Mexico and Venezuela with this Canadian and American crude is going to drive prices up, because what we're doing is helping replace some of the current feedstock, doesn't make sense," Howard told Bloomberg.

■ Read full story here: http://bloom.bg/JyTtWZ

DRILLING & COMPLETION

Alberta Bakken tests top expectations

DeeThree Exploration, a Canadian junior E&P company, has reported better-than-expected results from production tests on its Lethbridge property in the Bakken region of southern Alberta.

Recently completed third and fourth wells averaged 940 barrels per day and 960 bpd of oil after respective 10-day and five-day tests.

The company said it is continuing to augment its Alberta Bakken program through modifications to the horizontal well lengths and fracturing dynamics and is pleased with the continuity of the sand being targeted.

Improvement in the flow rates to date has resulted in initial production over 30 says and 60 days exceeding type curve expectations, DeeThree said.

It said two drilling rigs are operating in the area, with two additional Alberta Bakken wells due for completion and testing by June 30.

Lethbridge lease term extended

The company disclosed it has extended its primary lease term on its Lethbridge property by two years to Nov. 30, 2015, in exchange for which it surrendered 50,000 acres while retaining 180,000 acres of what it believes is the most prospective acreage for Bakken reserves.

As part of the extension and in place of a 20-well commitment related to the April 2010 agreement, DeeThree has committed to drill 12 wells over a three-year period (five in each of 2012 and 2013 and two in 2014), of which six have been drilled so far.

It expects as many as four additional net Bakken wells will be on production by mid-year.

The company reported first-quarter production from all of its Alberta properties of 3,042 barrels of oil equivalent per day, up 327 percent from a year earlier and 27 percent from the final quarter of 2011.

It posted a net loss for the quarter of C$3.19 million, compared with a loss of C$1.99 million in the same period of 2011.

—GARY PARK

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FIELD DECLINES

ized by rocks with low porosity and permeability qualities.

Roughly 10 percent of the original oil in place can be extracted from conventional reservoirs during the primary recovery phase, according to the U.S. Department of Energy, DOE.

Secondary recovery techniques extend a conventional field's productive life generally by injecting water or gas to displace oil and drive it to a production well bore, resulting in the recovery of 20-to 40 percent of the original oil in place.

Tertiary, or enhanced oil recovery, EOR, techniques can ultimately produce 30-to 60 percent, or more, of a reservoir's original oil in place, according to DOE. Technologies used during third-stage recovery include gas injection (CO2, nitrogen and natural gas), thermal recovery and chemical injection.

Low recovery in Bakken

However, the Bakken petroleum system is noted for low primary recovery rates of 3-to 5 percent of the original oil in place; and, while the jury's out on exactly how much additional oil can be extracted using secondary and tertiary techniques, the recovery rate in the Bakken likely will be substantially lower than in conventional reservoirs.

"I don't think you will ever see the kind of rates that you do in the very early production history of these wells," John Harju, associate director for EERC, said in an interview. "But we are very optimistic that you will be able to increase rates from the very long, slow declines that we see on these wells."

The EOR technique that is attracting the most new market interest is CO2 injection. In the United States, there are about 114 active commercial CO2 projects that together inject over 2 billion cubic feet of CO2 and produce over 280,000 barrels of oil daily.

Whiting Petroleum operates two large conventional enhanced oil recovery projects in Texas and Oklahoma, where both water and CO2 are injected into the formation. The CO2 tends to swell oil droplets that remain trapped and then expands and helps them flow through the reservoir matrix and toward the well bore, while the water helps push the oil along.

Jim Volker, Whiting's chief executive officer, believes the same approach starting with secondary water flooding should work in its 60 percent operated Sanish field in the Bakken, after the field is fully developed in about two-and-a-half years.

Meanwhile, secondary recovery is being tested at the Parshall field just east of Sanish, where Whiting holds about a 20 percent stake. "We'll see how it works there," Volker said.

However, he added, because the Sanish's primary reservoir is the Middle Bakken formation and is thicker than it is beneath the Parshall, "we think the water flood may even work better under the Sanish field."

Volker reiterated that recovery techniques used by Whiting after the initial primary recovery stage, are typically water flood during the secondary stage followed by a combination of water flood and CO2 injection during the tertiary stage. "And I expect that is what will happen here," he said.

Jack Stark, Continental Resources' senior vice president of exploration, the largest leaseholder in the Bakken, said Continental is currently in the planning stage and that CO2 is just one recovery method the company is exploring. He said a project likely would be launched within the next two years and would cover both the Bakken and underlying Three Forks formation.

"We're really kind of looking at all options that are available," he said. "But you want to do it in an area where you feel you have a good opportunity for success and a good pattern of wells and basic conditions."

David Roberts, Marathon's chief operating officer, said Marathon is currently exploring oil recovery options at its offices in Houston.

"It's certainly something that we are studying, because we know that we can get more recovery," he said. "The question is, do you drill more wells, or do you do something else? But I think that is still sometime out."

Regardless, he added, industry "is a technological wonder" and "someone will come up with something" that resolves the oil-recovery challenge in the Bakken.

CO2 pilot projects in Bakken

EERC's Harju is aware of two CO2 pilot projects conducted in the Bakken, neither one of which was considered to be a commercially successful test, he said. Nevertheless, he said, "a great deal of information" gleaned from these projects can be applied to EERC's on-going study.

"Our general feeling is that CO2 will work, but the first thing we need to do is establish some operating parameters that we're going to have to do to make it work," Harju said, noting that in addition to CO2, EERC will be looking at other recovery techniques.

He said that so far Denbury Resources, Marathon and Calgary-based TAQA North have enrolled in EERC's study program, financed by DOE and the North Dakota Oil & Gas Research Council.

Harju envisions a Bakken petroleum system that eventually will produce a minimum of 1 million barrels of oil per day, compared to the current 575,000 barrels per day.

"I think the big question is how long can it stay at a million barrels a day," he said. "Can it be 20 years? Can it be 30 years? The work that we are doing is very much focused on improving that lifetime and improving that productivity, all of the time." ●

Contact Ray Tyson at raymondtyson@msn.com

GOVERNMENT

ND study aimed at reducing road dust

A former state Health Department official is leading a research project to determine what works best for controlling dust on gravel roads in western North Dakota's booming oil patch.

Francis Schwindt is testing eight products ranging from a tree sap product to the magnesium chloride that is commonly used now. The former head of the Health Department's Environmental Health Section tells The Bismarck Tribune that he might also test crude oil itself.

The eight products were applied to roads in Dunn and McKenzie counties in mid-May. Schwindt says the roads are heavily used by semitrailers and should be good guinea pigs for testing which of the products holds up best and is most cost-effective. Results won't be known for weeks.

—ASSOCIATED PRESS

MARKETING

Continental hires Kinnear to market oil

With an eye toward improving access to crude oil markets, Continental Resources Inc. has appointed Kirk Kinnear as its vice president of oil marketing logistics.

Under the position, Kinnear will be "responsible for ensuring the company's crude oil production has access to the most competitive markets," according to the company.

"Kirk Kinnear's history of leading high-performance teams and demonstrating creative thinking make him a welcome addition to Continental Resources as we develop new markets for our growing production base," Continental CEO Harold Hamm said.

Kinnear brings 33 years of crude oil marketing, international arbitrage, refinery supply, energy trading and hedging experience to the job. Prior to joining Continental, he served as executive director at JP Morgan and vice president at RBS/Sempra Commodities. He also held various crude marketing and trading positions with Hess Energy Trading, Phibro, MG Refining and CRA/Farmland in Texas, Kansas, Oklahoma, Missouri and New York and has worked on pipeline projects in Valdez, Alaska, and Alberta, Canada.

As previously reported, Continental is currently changing its senior management.

—PETROLEUM NEWS BAKKEN

FINANCE & ECONOMY

Bakken growth lifts North Dakota fund

Fast-rising Bakken production combined with strong oil prices is fattening the North Dakota Legacy Fund ahead of anticipated growth, State Treasurer Kelly Schmidt said May 17.

Created in 2010 by a ballot initiative, the fund takes in 30 percent of all state revenue derived from oil and gas production and extraction and now stands at $353 million, putting the state comfortably ahead of its goal to reach $600 million by June 30, 2013.

No principal or earnings of the fund can be spent before mid-2017, at which point only the interest earned will go into North Dakota's general fund.

However, the state legislature can then approve expenditure of up to 15 percent of the principal at each two-year interval.

Schmidt said initial forecasts were based on oil prices of $70 per barrel.

At the current rate of accumulation, the fund could be on pace to reach $1 billion by mid-2013, said Joe Morrissette, an analyst with the North Dakota Office of Management and Budget.

The latest data released by the North Dakota Department of Mineral Resources puts state production at 575,000 barrels per day, while industry analysts estimate about 215 rigs are working in the Bakken.

North Dakota, Alaska and Texas are the only states that have diverted oil and gas revenues into permanent funds.

West Virginia is contemplating joining those ranks and setting aside a portion of mineral revenues, but so far two bills have been rejected by the state legislature, leaving lawmakers to reconsider ways to structure a nest egg.

—GARY PARK

LAND & LEASING

Recent non-operated sales unconnected

Although some Williston basin players have recently marketed their non-operated acreage in the play, the trend appears to be a case-by-case scenario and not systemic.

"I don't think it's going to be an extensive trend. … I don't think every operator's looking to do this at this point," said Scott Hanold, an analyst with RBC Capital Markets.

The Calgary-based Baytex Energy Corp. recently closed on a deal to sell its non-operated interests in North Dakota to a subsidiary of Magnum Hunter Resources Corp. for $312 million. The Denver-based SM Energy Co. recently began marketing some 8,600 net-acres in North Dakota that include 81 non-operated wells in the Bakken/Three Forks and 28 operated and non-operated vertical wells producing from conventional reservoirs.

These deals give companies more control over their capital budgets in the short term, Hanold said. "In general, companies like to control their capital expenditures and obviously what happens from a non-operated perspective is out of their control," he said.

Although initially a heavy oil producer, Baytex has spent more than $100 million over the past four years targeting light oil plays in Alberta, Saskatchewan and North Dakota.

Through the sale, Baytex divested about 45 percent of its net acreage in North Dakota and 40 percent of its United States production, but increased its average working interest in the play to 45 percent from 39 percent. Baytex reduced its production guidance for the year by 500 barrels of oil equivalent, but maintained its capital budget at $400 million.

When companies purchase blocks of acreage, they usually end up with non-operated chunks in addition to their operated portions and often look to swap, sell or trade, Hanold said. "There's really no consistency in terms of who's buying this," he added.

—ERIC LIDJI

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RESERVES ROCKET

during the three-month period.

326 billion barrels added

Continental's recovery rate for the Bakken system on 577 billion barrels of in-place oil, calculated in 2010, was 24 billion barrels, or 4 percent. However, establishing that recovery rate evidently was more certain than trying to figure a new rate for the 326 billion barrels of recently added in-place reserves.

"This was based on how wells were performing, how many we could drill based on 320-acre spacing in areas we felt had the productive capacity," Stark said of the 24 billion barrel estimate. "That's really key. It's not a pie in the sky thing."

When recoverable estimates were crunched on 577 billion barrels, virtually all company production came from the Middle Bakken and the first bench, or first zone of the underlying Three Forks formation.

Based on core samples from nine of its wells, plus information from two wells drilled by other operators, the company has since added estimated in-place reserves from three lower zones in Three Forks — benches two, three and four.

Production history lacking

The problem? There's no long-term production history from the second bench, and no production data yet from the third and fourth benches, on which to help establish a reliable recovery rate.

"At this point we don't know how these wells (will) perform, therefore we cannot put a performance factor to that," Stark said. "So we're going ahead and just saying you pick a recovery rate that you are comfortable with, and you can put any number you want to it."

He added: "we don't know what the oil recovery factor will be from this rock, but 4 or 5 percent seems reasonable. This is total speculation, but it is based on the fact that there is more oil in place."

At 4 percent, the recovery on the 903 billion barrels of in-place oil estimate would be about 36 billion barrels; and at 5 percent, recovery would be roughly 45 billion barrels, or more than three times what Alaska's Prudhoe Bay has produced thus far.

CONTINENTAL RESOURCES

Whiting comments on increase

Jim Volker, chief executive officer of Whiting Petroleum Corp., another large Bakken producer, said he agrees with Continental's revised estimates, if the additional Three Forks zones prove to be productive.

"I would say that it could be that high," Volker told Petroleum News Bakken. "What remains to be seen, of course, is when we go horizontal will we continue to see the same kind of economics that we're seeing in the Middle Bakken and the Pronghorn sand, or will it be less attractive?"

The Pronghorn layer is often attributed to the Three Forks formation, and referred to as the Three Forks-Sanish. But according to some geologists, the Pronghorn is actually part of the Bakken formation directly above Three Forks.

David Roberts, chief operating officer for Marathon Oil Corp., wouldn't comment directly on Continental's latest numbers, but noted that since Marathon entered the Bakken play, the company's own resource estimate for the play has tripled.

"And that largely is the result of improving our completion technology and better understanding of things like the Three Forks," Roberts told Petroleum News Bakken. "It does not surprise me that as other people are testing various zones ... they are continuing to see more and more growth. But the key thing is that we're getting better at the actual recovery part of it."

Core samples dispersed

Core samples that provided Continental with the necessary data to raise its in-place oil estimate are from wells widely dispersed within the Bakken system, in an area measuring about 120 miles by 60 miles, Stark said, emphasizing that "there is variability in the way these zones look."

"It isn't like, guess what, it's identical everywhere," he added. "It varies, but we're seeing good continuity in the first and second benches. The third bench is equally widespread but a little more variable in its character as far as dolomite is concerned. And the forth bench is more localized than any of the benches in its development."

Many operators currently produce oil from both the Middle Bakken and first bench of Three Forks. But Continental and ConocoPhillips are said to be the only companies so far to have drilled producers into the second bench. These wells, located 20 miles apart, have been deemed commercial.

"There are a couple of other operators that have indicated they are going to test the second bench," Stark said.

Continental is now planning to place a well bore in the third bench of the Three Forks, with the objective of establishing commercial production, Stark said. He did not disclose any plans for the fourth bench.

"We have a unit that doesn't exist out there today that is producing from four different members of the Bakken petroleum system," Stark said. "And if they all are producing at commercial rates, that's very significant."

Reserve estimates vary

Reserve estimates for the Bakken formation have varied widely dating back to the 1950s. In April 2008, the U.S. Geological Survey estimated the amount of oil that could be recovered using current technology at 3-to 4.3 billion barrels, with a mean of 3.65 billion.

The state of North Dakota also released a report in April 2008 estimating there were 2.1 billion barrels of technically recoverable oil in the Bakken. Various other estimates,

> *Core samples that provided Continental with the necessary data to raise its in-place oil estimate are from wells widely dispersed within the Bakken system, in an area measuring about 120 miles by 60 miles, Stark said, emphasizing that "there is variability in the way these zones look."*

including Continental's, pushed recoverable and non-recoverable with today's technology even higher. A separate estimate placed the recoverable figure at 18 billion barrels.

Earlier studies, including the 2008 USGS report, did not include estimates from the Three Forks formation and its various zones. However, the USGS is expected to release an updated report next year that includes Three Forks, which many believe will at a minimum double the agency's earlier recoverable estimates.

"That was one of the reasons, I believe, that they (USGS) wanted to go ahead and do a reassessment, because the Three Forks brought on a whole other reservoir that needed to be considered," Stark said.

On a related subject, Stark said that because acreage for lease is becoming scarce in the Bakken, "there's a stage of consolidation going on right now. And Continental surely will participate in that. We will continue to basically acquire properties that look attractive to us, if they come at a reasonable price."

$1.6 billion in revenues

Based in Oklahoma City, Continental also has a leading presence in the Anadarko Woodford Play of Oklahoma and the Red River units play of North Dakota, South Dakota and Montana. The company reported total revenues of $1.6 billion for 2011 and is on track to triple production and proved reserves from 2009 to 2014. At Dec. 31, the company had 508 million boe in total proved reserves, 39 percent more than a year earlier. Continental currently has 24 operated drilling rigs in the Bakken.

Continental was the first company to complete a paired middle Bakken and Three Forks well (2010), a 24-hour continuous frac (2009), a horizontal well in the Three Forks zone (2008), and a 1,280 long multi-stage frac (2007).

Continental also completed the first commercially successful well in the North Dakota Bakken to be both horizontally drilled and fracture stimulated.

Crude oil and natural gas sales were $552.3 million for the first quarter of 2012, compared with $326.5 million for the same period of 2011. ●

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INSIDER

bpd from the Bakken and 30,000 bpd from the North Slope.

Starting in September, and according to the most recent company information, Tesoro will start shipping 30,000 bpd of the lower cost, higher grade Bakken oil via its "pipeline on rails" to Anacortes, replacing the heavier and more expensive North Slope oil the refinery now receives via tanker.

However, Tesoro President and CEO Greg Goff reminded investors May 3 that the physical design of the Washington rail facility is "designed to take, it could physically take, a unit train every day which would be 60,000 barrels a day. We are currently permitted for less than that, but we are working through the process to hopefully increase the capability to maximize the use of the facility."

The assumption is the additional oil will be used at Anacortes to replace higher-priced crude from foreign sources, but a Petroleum News contact at Tesoro headquarters says there is some discussion about taking the oil, via tanker, to the company's Kenai refinery at Nikiski on Southcentral Alaska's Kenai Peninsula, where it would replace North Slope crude currently being used at that facility. And where a local oil producer recently claimed that crude under its new contract with Tesoro is going to be sold at $14 per barrel more than in the past because the previous contract was tied to WTI, not the price of North Slope oil on the West Coast.

A little history

The Kenai refinery, 70 miles southwest of Anchorage, started operating in 1969. It was designed for lighter Cook Inlet oil, a commodity that has been in decline for several years, forcing Tesoro to use both imported foreign oil and the heavier North Slope crude.

For example, in 2011 the refinery's crude throughput was 55,000 bpd, but only some 11,000 bpd of that came from the Cook Inlet basin. (The refinery has the capacity to process 72,000 bpd of crude, but some operations use other feedstocks.)

Tesoro buys all local oil production. March output of 10,072 bpd is a far cry from the 227,000 bpd that Cook Inlet produced at its peak in 1970.

Only three fields in the basin have production exceeding 1,000 bpd: Granite Point at 1,947; McArthur River at 3,957; and Middle Ground Shoal at 2,345.

Besides price, downsides of ANS oil

Tesoro said in July 2011 that Bakken crude oil at the Anacortes refinery yielded approximately 16 percent more clean product and less fuel oil than ANS crude, and that during the second quarter of 2011, the price difference between those products averaged approximately $28 per barrel.

Although the price differential decreased in the second quarter of this year, Goff confirmed May 3 that, "as a rule of thumb … Bakken barrels substituted for ANS … will improve the gas and diesel by approximately 16 percent. … We basically reduced the fuel oil production by 16 percent and produced gasoline and diesel."

At the Kenai refinery about the same percentage of ANS crude can't be processed because it is too heavy, so it is shipped south via tanker for handling elsewhere, an expense that would help cut the cost of shipping Bakken crude from the West Coast to Alaska.

Goff looking to lower feedstocks

Goff told investors that high-return capital projects such as Anacortes reduce the company's feedstock costs and improve its yields, enhance the competitive position of Tesoro's assets and drive significant earnings and cash flow growth.

He said Tesoro is "absolutely focused on capturing projects like the … Anacortes crude supply project; projects that help to dramatically improve our crude oil supply costs."

A resurgence of exploration in the Cook Inlet basin by Hilcorp, Apache, Furie and Buccaneer reportedly has local Tesoro refinery officials hopeful that more local oil production is in the cards.

But contract negotiations could be trickier if Tesoro plays its Bakken card.

—KAY CASHMAN

Contact Kay Cashman at publisher@petroleumnews.com

Tesoro update on Bakken, Kenai

NEWS FLASH

On May 29, Tesoro spokeswoman Tina Barbee provided Petroleum News with an update to the information released at Tesoro's May 3 earnings conference call, and relayed in the adjacent article.

Barbee said "under the existing permit" Tesoro has authorization to bring as much as 50,000 barrels a day of Bakken crude into its soon-to-be-operational Anacortes, Wash., rail facility, which will capable of handling 60,000 bpd.

"At this time, we have not sought permitting for additional capacity," Barbee said, but once completed, "we intend to maximize the use of our facility."

At least 30,000 bpd of the Bakken oil will be used at Tesoro's Anacortes refinery, replacing the same amount of Alaska North Slope crude currently being used as feedstock. North Slope oil is heavier and more expensive than the lighter, sweeter Bakken oil.

As far as shipping Bakken oil from Anacortes to the company's Kenai refinery in Southcentral Alaska, Barbee said, "We have not communicated any plans to send Bakken crude oil to any of our other locations; however we are always evaluating opportunities that will allow us to deliver on our core business strategy of commercial excellence."

When asked to confirm that Tesoro was optimistic about the chances of Apache, Hilcorp, Furie and Buccaneer finding more oil reserves in South-central Alaska's Cook Inlet basin, Barbee said, "We remain optimistic additional reserves will be available in the region, but (we) are diversified in our crude slate at our Kenai refinery in order to maximize opportunity and minimize impact of declining North Slope production," likely referring to the combination of foreign, North Slope and Cook Inlet crude currently being refined at the facility.

—KAY CASHMAN

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LABOR STRIKE

plays in North Dakota and Saskatchewan — and refined petroleum products.

Raitt acknowledged she was under pressure from the mining, energy, manufacturing and agriculture industries to intervene.

Nathan Cullen, leader of the opposition New Democratic Party in parliament, said the Conservative government of Prime Minister Stephen Harper is resolved to weaken the role of labor unions.

Rodger Cuzner, the Liberal party's human resources spokesman, said the Harper administration has "established a dangerous trend of intervening in the affairs of private companies when it suits their ideological position, shifting the balance of power and disrupting otherwise productive negotiations."

Within 12 hours of strike action, Raitt said the government wanted a negotiated settlement, but the striking Teamsters and Canadian Pacific must be "aware of the fact that we will step in on the basis of the national economy and the greater public interest at some point."

Rail still marginal

Overall, however, the Canadian Association of Petroleum Producers said rail shipment, although a growing business, carries only a few thousand barrels per day of the 3 million bpd of crude produced in Canada.

CAPP spokesman Travis Davies said producers affected by the strike would likely use trucks during the disruption.

"So the industry won't be impacted in any meaningful way in terms of product transport," he said.

Crescent Point Energy, which uses Canadian Pacific for all of the 8,000 bpd of Bakken light crude it ships by rail from Saskatchewan, started preliminary discussions from the outset of strike action with midstream firms on alternative transportation means, said Trent Stangl, vice president of marketing and investor relations.

Randy Ollenberger, a research analyst with BMO Capital Markets, told a conference call he expects Western Canadian producers to rely on rail for at least another five years.

He said some of the Bakken crude could be moved by truck to rail terminals not owned by Canadian Pacific, or directly on to the Enbridge pipeline that runs through Saskatchewan.

Stangl said his company viewed the rail option as "more competitive" than pipeline transportation, estimating that rail costs are within about C$2 per barrel on either side of pipeline tolls, largely because of the costs of building new pipelines.

Calgary-based Cenovus Energy, which operates in the oil sands and the Bakken region, said it would divert the 2,000 bpd it currently ships by rail until the strike was resolved, said spokeswoman Jessica Wilkinson.

"We are confident that we will secure the pipeline space," she said.

Baytex Energy relies on Canadian Pacific and its rival Canadian National Railway to carry unspecified volumes of crude to the Texas Gulf Coast and Eastern Canada, with Canadian Pacific moving about 10 percent of the company's production from Lloydminster, Saskatchewan, and Peace River, in northwestern Alberta.

Brian Ector, vice president of investor relations at Baytex, said a protracted strike would force his company to consider using trucks and pipelines to prevent a backlog.

Baytex Chairman Raymond Chan said earlier in May that Baytex aimed to move 40 percent of its total production, which averaged 53,433 barrels of oil equivalent per day (86 percent oil and natural gas liquids) in the first quarter, by rail by the end of 2012.

But he said the company views rail as only an interim solution and hopes the shortage of pipelines will be overcome by 2014 and 2015.

Randy Ollenberger, a research analyst with BMO Capital Markets, told a conference call he expects Western Canadian producers to rely on rail for at least another five years.

He said the crude price spikes that result from the "lumpiness" of pipeline expansions "give rise to the opportunity for producers to rely on rail."

Demand could increase

Canadian Pacific has set its sights on advancing the use of rail from 500 carloads, or about 325,000 barrels, in 2009 to 70,000 carloads, or 45.5 million barrels, in 2014.

It expects to start shipping crude this summer from a new 35,000 bpd terminal being constructed by Texas-based U.S. Development Group, at Van Hook, N.D., and is upgrading its North Dakota network.

Tracy Robinson, Canadian Pacific's energy and marketing vice president, told reporters in April that crude oil business has "grown much faster than we ever expected," especially in the Bakken where there was "suddenly a lot of oil that had no mode of transportation to the market place."

She said Canadian Pacific is developing multiple-origin loading points in North Dakota and destination options in Eastern Canada, the U.S. Northeast, Gulf Coast and U.S. Midwest, while considering a test shipment to the U.S. West Coast.

Robinson said Canadian Pacific has discovered it can serve markets that pipelines

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ALBERTA BAKKEN

PetroChina.

The company still holds 100 percent of the Hangingstone, Dover West and Birch assets, 50 percent of the Grosmont lease and 40 percent of Dover and is seeking other joint venture partners.

However, Svarte conceded that tight oil does not attract anywhere close to the controversy that accompanies the oil sands.

"Oil sands worldwide is a big mining crater on TV," he told the Financial Post. "And we're not doing that. Our footprint (applying steam-assisted gravity drainage technology) is in line with conventional oil and gas. We drill wells."

Other big spenders in Alberta's tight oil — Talisman Energy, Encana and Devon Energy — are offering a less bullish assessment of the plays.

John Manzoni, chief executive officer of Talisman, said it is too early to forecast whether his company's operations in the Duvernay will match the current hype.

He said "we know the oil is there … the question is how to you get it out. We hear a lot of predictions. But they don't add up to much yet." ●

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OXY RIG COUNT

"If you look at the United States … the oil is in California, the oil is in the Permian and the oil is in the Bakken," he said, adding later, "It's the Willie Sutton discussion. … We're there because that's where the oil is. … We're a domestic oil producer fundamentally."

The problem in the Bakken is finding workers in a sparsely populated boomtown. The current pace of drilling activity has "basically overwhelmed the small place," he said.

Given that Occidental's service costs have been "essentially flat" in both Texas and California, Chazen said it doesn't make sense for the company to rush to develop the Bakken until costs come down. "It might be effective for somebody else to compete for capital, but it's not effective for us to compete for capital. That's why I'm slowing it down, because that money is much better used in either California or West Texas."

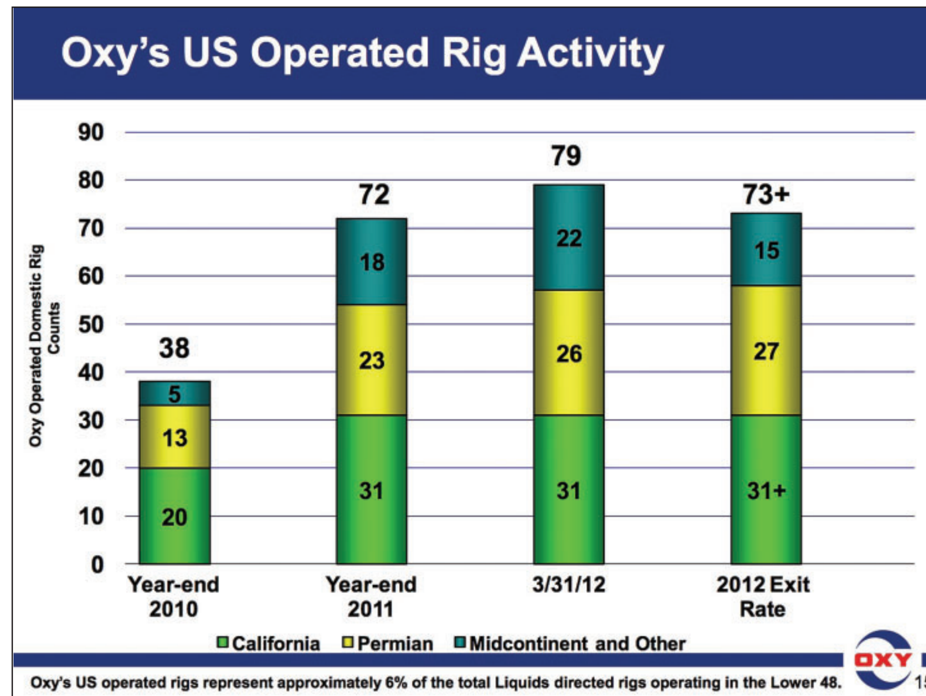
Once bullish on Bakken

As one of the five largest U.S. oil companies, Occidental made headlines in late 2010 when it sold its Argentinean oil interests to a subsidiary of China Petrochemical Corp. and spent $3.2 billion on unconventional acreage in North Dakota and South Texas.

In 2011, Occidental increased its holdings in the Williston basin to 277,000 acres.

At the time, the company said it expected to grow Williston basin production to at least 30,000 barrels of oil equivalent per day (from 6,000 boe per day) within five years.

With some predicting that service costs in the Williston basin are on the brink of falling, a recent Reuters article questioned whether Occidental — one of the first major U.S. oil companies to invest heavily in shale oil — had suddenly "lost its clairvoyance," but the decision to scale back its presence in the play appears to have more to do with the other opportunities in Occidental's portfolio than with the standalone merits of the Bakken.



OCCIDENTAL PETROLEUM CORP.

The decision to pull back in the Bakken is also not unexpected. Earlier this year, Occidental said it expected to run six rigs in the Williston basin through the rest of 2012, but also planned to shift capital from its Midcontinent plays to California and Texas.

In a recent investor presentation, Occidental said it wanted to achieve at least a 15 percent return from its domestic plays and at least a 20 percent return from its international properties. For its production in the first quarter of this year, Occidental reported a 16 percent average return on equity and a 14 percent average return on capital employed.

The decision to pull back in the Bakken is also not unexpected. Earlier this year, Occidental said it expected to run six rigs in the Williston basin through the rest of 2012, but also planned to shift capital from its Midcontinent plays to California and Texas.

"This may also encourage well costs to decline," Chazen said in January.

At the time, he said Bakken well costs had been holding steady between $8 million and $8.5 million. While far below some players in the region, that range is much higher than other regions. In the Permian, the company is spending between $2 million to $2.5 million per well in the Wolfberry play and between $6 million to $7 million per well in the Bone Springs play. In California, its unconventional wells cost around $3.5 million.

Occidental spent 38 percent of its $7.5 billion capital budget in the two plays last year and plans to spend 40 percent of its $8.3 billion budget in the two plays this year. The company plans to run at least 73 rigs in the United States through the remainder of the year, including at least 26 rigs in the Permian basin and at least 31 rigs in California.

California and Permian

Although Occidental came on strong in the Bakken, it has not yet established as strong a position in the play as it currently holds in California and in the Permian basin.

On its home turf in California, Occidental holds about 1.7 million acres of conventional and unconventional acreage. It drilled 675 wells and performed 500 well workovers last year and plans to bring two gas processing plants online in the next two years.

Its 78 percent working interest in the Elk Hills field near Bakersfield helped make Occidental the leading gas producer in California, but with production down 14 percent to 54,000 barrels of oil equivalent, the company is shifting to unconventional liquids.

That activity is reporting a 30 percent increase year over year to 91,000 boe per day.

Its unconventional program in the state calls for some 140 wells in the first half of the year and initial 30-day production rates have been between 300 and 400 boe per day.

In the Permian, Occidental holds some 3 million net acres. It drilled 409 wells on its operated properties in the basin in 2011 and plans to add three rigs this year. To accommodate increased activity planned for the Wolfberry, Bone Springs and Avalon plays, Occidental plans to increase its Permian budget by 75 percent over 2011 levels.

Of the 204,000 boe per day Occidental produced in the Permian during the first quarter of 2012, approximately 64 percent came from CO_2-related enhanced oil recovery projects.

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