



page 3 WY Supreme Court rules fracturing disclosures can be made public

## A classic nodding donkey



A Lufkin conventional crank balanced pumping unit, a "work horse" of the oil patch, extracting Bakken crude oil in McKenzie County, N.D.

## Emerald evaluating Three Forks as development moves south

Bakken-focused Emerald Oil is adding a third drill rig to its fleet as its western McKenzie County middle Bakken wells continue to exceed type curves and its Three Forks wells show encouraging results. Now the Denver-based independent is planning to move that third rig south and begin developing its Pronghorn sand acreage in west-central Stark County this summer.

Since turning its attention from non-operated to operated production in 2013, Emerald added approximately 67,700 net Williston Basin acres in 2013 bringing its total acreage in the basin to 84,617 acres of which 63,237 are company-operated. The company estimates 320 potential operated drilling locations and an ultimate recovery of 550,000 barrels of oil equivalent per well.

Since March 2013, Emerald drilled 17 operated wells in its core Low Rider area, which includes the Boxcar Butte,

see **EMERALD MOVES** page 19

## Lightstream looks for EOR boost in SE Saskatchewan Bakken

After a year of "wins and losses" and a decisive cleaning up of its balance sheet, along with the adoption of a new name to better reflect the scope of its operations, Calgary-based Lightstream Resources is eager to resume its greater goal of maximizing the value of its resource and conventional assets, said Chief Executive Officer John Wright.

That push will include 45 net wells this year for a capital outlay of C\$75 million in the company's Bakken and conventional prospects of southeastern Saskatchewan — part of Lightstream's total capital program for 2014 of C\$550 million for 91 net wells.

The Bakken unit yielded an average 17,095 barrels of oil equivalent per day (94 percent oil and liquids) last year, plus 5,319 boe per day (96 percent oil and liquids) from the region's conventional holdings.

Lightstream listed its capital spending in 2013 at C\$242 mil-

see **EOR BOOST** page 20



JOHN WRIGHT

## PRODUCTION & RECOVERY

# Tepid recovery

ND recoups a mere 13 percent of December's record oil production drop

By **MIKE ELLERD**

Petroleum News Bakken

After experiencing the largest production decrease in its history in December, North Dakota saw only a weak production rebound in January gaining back just 13 percent of December's record-breaking production drop.

Revised production data provided by the North Dakota Department of Mineral Resources, DMR, indicate that oil output in December averaged 926,687 barrels per day, a decline of 50,922 bpd from November. Preliminary data for January indicate output was 933,128 bpd, an



LYNN HELMS

increase of 6,441 bpd or just 13 percent of the 50,922 bpd lost in December.

There have been only two other production declines in North Dakota over the last 24 months, in November 2012 and January 2013. However, in those two cases, production increased substantially in the following month. Specifically, production in December 2012 recovered 246 percent of the November decline, and in February 2013, 142 percent of the previous month's production drop was recovered (see chart), unlike the anemic recovery of January 2014.

see **TEPID RECOVERY** page 20

## DRILLING & COMPLETION

# Filling drilling gaps

Whiting leads in ND apps seeking overlapping 2,560-acre spacing units

By **MIKE ELLERD**

Petroleum News Bakken

Nine Bakken operators filed applications that the North Dakota Industrial Commission will consider in hearings on March 26 and 27 seeking creation of 67 overlapping 2,560-acre spacing units and one overlapping 3,480-acre unit along with seven new 1,280-acre units, all Bakken pool units.

Leading in those applications is Whiting Oil and Gas Corp., which is applying for 27 separate overlapping 2,560s, nearly half of the total requested of the commission. Whiting wants to drill one or more horizontal wells on or near the common spacing unit boundaries in each of the new overlapping units. The 27 spacing units are in

the Bell, Zenith, Fryberg and Park fields, all adjacent fields in east-central Billings and northwest Stark counties.

Oasis Petroleum wants 15 overlapping 2,560s created in Mountrail and Williams counties in order to drill one or more horizontal wells. Seven of the 2,560s are in the Cottonwood and/or adjacent Kittleson Sough fields in north-central Mountrail County, three are in the Alkali Creek field in west-central Mountrail County, two are in the Missouri Ridge field in southwest Williams County, two are in the Sanish field in north-central Mountrail County and one is in the Camp field in north-central McKenzie County.

ExxonMobil subsidiary XTO Energy is apply-

see **DRILLING GAPS** page 18

## NATURAL GAS

# Gas capture critical

Government tries new angles to reduce flaring, even at the expense of production

By **MAXINE HERR**

For Petroleum News Bakken

The percentage of natural gas flared in North Dakota stayed at the record high of 36 percent in January, mirroring data from December. The percentage remained unchanged due in large part to the temporary shutdown late last year for expansion of the Tioga gas plant which intends to restart operations at the end of March.

"Due to the unusually harsh winter weather, we're slightly behind our initial plans, but we expect to start selling residue gas this month," Hess spokesman John Roper said.

## NDIC sets hearing date for new flaring rules

A hearing to discuss production curtailment to reduce flaring will take place on April 22 in Bismarck.

The meeting will consider amending the current field rules to restrict oil production and impose provisions in order to reduce the amount of flared gas.

North Dakota Department of Mineral Resources Director Lynn Helms expects the

see **HEARING DATE** page 19

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Petroleum News Bakken

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LEGAL COLUMN

# Wyoming frack disclosure suit reversed

State supreme court rules on trade secret exemption for disclosure of fracturing ingredients; ND frack disclosure less stringent

By **JANNELLE STEGER COMBS**

For *Petroleum News Bakken*

The Wyoming Supreme Court issued a ruling in March that hydraulic fracturing disclosures to its state regulatory board could be provided to the public, unless the regulatory board can show to a district court that the fracking formula data are a trade secret under federal law.

In 2011, the North Dakota Industrial Commission followed the lead of Wyoming and proposed rules regarding the disclosure of information related to hydraulic fracturing. In the hearing for those rules, Wyoming was mentioned as a state that already had adopted disclosure regulations, but testimony on behalf of industry requested a more limited disclosure than what Wyoming uses.

In 2012, North Dakota adopted the following language in its regulation, "Within sixty days after the hydraulic fracture stimulation is performed, the owner, operator, or service company, shall post on the fracfocus chemical disclosure registry all elements made viewable by the fracfocus website." FracFocus is maintained by the Groundwater Protection Council and the Interstate Oil & Gas Compact Commission, the latter of which both North Dakota and Wyoming are members.

In the Powder River Basin Resource Council v. Wyoming Oil and Gas

Conservation Commission case, the Wyoming Supreme Court recently ruled on the denial of a public information request of the contents of Wyoming hydraulic fracturing fluid. Powder River Basin Resource Council, Wyoming Outdoor Council, Earthworks and Center for Effective Government (collectively, "Powder River") requested the records on several wells, which request was denied by the supervisor at the Wyoming Oil and Gas Conservation Commission. Instead of going to the district court for an order to show cause to require the supervisor to justify his decision under the public records act, Powder River sought review under the administrative procedure act. The burden of proof is much less stringent in the administrative act. The district court had only to find the supervisor's decision as reasonable and legally correct.

The Wyoming Supreme Court found the process used by Powder River was

incorrect and that they should have used the process under the public records act. For purposes of judicial economy, the high court did consider the question of how to define trade secrets under the public records act exception. Many appellate courts will not issue such advisory type rulings. In fact, this court refused to determine if the records are also confidential commercial information because that would have been an advisory opinion.

### Wyoming's rule

In 2010, Wyoming became the first state to issue rules and regulations requiring companies engaged in fracking to disclose the identity of the chemicals used. In Wyoming, the company fracking must provide the type of chemical (the ingredient's purpose), chemical compound name, CAS number (a unique number assigned to every chemical) and the concentration of each chemical. Each chemical can then be

identified by referencing its CAS number with the Chemical Abstracts Service website. The Wyoming rule further stated that confidentiality protection can be provided consistent with the Wyoming Public Records Act for "trade secrets, privileged information and confidential data."

The Supreme Court analyzed different ways to define trade secrets. It adopted the definition under the federal Freedom of Information Act. It provides that a trade secret "is a secret, commercially valuable plan, formula, process, or device that is used for the making, preparing, compounding, or processing of trade commodities and that can be said to be the end product of either innovation or substantial effort."

The definition used for FracFocus trade secrets (and for North Dakota) is under the federal Occupational Safety and Health

see **LEGAL COLUMN** page 6



**JANNELLE STEGER COMBS**



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• MOVING HYDROCARBONS

# Pursuing new rail possibilities

Proposed rail terminal in Golden Valley County would offer a new crude oil export option to operators in southwestern North Dakota

By MAXINE HERR

For Petroleum News Bakken

A glut of oil production carries little value if it can't get to a profitable market. A proposed railport near Beach, N.D., in Golden Valley County would give nearby producers more economical access to coveted markets.

Jack Andrews, managing director of the proposed Beach Railport, told Petroleum News Bakken that the project is important because drilling activity in the area won't happen unless the takeaway capacity and infrastructure is available. He said the railport's location offers a lower transport cost for producers.

A majority of the state's rail terminals are along the northern lines of BNSF Railway and Canadian Pacific. The railroads haul more than 70 percent of the crude oil out of the Williston Basin, and the demand for rail transport rises even more as operators pursue increased density drilling and other plays beyond the Bakken, creeping closer to producing a million barrels of oil per day, bpd.

"Once those producers have those multi-well pads and infill going, they're going to look at other possibilities," Andrews said. "And anything that lowers their costs and gives them flexibility to go to the strongest market at the time, that's what they're going to do."

## Railport would have minimal competition

Andrews said the Beach location offers

a unique advantage by being the only rail terminal on the west side of Theodore Roosevelt National Park, offering an option for Montana production, future activity in the Cedar Creek Anticline, and other potential plays still to be explored.

"It's pretty impressive to watch this next phase start. I just think it is almost self-filling," Andrews said. "I see a very, very strong pattern evolving here that will help us and we're not going to have a lot of competition."

Beach Railport will be served by BNSF, and designed to bring truck traffic from the Carlyle, Mont., exit on the west side of the railport acreage. The facility would initially bring in oil-related materials such as frack sand and pipe, and eventually load and ship out unit trains of crude oil. Construction would occur in stages, with earliest operations slated for the fall of 2015. Andrews' goal is to have a crude pipeline gathering system and connector pipe into the Beach railport within three years, with hopes of transporting 20,000 bpd. He has his eye on production in southern McKenzie and Golden Valley counties, N.D., and Billings counties, and in Montana.

"There's quite a bit of oil sitting there, that honestly, it's difficult to logistically justify spending a lot of money to drill all that infill unless you have a way to take it out," Andrews said. "We think by the time that happens, it may be we do a gathering system with a pipeline connecting to each railport in south McKenzie (County) over into Billings (County) and down to Beach."

## Seeking community support

On March 17, Beach's planning and zoning commission voted 4 to 1 to re-zone the proposed railport's 275 acres west of Beach from agricultural to industrial. It now goes to the city council for a final vote on April 7.

Andrews is no stranger to Beach, as he has an additional 240 acres of industrial and mixed use acreage on the west side of town which includes a hotel and health clinic.

But at a Feb. 24 public hearing, community members voiced their concerns about the railport's safety, saying highly volatile Bakken crude would be dangerous to have near town. Others favored the project based on its potential to create more jobs and help the community thrive.

"We wouldn't do this facility unless it had access to bring those trucks away from town, and that's why we went west of the facility and used the Carlyle exit to keep it away from downtown as much as possible," Andrews said. "Those folks are wise and capable of making the right decision. Beach has been a wallflower ... but no more."

"They want a future. It's really a microcosm of North Dakota when you look at it. We want progress and we want it to be done correctly, but we want to move things forward."

## Location, location, location

BNSF officials told Andrews that his Beach project would "dominate southwest North Dakota crude takeaway west of the (Theodore Roosevelt) park."

"The geography, what was once not an advantage, actually turns out to be an advantage because west of the park, Beach is it," Andrews said. "So we're sitting in a pretty good position now. It would not have been very plausible two years ago."

According to Andrews, existing production is well within range to truck the oil to

the railport.

"There's production now in North Dakota that is within that 50-mile radius," Andrews said. "Some is going to a pipeline, but some is being trucked 100 miles to get it to market. That makes no sense economically," Andrews said.

## Oil redefines the railroad business

Rail cars first moved oil out of the state in 2008, carrying fewer than 10,000 bpd. In four years, it jumped to 500,000 bpd, and in recent months it has hovered around 800,000 bpd, according to data from the N.D. Pipeline Authority. Operators rely on approximately 20 rail facilities in western N.D., most along BNSF's northern line through Mountrail, Williams, and McKenzie counties, to get the crude to the coasts. One train can carry nearly 85,000 barrels of oil, according to the Association of American Railroads. BNSF ships more than 600,000 bpd out of the Bakken, a large shift in business considering it had never hauled a single barrel of oil as recently as 2009.

"This far surpassed anyone's initial expectations," said John Miller, BNSF vice president of Industrial Products Sales. "It really has grown so fast and our goal is to match the need of the marketplace, get in front of it and help this thing continue to grow."

The key to rail is that it offers flexibility, Andrews said, and if West Coast refineries make the investment to process light crude, then most of the oil will be West Coast bound.

"It's a pretty exciting time," he said. "A lot of people have (wells) in the area, but why would you spend the dollars to drill if there wasn't a way to get the oil out right away? It's the classic chicken and the egg." ●

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## NATURAL GAS

### ND flaring requests on the downswing

As regulators get tougher on flaring and the industry makes greater efforts to capture natural gas, applications to allow flaring in the Williston Basin are currently on the decline.

Just five operators submitted flaring applications for the North Dakota Industrial Commission to consider during hearings on March 26-27 seeking authorization to flare natural gas beyond the allowed one-year period for wells in 14 fields. In January, 12 operators applied for flaring exemptions in 22 fields, and in February, there were only seven operators with applications for seven fields.

Hunt Oil has the bulk of applications with seven short-term requests to flare gas until the wells can be connected to a gas gathering facility. The company requests amending field rules for the Bear Butte and Red Wing Creek fields in McKenzie County, the Green Lake and Zahl fields in Williams County, and Musta, Sioux Trail, and Smoky Butte fields in Divide County.

XTO Energy and Hess Corp. also applied for flaring allowances until gathering facilities are available. XTO requests the right to flare in the Buttes, Bear Den and Tobacco Garden fields in McKenzie County. The application from Hess is for wells in Antelope Creek field in McKenzie County.

The short-term flaring applications are for an unspecified period of time as operators attempt to get the wells connected to gathering systems. Often in these cases, the value of the oil far exceeds the value of any gas flared and additional unrestricted oil production is necessary to justify the development which will, in turn, justify the construction of the necessary gas gathering facilities.

### Two operators seek long-term flaring exemptions

Continental submitted an application for both short- and long-term flaring exemptions. Continental wants the commission to allow flaring for its wells in the Todd field of McKenzie County, and also requests authorization to flare gas from two wells in the

see **FLARING REQUESTS** page 5

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● COMPANY UPDATE

# Fidelity putting well downspacing on hold

MDU Resources subsidiary continues middle Bakken development, but will 'wait and see' before moving ahead with density increases

By RAY TYSON

For Petroleum News Bakken

MDU Resources has no immediate plans to further down space production wells on the Middle Bakken, even as it begins to run out of drilling inventory in its slice of the play in Mountrail County, N.D.

"The Middle Bakken has been the play here over time," acknowledged J. Kent Wells, chief executive officer of Fidelity Exploration and Production, MDU's E&P arm, at the March 18 MDU Resources Annual Analyst Seminar in New York.

"We're continuing to develop the Middle Bakken; but, in our acreage, we're getting toward the end of our Middle Bakken drilling, unless we go to additional down spacing."

Rather, with only a few years of Middle Bakken inventory remaining, the company has taken a "wait-and-see" approach to down spacing, or closing the distance between wells with additional wells to sustain or increase production.

Wells also acknowledged that other Williston Basin producers, looking to squeeze more oil out of their acreage, have become more aggressive than MDU at down spacing, a fairly recent — but generally successful — recovery method for the Bakken petroleum system.

"Our approach is let's wait and see if that bears out," Wells said. "And if it does then that opportunity is still there. Yes, it would have taken us a little longer to

exploit, but we think that's wiser than getting out and drilling more wells than we really needed."

## Increased production

Fidelity achieved an impressive 36 percent annual increase in production in 2012 followed by a 30 percent increase in 2013, with nearly 60 percent of the company's 4.8 million net barrels last year coming from the Bakken petroleum system. And a significant portion of that comes from the Middle Bakken formation.

However, Fidelity's production came under pressure this winter from North Dakota's harsh weather, as well as from significant rig cutbacks mid-2013, as the company focused on new completion techniques for the Bakken and other areas.

The company is currently running one rig in Mountrail County, where the development area consists of 16,000 net acres, and one rig in Stark County, where the company holds 51,000 net acres.

Consequently, flat Bakken production, currently just under 8,000 barrels of oil equivalent per day, was expected to carry over into this year's first quarter, the company indicated.

## Still 'a fair amount to do'

Wells told an analyst during the question and answer session that he didn't want to create a "panic" over the down-spacing issue in the Middle Bakken.

see **DOWNSPACING** page 18

continued from page 4

## FLARING REQUESTS

New Home field of northern Williams County. Continental requests that Southard 1-4H and Lindsay 1-35H wells be exempted from North Dakota Century Code that requires a well to be connected to a gathering system, capped, or equipped with some type of approved wellhead consumption or value-added processing system within one year. The commission may grant the exemption if Continental can demonstrate to the satisfaction of the commission that

connecting a well to a gas gathering system is economically infeasible or that no market for the gas is available and connecting to an electrical generator or implementing a processing system is economically infeasible.

Thunderbird Resources also has applications on file for the commission to authorize gas flaring from two wells, the Wock 21-2-1H and Frank 31-4-1H, in the Hradec field of Stark County as part of the Century Code provisions.

—MAXINE HERR

Contact Maxine Herr at maxine606@msn.com

## COMPANY UPDATE

### Vermilion Energy enters Bakken

Vermilion Energy, a Calgary-based intermediate producer with a global reach, has achieved its long-sought goal of establishing a new core area in the Williston Basin by acquiring a privately owned Bakken player for C\$345 million.

The deal with the unnamed seller involves total considerations of C\$400 million, including C\$172.5 million in cash, C\$172.5 million of Vermilion stock, and assumed debt of C\$55 million for 57,500 net acres and other infrastructure in southeastern Saskatchewan, which is forecast to produce 3,740 barrels of oil equivalent per day (97 percent oil) this year.

The assets are located near the Northgate region and hold about 175 potential drilling sites targeting the Midale Frobisher, Bakken and Three Forks/Torquay formations.

Proved reserves attributed to the properties are 10.3 million boe, while proved plus probable reserves are estimated at 16.5 million boe (81 percent crude and liquids).

The purchase price equates to C\$24.20 per boe of proved plus probable reserves and C\$106,700 per flowing barrel of production.

Chief Executive Officer Lorenzo Donadeo said Vermilion has been evaluating producing entry opportunities in the Williston Basin for some time and recently leased almost 15,000 acres of undeveloped land in southwestern Manitoba. The acquired properties are just 50 miles away.

Cristina Lopez, an analyst with Macquarie Securities, said Vermilion's move into the Williston will enable it to take advantage of "light sweet crude, high netbacks, and reasonably good takeaway capacity with pipeline access" at a time when acquisitions in the basin have started to heat up over the past 12 to 18 months.

Created 20 years ago, Vermilion has been turning its attention lately to amassing exploration prospects in Western Canadian resource plays, targeting those put on the auction block by senior producers or — in this case — scooping up a smaller peer.

Donadeo has observed that there is an array of prospects in Vermilion's home turf and not that much competition from well-capitalized bidders.

The company posted production of 40,000 boe per day in 2013, an increase of 8 percent from 2012, mainly due to its Cardium and Mannville resources, while establishing a foothold in Alberta's sizzling Duvernay liquids-rich gas play.

Of its fourth-quarter output, 17,300 boe per day was produced in Canada, up 3,000 boe per day from a year earlier; 11,100 boe per day in France, 6,300 boe per day in the Netherlands and 6,200 boe per day in Australia.

If the transaction is concluded, Vermilion's 2014 production is expected to range from 47,500 to 48,500 boe per day and its capital spending is forecast to increase by C\$35 million to C\$590 million.

—GARY PARK



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## ● DRILLING &amp; COMPLETION

# NDIC considers more infill drilling apps

Whiting and Hess upping well densities on 42 ND spacing units; Oasis on multiple 1,280s; Mountain Divide on 10 units in Fortuna

By MIKE ELLERD

Petroleum News Bakken

Whiting Oil and Gas is not only leading among Bakken operators in the number of new spacing units the North Dakota Industrial Commission is being asked to establish (see story on page 1), but also leads in the number of existing spacing units where it wants to increase well densities.

Whiting filed applications for the Industrial Commission to consider during hearings on March 26 and 27 asking for the number of allowable Bakken pool wells on 24 separate 1,280-acre spacing units in 11 neighboring fields in central McKenzie County be increased to nine per unit.

Nine of the 24 spacing units are in the Pleasant Hill field, three each are in the Ellsworth and Lonesome fields, two each are in the Arnegard and Bully fields, and one unit is in each of the Juniper, Elk, Nameless, Sioux, Pronghorn and Rawson

fields. Current orders for those fields allow anywhere from four and seven wells per 1,280, depending on the field.

## Hess also upping densities

Not far behind Whiting is Hess Corp., which is asking the commission to increase the allowable number of Bakken wells anywhere from two to 12 on 14 separate 1,280-acre and four separate overlapping 2,560-acre spacing units in McKenzie, Mountrail and Williams counties.

In the Traux field in south-central Williams County, Hess wants to drill up to 10 Bakken pool wells on each of eight 1,280-acre units where current rules allow only six. Hess also wants to drill up to six Bakken pool wells on each of two existing 1,280-acre spacing units in the Rainbow field in north-central Williams County where only one well per unit is currently allowed.

In northeast McKenzie County, Hess

asks the commission to up the number of Bakken pool wells from 10 to 12 on each of four 1,280s, two in the Westberg field, one in the Hawkeye field and one in the Blue Buttes field. Also in northeast McKenzie County, Hess wants to drill up to eight Bakken pool wells on a 2,560 in the Alkali Creek field, up one well from the seven currently allowed.

In western Mountrail County, Hess wants to increase the number of Bakken pool wells from eight to nine on an existing overlapping 2,560-acre unit in the Robinson Lake field. And in the Antelope field in western Mountrail County, current rules allow for only one Sanish pool well on each of two existing 2,560s, and Hess wants to put up to two wells on one of the units and up to three on another.

## Other infill apps

Oasis Petroleum is asking the commission to increase the maximum number of

Bakken pool wells allowed on multiple 1,280-acre spacing units to 18 wells per unit in nine separate spacing zones in the Banks and Siverston fields in McKenzie and Williams counties. Current orders for the Banks field allow from one to 14 wells per unit, and for the Siverston field, one to 10 wells are currently allowed. All of the Siverston field lies in east-central McKenzie County, and most of the Banks field is in north-central McKenzie County but portions extend north under Lake Sakakawea into south-central Williams County.

Mountain Divide wants authorization to drill up to eight Bakken pool wells on each of 10 existing 1,280s in the Fortuna field in northwest Divide County. None of the 10 units is currently spaced at eight wells per unit.

Burlington Resources is asking the commission to increase the number of allowable Bakken pool wells on an existing 2,560 in the Camel Butte field in eastern McKenzie County from 12 to 28. In the neighboring Blue Buttes field, Burlington wants to add a second well on a 2,560 where currently only one is allowed. Farther north but still in McKenzie County, Burlington wants the maximum number of wells increased from seven to 14 Bakken pool wells on a 1,280 in the Sand Creek field.

WPX Energy Williston is seeking authorization to drill up to 28 Bakken pool wells on an existing 2,560 in Squaw Creek field in far eastern McKenzie County. WPX also wants the commission to establish a new overlapping 3,840-acre unit in the neighboring Spotted Horn field on which it wants to drill up to 42 Bakken pool wells (see story on page 1).

In the Lost Bridge field in northwest Dunn County, Marathon Oil wants the maximum number of wells increased from the current limit of seven to 14 on an existing 2,560. In the Reunion Bay field in the peninsula in southwest Mountrail County, Marathon is looking to drill up to 14 Bakken pool wells on two existing 1,280s and on one 1,600.

Petro-Hunt is seeking authorization to drill up to four wells on an overlapping 3,840 in the Charlson field in northeast McKenzie County. Current rules for the field allow a maximum of two wells per spacing unit, and Petro-Hunt is considering drilling shorter laterals and wants the density increased to four wells on the unit. ●

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continued from page 3

## LEGAL COLUMN

Administration Act. That definition is “any confidential formula, pattern, process, device, information or compilation of information that is used in an employer’s business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it.”

The Wyoming Supreme Court did not continue with the question of whether identifying the ingredients is a trade secret. The state argued that disclosure of the individual ingredients can lead to reverse-engineering the formula and the amount of each ingredient used. However, that determination was one that the lower court must make upon testimony. ●

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# Bakken Stats



## Montana well permits and completions

March 8—14, 2014

### ABBREVIATIONS & PARAMETERS

With a few exceptions, the Montana weekly oil activity report includes horizontal well activity in the Bakken petroleum system in the eastern/northeastern part of the state within the Williston Basin. It also includes the Heath play and what is referred to as the South Alberta Bakken fairway in northwestern/west-central Montana, which is at least 175 miles long (north-south) and 50 miles wide (east-west), extending from southern Alberta, where the formation is generally referred to as the Exshaw, southwards through Montana's Glacier, Toole, Pondera, Teton and Lewis & Clark counties. The Southern Alberta Bakken, under evaluation by several oil companies, is not part of the Williston Basin.

Following are the abbreviations used in the report and what they mean.

**BHL:** bottomhole location | **BOPD:** barrels of oil per day | **BWPD:** barrels of water per day  
**IP:** initial production | **MCFPD:** thousand cubic feet per day | **PBHL:** probable bottomhole location  
**PD:** proposed depth | **SHL:** surface hole location | **TD:** total depth

### And public land survey system abbreviations:

**FNL** = from north line | **FEL** = from east line | **FSL** = from south line | **FWL** = from west line

### New locations Horizontal wells

#### Continental Resources

**Cherry 2-17H;** Wildcat; NWNW 17-24N-53W; 325'FNL and 270'FWL; N/A; SWSW 20-24N-53E; 200'FSL and 660'FWL; 19,101'; Bakken; Richland; 3/12/2014

#### Oasis Petroleum North America

**Carson Federal 2658 13-17H;** Wildcat; NWNW 17-26N-58E; 206'FNL and 2,520'FWL; N/A; NENW 5-26N-58E; 200'FNL and 2,100'FWL; 20,771'; Bakken; Richland; 3/12/2014

**Poppy Federal 2658 12-17H;** Wildcat; NENW 17-26N-58E; 206'FNL and 2,520'FWL; N/A; NENW 5-26N-58E; 200'FNL and 2,100'FWL; 20,771'; Bakken; Richland; 3/12/2014

#### Whiting Oil and Gas

**Iversen 34-32-4H;** Wildcat; SWSE 32-26N-58E; 25'FSL and 2,280'FEL; N/A; NENE 29-26N-58E; 240'FNL and 660'FEL; 21,119'; Bakken; Richland; 3/10/2014

**Weber Federal 24-30-2H;** Wildcat; SESW 30-24N-60E; 340'FSL and 1,680'FWL; N/A; NENW 19-24N-60E; 240'FNL and 1,980'FWL; 20,055'; Bakken; Richland;

3/14/2014

**Weber Federal 24-30-3H;** Wildcat; SESW 30-24N-60E; 340'FSL and 1,720'FWL; N/A; NWNW 19-24N-60E; 240'FNL and 1,980'FWL; 20,504'; Bakken; Richland; 3/14/2014

**Weber Federal 24-30-4H;** Wildcat; SESW 30-24N-60E; 340'FSL and 1,770'FWL; N/A; NENE 19-24N-60E; 240'FNL and 660'FEL; 21,606'; Bakken; Richland; 3/12/2014

### Reissued locations

#### Continental Resources

**Anson 1-36H;** Wildcat; SESW 36-23N-55E; 245'FSL and 1,980'FWL; N/A; NENW 36-23N-55E; 200'FNL and 1,980'FWL; 14,613'; Bakken; Richland; 3/11/2014

**David 3-17H;** Wildcat; NENW 17-25N-55E; 220'FNL and 2,385'FWL; N/A; S2S2 20-25N-55E; 200'FSL and 2,640'FWL; 19,828'; Bakken; Richland; 3/11/2014

**Hamilton 1-32H;** Wildcat; SESW 32-23N-54E; 260'FSL and 2,060'FWL; N/A; NENW 29-23N-54E; 200'FNL and 1,980'FWL; 19,605'; Bakken; Richland; 3/3/2014

**Longrass 1-24H;** Wildcat; NWNW 24-25N-51E; 210'FNL and 1,980'FWL; N/A; SWSE 24-25N-51E;

200'FSL and 1,980'FWL; 13,254'; Bakken; Richland; 3/6/2014

**Manush 1-12H;** Wildcat; SESW 12-29N-58E; 255'FSL and 2,025'FWL; N/A; NENW 1-29N-58E; 200'FNL and 1,980'FWL; 20,262'; Bakken; Roosevelt; 3/6/2014

#### Sinclair Oil and Gas

**Chisholm 1-31TFH;** Wildcat; NWNW 3-32N-56E; 250'FNL and 1,130'FWL; N/A; N2NE 30-33N-56E; 200'FNL and 1,320'FEL; 19,982'; Three Forks; Sheridan; 3/13/2014

**Ralston 2-22H;** Wildcat; SESE 22-27N-53E; 250'FSL and 400'FEL; N/A; NENE 15-27N-53E; 210'FNL and 510'FEL; 18,849'; Bakken; Richland; 3/10/2014

#### Mountain View Energy Inc.

**Anderson 11-1H;** SWSE 11-33N-57E; 345'FSL and 2,065'FEL; N/A; NWNW 2-33N-57E; 250'FNL and 1,980'FWL; 18,078'; Bakken; Sheridan; 3/10/2014

—Compiled by Ashley Lindly

Contact Ashley Lindly at  
alindly@petroleumnewsbakken.com

## BAKKEN STATS COMMENTARY

### Hess holds No. 1 in ND, CLR No. 1 in the U.S. Williston basin

Hess Corp. held its position as North Dakota's top Bakken oil producer for a second month in January averaging 80,233 barrels per day for operated, non-confidential wells according to North Dakota Department of Mineral Resources data (page 11). Continental Resources remained in the No. 2 spot in January at 78,363 bpd output.

However, with Montana's Bakken production included, Continental takes the top spot among Bakken producers in the U.S. Williston Basin. Continental's January production in Montana of 16,891 bpd pushes its U.S. Williston Basin output in January to 95,254 bpd.

Even though Hess had no Montana production, its North Dakota Bakken production was enough to place the company as the No. 2 Bakken producer in the U.S. Williston Basin in January.

Rounding out the top five Bakken producers in North Dakota in January are Whiting Oil and Gas at No. 3, EOG Resources at No. 4 and Statoil Oil and Gas at No. 5.

On the Montana side, Oasis was the No. 2 producer in January, XTO Energy was No. 3, Enerplus Resource was No. 4 and Whiting was No. 5.

#### Statoil has top IP well

Statoil's Garmann 19-18 3H well in the Banks field in northeast McKenzie County came in with the top 24-hour IP for the weekly Top 10 North Dakota IP list (page 9) at 3,823 barrels. At a somewhat distant second but filling the Nos. 2, 3 and 4 positions was Burlington Resources with three wells in the Corral Creek field in north-central Dunn County with IPs ranging from 2,766 to 2,926 barrels. Oasis Petroleum filled the No. 5 spot with 24-hour initial production of 2,062 barrels from a well in the Willow Creek field in south-central Williams County.

EOG Resources, QEP Energy, WPX Energy Williston and Whiting Oil and Gas filled the remaining five slots on the Top 10 IP list with IPs ranging from 1,433 to 1,908 barrels with wells in Mountrail, Dunn and Billings counties.

—MIKE ELLERD

*However, with Montana's Bakken production wrapped in, Continental takes the top spot among Bakken producers in the U.S. Williston Basin in January.*



### Bakken producers' stock prices

Closing prices as of Mar. 19 along with those from previous Wednesday

Company	Exchange	Symbol	Closing price	Previous Wed.
Abraxas Petroleum Corporation	NASDAQ	AXAS	\$3.88	\$3.14
American Eagle Energy Corporation	NYSE	AMZG	\$6.61	\$7.20
Arsenal Energy USA, Inc.	TSE	AEI	\$6.28	\$5.88
Baytex Energy USA Ltd	NYSE	BTE	\$38.99	\$37.83
Burlington Resources Co., LP (ConocoPhillips)	NYSE	COP	\$67.50	\$66.54
Continental Resources, Inc.	NYSE	CLR	\$120.23	\$115.56
Crescent Point Energy US Corporation	TSE	CPG	\$40.39	\$40.00
Denbury Onshore, LLC	NYSE	DNR	\$16.16	\$15.96
Emerald Oil, Inc.	NYSEMKT	EOX	\$6.46	\$7.65
Enerplus Resources USA Corporation	NYSE	ERF	\$18.95	\$18.64
EOG Resources, Inc.	NYSE	EOG	\$187.53	\$185.13
Fidelity Exploration & Production (MDU)	NYSE	MDU	\$33.83	\$33.49
Halcon Resources	NYSE	HK	\$3.80	\$3.81
Hess Corporation	NYSE	HES	\$80.62	\$80.81
Kodiak Oil and Gas (USA), Inc.	NYSE	KOG	\$11.85	\$11.39
Legacy Reserves Operating LP	NASDAQ	LGCY	\$25.47	\$26.47
Marathon Oil Company	NYSE	MRO	\$33.29	\$33.46
Mountain Divide, LLC (Mountainview Energy)	CVE	MVW.V	\$0.58	\$0.61
Newfield Production Company	NYSE	NFX	\$28.38	\$28.13
Northern Oil and Gas	NYSE	NOG	\$13.19	\$13.44
Oasis Petroleum North America	NYSE	OAS	\$40.83	\$41.09
Oxy USA, Inc. (Occidental Petroleum)	NYSE	OXY	\$95.14	\$96.39
PetroShale Inc.	CVE	PSH	\$1.40	\$1.34
QEP Energy Company	NYSE	QEP	\$28.74	\$28.88
Resolute Natural Resources Company, LLC	NYSE	REN	\$7.17	\$7.87
Samson Resources Company (KKR & Co)	NYSE	KKR	\$23.29	\$23.92
SM Energy Company	NYSE	SM	\$69.95	\$71.59
Statoil Oil and Gas LP	NYSE	STO	\$27.20	\$27.50
Triangle USA Petroleum Corporation	NYSE	TPLM	\$8.11	\$8.28
Whiting Oil and Gas Corporation	NYSE	WILL	\$67.62	\$62.88
WPX Energy Williston, LLC	NYSE	WPX	\$18.23	\$17.48
XTO Energy, Inc. (ExxonMobil)	NYSE	XOM	\$93.73	\$94.21

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# Montana Bakken oil production by company

## January 2014

The information below is derived from State of Montana production reports and separated out by company. Note this is oil produced by wells operated by these companies; it does not identify the percentage of Bakken petroleum system oil such as Three Forks, Bakken, Pronghorn, etc. that is actually owned by the company, so it might differ from what each company reports. It also does not include oil production from wells operated by others, in which these companies might hold an interest, or wells currently on confidential status. The daily average was derived from dividing the total production by the number of days in January, excluding production from wells on confidential status and rounded to the nearest whole. Note: Abraxas, Armstrong, Burlington Resources Oil and Gas, Charger Resources, Marathon, MBI Oil and Gas, McRae and Henry, Mountain Pacific, Panther Energy, Sagebrush, Samson Oil and Gas USA Montana, Samson Resources, and TAQA North had not yet filed their January production information, so their December production is shown, as noted.

**LEGEND**

Field – pool – county – barrels of oil per month  
Daily average in barrels of oil

The operator names used in this report are as they appear in State of Montana records, even though some of the companies or their Bakken system assets might have been purchased by other companies. When that is the case, the current owner's name is in parenthesis behind the owner of record. If any current owners are missing, please contact Ashley Lindly at [alindly@petroleumnewsbakken.com](mailto:alindly@petroleumnewsbakken.com).

### Top 5 Montana Bakken oil producers January 2014

Continental Resources	16,891 bpd
Oasis Petroleum	7,058 bpd
XTO Energy (ExxonMobil)	5,676 bpd
Enerplus Resources	4,897 bpd
Whiting Oil and Gas	2,567 bpd

**Abraxas Petroleum (December 2013)**

Elm Coulee – Bakken – Richland	58
Lane – Bakken – Richland	0
Sidney – Bakken – Richland	0
Daily average:	2

**Armstrong Operating (December 2013)**

Elm Coulee – Bakken – Richland 971	
Daily average:	31

**Burlington Resources Oil and Gas (ConocoPhillips) (December 2013)**

Elm Coulee – Bakken – Richland	32,484
Daily average:	1,048

**Charger Resources (December 2013)**

Elm Coulee – Bakken – Richland	2,713
Daily average:	88

**Continental Resources**

Elm Coulee – Bakken – Richland	489,054
Elm Coulee, Northeast – Bakken – Richland	14,056
Elm Coulee, Northeast – Bakken – Roosevelt	20,025
Elm Coulee, Northeast – Three Forks – Richland	487
Wildcat Richland – Bakken – Richland	0

Monthly total:	523,622
Daily average:	16,891

**Denbury Onshore**

Lookout Butte, East, Unit – Lodgepole – Fallon	0
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**Earthstone Energy**

Spring Lake, West – Bakken – Richland	0
Vaux – Madison, Bakken – Richland	200

Daily average: 6.5

**Enerplus Resources USA**

Charlie Creek – Bakken – Richland	138
Elm Coulee – Bakken – Richland	150,675
Epworth – Bakken – Richland	155
Girard – Bakken – Richland	147
Mustang – Bakken – Richland	312
Putnam – Bakken – Richland	0
Spring Lake – Bakken – Richland	314
Three Buttes – Bakken – Richland	78

Monthly total:	151,819
Daily average:	4,897

**EOG Resources**

Elm Coulee – Bakken – Richland	23,187
Elm Coulee, Northeast – Bakken – Roosevelt	45,019
Wildcat Richland – Bakken – Richland	0

Monthly total:	68,206
Daily average:	2,200

**Fidelity Exploration and Production (MDU)**

Elm Coulee – Bakken – Richland	2,605
Elm Coulee – Three Forks – Richland	277

Monthly total:	2,882
Daily average:	93

**Legacy Reserves Operating**

Elm Coulee – Bakken – Richland	290
Daily average:	9

**Marathon Oil (December 2013)**

Elm Coulee, Northeast – Bakken – Sheridan 6,712	
Elm Coulee, Northeast – Three Forks – Sheridan	1,446

Monthly total:	8,158
Daily average:	263

**MBI Oil and Gas (December 2013)**

Elm Coulee, Northeast – Bakken – Richland	711
Daily average:	23

**McRae and Henry (December 2013)**

Outlook – Mission Canyon, Bakken – Sheridan	0
Outlook – Nisku, Bakken – Sheridan	367

Daily average:	12
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**Mountain Pacific General (December 2013)**

Two Waters – Bakken – Richland	0
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**Newfield Production**

Elm Coulee – Bakken – Richland	21,643
Daily average:	698

**Oasis Petroleum North America**

Elm Coulee – Bakken – Richland	0
Elm Coulee, Northeast – Bakken – Richland	46,693
Elm Coulee, Northeast – Bakken – Roosevelt	169,765
Elm Coulee, Northeast – Three Forks – Roosevelt	2,330

Monthly total:	218,788
Daily average:	7,058

**Panther Energy (December 2013)**

Elm Coulee, Northeast – Bakken – Richland	284
Daily average:	9

**Sagebrush Resources (December 2013)**

Redstone – Bakken – Sheridan 60	
Daily average:	2

**Samson Oil and Gas USA Montana (December 2013)**

Elm Coulee, Northeast – Bakken – Roosevelt	0
--	---

**Samson Resources (KKR & Co.) (December 2013)**

Elm Coulee, Northeast – Bakken – Sheridan	111
Elm Coulee, Northeast – Three Forks – Sheridan	845

Monthly total:	956
Daily average:	31

**Sinclair Oil and Gas**

Elm Coulee – Bakken – Richland	851
Elm Coulee, Northeast – Bakken – Sheridan	1,582

Monthly total:	2,433
Daily average:	78

**Slawson Exploration**

Elm Coulee – Bakken – Richland	52,968
Elm Coulee – Lodgepole – Richland	415
Elm Coulee, Northeast – Bakken – Roosevelt	5,632

Monthly total:	59,051
Daily average:	1,904

**SM Energy**

Brorson – Mission Canyon, Bakken – Richland	373
Brorson, South – Bakken – Richland	0
Brorson, South – Mission Canyon, Bakken – Richland	481
Elm Coulee – Bakken – Richland	22,123
Mustang – Bakken – Richland	89
Putnam – Mission Canyon, Bakken – Richland	135
Vaux – Mission Canyon, Bakken – Richland	492

Monthly total:	23,693
Daily average:	764

**TAQA North USA (December 2013)**

Flat Lake – Bakken – Sheridan	25,625
Johnson Lake – Bakken – Sheridan	0

Daily average:	827
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**True Oil**

Elm Coulee, Northeast – Bakken – Richland	10,010
Daily average:	323

**Whiting Oil and Gas**

Elm Coulee – Bakken – Richland	192
Elm Coulee, Northeast – Bakken – Richland	74,621
Elm Coulee, Northeast – Three Forks – Richland	1,271
Elm Coulee, Northeast – Bakken – Roosevelt	1,456
Elm Coulee, Northeast – Three Forks – Roosevelt	1,818
Elm Coulee, Northeast – Three Forks – Sheridan	211

Monthly total:	79,569
Daily average:	2,567

**XTO Energy (ExxonMobil)**

Elm Coulee – Bakken – Richland	167,791
Elm Coulee, Northeast – Bakken – Roosevelt	8,168

Monthly total:	175,959
Daily average:	5,676

—Compiled by Ashley Lindly

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# IPs for ND Bakken wells

March 11—17, 2014

This chart contains initial production rates, or IPs, for active wells that were filed as completed with the state of North Dakota from Mar 11-17, 2014 in the Bakken petroleum system, which includes formations such as the Bakken and Three Forks. The completed wells that did not have an available IP rate (N/A) likely haven't been tested or were awarded confidential (tight-hole) status by the North Dakota Industrial Commission's Department of Minerals. This chart also contains a section with active wells that were released from confidential status during the same period, Mar 11-17. Again, some IP rates were not available (N/A). The information was assembled by Petroleum News Bakken from NDIC daily activity reports and other sources. The name of the well operator is as it appears in state records, with the loss of an occasional Inc., LLC or Corporation because of space limitations. Some of the companies, or their Bakken petroleum system assets, have been acquired by others. In some of those cases, the current owner's name is in parenthesis behind the owner of record, such as ExxonMobil in parenthesis behind XTO Energy. If the chart is missing current owner's names, please contact Ashley Lindly at alindly@petroleumnewsbakken.com.

## LEGEND

The well operator's name is on the upper line, followed by individual wells with data in this order: NDIC file number; well name; field; location; spacing; county; geologic target; wellbore type; total depth; IP test date; IP oil flow rate. (IP stands for initial production; in this chart it's the first 24 hours of oil production.)

### IPs for completed North Dakota wells

#### Burlington Resources Oil and Gas (ConocoPhillips)

25507; CCU Powell 31-29MBH; Corral Creek; NENE 29-147N-95W; U; Dunn; Bakken; horizontal; 20,342; 2/14/2014; 2,926 bbl  
 25509; CCU William 34-20MBH; Corral Creek; NENE 29-147N-95W; U; Dunn; Bakken; horizontal; 21,880; 2/16/2014; 2,886 bbl  
 25510; CCU William 44-20TFH; Corral Creek; NENE 29-147N-95W; U; Dunn; Bakken; horizontal; 21,940; 2/18/2014; 2,766 bbl

#### Continental Resources

24802; Rollefstad Federal 10-3H-2; Antelope; LOT2 3-152N-94W; 2SEC; McKenzie; Sanish; horizontal; 21,047; N/A; N/A

#### Oasis Petroleum North America

26278; Johnson 5601 41-24T; Tyrone; SWSW 24-156N-101W; 2SEC; Williams; Bakken; horizontal; 20,685; 2/23/2014; 454 bbl

#### Statoil Oil and Gas

24412; Garmann 19-18 3H; Banks; SESE 19-153N-97W; 2SEC; McKenzie; Bakken; horizontal; N/A; 2/13/2014; 3,823 bbl

#### Triangle USA Petroleum

26323; Dwyer 150-101-35-26-4H; Eagle Nest; LOT3 2-149N-101W; N/A; Dunn; N/A\*; on confidential status; N/A; N/A; N/A

*\*Note — The geologic target for the above Dwyer 150-101-35-26-4H well was not listed in its well file because it is on tight (confidential) hole, but the Eagle Nest field produces from the Bakken pool.*

### IPs for ND wells released from confidential status

#### American Eagle Energy

26339; Erling 15-33-164-102; Wildcat; SWSE 33-164N-102W; N/A; Divide; Bakken; horizontal; 13,657; 11/27/2013; 295 bbl

#### Baytex Energy USA

24029; Ebreck 33-28-162-97H 1NC; Bluffton; SESW 33-162N-97W; 2SEC; Divide; Bakken; horizontal; 18,440; 10/7/2013; 225 bbl

#### Burlington Resources Oil and Gas (ConocoPhillips)

26089; Big Bend 41-2TFH; Camel Butte; LOT1 2-151N-96W; N/A; McKenzie; Bakken; horizontal; N/A; N/A; N/A

#### Continental Resources

23878; Juneau 5-11H; Brooklyn; SWSW 11-155N-98W; N/A; Williams; Bakken; horizontal; N/A; N/A; N/A  
 26128; Perch 1-30H1; Park; NWNE 30-141N-99W; N/A; Billings; Bakken; horizontal; N/A; N/A; N/A

#### EOG Resources

25605; Fertile 52-3332H; Parshall; SESW 33-151N-90W; 2SEC; Mountrail; Bakken; horizontal; 16,596; 10/1/2013; 1,686 bbl  
 25253; Parshall 35-0509H; Parshall; LOT3 5-152N-90W; ICO; Mountrail; Bakken; horizontal; 21,587; 10/24/2013; 1,908 bbl

#### Fidelity Exploration and Production (MDU)

24560; 3 Jacks 3-4-33H; Sanish; SWSW 3-153N-92W; 4SEC; Mountrail; Bakken; horizontal; 17,450; 10/10/2013; 870 bbl  
 24884; Carol 43-29H; Stanley; NESE 29-155N-91W; SEC; Mountrail; Bakken; horizontal; 14,105; 9/18/2013; 485 bbl

#### Hess Bakken Investments II

26132; LK-A QTR CIR- 147-96-0718H-3; Big Gulch; LOT1 7-147N-96W; N/A; Dunn; Bakken; horizontal; N/A; N/A; N/A

#### HRC Operating (Halcon Resources)

24271; Fort Berthold 147-94-3B-10-4H; Gregory Buttes; NENW 3-147N-94W; N/A; Dunn; Bakken; horizontal; N/A; N/A; N/A  
 24270; Fort Berthold 147-94-3B-10-5H; Gregory Buttes; NENW 3-147N-94W; N/A; Dunn; Bakken; horizontal; N/A; N/A; N/A  
 26211; Moline 157-100-20D-17-3H; Marmon; SWSE 20-157N-100W; N/A;

### Top 10 Bakken wells by IP rate

#### Statoil Oil and Gas

24412; Garmann 19-18 3H; Banks; McKenzie; 3,823 bbl

#### Burlington Resources Oil and Gas (ConocoPhillips)

25507; CCU Powell 31-29MBH; Corral Creek; Dunn; 2,926 bbl  
 25509; CCU William 34-20MBH; Corral Creek; Dunn; 2,886 bbl  
 25510; CCU William 44-20TFH; Corral Creek; Dunn; 2,766 bbl

#### Oasis Petroleum North America

24706; Kristie 5300 13-13B; Willow Creek; Williams; 2,062 bbl

#### EOG Resources

25253; Parshall 35-0509H; Parshall; Mountrail; 1,908 bbl

#### QEP Energy

25414; MHA 1-10-15H-149-91; Heart Butte; Dunn; 1,701 bbl

#### EOG Resources

25605; Fertile 52-3332H; Parshall; Mountrail; 1,686 bbl

#### WPX Energy Williston

22108; Mary R Smith 5-8HW; Van Hook; Mountrail; 1,614 bbl

#### Whiting Oil and Gas

25131; Jurgens 34-12PH; Fryburg; Billings; 1,433 bbl

*Note: This chart contains initial production rates, or IPs, from the adjacent IP chart for active wells that were filed as completed with the state of North Dakota from Mar 11-17, 2014 in the Bakken petroleum system, as well as active wells that were released from tight-hole (confidential) status during the same period. The well operator's name is on the upper line, followed by individual wells; the NDIC file number; well name; field; county; IP oil flow rate in barrels of oil.*

Williams; Bakken; horizontal; N/A; N/A; N/A  
 26084; Quarne 2-21-16H; Strandahl; SWSE 21-157N-102W; 2SEC; Williams; Bakken; horizontal; 20,448; 11/5/2013; 596 bbl  
 26210; State 157-100-29A-32-3H; Marmon; SWSE 20-157N-100W; N/A; Williams; Bakken; horizontal; N/A; N/A; N/A

#### Kodiak Oil and Gas

25538; P Thomas 154-98-14-33-3H3; Truax; SESW 33-154N-98W; N/A; Williams; Bakken; horizontal; N/A; N/A; N/A  
 25535; P Thomas 154-98-14-33-4H; Truax; SESW 33-154N-98W; N/A; Williams; Bakken; horizontal; N/A; N/A; N/A  
 25536; P Thomas 154-98-14-33-4H3; Truax; SESW 33-154N-98W; N/A; Williams; Bakken; horizontal; N/A; N/A; N/A  
 25974; P Vance 154-97-4-17-20-13H; Truax; NWNW 17-154N-97W; N/A; Williams; Bakken; horizontal; N/A; N/A; N/A

#### Marathon Oil

26287; Adam Eli 34-33H; Murphy Creek; SWSE 33-145N-96W; N/A; Dunn; Bakken; horizontal; N/A; N/A; N/A  
 Newfield Production  
 26248; Eide 150-99-7-6-4H; Tobacco Garden; LOT1 18-150N-99W; 2SEC; McKenzie; Bakken; horizontal; 22,700; 1/15/2014; 986 bbl

#### Oasis Petroleum North America

25121; Aerabelle 5502 43-7T; Squires; SWSE 7-155N-102W; 2SEC; Williams; Bakken; horizontal; 20,312; 11/20/2013; 792 bbl  
 25120; Annie 5502 43-7B; Squires; SWSE 7-155N-102W; 2SEC; Williams; Bakken; horizontal; 20,312; 11/18/2013; 1,376 bbl  
 26034; Bonita 5992 42-22 #2B; Cottonwood; SESW 22-159N-92W; 2SEC; Burke; Bakken; horizontal; 19,285; 10/31/2013; 545 bbl  
 25571; Colville 5301 44-12T; Baker; SESE 12-153N-101W; 2SEC; McKenzie; Bakken; horizontal; 21,090; 9/23/2013; 1,427 bbl  
 25686; Demorett 5693 43-12B; Alger; SWSE 12-156N-93W; 2SEC;

Mountrail; Bakken; horizontal; 20,421; 10/8/2013; 251 bbl  
 25559; Domino 5002 43-11H; Foreman Butte; SWSE 11-150N-102W; 2SEC; McKenzie; Bakken; horizontal; 20,503; 11/7/2013; 338 bbl  
 25309; Gasser 5892 21-30T; Cottonwood; LOT2 30-158N-92W; 2SEC; Mountrail; Bakken; horizontal; 19,450; 10/24/2013; 528 bbl  
 25310; Harvey 5892 21-30B; Cottonwood; LOT2 30-158N-92W; 2SEC; Mountrail; Bakken; horizontal; 19,685; 10/27/2013; 1,023 bbl  
 22221; Innoko 5301 43-12T; Baker; SWSE 12-153N-101W; 2SEC; McKenzie; Bakken; horizontal; 21,122; 9/18/2013; 1,379 bbl  
 24706; Kristie 5300 13-13B; Willow Creek; NWNE 13-153N-100W; 2SEC; Williams; Bakken; horizontal; 20,740; 10/10/2013; 2,062 bbl

#### Oxy USA (Occidental Petroleum)

25364; Evelyn Kary 2-22-15H-144-97; Cabernet; SWSW 22-144N-97W; 2SEC; Dunn; Bakken; horizontal; 20,411; 12/24/2013; 340 bbl

#### Petro-Hunt

23781; Carlson 159-94-4B-9-2H; North Tioga; LOT4 4-159N-94W; 2SEC; Burke; Bakken; horizontal; 19,260; 1/8/2014; 234 bbl  
 26233; Tande 159-94-29D-20-5H; North Tioga; SESE 29-159N-94W; 2SEC; Burke; Bakken; horizontal; 19,335; 12/14/2013; 534 bbl

#### QEP Energy

25414; MHA 1-10-15H-149-91; Heart Butte; NWSW 10-149N-91W; 4SEC; Dunn; Bakken; horizontal; 16,738; 11/25/2013; 1,701 bbl  
 25413; MHA 3-10-15H-149-91; Heart Butte; NWSW 10-149N-91W; 4SEC; Dunn; Bakken; horizontal; 17,485; 11/27/2013; 838 bbl

#### Slawson Exploration

26103; Goldenban 2-2-1MLH; Sanish; SWSW 2-153N-91W; N/A; Mountrail; Bakken; horizontal; N/A; N/A; N/A

#### SM Energy

25938; Windfaldet 2-4H; Garnet; NWNE 4-161N-99W; 2SEC; Divide; Bakken; horizontal; 18,965; 1/18/2014; 377 bbl

#### Whiting Oil and Gas

25131; Jurgens 34-12PH; Fryburg; SWSE 12-139N-100W; 2SEC; Billings; Bakken; horizontal; 19,280; 9/7/2013; 1,433 bbl  
 25133; Jurgens 41-13PH; Gaylord; SWSE 12-139N-100W; 2SEC; Billings; Bakken; horizontal; 21,075; 8/31/2013; 835 bbl  
 25132; Jurgens 44-12PH; Fryburg; SWSE 12-139N-100W; 2SEC; Billings; Bakken; horizontal; 19,780; 8/31/2013; 1,341 bbl  
 25470; Privratsky 14-22PH; Bell; NENW 27-140N-99W; 2SEC; Stark; Bakken; horizontal; 19,816; 9/18/2013; 1,144 bbl  
 25471; Privratsky 24-22PH; Bell; NENW 27-140N-99W; 2SEC; Stark; Bakken; horizontal; 20,460; 9/21/2013; 1,236 bbl

#### WPX Energy Williston

22108; Mary R Smith 5-8HW; Van Hook; LOT4 5-150N-92W; 2SEC; Mountrail; Bakken; horizontal; 20,631; 12/27/2013; 1,614 bbl

#### XTO Energy (ExxonMobil)

25424; Alice 44X-34G; Siverston; SESE 34-151N-98W; 2SEC; McKenzie; Bakken; horizontal; 20,260; 2/1/2014; 1,196 bbl  
 25990; Clarence Federal 34X-7H; Haystack Butte; SWSE 7-148N-97W; N/A; Dunn; Bakken; horizontal; N/A; N/A; N/A  
 25981; Inga Federal 41X-29C; Haystack Butte; NENE 29-148N-97W; N/A; Dunn; Bakken; horizontal; N/A; N/A; N/A  
 25332; Martin Federal 21X-33E; Cedar Coulee; NENW 33-148N-96W; N/A; Dunn; Bakken; horizontal; N/A; N/A; N/A

#### Zavanna

25530; Sylvester 32-29 2H; Springbrook; SESW 32-155N-100W; N/A; Williams; Bakken; horizontal; N/A; N/A; N/A  
 25529; Sylvester 32-29 4TFH; Springbrook; SESW 32-155N-100W; N/A; Williams; Bakken; horizontal; N/A; N/A; N/A

—Compiled by Ashley Lindly

Contact Ashley Lindly at  
 alindly@petroleumnewsbakken.com



# North Dakota well operator transfers

March 8—14, 2014

## LEGEND

Date of well operator transfer  
 Well(s) transferred from  
 Well(s) transferred to  
 NDIC well file number — well name — well type — geological target — field — IP (initial production) test date — IP oil rate in barrels — location — county

### March 13, 2014

From: Williston Hunter, ND  
 To: Enduro Operating, LLC  
 #02453 - C. M. Reiquam 1; vertical; Madison; Glenburn; 9/30/1959; 210 bbl; NENE 12-158N-82W; Renville Co.  
 #02513 - Winderl 1; vertical; Madison; Glenburn;

12/12/1959; 344 bbl; SWSW 6-158N-81W; Renville Co.  
 #02554 - Selma Larson 1; vertical; Madison; Glenburn; 1/9/1960; 56 bbl; SWNW 6-158N-81W; Renville Co.  
 #02559 - Hartman A 2; vertical; Madison; Glenburn; 2/28/1960; 227 bbl; NESE 1-158N-82W; Renville Co.  
 #03117 - Larson WSW; vertical; Madison; Glenburn; 4/23/1962; 133 bbl; NENW 6-158N-81W; Renville Co.

#03138 - Lewis Steen 1; vertical; Madison; Glenburn; 5/3/1962; 245 bbl; SWSE 31-159N-81W; Bottineau Co.  
 #05984 - Hartman A 3R; vertical; Madison; Glenburn; 5/1/1977; 27 bbl; SWSE 1-158N-82W; Renville Co.  
 #05985 - Einar Christianson 2R; vertical; Madison; Glenburn; 9/29/1981; 17 bbl; SWNW 7-158N-81W; Renville Co.  
 #07865 - Winderl 2; vertical; Madison; Glenburn; 11/11/1980; 76 bbl; NWSW 6-158N-81W; Renville Co.  
 #08346 - Selma Larson 2; vertical; Madison; Glenburn; 8/30/1981; 47 bbl; NWNW 6-158N-81W; Renville Co.  
 #08734 - Einar Christianson 3; vertical; Madison; Glenburn; 8/19/1981; 21 bbl; NWNW 7-158N-81W; Renville Co.  
 #08735 - Einar Christianson 4; vertical; Madison; Glenburn; 8/9/1981; 40 bbl; SENW 7-158N-81W; Renville Co.  
 #08786 - Hartman 5; vertical; Madison; Glenburn;

9/29/1982; 20 bbl; SESE 1-158N-82W; Renville Co.  
 #09729 - Winderl 3; vertical; Madison; Glenburn; 9/18/1982; 32 bbl; SESW 6-158N-81W; Renville Co.  
 #10166 - Winderl 1R; vertical; Madison; Glenburn; 6/30/1983; 9 bbl; NESW 6-158N-81W; Renville Co.  
 #12080 - Steen 14-31; vertical; Madison; Glenburn; 3/26/1987; 41 bbl; SESW 31-159N-81W; Bottineau Co.  
 #13551 - Selma Larson 1-R; horizontal re-entry; Madison; Glenburn; 9/28/1993; 70 bbl; NENW 6-158N-81W; Renville Co.  
 #90040 - Hartman WSW 1; vertical; Dakota; Glenburn; N/A; N/A; SESE 1-158N-82W; Renville Co.  
 #90045 - Christianson WSW; vertical; Dakota; Glenburn; N/A; N/A; NENW 7-158N-81W; Renville Co.

—Compiled by Ashley Lindly

Contact Ashley Lindly at  
 alindly@petroleumnewsbakken.com



Petroleum News  
**Bakken**

# North Dakota Pipeline Authority

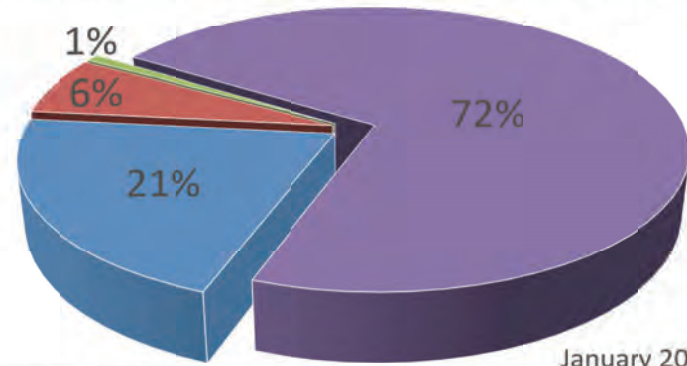
Monthly update March 2014

## US Williston Basin Oil Production - 2013

MONTH	ND	Eastern MT*	SD	TOTAL
January	739,086	70,598	4,617	814,301
February	781,356	71,850	4,891	858,097
March	786,493	73,416	5,111	865,020
April	793,794	76,035	5,131	874,950
May	812,008	75,067	4,800	891,875
June	823,300	73,547	4,781	901,628
July	874,042	75,881	4,678	954,601
August	912,584	75,939	4,877	993,400
September	933,997	73,932	5,017	1,012,946
October	945,452	73,010	4,643	1,023,105
November	976,453	71,612	5,026	1,053,091
December	926,687	68,417	4,801	999,906

JJ Kringstad - North Dakota Pipeline Authority

## Estimated Williston Basin Oil Transportation

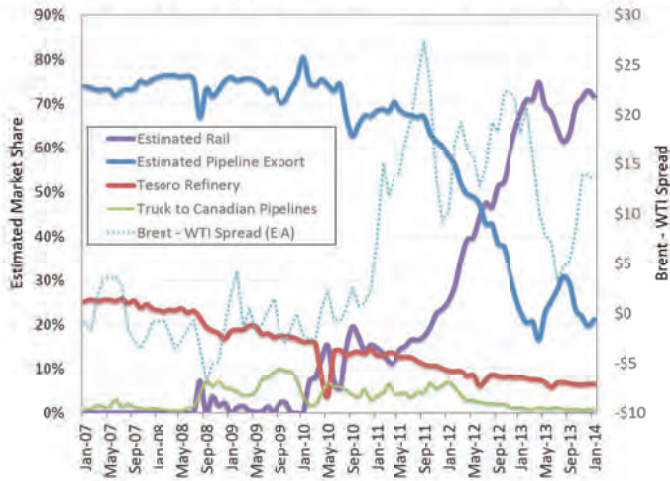


January 2014

■ Estimated Pipeline Export ■ Tesoro Refinery  
■ Truck to Canadian Pipelines ■ Estimated Rail

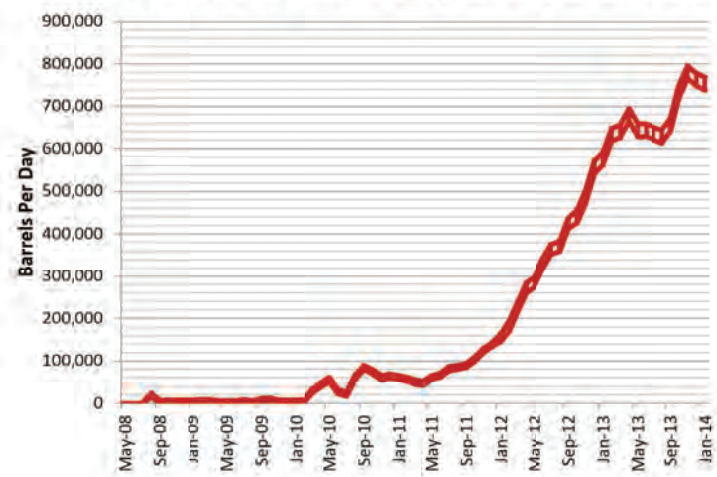
JJ Kringstad - North Dakota Pipeline Authority

## Estimated Williston Basin Oil Transportation



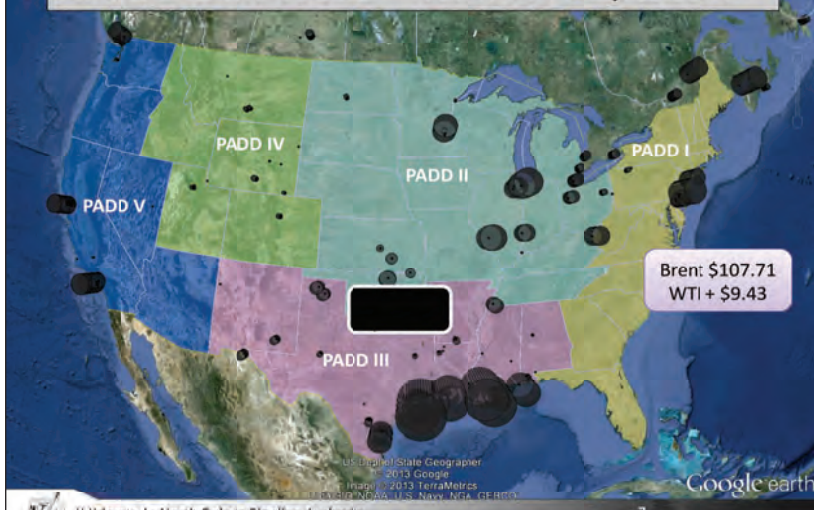
JJ Kringstad - North Dakota Pipeline Authority

## Estimated ND Rail Export Volumes



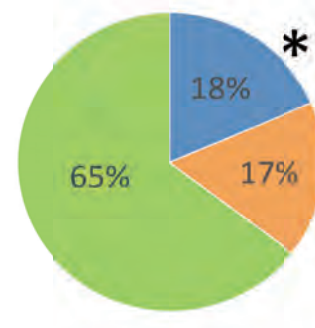
JJ Kringstad - North Dakota Pipeline Authority

## Crude Oil Prices – March 13, 2014



JJ Kringstad - North Dakota Pipeline Authority

## Solving the Flaring Challenge



GREEN – % of gas captured and sold  
Blue – % flared from zero sales wells  
Orange – % flared from wells with at least one mcf sold.

**Simple Terms**  
Blue – Lack of pipelines  
Orange – Challenges on existing infrastructure

Statewide

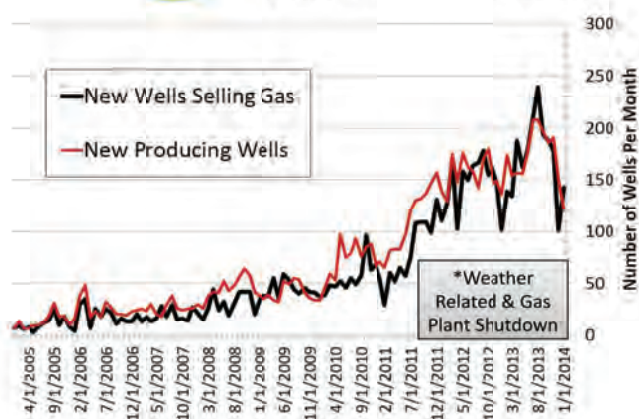
January 2014 Data – Non-Confidential Wells

\*Hess Tioga Gas Plant shut-in for 140 MMCFD expansion starting in November

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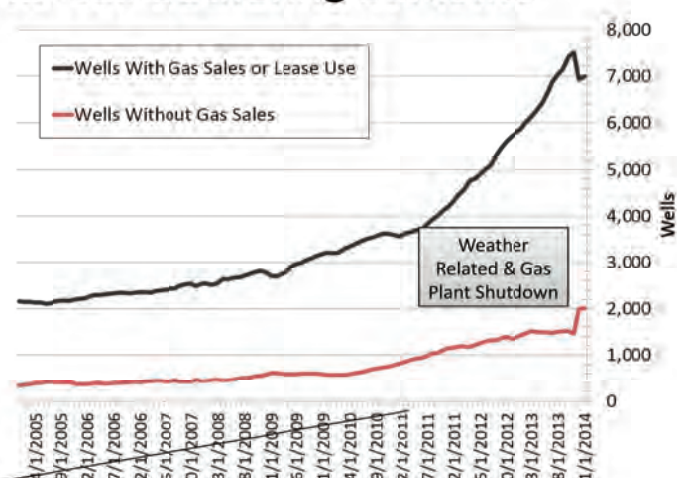


## Capturing the 18% Faster Well Connections



JJ Kringstad - North Dakota Pipeline Authority

## ND Gas Gathering Statistics



JJ Kringstad - North Dakota Pipeline Authority





# North Dakota oil permit activity

March 11—17, 2014

## LEGEND

The county name is on the upper line, the type of permit issued is on the second line, and company names are next, followed by individual wells with data in this order: well name; location; footages; field; geological target; well bore type; elevation; NDIC file number; API number; date permit shows on NDIC website.

## Abbreviations

Following are the abbreviations used in the report and what they mean:  
 FNL = From North Line | FEL = From East Line  
 FSL = From South Line | FWL = From West Line

### Billings Co.

#### Permits issued

##### Continental Resources

**Kuntz 1-25H1**; NENE 25-141N-98W; 285'FNL and 1,980'FWL; Ukraina; N/A\*; on confidential status; 2,593' ground; 27913; 33-007-01826; 3/17/2014

### Bottineau Co.

#### Permits issued

##### Enduro Operating

**MMU 31-42-H1**; SENE 31-162N-83W; 1,750'FNL and 700'FEL; Mohall; N/A\*; on confidential status; 1,597' ground; 27851; 33-009-02369; 3/11/2014

##### Legacy Oil and Gas

**Legacy ET AL FETT 13-18 H**; SWSW 18-163N-76W; 800'FSL and 300'FWL; Red Rock; N/A\*; on confidential status; 1,665' ground; 27856; 33-009-02371; 3/12/2014

**Legacy ET AL FETT 13-18 2H**; SWSW 18-163N-76W; 700'FSL and 300'FWL; Red Rock; N/A\*; on confidential status; 1,665' ground; 27855; 33-009-02370;

3/12/2014

#### Geophysical permit issued

##### Geokinetics USA

**Placer 2-D**; 162-81; 163-81; 3 In.mi.; 3/17/2014

### Bowman Co.

#### Permits issued

##### Denbury Onshore

**CHSU 13-9NH 05**; NWSW 9-130N-105W; 1,585'FSL and 285'FWL; Cedar Hills; N/A\*; on confidential status; 3,006' ground; 27905; 33-011-01522; 3/17/2014

### Divide Co.

#### Permits issued

##### American Eagle Energy

**Cheri 3-1-163-102**; LOT3 1-163N-102W; 300'FNL and 1,850'FWL; Wildcat; N/A; on confidential status; 2,218' ground; 27916; 33-023-01178; 3/17/2014

**Richard 2-13N-163-101**; NWNE 13-163N-101W; 250'FNL and 2,175'FEL; Colgan; N/A\*; on confidential status; 2,200' ground; 27904; 33-023-01177; 3/14/2014

##### Continental Resources

**Daniel 2-33H**; SWSW 28-160N-95W; 450'FSL and 1,185'FWL; Stoneview; N/A\*; on confidential status; 2,272' ground; 27872; 33-023-01175; 3/12/2014

**Daniel 3-33H1**; SWSW 28-160N-95W; 450'FSL and 1,230'FWL; Stoneview; N/A\*; on confidential status; 2,272' ground; 27871; 33-023-01174; 3/12/2014

**Daniel 4-33H**; SWSW 28-160N-95W; 450'FSL and 1,275'FWL; Stoneview; N/A\*; on confidential status; 2,273' ground; 27873; 33-023-01176; 3/12/2014

**Skar 2-28H1**; SESW 28-160N-95W; 450'FSL and 1,475'FWL; Stoneview; N/A\*; on confidential status; 2,271' ground; 27868; 33-023-01171; 3/12/2014

**Skar 3-28H**; SESW 28-160N-95W; 450'FSL and 1,520'FWL; Stoneview; N/A\*; on confidential status; 2,271' ground; 27869; 33-023-01172; 3/12/2014

**Skar 4-28H1**; SESW 28-160N-95W; 450'FSL and 1,565'FWL; Stoneview; N/A\*; on confidential status; 2,272' ground; 27870; 33-023-01173; 3/12/2014

### Dunn Co.

#### Permits issued

##### Burlington Resources Oil and Gas (ConocoPhillips)

**CCU Olympian 11-2MBH**; LOT3 2-146N-94W; 295'FNL and 1,620'FWL; Corral Creek; N/A\*; on confidential status; 2,392' ground; 27889; 33-025-02493; 3/13/2014

**CCU Olympian 11-2TFH**; LOT3 2-146N-94W; 340'FNL and 1,620'FWL; Corral Creek; N/A\*; on confidential status; 2,392' ground; 27890; 33-025-02494; 3/13/2014

##### Hess

**LK-M Elisabeth- 147-97-1522H-5**; NWNW 15-147N-97W; 300'FNL and 1,051'FWL; Little Knife; N/A\*; on confidential status; 2,489' ground; 27909; 33-025-02496; 3/17/2014

**LK-M Elisabeth- 147-97-1522H-6**; NWNW 15-147N-97W; 300'FNL and 1,084'FWL; Little Knife; N/A\*; on confidential status; 2,489' ground; 27908; 33-025-02495; 3/17/2014

**LK-M Elisabeth- LW-147-97-1522H-1**; NWNW 15-147N-97W; 300'FNL and 1,018'FWL; Little Knife; N/A\*; on confidential status; 2,489' ground; 27910; 33-025-02497; 3/17/2014

##### Oxy USA (Occidental Petroleum)

**Maurice Hecker 2-19-18H-142-97**; SESE 19-142N-97W; 310'FSL and 1,251'FEL; Willmen; Bakken; horizontal; 2,654' ground; 27888; 33-025-02492; 3/13/2014

##### Sinclair Oil and Gas

**Bighorn 2-6H**; SESW 31-147N-97W; 781'FSL and 2,189'FWL; Mary; N/A\*; on confidential status; 2,477'

ground; 27849; 33-025-02491; 3/11/2014

### McKenzie Co.

#### Permits issued

##### Hess

**BW-R Paterson- 149-99-1102H-4**; NWNE 14-149N-99W; 560'FNL and 2,225'FEL; Cherry Creek; N/A\*; on confidential status; 2,186' ground; 27885; 33-053-05745; 3/13/2014

**BW-Kraetsch- 149-99-1423H-4**; NWNE 14-149N-99W; 560'FNL and 2,192'FEL; Cherry Creek; N/A\*; on confidential status; 2,185' ground; 27886; 33-053-05746; 3/13/2014

##### Peregrine Petroleum

**Larson 15-22-1H**; NWNE 15-146N-102W; 260'FNL and 2,112'FEL; Covered Bridge; N/A\*; on confidential status; 2,244' ground; 27891; 33-053-05747; 3/13/2014

##### Petro-Hunt

**Wollan 152-96-27A-5H**; NENE 27-152N-96W; 326'FNL and 1,075'FEL; Clear Creek; N/A\*; on confidential status; 2,367' ground; 27874; 33-053-05743; 3/12/2014

**Wollan 152-96-27A-6H**; NENE 27-152N-96W; 230'FNL and 1,015'FEL; Clear Creek; N/A\*; on confidential status; 2,319' ground; 27875; 33-053-05744; 3/12/2014

##### XTO Energy (ExxonMobil)

**Van Dyke Federal 44X-19A**; SESE 19-149N-95W; 894'FSL and 310'FEL; Bear Den; N/A\*; on confidential status; 2,385' ground; 27899; 33-053-05748; 3/14/2014

**Van Dyke Federal 44X-19B**; SESE 19-149N-95W; 954'FSL and 310'FEL; Bear Den; N/A\*; on confidential status; 2,384' ground; 27901; 33-053-05750;

see **ND PERMITS** page 12



## Top 50 North Dakota Bakken oil producers

January 2014

Company	BPD*
1 Hess Corporation	80,233*
2 Continental Resources, Inc.	78,363
3 Whiting Oil and Gas Corporation	72,533
4 EOG Resources, Inc.	66,751
5 Statoil Oil & Gas LP	45,669
6 XTO Energy Inc. (ExxonMobil)	44,530
7 Marathon Oil Company	43,969
8 Burlington Resources Oil & Gas Company LP (ConocoPhillips)	41,969*
9 Kodiak Oil & Gas (USA) Inc.	41,778
10 Oasis Petroleum North America LLC	40,594
11 QEP Energy Company	32,861
12 Halcon Resources	25,962
13 WPX Energy Williston, LLC	25,031
14 Slawson Exploration Company, Inc.	21,720
15 SM Energy	18,315
16 Petro-Hunt, LLC	17,765
17 Newfield Production Company	17,299
18 Oxy USA Inc. (Occidental Petroleum)	16,618
19 Enerplus Resources USA Corporation	12,785
20 Fidelity Exploration and Production (MDU)	10,170
21 Hunt Oil Company	8,983
22 Triangle USA Petroleum Corporation	8,645
23 Samson Resources (KKR & Co.)	6,721
24 Zavanna, LLC	6,600
25 Murex Petroleum Corporation	5,690
26 Baytex Energy USA LTD	4,949
27 Abraxas Petroleum Corporation	4,064
28 Sequel Energy, LLC	3,605
29 American Eagle Energy Corporation	2,912
30 Crescent Point Energy U.S. Corporation	2,193
31 Sinclair Oil and Gas Company	1,970
32 Petrogulf Corporation	1,506
33 Emerald Oil, Inc.	1,485
34 Arsenal Energy USA Inc.	1,008
35 Denbury Onshore, LLC	1,008
36 True Oil LLC	1,006
37 Mountain Divide, LLC (Mountainview Energy)	892
38 Cornerstone Natural Resources LLC	738
39 Thunderbird Resources LP	651
40 Armstrong Operating, Inc.	587
41 Bakken Hunter, LLC	487
42 Gadeco, LLC	317
43 Windsor Energy Group, LLC	215
44 Resource Drilling, LLC	138
45 Legacy Reserves Operating LP	120
46 Resolute Natural Resources Company, LLC	119
47 Rim Operating, Inc.	92
48 North Plains Energy, LLC	85
49 SHD Oil & Gas, LLC	73
50 Texakota, Inc.	40

\* Note: Hess-owned Hess Bakken Investments production was added to Hess' separate production, so their total output determined their ranking. And ConocoPhillips-owned Burlington production was added to ConocoPhillips' separate production.

Information derived from the preliminary January 2014 Oil & Gas Production Report published by the North Dakota Industrial Commission, Department of Minerals' Oil and Gas Division. This is oil produced by wells operated by these companies; it does not identify the percentage of oil from the Bakken petroleum system (including Bakken, Three Forks, Pronghorn, Sanish, etc.) that is owned by each company AND it does not include production from wells operated by others, in which these companies might hold an interest. It also does not include Bakken system oil production from wells on confidential status and the figures are rounded to the nearest whole.

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Petroleum News

## Bakken

## North Dakota Bakken oil production by company

January 2014

Derived from the preliminary January 2014 Oil & Gas Production Report published by the North Dakota Industrial Commission, Department of Minerals' Oil and Gas Division. Note this is the oil produced by wells operated by these companies; it does not identify the percentage of oil from the Bakken petroleum system (including Bakken, Three Forks, Pronghorn, Sanish, etc.) that is owned by each company AND it does not include production from wells operated by others, in which these companies might hold an interest. It also does not include Bakken system oil production from wells on confidential status. Consequently, it usually differs from what each company reports for production. The daily average for the individual companies was derived from dividing the total production by the number of days in January, versus the number of days wells were actually producing and rounded to the nearest whole.

The operator names used in this chart are exactly as they appear in the Oil and Gas Division records, but some of the companies and/or their Bakken assets might be owned by others. The ones we have identified include Burlington Resources Oil & Gas Company, LP, which is owned by ConocoPhillips; Fidelity Exploration & Production, owned by MDU; HRC Operating, owned by Halcon Resources; Mountain Divide, owned by Mountainview Energy; Oxy USA, owned by Occidental Petroleum; Samson Resources Company, owned by KKR & Co.; and XTO Energy, Inc., owned by ExxonMobil. Please let us know if you see others by emailing Ashley Lindly at alindly@petroleumnewsbakken.com.

## LEGEND

Field – pool – county – total monthly oil production.  
Monthly total for all fields.  
Daily average for all fields.  
Numbers represent barrels of oil.

If you add up all the oil produced by the operators of wells in North Dakota, average Bakken production in December was approximately 862,978 barrels of oil per day, which excludes wells on confidential status. These numbers compare to total North Dakota oil production of 933,128 bpd in January as released by the North Dakota Industrial Commission, approximately 93 percent (871,672 bpd) of which came directly from the Bakken system, including wells on confidential status, with the remaining 7 percent coming from the other systems, such as the largely vertical wells in the Tyler, Mission Canyon, Duperow and Red River plays. The State of North Dakota does not release detailed production information for wells on confidential status, so Petroleum News Bakken is unable to include that data in its monthly company breakdown, including its Top 50 list. The daily average for the individual companies was derived from dividing the total production by the number of days in January, versus the number of days wells were actually producing, and rounded to the nearest whole.

## Abraxas Petroleum

North Fork – Bakken – McKenzie	9,128
Pershing – Bakken – McKenzie	116,044
Roosevelt – Bakken – Billings	409
Demores – Bakken – Billings	390
Monthly total:	125,971
Daily average:	4,064

## American Eagle Energy

Colgan – Bakken – Divide	90,279
Daily average:	2,912

## Armstrong Operating

Patterson Lake – Lodgepole – N/A	16,670
Versippi – Lodgepole – N/A	1,531
Monthly total:	18,201
Daily average:	587

## Arsenal Energy USA

Stanley – Bakken – Mountrail	31,254
Daily average:	1,008

## Bakken Hunter

Ambrose – Bakken – Divide	7,818
Bounty School – Bakken – Divide	1,317
Crosby – Bakken – Divide	2,802
Paulson – Bakken – Divide	3,149
Monthly total:	15,086
Daily average:	487

## Baytex Energy USA

Ambrose – Bakken – Divide	45,283
Blooming Prairie – Bakken – Divide	20,791
Bluffton – Bakken – Divide	1,911
Burg – Bakken – Divide	4,790
Burg – Bakken – Williams	565
Frazier – Bakken – Divide	5,417
Garnet – Bakken – Divide	3,341
Lone Tree – Bakken – Williams	880
Lone Tree Lake – Bakken – Williams	4,047
Moraine – Bakken – Divide	828
Musta – Bakken – Divide	2,066
Plumer – Bakken – Divide	3,206
Skabo – Bakken – Divide	6,118
Smoky Butte – Bakken – Divide	2,774
West Ambrose – Bakken – Divide	8,138
Whiteaker – Bakken – Divide	41,104
Wildcat – Bakken – Williams	2,173
Monthly total:	153,432
Daily average:	4,949

## BTA Oil Producers

Bicentennial – Bakken – Golden Valley	219
Elkhorn Ranch – Bakken – Billings	52
Pierre Creek – Bakken – McKenzie	187
Monthly total:	458
Daily average:	15

## Burlington Resources Oil and Gas (ConocoPhillips)

Bailey – Bakken – Dunn	10,571
Banks – Bakken – McKenzie	4,174

Bennett Creek – Bakken – McKenzie	1,384
Blue Buttes – Bakken – McKenzie	199,568
Bully – Bakken – McKenzie	2,165
Cabernet – Bakken – Dunn	5,556
Camel Butte – Bakken – McKenzie	11,834
Charlson – Bakken – McKenzie	53,429
Clear Creek – Bakken – McKenzie	91,491
Corral Creek – Bakken – Dunn	148,632
Croff – Bakken – McKenzie	24,521
Crooked Creek – Bakken – Dunn	5,102
Dimmick Lake – Bakken – McKenzie	5,265
Elidah – Bakken – McKenzie	44,916
Fayette – Bakken – Dunn	3,829
Hawkeye – Bakken – McKenzie	82,435
Haystack Butte – Bakken – McKenzie	76,653
Jim Creek – Bakken – Dunn	1,253
Johnson Corner – Bakken – McKenzie	47,410
Keene – Bakken/Three Forks – McKenzie	235,614
Killdeer – Bakken – Dunn	3,413
Little Knife – Bakken – Dunn	17,324
Lone Butte – Bakken – Dunn	3,006
Mondak – Bakken – McKenzie	0
Morgan Draw – Bakken – Golden Valley	224
Murphy Creek – Bakken – Dunn	34,607
North Fork – Bakken – McKenzie	11,324
Pershing – Bakken – McKenzie	31,626
Pierre Creek – Bakken – McKenzie	692
Sand Creek – Bakken – McKenzie	24,930
Twin Valley – Bakken – McKenzie	4,499
Union Center – Bakken – McKenzie	79,537
Westberg – Bakken – McKenzie	21,486
Wildcat – Bakken – McKenzie	2,086
Willmen – Bakken – Dunn	2,277
Monthly total:	1,292,833
Daily average:	41,704

## Carl H Nordstrand

Pierre Creek – Bakken – McKenzie	100
Daily average:	3

## Charger Resources

Buckhorn – Bakken – McKenzie	85
Johnson Corner – Bakken – McKenzie	168

see ND PRODUCTION page 13

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## ND PERMITS

3/14/2014

**Van Dyke Federal 44X-19E**; SESE 19-149N-95W; 924'FSL and 310'FEL; Bear Den; N/A\*; on confidential status; 2,385' ground; 27900; 33-053-05749; 3/14/2014

## Mountrail Co.

## Permits issued

## Continental Resources

**Jersey 9-6H**; SENE 6-153N-93W; 1,730'FNL and 847'FEL; Alkali Creek; N/A\*; on confidential status; 2,013' ground; 27892; 33-061-03020; 3/13/2014

**Jersey 10-6H2**; SENE 6-153N-93W; 1,774'FNL and 853'FEL; Alkali Creek; N/A\*; on confidential status; 2,008' ground; 27893; 33-061-03021; 3/13/2014

**Jersey 11-6H1**; SENE 6-153N-93W; 1,819'FNL and 859'FEL; Alkali Creek; N/A\*; on confidential status; 1,999' ground; 27894; 33-061-03022; 3/13/2014

**Jersey 12-6H3**; SENE 6-153N-93W; 1,864'FNL and 864'FEL; Alkali Creek; N/A\*; on confidential status; 2,007' ground; 27895; 33-061-03023; 3/13/2014

**Jersey 13-6H**; SENE 6-153N-93W; 1,908'FNL and 870'FEL; Alkali Creek; N/A\*; on confidential status; 2,012' ground; 27896; 33-061-03024; 3/13/2014

**Jersey 14-6H2**; SENE 6-153N-93W; 1,953'FNL and 876'FEL; Alkali Creek; N/A\*; on confidential status; 2,016' ground; 27897; 33-061-03025; 3/13/2014

**Jersey 15-6H1**; SENE 6-153N-93W; 1,998'FNL and 881'FEL; Alkali Creek; N/A\*; on confidential status; 2,020' ground; 27898; 33-061-03026; 3/13/2014

**Jersey 16-6H3**; SENE 6-153N-93W; 1,729'FNL and 696'FEL; Alkali Creek; N/A\*; on confidential status; 2,021' ground; 27878; 33-061-03012; 3/13/2014

**Jersey 17-6H**; SENE 6-153N-93W; 1,774'FNL and 702'FEL; Alkali Creek; N/A\*; on confidential status; 2,018' ground; 27879; 33-061-03013; 3/13/2014

**Jersey 18-6H2**; SENE 6-153N-93W; 1,819'FNL and 708'FEL; Alkali Creek; N/A\*; on confidential status; 2,016' ground; 27880; 33-061-03014; 3/13/2014

**Jersey 19-6H1**; SENE 6-153N-93W; 1,863'FNL and 713'FEL; Alkali Creek; N/A\*; on confidential status; 2,016' ground; 27881; 33-061-03015; 3/13/2014

**Jersey Federal 20-6H3**; SENE 6-153N-93W; 1,908'FNL and 719'FEL; Alkali Creek; N/A\*; on confidential status; 2,016' ground; 27882; 33-061-03016; 3/13/2014

**Jersey Federal 21-6H**; SENE 6-153N-93W; 1,953'FNL and 725'FEL; Alkali Creek; N/A\*; on confidential status; 2,017' ground; 27883; 33-061-03017; 3/13/2014

**Jersey Federal 22-6H2**; SENE 6-153N-93W; 1,997'FNL and 730'FEL; Alkali Creek; N/A\*; on confidential status; 2,019' ground; 27884; 33-061-03018; 3/13/2014

**Vachal 11-27H2**; NENE 27-154N-94W; 200'FNL and 620'FEL; Alkali Creek; N/A\*; on confidential status; 2,055' ground; 27906; 33-061-0327; 3/17/2014

**Vachal 10-27H3**; NENE 27-154N-94W; 200'FNL and 575'FEL; Alkali Creek; N/A\*; on confidential status; 2,055' ground; 27907; 33-061-0328; 3/17/2014

**EOG Resources**

**Parshall 36-0806H**; LOT8 8-152N-90W; 1,640'FSL and 520'FEL; Parshall; Bakken; horizontal; 1,893' ground; 27852; 33-061-03004; 3/11/2014

**Parshall 37-0806H**; LOT8 8-152N-90W; 1,710'FSL and 520'FEL; Parshall; Bakken; horizontal; 1,893' ground; 27854; 33-061-03006; 3/11/2014

**Parshall 56-0806H**; SESE 8-152N-90W; 300'FSL and 550'FEL; Parshall; Bakken; horizontal; 1,942' ground; 27857; 33-061-03007; 3/12/2014

**Parshall 57-0806H**; SESE 8-152N-90W; 300'FSL and 650'FEL; Parshall; Bakken; horizontal; 1,942' ground; 27859; 33-061-03009; 3/12/2014

**Parshall 146-0806H**; LOT8 8-152N-90W; 1,675'FSL and 520'FEL; Parshall; Bakken; horizontal; 1,893' ground; 27853; 33-061-03005; 3/11/2014

**Parshall 152-0806H**; SESE 8-152N-90W; 300'FSL and 600'FEL; Parshall; Bakken; horizontal; 1,942' ground; 27858; 33-061-03008; 3/12/2014

**Parshall 408-15M**; SENE 15-152N-90W; 2,410'FSL and 1,275'FEL; Parshall; Bakken; horizontal; 2,024' ground; 27850; 33-061-03003; 3/11/2014

## Slawson Exploration

**Cruiser 6-16-9TFH**; NWNE 21-151N-92W; 275'FNL and 1,454'FEL; Big Bend; N/A\*; on confidential status; 2,065' ground; 27876; 33-061-03010; 3/13/2014

**Cruiser 7-16-9TFH**; NENE 21-151N-92W; 280'FNL and 1,302'FEL; Big Bend; N/A\*; on confidential status; 2,065' ground; 27877; 33-061-03011; 3/13/2014

**Mustang 1 SLH**; NENE 21-151N-92W; 281'FNL and 1,277'FEL; Big Bend; N/A\*; on confidential status; 2,062' ground; 27887; 33-061-03019; 3/13/2014

## Permits cancelled

## Continental Resources

**Linbeck 14-6H1**; SENE 6-153N-93W; 1,979'FNL and 602'FEL; Alkali Creek; Bakken; horizontal; 2,028' ground; 26561; 33-061-02744; 3/13/2014

## Stark Co.

## Permits issued

## Emerald Oil

**Lloyd Christmas 1-4-9H**; LOT3 4-139N-97W; 375'FNL and 1,348'FWL; Heart River; Bakken; horizontal; 2,575' ground; 27903; 33-089-00830; 3/14/2014

**Lloyd Christmas 2-4-9H**; LOT3 4-139N-97W; 375'FNL and 1,398'FWL; Heart River; Bakken; horizontal; 2,576' ground; 27902; 33-089-00829; 3/14/2014

## Williams Co.

## Permits issued

## Kodiak Oil and Gas

**P Wood 154-98-16-23-14-1H3**; SESE 23-154N-98W; 953'FSL and 750'FEL; Truax; Bakken; horizontal; 1,980' ground; 27860; 33-105-03452; 3/12/2014

**P Wood 154-98-16-23-14-1H3A**; SESE 23-154N-98W; 932'FSL and 771'FEL; Truax; Bakken; horizontal; 1,978' ground; 27862; 33-105-03454; 3/12/2014

**P Wood 154-98-16-23-14-2H3**; SESE 23-154N-98W; 911'FSL and 792'FEL; Truax; Bakken; horizontal; 1,976' ground; 27863; 33-105-03455; 3/12/2014

**P Wood 154-98-16-23-15-1H**; SESE 23-154N-98W; 890'FSL and 813'FEL; Truax; Bakken; horizontal; 1,975' ground; 27861; 33-105-03453; 3/12/2014

**P Wood 154-98-16-23-35-15H3**; SESE 23-154N-98W; 607'FSL and 530'FEL; Truax; Bakken; horizontal;

2,001' ground; 27867; 33-105-03459; 3/12/2014

**P Wood 154-98-16-23-35-16H**; SESE 23-154N-98W; 671'FSL and 467'FEL; Truax; Bakken; horizontal; 2,006' ground; 27864; 33-105-03456; 3/12/2014

**P Wood 154-98-16-23-35-16H3**; SESE 23-154N-98W; 649'FSL and 488'FEL; Truax; Bakken; horizontal; 2,004' ground; 27865; 33-105-03457; 3/12/2014

**P Wood 154-98-16-23-35-16HA**; SESE 23-154N-98W; 628'FSL and 509'FEL; Truax; Bakken; horizontal; 2,002' ground; 27866; 33-105-03458; 3/12/2014

## Slawson Exploration

**Bootleg 4-14-15TFH**; NENW 14-154N-99W; 1,000'FNL and 2,600'FWL; Stockyard Creek; N/A\*; on confidential status; 2,397' ground; 27912; 33-105-03461; 3/17/2014

**Bootleg 5-14-15TFH**; NENW 14-154N-99W; 1,040'FNL and 2,600'FWL; Stockyard Creek; N/A\*; on confidential status; 2,397' ground; 27911; 33-105-03460; 3/17/2014

**Bootleg 6-14-15TFH**; NESW 14-154N-99W; 1,460'FNL and 2,200'FWL; Stockyard Creek; N/A\*; on confidential status; 2,342' ground; 27914; 33-105-03462; 3/17/2014

**Bootleg 7-14-15TFH**; NESW 14-154N-99W; 1,420'FNL and 438'FWL; Stockyard Creek; N/A\*; on confidential status; 2,342' ground; 27915; 33-105-03463; 3/17/2014

*\*Note - The geologic target for these wells was not listed in its well file because they are tight (confidential) holes, but the following fields produce from the Bakken pool; Alkali Creek, Bear Den, Big Bend, Cherry Creek, Clear Creek, Colgan, Corral Creek, Little Knife, Mary, Stockyard, Stoneview, and Ukraina.*

*\*\*Note - The geologic target for these wells was not listed in their well file because they are a tight (confidential) hole, but the Cedar Hills field produces from the North Red River B and South Red River B pools, the Mohall field produces from the Madison pool, and Red Rock field produces from the Spearfish field.*

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## ND PRODUCTION

Pierre Creek – Bakken – McKenzie	0
Monthly total:	253
Daily average:	8
<b>Citation Oil and Gas</b>	
Sadler – Bakken – Divide	104
Daily average:	3
<b>Condor Petroleum</b>	
Hayland – Bakken – Divide	0
Stoneview – Bakken – Divide	0
<b>ConocoPhillips</b>	
Dickinson – Lodgepole – N/A	4,435
Duck Creek – Lodgepole – N/A	2,533
West Dickinson – Lodgepole – N/A	1,239
Monthly total:	8,207
Daily average:	265
<b>Continental Resources</b>	
Alkali Creek – Bakken – Mountrail	35,236
Antelope – Sanish – McKenzie	22,818
Avoca – Bakken – Williams	7,941
Baker – Bakken – Williams	0
Baker – Bakken – McKenzie	0
Banks – Bakken – McKenzie	129,466
Barta – Bakken – Billings	6,537
Battleview – Bakken – Williams	3,504
Baukol Noonan – Bakken – Divide	1,608
Bear Creek – Bakken – Dunn	20,344
Beaver Creek – Bakken – Golden Valley	5,441
Beaver Creek Bay – Bakken – Mercer	0
Beaver Lodge – Bakken – Williams	16,561
Bell – Bakken – Stark	2,376
Bicentennial – Bakken – McKenzie	685
Big Gulch – Bakken – Dunn	5,807
Blacktail – Bakken – Billings	2,331
Bluffton – Bakken – Divide	9,518
Border – Bakken – Burke	4,462
Border – Bakken – Divide	203
Brooklyn – Bakken – Williams	144,377
Bully – Bakken – McKenzie	2,749
Burg – Bakken – Williams	491
Cabernet – Bakken – Dunn	7,807
Camel Butte – Bakken – McKenzie	1,328
Camp – Bakken – McKenzie	94,011
Catwalk – Bakken – Williams	3,887
Cedar Coulee – Bakken – Dunn	26,675
Charlie Bob – Bakken – McKenzie	195
Charlson – Bakken – McKenzie	70
Chimney Butte – Bakken – Dunn	122,182
Corinth – Bakken – Williams	25,554
Corral Creek – Bakken – Dunn	49,772
Crazy Man Creek – Bakken – Williams	61,916
Demores – Bakken – Billings	446
Dimmick Lake – Bakken – McKenzie	6,976
Dollar Joe – Bakken – Williams	114,954
Dolphin – Bakken – Divide	17,997
Dutch Henry Butte – Bakken – Stark	38
East Fork – Bakken – Williams	48,280
Edge – Bakken – McKenzie	2,413
Elidah – Bakken – McKenzie	26,401
Elk – Bakken – McKenzie	7,157
Elkhorn Ranch – Bakken – Billings	2,792
Ellisville – Bakken – Williams	2,610
Elm Tree – Bakken – McKenzie	145,078
Epping – Bakken – Williams	20,299
Fairfield – Bakken – Billings	4,863
Fancy Buttes – Bakken – McKenzie	2,592
Forthun – Bakken – Divide	2,271
Frazier – Bakken – Divide	22,173
Glade – Bakken – Billings	235
Glass Bluff – Bakken – McKenzie	3,210
Hamlet – Bakken – Divide	84,308
Hamlet – Bakken – Williams	15,678
Hanson – Bakken – Williams	7,279
Hardscrabble – Bakken – Williams	5,905
Hayland – Bakken – Divide	5,465
Haystack Butte – Bakken – Dunn	4,260
Haystack Butte – Bakken – McKenzie	8,396
Hebron – Bakken – Williams	25,449
Indian Hill – Bakken – McKenzie	15,367
Jim Creek – Bakken – Dunn	62,568
Juno – Bakken – Divide	14,425
Kimberly – Bakken – Divide	1,385
Last Chance – Bakken – Williams	25,048
Lindahl – Bakken – Williams	54,958
Little Knife – Bakken – Dunn	15,383
Little Knife – Bakken – McKenzie	950
Lone Tree Lake – Bakken – Williams	18,288
Long Creek – Bakken – Williams	28,410
Mary – Bakken – McKenzie	957
Mondak – Bakken – McKenzie	2,231
Murphy Creek – Bakken – Dun	41,301
New Home – Bakken – Williams	6,936
Noonan – Bakken – Divide	0
North Tioga – Bakken – Burke	12,491
North Tioga – Bakken – Williams	41,569
North Tobacco Garden – Bakken – McKenzie	36,471
Northwest McGregor – Bakken – Williams	11,947
Oakdale – Bakken – Dunn	215,423
Oliver – Bakken – Williams	61,451
Patent Gate – Bakken – McKenzie	6,938
Pembroke – Bakken – McKenzie	5,409
Pershing – Bakken – McKenzie	11,375
Pleasant Valley – Bakken – Williams	9,111
Poe – Bakken – McKenzie	3,064
Rainbow – Bakken – Williams	5,428
Ranch Coulee – Bakken – McKenzie	4,100
Ranch Creek – Bakken – McKenzie	885
Rattlesnake Point – Bakken – Dunn	18,556
Rosebud – Bakken – Williams	3,126
Ross – Bakken – Mountrail	489
Saddle Butte – Bakken – Billings	2,605
Sadler – Bakken – Divide	11,251

Sauk – Bakken – Divide	3,930
Sauk – Bakken – Williams	30,394
Siverston – Bakken – McKenzie	2,609
South Boxcar – Bakken – McKenzie	333
South Meadow – Bakken – Williams	3,666
Squaw Gap – Bakken – McKenzie	3,593
Squires – Bakken – Williams	7,610
St. Anthony – Bakken – Dunn	4,976
St. Demetrius – Bakken – Billings	26,232
Stoneview – Bakken – Burke	8,060
Stoneview – Bakken – Divide	68,255
Stoneview – Bakken – Williams	12,886
Temple – Bakken – Williams	5,287
Todd – Bakken – Williams	4,396
Ukraina – Bakken – Billings	6,759
Upland – Bakken – Divide	24,424
Viking – Bakken – Burke	6,959
West Capa – Bakken – Williams	3,057
Westberg – Bakken – McKenzie	6,863
Whitetail – Bakken – Billings	222
Wildcat – Bakken – Billings	4,463
Wildcat – Bakken – McKenzie	942
Wildcat – Bakken – Williams	16,324
Wildrose – Bakken – Divide	17,404
Willow Creek – Bakken – Williams	2,512
Winner – Bakken – Williams	4,009
Monthly total:	2,429,239
Daily average:	78,363
<b>Cornerstone Natural Resources</b>	
Bailey – Bakken – Dunn	3,499
Carter – Bakken – Burke	3,557
Clear Water – Bakken – Burke	907
Coteau – Bakken – Burke	2,138
Customs – Bakken – Burke	1,283
Flaxton – Bakken – Burke	1,812
Lignite – Bakken – Burke	394
Lostwood – Bakken – Burke	1,706
Northeast Foothills – Bakken – Burke	967
Pickett – Bakken – Burke	1,165
South Coteau – Bakken – Burke	4,745
Woburn – Bakken – Burke	693
Monthly total:	22,866
Daily average:	738
<b>Crescent Point Energy</b>	
Alkabo – Bakken – Divide	1,015
Blue Ridge – Bakken – Williams	5,933
Church – Bakken – Williams	941
Colgan – Bakken – Divide	3,412
Dublin – Bakken – Williams	3,458
Ellisville – Bakken – Williams	6,718
Gooseneck – Bakken – Divide	1,803
Little Muddy – Bakken – Williams	12,397
New Home – Bakken – Williams	436
West Ambrose – Bakken – Divide	12,492
Wheelock – Bakken – Williams	673
Wildcat – Bakken – Williams	0
Wildrose – Bakken – Divide	635
Winner – Bakken – Williams	18,080
Monthly total:	67,993
Daily average:	2,193
<b>Denbury Onshore</b>	
Eland – Lodgepole – N/A	19,184
Livestock – Lodgepole – N/A	0
Stadium – Lodgepole – N/A	12,033
Subdivision – Lodgepole – N/A	28
Monthly total:	31,245
Daily average:	1,008
<b>Eagle Operating</b>	
Spiral – Bakken – Burke	38
Daily average:	1
<b>Earthstone Energy</b>	
Flat Top Butte – Bakken – McKenzie	165
Daily average:	5
<b>Emerald Oil</b>	
Boxcar Butte – Bakken – McKenzie	12,811
Charbonneau – Bakken – McKenzie	24,795
Foreman Butte – Bakken – McKenzie	8,423
Monthly total:	46,029
Daily average:	1,485
<b>Encore Energy Partners Operating</b>	
Ice Caves – Bakken – Billings	172
North Tioga – Bakken – Burke	55
Tree Top – Bakken – Billings	70
Monthly total:	297
Daily average:	10
<b>Endeavor Energy Resources</b>	
Bicentennial – Bakken – McKenzie	0
<b>Enduro Operating</b>	
Hay Draw – Bakken – McKenzie	0
Stoneview – Bakken – Divide	0
<b>Enerplus Resources USA</b>	
Antelope – Sanish – McKenzie	17,939
Beicegel Creek – Bakken – McKenzie	0
Eagle Nest – Bakken – Dunn	6,300
Eagle Nest – Bakken – McKenzie	22,140
Four Bears – Bakken – McKenzie	987
Heart Butte – Bakken – Dunn	27,339
Mandaree – Bakken – Dunn	111,611
McGregory Buttes – Bakken – Dunn	107,349
Moccasin Creek – Bakken – Dunn	18,210
South Fork – Bakken – Dunn	5,950
Spotted Horn – Bakken – McKenzie	68,787
Squaw Creek – Bakken – Dunn	4,580
Wildcat – Bakken – Dunn	5,132

Monthly total:	396,324
Daily average:	12,785
<b>EOG Resources</b>	
Alger – Bakken – Mountrail	31,389
Antelope – Sanish – McKenzie	49,192
Clarks Creek – Bakken – McKenzie	136,609
Clear Water – Bakken – Burke	11,596
Clear Water – Bakken – Mountrail	88,869
Cottonwood – Bakken – Mountrail	5,893
Eightmile – Bakken – Williams	1,684
Ft. Buford – Bakken – Williams	4,580
Hebron – Bakken – Williams	2,514
Kittleson Slough – Bakken – Mountrail	39,415
Lake Trenton – Bakken – Williams	1,291
Little Butte – Bakken – Burke	867
Mandaree – Bakken – Dunn	10,854
Painted Woods – Bakken – Williams	36,210
Parshall – Bakken – Mountrail	1,296,472
Rosebud – Bakken – Williams	7,282
Ross – Bakken – Mountrail	41,946
Round Prairie – Bakken – Williams	23,107
Sixmile – Bakken – Williams	6,541
Spotted Horn – Bakken – McKenzie	147,201
Squaw Creek – Bakken – McKenzie	19,119
Squires – Bakken – Williams	2,171
Stanley – Bakken – Mountrail	15,092
Thompson Lake – Bakken – Burke	13,156
Van Hook – Bakken – Mountrail	74,152
Vanville – Bakken – Burke	731
Wildcat – Bakken – Williams	1,361
Monthly total:	2,069,294
Daily average:	66,751
<b>Evertson Operating</b>	
Ray – Bakken – Williams	0
<b>Fidelity Exploration and Production (MDU)</b>	
Alger – Bakken – Mountrail	15,618
Dickinson – Bakken – Stark	14,263
Dutch Henry Butte – Bakken – Stark	15,821
Green River – Bakken – Stark	8,646
Heart River – Bakken – Stark	27,555
Lehigh – Bakken – Stark	62
New Hradec – Bakken – Stark	7,458
Sanish – Bakken – Mountrail	132,058
Stanley – Bakken – Mountrail	90,622
Zenith – Bakken – Stark	3,159
Monthly total:	315,262
Daily average:	10,170
<b>Filco</b>	
Charlson – Bakken – McKenzie	20
Rough Rider – Bakken – McKenzie	0
Daily average:	0.64
<b>Gadeco</b>	
Epping – Bakken – Williams	9,822
Daily average:	317
<b>Hess Bakken Investments II</b>	
Alger – Bakken – Mountrail	115,738
Alkali Creek – Bakken – Mountrail	190,252
Antelope – Sanish – McKenzie	106,212
Antelope Creek – Bakken – McKenzie	5,358
Bailey – Bakken – Dunn	476
Banks – Bakken – McKenzie	8,183
Baskin – Bakken – Mountrail	11,830
Baukol Noonan – Bakken – Divide	160
Bear Creek – Bakken – Dunn	2,443
Beaver Lodge – Bakken – Williams	62,081
Big Butte – Bakken – Mountrail	79,100
Big Gulch – Bakken – Dunn	41,612
Blue Buttes – Bakken – McKenzie	203,656
Capa – Bakken – Williams	20,933
Cedar Coulee – Bakken – Dunn	29,174
Cherry Creek – Bakken – McKenzie	60,405
Clear Water – Bakken – Mountrail	7,476
Cottonwood – Bakken – Mountrail	863
Crazy Man Creek – Bakken – Williams	5,702
Davis Buttes – Bakken – Stark	0
Dollar Joe – Bakken – Williams	22,690
East Fork – Bakken – Williams	1,697
East Tioga – Bakken – Mountrail	25
Elk – Bakken – McKenzie	2,699
Ellsworth – Bakken – McKenzie	27,079
Elm Tree – Bakken – McKenzie	10,513
Engel Lake – Bakken – Mountrail	1,069
Forthun – Bakken – Burke	1,615
Glass Bluff – Bakken – McKenzie	5,746
Hans Creek – Bakken – Dunn	0
Hawkeye – Bakken – McKenzie	190,817
Hofflund – Bakken – Williams	118,898
Jim Creek – Bakken – Dunn	1,750
Juniper – Bakken – McKenzie	6,762
Kittleson Slough – Bakken – Mountrail	596
Lake Ilo – Bakken – Dunn	0
Larson – Bakken – Burke	1,885
Little Knife – Bakken – Dunn	197,353
Little Knife – Bakken – McKenzie	1,509
Lone Butte – Bakken – Dunn	3,341
Lone Tree Lake – Bakken – Williams	10,615
Long Creek – Bakken – Williams	3,571
Manitou – Bakken – Mountrail	57,418
Manning – Bakken – Dunn	1,812
Marmon – Bakken – Williams	7,940
Midway – Bakken – Williams	0
Murphy Creek – Bakken – Dunn	42,151
New Home – Bakken – Williams	1,539
Oliver – Bakken – Williams	8,218
Parshall – Bakken – Mountrail	3,091
Pleasant Valley – Bakken – Mountrail	8,640
Rainbow – Bakken – Williams	5,486
Ranch Coulee – Bakken – McKenzie	1,890
Ray – Bakken – Williams	41,130
Robinson Lake – Bakken – Mountrail	379,562



continued from page 13

**ND PRODUCTION**

Ross – Bakken – Mountrail	49,560
Sandrock – Bakken – McKenzie	2,568
Sather Lake – Bakken – McKenzie	7,433
Saxon – Bakken – Dunn	0
Short Creek – Bakken – Burke	943
Siverston – Bakken – McKenzie	22,811
Sorkness – Bakken – Mountrail	3,858
South Meadow – Bakken – Williams	2,073
South Tobacco Garden – Bakken – McKenzie	32,521
Spencer – Bakken – Ward	0
Stanley – Bakken – Mountrail	64,034
Timber Creek – Bakken – McKenzie	12,360
Tioga – Bakken – Mountrail	7,230
Tioga – Bakken – Williams	4,929
Truax – Bakken – Williams	109,043
Westberg – Bakken – McKenzie	6,779
Wheelock – Bakken – Williams	34,613
White Earth – Bakken – Mountrail	4,806
Wildcat – Bakken – Burke	24
Wildcat – Bakken – McKenzie	885

Monthly total:	2,487,234
Daily average:	80,233

**HRC Operating (Halcon Resources)**

Antelope – Sanish – McKenzie	208,211
Climax – Bakken – Williams	20,071
Dublin – Bakken – Williams	7,909
Eagle Nest – Bakken – Dunn	159,139
Ellisville – Bakken – Williams	3,505
Flat Top Butte – Bakken – McKenzie	0
Four Bears – Bakken – McKenzie	71,872
Good Luck – Bakken – Williams	10,292
Little Muddy – Bakken – Williams	6,550
Lone Tree Lake – Bakken – Williams	12,170
Marmon – Bakken – Williams	19,243
McGregory Buttes – Bakken – Dunn	167,485
Otter – Bakken – Williams	23,875
Pembroke – Bakken – McKenzie	5,831
Spotted Horn – Bakken – McKenzie	23,765
Strandahl – Bakken – Williams	37,555
Tyrone – Bakken – Williams	11,461
Wildcat – Bakken – Williams	15,881

Monthly total:	804,815
Daily average:	25,962

**Hunt Oil**

Alexandria – Bakken – Divide	17,209
Antelope Creek – Bakken – McKenzie	10,061
Bailey – Bakken – Dunn	6,263
Bear Butte – Bakken – McKenzie	5,534
Bluffton – Bakken – Divide	5,460
Buffalo Wallow – Bakken – McKenzie	67
Bully – Bakken – McKenzie	1,176
Clear Water – Bakken – Mountrail	7,726
Ellsworth – Bakken – McKenzie	2,075
Frazier – Bakken – Divide	18,929
Lake Ilo – Bakken – Dunn	9,430
Little Tank – Bakken – McKenzie	5,724
Parshall – Bakken – Mountrail	72,454
Red Wing Creek – Bakken – McKenzie	2,067
Ross – Bakken – Mountrail	41,895
Sather Lake – Bakken – McKenzie	8,323
Sioux Trail – Bakken – Divide	7,954
Werner – Bakken – Dunn	18,142
Wolf Bay – Bakken – Dunn	25,269
Zahl – Bakken – Williams	12,719

Monthly total:	278,477
Daily average:	8,983

**Jettison**

Stoneview – Bakken – Burke	400
Little Knife – Bakken – Billings	13

Monthly total:	413
Daily average:	13

**Kodiak Oil and Gas**

Banks – Bakken – McKenzie	14,536
Big Stone – Bakken – Williams	3,836
Bully – Bakken – McKenzie	6,031
Corinth – Bakken – Williams	1,908
Cow Creek – Bakken – Williams	4,729
East Fork – Bakken – Williams	78,783
Epping – Bakken – Williams	71,306
Glass Bluff – Bakken – McKenzie	47,158
Grinnell – Bakken – McKenzie	3,197
Heart Butte – Bakken – Dunn	72,089
Mandaree – Bakken – Dunn	23,103
Moccasin Creek – Bakken – Dunn	80,594
Mondak – Bakken – McKenzie	7,485
Pembroke – Bakken – McKenzie	194,767
Pierre Creek – Bakken – McKenzie	186
Poe – Bakken – McKenzie	99,912
Ranch Creek – Bakken – McKenzie	4,703
Sand Creek – Bakken – McKenzie	1,384
South Fork – Bakken – Dunn	36,027
Springbrook – Bakken – Williams	5,417
Stockyard Creek – Bakken – Williams	69,411
Truax – Bakken – Williams	324,489
Twin Buttes – Bakken – Dunn	113,065
Tyrone – Bakken – Williams	26,319
Wildcat – Bakken – McKenzie	3,539
Wildrose – Bakken – Divide	1,145

Monthly total:	1,295,119
Daily average:	41,778

**Legacy Reserves Operating**

Ash Coulee – Bakken – Billings	304
Elkhorn Ranch – Bakken – Billings	792
Roosevelt – Bakken – Billings	1,732
South Boxcar – Bakken – McKenzie	16
Squaw Gap – Bakken – McKenzie	863

Monthly total:	3,707
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Daily average:	120
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**Marathon Oil**

Antelope – Sanish – McKenzie	23,361
Bailey – Bakken – Dunn	268,232
Big Bend – Bakken – Mountrail	15,049
Chimney Butte – Bakken – Dunn	28,482
Deep Water Creek Bay – Bakken	34,201
Four Bears – Bakken – McKenzie	3,102
Jim Creek – Bakken – Dunn	705
Killdeer – Bakken – Dunn	73,003
Lake Ilo – Bakken – Dunn	16,491
Lost Bridge – Bakken – Dunn	25,999
McGregory Buttes – Bakken – Dunn	35,223
Moccasin Creek – Bakken – Dunn	12,383
Murphy Creek – Bakken – Dunn	190,093
Murphy Creek – Lodgepole – Dunn	1,928
Reunion Bay – Bakken – McKenzie	58,677
Reunion Bay – Bakken – Mountrail	476,349
Saxon – Bakken – Dunn	1,114
Strandahl – Bakken – Williams	14,285
Van Hook – Bakken – Mountrail	59,382
Werner – Bakken – Dunn	2,365
Wildcat – Bakken – McLean	0
Wolf Bay – Bakken – Dunn	21,275
Zahl – Bakken – Williams	1,331

Monthly total:	1,363,030
Daily average:	43,969

**MBI Oil and Gas**

Rough Rider – Bakken – McKenzie	311
Tree Top – Bakken – Billings	0

Daily average:	10
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**Missouri River Royalty**

Juniper – Bakken – McKenzie	55
Manitou – Bakken – Mountrail	306

Monthly total:	361
Daily average:	12

**Mountain Divide (Mountainview Energy)**

Fortuna – Bakken – Divide	24,321
Wildcat – Bakken – Divide	3,340

Monthly total:	27,661
Daily average:	892

**Murex Petroleum**

Alexander – Bakken – McKenzie	4,034
Beaver Lodge – Bakken – Williams	16,244
Fortuna – Bakken – Divide	22,727
Glass Bluff – Bakken – McKenzie	7,888
Lonesome – Bakken – McKenzie	5,066
McGregor – Bakken – Williams	15,180
Midway – Bakken – Williams	12,593
Rawson – Bakken – McKenzie	5,829
Sandrock – Bakken – McKenzie	7,661
Sanish – Bakken – Mountrail	53,196
Temple – Bakken – Williams	0
Tioga – Bakken – Williams	2,012
West Bank – Bakken – Williams	14,909
West Capa – Bakken – Williams	2,091
West Tioga – Bakken – Williams	1,339
Wildcat – Bakken – Divide	266
Writing Rock – Bakken – Divide	5,356

Monthly total:	176,391
Daily average:	5,690

**Newfield Production**

Banks – Bakken – McKenzie	3,729
Bear Den – Bakken – McKenzie	46,465
Fertile Valley – Bakken – Divide	4,331
Hanks – Bakken – Williams	2,338
Haystack Butte – Bakken – Dunn	2,236
Haystack Butte – Bakken – McKenzie	12,487
Keene – Bakken/Three Forks – McKenzie	26,229
Lost Bridge – Bakken – Dunn	5,908
Pembroke – Bakken – McKenzie	6,587
Sand Creek – Bakken – McKenzie	39,468
Sandrock – Bakken – McKenzie	27,759
Siverston – Bakken – McKenzie	158,564
South Tobacco Garden – Bakken – McKenzie	54,406
Tobacco Garden – Bakken – McKenzie	35,501
Westberg – Bakken – McKenzie	110,255

Monthly total:	536,263
Daily average:	17,299

**North Plains Energy**

Smokey Butte – Bakken – Divide	2,633
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Daily average:	85
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**Oasis Petroleum North America**

Alger – Bakken – Mountrail	99,444
Alkali Creek – Bakken – Mountrail	13,874
Assiniboine – Bakken – McKenzie	8,736
Baker – Bakken – McKenzie	41,833
Banks – Bakken – McKenzie	27,389
Black Slough – Bakken – Burke	1,964
Bonetrail – Bakken – Williams	17,405
Bull Butte – Bakken – Williams	45,257
Camp – Bakken – McKenzie	179,812
Camp – Bakken – Williams	4,698
Church – Bakken – Williams	5,540
Cottonwood – Bakken – Burke	65,994
Cottonwood – Bakken – Mountrail	68,967
Cow Creek – Bakken – Williams	10,751
Crazy Man Creek – Bakken – Williams	33,245
Dore – Bakken – McKenzie	15,787
Dublin – Bakken – Williams	4,900
Eightmile – Bakken – McKenzie	5,022
Eightmile – Bakken – Williams	3,276
Elidah – Bakken – McKenzie	5,665
Elk – Bakken – McKenzie	5,113
Foothills – Bakken – Burke	7,242
Foreman Butte – Bakken – McKenzie	42,848
Ft. Buford – Bakken – Williams	7,071

Glass Bluff – Bakken – McKenzie	3,995
Gros Ventre – Bakken – Burke	64,152
Harding – Bakken – McKenzie	1,323
Hebron – Bakken – Williams	4,262
Indian Hill – Bakken – McKenzie	6,836
Lake Trenton – Bakken – Williams	6,498
Leaf Mountain – Bakken – Burke	375
Lucy – Bakken – Burke	9,679
Marmon – Bakken – Williams	6,857
Missouri Ridge – Bakken – Williams	12,832
Mondak – Bakken – McKenzie	2,727
Nohly Lake – Bakken – McKenzie	4,123
North Tioga – Bakken – Burke	6,005
North Tobacco Garden – Bakken – McKenzie	5,464
Painted Woods – Bakken – Williams	22,246
Pronghorn – Bakken – McKenzie	5,786
Rawson – Bakken – McKenzie	2,942
Robinson Lake – Bakken – Mountrail	27,655
Rosebud – Bakken – Williams	15,176
Sand Creek – Bakken – McKenzie	641
Sanish – Bakken – Mountrail	71,316
Siverston – Bakken – McKenzie	21,311
Sorkness – Bakken – Mountrail	11,285
Squires – Bakken – Williams	48,476
Strandahl – Bakken – Williams	503
Todd – Bakken – Williams	7,326
Trenton – Bakken – Williams	2,800
Tyrone – Bakken – Williams	45,629
Tyrone – Lodgepole – Williams	573
Wildcat – Bakken – McKenzie	13,098
Wildcat – Bakken – Mountrail	3,131
Wildcat – Bakken – Williams	1,859
Willow Creek – Bakken – Williams	99,696

Monthly total:	1,258,410
Daily average:	40,594

**Oxy USA (Occidental Petroleum)**

Cabernet – Bakken – Dunn	55,059
Crooked Creek – Bakken – Dunn	9,911
Dimond – Bakken – Burke	32,800
Fayette – Bakken – Dunn	171,321
Hungry Man Butte – Bakken – Billings	5,187
Little Knife – Bakken – Dunn	11,786
Little Knife – Bakken – Billings	8,792
Manning – Bakken – Dunn	51,146
Murphy Creek – Bakken – Dunn	90,399
Russian Creek – Bakken – Dunn	15,211
Saddle Butte – Bakken – Billings	3,469
Simon Butte – Bakken – Dunn	7,263
Snow – Bakken – Billings	4,969
St. Anthony – Bakken – Dunn	13,334
Vanville – Bakken – Burke	4,397
Wildcat – Bakken – Dunn	0
Willmen – Bakken – Billings	916
Willmen – Bakken – Dunn	29,213

Monthly total:	515,173
Daily average:	16,618

**Peregrine Petroleum Partners**

Buckhorn – Bakken – Billings	164
Covered Bridge – Bakken – Bakken	69
Flat Top Butte – Bakken – Bakken	226

Monthly total:	459
Daily average:	15

**Petro Harvester Operating**

Little Butte – Bakken – Burke	349
Thompson Lake – Bakken – Burke	774

Monthly total:	1,123
Daily average:	36

**Petrogulf**

Antelope – Sanish – Mountrail	46,699
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Daily average:	1,506
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**Petro-Hunt**

Charlson – Bakken – McKenzie	86,782
Clear Creek – Bakken – McKenzie	239,542
East Fork – Bakken – Williams	5,483
East Tioga – Bakken – Burke	2,710
East Tioga – Bakken – Mountrail	20,489
Kittleson Slough – Bakken – Mountrail	4,488
Little Knife – Bakken – Billings	2,497
Little Knife – Bakken – Dunn	2,039
North Tioga – Bakken – Burke	117,632
Powers Lake – Bakken – Mountrail	1,204
Stockyard Creek – Bakken – Williams	33,733
Stoneview – Bakken – Divide	954
Union Center – Bakken – McKenzie	333,149

Monthly total:	550,702
Daily average:	17,765

**Phillip D. Armstrong**

Charlson – Bakken – McKenzie	41
Elm Tree – Bakken – McKenzie	50

Monthly total:	91
Daily average:	3

**Pride Energy, an Oklahoma General Partnership**

Cartwright – Bakken – McKenzie	602
Elkhorn Ranch – Bakken – Billings	391
Squaw Gap – Bakken – McKenzie	0

Monthly total:	993
Daily average:	32

**QEP Energy**

Blue Buttes – Bakken – McKenzie	18,897
Croff – Bakken – McKenzie	35,894
Deep Water Creek Bay – Bakken – McLean	40,849
Grail – Bakken – McKenzie	547,132
Heart Butte – Bakken – Dunn	348,826

To view this chart in its entirety, please visit:  
<http://bit.ly/116Q9EW>



MOVING HYDROCARBONS

# WB pipeline exports make a slight gain

Crude oil markets still favor rail transport to the coasts, but the Brent/WTI spread narrows as the rollercoaster ride continues

By MIKE ELLERD

Petroleum News Bakken

While railroads still maintain a significant majority of Williston Basin crude oil export market share, pipelines did gain back one market share point in January amid a slight narrowing of the Brent/WTI crude oil price spread.

Data released on March 14 by the North Dakota Pipeline Authority indicate that in January railroads lost one export market share point, falling from 73 to 72 percent, with pipelines rising to 21 percent of the export market out of the basin. That shift comes two months after the price difference between Brent crude and West Texas Intermediate narrowed slightly from a monthly average of \$13.70 in November 2013 to \$12.82 in December and then to \$12.26 in January 2014.

However, even though the Brent/WTI spread narrowed some, the price advantage that Brent had over WTI in January was more than enough to offset the slightly higher rail transport costs that North Dakota oil producers pay to get their product to the coastal markets where prices are higher than Midcontinent.

During a monthly press conference on March 13, North Dakota Pipeline Authority Director Justin Kringstad said the Brent/WTI spread stood at just below \$10, still enough to make the coastal markets attractive. Kringstad watches the Brent/WTI spread to try “to get a better picture of where things may be heading in the coming month,” and the current spread in the \$9 to \$10 range makes for “a market condition where those barrels will be attracted to the East and West Coast and Gulf Coast markets,” Kringstad said. “So we’ll expect to see rail maintain that large market share of the crude oil leaving the Williston Basin.”

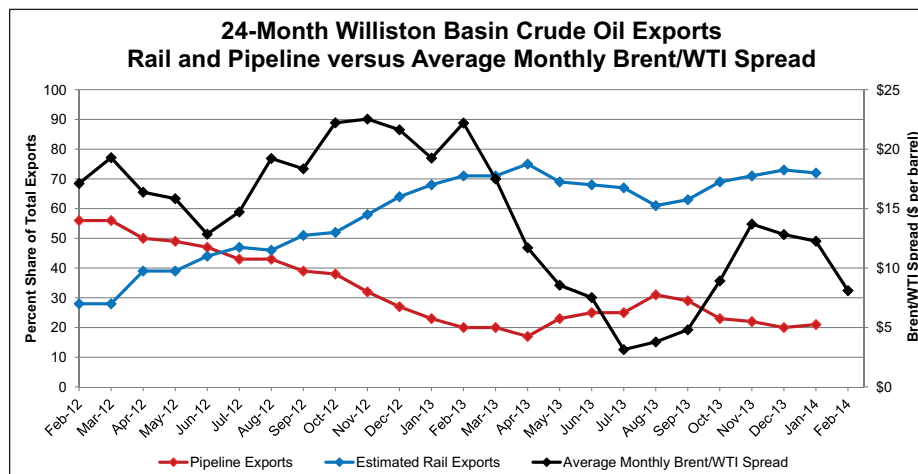
## The rollercoaster

Throughout 2012 and into the first quarter of 2013, Brent crude traded at a premium over WTI with the monthly average Brent/WTI spread ranging from \$12.85 to \$22.53, putting coastal markets at a significant price advantage over Midcontinent markets for Williston Basin oil producers. During that same period, the pipeline market share of Williston Basin crude oil exports fell from a 56 percent market share in February 2012 to 17 percent in April 2013, while the rail market share increased from 28 to 75 percent (see chart).

However, the Brent/WTI spread collapsed beginning in March 2013 with the monthly average spread narrowing from \$22.20 in February 2013 to a three-year low of \$3.14 in July 2013. Following a two-month lag period, pipelines began winning back export share, rising from 17 percent in April to 31 percent in August. During that time rail’s share of the export market fell from 75 to 61 percent.

Then the rollercoaster returned with a widening of the Brent/WTI spread which continued into November when the average spread had widened to \$13.70, and after another two-month lag period, pipelines lost 11 market share points falling to 20 percent by December.

But now the Brent/WTI spread appears to be on another narrowing trend with the monthly average falling slightly from \$13.70 in November to \$12.26 in January, and after yet another two-month lag period, pipelines gained back one market share



Crude oil export data source: North Dakota Pipeline Authority  
Brent/WTI spread data source: EIA for 2012, Alaska Dept. of Revenue for 2013 and beyond.

point from railroad in January. The narrowing of the Brent/WTI spread continues with the monthly average in February declining to \$8.10.

In late February and early March, the spread continued to narrow, falling below

\$6, which is the reason the February average was just above \$8. Through the first two weeks of March the spread averaged \$7.59. However, the spread began widening in the second week of March and by mid-month on the 14th, the spread stood at \$9.68 with

Brent closing at \$108.57 and WTI at \$98.89.

## Mid-March benchmark closings

North Dakota Light Sweet closed on the Flint Hills Resources exchange at \$84.75 on March 14. In mid-February, North Dakota Light Sweet was trading at \$89.50 on the Flint Hills market.

Alaska North Slope closed at \$106.78 on March 14 according to the Alaska Department of Revenue. On Feb. 18, ANS closed at \$107.92.

As reported by CME Group, Louisiana Light Sweet closed at \$103.53 on March 14, down slightly from its closing of \$105.88 on Feb. 18. And CME Group reported Western Canadian Select closed at a \$21.75 discount to WTI, gaining some over its mid-February discount of \$25.25. ●

Contact Mike Ellerd  
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## PLATTS

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## COMPANY UPDATE

### Baytex focused on Aurora's Eagle Ford assets

Baytex Energy, which is underpinned by heavy crude production in Canada, is immersed in readying itself to absorb the Eagle Ford shale assets of Australia's Aurora Oil & Gas within about two months.

Absorbing 22,000 barrels of oil equivalent per day into its production run targeted at 60,000-62,000 boe per day for 2014 will require changed guidance for the full-year once the remaining approvals for the C\$2.6 billion deal, including C\$700 million of debt, are obtained.

In issuing its fourth quarter and 2013 results, Baytex Chief Executive Officer James Bowzer told analysts the acquisition will enhance the company's growth-and-income business model, deliver production and reserves per share growth and provide attractive capital efficiencies for future investment.

The primary asset is 22,200 net contiguous acres in the Sugarkane field in south Texas in the core of the liquids rich Eagle Ford.

But there is no evident sign that the transaction will be a drag on Baytex's other operations, with its Bakken/Three Forks unit in North Dakota continuing at a measured pace.

Bowzer said no drilling occurred in the play during the final quarter of 2013, but proved plus probable reserves rose 55 percent to 53.5 million boe per day, largely due to an increased drilling density of five wells (two more than previously) on a 1,280-acre spacing that yielded average 30-day peak production rates of about 410 boe per day during the quarter.

North Dakota accounted for 14,313 gross and net undeveloped acres of Baytex's total United States holdings of 154,700 gross and 101,906 undeveloped acres, with Wyoming leading the way and New Mexico third.

Overall, light oil and liquids production averaged 8,134 boe per day for 2013, an increase of 774 boe per day from 2012.

The company replaced 234 percent of production through C\$551 million of exploration and development activities, with finding and development costs averaging C\$19.30 per boe, virtually unchanged from a three-year average.

Independent evaluators estimated Baytex's contingent resources ranged from a high of 1.18 million boe and bitumen to a low of 612 million boe.

Funds from operations in 2013 were C\$604.4 million, compared with C\$532.7

see **BAYTEX FOCUS** page 17

## MOVING HYDROCARBONS

### Open season starts on Double H expansion

Hiland Partners subsidiary Hiland Crude launched an open season March 17 on an expansion of its 488-mile Double H crude oil pipeline that will run from western North Dakota to Guernsey, Wyo. An initial open season for base capacity on the pipeline was held in 2012, and the new open season is to solicit shipper interest in possible expansion of the pipeline's capacity.

The Double H project is under construction and is expected to go into service in the fourth quarter of 2014 with an initial capacity to transport up to 100,000 barrels per day to the Guernsey hub in southeast Wyoming where it will interconnect with other pipelines. The Double H pipeline will originate at Dore, which lies along the Montana border in far northwest McKenzie County, N.D., about 40 miles northeast of Sidney, Mont.

Wyoming-based True companies is expanding the capacity of its Butte pipeline that transports crude from western North Dakota to the Guernsey hub. With that expansion, the Butte system will have 270,000 bpd capacity. Pipeline connections at Guernsey include the Tallgrass Pony Express which is expected to go into service in late 2014 and will transport crude from the Guernsey hub to Cushing, Okla., with a capacity of between 230,000 and 320,000 bpd.

Further information on the Double H open season is available on Hiland's website at [www.hilandpartners.com](http://www.hilandpartners.com).

—MIKE ELLERD

## MISCELLANEOUS

### Hess teams with ND to recruit workers

Hess Corp. has invested in North Dakota's new campaign to attract employees to the state.

The North Dakota Economic Development Foundation is rolling out a recruiting campaign in May called "Find the Good Life in North Dakota," with hopes of filling more than 20,000 jobs in all sectors.

Lt. Gov. Drew Wrigley accepted a \$400,000 check from Hess to help with advertising costs, which will be matched by funds through the state's Department of Commerce.

Oil development in the state has brought job seekers from every corner of the country, populating communities in North Dakota that hadn't thrived in decades. Yet companies are still desperate for workers, and the state hopes the campaign brings new talent in a variety of fields.

"It is being developed to target people in states with chronic unemployment, and people in industries that are high-demand in North Dakota, including: engineering, healthcare, energy, skilled trades, transportation and information technology," the foundation said in a statement.

Wrigley said the campaign is meant to attract people who seek permanent work and plan to raise their families in the state.

A dedicated website will be up in May to provide easy access to job opportunities in the state.

—MAXINE HERR

## ENVIRONMENT & SAFETY

### Ice jam flooding shuts down wells near Missouri River

Flooding along the Missouri River caused by ice jams required North Dakota operators to shut in 40 wells on March 13. The North Dakota Department of Mineral Resources had issued a warning several days earlier advising operators to shut down the wells and secure their tanks. The flood waters floated a tank at a Zavanna well site causing it to leak oil. The company may face sanctions for not heeding warnings swiftly enough.

Zavanna spokesman Travis Pfaff said once the tank began floating away, the piping attached to it broke, causing the oil spill. Though the oil breached the site's dike, it did not reach the river channel, which is just over a mile away.

Kris Roberts of the state's Health Department said the tank contained approximately 33 barrels of oil, but not all of it was released.

Containment booms surrounded the flooded well near the confluence of the Missouri and Yellowstone rivers.

"They believe they got all the oil contained," Roberts said.

Three more wells were surrounded with absorbent booms as a precaution; one in particular still had a workover rig at the site.

A day after most wells were shut in, state officials determined nine of nearly 40 oil wells threatened by flooding were already inundated with water. The number dropped to six on March 17.

Zavanna has 12 wells in the area that the company is monitoring.

DMR spokeswoman Alison Ritter told Petroleum News Bakken that her department does have the authority to require operators to shut in their wells, but chose to only "strongly suggest" operators do it. All but Denver-based Proven Petroleum adhered to the initial warning.

"Proven Petroleum had some wells that were still pumping as of Thursday (March 13), and we told them they need to cut power to the site, which they did end up doing," Ritter said.

Proven Petroleum Business Manager John Teff declined comment when Petroleum News Bakken asked why the company did not shut in its wells immediately.

Ritter said DMR will wait until the water has receded to investigate whether Zavanna's tank was properly secured, and if any fines will be issued to Zavanna or Proven Petroleum.

"We'll keep monitoring it until the water recedes and is gone, and after that it will be up to the field staff to start gathering information for any possible complaints," Ritter said.

The companies that shut in their wells include Zavanna, Citation Oil and Gas, Continental Resources, Encore, MBI Oil and Gas, Proven Petroleum, RIM Operating, SM Energy, Rankin Oil, Statoil, and Oasis Petroleum.

—MAXINE HERR

## MOVING HYDROCARBONS

### Prospective customers responding favorably to Dakota Pipeline: WBI

Prospective customers are said to be responding well to a proposed 375-mile pipeline that would transport natural gas produced in the Bakken oil fields to market while helping to relieve North Dakota's gas-flaring problem.

"To date our project has been viewed pretty favorably by customers working both with producers and the downstream market," Steven L. Bietz, chief executive officer of WBI Holdings, disclosed at the March 18 MDU Resources Annual Analyst Seminar in New York. WBI is owned by MDU.

The Dakota Pipeline, which would stretch from western North Dakota to northwestern Minnesota, is midway through a 120-day open season to gauge customer interest in the project. It closes at the end of May.

"We're looking for binding bids from customers to take capacity out on the pipeline," Bietz explained.

"We've had good discussions. We remain very optimistic about the pipe. And we're going to continue to work hard to get the commitments that we need in this open season."

At an estimated \$650 million, the Dakota Pipeline would be the largest project in the history of MDU Resources. Two compressor stations would push about 400 million cubic feet of gas per day through a 24-inch diameter line. With increased compression, the pipeline could transport more than 500 million cubic feet per day.

The proposed route would provide access to interconnections with pipelines operated by Great Lakes Gas Transmission Ltd. Partnership, Viking Gas Transmission Co. and, possibly TransCanada Pipeline Ltd. The interconnections would be at a point in northwestern Minnesota.

Following receipt of the contractual capacity commitments from the open season and the granting of the necessary permits and regulatory approvals, construction on the new pipeline could begin in 2016 with completion expected in 2017.

North Dakota Gov. Jack Dalrymple, who has expressed concern about the amount of natural gas flaring in the state, has commended MDU for the proposed pipeline.

"We feel this is the right project at the right time in North Dakota to serve a need certainly for moving more natural gas," Doran Schwartz, MDU's chief financial officer, told analysts. "And more and more natural gas will be produced in the future."

—RAY TYSON



• MOVING HYDROCARBONS

# Train loads of crude bring uneasiness

*Coastal communities are not rolling out the red carpet for Bakken crude, but instead preparing themselves for code red conditions*

By **MAXINE HERR**

*For Petroleum News Bakken*

As more Bakken crude makes its way to the coasts, it isn't receiving such a warm welcome.

Authorities in California and New York are concerned about tanks full of the highly volatile crude rumbling through their communities. Those dangers became apparent after a train derailment and explosion killed 47 people in Quebec in July.

Albany County in New York recently issued a moratorium on the expansion of crude oil processing in the Port of Albany, pending a public investigation. Officials are concerned about the health risks from processing and storing the crude oil at the port, which has become an important supply hub for the region. Opposition is surfacing toward a proposed expansion of a Global Partners oil processing facility. The operator transports up to 160,000 barrels of oil a day to its Albany rail terminal and wants to build several boilers that would heat crude oil before it is off-loaded and shipped for refining. Global Partners said "county officials had not previously voiced any concerns to Global about our operations, nor had they requested a meeting with us to discuss any questions or concerns."

After federal regulators announced in January that Bakken crude may be more volatile than other crude oils, New York Gov. Andrew Cuomo directed a state safety review of all shipments from North Dakota's Bakken oil fields. Approximately 20 percent of all Bakken crude moves through Albany County, averaging two mile-long train loads a day.

"This has caught everyone off guard," said Roger Downs, a conservation director at the Sierra Club in Albany.

Federal agencies recently instituted new voluntary steps to improve rail safety, but U.S. Sen. Charles Schumer, D-N.Y., says it isn't enough to protect his state's communities. He compared the industry's use of the older DOT-111 cars to a "ticking time bomb" and wants better protections.

"The safety regime has to catch up with the reality that there are now hundreds of cars everyone admits could be dangerous if there is a derailment that are hurtling through heavily populated areas of New York state," he told The New York Times.

Nearly 3,000 miles away on the opposite coastline, California residents are also resistant to Bakken crude and any additional oil refining in their communities. Northern California received about 85 per-

cent of its oil deliveries from the Bakken in 2013, and four of the five refineries in the Bay Area are in Contra Costa County.

In recent weeks, critics of increased crude-by-rail shipments hosted town hall meetings drawing attention to the recent high-profile train accidents in North Dakota, Alabama and Quebec, and several projects to bring crude by rail to the area are on hold because of it.

Richmond, Calif., Mayor Gayle McLaughlin, a frequent critic of the oil industry, said she was not aware of the statistics but that the tragedy in Lac-Megantic "should be a warning to us all."

"I can tell you that our community does not want this explosive Bakken crude transported through Richmond," McLaughlin told a local reporter.

A Pittsburg transportation hub project, also located in Contra Costa County, which would bring crude by rail, is stirring up controversy as well. But Bay Area refineries are looking for new sources of oil as their traditional sources from California and Alaska have diminished. Canadian tar sands and Bakken crude are the two most readily available.

In response to the proposed project, California Attorney General Kamala Harris submitted a letter to the City of Pittsburg, Calif., raising concerns about its environmental review, saying the document fails to disclose its sources and the environmental impact of the new crudes. Gov. Jerry Brown's office also expressed similar concerns to the city.

The volume of crude shipped by rail to northern California increased 57 percent last year to over 116,000 barrels, according to the California Energy Commission.

Contra Costa officials intend to revisit the county's Industrial Safety ordinance to determine if its safety measures should be modified to deal specifically with the light Bakken crude.

"On the one hand, this (Bakken) crude requires less energy to refine and may have less emissions," County Supervisor John Gioia said. "On the other hand, it has a lower flash point and so is potentially more flammable and explosive, which raises safety concerns."

Though local agencies are limited in what they can do to regulate the rail cargo since it falls under federal jurisdiction, Gov. Brown proposed a significant increase in the 2014 budget for spill prevention efforts. The \$6.7 million of funding will come from expanding a tax on oil. ●

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## MOVING HYDROCARBONS

### Crescent Point eyes rail for offshore markets

Two years after turning to rail to broaden its market outlets, Calgary-based Crescent Point Energy is now exploring ways to use the medium to start exporting crude off the North American continent.

Marketing Vice President Trent Stangl told analysts his company — which is ranked among the top 10 on the Toronto Stock Exchange Energy Index with a market value of C\$16 billion — has already used rail to open up new refiners and would like to add another half dozen to that list to "create some more price competition" for its production.

Crescent Point has previously estimated its net benefit from using rail is C\$5-C\$6 per barrel compared with pipelines.

Currently it is delivering rail shipments to the U.S. Midwest, Gulf Coast and east and west coasts of the U.S.

Among the "irons (it has) in fire," he said Crescent Point is aiming to have an export strategy in place by the end of 2014.

"That's really a natural evolution of our strategy to diversify the marketing portfolio," he said.

Stangl noted that crude from his company's operations have an advantage "in the sense that there are no regulatory hurdles for us to export."

"On the Canadian side, we need export permits and access to a deepwater port. On the U.S. side, we would need to ensure our crude remains segregated from U.S. crude. So obviously the rail strategy makes a lot of sense," he said.

He said the only permits needed in the U.S. come from the Department of Commerce and the Bureau of Industry and Security, meaning Crescent Point does not risk getting bogged down in Department of State reviews and obtaining Presidential Permits.

"We know there's already some Canadian crude being exported (by rail) through the U.S. So it's very doable," Stangl said.

Crescent Point currently owns and operates three rail loading terminals in Canada and one in Utah and currently moves 35,000-40,000 barrels per day (it had average output of 115,971 bpd of crude and natural gas liquids in the fourth quarter of 2013), with 90 percent representing Canadian production.

But it is building rail capacity out of the Utah Uinta Basin properties that it acquired late in 2012 and opening markets beyond the Salt Lake City refining market.

Its rail loading facility is now fully operational, with capacity of 10,000 bpd, and has the capability to increase volumes.

In its latest statistics, Canada's National Energy Board said Canada exported 2.6 million bpd of crude to the U.S. — with 1.86 million bpd destined for the Midwest — and only 79,000 bpd beyond the North American continent.

—GARY PARK

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## BAYTEX FOCUS

million in 2012.

A sharp increase in Baytex's use of rail to move crude generated much stronger returns from its crude volumes.

For 2013, it moved 17,500 barrels per day (21,500 bpd in the fourth quarter), with heavy crude accounting for about half, compared with 7,500 bpd in 2012 and expects to raise shipments to 26,500 bpd in the current quarter.

Bowzer said the company was able to

lower discounts relative to the Western Canada Select bitumen blend prices by using rail to access high demand markets and realize a heavy oil price of C\$62 per barrel from C\$55 a year earlier.

However, he suggested new refinery capacity in PADD II and the introduction of new pipelines, notably Enbridge's Flanagan South system, will see Baytex take a measured approach to its future use of rail.

—GARY PARK

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## DRILLING GAPS

ing for 12 overlapping 2,560-acre and five 1,280-acre units in Dunn and Williams counties. Eleven of the 2,560s are in the Heart Butte field in far northeast Dunn County. The other 2,560 is in the Lindahl field in far northeast Williams County. Three of the 1,280s are in the Heart Butte field in far northeast Dunn County. On all 12 of the 2,560s and the three 1,280s, XTO wants to drill one horizontal Bakken pool well on or near the section lines of the smaller component spacing units. The other two 1,280s are in the Bear Creek field in northwest Dunn County, and on those XTO wants to drill multiple wells.

### Petro-Hunt and Continental

Petro-Hunt is applying for five overlapping 2,560s and two 1,280s in McKenzie, Mountrail and Williams counties.

Two of the overlapping 2,560s Petro-Hunt is applying for are in the Charlson field, most of which lies in northeast McKenzie County, but portions of the requested spacing units extend north under Lake Sakakawea into southeast Williams County. Petro-Hunt wants to drill up to three horizontal Bakken pool wells on each of those two units.

Two more of the 2,560s lie farther south in the Charlson field away from the lake

and on each of those two units Petro-Hunt wants to drill two horizontal Bakken pool wells. The fifth overlapping 2,560 Petro-Hunt is applying for straddles the eastern boundary of the Charlson field and the western boundary of the Elm Tree field in McKenzie County. Petro-Hunt has wells in the western 1,280 making up the proposed 2,560 and it wants to drill two additional north-south wells on the common section line dividing two standup 1,280s from the west side.

In addition, Continental Resources is also applying for a 2,560 comprised of the same four sections as the one Petro-Hunt is seeking in the Charlson and Elm Tree fields. Continental has wells in the eastern 1,280 in the proposed unit and it wants to drill up to two Bakken pool wells on or near the same section lines from east side. In such cases, operators will often work out a resolution prior to hearings as to which will apply for the unit, but if a resolution cannot be reached, the commission will make the determination as to which will be allowed to drill.

The two 1,280s Petro-Hunt is requesting are in the Tioga field in far northwest Mountrail County and on each the company wants to drill up to seven Bakken pools.

### Hess and Hunt Oil

In the Robinson Lake field in west-central Mountrail County, Hess Corp. is applying for three overlapping 2,560s with one

or more horizontal wells on the common spacing unit boundaries. Hess is also applying for a 2,560 to drill one or more wells on the common boundaries in the Rainbow field in north-central Williams County.

Hunt Oil Co. wants the commission to create two 1,280s in the Blue Ridge field in northwest Williams County where Hunt wants to drill one horizontal Bakken pool well on each.

### High well density units

In the Spotted Horn field in far eastern McKenzie County, WPX Energy Williston wants the commission to create one overlapping 3,840-acre spacing unit and allow up to 42 Bakken pool wells on that unit. In the neighboring Mandaree field in northwestern Dunn and eastern McKenzie counties, WPX wants an overlapping 2,560-acre unit created where the company wants to drill up to 28 Bakken pool wells. In addition WPX wants to drill up to 28 wells on an existing 2,560 in the neighboring Squaw Creek field (see story on page 6). WPX is also applying for a 1,280-acre unit in the neighboring Spotted Horn field to drill up to 14 Bakken pool wells.

Also in the Spotted Horn field in far eastern McKenzie County, QEP Energy is applying for one overlapping 2,560-acre unit where it wants to drill up to 16 horizontal wells. In the neighboring Grail and/or Bear Den fields, QEP wants three separate overlapping 2,560s created to drill

one or more horizontal Bakken pool wells on each.

Marathon Oil wants one overlapping 2,560-acre spacing unit established for drilling up to 12 Bakken pool wells in the Bailey field in central Dunn County, and another in the Reunion Bay field in the peninsula in southwest Mountrail County to drill up to two Bakken pool wells.

### Non-Bakken spacing units

Two operators are applying for spacing units to target the Madison and Spearfish formations in Bottineau and Renville counties.

Corinthian Exploration (USA) is applying for four 320-acre spacing units in Bottineau County. One of the 320s is in the Russell field in the south-central region of the county where Corinthian wants to drill one horizontal Spearfish/Madison pool well. Two more of the 320s are in the Leonard and Roth fields in the north-central area of the county, and on each of those two units Corinthian wants to drill one Spearfish/Madison pool well. The last of the 320s is in the neighboring Cimbelle field and there Corinthian wants to drill a horizontal Madison pool well.

In Renville County, Flatirons Resources is applying for a 480-acre unit to drill one horizontal Madison pool well. ●

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## DOWNSPACING

“I still think there is a fair amount to do there,” he explained. “We’re just not crystal clear on what the right staging is to go forward. And so we’re just being a little cautious. There’s probably a lot more to do there than we talked about today.”

The company plans to invest around \$130 million in the Bakken system this year.

David Goodin, MDU’s chief executive officer, told the group to “stay tuned” on the Bakken, a play “which gets a lot of headlines ... whether it’s down spacing (or) completion techniques.”

“We just don’t want to get out over our skis on that one,” he said. “But we are pleased with our acreage, and we continue to appraise that.”

Wells said the “key” to its Bakken inventory is actually employing the proper completion technology — cemented liners and additional frack stages — and making the underlying Three Forks formation productive across as much acreage as possible.

“I’m not sure exactly where that is going to land, but that could (take) a couple of years of drilling to do that,” Wells added.

For example, he said that better-than-expected results from its Purcell well in southern Mountrail County could lead to 25-40 potential Three Forks drilling locations.

The company also has been successful drilling in Stark County, a predominantly Three Forks play.

Wells said employing downspacing before devising the proper completion technique is akin to putting the cart before the horse.

“I think as we refine this completion technique and (determine) exactly what the frack length is will really help us determine what the well spacing should be,” Wells said.

Meanwhile, MDU’s Fidelity is pushing ahead with plans for its other western holdings in Utah’s Paradox Basin and Wyoming’s Powder River Basin.

“This is, at least at this point in time, the gem of our portfolio,” Wells said of the

Paradox, where the company has accumulated 130,000 net acres and the option for another 20,000 acres, nearly doubling its position from three years ago.

The company plans to spend \$170 million in the Paradox this year, nearly double what was invested in the play in 2013. It already has pushed production to 5,000 bpd from about 100 bpd just three years ago.

Fidelity also has plans for the Powder River, where it recently acquired 42,148 acres (24,475 net).

“We believe it adds the third leg to our oil growth story,” Wells said. ●

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Petroleum News

**Bakken**

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### Bakken Players

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## GAS CAPTURE

Once it starts operating, the plant will be able to process 250 million cubic feet of natural gas per day, nearly twice as much as its initial design.

In light of the gas plant's delayed start, operators shut in about 100 wells, which reduced oil production significantly in January (see related story page 1) but also helped to minimize flaring. Department of Mineral Resources Director Lynn Helms said at a March 13 press conference that wells were shut in primarily by three large operators: Hess, Oasis and Statoil. He added that the Oasis and Statoil wells that were shut in normally bring substantial production from the Bakken and Three Forks formations.

Helms expects the Tioga gas plant to be at full capacity by March 31, and the real impact it makes on flaring could be likely seen in the April data which will be published in June.

"When bringing on the 100 shut-in wells, the process could take a couple of weeks, and they will likely phase that out so they don't overload the gathering systems," Helms said.

### Remote capture companies seek field demonstration sites

However, regulators want more to be done to bring the percentage of flaring down in a timely manner.

Earlier in March the state's Industrial Commission voted on new policies to put pressure on operators to make greater strides to reduce flaring. In order to close the gap between when wells are drilled and when they are connected to a gas line, the commission requests operators to partner with remote capture technology companies to cut down on flaring.

The Grand Forks-based Energy and Environmental Research Center created a database with information from companies that provide services to utilize natural gas at well sites. Currently, the database contains information from 35 companies providing small-scale natural gas liquid recovery, gas-powered electrical

continued from page 1

## HEARING DATE

all-day meeting to draw a large crowd of operators, environmental groups, mineral owners and the general public.

"Each operator has its own business model and we need input from them," Helms said.

The hearing will begin at 9 a.m. at the DMR offices at 1000 East Calgary Avenue.

The North Dakota Petroleum Council flaring task force plans to ask Helms to develop a draft rule on production curtailment for the industry to review and comment on prior to the

generation, gas compression and liquefaction systems, and processes that convert gas into liquid fuels and chemicals.

Spokesman Chad Wocken told Petroleum News Bakken that the remote capture companies would like to start conducting field demonstrations, so he encourages operators to consider testing the products and services.

"We've talked to a number with interest in knowing who is doing what and asked for additional information," Wocken said. "We're considering an agreement of support from producers."

### Production will drop under state and federal flaring rules

Helms addressed the Industrial Commission's plans to enforce production curtailment, and later announced the policy will be debated at a hearing set for April 22 (see sidebar).

"If you want to reduce flaring on wells connected, you have to curtail production to what the gathering system can transport, and that will affect well production and gas production," Helms said. "But there has to be some short term sacrifice in order to achieve long term goals in flaring reduction."

Flaring rates on the Fort Berthold Indian Reservation, FBIR, have been historically higher than other areas in the

hearing.

Earlier in March the North Dakota Industrial Commission voted unanimously to adopt new flaring reduction strategies presented by Helms based on recommendations from the flaring task force. Helms told the commission the current field rules are outdated and if enforced, "operators will flee."

"There needs to be a model that addresses how we control increased density drilling, in an environment where we're not affecting economics," Helms said.

—MAXINE HERR

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Williston Basin, and the U.S. Department of the Interior plans to announce new venting and flaring rules soon that could have an impact on oil production.

"I think we ought to expect a decrease in production on the reservation when the Department of Interior proposes those rules," Helms said.

### U.S. senators also aimed at solutions

In addition to these potential rules, some new federal legislation is being introduced by U.S. Sen. John Hoeven of North Dakota and Wyoming Sens. John Barrasso and Mike Enzi to speed up the permitting process of natural gas gathering lines on federal and Indian land.

The siting of natural gas gathering lines on these lands is a challenge, and the FBIR has historically flared approximately 40 percent of its natural gas.

The Natural Gas Gathering Enhancement Act would help reduce flaring by making it easier to site natural gas gathering lines across federal and Indian land. The bill would create an exclusion under the Natural Environmental Policy Act for certain gas gathering lines, require rights of way to be issued within 30 days for the lines that qualify for that exclusion, and within 60 days for all other natural gas lines.

The bill explicitly states that it would

not affect laws requiring the consent of Indian tribes or individual Indians prior to the issuance of rights of way on reservations.

"Our legislation is a good example of how we can produce more energy with better environmental stewardship by empowering states and tribes to develop their energy resources," Hoeven said. "North Dakota set a goal of reducing flaring in the state by over 60 percent in six years and this legislation helps accomplish that goal. That not only helps to grow our economy and create jobs, but also brings us closer to our long-sought goal of true energy independence."

Enzi added that "Abundant, low-cost energy shouldn't have to wait on the federal government for approval. But that's often what happens when we lose natural gas to flaring on account of delays in permitting infrastructure improvements. American energy is ready to power our country if Washington would just get out of the way. We can do better and our legislation is one step in that direction."

According to the Energy Information Administration, the states with the highest amounts of natural gas flaring and venting are North Dakota, Texas and Wyoming.

### Natural gas prices show some promise

For operators who find it is uneconomical to capture natural gas at a well site, the trend could be changing because natural gas seems to be gaining in value.

Helms said U.S. natural gas storage is now 39 percent below the five-year average indicating increasing prices in the foreseeable future. He said the current price for natural gas is the best it's been in five to six years.

"(Oil) is still priced at a 13 to 1 ratio over natural gas ... but we've seen ratios as high as 25 to 1," Helms said. "So natural gas prices are much stronger with the lower storage levels and cold winters in the Northeast and upper Midwest." ●

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## EMERALD MOVES

Charbonneau and Foreman Butte fields in west-central McKenzie County. Those 17 wells, 15 middle Bakken and two Three Forks, had an average 24-hour initial production, IP, rate of 1,626 boepd and 15 of those wells have been on production more than 30 days with an average 30-day IP of 767 boepd.

In fact, Emerald says its middle Bakken wells have consistently exceeded the company's 550,000 boe type curve for its Low Rider core area wells. "Our middle Bakken wells continue to exceed type curve expectations, and we are actively evaluating our stated Low Rider type curve along with increased downspacing assumptions across our 63,000 net acre position in McKenzie County," said McAndrew Rudisill, Emerald president and chief executive officer in a fourth quarter 2013 conference call on March 13.

### Three Forks evaluation

Emerald is also optimistic about the results from its first two Three Forks wells and is planning to drill more wells into the Three Forks formation. "Our second Three Forks well, the Caper 3, had a 24-hour IP of approximately 1,300 boe per day," Rudisill said. "We are very encouraged with the results of our initial Three Forks wells and continue to permit and drill more as we move south."

Emerald has historically assumed a total of four middle Bakken and three Three Forks wells per 1,280-acre drill spacing unit, DSU, in its Low Rider, Easy Rider and Richland areas. However, Rudisill now says the company is revisiting that assumption and is also looking at possibly adding more Three Forks wells to the mix.

"We are reevaluating the number of Three Forks wells

*"We are very encouraged with the results of our initial Three Forks wells and continue to permit and drill more as we move south."*

—McAndrew Rudisill, Emerald Oil president and CEO

that can be drilled in per drilling spacing unit," Rudisill said. "And other operators in the Williston Basin have been talking about more Middle Bakken wells per DSU. I think until we finish this initial round of drilling; the increase in density will come from more Three Forks locations on our side." He said he will have more to say on that mix in the first quarter 2014 conference call in May "after we drill a couple more Three Forks wells."

### Other core areas

The third rig Emerald is adding will begin drilling in the company's Easy Rider core area in the Temple field in northeast Williams County by the end of March. That rig is expected to finish drilling in the Easy Rider area in the summer and then will move south into Stark County and begin drilling in the company's Pronghorn sand area.

Rudisill said Emerald cored multiple operated units across the state line in Richland County, Mont., where there has been "recent middle Bakken and Three Forks well control," adding that the company is "very encouraged by the strong results." He said the geology in that area of Montana is similar to the geology in the company's Low Rider area of west-central McKenzie County in North Dakota, and he believes the company's Low Rider completion methods can be "replicated" on the Montana side.

Rudisill also said Emerald may potentially add a fourth drill rig later in 2014 to begin drilling in the Richland County area as well as in the company's Lewis and Clark prospect in southern McKenzie County. Emerald is planning to drill a total of 18.2 net operated wells through 2014

at an average cost of \$10 million per well.

### Production growth

In the first two quarters of 2013 when Emerald was still a predominantly non-operating producer in North Dakota, its production averaged 1,229 boepd. After transitioning to operator status, the company's third quarter output increased to 1,877 boepd and its fourth quarter production averaged 2,430 boepd. The company exited the year at 2,630 boepd.

In 2012, Emerald's cumulative production totaled 341,755 boe, and in 2013 that total output was 616,065 boe, a year-over-year increase of 80 percent.

Emerald's 2014 guidance estimates first quarter production of 2,750 boepd followed by steady production increases with fourth quarter output estimated at 4,150 boepd and a 2014 exit rate of 4,250 boepd.

However, Rudisill said Emerald did experience weather-related delays in completions in the first quarter, which may result in first quarter production shortfall, possibly up to 10 percent. But he expects the company will more than make up the difference should that shortfall occur. "Due to the large amount of production coming online during the back half of the first quarter and beyond, production in the second quarter will be higher than our previous guidance, and we plan to increase quarterly, annual and IP rate guidance on the first quarter earnings call."

In January, Emerald ranked 33rd among the top 50 Bakken oil producers in North Dakota with an average production of 1,485 barrels of oil per day for operated, non-confidential wells according to North Dakota Department of Mineral Resources Oil and Gas Division production data.

—MIKE ELLERD

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## TEPID RECOVERY

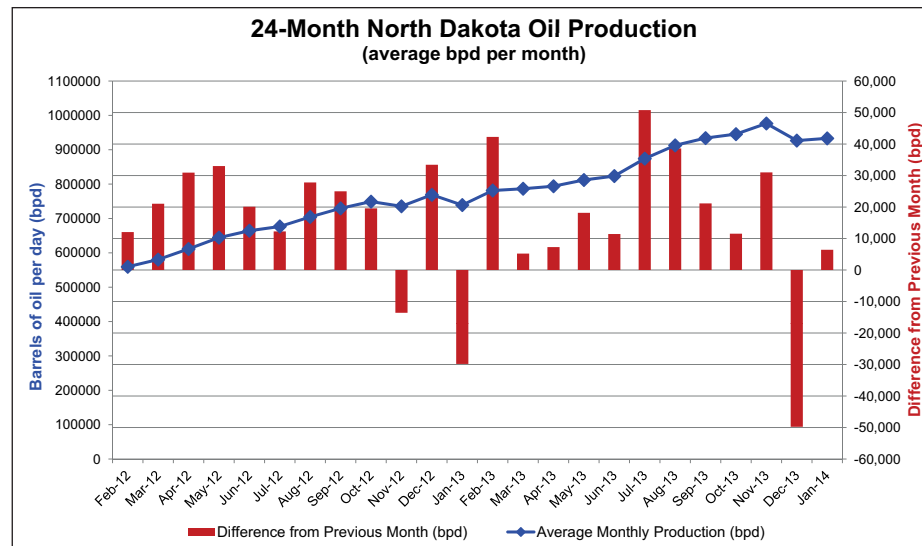
In terms of production from only the Bakken petroleum system, December's output was down 46,091 bpd from November, and in January the recovery was 6,031 bpd, also a mere 13 percent recovery. In January, production from the Bakken petroleum system accounted for 93 percent of North Dakota's total daily output.

### What happened to the recovery?

The record-breaking production drop in December was due to severe weather conditions. The state had four large snow storms in December, but then was also plagued with subzero weather and high winds.

But January was warmer and drier than normal in North Dakota, and DMR Director Lynn Helms was initially surprised at the weak production increase. However, on closer look, Helms found two primary reasons behind January's lackluster output bump.

The first, according to Helms, is the slower than anticipated pace in completing the expansion of the Hess Corp. Tioga gas processing plant. With that plant out of commission, Helms said more than 100 wells in the area were shut in to avoid flaring. However, Helms said Hess is in the process of testing the expanded facility and he is optimistic the plant will be operational by the end of March.



Data source: North Dakota Department of Mineral Resources Oil and Gas Division (historic monthly oil production statistics)

The other factor significantly affecting North Dakota operators in January according to Helms was the wind. "If you think back a couple of months, you'll recall how many windy, windy days and nights we had," Helms said. "And so we had no less than 12 days when the sustained winds were too high for any kind of well work. So over a third of the month was occupied by days when you couldn't use a coil tubing rig to clean a well out or put people on a workover rig to run tubing in a well, or move tubing in or out of a well, so that really impacted production in January."

"Looking ahead just a little bit," Helms said, "I'm not real hopeful about February production being a really significant increase because if you recall in February

winter really kind of came back and hit us pretty hard. So I'm not terribly hopeful that next month's production will be ... a huge increase."

Helms did say he was looking at March to be a better month for production, but with the warm weather that came in March, several of the oil producing counties have imposed load restrictions on roads, so there may not be the March "bump" he was looking for.

### Completions down

Helms said only 60 new wells were completed in January. As a rule of thumb, DMR estimates that at least 90 completions are required in any given month to generate a production increase. Helms said because

of the large drop in completions between November and December, "that 60 well completions translated into about a 6,500 barrel a day increase," but added that the 6,500 bpd increase was "pretty much breakeven."

At the end of January, there were 10,100 producing wells in North Dakota. There were another approximately 660 drilled wells waiting on completion, an increase of 25 wells over December.

Natural gas production paralleled the weak oil recovery in January. In December, natural gas output fell by approximately 94 million cubic feet, mcf, per day, and in January, gas production increased by approximately 16 mcf per day, for a recovery of 17 percent.

### Total U.S. Williston Basin output

Justin Kringstad of the North Dakota Pipeline Authority tracks total U.S. Williston Basin oil production which includes output from Montana and South Dakota as well as North Dakota, and includes all Bakken and non-Bakken production. While total U.S. Williston Basin production broke the 1 million bpd mark in September 2013 and remained above 1 million bpd through November, basin-wide output fell back below 1 million bpd to 999,906 bpd in December. January production data for Montana and South Dakota are not yet available. ●

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## EOR BOOST

lion in the Bakken and C\$44 million in the conventional formations, generating free cash flow of C\$111 million and C\$59 million, respectively.

In the Bakken, the upside opportunity includes 72.8 million boe of proved plus probable reserves, 134,000 undeveloped acres and 900 drilling locations.

The company said its Saskatchewan assets have "low decline, light oil production from the Mississippian conventional and Bakken formations."

Along with a "moderate" drilling program this year, it plans to focus on ways to optimize and commercialize its natural gas enhanced oil recovery (EOR) projects in the Bakken, backed by an extensive network of facilities "that allow us to be a low cost operator."

### The EOR boost

Lightstream said it expects to recover about 15 percent of the discovered petroleum initially in place, DPIIP, in the Bakken through primary recovery methods, and, based on EOR success, it estimates recovery factors could surpass 25 percent.

"We continue to be encouraged by the results we are seeing from these injection schemes which resulted in additional reserves being recognized at the end of 2013," the company said.

As well as increasing the amount of acreage under injection this year, it plans to start a conventional Mississippian water flood pilot in southeast Saskatchewan.

Plans include expansion of the Creelman Bakken EOR project by drilling two more gas injection wells affecting 2,560 acres, bringing the total to four wells now on injection, while injection rates were increased by 33 percent in 2013.

Based on what it has learned from its

pioneering role in the Bakken when it was PetroBakken, Lightstream is leveraging that experience to its other core areas in Alberta's Cardium and Swan Hill plays.

### Moving forward

But, against a backdrop of doubts within the analyst community, Wright told a conference call in March that Lightstream had "some setbacks" in 2013, referring to negative reserve revisions on older assets, finding and development costs that were higher than expected and an exit production of 45,500 barrels of oil equivalent per day that fell short of guidance.

However, he was able to claim "some major successes," with production for 2013 averaging 46,438 boe per day, up 9 percent from 2012, setting the stage for this year's guidance range of 43,500-45,500 boe per day, with an oil and liquids weighting of 80 percent.

The boldest move by Lightstream was to

post a writedown of C\$1.34 billion of assets purchased in southeastern Saskatchewan in 2009 and in Alberta in 2010, resulting in a net loss for 2013 of \$1.38 billion.

Chief Financial Officer Peter Scott said that from the time Lightstream recorded the goodwill, the assets have generated about C\$3 billion in operating income, but their future value no longer supports their book value, leaving the company with the choice of either selling the assets or writing them off.

"The difference between our wins and losses is that our wins will continue to generate even more long-term value for many years to come. Meanwhile, our losses were primarily one-off events that will not plague us beyond 2013," Wright said.

### Analysts remain cautious

But among analysts there is a degree of edginess, with Brian Kristjansen of Dundee Capital Markets noting that Lightstream will continue to have a high debt-to-cash-flow ratio compared with similar companies.

He said Dundee is "maintaining our neutral recommendation in light of our forecast production per share decline in 2014 (9.1 percent), inconsistent execution and lack of meaningful momentum."

Michael Harvey, an RBC Dominion Securities analyst, said in a note that Lightstream is "moving in the right direction" by selling assets in its Alberta Cardium unit and the anticipated sale this year of fee title and royalty interest lands in Saskatchewan.

Jim Byrne, a BMO Nesbitt Burns analyst, suggested last year that a long history of "poor share price performance" could present an opportunity for activists to make Lightstream a prime target.

He said many of the same debt and performance issues that dogged PetroBakken in 2011 have returned.

"Perhaps a nudge from existing or new shareholders could be something to light a fire," he said in a research note.

—GARY PARK

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