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The Official Publication of the North Dakota Association of Oil & Gas Producing Counties

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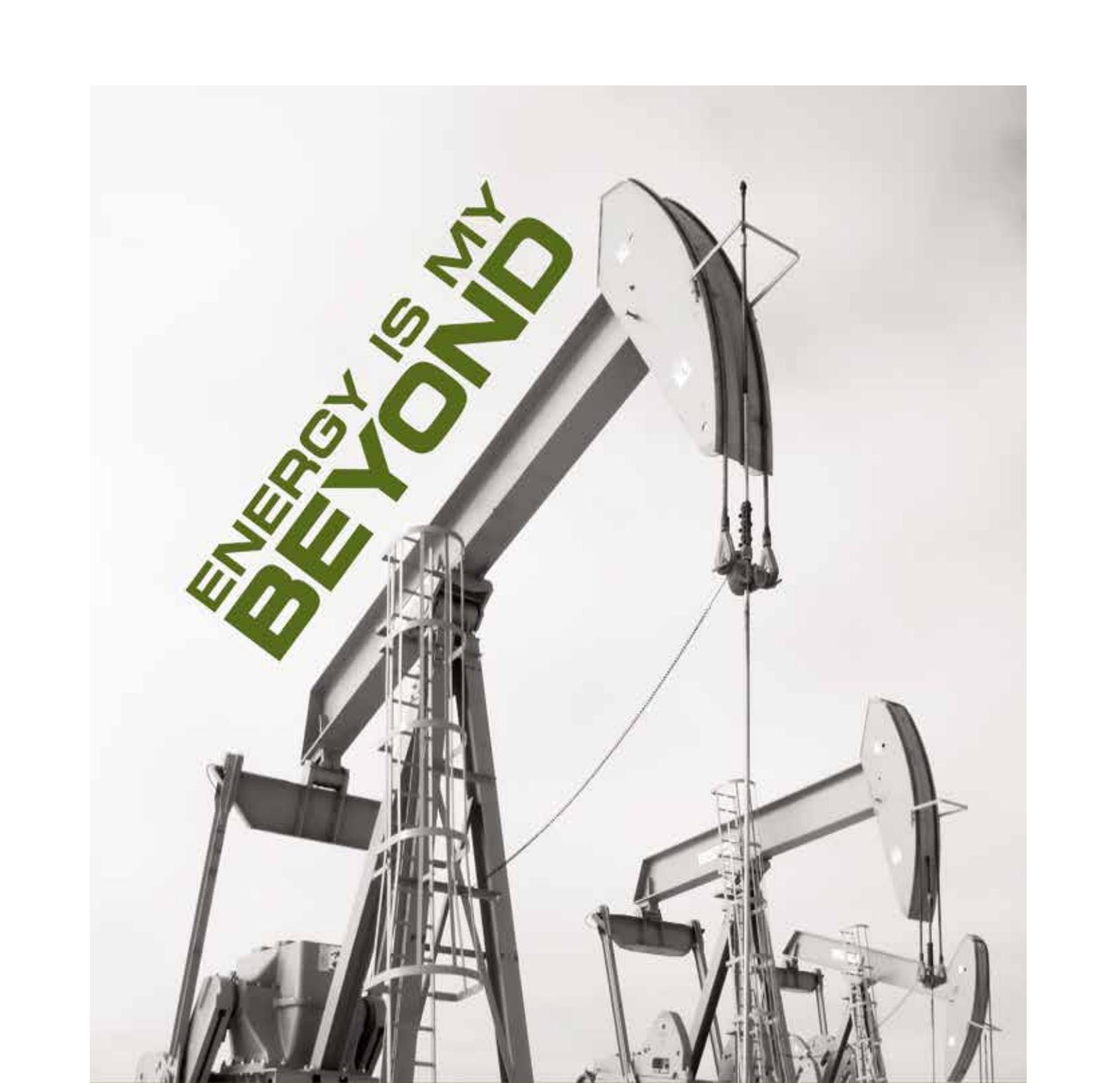
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A black and white photograph of an oil pumpjack (jack-o'-lantern) against a light sky. The pumpjack is the central focus, with its long walking beam and counterweights visible. In the background, other pumpjacks are faintly visible. Overlaid on the left side of the image is the text 'ENERGY IS MY BEYOND' in a bold, green, sans-serif font. The text is slanted upwards from left to right.

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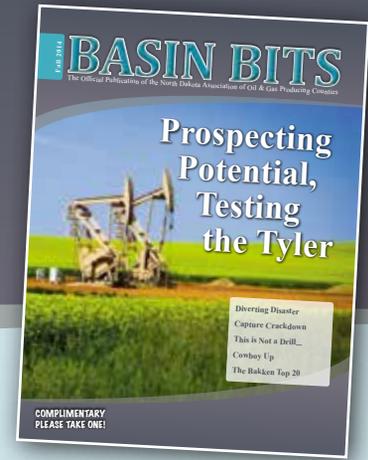
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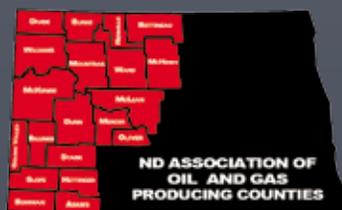
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Disclaimer: The articles presented in this publication represent the opinions of the authors and the interviewees. Their inclusion does not directly or implicitly denote concurrence or support by the North Dakota Association for Oil & Gas Producing Counties. Articles were reviewed by NDAOGPC staff and selected for inclusion as they represent issues of interest to professionals in our industry.

Cover photo credit: This issue's cover features an oil pump jack surrounded by the bright blooms of a flowering canola field in North Dakota. The image was taken by Bob Bell in Billings County, ND, in July 2014 and has been printed with permission. Bell is an archaeologist, right-of-way agent and photographer from Western Kentucky. He can be reached through his website, www.holdthepresses.com.



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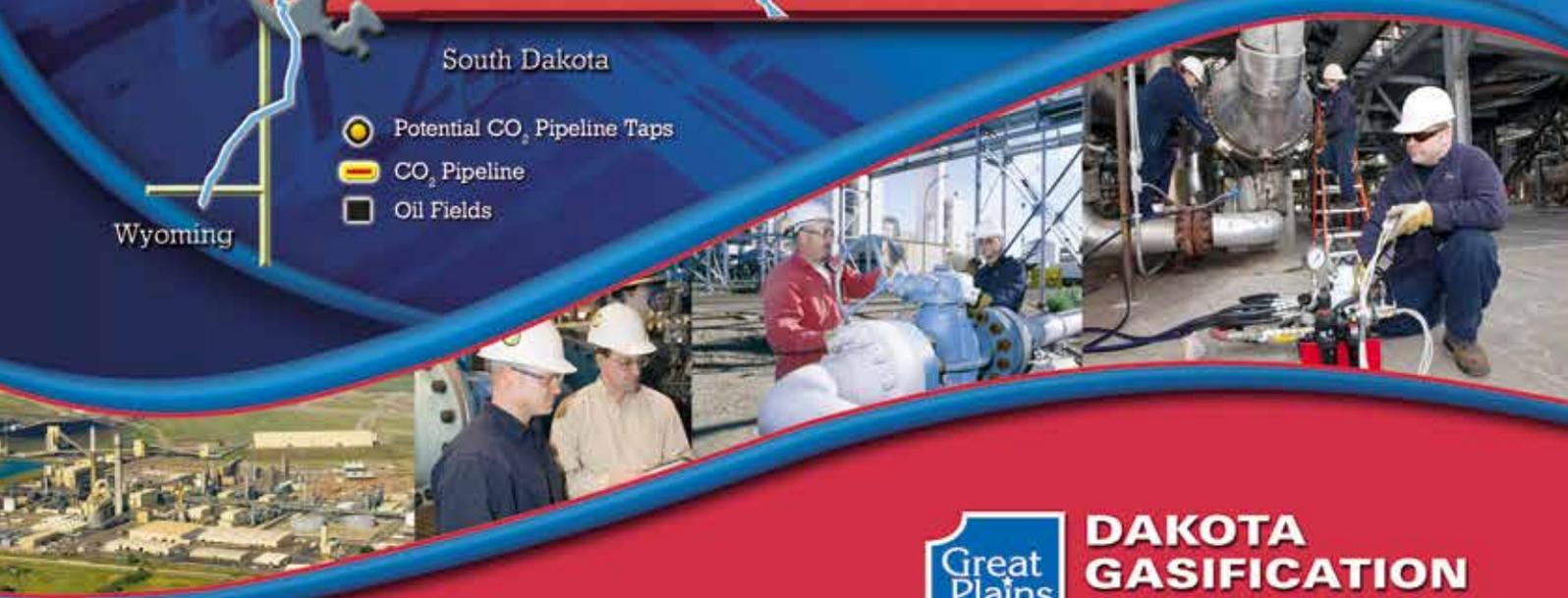
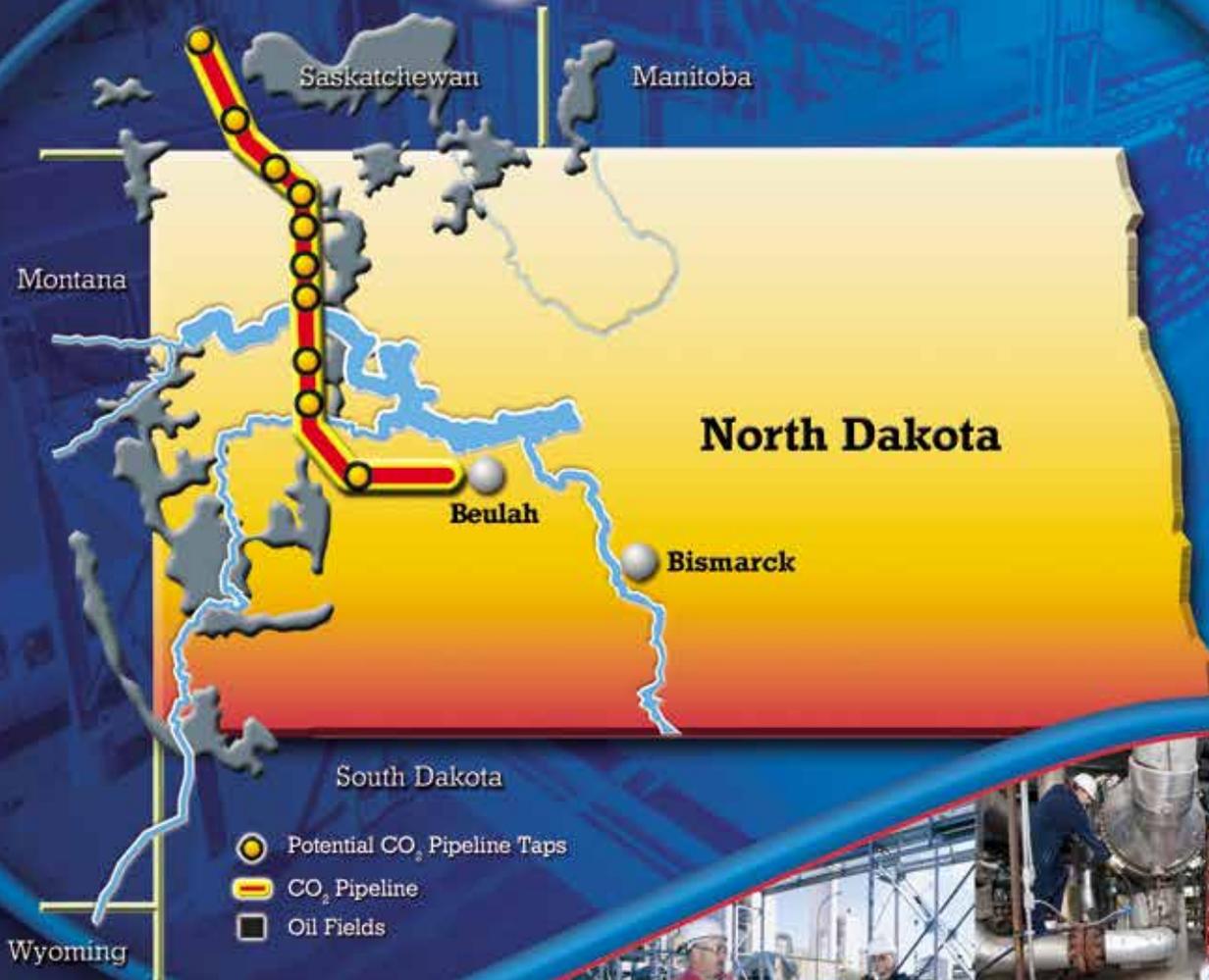
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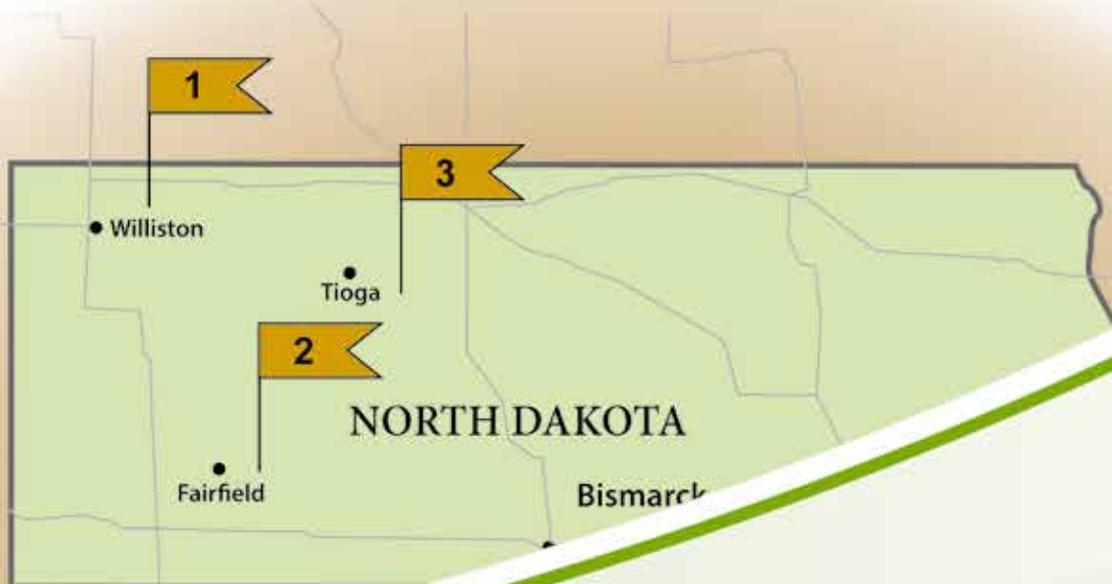
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From the Desk of the North Dakota Association of Oil & Gas Producing Counties' President



Supt. Steve Holen
President
North Dakota Association of
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This coming legislative session, I hope our western communities are in the front row as the legislature makes their allocations.

Greetings! I consider myself fortunate to have a front row seat on the Bakken, one of the largest unconventional shale oil plays in the United States. In fact, others claim that North Dakota's oil and gas play changed the game regarding our nation's dependence on foreign sources.

From the front row, I don't see the international angle, except the need for teachers with second language skills and workers from other countries in my hometown, Watford City. I've seen, on average, 450 to 500 students come and go inside my school buildings over the past couple of years and I have found homes for 24 new teachers to meet the challenge for this upcoming 2014-2015 school year.

As superintendent of McKenzie County School District #1, I appreciate the local and state support that will move our communities forward in 2015 and beyond. Watford City

passed a bond issue for a new high school and a sales tax vote for a new civic center. The Governor met with us and was instrumental in awarding \$11 million in impact fund awards to the city and school district to keep us on pace for the new building schedule and community needs.

As president of the North Dakota Association of Oil & Gas Producing Counties (NDAOGPC), I also have a front row seat on how western legislators are gathering data for the 2015 legislative session. Our executive committee supports their work to bring together two important pieces of the Bakken puzzle:

1. A permanent five percent gross production tax (GPT) formula change to increase local share of the tax to maintain the expansive growth; and
2. A surge funding, as named by Sen. Rich Wardner, to ensure adequate short-term funding for the 2015-16 construction

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ABOUT THE NORTH DAKOTA ASSOCIATION OF OIL & GAS PRODUCING COUNTIES

The North Dakota Association of Oil & Gas Producing Counties (NDAOGPC) is the trusted and unified voice for the betterment of the citizens of North Dakota and the membership of the NDAOGPC.

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Percent Annual Growth		2012-2020 11.2%	2020-2039 1.0%

seasons. This surge funding is expected early in the session, perhaps by the end of January, so that bids and construction seasons meet demand.

Both of these solutions are critical to western North Dakota, and to my own school district, as we were unable to obtain a school construction loan due to a shortage of funds in the program.

One of the questions we get in western North Dakota quite often is, “Why do you need state support for this rapid growth?”

The answer to that is supply and demand. With a normal city growth rate of two percent, the taxpayers who are arriving pick up the costs as the new growth moves forward without displacing existing taxpayers. The growth rate in the Williston region, which includes McKenzie County, is 11.2 percent. The Dickinson region shows 6.4 percent growth rate. Minot area is 2.4 percent. Experts report that with four percent and over on growth rate, a city will be struggling to find balance on land prices, cost of living and competition for affordable apartments.

North Dakota has two oil taxes: the five percent oil and gas gross production tax (GPT) and the 6.5 percent extraction tax. They make up the 11.5 percent tax oil companies pay on each well’s production based on price the day the oil is sold. The five percent is a tax put on in 1950s and it was designed to take care of local impacts and give some of it to the state. Originally, 75 percent of the four percent side of GPT went to the local county to mitigate impacts. In 1980, voters added a 6.5 percent tax on crude oil that was designed to fund schools statewide. It has since been expanded by legislators to fund water projects statewide.

So, the five percent GPT is in lieu of property tax and it takes away county ability to adjust mills for impacts. If McKenzie County had control on the property tax wealth of all the new Bakken wells, we wouldn’t need state support. The five percent GPT is paid to the state and the state shares back a small portion

of the tax. The small portion needs to be increased to make this national oil play work for the state as a whole.

For example, you will hear about the \$700 million forecasted for the Resources Trust Fund (RTF). That is all oil tax revenue to the state off the 6.5 percent extraction tax. In 2006, the RTF was only \$10 million. The new money will eventually be disbursed by the State Water Commission to water projects all over the state in small communities in both non-oil and oil counties. The State Water Commission recently added a water grant guideline that included a growth rate greater than three percent. That speaks to the fact that rapid growth cities face different challenges. My community is part of a relatively new water system, Western Area Water Supply, that the legislature invested hundreds of millions in loans to ensure build out for retail, commercial and industry.

The other fund you will hear about is called the Strategic Investment and Infrastructure Fund (SIIF). It used to be called the Permanent Oil Trust Fund. Legislators changed the name, but it’s still oil money from western North Dakota. They use this fund for all kinds of building projects including University of North Dakota’s medical school in Grand Forks and the Fargo flood diversion project. Oil and gas revenue paid for those projects.

We would expect the oil revenue from the SIIF to be allocated to get impacted Bakken cities, counties and schools over the hump. North Dakota State University research indicates that 2023 will see the peak population of temporary and permanent oil industry workers. The state needs to invest the SIIF in my region now and we can ensure a quality of life for all of North Dakotans for years to come.

In anticipation of the need to educate the public and non-oil county legislators, we have been working with a third-party group from DAWA Solutions. Their consulting team created some visuals from extensive data on

not only western cities, but also other non-oil cities to show the differences. We will be showcasing this data at our annual meeting Thursday, September 18, 2014 in Williston.

Beyond our legislative plan, we have also brought in a nationally recognized economist, Dr. Loren Scott, who will talk about the Bakken and how it relates to oil plays across the country (see page 25 of this magazine for a preview of his presentation). Scott hails from Baton Rouge, LA, where he taught economics at Louisiana State University.

Also on our annual meeting agenda, we will hear an update from Lynn Helms, director of the North Dakota Department of Mineral Resources. Helms gives a county-by-county oil production prediction for the upcoming year, which is appreciated by our members as they try to plan for the development. Just before lunch, we have a panel of speakers invited from oil industry players, such as Oneok. Jim Arthaud, one of our executive committee members and owner of MBI Energy Services, will moderate the discussion.

We also expect to be joined by the Vision West Consortium members following their meeting that day. The consortium consists of 19 western North Dakota counties and the MHA Nation tribe, along with the ND-AOGPC, Reap Investment Fund, SW Reap, planning councils and western colleges. The consortium voted in June to support a policy that the state needs to increase the share of oil tax revenue funding to western North Dakota, similar to the one proposed by the NDAOGPC executive committee in June. I am excited to hear the speakers at our annual meeting and listen to our membership as we work together to get this right for North Dakota.

This coming legislative session, I hope our western communities are in the front row as the legislature makes their allocations. From where I sit, I can see that oil tax revenues must be invested now. The pie will get larger as the production grows so, eventually, all areas of the state will benefit, but we need to take care of the basics first. To have a successful oil play, western communities need investment from the state during the 2015 session. We can’t look back at this opportunity as a state and say a shortfall of investment in the areas supporting this oil play negatively impacted future generations of North Dakota citizens.

While the investment is substantial, the cost of not meeting these needs on the future residents of North Dakota is too high. We must not let this opportunity slip away due to underfunding needs in western North Dakota and with state surpluses in place at the same time.

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ENERGY ON THE MOVE

From the Desk of the North Dakota Association of Oil & Gas Producing Counties' Executive Director



Vicky Steiner
Executive Director
North Dakota Association of
Oil & Gas Producing Counties
North Dakota House Representative
for District 37, Dickinson, ND

When I travel in western North Dakota, I am always amazed at the new construction that seems to appear overnight.

Travel moves you. That's the slogan from the cable TV show *The Travel Channel*. I'm sure that the Bakken workers note the differences as they travel from home to work here in North Dakota.

Traveling to conferences has brought me memories and experiences, as well. Last spring, I traveled to downtown Baton Rouge, Louisiana to speak at a planners conference. Language, words and culture vary so much from region to region. I love to say "y'all" when I'm in the south. I think they know that I'm not from there, but they tolerate it with kindness.

The language differences between the south and the mid-west fascinate me. Of course, they hear my accent and think I sound like the lady in the movie *Fargo*. It's because I say "North Dakota". That's actually a Minnesota accent, but don't mention that to a Minnesotan. They can be touchy about it.

During the panel discussions in Baton Rouge, the moderator referred to me as "Miss Vicky" when introducing me. It sounded so sweet. The night before, the cab driver asked me, "Where you headed, Miss Vicky?" I appreciated the polite, Southern hospitality. I attempted to joke, later in my talk, that I didn't know how to cook shrimp because I was a "Yankee". Attempted is the right word because, when that word left my lips, I could feel the room bristle.

I learned something new that I won't forget anytime soon. "Yankee" is not a

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funny word in Louisiana. In my own defense, I've just read about the north versus the south. My family doesn't have any stories about the Civil War; I was just trying to talk like a local.

Just before I spoke, this 40-something man told a story in full southern accent. He didn't get to grow up in Louisiana because his mother married a Yankee and she dragged him to New York. The crowd shook their heads in sympathy, like how sad that must have been. So from now on, I'm going to say, "Those Yankees... like in New York."

And speaking about New Yorkers, I met a Canadian man on a trip to Grand Forks, N.D. who told me that the Queen of England visited his mother for afternoon tea. So, being curious and somewhat abrupt by nature, I asked him, "Doesn't it bother you that you are still under British rule?" He smiled and politely answered that his ancestors were originally from New York. So, I said, "You were American." He said, "No, we were British."

His family didn't agree with the American Revolution. They fought for the British and after the colonies won, his ancestors moved to Fredericton, New Brunswick. He said the story told in Canada is that George Washington traveled north to Maine in winter and it was cold. When he reached Maine, the first president allegedly said that's far enough. So Maine is the last state to the north. He added, "We love the Queen. We didn't want to be Americans."

My ancestors didn't want to be Russians. Great Grandpas Dehne and Krueger were Germans from Russia who didn't want to fight in a Russian war for the Queen, so that's how I landed in North Dakota. They traveled from Odessa to New York and then got off the train in Jamestown, ND, farming in Fredonia. I haven't settled too far from the homestead, just down I-94, to the west in Dickinson, ND. I'm surprised they didn't notice the incessant wind, but maybe they were too busy planting trees.

While at the Interstate Oil & Gas Compact Commission meeting in Biloxi, MS earlier this year, I had an opportunity to tour the Jefferson Davies summer home where the former Confederate president wrote his memoirs of the Civil War. It's a one-storey home on the Gulf shore called "Beauvoir". The tour guide said his youngest daughter, Varina "Winnie", wrote for a New York paper, *the New York World*, and fell in love with a Yankee lawyer from upstate New York. As the elderly white haired gentlemen tour guide phrased it, "Well, Miss Davis could not accept him, *obviously*, with the war and all, and she never married. Her beau never married either," Seems he understood a lot about Yankees.

Having traveled a few times to San Antonio, I know that some Texans believe that their state reserved their right to secede if they ever changed their mind about being part of the United States. I've heard them say, "Well, we're really our own country." They seem so confident of the agreement, but I've never seen the documents. It is good to have options, though.

While traveling in Denver, I heard a couple mayors from small California cities talking about oil and gas. The mayors said that some of the California cities near Los Angeles are "underprivileged communities." I had never heard that phrase before this time. I guess it means no jobs and not a chance for one, by the way they were talking. They are considering trying to ban hydraulic fracturing. They don't think their citizens would ever get hired. I don't know why they've drawn that conclusion in California.

All the while, Kern County, CA and Bakersfield, CA are welcoming the industry and bringing thousands of jobs to both energy and renewable industries. Kern County is open for business and north of Los Angeles is a farming region. Kern County sees it as opportunity.

During my travel, I met a lawyer from Boulder, CO. She said her residents are opposed to hydraulic fracturing, even though they know that the mineral estate has legal rights, too. Being a lawyer, she already knew the answer to her own question. They placed a temporary moratorium on the drilling. I wanted to say to her, "Take your time," so in the meantime, North Dakota has the benefit of the jobs, labor pool and rigs, but that wouldn't be "North Dakota nice," so I held my thoughts to myself.

When I travel in western North Dakota, I am always amazed at the new construction that seems to appear overnight. New schools pop up and new state highway bypasses snake through the countryside to free our highways from the truck congestion. North Dakota is truly being transformed right before our eyes. And, I've heard people say they wish they had seen the beginning of the Bakken. They must know that they are seeing it as we are one-sixth of the way on the journey, according to the Lynn Helms, director of the North Dakota Department of Mineral Resources. We are in the growth phase.

I am confident that investments will be made and we will catch up and move forward. The NDAOGPC is working on a two-pronged solution:

1. A surge payment early in the session to play catch up and move us into the 2015 construction season; and

2. A change in the formula funding for ongoing maintenance of this world class oil play.

Investment needs to be made now so that we can maintain our quality of life. The rate of growth stresses our communities and by modifying the state oil formula, we can return some of the oil tax dollars to build our communities.

The volume of entrepreneurs coming to North Dakota must be at an all time high. My daughter's neighbor is from Haiti. As soon as a now-under construction Dickinson strip mall finishes this fall, she and her partners plan to open a Jamaican foods café specializing in jerk chicken. Her husband is an engineer from Kenya, and while he does his civil engineering work, she wants to have her own restaurant. When I traveled to a crew camp lodge, they noted that most of the workers, including the manager, were from Idaho. I toured a trailer camp near Watford City, ND, and their staff said that they only had 10 vacant spots out of the 800 trailers, but they said there are more openings in October when some of the workers go back south. Cars in the parking lot had licenses from Colorado, Montana and California.

And, as I travel around to meetings in my home state and others, I enjoy hearing the stories of their culture and home life. And I'll tell them about the Bakken. But, I won't be telling any stories about being a Yankee. I'm from North Dakota. Yankees are in New York. 

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Your Preview to the 2014 North Dakota Association of Oil & Gas Producing Counties' AGM

September 18, 2014, Williston, ND

The Grand Williston Hotel



A PREVIEW TO “THE ENERGY SECTOR: AWASH IN ODDITIES!”

By Dr. Loren C. Scott

The 2014 annual meeting of the North Dakota Association of Oil & Gas Producing Counties (NDAOGPC) will kick off September 18, 2014 at the Grand Williston (formerly the Airport International Inn) in Williston, ND. Registration is open on the NDAOGPC website, www.ndenergy.org.

This year's meeting will feature updates on major western North Dakota issues, like dust control and how the industry is expected to continue development of the Bakken and Three Forks formations. Lynn Helms, ND Department of Mineral Resources Director, will provide an update to attendees on the state of development, and the meeting will host a panel of oil and gas industry executives from companies including Hess, Statoil, ONEOK and WPX Energy that will share their perspectives on the development taking place.

Keynoting this year's event will be nationally-acclaimed economist Dr. Loren Scott, who will speak on just how the Williston Basin oil play fits into the global energy scene (read the sidebar in this article to get a sneak peek on Dr. Scott's presentation).

Members will also have the opportunity to elect county, city and school district committee members and the representatives on the executive committee. Current executive committee members up for re-election include

The energy markets in the United States are awash in phenomena that are weird from an historical perspective. Begin with the unusual state of the economy, which is experiencing its worst recovery performance of any recovery since WWII. Unfortunately, forecasts are for this recovery to continue to be lackadaisical—a factor holding back the demand for energy products.

The price of oil is one of the most difficult items in the economy because about two-thirds of the reserves in the world are located where unpredictable governments run the oil companies. For the first time, widespread use of fracking of shale has dramatically changed the oil and gas sectors in the United States.

The Bakken Play has been a major factor in that transition, moving North Dakota to number-two in the United States in oil production—something no one would have predicted only 10 years ago. The Bakken output has also resulted in an historic phenomenon, where the price of West Texas Intermediate is lower than the world price for crude.

The Gulf of Mexico is also poised to be a major contributor to United States oil production, as companies return to the area post-BP spill. The new Pacto por Mexico has the potential to radically change things in the Gulf. Dropping demand for petroleum products has created another odd phenomenon; America is now a net exporter of petroleum *products* (not petroleum). The Bakken Play has been an indirect contributor to that change.

There has been a major change in natural gas prices in the past few years. Not only have natural gas prices fallen in the United States, but they have not fallen in Europe. This is another odd phenomenon that had led to a remarkable industrial boom in the country, particularly along the Gulf Coast.

The unusually huge gap between the price of oil and the price of natural gas has led to two other oddities in the market; one is the flaring off of natural gas in North Dakota—something that has not happened in the country in years; and secondly, there is a major thrust afloat to run vehicles and vessels on natural gas rather than gasoline. One company was going to build a \$12-billion plant to convert natural gas into gasoline, but the company recently backed out. What were executives in that company thinking, and why is their thinking important to the Bakken? Keeping up with this exiting industry has never been more challenging or interesting!

Be sure to attend Dr. Scott's presentation at the Grand Williston, September 18, 2014, as he makes his keynote address during the NDAOGPC's annual meeting.

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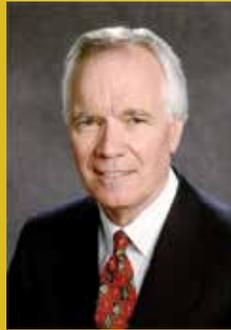
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Billings County Commissioner Jim Arthaud and Bottineau Public School District Supt. Jason Kersten. Bowbells City Commissioner Gary Melby's vacated seat on the executive committee will also be filled during elections.

Room blocks for the night of September 17 have been established at the Grand Williston Hotel and the Holiday Inn Express & Suites in Williston. Attendees are encouraged to book their rooms as soon as possible to ensure lodging for the event. Contact the Grand Williston Hotel at (701) 774-0241 or the Holiday Inn Express & Suites at (701) 577-0400 to make reservations under the North Dakota Association of Oil & Gas Producing Counties' room block. Room block rates for the Grand Williston Hotel are \$159 for double-queen beds and \$149 for single beds. The Holiday Inn Express block rate is \$210.

We look forward to seeing you at this year's annual meeting in Williston! 



DR. LOREN SCOTT

Dr. Scott is president of Loren C. Scott & Associates, Inc., a 31-year old economic consulting firm, the clients of which include large national firms such as BellSouth, Capital One Financial, Entergy, ExxonMobil, J.P. Morgan Chase, Nucor, Sasol, and a diversity of others. Scott is one of the 32-member National Business Economic Issues Council, which meets quarterly to discuss issues of state, national and international interest.

Dr. Scott is an energy specialist on the NBEIC. He has been appointed to the Economic Advisory Board of the U.S. Council on Competitiveness, a group made up of the CEOs of the Fortune 100, top university presidents and presidents of three major unions. He has been interviewed on CNBC, MSNBC and Bloomberg TV, in addition to several local TV stations, and his work has been cited in such publications as *the Wall Street Journal*, *the Los Angeles Times*, *the New York Times*, *USA Today*, and *the Financial Times*, to name a few.

His career started at Louisiana State University (LSU) in 1969. He is presently professor emeritus at LSU and has received seven awards at LSU for outstanding classroom teaching. He gives 50 to 70 speeches per year on the state of the economy.

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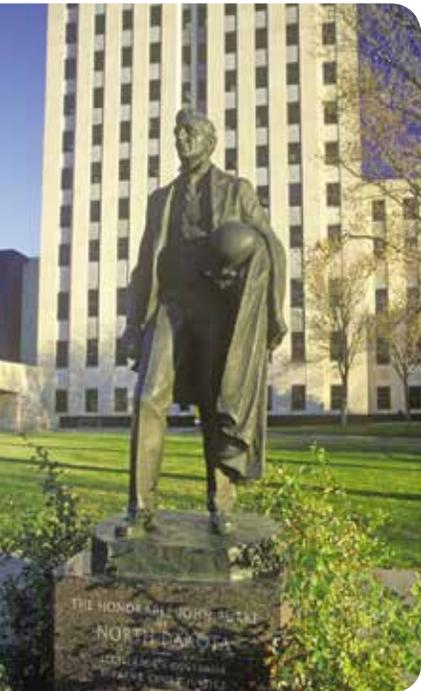
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North Dakota will be celebrating 125 years of statehood on November 2, 2014, and events are underway to honor our heritage and tell the story of North Dakota throughout the year 2014.

On Sunday, November 2, the state's official 125th birthday will coincide with the grand opening of the new North Dakota Heritage Center. Come down anytime between 8:00 a.m. and 10:00 p.m. and enjoy entertainment, special programs and the opening of two new museum galleries!

The 125th Planning Committee is working with communities and organizations across the state to create additional events and promotional opportunities throughout the year. We encourage communities to organize local and regional celebrations to get everyone involved in the commemoration.

Information on regional and community events is available at <http://history.nd.gov/northdakota125.html>. Check back often, as the website will be updated as plans are being made. For updates on the fly, follow the group on Twitter @NorthDakota125.

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Your Guide to the 33rd North Dakota Petroleum Council Annual Meeting

September 23-25, 2014
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(All times are Mountain Daylight Times)

TUESDAY, SEPTEMBER 23, 2014

3:30 p.m. – 5:00 p.m.	Bakken Education Sessions –Featuring Ron Ness, Kathy Neset and Lynn Helms <i>(Free to the general public)</i>	Stark Ballroom
6:00 p.m.	Registration opens	Hallway outside of the Stark Ballroom
7:00 p.m. – 10:00 p.m.	Social and Hors d'oeuvres	Stark Ballroom
8:00 p.m.	Entertainment Hosted by Theodore Roosevelt Medora Foundation – Theodore Roosevelt, by Joe Wiegand	Stark Ballroom

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WEDNESDAY, SEPTEMBER 24, 2014		
8:00 a.m.	Registration opens	Hallway outside of the Stark Ballroom
10:00 a.m.	Welcome – Dennis Johnson, Mayor of Dickinson	Stark Ballroom
10:10 a.m.	NDPC Year in Review – Terry Kovacevich, Chairman	Stark Ballroom
10:30 a.m.	FFA – Ag & Oil: Leading North Dakota Forward Together, David Leier	Stark Ballroom
10:40 a.m.	North American Oil & Gas Supply and Demand – Adam Sieminski, EIA (invited)	Stark Ballroom
11:20 a.m.	North Dakota Oil & Gas Forecast – Niles Hushka, KLJ	Stark Ballroom
11:45 a.m. – 1:15 p.m.	Lunch & Keynote Address – Jeff Miller, Halliburton NDPC Outstanding Service Award, Mike Hynek & Dave Hynek	Stark Ballroom
1:45 p.m.	Common Sense Conservative Coalition – Jon Godfread	Stark Ballroom
2:15 p.m.	Roads Update – Grant Levi, NDDOT (invited)	Stark Ballroom
2:45 p.m.	Break	Stark Ballroom
3:15 p.m.	Regulatory Issues Panel – Moderator, Zac Weiss, WPX Energy; Panel, Dave Glatt, North Dakota Department of Health; Kevin Shelley, USFWS; Terry Steinwand, North Dakota Game & Fish (invited); and Dave Searle, Marathon	Stark Ballroom
4:30 p.m.	Adjourn for Day	Stark Ballroom
5:30 p.m.	Social	Hettinger, Dunn & Billings Rooms
7:00 p.m.	Chairman’s Banquet – NDPC Hall of Fame Award Presentation; Entertainment: Comedian Don Freisen	Stark Ballroom

THURSDAY, SEPTEMBER 25, 2014		
7:00 a.m.	Breakfast	Hettinger, Dunn & Billings Rooms
8:10 a.m.	TBD	Hettinger, Dunn & Billings Rooms
8:30 a.m.	Crude by Rail – Kari Cutting, North Dakota Petroleum Council	Hettinger, Dunn & Billings Rooms
9:00 a.m.	NDIC Regulatory Update – Lynn Helms	Hettinger, Dunn & Billings Rooms
9:20 a.m.	2015 Legislative Review – Ron Ness	Hettinger, Dunn & Billings Rooms
10:00 a.m.	Break	Hettinger, Dunn & Billings Rooms
10:30 a.m.	What’s Ahead for the Bakken? – Panel: Terry Kovacevich, Marathon; Rick Ross, Whiting; and Senate Majority Leader Richard Wardner	Hettinger, Dunn & Billings Rooms
11:15 a.m.	Pipelines Done Right – Terrance Kutryk, Alliance Pipeline	Hettinger, Dunn & Billings Rooms
11:45 a.m.	Looking Ahead – Perry Pearce, NDPC Chairman	Hettinger, Dunn & Billings Rooms
12:00 p.m.	Closing Remarks & Adjourn <i>No Lunch Provided</i>	Hettinger, Dunn & Billings Rooms

***Agenda is current as of publication date. Please visit <https://annualmeeting.risprojects.org/agenda.aspx> for the most up-to-date conference schedule.*

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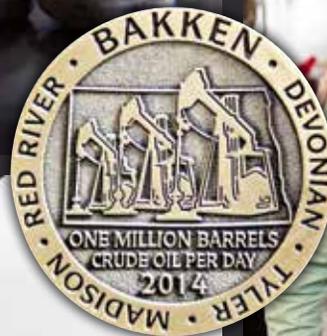
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North Dakota Hits One Million Barrels of Oil Per Day!

One Million Barrels, One Million Thanks

All photos provided by the North Dakota Petroleum Council.



In April 2014, North Dakota produced one million barrels of oil per day for the first time, becoming one of only four other states—Alaska, California, Louisiana and Texas—and only 22 other countries in the world to ever reach the milestone.

To recognize this achievement, the North Dakota Petroleum Council (NDPC) hosted the “One Million Barrels, One Million Thanks” Celebration in Tioga, ND on June 25. More than 2,000 people gathered at Naset Consulting to celebrate with a day jam-packed with food, fun and excitement as the NDPC and its members said thank you to



North Dakota and its citizens for their support and patience along the way.

“This is a significant milestone that few countries and even fewer states have ever reached, underscoring the influence North Dakota has in enhancing our national security and our state and national economies,” says Ron Ness, president of the NDPC.

The day kicked off with a welcome and speeches from Ness; Kathy Neset of Neset Consulting, and Governor Jack Dalrymple. Special guests in attendance included members of the Clarence Iverson family and Lorin Bakken. Following the talks, the attendees enjoyed an airshow featuring World War II war birds by Pietsch Aviation and the Texas Flying Legends, a delicious meal of barbeque, shrimp, crawfish and all the fixings prepared by Halliburton and Capitol Lodge, and live music by the Tin Star Band.

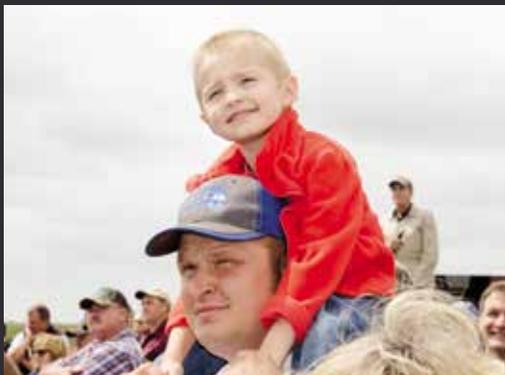
Attendees were also able to view a mini museum of North Dakota’s oil and gas history, watch an historic film about North Dakota oil development and take tours of the Clarence Iverson No. 1 well.

While the rapid development leading up to one million barrels per day has brought with it many challenges, much progress is being made, and North Dakota is benefiting. One million barrels per day is expected to contribute \$50 million to North Dakota’s economy *per day* in taxes, retail sales, and wages and income. But it’s not just a robust economy that oil development has helped bring to North Dakota.

North Dakota’s population is growing and getting younger, as scores of young North Dakotans return home or choose to stay and start their careers in the state. Young people returning to western North Dakota are creating vibrant communities once again.

“For the first time in decades, North Dakota is growing. After years in decline, North Dakota has become a land of great opportunity. The oil and gas industry is excited to continue to play a role in the renaissance of North Dakota,” says Ness.

North Dakota’s future is bright, thanks to the many hard-working men and women who are living, working and investing in our strong and growing communities—and that’s something to celebrate.





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Prospecting Potential, Testing the Tyler

By Paul Adair

For over a decade, exploration, production and media attention have been rightly focused on the Bakken formation. The Bakken accounts for approximately 95 percent of North Dakota's total oil and natural gas production. This is not to say, however, that other formations in the state are not being looked at as potential resources, such as the Spearfish, Red River, Madison and, upon receiving a recent surge of industry attention, the Tyler formation.

Oil production in the Tyler formation—also called the Minnelusa formation—is not

new. For many years, successful oil wells have been vertically drilled here, starting with Amerada Petroleum, who planted their first well into the ground over 60 years ago with additional wells being completed in the Fryburg trend between Dickinson and Fryburg. Over the years, the formation has been a good provider of oil and a moderate source of natural gas, supporting almost 300 productive wells and contributing more than 85 million barrels of oil to the America's energy needs.

Almost 320 million years old and nicknamed the "Baby Bakken" for its geological

resemblance to the Bakken formation and because of its expected potential, the Tyler formation is estimated to be approximately one-third to one-half the total acreage of the Bakken and stretches into the neighboring states of Montana, Wyoming (where the Tyler Formation produces oil in the Snowy Mountain Trough region), and South Dakota.

"There are two different areas in North Dakota where the Tyler formation has prospective Bakken-like resource play potential," says Timothy Nesheim, subsurface geologist for the North Dakota Geological Survey and



president of the North Dakota Geological Society.

“There is a northern area which is centered on McKenzie County and Watford City, while also encompassing some of the surrounding counties as well, and there is also a southern petroleum system, considered to be a second perspective area that is geologically different. This area centers on Billings, Dickinson and surrounding communities.”

LOOKING AT THE LAYERS

In the region where the Tyler formation is currently considered for production, the prospective layers sit at between 7,000 and 8,000 feet below the surface, shallower than the Bakken, which is between 9,000 and 11,000 feet below the surface.

In many ways, the Tyler formation is similar to its larger geological cousin in terms of rock types, but is also very dissimilar in other ways. The Bakken formation is formed of organic-rich shale layers that have generated most of the oil. Companies will drill into the carbonate limestone beds between and below the shale layers to pull the oil out. In the Tyler formation, the type of rock that is potentially generating oil is not true shale. Instead, the oil is embedded into a mixture of organic rich limestone, sandstone, siltstone, coal, anhydrite and shale.

Additionally, while roughly a third the size of the Bakken, the Tyler formation is generally expected to be substantially less productive than the Bakken.

“In terms of actual oil, the Tyler is probably about 10 percent of what the Bakken is,” says Nesheim. “The Bakken is often quoted to contain about 400 billion to 900 billion barrels of original oil in place and, just from unpublished work that I have done, I would hazard the guess that the Tyler has on the order of tens of billions of barrels in place.”

PROSPECTING POTENTIAL

Currently, the Tyler formation finds itself in exploration or prospect mode; the point at which geologists can first develop an idea of where they might discover new oil in a new area or new horizon. Geologists do this through the compilation of geological information and making interpretations before hypothesizing as to where there could be the potential for oil to extract.

“Our overall understanding of the Tyler formation has greatly improved in recent years,” says Nesheim. “Approximately four years ago, our department started looking at the Tyler formation and identified that it had organic rich rock somewhat comparable to that of the Bakken. We published on this information and this is basically what industry has taken and really started to tap into.”



Horizontal drilling is being looked at right now in the Tyler formation as a vast majority of the vertical well potential has already been tapped into and it extends further south than the Bakken. In addition, the Bakken formation has also run its course in terms of being a horizontal well exploration target. This allows companies the freedom to set their sights further afield.

“I believe that the primary reason is that the Tyler formation is being looked at is that the Bakken play has shifted from exploratory drilling to a more development based phase,” says Nesheim. “Most of the good looking Bakken acreage is being currently held by production, having at least one well on each potential spacing unit. This means that there is no longer this frantic pace of trying to hold acreage through drilling. This, in turn, frees up more resources in drilling potential to look at other horizons, such as the Tyler formation.”

TESTING THE TYLER

Even with the best data, however, technology and science on-hand, there is only a one-in-nine success rate for exploration wells. Most prospects strike out; either not finding any oil at all or simply not finding enough of it to warrant the well being considered economically viable. As of yet, the Tyler

formation has yet to be a proven Bakken-like unconventional target.

Thus far, two companies, Upton Resources and Axem Resources, have used horizontal drilling techniques within the Tracy Mountain and Fryburg fields with any success, albeit mixed success. Two of Upton Resources wells—which did not use fracking methods to obtain oil—are still producing. There is still potential remaining, as prospecting indicates that there is a substantial amount of oil sitting within parts of the Tyler formation. The question is simply how to extract economic amounts of it.

Several other companies (Continental Resources, Whiting Oil and Gas, XTO Energy Inc., Marathon Oil Co., and Enerplus Resources) have, more recently, looked into the exploitation of the Tyler formation based on the cutting of Tyler formation cores. Of these companies, Marathon Oil Co. is the only company remaining that had used fracking with modern Bakken techniques to drill.

SEEKING SUCCESS IN SD

As earlier mentioned, the Tyler formation flows further south than the Bakken, well into South Dakota. It is the allure of finding a Bakken-like resource in this virtually unknown region that is renewing interest the southern Tyler.

So far, there has only been one well that has been drilled and completed in this region using practices similar to those in the Bakken and it has been successful in pumping oil, representing the first time that a company has attempted to produce oil out of a non-sandstone layer. Preliminary testing would indicate, however, that this well will be sub-economic; producing oil, but at a fraction of what it would require in order to be viable. Given that the type of rock being drilled into is atypical for the drilling techniques used in the Bakken, it may only require some tweaking to modifications to drilling techniques to make this particular well more economically feasible.

TWEAKING TECHNOLOGY

Indeed, technology may hold the key to unlocking the vast potential of the Tyler formation. Industry only needs to remember the Bakken of 15 years ago—before the discovery of the Parshall field—to realize that it sometimes only takes a few steps to turn production around. In the early 2000s, the first horizontal Bakken wells drilled into the ground were all proven uneconomic. While some of these test wells in the Bakken continued to be uneconomic because they happened to be located over a geologically poor area, others shortly found themselves to be surrounded by very efficient producing wells simply because fracking technology had

improved. It can be agreed, however, that in the beginning, the Bakken formation's development was stunted and progressed very slowly until the fracking code was cracked.

"I think that in order to get the Tyler to pan out like the Bakken did, you will also need to tweak and then modify drilling technology and techniques," says Nesheim. "And you will also need a company or a series of companies to identify good areas where the geology shows good potential for oil extraction and then have the confidence to act on that information."

TESTING THE "WATER"

As of yet, the Tyler formation is largely untested in regards to how well it responds to Bakken-style horizontal drilling and hydraulic fracking, which is what will most likely be required to make the Tyler a highly successful unconventional play. When technology is able to reliably and economically extract oil out of the Tyler formation that is similar in quality to that of the Bakken, it will prove to be very notable for North Dakota.

Although, it is not expected have 30-40,000 wells drilled over the course of 10 years, as happened with the Bakken. Instead, conservative projections indicate the Tyler can be expected produce in the range of 10 to 20 percent of the Bakken; smaller, yet still significant.

"The Tyler formation has the potential to take off like the Bakken," says Nesheim. "Certainly not to the same degree, but perhaps in the same trajectory. The Tyler formation will not get world press like the Bakken does, and most likely never get to the point of producing a million barrels of oil each day, but there is definitely some potential in the Tyler to get to a point where you could see consistent drilling within the formation."

If the Tyler formation should reach these expectations, communities in its geographic location will be sure to feel some of effects brought on by increased production. Even now, properties in the region have been procured by industry in anticipation of future Tyler productivity. The northern part of the Tyler formation will not feel the effects to local infrastructure as strongly as other regions as it lays over the Bakken formation; any additional stresses on communities, such as Williston or Watford City, would be easily absorbed because of the infrastructure already in place for the Bakken boom.

NIGHT AND DAY

At the other end of the compass, however, the southern-most parts of the Tyler formation have, for the most part, avoided the oil boom and, as a result, communities such as

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Amidon and New England, are not nearly affected as their northerly neighbors were.

However, this is all expected to change with the emergence of increased oil production in the Tyler formation, bringing with it both the negative worries and positive excitements of a increasing oil activity.

Amidon, with a population of about 30 (yes, you read that right: 30), is typical of communities that will be affected. Lacking much of the basic infrastructure required to fully embrace the development in the Tyler, it runs the risk of being overtaken should the industry come knocking. Amidon only needs to look north to see that, although an oil boom can bring monies into the city and county, increased oil activity in the region can also provide more traffic, damage to roads, crime and ever-rising housing prices.

However, many of these negatives can be mitigated with proper planning and now may be the time to do so, before production takes off in the area. Municipal planners are looking to the experiences of the north to help navigate the risks associated with oil activity, hoping to avoid being overwhelmed. In addition, some of these communities are searching for investors, looking

to fill the gaps in funding shortfalls in order to build and maintain the essential infrastructure needed to ride a boom.

RUSH OF ACTIVITY

South Dakota, so far left out of the oil activity of the Bakken, is hopeful that the Tyler formation will take off and bring some of the increased prosperity down into their state. So far, South Dakota produces approximately 1.5 million barrels of oil each year, about the same amount that North Dakota produces in fewer than two days. Should the Tyler formation's potential play out the way it is hoped, then it will surely improve the lot of South Dakota's oil industry.

For the Tyler formation to live up to its potential, there needs to be more data collected to better understand the petroleum geology of the formation in order to discover horizontal targets and distribution of oil throughout the formation. Only armed with this information can companies maximize their chances of striking a Bakken-like resource in the Tyler. Stakeholders in the Tyler need to realize that it is still very early going in the formation.

It is with patience, understanding and improvements to technology that this "Baby Bakken" can hopefully one day grow into fulfill its potential.



GET TO KNOW OUR EXPERTS

Timothy Nesheim received his Bachelor's degree in Geosciences from the Minnesota State University of Moorhead in 2007, and he received his M.S. in Geosciences from the University of Iowa in 2009. After graduating from Iowa, he worked for a year at Washington State University's geochemical clean lab (2009-2010).

Nesheim has worked as a subsurface/petroleum geologist for the North Dakota Geological Survey since 2010. He enjoys learning new ideas and concepts in his current position and discussing the subsurface geology of North Dakota with both geologists and non-geologists, alike.

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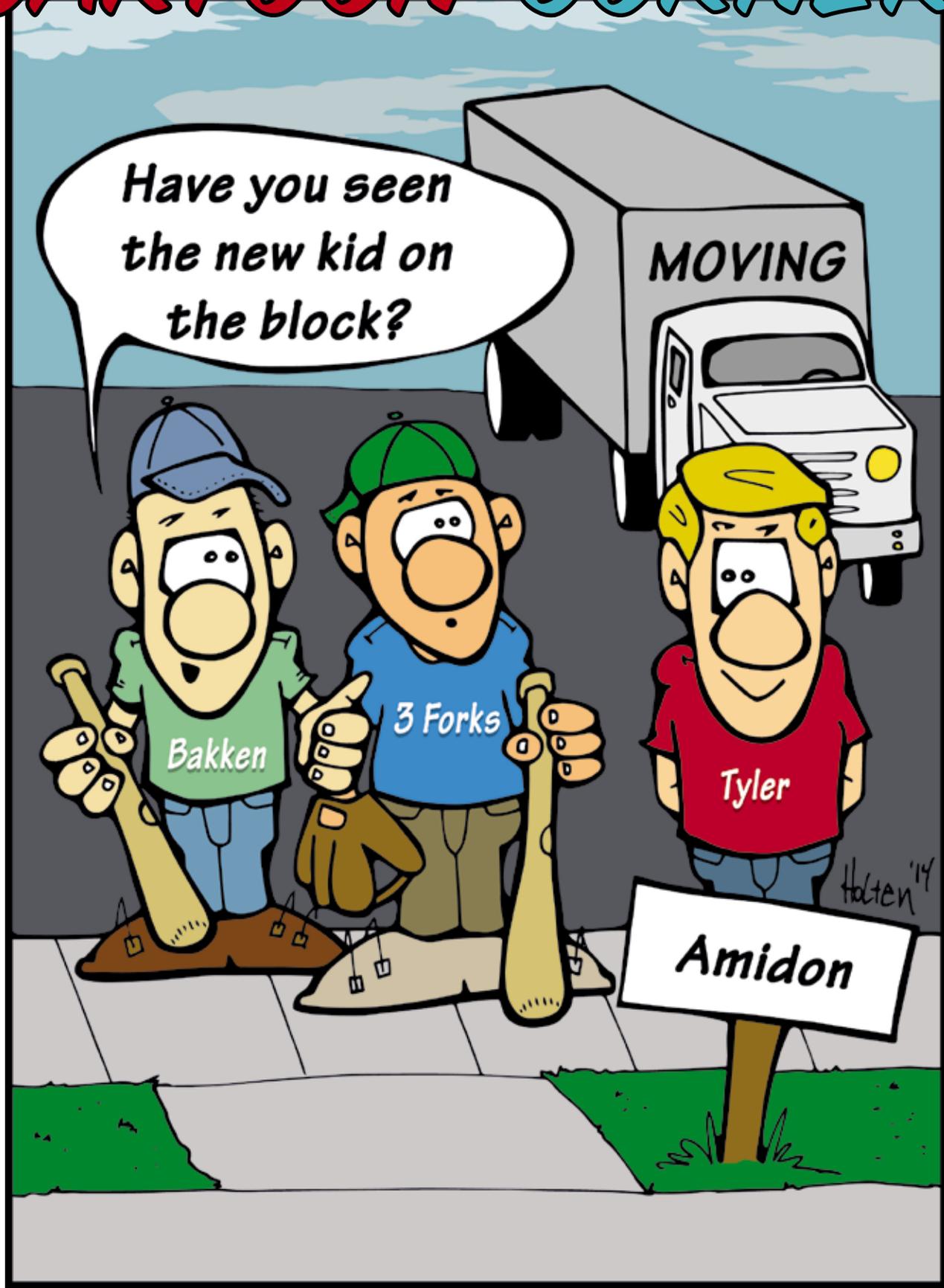
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ND or Bust:

IS LAS VEGAS ABOUT TO GAMBLE ON NORTH DAKOTA?

By Jason Spiess

Recently, through a series of serendipitous events, I ended up sharing a plate of egg rolls at Archie's Thai in Las Vegas with a young man looking to turn his life around via the Bakken oilfields. The young man is labeled an at-risk young adult and is one of Chad Taylor's protégés who is at a crossroads in life. His latest crossroad is a roommate who may have started using drugs again.

Now, the roommate using again is only the start of the downward spiral. Signs of coming and going at weird hours and sporadic behavioral changes were enough to get the young man's suspicion perked. However, when his money started missing, it was time to reconsider life's path. The roommate's decisions had already started encroaching and disrupting this young man's path to a life of sobriety and a second chance.

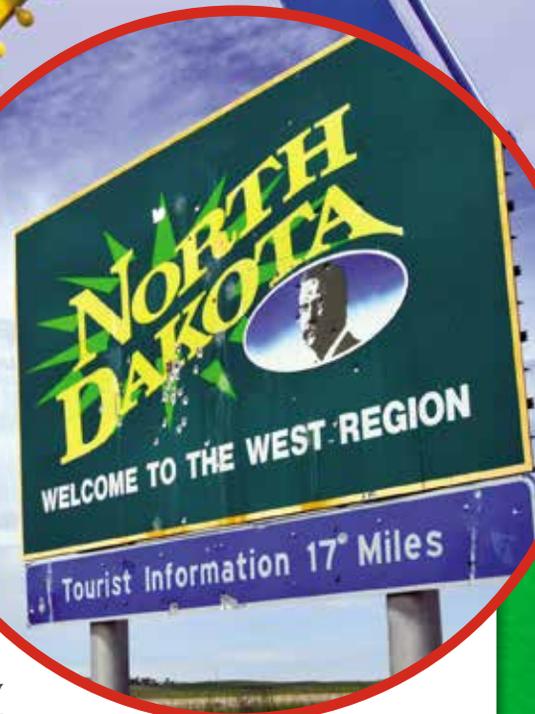
RESISTING TEMPTATION

Living in Las Vegas carries its own vein of temptations. Reigning in the impulses is where Chad Taylor and the Mentor

program, run by The Taylor Foundation, come into the picture for Las Vegas' at-risk youth. Taylor started his non-profit several years ago after receiving second and third chances from some of the top business players in Las Vegas, including Tony Hsieh, CEO of Zappos.

"I made some bad, make-quick-money style decisions in my 20s that landed me in jail," says Taylor. "After years of being honest with everyone I work with and being accountable with my past, I was given another shot to create a career and a better life for my family. Now, I am able to couple my second chance with a passion for mentoring young adults who want a future with accountability and drive."

Mentor is an arm of The Taylor Foundation, a Nevada-based non-profit dedicated to working with at-risk youth. Currently Las Vegas has the highest dropout rate in the United States, according to a recent



study conducted by America's Promise Alliance, Alliance for Excellent Education, Civic Enterprises and Everyone Graduates Center. Additionally, CNNMoney ranked Las Vegas as the worst economy among all United States cities since 2007. Now, the city faces the issue of 20,000 high school graduates annually with no jobs available in Clark County.

"There is a major problem in Las Vegas," says Taylor. "There are 20,000 kids graduating high school with no jobs for

them. Then there are college students graduating and no jobs for them, only they now have \$100,000 of debt in America's playground. Odds are certainly not in their favor."

The issue Taylor is referring to is common knowledge to the locals. In fact, many parents and counselors are even suggesting North Dakota over a four year college or the army until the Las Vegas economy rebounds.

"The recent economic data released by the state shows the economy is down 10 percent since 2007," says Taylor. "Virtually every industry went down. There is some new growth starting in certain areas, but we are not even close to replacing what was lost. The best case scenarios forecast late-2016 for a pre-2007 economy."

TAKING A GAMBLE

Swapping the sun and palm trees for snow and wind has become a legitimate conversation at dinner tables for many young adults in Las Vegas. And the question becomes quite simple—whether to go to college, go into the military or go to the Bakken.

"Honestly, the conversations are happening with my at-risks kids, at my wife's hair salon, my daughter's soccer games and just about anywhere else parents gather," says Taylor. "North Dakota is in the news so much that it doesn't take much for someone to throw out North Dakota as an option for a kid's future."

Taylor says that a few years ago, a North Dakota suggestion would have gotten laughs and chuckles. But today it is taken seriously for many reasons. In fact, a few of Taylor's protégés know people currently working in the oil patch and the reviews have been positive.

"Do you want to go to college for four years, rack up \$50-100,000 in debt and spend a year or two looking for a job?" Taylor asks. "Or do you want to go out to the oilfields for a couple years, learn a trade, make some cash and, more importantly, save some cash. Instead of being \$50,000 in debt, jobless, with a college degree, you can have an education and the cash to start a business."

PLAYING YOUR CARDS

Andy Peterson, president and CEO of the Greater North Dakota Chamber can see why the 39th state is part of the kitchen table conversations for today's graduates.

"The Bakken is a ripe ground for that kind of activity," Peterson says. "So if you're in Las Vegas and you're graduating



Sean Hannity at the Williston Basin Petroleum Conference in Bismarck, ND, this May. Photos by Paul Flesland/Crude Life Photography.

A LiUNA worker mans the grill at the Williston Basin Petroleum Conference.





The LiUNA Semi Truck on-location at the Williston Basin Petroleum Conference.

from high school or tech school or you have a trade behind you, maybe you don't have a four year degree," says Peterson. "North Dakota is the place to be, because you can come here and make \$100,000 easily, \$125,000 is not out of the question."

Peterson says housing is something that needs to be addressed. However, solutions are more readily available now than ever in the Bakken. According to Peterson, working with the agencies and departments set up to assist with housing can speed up any move to the Bakken and make a transition into the Bakken a reality.

"I think North Dakota is the best place for those kids in Las Vegas right now," says Peterson. "North Dakota is the land of milk and honey and we can make it rain for those folks."

Brian Lash, CEO and founder of Target Logistics, also understands why people in Las Vegas are having these conversations about their youth.

"I think parents are recommending their kids go to the oil patch not so much for the regiment, but the economic gain," says Lash. "I have friends and friends' children who have come out here [to the Bakken] to work. Some, for my company; some, for others."

...economically speaking, what happens in Las Vegas apparently happens elsewhere, too.

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THE BOTTOM LINE

Lash continues his discussion on impromptu parenting with an anecdotal scenario that symbolizes the bottom line in just about every parent facing this jobless future.

“Imagine you’re 18 years old and you come here with a five year plan,” Lash says. “After five years you are going to have a quarter of a million dollars in the bank and you are going to go home and buy a Subway franchise and now you have the American dream. You are your own businessman at age 23 with no debt.”

Lash continued saying the army and regimen angle is a valid one too, and anyone who is clean and looking to stay clean has a real shot at turning their life around.

“If you try to come into our facility after you’ve been drinking, you get locked down,” Lash says. “You make noise after 10 p.m., you get thrown out. If you try

to bring drugs or alcohol into our facility, we notify your employer and you will lose your job and your bed. It’s strict, but it works. Are we stricter than the army? I don’t think so, but in a lot of ways we are similar.”

For Lash, noticing the army comparison within his own company, Target Logistics, is quite easy since one in every four employees are ex-military. Lash added that the brotherhood developed in the oilfields and the military is something that is real and embraced by the workers. Naomi and Ronnie Thomas of Capital Lodge see the brotherhood within the walls of their facilities and note the average roughnecks aren’t who they used to be.

“The reputation of the oil workers has changed dramatically, and this is a new age,” Ronnie Thomas says. “The people who are coming up here are skilled or are good people not getting into trouble. Those analogies are old and from the past, this is a new age of oil field workers. These guys work hard, 12 hours a day, seven days a week. They put in the time and effort to support their families and that’s why they are here.”

The days of slinging chains and drinking until they sleep or pass out has been

replaced by curfews, chef-prepared meals, high-tech gadgets and sober workers.

WHAT HAPPENS IN VEGAS, HAPPENS ELSEWHERE

Las Vegas is not the only community at an economic crossroads, according to Cory Bryson, business representative for Labors 563 of LiUNA. Bryson oversees LiUNA North Dakota and, economically speaking, what happens in Las Vegas apparently happens elsewhere, too.

“We’ve got quite a few from Las Vegas already,” Bryson says. “We have people from all over, all 50 states I believe. We’ve even got some from different countries.”

LiUNA North Dakota knows about diversity of workers and trades. As a provider of skilled construction laborers on pipelines, power plants, highway projects and other construction projects in the Bakken oilfields, Bryson is constantly looking for welders, plumbers and other technical trades people.

“We have 118 contractors we work with in North Dakota,” Bryson says. “It’s an earn-while-you-learn process. Some of the largest and most complex projects ever undertaken in North Dakota were completed with the help of LiUNA members. We work hard every day so construction

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owners like Enbridge, Hess, MDU, Sanford Health and the North Dakota Department of Transportation can have projects built on time, on budget and without injuries.”

When asked about drug testing and substance abuse policies at LiUNA, Bryson was quick to answer.

“We drug test, as do 99 percent of the employers,” Bryson says. “That is an area we take very serious as it falls in personal and public safety.”

Almost acting like a funnel for young adults looking to work in the Bakken, LiUNA North Dakota can become a turn-key solution for many Bakken hopefuls by providing “workforce solutions, housing, health and retirement benefit programs and a world-class, state of the art, 44,000 square foot skills and safety training facility.” Bryson adds that with future projects like the Keystone XL, Sandpiper and new LNG export terminals, they anticipate staying busy in the Bakken.

“It’s really the best for everyone,” Bryson says. “If they like North Dakota they can stay and plant roots. If they move home after a couple years they take that trade with them and their local community will benefit. They have options, opportunity and income.”

GETTING BACK TO WORK

National media personality and Fox News talk show host Sean Hannity recently spoke at the Williston Basin Petroleum Conference in Bismarck, ND about “getting America back to work.” After his presentation, Hannity was asked about the Las Vegas trend and his view on kids considering bucking the tradition of a four year degree or the military.

“I wouldn’t be the person I am if I didn’t spend years washing dishes, cooking, waiting tables, busing tables, tending bar, painting homes, hanging wallpaper, laying tiles, framing houses, roofing and doing reconstruction,” says Hannity. “You know what, I know what it is like to have \$200 in the bank, for years; this is decades of my life. People think, ‘Oh, Hannity, you’re a radio and TV guy—you must be rich.’ Well, whatever money I have, it came later in life and the best thing I ever did was get my hands dirty and go to work. It leaves such an impression on you. If my son wants to go to work and get his hands dirty, I’m all for it.”

Hannity was also quick to point out that living your dream and making money do not always happen simultaneously, so you have to be patient and continue to work hard until it clicks.

“My first job in radio paid me \$19,000 a year and I moved to Huntsville, Alabama,” says Hannity. “That’s the other thing: I worked my way up in media. Right from the bottom. For free to \$19,000 a year, \$40,000 a year. I moved to states where I didn’t know a single soul. And then I was very blessed and lucky. I would like to say it is talent, but it’s not.”

FINDING OPPORTUNITY

Reading between the lines, Hannity basically says you must go where the opportunities are. At one time, people came to Ellis Island to find opportunity. For this generation of young Americans, opportunity is in the oilfields of North Dakota. Hannity’s climb to his personal American Dream is just one example of the many who have overcome societal pressures, financial strains and plain old loneliness.

Hearing stories of people overcoming the odds in order to present a path of perseverance in their life is a direction Taylor can get behind. The most difficult part of Taylor’s work with Mentor is getting the kids to believe in themselves so others will have the chance, too.

“We have a saying at Mentor,” Taylor says. “It is not our job to lead anyone in any one direction, but to show them what the world has to offer and let them make the decisions for themselves.”

Taylor’s advice couldn’t come at a better time as high school graduates across the country are starting to realize more and more that the promise of a better future isn’t tomorrow, but rather right now. In North Dakota. 

GET TO KNOW OUR EXPERTS

Jason Spiess is an award-winning journalist, talk show host, publisher and executive producer. Spiess has worked in the radio and print industry for over 25 years. For all but three years of his professional experience, Spiess was involved in the overall operations of the business as a principal partner. Spiess is a North Dakota native, Fargo North alumni and graduate of North Dakota State University.

Spiess began covering the Bakken full-time in March 2012 by living and operating his business in a 1976 Winnebago. Currently, *Building the Bakken* Radio is carried by 12 radio stations across four states and is available on iTunes. *Building the Bakken* articles and columns are regularly featured in newspapers, magazines, industry periodicals and online news sites. For more information on Spiess, email jason@buildingthebakken.com or visit www.buildingthebakken.com.

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By Paul Adair

The Belle Fourche River.


The Ripple Effect of the Bakken: Burgeoning Belle Fourche, SD

Nestled north of the Black Hills National Forest, the South Dakota city of Belle Fourche (French for “beautiful fork”) is finding itself well positioned to meet the needs of the ever-expanding oil and natural gas development in the Bakken formation—and beyond.

Approximately 300 miles due south of the heart of the Bakken, Belle Fourche’s proximity to the action of the oilfields, combined with the expansion of U.S. Highway 85 to four lanes and having excellent rail service, has made this city one of the go-to destinations for the oil and natural gas industry. Belle Fourche has the benefit of being close enough to effectively service the companies operating in the Bakken, while also being far enough away to be buffered from many of the negative effects associated with excessive growth and development faced by some of its northerly neighbors.

However, this may be changing as South Dakota actively courts the oil industry

through tax incentives and fostering an enticing business environment. As such, Belle Fourche is increasingly becoming a place of economic viability for companies and workers out of Bakken.

Over the last two years alone, Belle Fourche has become home to three major oil-field suppliers; Pipe Line Plastics, Black Hills Fiberglass, and Permian Tank Company. The city’s semi repair industry has grown to accommodate an increase in heavy traffic from North Dakota, as it makes its way toward I-90. In addition, local businesses are thriving in Belle Fourche as gas stations, hotels, stores and restaurants have become noticeably

busier with the increased traffic through the city as a result of the Bakken’s influence.

GROWTH

However, the trick now for Belle Fourche will be to be able to properly manage this growth without falling into the same pitfalls as some of the counties and cities within the Bakken.

Belle Fourche is only now starting to see the ripple effect of the Bakken on the community. Housing, and the lack thereof, is becoming an issue as new businesses supporting the Bakken draw employees into the city and commuters from the oilfields start driving



The CBH Travel Center opened to service the influx of semi-trucks.

into Belle Fourche in search of affordable places to live.

“Our housing market is currently booming as the needs for these workers to house their families while they are working increase,” says Rita Pazour, executive director at Belle Fourche Chamber of Commerce.

“This has increased our overall property values and has caused a rental shortage for our community.”

CHALLENGES

While the oil industry using Belle Fourche as a waypoint to the Interstate brings real economic benefit to the community, there are also some negatives to the heavy traffic using the same roadways as the public. Road safety is quickly becoming major concerns for Belle Fourche as the increasing volume of heavy vehicles on the road raises clouds of dust and generally impacts the overall quality and condition of the highways across Butte County.

“In our area, we experience a lot of truck traffic,” says Pazour. “This affects our roads, the flow of normal traffic and the ability for our tourists to visit some of the local areas as signs are missed because of the heavy influence of the larger trucks.”

If the example of comparable communities in the heart of the oilfields can be used, then the challenge of the Bakken will soon begin to manifest itself in other ways. There will be increased difficulty in obtaining, and then retaining, skilled workers as employees move north towards higher paying jobs in the oil industry. This may be particularly difficult for a community such as Belle Fourche, which is rooted in its historically agricultural heritage.

“Our agricultural community will feel a loss as its children decide to make the big

dollars in North Dakota, when they might have chosen to stay on the ranch to help their families and become the next generation of farmers and ranchers in this region,” says Pazour. “Progress may prove to be phenomenal for Belle Fourche, but can also be difficult to move through without losing the sense of what our community is.”

PREPARING

As Belle Fourche becomes a place to live outside of the Bakken, the city’s infrastructure capacity will most assuredly be strained with a boost to its population and public services, which were meant to serve a community of approximately 5,000. Additional pressure will be put on the county’s schools, hospitals, law enforcement staff and emergency services.

“We as a community need to look at the traffic flow, roadways, the rail system, and utilize current structure for incoming facilities,” says Pazour. “We need to help our local businesses to prosper through this period and to study other cities and towns that have populated and grown through a similar event. This will better equip Belle Fourche to handle this expectant type of growth.”

It was with this train of thought that the Belle Fourche Chamber of Commerce put together a town hall meeting last February titled, “It’s Coming Down the Pipe.” The meeting drew over 600 people to learn from a North Dakota industry panel about the positives and negatives associated with an oil boom moving into the area and to have some of their worries addressed.

“The public is concerned for the boom being both the rise of Belle Fourche and to possibly also fail the city,” says Pazour. “This

really brings a mixed sense of opinions. While we do see an increase in revenue, job creation and growth for our community; we also see deteriorating road conditions, traffic issues and the loss of the valued western hospitality Belle Fourche is noted for.”

KEEPING CHARACTER

The dichotomy of attitudes on the future of Belle Fourche and its place in the oil industry is understandable. After all, what good are all the possibilities and opportunities should the city lose its character and way of life in the process? That being said, with careful planning going forward, Belle Fourche should be able to mitigate many of the negatives associated with an oil boom, allowing the community to exploit the many benefits.

“I believe that Belle Fourche will maintain itself as a well-rounded community and I look for there to be a revitalization of our historic traditions that will, in turn, enhance the growth,” says Pazour. “The addition of oil and natural gas will create a new dimension to our agricultural way of life, but our ranchers and farmers will still need to sell their product and our western and agricultural retailers will still need to service them. It could help these entities to expand their business services to include things that will be of value to the oil industry.”

It will be the opportunities such as these that will make Belle Fourche’s future an exciting time to witness.

GET TO KNOW OUR EXPERTS



RITA PAZOUR

Rita Pazour is the executive director of the Belle Fourche Chamber of Commerce and is a graduate from Midwestern State University in Wichita Falls, TX.

In the last 10 years, her career has been focused primarily on human resources and creating a strong employee base for an in-mate work release program and a senior in-home care business.

She loves her work at the Belle Fourche Chamber of Commerce for its ever-changing focus; planning events, aiding legislation, participating in tourism, being a part of the community, and—most of all—providing a comprehensive member service to Belle Fourche businesses to bring patrons to their doors.

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DIVERT DIS

This EF-2 twister touched down last spring about 50 miles southeast of Williston, McKenzie County, ND, with winds topping 120 miles an hour.

PUTTING A PLAN IN PLACE

Putting Your Emergency Plan in Place

By Drew Kozub

When you head to a job site for a morning of work, you make sure you have the things you need to get through the day. Maybe that's tools, a lunch, cell phone, and a few other things. But what would you do if something big happened and you couldn't go back home? Would you be prepared for an emergency?

While it is unlikely a summer day could lead to a twister or a winter shift could end in a blizzard, it is important, especially for people who work in the oil and gas industry to have a plan in mind for dealing with an emergency. Last spring, in McKenzie County, ND, an EF-2 twister touched down with winds topping 120 miles an hour.

In McKenzie County, about 50 miles southeast of Williston, there are 153 RV parks, mobile home parks and crew camps housing workers in the oil and gas industry. These are the most dangerous places to be during a tornado. The best way to know where to go and what to do if a disaster strikes is having an emergency preparedness plan.

PUT YOUR PLAN IN PLACE

What is an emergency preparedness plan? Think of it as a set of rules and tools you can use when something unexpected occurs. These plans can apply to the actions you take personally, or to what happens at your entire job site.

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Your plan answers the questions you will be asking yourself in an emergency: Where is the safest place to take shelter? How am I going to get there? What am I going to take with me? How will I communicate with my family or friends?

The North Dakota Department of Emergency Services (NDDDES) provides 24/7 emergency communications and resource coordination with more than 60 lead and support agencies, private enterprises and voluntary organizations in the state. Cecily Fong, public information officer with the NDDDES, says emergency preparedness plans need to be created *before* an emergency even happens.

“If you haven’t planned and practiced your plan, when something happens, you will be unprepared,” says Fong. “At a minimum, not being prepared could cost you money through damage to your property and other losses—and at worst, it could cost a life. A comprehensive plan that anticipates every single possible scenario that could impact you should be standard procedure for any organization.”

SEEK SHELTER

Part of your emergency preparedness plan involves knowing the best places to go for immediate shelter. For summer storm season, if a twister is imminent, this means getting away from windows and taking shelter in a basement underneath a heavy table, or in a closet or bathroom. For people living in trailers, crew camps, or in mobile homes, these structures are the most dangerous places to be during a tornado.

“The worst possible place to be during severe summer weather is in a trailer or mobile home,” says Fong. “They are 100 percent unsuitable as a shelter.”

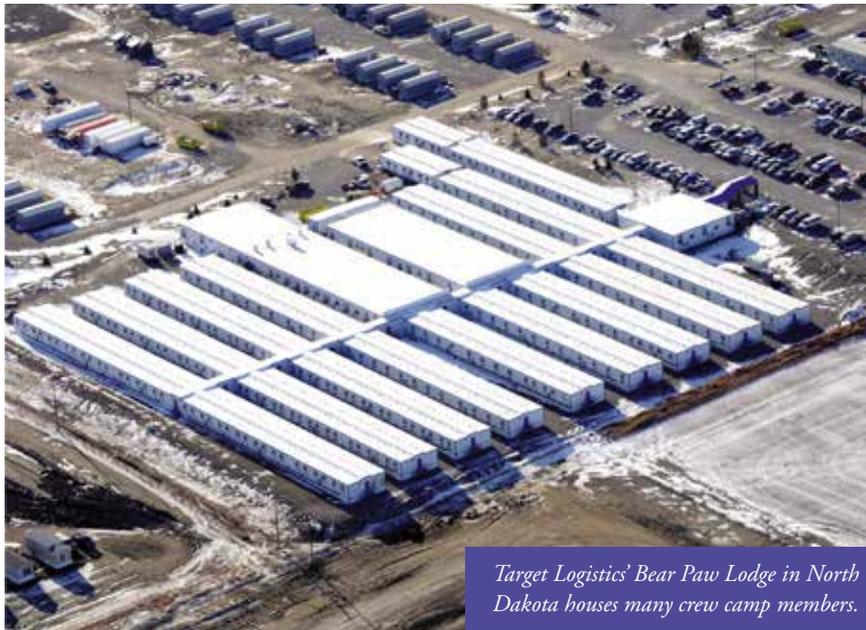
If a tornado is imminent and you are staying in a mobile home, you need to get out. Take shelter inside of a nearby, permanent, sturdy building if it is close enough to run to. If not, you are safer to abandon your mobile home and lay flat on the ground, face down, protecting your head, away from trees and cars. Do not take shelter in your vehicle, as they are just as likely to get overturned by the twister as a mobile home. The best thing to do for people living in a mobile home is to pay attention to weather reports and find better shelter before a twister touches down.

“People who are living in these types of structures should identify their closest local emergency storm shelter,” says Fong. “The county emergency manager is a great way to get information about where those shelters are located. To identify a county emergency manager, visit the NDDDES website, www.nd.gov/des/emergency.”

HIT THE GROUND RUNNING

The emergency county manager in McKenzie County is Karolin Rockvoy. She was hired

Continued on page 66



Target Logistics' Bear Paw Lodge in North Dakota houses many crew camp members.

GET TO KNOW OUR EXPERTS CECILY FONG



Cecily Fong has worked for seven years with the North Dakota Department of Emergency Services as a Public Information Officer. Before then, Cecily worked for the North Dakota Insurance department. She has lived in the state for most of her life. As a public information officer, she maintains the department’s website, creating all public information materials related to coping with emergency situations in North Dakota.

On the NDDDES website, you will learn how to prepare yourself and your family for emergency situations caused by flooding, tornadoes, and more, as well as information on preparedness training and exercises.

Visit the NDDDES website at www.nd.gov/des.

MCKENZIE COUNTY EMERGENCY SERVICES: JERRY SAMUELSON & KAROLIN ROCKVOY



For the last 17 years, Jerry Samuelson has worked closely with first responders, community officials and the general public in McKenzie County as the emergency manager. He was born and raised in McKenzie County, and after spending just over 20 years in the US Navy, he came home and has had three positions with the county in that time: veteran services, emergency management and risk management.

After moving to McKenzie County from Montana with a county background in emergency management training, Karolin Rockvoy has been very busy as the McKenzie County Emergency Manager. She has experienced two tornadoes since taking over her role in the spring and

has seen firsthand how important it is to connect county, city, state, and federal resources with the efforts of citizens, volunteers, and private businesses when it comes to emergency preparedness.

TRAVIS KELLEY



The Regional vice-president of Target Logistics, Travis Kelley lives with his family in Williston, ND. He joined the company five years ago and his role encompasses leadership and management skills in construction, human resources, budgeting, maintenance, security, operations and hospitality.

Prior to moving to North Dakota, Travis managed Target Logistics’ 1,500-person facility for security personnel at the 2010 Winter Olympic and Paralympics Games in Whistler, BC, Canada.

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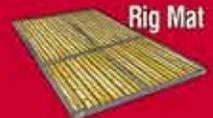
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ASSEMBLING A DISASTER SUPPLY KIT

The Federal Emergency Management Agency (FEMA) has excellent information online for creating an emergency preparedness plan. You can also learn how to assemble a personalized disaster supply kit. Below are some of the essential items (but not all) that should be included in a kit. Visit www.ready.gov/kit for complete information.

Your emergency preparedness kit should include at least the following items:

1. **Water.** One gallon per person, per day, for at least three days.
2. **Food.** A three-day supply, non-perishable, and a can opener.
3. **Radio.** A National Oceanic and Atmospheric Administration hand-cranked radio.
4. **Flashlight.** A hand-cranked model or standard, with extra batteries.
5. **First Aid Kit.** Sterile dressings, antibiotic ointment, scissors and non-prescription drugs.
6. **Shelter Supplies.** Plastic sheeting and duct tape.
7. **Sanitary Supplies.** Moist towelettes, garbage bags and plastic ties.
8. **Local Maps.** Ideally with marked shelter locations.
9. **Cell Phone.** With a charger, inverter or solar charger.

Continued from page 63

May 1, 2014, and on May 26, she arrived on-scene a half hour after the EF-2 twister touched down in McKenzie County. With the largest county in the state to have an all-volunteer fire fighter and ambulance force, Rockvov wants to make sure all of these first responders have every advantage to take care of the citizens of the county. She would like to get together with oil companies and other stakeholders in the community to begin monthly or quarterly training to encompass emergency response and services for all areas of the county.

“If we can prepare and train in advance, we can then save lives and property,” says Rockvov.

The department head in the office of Emergency Services/Veterans Service and Risk Management in McKenzie County is Jerry Samuelson. He coordinates resources in times of natural disasters with first responders, including working with the Red Cross to set up temporary shelter after the EF-2 twister touched down this spring. He emphasizes the importance of packing a disaster supply kit as part of your emergency preparedness plan.

“Disasters, like winter storms or summer tornados, can strike in minutes,” says Samuelson. “Planning ahead with winter and summer survival kits is important. Last year, alone, Mckenzie County communities were without electricity for several

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hours from a winter storm and were without natural gas for heating from a damaged gas line.”

ENSURE SUCCESS

It's great to *talk* about coming up with a plan, but how easy is it to actually use it successfully? Especially when companies are large with many different personnel, how can you make sure all employees are on the same page? Target Logistics provides housing, fitness amenities, home-style comfort, entertainment, and recreation for 16 properties in the United States and Canada with more than 5,500 total beds. There are 12 properties in the Bakken, which house 4,075 oil, gas, and mining workers. Travis Kelley is the Regional Vice President of Target Logistics and their employees not only have a plan, they practice it.

“In addition to a crisis communication plan, Target Logistics managers and employees review emergency policies and procedures on a regular

basis,” says Kelley. “The best way is to prepare to respond to an emergency before it happens. Few people can think clearly and logically in a crisis, so it is important to do so in advance, when you have time to be thorough.”

By being prepared for a disaster, you can reduce fear, anxiety and losses. Kelley says while severe summer weather has been on the minds of some workers in North Dakota because of last spring's twister, emergency preparedness is important during the winter season too.

“Bigger concerns, in truth, in the Bakken are winter storms and extreme cold,” says Kelley. “Winter storms can range from a moderate snow over a few hours to a blizzard

with blinding, wind-driven snow that lasts for several days.”

READY FOR ANY SCENARIO

The best case scenario for an emergency preparedness plan is that you will have one that you will never be forced to use. However slim the chance might be, you should be prepared in case disaster strikes. By visiting a few websites and jotting down notes, talking to your friends and co-workers, and packing a bag with a few basic items, you can prepare yourself for some of the most unpredictable situations. Create your plan, practice your plan, and share your plan. It could save lives, including your own. 

WINTER WEATHER SAFETY

Target Logistics provides housing and services for more than 4,000 people in the Bakken in permanent lodges and jobsite camps. Regional vice-president Travis Kelley shares the following tips to help you prepare for severe winter storms:

- Add the following supplies to your emergency kit: rock salt to melt ice on walkways, sand to improve traction, and snow shovels and other snow removal equipment.
- Listen to a NOAA Weather Radio or other local news channels for critical information on snow storms and blizzards from the National Weather Service (NWS).
- Running water, even at a trickle, helps prevent pipes from freezing.
- All fuel-burning equipment should be vented to the outside and kept clear.
- Keep the thermostat set to the same temperature both during the day and at night. By temporarily suspending the use of lower night-time temperatures, you may incur a higher heating bill, but you can prevent a much more costly repair job if pipes freeze and burst.
- Minimize travel. Avoid driving when conditions include sleet, freezing rain or drizzle, snow or dense fog. If travel is necessary, keep a disaster supplies kit in your vehicle.
- Before tackling strenuous tasks in cold temperatures, consider your physical condition, the weather factors and the nature of the task.
- Protect yourself from frostbite and hypothermia by wearing warm, loose-fitting, lightweight clothing in several layers. Work and stay indoors, if possible.



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Setting Sights on Vision West ND Regional Plan

By Kim Babij-Gesell

When Deb Nelson takes a moment to think about where the Vision West North Dakota (Vision West ND) plan is today and how it got there, she is filled with a sense of pride.

Not pride in herself, but pride in the people of North Dakota who came through in a big way to give the VWND consortium members exactly what they needed to put together the right plan for the state.

"I feel really good about this plan, this is a grassroots plan," says Nelson, program manager for Vision West ND. "It's not necessarily based on lots of data or research, it's based on real people with real lives and the real issues in their communities."

Vision West ND came to be after the United States Department of Housing and Urban Development's Sustainable Community Regional Planning Grant Program awarded a \$1.5 million federal grant to help small and large sized cities plan for and invest in housing, land use, economic/workforce development, transportation and infrastructure.

UNDER REVIEW

The Vision West ND regional plan is complete and is now in the review stage with Housing and Urban Development. With the legislature convening in January 2015, Vision West ND has a busy time coming up, and is working to develop support for some of the efforts that will be going in front of the legislature and making sure the legislators have a clear understanding of the needs they have outlined.

"While we are seeing wonderful growth and benefits coming because of the oil industry, we're also seeing some harsh realities that are costing a lot of money, and



Vision West ND planning weeks are completed.

the cities and counties just don't have that. The legislature is aware of it and I know they're going to do some things to try and ease some of the difficulty we're experiencing here," says Nelson.

The top five needs, according to Nelson, are housing, child care, emergency services, water and transportation:

- 1. Housing:** "Obviously housing is a huge issue. It's a big one for every single community in west North Dakota, as well as throughout the rest of the state. But in west North Dakota, it's particularly difficult," says Nelson.
- 2. Child care:** "This has actually become a workforce issue for us. We need people to work and if they can't get to work because they need to stay home and take care of children, then that becomes a significant problem. We just don't have enough child care to meet the needs. That's big," says Nelson.
- 3. Emergency services:** "Emergency services is a critical piece. When I say emergency services, that's encompassing ambulance service, police departments, fire departments. We have more and more people coming in, staying in non-permanent housing so they don't have addresses, and that alone makes it

very difficult to meet all the needs of the people," says Nelson.

- 4. Water:** "Water, it's huge, we need water for oil production. We need drinking water. We're competing with recreation for water as well. So water management is going to be a very big issue for us," says Nelson.
- 5. Transportation/Roads:** "Our roads were built for 1950 and 1960, maybe 1970 for rural agricultural traffic. That's what they were built for. They've been sufficient for us, up until the last 10 years. Now it's getting worse and worse to try to maintain our roadway systems. Not only the highways and the township and county roads, but in town, to be able to handle the increased traffic and, specifically, the increased large traffic. Large trucks and oil tankers, and the roads just weren't built to handle those."

Nelson says the best part of the plan truly is the fact it came straight from the people who will benefit from it.

"When you can get input from upwards of 2,000 people in a state as small as North Dakota, a state that is extremely rural, we think this really shows our state, and the nation as a whole, that our people are engaged. That, to me, is the most important thing," says Nelson.

"They came out and said, we have real needs about planning and zoning, we're little towns, we don't know how to deal with planning and zoning issues. We met that need by putting together workshops and webinars, we have those posted on our website and people are accessing that all the time. We have a number of small towns, little tiny towns that didn't have planners, or even access to planners. We were able to go into 26 of those small

“When you can get input from upwards of 2,000 people in a state as small as North Dakota... our people are engaged. That, to me, is the most important thing.”

towns and develop an infrastructure assessment. This is all because people asked for it, so we were able to meet a lot of those needs. I’m excited about the possibilities this plan has for the future.”

The HUD grant for the Vision West ND consortium will end on January 31, 2015. When that ends, the consortium, made up of 19 representatives from the counties across the state, will continue to operate under the umbrella of the North Dakota Oil and Gas Producing Counties.

“It’s a natural fit because there’s representation from the association on the consortium and vice versa, so this won’t be much of a change other than who will provide some of the money for the consortium to hold meetings,” says Nelson. 



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DEB NELSON

Deb Nelson is the program manager for Vision West ND. Nelson also owns and operates DLN Consulting Inc., a company she established in 1998. Since its formation, DLN Consulting, Inc. has completed projects for a variety of state and local, public and private agencies.

VISION WEST ND WORK CONTINUES

Vision West ND administrative team members Shirley Brentrup and Vicky Steiner met in early August with three county commissioners to discuss the final Vision West ND Regional Plan. Renville, Bottineau and McHenry county commissioners signed the resolution, acknowledging the 19-county regional plan. Deana DeFoe, Bottineau Economic Development Corporation director and plan director for Bottineau County, joined the discussion in that county. Plan directors are critical to the ongoing work of the Regional Plan.

On August 19, the team returned to Divide and Mountrail counties, and a retreat for plan directors, *Technical Learning Conversation*, was held September 10-11 in Dickinson, ND. The Vision West ND planning grant ends January 31, 2015.

The North Dakota Association of Oil & Gas Producing Counties approved additional funding to continue the work of the Vision West ND Consortium in 2015.



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TRIVIA TIME

North Dakota is cracking down on flaring with strict rules that came into effect on June 1, 2014. The state's Industrial Commission changed its policy to require energy companies to submit a plan to capture any natural gas that could be released by a new well when filing for permits. Without a plan, applications for new wells will not be approved. In addition, new rules for existing wells were announced in July. Go to page 81 and learn more in *Capture Crackdown*.

CRACKDOWN ON FLARING

North Dakota natural gas vented and flared per million cubic feet (mcf) by year:

- 1975: 2,155 mcf
- 1980: 7,975 mcf
- 1985: 2,984 mcf
- 1990: 3,642 mcf
- 1995: 4,300 mcf
- 2000: 3,290 mcf
- 2005: 3,260 mcf
- 2010: 24,582 mcf
- 2011: 49,652 mcf
- 2012: 79,564 mcf

Source: www.eia.gov/dnav/ng/hist/n9040nd2a.htm

DID YOU KNOW?

In 2012 alone, North Dakota oil and gas producers flared about \$1 billion of natural gas. In 2013 alone, oil and gas producers flared 266,000 mcf of natural gas each day, which equals about \$3.6 million in lost revenue per day at market rates.

Source: www.ceres.org/resources/reports/flaring-up-north-dakota-natural-gas-flaring-more-than-doubles-in-two-years

ALTERNATIVES TO FLARING

Several companies are developing technologies aimed at providing alternatives to natural gas flaring. Some key technologies include:

- Onsite natural gas fired electrical generation;
- Fertilizer production from wellhead natural gas;
- Trucking of natural gas within North Dakota;
- Conversion of natural gas to liquid fuel; and
- Small scale, onsite processing of the natural gas.

Visit <http://northdakotapipelines.com/webinars/> to watch a webinar about alternatives to flaring.

EXPECTATIONS GOING FORWARD

The ultimate goal is to reduce flaring percentages to between five and 10 percent over the next decade. The oil and natural gas industries continually make the necessary investments (Over \$4 billion, to date) and improvements in infrastructure to use this precious natural resource.

Source: <http://northdakotapipelines.com/nat-gasfacts>

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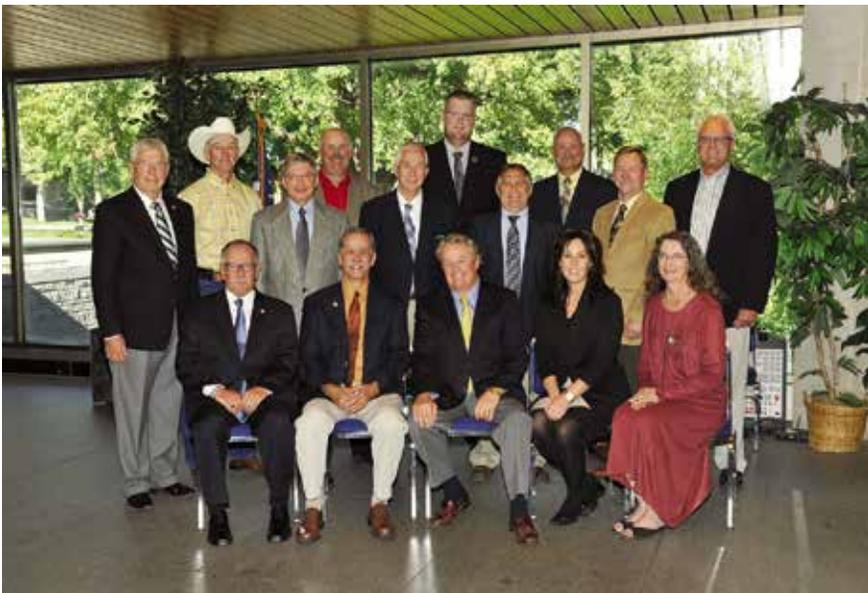
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Destination Conservation



Front row, left to right: Mark Zimmerman, ND Department of Parks & Recreation (ex-officio); Terry Steinwand, ND Game and Fish Dept (ex-officio); Gov. Dalrymple; Rhonda Vetsch, ND Association of Soil Conservation Districts (ex-officio); and Patricia Stockdill, nominated by Pheasants Forever.

Middle row, left to right: Sen. Rich Wardner, Larry Kotchman, State Forester (ex-officio); Blaine Hoffman, nominated by the North Dakota Petroleum Council; Randy Bina, nominated by the North Dakota Association of Parks & Recreation; and Kent Reiersen, at-large member.

Back row, left to right: Wade Moser, nominated by the North Dakota Stockmen's Association; Robert Kuylen, nominated by the North Dakota Farmers Union; Jon Godfread, nominated by the Greater North Dakota Chamber; Dan Wogsland, nominated by the North Dakota Grain Growers Association; and Dr. Tom Hutchens, nominated by Ducks Unlimited.

Missing from the photo: Jim Melchior, nominated by Lignite Energy Council; Dr. Carolyn Godfread, at-large member; and Eric Aasmundstad, nominated by the North Dakota Farm Bureau.



By Paul Adair

North Dakota's Outdoor Heritage Fund was established in 2013 to better invest into state wide conservation efforts and outdoor recreation practices. It seemed that although conservation across the state already benefited from other funding sources—such as from the Department of Agriculture, North Dakota Game and Fish and Wildlife Services—there simply never seemed to be quite enough to meet North Dakota's need.

“The Outdoor Heritage Fund was created to help fill this gap and to allow for another source of dollars to go towards conservation purposes,” says Wade Moser, chairman of the Outdoor Heritage Fund advisory board. “This is something that is going to benefit the resource and the land of North Dakota, while also greatly benefiting the tax payers and the citizens of the state.”

DIVERSE BOARD

To oversee the Outdoor Heritage Fund, North Dakota state legislators established a 12-member board to review and vote on applications before recommending to the North Dakota Industrial Commission, which oversees the Outdoor Heritage Fund, which projects to fund.

The board is made up of a diverse gathering of conservation stakeholders; there are four members from agriculture, four from conservation and sportsman groups, two from energy, one based in recreation services and one member from the business sector.

The three-party Industrial Commission, made up of the Governor, the Attorney General, and the Commissioner of Agriculture, has final approval authority over project recommendations.

“The money is available and if we find good projects, we are certainly open to funding those,” says Moser. “We are a very diverse board, but, at the same time, I think that we all have the same goal in mind and that is finding good projects that will benefit the most people.”

Built into law, the Outdoor Heritage Fund has four criteria to consider when examining project applications:

1. Does this project provide conservation practices that will enhance farming or ranching?
2. Does the project foster conservation practices that will enhance wildlife?
3. Will the project improve access for hunting and fishing?
4. Does the project offer outdoor recreation that is tied to conservation?

MATCHING FUNDS

Without closing the door entirely for interested applicants lacking financial backing, the advisory board tends to look favorably on projects that are coming to the table with money in-hand. It is not primarily interested in funding projects 100 percent, instead preferring to use the Outdoor Heritage Fund as a matching source.

“We want groups or organizations or state entities to have some skin in the game,” says Moser. “We want them to bring some dollars forward to projects and help fund them; where we kick in x amount of dollars and they kick in an equal amount if possible. In doing so, we can turn our \$30 million in initial investments into \$60 million worth of projects on the ground throughout the state of North Dakota.”

In the first round of grants, the advisory board looked at 74 applications. It

“Another major grant was issued to a major state-wide project for tree planting initiatives.”

recommended 18 of those, with two considered as major projects. One was to help North Dakota Game and Fish Department invest in acquiring open access for hunting, as well as, wildlife and fishing habitat conservation through Private Land Open to Sportsmen (PLOTS) and Save Our Lakes Program. Another major grant was issued to a major state-wide project for tree planting initiatives.

“On top of these, we have also had some smaller projects,” says Moser. “The City of Munich had a playground that they wished to upgrade, so the Outdoor Heritage Fund went to procuring some new equipment. There have been some projects from Ducks Unlimited, Pheasants Forever, local park districts and a large variety of people who showed some interest in accessing this fund.”

RESTRICTIONS AND RANKING

The advisory board was challenged in the first round of applications in that it did not have many restrictions on which projects would be considered. As such, they received a number of applications that simply did not fall into the mandate, purpose or intent of the Outdoor Heritage Fund. Because of this, the board took the opportunity in the second grant round to place specific parameters on the application process while avoiding becoming so restrictive that innovative ideas are missed.

The advisory board ranks applications to determine whether or not they meet the intent of the Outdoor Heritage Fund, to look at how much funding will be matched, to establish a measurement of success and to consider the project’s sustainability over its

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duration. With two rounds of applications having passed at the time of this writing, the advisory board is confident that the third round of grants will provide the strongest submissions yet.

“People are getting the idea of what the group is looking for and will be coming forward with some better applications,” says Moser. “There are all sorts of conservation ideas out there that we hope to work with these groups on. We are hoping for some creative mind out there to bring us something new that we can get a hold of and really run with.”

FILLING THE FUND

The Outdoor Heritage Fund fills its coffers from North Dakota’s oil and gas industry through the gross production tax. The fund is capped at \$15 million per year, or \$30 million for the biennium, although this figure may change as the record of the Outdoor Heritage Fund is measured and evaluated over time.

“We have had a lot of support from the legislature and they are telling us that this \$30 million per biennium is a starting number,” says Moser. “We’ll see what happens as we go through this biennium as to what requests we’ve had and what interest we’ve received and, if there is a need, we could see this funding level change in the next legislative session.”

Recently, however, the Outdoor Heritage Fund has found itself under some duress as conservation groups under the banner North Dakotans for Clean Water, Wildlife and Parks, push towards an initiated constitutional amendment to the November 4, 2014 ballot in North Dakota. The group is looking to shore up voter support in order to redirect a total of five percent of the state’s gross production tax—approximately \$75 to \$100 million per year—into conservation projects.

NORTH DAKOTANS FOR COMMON SENSE

Enshrining conservation funding into the state constitution is opposed by North Dakotans for Common Sense Conservation, who are concerned that bias, cost, lack of a spending plan, legislative oversight and funding inflexibility represents irresponsible spending and will actually hurt economic development within the state.

Under the proposed amendment, conservation funding would receive legal precedence over every other need in the state, including education, infrastructure, health and safety, senior programs and property tax relief. The North Dakotans for Common Sense Conservation contends that conservation is not about conservation first

and foremost; rather, it is about finding the balance between the state’s economic needs and the needs of North Dakota’s land and wildlife.

GET TO KNOW OUR EXPERTS

WADE MOSER



Wade Moser was born and raised on a ranch in southwest North Dakota and spent his entire life there, aside from two years he spent serving in the United States Army. He is a graduate of NDSU with a degree in Animal Science.

Following graduation, he worked at a local bank as an agriculture loan officer before becoming the executive vice-president of the North Dakota Stockmen’s Association. After almost 30 years in that position, he retired and continued to ranch full time. Moser was appointed as one of the 12 volunteers to the Outdoor Heritage Fund Advisory Board by the Governor.

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By Paul Adair

The flaring of natural gas is an unfortunate part of doing business in the Bakken formation. At the moment, the state of North Dakota flares roughly 28 per cent of all the natural gas it produces every month. This number is higher than other oil producing states and the national average, which flares only about one per cent of its gas into the environment.

In many ways, the use of flaring can be forgiven in the Bakken. North Dakota's gas play is comprised primarily of associated gas coming directly from oil production and, unlike oil, natural gas cannot be trucked, instead relying on pipelines which may or may not be sufficient to handle the volume. Because the associated gas needs to go somewhere, it is flared for obvious safety reasons.

There are also additional challenges for North Dakota's oil and natural gas companies to face in delivering its natural gas product to market; challenges that might

not be present in other states. The size of the play—an oilfield that measures 15,000 to 17,000 square miles—makes establishing sufficient pipeline infrastructure difficult, especially for oil activity in some of the more remote rural areas. In addition, many companies that entered the Bakken did not completely understand the scope of the infrastructure that would be required to handle the volumes being produced by this lucrative formation, completely overwhelming the infrastructure that was in place.

“Not only do we lack infrastructure, there are also areas where the infrastructure is too small to get the natural gas to market,” says Alison Ritter of the North Dakota Oil & Gas Division. “The state needed to seriously look at a way of enforcing or curbing natural gas flaring because the system we had in place just wasn't working.”

TARGET FOR REDUCTION

The North Dakota Industrial Commission (NDIC) has set itself an ambitious

target in flaring reduction by increasing natural gas capture to 85 percent within two years and 90 percent capture by 2020, with the possibility of capturing up to 95 percent of gas with full engagement from the NDIC, state agencies, the legislature, Three Affiliated Tribes, landowners, and oil and gas companies.

To help achieve this target, the North Dakota Petroleum Council Flaring Task Force was formed at the request of the Governor in September 2013. Comprised of groups from the oil and natural gas industries, the task force worked together to come up with recommendations for the NDIC on ways to tackle natural gas flaring.

One of the key recommendations put forth was to ensure that all operators seeking new drilling permits in the state are required to submit gas capture plans well before any drilling takes place, rather than the established practice of providing this information after a year of production. This recommendation was followed.

Capture Crackdown



Now, each gas capture plan must include a location of the well, and closest pipeline and processing plant, the system capacity of gathering and transport gas lines, the volume of gas flowing from multi-well pads, and a time period for connection.

“It’s not so much new rules, but rather a change in policy,” says Ritter. “It forces the operator to understand right away this is where we are going to send our gas, this is how we are going to get it there, and this is how we anticipate operating in order to produce our natural gas.”

COORDINATE A CAPTURE PLAN

As of June 1, 2014, companies applying for a permit to drill need to have a gas capture plan. The ultimate goal is to reduce gas flaring in North Dakota, to lessen the duration of flaring at any given well and to lower the total flared volumes within the state’s oil and natural gas industries.

On July 1, 2014, the NDIC issued an additional order, which stated that if an operator was failing to meet these gas capture plans or failing to meet capture targets into the future, they could face possible production curtailments, thereby limiting their wells by the amount they could produce until those wells were brought into compliance. This also affects wells already in production that are unable to meet their specific capture targets.

In response to the new shift in policy, permitting in June slowed with only about half of the typical number of drilling permit applications being submitted. A large part of this comes from operators taking extra time to do their due diligence, ensuring that they have everything they require as part of their gas capture plan.

“If we see on a permit that they are missing things, then that permit will not proceed until these things are submitted,”

says Ritter. “But really, eventually everybody will be getting the hang of the gas capture plan.”

IN EVERYONE’S BEST INTEREST

In spite of the extra work to be done at the top end of a drilling project, the industry is generally supportive of this shift in policy. That being said, it will still take the cooperation of all stakeholders—industry and government—to make the goal of flaring reduction become a reality in North Dakota. It is in the best interests of everybody to have associated gases captured and sent to market, rather than missing the opportunity and having that commodity wasted through flaring.

“I think that some people may fault the state for working as much as we do with industry,” says Ritter. “But we do want to stay business-friendly to ensure that we are putting in policies that are enforceable, but are also workable.”

To better ensure success in reducing flaring in North Dakota, it is incumbent the NDIC plan and track midstream companies—both natural gas producers and gatherers—to get status of operation and updates.

MAKING RULES WORK FOR THE BAKKEN

With these new rules in place for gas capture, the NDIC and flaring task force is changing the way that regulators and the industry looks at gas capture in the Bakken.

“There are a lot of other states that have flaring rules that are all pretty similar to what we had in place, but those rules just weren’t working for us,” says Ritter. “This forced us to go out and work with industry on new policies to determine what is going to work for what the Bakken was telling us. We needed to lead the way and blaze

our own trail to discover solutions. It can definitely be a work in progress and it may take some time; but it’s a good start and everybody wins with this.”

In addition to the gas capture plan, the flaring task force also recognized pipeline infrastructure as being critical to the capture of natural gas, and the inability to obtain right of ways was identified as an additional cause of natural gas flaring. As part of its recommendations, it was also suggested that a right of way task force be established to examine the policies and legislation to access to address the many issues surrounding right of way access and infrastructure deficiencies. 

GET TO KNOW OUR EXPERTS



ALISON RITTER

Alison Ritter joined the Department of Mineral Resources in 2011 as the public information specialist after five years of work at

KFYR-TV in Bismarck. While at KFYR, Alison was a two-time winner of the Northwest Broadcast News Association’s Eric Sevareid award.

She is a 2006 graduate of South Dakota State University, where she majored in Communications. When she’s not busy trying to keep up with the ever-changing oil and gas industry, she’s busy trying to keep up with her husband, Bryce and their two sons, Boedy and Benson.

“I love the additional perspective I can provide to our decision makers and I enjoy the different challenges my job presents every single day. I literally leave work every day thinking, ‘Wow, that was tough, but it was fun!’”



TRIVIA TIME

Disaster can strike at any moment. Go to page 60 to read our feature, *Diverting Disasters*, to learn more.

QUICK FACTS ABOUT TORNADES

1. They may strike quickly, with little or no warning;
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4. The average forward speed of a tornado is 30 mph, but may vary from stationary to 70 mph;
5. Tornadoes can accompany tropical storms and hurricanes as they move onto land;
6. Waterspouts are tornadoes that form over water;
7. Tornadoes are most frequently reported east of the Rocky Mountains during spring and summer months;
8. Peak tornado season in the southern states is March through May, and in the northern states, it is late spring through early summer; and
9. Tornadoes are most likely to occur between 3:00 p.m. and 9:00 p.m., but can still occur at any time.

Source: www.ready.gov/tornadoes

Focusing on the Task at Hand: Right-of-Way Task Force at Work in North Dakota

By Paul Adair

Each year, there is approximately 2,500 miles of new pipeline put into the ground across the state of North Dakota; roughly the distance between Los Angeles and New York City. North Dakota does not allow eminent domain or quick take for non-transmission pipelines, so the industry must instead secure individual landowner permission and Right of Way (ROW)—the legal right to pass along or through property belonging to another—before building a pipeline. Obtaining this ROW is often cited as one of the biggest roadblocks in the oil industry's effort to move product in North Dakota.

CAPTURING CHALLENGES

In 2013, the North Dakota Petroleum Council (NDPC) established a Flaring Task Force to study the many challenges associated with capturing natural gas. In its findings, the Flaring Task Force reported that the single largest impediment to the capture of more natural gas was in getting landowner permission for connection activities, finding that it can take up to six months or even longer to secure this permission.

“Obtaining ROWs from private land owners is incredibly important to the industry,” says Ron Ness, president of the NDPC.

“It requires working with several different landowners and sometimes an entire pipeline project may have to be rerouted several miles, should even just one landowner deny permission. This can have the consequence of delaying the project and extending the amount of time before a well can be connected.”

To further delve into the challenges of gaining ROWs and in hopes of finding solutions, the Flaring Task Force recommended the formation of a ROW Task Force, with the goal of discussing and reviewing potential energy corridors, section line easements, legislation to improve ROW access to reduce

flaring and ways to improve relationships with landowners.

The ROW Task Force is comprised of the North Dakota Industrial Commission (NDIC), the Pipeline Authority, the attorney general's office, landowners, county commissioners, state officials from the Department of Transportation, and both upstream and midstream industry members. The ROW Task Force meets monthly with the goal of presenting recommendations to the North Dakota Industrial Commission and interim legislative committees in the lead up to the 2015 legislative session.

LANDOWNER WOES

One of the elements that is hampering the efforts of obtaining ROWs is simple landowner weariness in dealing with companies

and easements. Prior to the Bakken oil boom, North Dakota had little in terms of critical infrastructure in place for the efficient transport of crude oil, natural gas or fresh water. As communities in the state continue to grow and develop, the corresponding infrastructure needs to grow to support them. This means that several companies from different industries are seeking ROWs to install a number of different pipelines, each requiring specific contractual agreements.

“And then, once one pipeline has been built and reclaimed, another may come in and want to build in the same area,” says Ness. “Understandably, landowners are becoming fatigued.”

Another concern of landowners is in the usability of their land after reclamation.

Continued on page 84

GET TO KNOW OUR EXPERTS



JUSTIN KRINGSTAD

On August 1, 2008, Justin J. Kringstad was appointed by the North Dakota Industrial Commission as director of the North Dakota Pipeline Authority. He received his degree in geological engineering from the University of North Dakota's School of Engineering and Mines, where he has served in the past as a member of the University's Geological Engineering Advisory Board.

Kringstad serves on Governor Dalrymple's Western North Dakota Energy Development Information Exchange Council and has an advisory role on the EmPower North Dakota commission. Prior to his time with the Pipeline Authority, Kringstad worked with the North Dakota Oil & Gas Division, the Energy & Environmental Research Center, the North Dakota Geological Survey, and Terra Resources.



RON NESS

Ron Ness is president of the North Dakota Petroleum Council. He serves as the industry spokesperson and manages the association. Ness was previously the president of the North Dakota Retail and Petroleum Marketers Association. Prior to that, he spent 10 years with the state of North Dakota, most of it as the deputy commissioner of labor.

Ness is a Tolna, ND native, a graduate of North Dakota State University in business and economics, and he received his masters in management from the University of Mary. He and his wife Becky have three children and enjoy the outdoors, particularly golfing and hunting.

Continued from page 83

A landowner may encounter some compaction and weed growth after the pipeline has been built and the property has been reclaimed. The landowner may end up having difficulty in reaching the appropriate people to have this matter taken care of, leading to frustrations.

To help alleviate this particular concern, the Flaring Task Force recommended the creation of a Pipeline Hotline to be hosted by the NDIC. Landowners can then call into this hotline in order to air any frustrations and then work with the appropriate contact to resolve any matters.

FINDING SOLUTIONS

The ROW Task Force is working on these and other issues by looking at energy corridors, section line easements and other alternative points of access. As such, The ROW Task Force is working on the following deliverables: developing an agent Code of Conduct, bringing forth a project summary document for land agents, crafting an accessible FAQ which covers easements, generating a pipeline incident report, encouraging Agriculture Department mediation for easements, looking at increasing winter installation practices, and evaluating the standard easement lease.

The ROW Task Force strives to bring key stakeholders together to talk about the issues and challenges, learn from one another, find compromises and then find a way that we can move forward on solutions that will help benefit all involved.

"In North Dakota, we are very fortunate to have a long history of sitting down together and working toward common sense solutions," says Ness. "And often, that is all it takes; coming together and talking."

MOVING PRODUCT SAFELY AND QUICKLY

The importance of getting pipelines into the ground cannot be overstated. Pipelines remain the fastest, safest and most economical way to transport the industry's commodities. In terms of crude oil, pipelines can replace trucks which, in turn, will mitigate the impact to our roads and reduce dust. In terms of natural gas, pipelines are the only economically feasible way it can be transported. While it is true that natural gas can be compressed and loaded onto trucks to be trucked away, it is not economic and only adds to our overall traffic safety concerns.

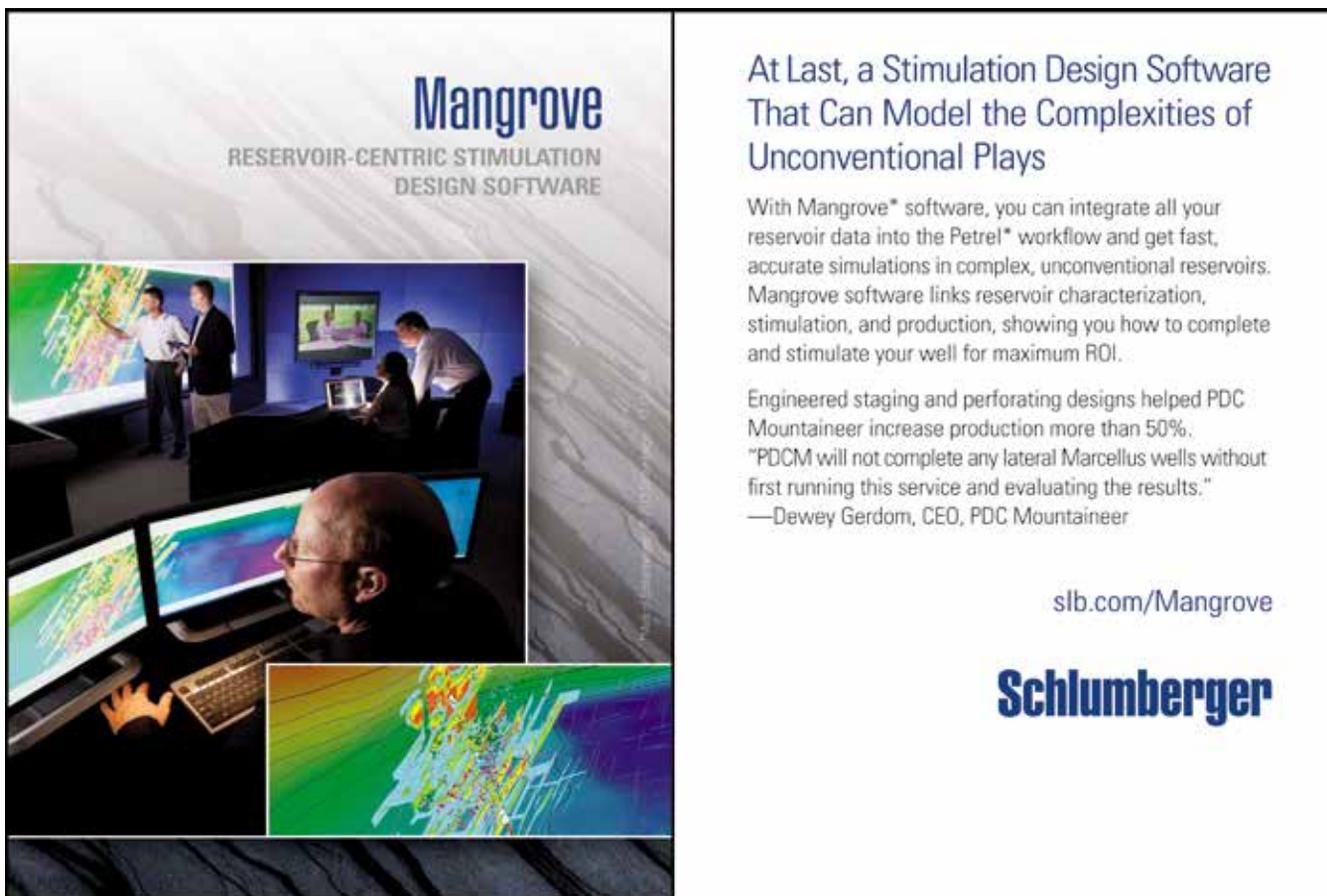
"In North Dakota, there are tremendous challenges right now in terms of

road conditions, dust, congestion, and safety," says Justin Kringstad, director at the North Dakota Pipeline Authority. "Many of these challenges facing the folks living in the state can be addressed by getting increased pipeline infrastructure in place. And also, because flaring reduction requires gathering pipelines to be put into the ground or expanded, having that infrastructure in place has become vitally important to lessening the impact of flaring in the Bakken."

WORKING TOGETHER

Ultimately, the key to maintaining the pace of development in western North Dakota is to strengthen the landowner-industry relationship in the Bakken. This is best done by understanding the issues facing both industry and the landowners and then allowing for dialogue to take place.

"Determining how landowner concerns can be addressed is really the purpose of the ROW Task Force and why it was established," says Kringstad. "It will help to ensure that the relationship between industry and landowners stays strong for many more years to come; this being crucial for the state of North Dakota to continue progressing forward." 



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This is Not a Drill...

By Paul Adair



It is uncommon to see permits issued by the North Dakota Department of Mineral Resources further east than the Highway 83 division. Generally speaking, in the vast majority of oil and natural gas generation instances, there needs to be organic, rich layers of rock which are buried between 7,000 and 9,000 feet below the surface. The Niobrara formation, which lies below this region, is made up of sedimentary layers buried only 5,000 to 6,000 feet at most; a rock type and depth that is not conducive to oil or thermogenic gas production.

However, Denver-based Strata-X Energy has acquired four permits to drill for shallow gas in Emmons and McIntosh counties, southeast of Bismarck, in an area that it is referred to as the Sleeping Giant Gas Project. Two wells are to be drilled 10 miles east of Linton, while two others will be drilled about the same distance west and south of Wishek. Overall, Strata-X has obtained exploration rights to approximately 120,000 mostly contiguous net acres in the Sleeping Giant Gas Project. This, for some, has set off a new round of speculation that the eyes of the oil and gas industry are glancing up from the Bakken, looking to expand activity eastward.

PROSPECTING

Although it has not yet been proven, there is potential in Emmons and McIntosh counties for the Niobrara to produce. The formation may have deposits of oil and natural

Although it has yet to be proven, there is potential in Emmons and McIntosh counties for the Niobrara to produce...

gas that was buried at deeper depths than the Niobrara, then migrated up through the rock into shallower depths before becoming trapped—similar to what happened in the play of north-central North Dakota, Manitoba and Saskatchewan.

This is not to say that the areas surrounding Emmons and McIntosh counties have not been prospected before. After the discovery of the Bakken formation, there is hardly a county in North Dakota that has not been looked at to some degree. However, the closest oil production to the area is approximately 100 miles away, in Buffalo Creek, which produces out of the Red River formation.

“I believe that the last time permits were issued this far east was between 2006 and 2008,” says Timothy Nesheim, subsurface geologist for the North Dakota Geological Survey. “Staghorn Energy had drilled four test wells targeting the Niobrara and Greenhorn formations, placing three of these wells in northern Emmons County.”

As these wells were completed and flow tested, only two ended up producing a little

bit of gas alongside some water. After testing over a 24-hour time period, it was discovered that the wells were underperforming at 1,300 cubic feet and 1,800 cubic feet of natural gas per day, about three to five percent of what was needed in order to be considered economically viable.

In comparison, some wells with similar shallow gas potential in Bowman County pulling from the Pierre formation above the Niobrara initially produced about 30,000 to 200,000 cubic feet of natural gas per day. Even so, any activity in these counties is rare enough to warrant attention—so much so, that the Department of Mineral Resources issued a press release to head off any speculation and concern in the area.

“We wanted to tell people that a lot would need to happen with these wells before anything went further,” says Alison Ritter of North Dakota Oil & Gas Division. “The last thing that we would want is there to be this panicked feeling in the communities of what to expect. We wanted to just put it out there and say that the permits were being issued,

but there was still a lot that this particular company would need to find before there would be any consideration for intense drilling. We wanted to let people know not to worry; that their towns would not be inundated with workers overnight.”

SLEEPING GIANT

Strata-X is confident that through its Sleeping Giant Gas Project, it will be able to find the biogenic natural gas that has eluded others in the area. The company points out that previous attempts were drilled in formations other than the Niobrara, where it plans to drill, and there has been relatively little drilling in the Sleeping Giant Gas Project area to date. The wells are on confidential status with the department, so it may be months before much is known in terms of the success of the wells.

It is difficult, though, to not have some suspense as to what Strata-X will find in the Sleeping Giant. Just because Staghorn Energy did not find the success they were looking for around the Niobrara back in 2006, it does not mean that there isn't anything to be found. Only time will tell if technology and geological understanding of the Bakken have come so far that they can make a substantial difference in the future of activity in Emmons and McIntosh counties. 

GET TO KNOW OUR EXPERTS

TIMOTHY NESHEIM



Timothy Nesheim received his Bachelor's degree in Geosciences from the Minnesota State University of Moorhead in 2007, and he received his M.S. in Geosciences from the University of Iowa in 2009. After graduating from Iowa, he worked for a year at Washington State University's geochemical clean lab (2009-2010).

Nesheim has worked as a subsurface/petroleum geologist for the North Dakota Geological Survey since 2010. He enjoys learning new ideas and concepts in his current position and discussing the subsurface geology of North Dakota with both geologists and non-geologists, alike.

ALISON RITTER



Alison Ritter joined the Department of Mineral Resources in 2011 as the public information specialist after five years of work at KFYZ-TV in Bismarck. While at KFYZ, Alison was a two-time winner of the North-west Broadcast News Association's Eric Sevareid award.

She is a 2006 graduate of South Dakota State University, where she majored in Communications. When she's not busy trying to keep up with the ever-changing oil and gas industry, she's busy trying to keep up with her husband, Bryce and their two sons, Boedy and Benson.

“I love the additional perspective I can provide to our decision makers and I enjoy the different challenges my job presents every single day. I literally leave work every day thinking, “Wow, that was tough, but it was fun!”



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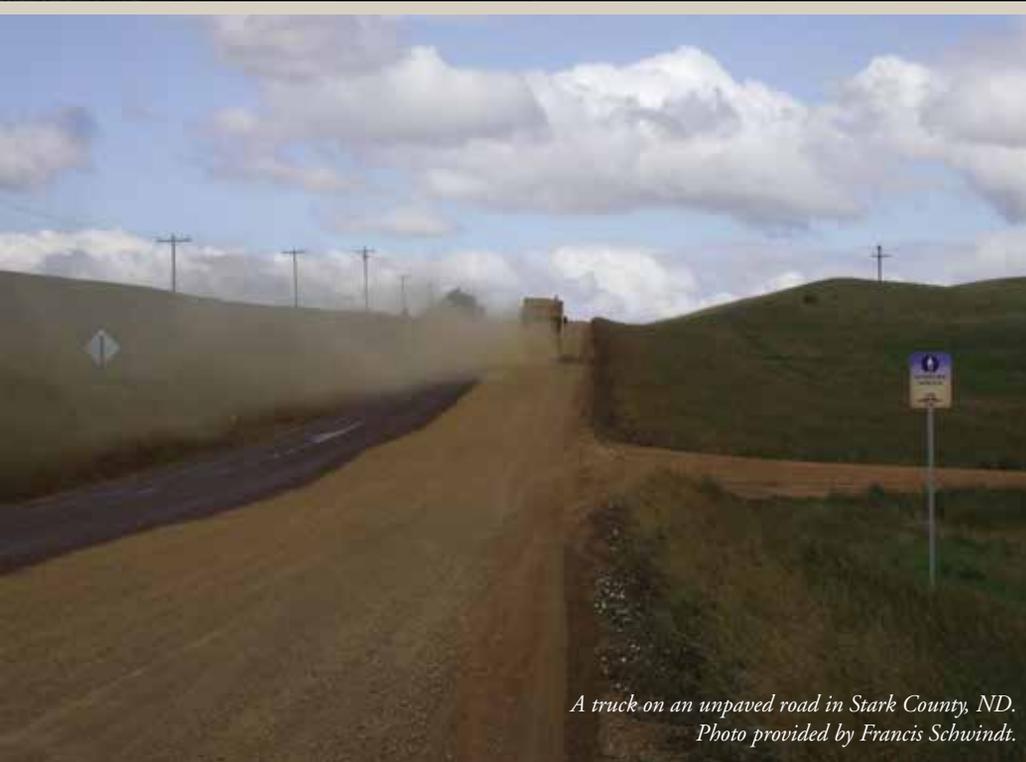
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Dust Differentiation



*A truck on an unpaved road in Dunn County, ND.
Photo provided by Francis Schwindt.*



*A truck on an unpaved road in Stark County, ND.
Photo provided by Francis Schwindt.*



*A metal post with mason jars used in the dust study, located at the intersection of 17th Street North East (County Road 5) and 10th Street in Manvel, Grand Forks County, ND.
Photos by Daba Gedafa.*



By Danelle Cloutier

If there is one thing North Dakotans hate, it's dust. As a farmer and a Mountrail County commissioner, Greg Boschee regularly receives complaints from farmers who say the dust is impacting their livestock and crops, and he knows from living near gravel roads that the dust problem is real.

"If you live close to roads, it's like a snow storm," he says. "We have actually walked in the ditch, where you have had to have shirts over your head to breathe because it just chokes you."

Boschee says that the increased traffic on unpaved roads from the oil and gas industry is a big contributor to the dust problem; however, there is not enough accurate data to back up these claims—yet. The North Dakota Association of Oil & Gas Producing Counties (NDAOGPC) contributed \$39,844 to a study that will compare dust in western North Dakota to the dust in eastern North Dakota and will explore its effects on health, livestock and crops.



A traffic counter used in the dust study, located at the intersection of 17th Street North East (County Road 5) and 10th Street in Manvel, Grand Forks County, ND. Photo by Daba Gedafa.

DISCOVERING DUST

Since June 1, 2014, study lead and UND civil engineering professor Daba Gedafa and his team have been collecting dust samples from five counties—McKenzie, Mountrail, Williams, Grand Forks and Cass. They have been working with county engineers—Mike Dollinger from McKenzie, Jana Heberlie from Mountrail, Dennis Nelson from Williams, Nick West from Grand Forks and Thomas Soucy from Cass—to determine the major roads from which to collect dust.

The researchers set up five metal posts at 30, 60, 120, 240 and 480 feet from the center of the major unpaved road, on each side of the road, to account for wind direction. Each metal post has a jar at two, three and four feet from the ground.

“This is to see the effect of the height and the effect of the distance on each side of the major unpaved road,” says Gedafa. “Each month, we will replace them with new dust jars and will bring them to the UND civil engineering laboratory to analyze.” They will be analyzing the amount, size distribution and pH levels of the dust they collect with the jars.

GET TO KNOW OUR EXPERTS

FRANCIS SCHWINDT



Since 2011, Francis Schwindt has been a principal investigator for a research grant from the North Dakota Oil & Gas Research Program to Dunn and McKenzie Counties. He is investigating methodologies to control dust on county roads in western North Dakota and identifying possible reuse opportunities for oilfield-produced water and drill cuttings.

Prior to his research, he served for 12 years as the chief of the environmental health section of the North Dakota Department of Health.

He now lives in Bismarck, ND and holds a master’s degree in agricultural engineering from Montana State University and a bachelor’s degree in agricultural engineering from North Dakota State University.

DABA GEDAFU, PH.D., P.E.



Daba Gedafa has been an assistant professor in the civil engineering department at the University of North Dakota (UND) since August 2011. He was an assistant professor at the University of Connecticut for two years before he joined UND. He received his Ph.D. in civil engineering from Kansas State University in December 2008 and stayed there as a post-doctoral research associate until he joined the University of Connecticut in August 2009.

Gedafa’s areas of research include mechanistic-empirical pavement design; pavement management system; construction quality control and quality assurance; recycled materials and nanotechnology for sustainable infrastructures; impacts of dust from unpaved roads; and traffic and pedestrian safety. He is a registered professional engineer in the states of North Dakota and Connecticut.

GREG BOSCHEE



Greg Boschee has helped steer Mountrail County as commissioner for the past 10 years. He is past president of the North Dakota Association of Oil & Gas Producing Counties (NDAOGPC) and current executive board member of the NDAOGPC and the North Dakota Association of Counties.

Boschee studied agriculture at North Dakota State University and has put his knowledge to use by growing small grains, such as flax, barley, peas, durum and mustard, on his Mountrail County farm. When he’s not busy serving as commissioner and farming, he’s raising horses for fun.

QUICK FACTS ABOUT DUST

- Unpaved roads are considered the largest source of particulate air pollution in the country;
- Unpaved roads produce almost five times as much particulate matter as construction and wind erosion combined, which are the next two largest sources;
- Dust hinders photosynthesis and, ultimately, stunts the growth of plants because it shades necessary light;
- When roads lose dust, that means the gravel surface is deteriorating, which makes the surface unstable and causes potholes and washboarding;
- Dust control measures can reduce dust by 30 to 80 percent, but these treatments won’t last forever;
- Vehicles that only drive on gravel roads at an average of 40 mph cost 40 percent more in maintenance costs than the same vehicle traveling the same speed on paved roads;
- Paving roads is a permanent solution to dust problems but dust control is generally more cost-effective than paving roads, which require maintenance; and
- Common dust suppressants include water, salt, magnesium chloride and calcium chloride.

Source: water.epa.gov/polwaste/nps/upload/chap7.pdf

Gedafa and his team have also set up traffic counters on the major unpaved roads in each county to determine the number of vehicles passing by, as well as the length of each vehicle, which will help determine whether the vehicle is a car or truck. The counters will also determine the speed at which each vehicle is travelling.

“The amount of dust depends on so many factors—the weather, type of vehicle, the speed of the vehicle, material type and quality, type of treatment and time of treatment—if there is any. We will take all of these into account,” he says.

The dust collections and traffic counters will help the researchers determine how much dust is coming from each county more accurately than other studies in the past. Gedafa says he and his team are ultimately trying to answer the question, “Is it only the perception that the western part of North Dakota has too much dust, or is it reality?”

HEALTH, LIVESTOCK AND CROPS

Once the researchers have quantified dust from the west and east, they can start looking at whether or not the dust is having an effect on health, livestock and crops. Gedafa has heard from county commissioners, like Boshee (an NDAOGPC board member),

that some farmers believe the dust from unpaved roads, due to heavy trucks, has stunted crops, damaged pastures and caused allergic reactions in livestock.

Gedafa and his team will find out what the effects are on livestock by speaking to farmers in all five counties. They will find out what the effects are on crops by measuring the distance from their farm to the unpaved road and determining if the effects on crops decline the further they are from the road.

“Logically, the further away from an unpaved road, there would be less effect. We will see if that is reality,” says Gedafa. Based on his observations, he expects to see a difference between the western counties, known for the booming oil and gas industry, and the eastern counties, known for the booming agricultural industry.

“In the western part, we have seen that most of the traffic is trucks, and in the eastern part, it is farm-related—more family cars, not energy sector-related trucks,” he says. “In McKenzie County and Williams County, we have seen so many trucks in just a couple of hours, so in a month, there could be thousands of trucks.”

DRIVER DANGER

Beyond the possible effects on health, livestock and crops, former environmental

health chief Francis Schwindt says the dust is dangerous for drivers.

“If you meet a vehicle, visibility is greatly decreased, so you can’t see what is coming, or where the road is,” says Schwindt. Quantifying the dust in the western and eastern counties could help show how dangerous dust is—just one of the reasons why Schwindt thinks this study is valuable.

“To me, it provides another answer as far as the impacts associated with the dust.”

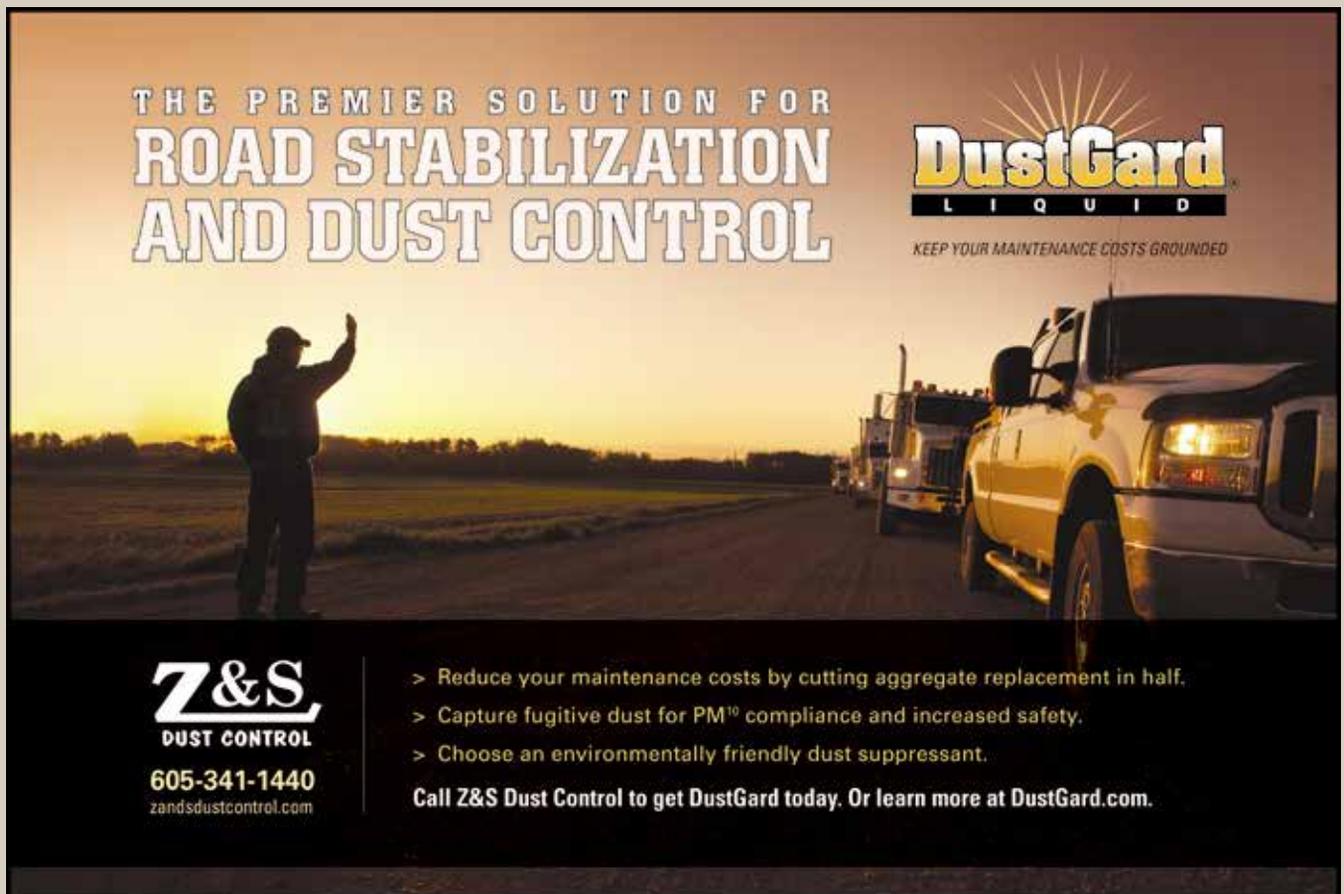
Schwindt has been involved with many studies about dust control, such as using brine on roads, and has been urging county officials to pay for high-quality gravel to make dust control more effective.

“They have heard and understand the message. I think part of the problem, though, is the availability, or non-availability, of high-quality gravel and the cost associated with producing high-quality gravel.”

Boshee, former NDAOGPC president, says he hopes this study will increase funding for dust control by showing through data that dust is a real issue for people living in North Dakota.

“It is a reality—but because we cannot quantify, people don’t think it is real.”

Gedafa and his team will submit a report on the study by the end of October 2014. 



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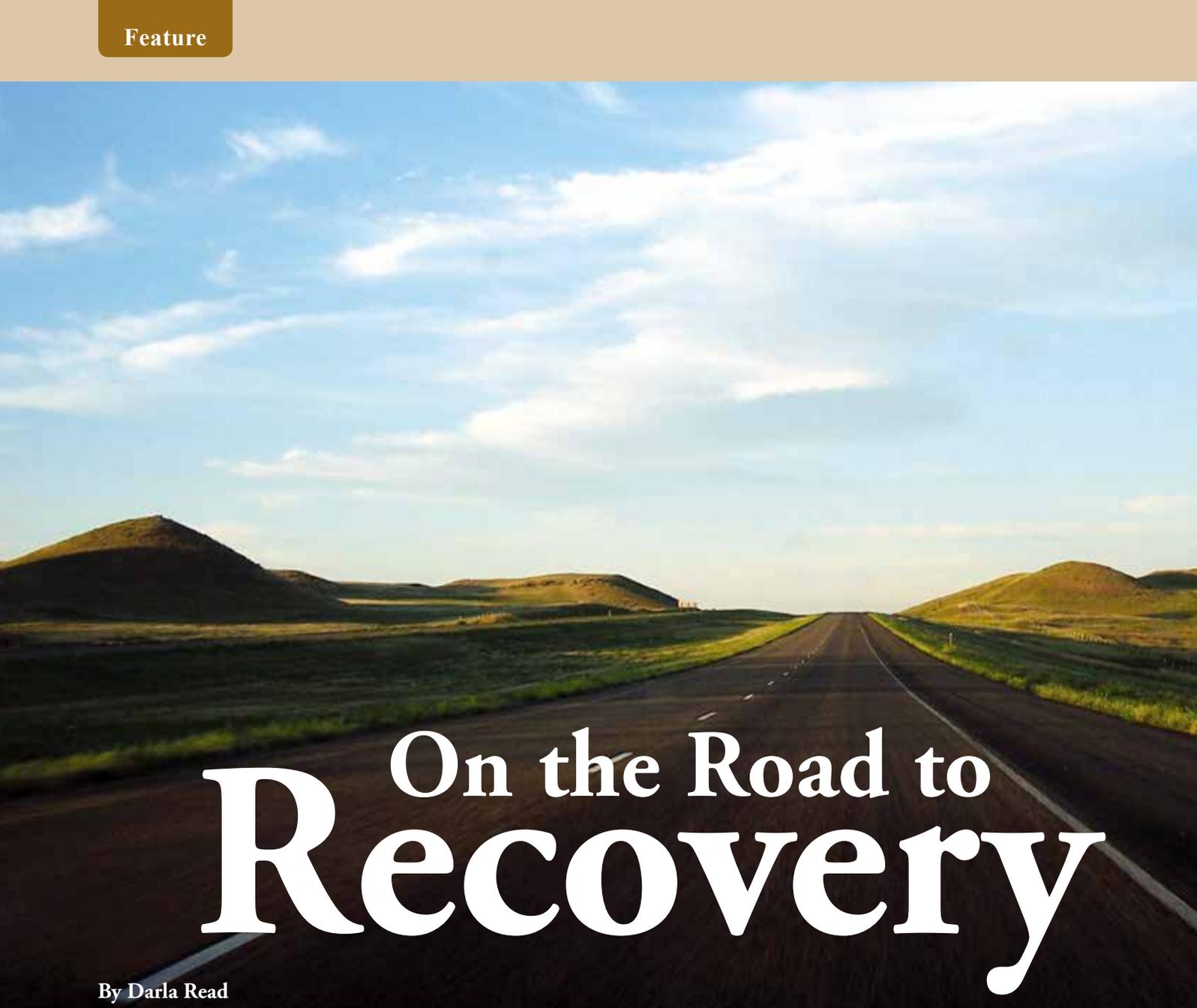
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On the Road to Recovery

By Darla Read

With North Dakota's booming oil industry comes a need for adequate infrastructure in the immediate and more distant future. That includes ensuring the state's county and township roads can withstand the thousands of miles put on them by heavy rigs.

That's why the Upper Great Plains Transportation Institute (UGPTI) was asked by the North Dakota Legislature to analyze all county and township roads in the state (excluding interstate highways and any trails or roads that lead directly to someone's farm), which ends up being about 75,000 miles of roads.

Denver Tolliver, director of UGPTI, says the legislature will be using the information to understand how much money is needed in

the next year and then the next 20, given the projected increases in the oil and gas, and agriculture industries.

"We predicted oil related and agriculture traffic on each road, and then given its current status, estimated when it would need to be improved and what needs to be done," explains Tolliver.

ESTIMATING INFRASTRUCTURE NEEDS

The final draft report, titled *Infrastructure Needs: North Dakota's County, Township and Tribal Roads and Bridges: 2015-2034*, was submitted to the North Dakota Legislative Assembly on July 8. The report estimates infrastructure needs using current production forecasts, traffic estimates and available roadway condition data.

More than 1,000 traffic counts were collected. The study kept track of destinations for crude oil and saltwater shipments, and the capacities of each source or destination, whether it is a refinery or railroad and pipeline transfer facilities. For agriculture, the study predicted the number of trips each crop produced would take to elevators or processing plants.

As Tolliver explains, the study simulated reconstruction, resurfacing and widening of paved roads, increased surfacing for gravel roads, and bridge replacement and rehabilitation costs for those that are old and deteriorated, or those that are in good condition but expected to deteriorate. Additionally, the study considered that some gravel roads that will have very high traffic (such as 500 or more trucks a day) may either need to be paved or be graveled and graded more frequently.



HEFTY PRICE TAG

The results of the study indicate a hefty price tag over the next couple of decades. To maintain or improve unpaved roads, around \$606 million is needed for 2015 to 2016, \$358 million of that is for the 20 oil and gas producing counties (though most of the production is from eight or nine counties). For paved roads, the amount needed is \$377 million, \$186 of which is required for areas with extensive oil and gas production.

"It's a very substantial investment," acknowledges Tolliver, but he notes that in North Dakota, excluding highways, there is more than 93,000 miles of public road., "Roads are the number one priority. They're essential to the industry," says Tolliver.

The amounts climb into the billions of dollars when the study looked at what is needed

from 2015 to 2034; \$5.5 billion for unpaved and \$2.7 billion for paved (\$2.9 billion and \$1.17 billion respectively for the oil-producing counties).

Tolliver says the legislature will meet in January to determine the funds it will appropriate for 2015. He says last year the government appropriated a "very significant" amount—\$2.6 billion—of mostly state money for roads.

"The legislature understands investments have to be made," he says, noting currently there are more than 10,000 oil-producing wells in North Dakota, with a projected additional 60,000 over the next 25 to 30 years.

"The oil patch is expected to last another 20 to 30 years," adds Tolliver. "But if you don't have the roads in place...then that could constrain that growth."

Furthermore, Tolliver says the amounts sound like a lot of money, but when they are broken down, it works out to about \$4,000 per mile of unpaved road per year and \$27,000 per mile of paved road per year.

Because the state collects an extraction and production tax, part of those funds will help fund the necessary road improvements, plus each township and county have revenues, so the state won't be expected to come up with all the money on its own.

INTERACTIVE ROAD STATUS MAP

In addition to improving the network of roads, there is a plan to create an interactive road status map. Janet Sanford, the Uniform County Truck Permit System operator for the North Dakota Association of Oil & Gas Producing Counties (NDAOGPC), says oil-producing counties periodically have to weight-restrict roads for a variety of reasons, such as when the ground frost thaws in the spring, which can lead to the roads softening. When this happens, roads may quickly be damaged by heavy oil traffic.

"We've found it's been difficult to get word out to the industry when load restrictions are placed on the roads," she explains, and so a couple of years ago, a website was set up where counties could post the load restrictions and users could be notified by email or text.

"We have thousands of people who signed up to receive notifications," she says. "There was even more interest than we anticipated."

Because of that, Sanford says there is a need to improve the system. Counties and industry were both asking for an interactive map where they could colour-code areas that are restricted and have notifications go out immediately.

So far, \$50,000 has been earmarked for the project and Sanford hopes phase one will be

completed by spring. What that will look like, she is not exactly sure at this point,—but she anticipates that it will not be rolled out as one product all at once. Currently, the association and web developer are putting together a project plan.

"We're working on updating the email system and a plan for the interactive map project. It's a big project," she says. "It's going to be a challenge, but it's needed."

The NDAOGPC is made up of schools, cities and counties in the 18 oil producing counties. Sanford says right now they are looking at a web application with email and text notifications, but she says eventually they may look at developing an app for phones and other devices. 

GET TO KNOW OUR EXPERTS DENVER TOLLIVER

Denver Tolliver is director of the Upper Great Plains Transportation Institute (UGPTI), a position he has held since 2012. Prior to that, he was associate director for nine years. In addition to being director of UGPTI, he is the director of the Mountain-Plains Consortium, a multi-university consortium that serves as the university transportation center in federal Region 8.

Tolliver is also the director of the interdisciplinary graduate program in transportation and logistics at North Dakota State University, executive director of the Transportation Research Forum, and chairman of the Transportation Leadership Graduate Certificate program. During his career, Tolliver has been awarded more than \$20 million in grant funding and has authored and co-authored more than 150 transportation research papers.

JANET SANFORD

Janet Sanford is originally from Watford City, ND. She has a background in banking, business administration and software development. She attended college at Black Hills State University in Spearfish, SD. In 2008, she started a consulting firm called TeamWorks Consulting Inc., and there are now two office locations: one in Watford City, ND and another in Bismarck, ND.

Sanford has been involved with the NDAOGPC Uniform County Truck Permit System since 2008 and has operated the permit system for the association since 2011. She is married to Ron Sanford and together they have three children.

Waste Not, Want Not

By Meg Crane

Illegal dumping has become a problem in North Dakota. In particular, the dumping of filter socks used in the oil and gas industry is causing issues.

"It has probably been one of the biggest illegal dumping problems that we have had," says Alison Ritter, public information office in the Department of Mineral Resources.

Filter socks are used to filter radium, sediment, scale, sludge and other materials from wastewater during the oil production process. This prevents injection wells from getting plugged. Some of the materials caught by the socks are radioactive.

Even when the radioactivity is naturally occurring, such as in this case, there is a limit of five picocuries per gram for anything being sent to a North Dakota landfill, says Ritter. Each individual sock's levels vary, and they would each have to be sent away to be tested to determine the exact level. And so, it is assumed they are all above this level and have to be sent outside of North Dakota for disposal.



BREAKING THE LAW

The filter socks are supposed to be sent to landfills in states with higher picocurie limits. But not all companies are willing to take this extra time to properly dispose of the materials. Some try to dump them in North Dakota landfills, while others just drop them at the side of the road.

Already this year, two major cases of illegal filter sock dumping have been uncovered in the state. Hundreds of garbage bags filled with used filter socks were found at an abandoned gas station a few days after flatbed trucks covered in bags of socks were found near a landfill.

According to Scott Radig, director of the North Dakota Department of Health's division of waste management, illegal dumping often takes place at night, down back roads, so it is difficult to catch the culprits. But they have caught and prosecuted a number of people and companies. "Anytime a member of the public sees something dumped or has any information on it, we definitely want that," he says.

The materials can be cleaned up before they pose a threat to public safety and the environment, and the guilty party can potentially be caught and prosecuted.

"Depending on the material being dumped, and where, the risk and impact can vary considerably," says Radig. "Most materials are not really acutely toxic, like salt water."

Filter socks have a low level of radioactivity and are unlikely to pose a threat to people or the environment. However, it has the potential to be a risk, which is why it is taken so seriously.

NEW REGULATIONS

This July, new regulations were introduced to make illegally dumping filter socks more difficult.

All companies that use filter socks must now have leak-proof, labeled and covered containers to throw them in after they are used. Then, a licensed hauler must be hired to take them away.

With the new regulations, Radig thinks the number of incidences has already been reduced. Many agree the change has already had a positive impact, but others think that taking the rules further would be more effective in reducing incidences. For example, using GPS tracking technology to see where

the licensed haulers are taking filter sock containers would ensure that they wind up in appropriate landfills.

Trucking logistics software, which have other benefits to trucking companies, includes GPS tracking that lets dispatchers know where trucks are, and when. This way, if a driver decides to illegally dump filter socks on side roads, landfills or anywhere

GET TO KNOW OUR EXPERTS

ALISON RITTER



Alison Ritter joined the Department of Mineral Resources in 2011 as the public information specialist after five years of work at KFYR-TV in Bismarck. While at KFYR, Alison was a two-time winner of the Northwest Broadcast News Association's Eric Sevareid award. She is a 2006 graduate of South Dakota State University, where she majored in Communications.

When she's not busy trying to keep up with the ever-changing oil and gas industry, she's busy trying to keep up with her husband, Bryce and their two sons, Boedy and Benson.

SCOTT RADIG



Scott Radig began working as an environmental engineer for the North Dakota Department of Health's Division of Water Supply and Pollution Control

in 1989. In 2000, he became the program manager for the Ground Water Protection Program, responsible for source water protection, underground injection control, ground water remediation, aquifer monitoring and emergency response.

In September 2005, Scott became the director of the Division of Waste Management. Prior to joining the Department of Health, he worked as a petroleum engineer at the North Dakota Oil and Gas Division. A North Dakota native, Radig earned a bachelor's degree in geological engineering from the South Dakota School of Mines and Technology.

else instead of taking them to an out-of-state landfill, dispatchers will know.

PROPER DISPOSAL

It is important for companies to know that their filter socks are being properly disposed of, because if the waste isn't making it to a proper disposal site, the company who used the filter socks could be investigated.

Companies looking for a licensed hauler should make sure they use GPS tracking for their trucks. Try to work with well established companies that have a good track record. Do research to ensure the hauler does not have a record of illegal dumping. Find out who other companies are using. When you select a licensed hauler, have them agree in writing to

dispose of waste properly in accordance with all laws, rules and regulations. Ask for documentation and invoices from disposal facilities to keep track of where the filter socks wind up.

Taking the extra time to make sure filter socks are being properly disposed of can save your company headaches—and money—down the road.

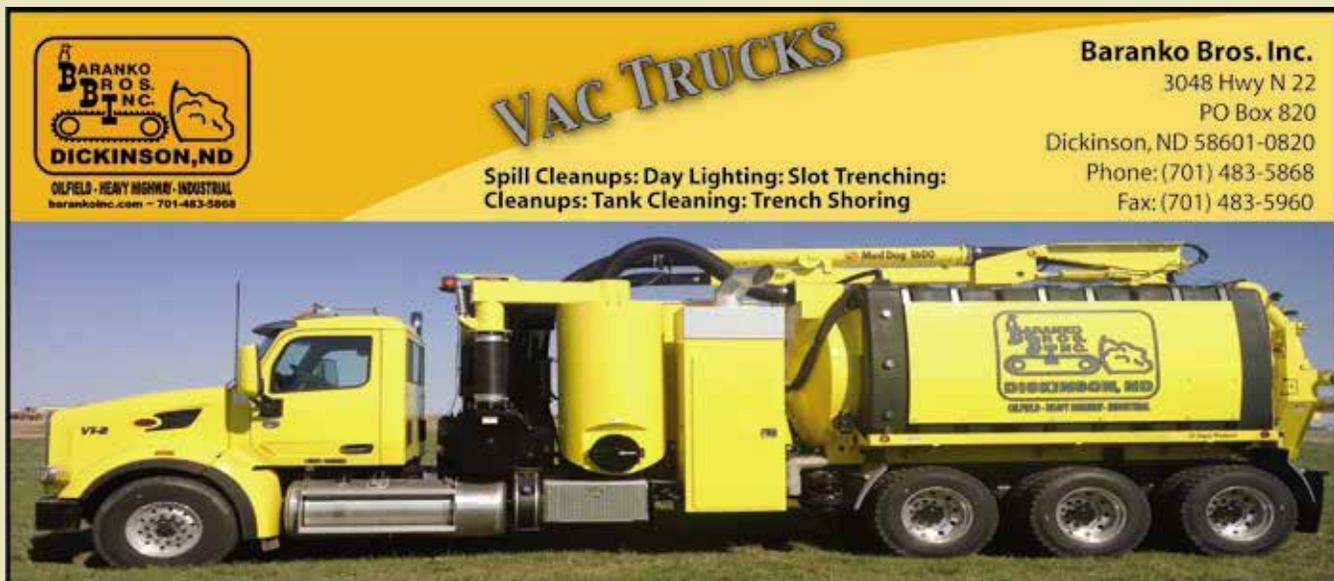


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Legislative Line: Revisiting North Dakota's Oil & Gas Gross Production Tax

By Paul Adair

The Oil and Gas Gross Production Tax (GPT) was instituted as part of North Dakota's 1953 legislative session, established in lieu of property tax on the state's oil and gas producing properties. Originally imposed at 4.5 percent, the GPT was increased four years later to five percent, where it has remained for almost 60 years.

This five percent formula was capped in 1981 and it was during the build up of the Bakken play that legislators delayed removing the cap, leaving oil communities to lag in dealing with the sizeable impact of the boom. When the cap was finally removed, the split was 90 percent to the state and 10 percent to the counties on the four percent side of the GPT. These numbers were later adjusted to 75 percent to the state, 25 percent to the counties. However, a recent study conducted by DAWA Solutions Group suggests that the numbers should be more along the lines of 40 percent to the state and 60 percent to the counties on the four percent side of the formula.

"This tug of war has been going on between the state and oil and gas counties since 1953 to the current time," says Sen. Rich Wardner. "I remember teaching and coaching in Mohall, North Dakota, during the late 1960s and into the 1970s, and the superintendent of schools in Mohall was at the legislature every session working to increase the formula for the 'in lieu of property tax.'"

CATCHING UP ON INFRASTRUCTURE INVESTMENT

Local municipalities fell behind in adequate funding due to the GPT formula being frozen for four years. In order to correct this and allow counties to catch up in infrastructure investment, the North Dakota Association of Oil & Gas Producing Counties (NDAOGPC) is looking to state legislators to address a number of key items.

The first item is the significant increase in funding that is necessary to maintain the transportation infrastructure, specifically when looking at the amount of money needed for counties to maintain the roads.

A second item is the local government's attempts to meet the demands of development. This is seen in a variety of ways. The first is the overall budgets and how much they have increased, with much of it funded through debt. The second is the number of staff who have been added to handle all of the impact related growth, from planners to police officers.



In addition, a surge payment will be needed in order to allow counties to get over the hump that formed once the legislature waited to determine whether or not the oil play in the Bakken would develop as predicted. This surge will need to be accompanied by major capital improvements allotted to support the population in items such as waste water treatment facilities and enhanced county road systems. The continued funding need is also critical for the local governments to be a stable and continuous source of revenue for proper financial planning and management.

“If the counties, cities and schools know what their revenue stream will be, they will be able to accommodate the new workforce,” says Vicky Steiner, executive director of the NDAOGPC. “We want to retain these young workers and build up our communities.”

Time will be of the essence for legislators to act on this surge funding so that municipalities don't miss deadlines for the 2015 construction season.

CHANGING THE DISTRIBUTION FORMULA

Currently, the five percent GPT has generated an estimated \$2.2 billion for the 2013-2015 biennium, \$1.1 billion of which is diverted directly back into the oil and gas

producing counties, with the counties that have the largest production of oil and natural gas receiving the higher amounts of revenue. As the boom in the Bakken does not seem to be heading to plateau, these figures only look to go up. As such, both the NDAOGPC and state legislators will be looking for change in the distribution formula in the upcoming legislative session to benefit North Dakotans.

“The challenge will be to find the correct and fair percentage in the GPT formula for the ‘in lieu of property tax,’” says Wardner. “It should be a part of normal property tax valuation of a taxing district and not treated as an extra revenue source. There are very few industries that create challenges for a county, city or school district quite like oil and gas development. And the oil and gas counties will have their work cut out again this session to prove their needs, convincing others that the changes in the formula are not for wants, but rather for needs.”

The NDAOGPC board has taken the position that the GPT will require a 40/60 split, with 40 percent to the state and 60 percent to the counties in order to provide the appropriate level of funding. The amount of funding needed to support the build-out, expansion and maintenance of infrastructure related to the industry impacts is significant and will be on going.

“I expect it to change and it's critical that the state's share is no more than a 40 percent

share on the four percent side of the formula,” says Steiner. “In 2017, there will be additional new dollars for other areas of the state, so I ask for their patience; but this session, we need to get over the hump and catch up.”

GET TO KNOW OUR EXPERTS



SEN. RICH WARDNER

Sen. Rich Wardner is a retired educator and farmer and former executive director of the Dickinson Area Chamber of Commerce.

He has a Bachelor of Science degree from Dakota State University, and a Master of Science from Northern State University.

Wardner is past president pro tempore of the senate, was chairman of the Sunrise Youth Bureau and was previously chair of the Midwest Legislative Conference and a member of Legislative Management for the Elks and Rotary International. He was a member of the House from 1991-1997 and has been a member of the senate since 1999.

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Feeling EmPowered



The EmPower North Dakota Commission.

By Kim Babij-Gesell

It has been seven years since former governor, John Hoeven, appointed the 14-member EmPower North Dakota Commission to formalize energy policy while exploring the best way for North Dakota to take advantage of its resources and bolster the region's growing oil and gas industry. Now, seven years since its inception, EmPower is gearing up to once again present strategies for state policy makers to consider in next year's legislative session.

The manager of commerce and energy development for the North Dakota Department of Commerce, Mike Fladeland, says he is pleased with the status of the group at present.

"The people who are currently on the committee, most of them were involved with the original commission," says Fladeland. "I have to say, everyone I've spoken to on the committee believes it works really well. It gives them a good opportunity to discuss their interests and those of the various industries, to discuss what they have on the agenda, and, of course, what they'd like to see done as far as energy policy for the state. Of course they all have their own agendas for their own industries, but the effort of this energy policy commission is to get all of these people into one room and form a consensus."

SECTORS MEET AND DISCUSS

EmPower is comprised of representatives from all sectors of the energy industry, including refining and gas processing, farming, agriculture, bio diesel, biomass, wind, oil and gas, coal, investor owned utilities, and generation and transmission cooperatives.

At the end of each even year (as the legislature meets in odd numbered years), after having met for the previous 12 months, they provide a report to the Energy Development and Transmission (EDAT) Committee, with recommendations for energy policy and legislation.

This June, EmPower met for a two-day strategy meeting, where the group discussed making the most of the state's resources, with brainstorming sessions on meeting workforce challenges and housing shortages in the region.

The recommendations were still going through the draft process at the time of print and had not been formalized yet. Once the draft document is put together and approved by the commission, a report will be made to the EDAT committee.

"They'll approve or maybe make some revisions on those recommendations," explains Fladeland. "But generally the policy

Now, seven years since its inception, EmPower is gearing up to once again present strategies for state policy makers to consider in next year's legislative session.

recommendations and legislative recommendations are brought to the EDAT committee for their support."

TACKLING AFFORDABLE HOUSING

At the brainstorming session, group members focused on solutions to a couple of the major issues facing the North Dakota workforce, both directly and indirectly, including affordable housing.

"One of the things the commission proposes is that the legislature continues support of the Housing Incentive Fund," says Fladeland. "That provides for more affordable housing, multi-family housing. The issue is partly supply and demand, and then partly the salaries that people are receiving in the oil patch. Because of those high salaries, people that own apartments are boosting up the rent prices accordingly. So, if you're working in the oil patch and making six figures, then you can afford \$2,500 a month for a two bedroom apartment. The problem is, the other people who are working in a variety of other industries aren't making that kind of money so affordable housing is needed. The rents and home prices are peaking, and people in non-oil related jobs can't afford those prices."

The lack of affordable housing ties into a shortage of workers; without adequate housing, it is hard to attract the people necessary to support a growing industry.

"There's the shortage of workers, especially in certain trades like welding, or with truck drivers with commercial licences. That's a problem. If those people don't have adequate housing or if you can't provide



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them with adequate housing, you won't be able to attract the workers. The workers can come from other states, but if they don't have a place to live and have to live in a tent or camper, obviously that becomes a social issue. Once you attract the workforce, then you have a new issue of needing increased funding for workplace safety and training."

THE NEED FOR PROPER EDUCATION PROGRAMS

One of the other points that came up in discussions is the need for the energy industry to collaborate with the North Dakota university system, the Governor's Workforce Development Council, Job Service North Dakota and other similar agencies, to provide greater accessibility to career and technical education programs through appropriate training facilities.

According to Fladeland, in the past seven years, the commission has made great strides in its work.

"This process is definitely working," he says. "It's just a great tool for communication, in an industry that's so important to ND. I believe that's working very well. The credit really does go to those representatives on the commission, because they spend a lot of time and they're very dedicated. It's a great group of people." 

GET TO KNOW OUR EXPERTS MIKE FLADELAND

Mike Fladeland has been the manager of energy business development with the North Dakota Department of Commerce for the past five years. Prior to that, he spent 24 years as community development coordinator with the Montana-Dakota Utilities Co.

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TRIVIA TIME

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infant formula and diapers; pet food and water; cash or traveller's cheques and change; a fire extinguisher; matches in a waterproof container; a first aid kit; and a wrench or pliers to turn off utilities).

- Make a family communications plan (how you will get to a safe place, how you will contact one another, how you will get back together, and what you will do in different situations).
- Be aware of the weather conditions and look for approaching storms (look for the following danger signs): A dark, often greenish sky; large hail; a large,

dark, low-lying cloud (especially if it's rotating); and a loud roar, similar to a freight train.

- Listen to your local radio or TV station for updates on the disaster. Always listen to the instructions local emergency management officials give you.
- Know ahead of time where safe rooms are and give yourself time to get there in the case of an emergency. A safe room is a structure that meets the Federal Emergency Management Agency (FEMA) criteria and is designed to prevent injury or death.

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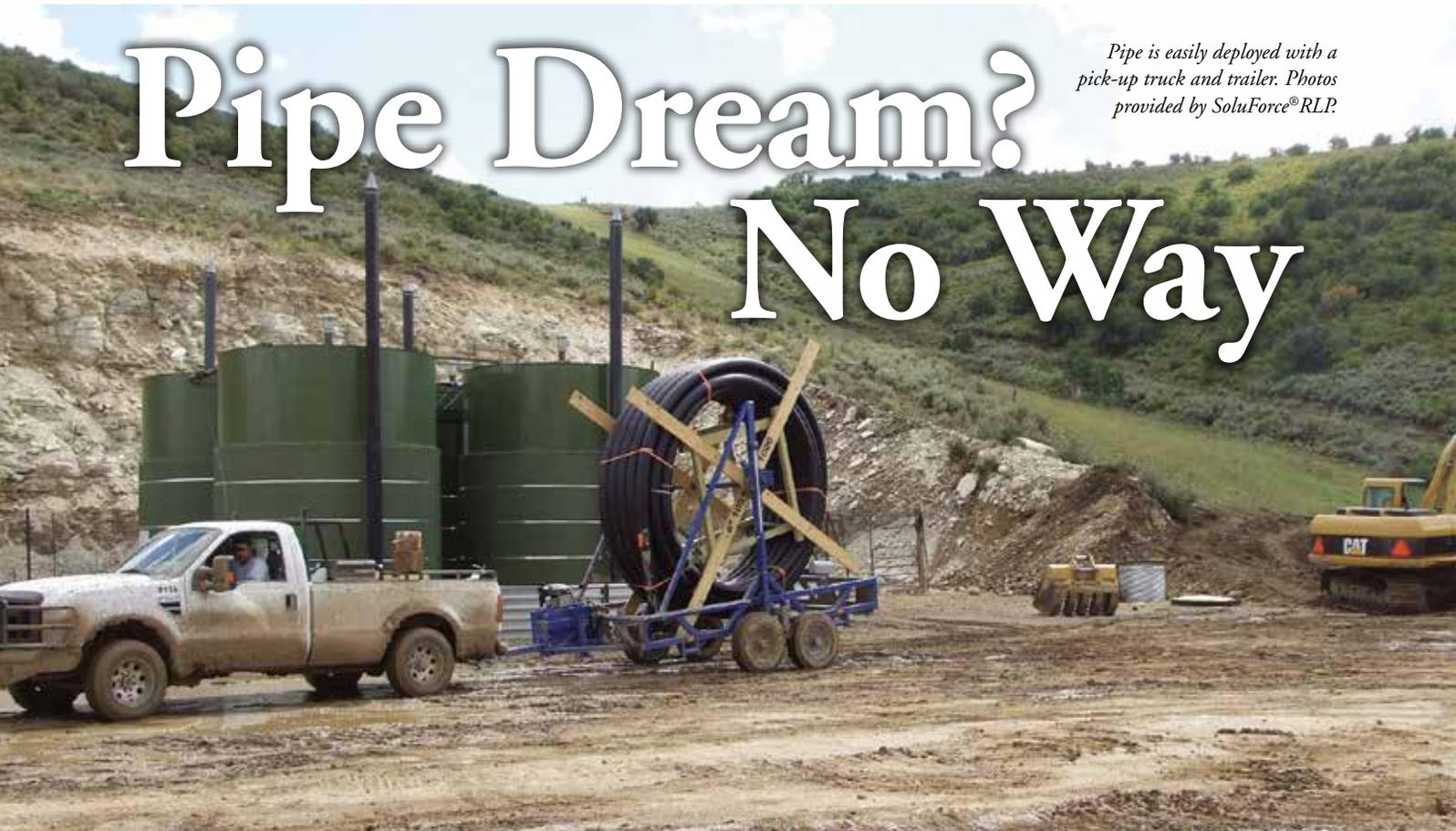


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Pipe is easily deployed with a pick-up truck and trailer. Photos provided by SoluForce® RLP.

Pipe Dream? No Way



By Steve Swanstrom

As recently as seven to 10 years ago, use of high pressure reinforced spoolable composite pipe was in the early adoption stage in the North American oil and gas service. Since then, the technology has gained significant acceptance and has displaced a growing portion of steel pipe usage in high pressure applications.

These applications include flowlines, gathering lines, produced water lines, water and CO₂ injection lines, saltwater disposal lines and frack water management lines—all of which can be highly corrosive. There are at least five manufacturers of spoolable composite pipe who are active in North America. When properly applied and installed, reinforced spoolable composite pipe can provide many years of safe, reliable and maintenance-free operation.

VALUE PROPOSITION

Often reinforced spoolable pipe is first used to solve a corrosion problem. Because the pipe is non-metallic, solving corrosion issues is a key benefit. However, once users see how fast and easy the pipe is installed, they often then select the pipe for economic reasons. The benefits of using spoolable composite pipe also include the following:

- Low installation costs and fast completion of projects;
- Increased safety, due to small installation crews and less equipment on the right-of-way (ROW);
- Low environmental footprint, due to less equipment and activity on the ROW;
- Low ownership costs, including elimination of expensive corrosion inhibitor chemical programs;
- No welding, x-rays or cathodic protection;
- Increased cash flow because production comes quicker;
- The ability to handle high pressure and temperatures;
- Lightweight, low freight costs, and easy to handle in the field;
- Compliant with industry standards; and
- Uses proven materials.

THE TECHNOLOGY

There are usually three materials used in the manufacturing of spoolable composite pipe. The inner liner is often made of high density polyethylene (HDPE), a material that is corrosion resistant and has many decades of successful experience in low pressure oil and gas service. But HDPE by itself is

pressure and temperature limited. Because of its low friction characteristics, HDPE has a higher flow rate than steel pipe of comparable diameters. For example, often an operator can deploy six inch composite pipe instead of eight inch steel pipe and accomplish flows that can satisfy the project requirements.

The second material employed is used as a reinforcement that allows the pipe to handle higher pressures. During manufacturing, the liner travels through a series of winders where the reinforcement wrap is applied at very specific angles. Depending on the pipe manufacturer, the reinforcement material could be braided polyester or fiberglass strands or various types of steel bands and cords. Other reinforcement materials could include carbon fibers and Kevlar® aramid fibers, again, depending on the manufacturer. Some manufacturers wind these various fibers in a dry (or unbonded) process and others use an epoxy to bond the fibers. Either approach has its own merits and should be understood prior to making a purchase decision.

The third and final pipe material that is used is an extruded HDPE (or other plastic) layer that is used as a protective outer jacket to protect the pipe during installation. Pictured here is one manufacturer's design,



Spoolable composite pipe is often made of high density polyethylene; braided polyester or fiberglass strands or various types of steel bands and cords; and an extruded high density polyethylene (or other plastic) layer.

SoluForce®RLP, that depicts a pipe cutaway showing the HDPE liner on the right, the polyester braided reinforcement wrap in the middle and the extruded HDPE jacket on the left. All of these materials are fully compatible with the chemistry seen in oil and gas production.

Connecting multiple reels of pipe is accomplished by using couplings made of coated carbon steel, stainless steel and now a totally non-metallic electrofusion coupling has been developed. Pipe terminations are done by installing weldneck or flange fittings, again made of a variety of corrosion-resistant materials. Steel risers can be welded directly to the weldneck fitting if the user wishes to bring steel pipe to the surface. All these fittings are typically installed in the field and most manufacturers provide field service training for the users' chosen

contractor. The fittings design varies from manufacturer to manufacturer, but some use a fitting installation process that is pressed in to and then crimped on to the pipe, similar to a hydraulic hose type of connection.

THOROUGH TESTING

The pipe is fully tested at the plant prior to shipment. Typically, a section of pipe is pressured to a burst point that is several times higher than its rated design. The ratings are developed by following stringent industry standards that require extensive long-term testing at high pressure and high temperatures.

Other tests include cyclic performance where continuous and constant pressure amplitudes are exerted on the pipe. Axial and circumferential strengths are developed through design and testing of various reinforcement materials and various winding angles of the

reinforcement material. Long lengths of pipe are shipped on reels that are then deployed in a variety of installation methods, including open trench, surface lines and plowing. Diameters available range from two inch through eight inch and pressure ratings can be more than 2,000 psi.

A variety of other fittings and accessories are available including Ts, Ys and threaded terminations. Because of its flexibility, elbows are usually unnecessary. Because of the durability of the outer jacket, padding the trench is often not necessary. Spoolable pipe can be pigged and hot-oiled if warranted. However, this is usually unnecessary due to the smooth HDPE inner wall.

High pressure reinforced spoolable composite pipe should be considered when pressures and temperatures exceed the limits of other low pressure pipe materials. If the project uses diameters in the two through eight inch range, it should be considered as a good alternative to steel pipe. Once the project hydrotest is successfully completed, the operator can be assured of safe and reliable operation throughout the project's design lifetime. 

For more information, contact Steve Swanstrom at steve.swanstrom@pipelife-jetstream.com or go to www.soluforce-rlp.com.



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Converting Flare Gas into Cold, Hard Cash

By Basin Bits Staff

The flaring of natural gas in the Bakken Formation happens at well sites when there is a lack of gathering pipeline infrastructure or other economic alternatives. Although it is not ideal, flaring is a much safer and more environmentally-sound method of dealing with associated gases than simply venting it into the atmosphere. Through the use of flaring, companies are able to convert methane gas into carbon dioxide, allowing for a 25-fold reduction in greenhouse gas emissions.

That being said, the flaring of associated gases is still seen to be a wasteful practice in oilfields. The value of the associated gas combined with the costs associated with the placement of critical pipeline infrastructure required for the transport of the gas to market opens the door for alternate methods of gas capture—methods that balance a company's desire to maximize its profits with its desire to operate in an environmentally responsible manner.

"Give the natural gas and oil industry a goal and we will achieve it," says Tim Fisher, CEO and founder of Bakken Energy Service (BES) and co-host of the radio show, *Energy Matters*. "Give us an opportunity and we will capitalize on it. Give us a way to protect the environment and the odds are, we are already on it."

NATURAL GAS LIQUID SEPARATION SYSTEM

The Bakken has birthed a new industry of smaller, portable and flexible natural gas liquid mechanical refrigeration units, this sole purpose of which, is capturing the higher carbon and hydrogen gases. These highly sought-after hydrocarbons are then sent to a tank via pipeline for pick-up by a midstream company before being processed into marketable products such as butane, pentane, octane and propane.

"Before, the natural gas was either sent into a pipeline or flared, if no pipeline was available," says Fisher. "But now, we can



Portable units, like the FlexGen NGL pictured above, offer operators in the Bakken a new way to convert much of the flaring of associated gases into a marketable commodity.

The Bakken has birthed a new industry of portable and flexible natural gas liquid mechanical refrigeration units whose sole purpose is capturing the higher carbon and hydrogen gases.

send the natural gas directly to a natural gas liquid separation system, which will then separate the highly sought-after heavy hydrocarbons at the wellhead."

There are currently about five companies supplying the Bakken with these units. One such unit is BES' FlexGen NGL; a system with the remarkable ability

to dial up 75 percent, or down 75 percent, depending on gas flow.

"This means that if gas is flowing from one wellhead at 500,000 cubic feet per day, and then three more wells are added, the FlexGen NGL can dial up to handle two million cubic feet per day," says Fisher. "The reverse also holds true. If another site produces 3.5

million cubic feet per day of natural gas, Flex-Gen NGL would supply a system customized to handle the needed flow. FlexGen NGL systems go from 250,000 cubic feet per day, all the way up to 40,000 cubic feet per day. In a way, it is like getting four systems in one.”

COMPLEX PROCESS

The separation process is complex with many vital moving parts. The natural gas coming from the heater/treater is piped to a compression unit, which compresses the natural gas to about 600psi; the higher the compression, the better the separation. The FlexGen NGL units require approximately 450 kW to 600 kW to power.

“One can get by with less power,” says Fisher. “But if you do, you will get less of the valuable natural gas liquids. More power equates to more compression, and more compression equates to more liquid.”

The natural gas is then sent to the separation freezer unit where the FlexGen NGL drops the temperature to as low as -60° Fahrenheit in its stabilizing tower. The colder it gets, the more liquids are formed; the more liquids that are formed, the greater the value of the associated gases being stripped by the unit.

“As an example,” says Fisher, “octane molecules have eight carbon atoms and 18 hydrogen atoms, and are more valuable than

pentane molecules, which have five carbon atoms and 12 hydrogen atoms and propane molecules, which have three carbon atoms and eight hydrogen atoms. The more carbons and hydrogen atoms that are connected in the molecule, the more valuable your product is.”

These separated hydrocarbons are then heated back up to 100°Fahrenheit and sent to the 18,000-gallon high pressure tank at the well pad. A midstream truck arrives to then deliver the liquids to a much larger processing facility where the gases are separated from each other. Once processed, the separate products can be sold for further commercial purposes, such as propane for your barbeque or octane that can be added at refineries to high performance gasoline.

CONVERT FLARE GAS INTO CASH

Portable units, such as the FlexGen NGL, offer operators in the Bakken a new way to convert much of the wasteful flaring of associated gases into a marketable commodity. It is not, however, a complete solution to the issues surrounding flaring.

“Will this system stop flaring entirely?” asks Fisher. “No. There are still some light carbon gases that will need to be flared, such as methane with one carbon atom and ethane with two carbon atoms. But, as you now know, taking molecules out of the flaring

process that contain up to 12 carbon atoms is a big step in the right direction.” 

Questions about this article can be directed to Tim Fisher. He can be reached at tfisher@bakkenenergyservice.com.

GET TO KNOW OUR EXPERTS



TIM FISHER

Tim Fisher is CEO and founder of Bakken Energy Service and co-founder of Tuscaloosa Energy Service in Louisiana. He is the co-host

of the weekly radio show *Energy Matters*, which airs throughout the Bakken and into two Canadian provinces.

Fisher is a former partner and CEO of an international corporation located in Stockholm, Sweden, and continues ventures in the international arena. He earned an MBA in International Business. Fisher is happily married with five children and seven grandchildren, and he still remains connected to his ranching roots.

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Meeting Supply & Demand: Water Flow in North Dakota

By Kim Babij-Gesell

“Water, water everywhere, but not a drop to drink,” is a famous quote from Rime of the Ancient Mariner by S.T. Coleridge. It is also the exact scenario that authorities in North Dakota are working to prevent from happening in their state: water everywhere, but none safe enough for residents to drink.

With the energy industry experiencing an unprecedented boom, demand for water is growing faster than ever before, which is why three large water projects are underway in North Dakota, to ensure there is not only enough safe drinking water for residents, but that there will be water to support the energy industry’s needs, too.

WESTERN AREA WATER SUPPLY PROJECT

The Western Area Water Supply Project (WAWSP) is a domestic water project that uses Missouri River water, treated at the Williston Regional Water Treatment Plant and supplemented by groundwater through the R&T Water Supply Commerce Authority’s Water Treatment Plant in Ray, ND, to meet the municipal, rural and industrial water needs for Western North Dakota.

Cory Chorne, project manager for the WAWSP, says he is pleased with how things are progressing.

“We feel a lot better this year than we did, say, 12 months ago,” says Chorne. “While we are still in the early stages of trying to make additional water capacity available, and we ran into some situations last year, where we did have to curtail water use—even on the domestic side of things—but we are pretty happy where we sit today. North Dakota stepped up and supported this area through this project and right now we are pretty confident we have the infrastructure in place to deal with whatever may be coming our way, at least in the short-term.”

What is coming their way, according to estimates developed by researchers at North Dakota State University, is a population of as high as 160,000 by the year 2034. Chorne says the estimates are based on projected job creation, which is a great situation for the state; the challenge has been trying to stay ahead of population estimates that just keep on growing.

“When we initially looked at the project, the state had projected a service population for the Western Area Water Supply of 50,000 people, and now we’re expecting our service population to be as high as 160,000,” he explains.

“Those studies are looking over a 20-year period, so we have some time to plan and build for that, but right now, we are hoping to get that additional water plant expansion done and then we will be in pretty good shape. We will be able to evaluate how the population has developed and what the water demands will look like over time. We do have preliminary plans to expand the water plant further, to go as high as 35 million gallons per day, as we look closer to that potential 160,000 population, and our plant expansion may have to go beyond that.”

The water plant expansion Chorne references is at the Williston Water Treatment Plant, where current construction will bring it up to a capacity of 21 million gallons per day. The Authority has the authorization to contract up to \$229 million, and Chorne says he expects to get that contracted out over the next few months. \$140 million in actual construction has been completed.

Construction is proceeding along multiple fronts, including several pipeline projects, with another six of those coming up over the next couple of months, as well.

“Hopefully, going forward, it will be more manageable and we will start to get a little bit ahead of things; be in a better position to respond as people come,” says Chorne.

SOUTHWEST WATER PIPELINE PROJECT

Meanwhile, two other main water projects in North Dakota are in various states of completion.

The Southwest Water Pipeline Project transports raw water from Lake Sakakawea to Dickinson, ND, where it is treated and delivered to customers in southwest North Dakota and Perkins County, SD.

Since 1986, the SWPP has been constructing an efficient network of pipelines, pump stations, reservoirs and treatment facilities to bring southwest North Dakota an adequate quantity of quality water. To date, 31 communities, more than 5,350 rural service locations, 28 contract customers, and 23 raw-water customers are served by the pipeline.

According to Tim Freije, the NAWS/SWPP section head at the North Dakota State Water Commission, the Southwest Water Authority's pipeline work is progressing as planned.

"We have, more or less, got our entire county under contract. Mercer County is pretty much completed; the main transmission line to feed northern Dunn County up to the Killdeer area is under contract and it is supposed to be complete this fall," says Freije.

"For everything as far as the pipeline, the pump stations and the reservoirs, we will be able to provide service to the City of Killdeer. We are investigating and doing the preliminary work to update the capacity to the Dickenson area, including an auxiliary intake to Lake Sakakawea, which is under contract and predicted for completion toward the end of 2015."

NORTHWEST AREA WATER SUPPLY PROJECT

The Northwest Area Water Supply (NAWS) Project aims to alleviate water quality and quantity issues in the northwest by bringing water from Lake Sakakawea to a rural water distribution system that would send water as far north as Sherwood, ND to Bottineau County in the east, and Divide County in the west. Minot, ND is slated to

get its water from the NAWS project, which is sized to handle up to 26 million gallons per day.

However, progress on the Northwest Area Water Supply has been stalled due to environmental review and ongoing litigation. Originally, the project was covered under an environmental assessment, and construction began back in April 2002. But in October of that year, the Province of Manitoba, in Canada, filed lawsuits stating that the environmental assessment was insufficient. Manitoba's concerns are about the transfer of potentially invasive species into the Hudson Bay watershed.

"We have been under an injunction since 2005 on the project. The supplemental environmental impact statement is out for public comment right now," explains Freije. "That period ends in September, so I expect the final draft sometime in early winter."

Fortunately, Freije says the courts have been sympathetic to the needs of the citizens in the area and have allowed the NAWS project to build a few hundred miles of pipeline, allowing the short-term needs of many of the citizens in the area to be met. However, he says the delays are a source of great frustration because there are places in the area where the water supplies simply do not meet safe drinking water standards.

"It is a need; not a want. It is a need. People need quality drinking water. For more than half a century, they have needed better water supplies. The population has been growing and the importance has grown. It is getting to the point where people could start getting nervous in the near future. You will see in newspapers all around, they are talking about a lack of housing. We cannot really develop housing without a water supply. It has a domino effect on every aspect of these communities trying to cope with all the growth they are seeing."

GET TO KNOW OUR EXPERTS



CORY CHORNE

Cory Chorne has been a Project Manager with Advanced Engineering for the past 18 years, and has been the Project Manager on WAWS for the past four years. His areas of expertise include rural water, regional water systems and water treatment.



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And the Award Goes to...

By Darla Read

Each year, the North Dakota Association of Oil & Gas Producing Counties (NDAOGPC) awards scholarships to students whose studies are related to the oil and gas industry.

This year, 41 students competed for \$10,000 in scholarships. Some of the scholarship dollars were generated by *Basin Bits* advertising revenues, which were paid to the association. The winners are chosen based on a combination of their grade point average (GPA), letters of recommendation and indications that the applicants will return to western North Dakota to pursue their careers. The Scholarship Committee and the NDAOGPC's Executive Committee felt six people best fit those qualifications.

This year's top scholarship winners are Daniel Berg and Jonathan Olson, both of whom attend the University of North Dakota. They were each awarded \$2,500.



DANIEL BERG

Daniel Berg is a native of Dickinson, ND, and as a mechanical engineering student, he plans to become a drilling engineer once he

graduates in May 2015.

"I grew up around large farm machinery and always loved math, science and machines, so mechanical engineering was a great fit for me," says Berg. "I would like to work at any career allowing me to design and work with large equipment. Becoming a drilling engineer seems like a good fit."

He and his family were thrilled when he received the news of his scholarship, as it will allow him to focus solely on his studies—a sentiment echoed by all the scholarship winners.

"School can be very stressful at times. The engineering curriculum is very challenging; worrying about my financial situation added to the stress," says Berg. "Receiving the generous scholarship will allow me to focus on my education."

Berg would like to work in the oil and gas industry because he says expanding the United States' domestic energy production is a noble goal—one he'd like to be a part of.

"We rely on many countries that dislike the United States for our energy needs; if we could become energy independent, our



national security would be vastly increased. Increasing energy supply also lowers energy costs. High energy costs affect less-fortunate families the most by taking a larger percentage of their income than an average family. Knowing you are helping good causes makes a career more enjoyable."



JONATHAN OLSON

Jonathan Olson is the other top scholarship winner. He hails from Ray, ND and is majoring in civil engineering

because he has always loved creating things.

"Roads, bridges and all forms of infrastructure have always interested me. Civil engineering is a field where I get to help create those things," he says.

Olson hopes to graduate in 2017 and wants to stay in North Dakota, a state he loves.

"With the influx of people due to the oil boom, I hope to work in Western North Dakota, helping to improve the infrastructure of the area, and hopefully the lives of those who live and work there."



LUCAS SCHAAF

Lucas Schaaf, an electrical engineering student at North Dakota State University, was awarded a scholarship for \$1,500. Originally from Glen Ulin, ND, Schaaf plans to pursue a career in

natural gas after his graduation in May 2015.

"The oil and gas industry is one of the fastest growing industries in North Dakota today. There is a plethora of opportunities to take advantage of for an engineer coming out of college," he says. "I am very excited to be involved in this industry."

Like the others, Schaaf plans to stay in North Dakota, and he points to the beautiful scenery and outstanding quality of people as his reasons.

"North Dakota also boasts one of the best economies in the nation—it looks like a winning combination."



BILLY EERDMANS

Also receiving a \$1,500 scholarship this year is William "Billy" Eerdmans, a junior petroleum engineering student at the University of North Dakota.

Eerdmans would like to be an engineering supervisor in drilling, production or completions after his graduation in May 2016.

The oil and gas industry has brought great things to our little state and I am thankful to be a part of something that will go down in history someday.

Eerdmans was originally studying chemical engineering.

“It is quite a diverse degree. I could be finding the cure for malaria or creating flavors for Kellogg’s. However, I realized I wanted to work with something tangible, something I could touch and see,” he explains.

“The first semester, I took a geology class that happened to be in the petroleum engineering program. I have always loved geology and collecting rocks, so I was very passionate about the class. I met the right people, eventually met with my future adviser, and I changed my major.”

Eerdmans says the oil and gas industry is a good fit for him because of the economic impact and adventure—something he has craved since he was a child.

“When I was younger, I wanted to be a cowboy. A drilling engineer is a pretty adventurous occupation. You’re out in the field, dealing with vendors, and it is always a new situation,” he says.

“The economic impact of America becoming energy independent is very important to me, but energy also provides the means for the developing world to grow their economies. Infrastructure and markets are built on the availability of energy, and the quality of life for the majority of Earth’s population could be increased with the ‘energy renaissance’ happening right now.”

WADE RATH-WALD

Finally, two \$1,000 scholarships were awarded. Bismarck State College’s Wade Rath-Wald was awarded one of the scholarships to continue his studies toward a bachelor’s degree in applied science in energy management. Rath-Wald will graduate in May 2016 and plans to continue his work with OneOK, where he has interned and worked since 2013. While studying full-time, Rath-Wald also works full-time, so he is “be-yond grateful” for the financial help.

Being from a farming community in southeastern North Dakota, Rath-Wald says he wasn’t really exposed to the oil and gas industry, and many people asked him if he knew what he was getting into when he accepted his internship.

“To be honest, I had no clue the expansion our state’s oil and gas industry had gone through until I saw it with my own eyes. I was absolutely amazed when I saw the western side of the state and I was thrilled to be a part of the opportunity,” he says.

“The oil and gas industry has brought great things to our little state and I am thankful to be a part of something that will go down in history someday.”

ALEX ZIKMUND

A second \$1,000 scholarship was awarded to North Dakota State University student Alex Zikmund. Zikmund is pursuing a degree in civil engineering. In addition to providing a sense of relief to ease the financial burden of school, he says the scholarship also gave him a sense of encouragement.

“It is always inspiring when you are selected for an achievement from a group of your peers.”

Civil engineering appealed to Zikmund because he always loved Legos and building things as a child.

“...then, knocking them down and building something else! Civil engineering was the degree that would allow me to do this for a living. It is also a very broad degree, which gives flexibility when pursuing a full-time job.”

He plans to graduate in May 2015 and work as a petroleum engineer in the midwest. “The changing environment is very interesting, not only geographically, where the next boom will be, but also in terms of the technology. From fracking to material advancements in pipe technology, the change is constantly creating new challenges that need to be met and overcome.”

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Finding the Fit for You in the Oilfield



By Darla Read

North Dakota's booming oil industry is attracting the attention of job seekers from across the country. People like the idea of a job with potentially high wages, but they may not know where to begin in pursuing such a career, or even what career options are available. There are many different job opportunities within the industry, such as welders, general laborers, roustabout biologists, computer programmers, engineers, lease operators, and many others.

According to Job Service North Dakota's oilfield employment guide, oilfield companies are looking for long-term employees, which is great news for job seekers. However, people who are thinking about a career in the oilfield should know that finding housing can be difficult, so they should ask employers if they offer housing assistance.

"Housing is short and is very expensive," says Mary Urlacher, customer service office manager of Job Service North Dakota. "Man camps are not always available in all areas of the Bakken."



GROWING PAINS

She also notes that costs of groceries, utilities, gas and daycare have increased, as well. These are some of the growing pains, but there are positives that come with growth, too. Urlacher says Dickinson, ND and the southwest corner of North Dakota are growing by leaps and bounds.

"We're not only having an influx in the oilfield, but with that influx in population, comes services." She notes that there are new retail and grocery stores, and that hospitals, schools and clinics are expanding to meet the population demand.

"We are seeing more traffic, so we are seeing an increase in hiring police officers. We are seeing more fast food restaurants in the area," says Urlacher, adding that most places are hiring and fast food workers can make around \$11 to \$15 an hour, which bumps up the wages for other companies in order to compete for workers.

There are a lot of job opportunities. In Dickinson, there are more than 2,180 job openings, and that number has grown steadily over the past five years. In the oil field industry in the Dickinson area, there were 258 job openings related to the oilfield industry in June 2014. The previous month, there were 189. For the same month the previous year, there were 134.

SETTING EXPECTATIONS

When it comes to considering work in the oilfield, people need to understand that work days are long and physically

demanding; they are usually outdoors year-round, regardless of weather conditions. Overtime might be available, but will vary by company. The job guide notes that workers need to be flexible in their schedule expectations because people will have to work the schedule that is best for the company's needs, not their own.

"Not all jobs are one week on and one week off, or two weeks on and a week off, so they need to realize they need to work what the employer gives them," says Urlacher.

She emphasizes that employers are looking for honesty. "Disclosure of any criminal background is a *must*. Companies are going back five to 10 years, and some even further than that, on background checks."

People must be able to pass a drug test, she adds, either hair follicle or urinalysis. Sometimes drug tests are performed randomly on the job. Individuals will be responsible for getting themselves to and from a work site, so they must have a regular driver's license and clean driving record.

The level of training or education required will depend on which career a person is pursuing. Urlacher says having a high school diploma is always a good idea.

"Those individuals who may not be thinking of going to college after high school should really look at some sort of technical or even certificate programs," she adds, pointing to welding certificates or any training that is electrical- or maintenance-related.

Urlacher says people can come with an Occupational Health and Safety certificate

and any other safety-related certificate, such as confined spaces, H₂S gas, fall protection, lockout and tagout, First Aid and CPR, and respiratory protection.

“Some companies will send individuals to obtain the required safety classes, but having that in advance would give job seekers an added edge over those who did not.”

“Flagger training would be another good certificate to have,” she adds, “just in case you have to deal with traffic for companies while moving equipment or setting up rigs or assisting in emergencies.”

UPDATING YOUR RESUME AND SKILLS

Urlacher advises job seekers to showcase the skills they have and the equipment they have operated on their resume.

“Most companies want individuals with skills of some sort. Individuals who already have skills (like welders, equipment operators, electricians, plumbers) are going to be looked at more than someone without any skills at all,” says Urlacher. “Individuals who may be coming from farming or military backgrounds really need to showcase what they have done in the past.”

She says whether it is drilling or work-over rig, roustabouts and floorhands will be needed, and as entry-level positions they are a good place for job seekers to look if they have no oil experience.

“Then once they get experience, they can move up on the drilling rig in positions and responsibilities.”

Urlacher adds there are classes individuals can take at Bismarck or Williston State College that are industry-specific that may be ideal for people looking for short turnaround to get into the industry. Out-of-state job seekers should check within their own state for potential training opportunities as well.

“However, there is a need for higher level oilfield positions, like geologists, biologists and engineers, for which a four-year degree may be required.”

When applying, Urlacher advises people be patient, noting it may take longer than people expect—some cases, up to six weeks. She suggests people visit www.jobsnd.com, and more importantly, that they have a plan in place.

“Don’t quit a job where you have all of your daily living services covered just to come out and try to walk into a job. Do your research, apply and get an interview first,” she says. “Moving a family out here initially isn’t always the best answer, especially if housing isn’t established first. Get a job out here, find out if you like it and want to stay, and then bring the family,” she advises. 

GET TO KNOW OUR EXPERTS MARY URLACHER



Mary Urlacher is the customer service office manager in Dickinson, ND for Job Service North Dakota. Job Service North Dakota delivers specific services to targeted workforce sectors, administers the state and federal unemployment insurance programs, and provides labor market information. Urlacher has been the Dickinson local office manager for the past eight years and has been with Job Service North Dakota since October 2000.

Prior to that, Urlacher worked extensively in the customer service industry. She says what she likes most about her job is helping customers, whether that means finding the perfect employee for a company or helping a job seeker find the right job that matches their skills. Urlacher likes helping people and having them feel satisfied that they received excellent customer service. She has a Bachelor of Science in elementary education from Dickinson State University.




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Cowboy



By Drew Kozub

Dust off your boots, saddle up, and take a trip to the Wild West, right in Medora, ND. The North Dakota Cowboy Hall of Fame connects the history of the state's ranchers and cowboys with the history of the whole country. We've all got a cowboy deep down inside us. It's the voice that lets you stay out late to have fun, even when you have to work early the next day. It's the courage telling you to try something new, even though it's risky.

When you visit the North Dakota Cowboy Hall of Fame, you visit the North Dakota plains with Native Americans, rustle cattle with ranchers, and jump in the saddle as a cowboy. Hold on tight, because this ride will last more than eight seconds.

At the North Dakota Cowboy Hall of Fame, history is told through the tales of the state's settlers and pioneers: Native Americans, ranchers and cowboys. The museum's executive director, Kevin Holten, has lived the life of a modern-day cowboy. Pitching bales on his uncle's farm at the same age other kids were in their sandbox.

Holten's grandfather bought him his first horse as soon as he could walk, and he had his first major concussion from horseback riding at the age of eight. This set the stage for a rodeo career that included participation in



The Cowboy Hall of Fame in Medora, ND will change you.

Bronc Busting to Steer Wrestling, and eventually Team Roping. The cowboy lifestyle has a universal appeal, and Holten thinks it captures something at the heart of every American.

"It's freedom," says Holten. "People associate cowboys with never having to get up to an alarm clock in the morning and riding off into the sunset in the evening; never having restrictions on their life and having a carefree lifestyle."

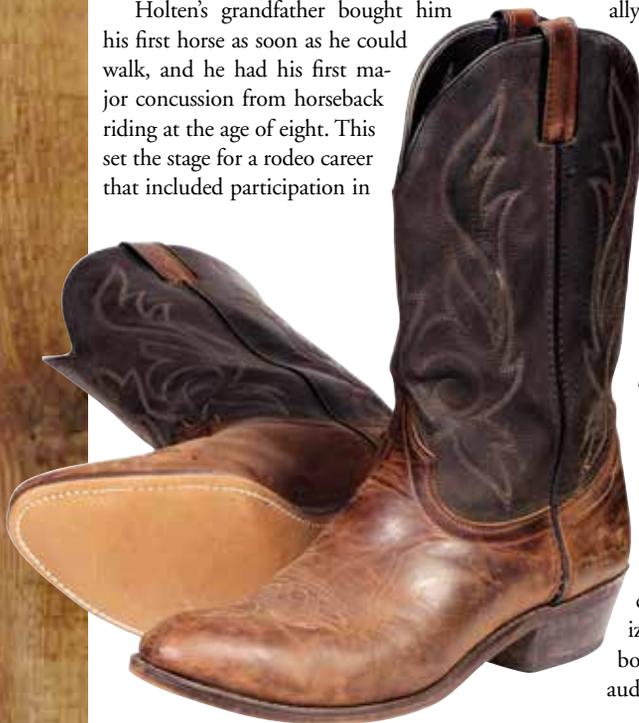
FROM ENCAMPMENTS TO MODERN DAY HEROES

While the actual job of the original ranchers and cowboys required a bit more responsibility and work than people may first realize, the popularity of cowboy culture is massive. The rodeos organized by the Professional Rodeo Cowboys Association alone attract a larger audience than professional basketball,

despite having only half the events per year as the NBA. Urban and rural visitors alike travel to the Cowboy Hall of Fame to learn the history of the North Dakotan cowboy, spanning from Native American encampments to modern rodeo heroes.

Stretching back to the mid to late 1800s, the Native American displays include beadwork, tipis, saddles, weaponry and regalia, like headdresses, exhibited for public viewing. Through stories of Sitting Bull and General Custer, and using photographs and relics from more than a century ago, museum-goers are transported to the frontier era of America's early days, learning the history between European settlers and Native Americans.

A golden era for cowboys happened during the cattle drives after 1876 and lasted about 20 years. This was the time when huge herds of up to 65,000 head of cattle were moved through pastures by men on horseback, and brave pioneers were finally ready to travel west to set up permanent homesteads. The emergence of



the rancher is captured through displays in the North Dakota Cowboy Hall of Fame, where visitors can step into the boots of these hard-working cowpokes.

Visitors tour the interior of an authentic rancher's bunkhouse and admire a complete chuck wagon, the late-1800s version of a mobile home, which supplied food, medicine and supplies to ranchers during cattle drives. Holten says people touring through the museum marvel at the lifestyle of these trailblazers and the hardships they endured as they built modern-day North Dakota.

"I think people who *think* they have no interest in western heritage are very surprised when they tour the hall of fame," he says. "I know North Dakotans are impressed when they learn more about their western heritage and the history of their region. It makes them even more proud of where they come from."

LOCAL LEGACY IN WESTERN HISTORY

North Dakota cowboys have made their mark on the rodeo scene as long as it has been around, and the hall of fame recognizes and preserves these accomplishments and stories. The "Six Pack," a group of North Dakotan men recruited to the rodeo circuit, earned top prizes during the 1950s and '60s and were heroes of their day.

The stories of Mustache Maude, a lady who came to North Dakota in the 1880s, wore men's clothes, carried a six-shooter on her hip, rolled her own smokes, and sported distinct facial hair, are shared in the hall of fame. The stories of individual cowboys like these and major rodeo events are preserved in stories, photos and videos in the hall of fame, which chronicle this history for all time.

From a time before the first horse was saddled in North America, up to the top-standing cowboys of this year, the North Dakota Cowboy Hall of Fame celebrates the legacy of locals in western history. No matter what your age is, or where you grew up, there is something new to learn that will connect you with your inner cowboy. The exhibits and stories can be enjoyed in many ways, and no matter how much time you have to spare, the Cowboy Hall of Fame is a destination that shouldn't be missed.

"You can get through in a half-hour, really enjoy yourself in an hour and you can change yourself in two hours," says Holten. "We have as good a history in North Dakota as anywhere, and you can spend a lifetime here, if you really want to." 🐾



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Ulteig:

Giving Back to the Bakken Community

By Paul Adair



Headquartered in Fargo, ND, Ulteig has been delivering comprehensive engineering, surveying and planning services to a variety of public and private clients throughout North Dakota and beyond for 70 years. From urban infrastructure and airports, to highways and electrical systems, Ulteig helps to design and sustain the systems that support vital communities in the Bakken.

In 1944, Ulteig was founded by Melvin “Mel” Theodore Ulteig in Fargo, ND, with the vision of bringing electricity to the rural Midwest. Within a decade, Ulteig had installed over 7,000 miles of REA transmission lines and by 1960 Ulteig had opened an additional office in Minnesota, expanding the company’s reach to both private and public clients. Over the next 40 years, Ulteig added civil and structural engineering to its portfolio and built upon its reputation for the delivery of proven electrical engineering services.

SERVING THE STATES

Currently, Ulteig has eight offices spread throughout South Dakota, Minnesota,

Colorado, Iowa and North Dakota, and has a staff of more than 280 professionals. The company has also been ranked on the Engineering News-Record’s annual Top 500 Design Firms list for over a decade.

Since 2006, Ulteig has been proud to be a 100 percent employee-owned company through their employee stock ownership plan, allowing employees to reap the benefits of their hard work and share in the company’s growth. In doing this, Ulteig has empowered its workforce to better deliver successful outcomes, building on its mission to be the place where people want to work and the company that people want to hire.

“We are here to serve clients and serve them well; it’s why we exist,” says Marti Nyman, chief client development officer at Ulteig. “We have great stories about employees who have gone out of their way on a Sunday to drive through ice storms to get down to a client, just so they could be there first thing on Monday morning to help them manage storm related outages. We make sure that when our clients need help, we are there and available for them. It is this kind of commitment to serving our clients that matters to the people we serve.”

COMBATING CHALLENGES

One of the more immediate challenges facing Ulteig in the Bakken is the sense of urgency that accompanies each project associated with the oil boom. The pace of the Bakken never slows, and Ulteig relies on its good name for responsiveness to ensure that their clients stay on schedule with quick turnarounds.

“A project in the Bakken often runs the risk of being delayed because of circumstances outside anyone’s control,” says Nyman. “However, in spite of this, a client’s schedule still remains. You may lose some time on the front end because of delays, but the client still requires the project to be completed by a certain date and there is a tremendous amount riding on that. In cases such as this, we simply need to do whatever it takes and, on occasion, have our crews working around the clock.”

PRACTICING PRINCIPLES

As a professional organization, Ulteig tightly adheres to their core principles, dedicating themselves to their clients’ success, pursuing excellence in their work and always conducting business with integrity.

“Of our core values, the thing that we hold highest is our integrity,” says Nyman.

“Integrity for us is not a nice cliché or placard on the wall. It is what we must do in everything we do. For once you lose integrity, you lose everything—your reputation, your client base and your future growth prospects.”

Ulteig takes seriously its responsibility to the communities in which it serves. The company believes that working in a community is not strictly a commercial enterprise. It believes that because a company has access to a wealth of people and resources, it is incumbent upon them to go out and strengthen that community through its community support and charitable activities.

“We feel very strongly that giving back to the community is important,” says Nyman. “It’s a simple fact of life that you give what you get and you get what you give. If you truly believe that you have been blessed in resources, then you need to be part of giving those resources back to help others. This needs to be part of what you stand for as a company.”

BUILDING BONDS

Ulteig greatly appreciates its membership with the North Dakota Association of Oil & Gas Counties, recognizing the many benefits in being part of the larger community serving the Bakken.

“Membership with the North Dakota Association of Oil and Gas Counties gives us tremendous visibility to other members,” says Nyman. “The association is one of the higher impact organizations that we participate in and we get a tremendous amount of benefit from this. Everything is moving so fast and it can be all too easy for everybody to become disconnected from each other. One of the great strengths of the organization is that it brings people together and helps to build stronger relationships.”

FOR MORE INFORMATION

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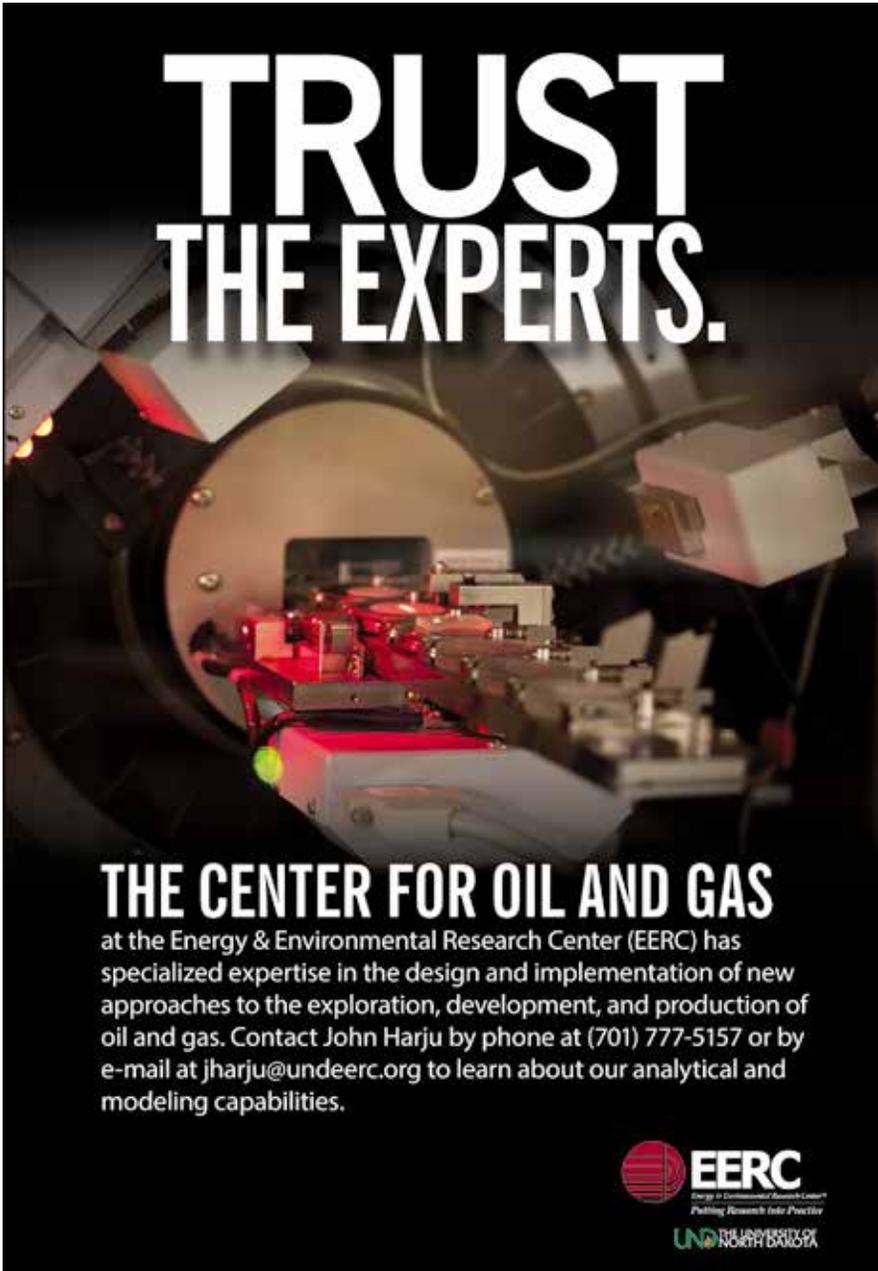
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Wennsoft: Providing a Paperless Process

By Drew Kozub

A pick-up truck makes a lousy filing cabinet. Work orders in the glove box. Fuel receipts in the cup holder. Time sheets in the console. Checks from lunch and dinner on the dash. Mechanics' bills on the passenger seat. When it comes to paperwork out in the field, it seems easier, in the moment, to "deal with it later when it's not so busy."

So, a few notes are hastily jotted down, papers are shoved where it's convenient, and after a few days of this, the truck is a mess and no one can tell what's what. Managing the flow of information between the field and head office can be a real challenge, but it is a necessary part of the job to make sure details are taken care of; that job sites have the right equipment, employees get the right pay, and clients are invoiced accordingly. With the right system, WennSoft is teaching companies working in the oil and gas industry how to manage their projects, processes and people, all without needing a single piece of paper.

MAKING DAY-TO-DAY PROCESSES EASIER

WennSoft has spent time around the boardroom tables and riding along in field technicians' trucks for companies working in the oil and gas industry, giving them a solid grasp on the needs from the corporate office as well as the unique challenges for workers in the field. Through this first-hand knowledge of the working environment and day-to-day requirements of oil

The ability to work digitally helps speed up processes and saves money.

and gas companies, WennSoft is able to introduce a software system created specifically to make necessary day-to-day functions go a little smoother.

Field workers equipped with smart devices (like tablets) use WennSoft's mobile application to share the most up-to-date information on a customer or a job with the head office. Office staff is able to schedule and dispatch employees to the right place, at the right time, with the right equipment. Labor hours and project costs can be viewed in real-time, keeping jobs on schedule and on budget.

The ability to work digitally helps speed up processes and saves money. Chad Niswonger, a solution consulting manager with WennSoft, works as part of the demonstration team. He meets with customers and shows them exactly how WennSoft speeds up the tedious parts of their employees' duties, freeing them up for more important initiatives.

"WennSoft solutions offer a true paperless process, which reduces errors, shortens time



to bill, and helps technicians get more work in during the day," says Niswonger. "Instead of gathering information in the field on paper, then bringing it back to the office, where it has to be entered into the system, technicians can capture information on a mobile application that feeds that information directly into the system. Also, data entered into one part of the system automatically flows everywhere it needs to go, which means no more double- or triple-entering information into different parts of the system."

INCREASING ACCURACY, INCREASING UPTIME

Being able to track things, like the work hours on a particular piece of equipment, allows for more accurate scheduling of maintenance, which, in turn, helps increase equipment uptime. Even when job sites and machinery are in remote locations, Niswonger says WennSoft's solutions won't let your company down.

"Our mobile solutions also offer innovative 'store and forward' technology,

which means that even areas of limited connectivity aren't a problem," he says. "Work captured by field employees is saved, and then sent to the office once they're back in cellular or Wi-Fi range."

It's not always easy rolling out any kind of new system across an entire company—with the oil and gas industry in particular, where the systems for recording workflow haven't changed in many years; even decades. To help ensure the transition goes smoothly, WennSoft guides its clients into the change, beginning with the most critical stages first, and implementing new methods in the most logical order. Additional training through e-learning programs and even drive-alongs between a WennSoft team member and a technician in the field can be part of the process for a seamless integration.

EXPANDING COMPANY REACH

WennSoft is a proud member of the North Dakota Association of Oil & Gas Producing Counties, and Niswonger values the relationships that have been cultivated through the company's membership with the association.

"Our membership helps us introduce the WennSoft solution to business leaders, whose companies could realize improved productivity, increased sales, accelerated cash flows and reduced overhead through the use of our software."

For managing oilfield production, scheduling transportation of resources, automating petroleum distribution functions, and more, WennSoft can help track upstream, midstream, and downstream systems to handle all aspects of the mining process from exploring new sites to getting materials to customers.

By automating everyday processes out in the field, new software solutions can keep employees' attention focused on their specialized duties instead of being bogged down with tedious record-keeping. For over twenty years, WennSoft has helped companies working in the oil and gas field, and their modern methods continue to benefit their clients today.

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-WHEN EXCEEDING 380°C IT TURNS BLACK

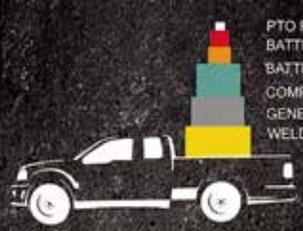
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TRIVIA TIME

JOB-RELATED ROAD FATALITIES

North Dakota has the highest fatality rate in the nation (17.7 per 100,000 workers), which is more than five times the national average. North Dakota's job fatality rate more

than doubled from a rate of 7.0 per 100,000 in 2007, and the number of workers killed on the job increased from 25 to 65.

The fatality rate in the mining and oil and gas extraction sector in North Dakota is 104.0 per 100,000—that's more than six times the national fatality rate of 15.9 per 100,000 in this industry.

Source: www.aflcio.org/content/download/126621/3464561/DOJ2014.pdf

TRAFFIC SAFETY IN OIL COUNTRY

The North Dakota Petroleum Council, in partnership with the North Dakota Department of Transportation and the North Dakota Highway Patrol, has a campaign called ProgressZone, which is aimed at promoting traffic safety in oil country.

The campaign's core messages include:

1. Pass with Caution: Passing a truck is riskier than passing a car because trucks have bigger blind spots than cars and can't stop as quickly.
2. Be Patient. Slow Down!: Leave early and anticipate more traffic and road construction delays. If you do experience delayed traffic, be patient and drive smart.
3. Buckle Up. Every Time!: About three out of four people killed in motor vehicle crashes in North Dakota are not wearing a seatbelt at the time of the crash. Buckle up—it only takes seconds.
4. Roads Shared. Lives Spared!: Respect others on the road and drive responsibly.

Source: <http://ndoil.org/?id=232&page=ProgressZone>

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REGIONAL ROUNDUP

LAND BOARD AWARDS K-12 ENERGY IMPACT GRANTS

The Board of University & School Lands (Land Board) recently awarded nearly \$8 million to western North Dakota K-12 schools impacted by the rapid growth of oil and gas development. The Board approved 33 projects totaling \$7,888,459, giving priority to safety and security needs, teacher housing, temporary portable classrooms to address increased student enrollment and other projects needed for the upcoming school year.

The Land Board allocated \$25 million in Energy Impact Grant funds for the 2013-2015 biennium to benefit K-12 schools impacted by the state's growing energy industry, with \$12.5 million designated for each fiscal year. Prior to this, the Board awarded 65 grants totaling \$15,530,000 to K-12 school districts. For a complete list of K-12 school projects approved Thursday by the Land Board, go to www.nd.gov/energyimpact.

UGPTI REPORT REVIEW BY COUNTIES ENCOURAGED

The Upper Great Plains Transportation Institute (UGPTI) completed a draft report entitled "Infrastructure Needs: North Dakota's County, Township and Tribal Roads and Bridges 2015-2034." The NDAOGPC urges every county in western North Dakota to review the document and your county-specific information.

UGPTI has created a webpage, www.ugpti.org/downloads/road_needs, for viewing the report and submitting comments. The site provides useful links to an interactive map for data collected for the study and a list of maps depicting other relevant data.

Review the draft report and data presented in the interactive map for your county and offer questions or comments to UGPTI by emailing infrastructure@ugpti.org. UGPTI intends to use these comments to create the final report.

MAJOR ROAD WORK IN THE WEST



Road construction work is progressing well on the New Town Truck Reliever Route and the 1804 improvement project. Crews are paving, widening and doing intersection work from the junction of ND Highway 23 to the New Town Truck Reliever Route. Speeds are reduced to 35 mph on ND Highway 1804, one mile north of New Town for continued work on the truck reliever route.

This project will create a two-lane roadway re-routing truck traffic on ND Highway 23, around the northeast of New Town. The 3.2-mile project will improve traffic flow through New Town and the surrounding area, and will help meet the forecasted traffic demand. This project is expected to be completed in the fall of 2014.

Crews are also working on improvements to ND Highway 1804 near New Town this summer. Paving, widening and intersection work is underway at the junction of ND Highway 23 and ND Highway 1804. The work zone will extend from this intersection to one mile north on ND Highway 1804 and for 1,000 feet west of the intersection on ND Highway 23. This project includes reconstruction of this intersection, paving, new intersection signals and an additional center turn-lane on ND Highway 1804.

Speeds have been reduced to 25 mph at the intersection of 1804 and ND 23, and flaggers are present to direct traffic. These improvements are expected to be complete in the fall of 2014.

Plans for next year include improvements to Main Street in New Town during the 2015 construction season. For more information, go to www.nddotwilliston.com.



SEPTEMBER 18, 2014

The 2014 Annual Meeting of the North Dakota Association of Oil & Gas Producing Counties will kick off September 18, 2014 at the Grand Williston (formerly Airport

International Inn) in Williston, ND. To register, go to www.ndenergy.org.

SEPTEMBER 23-25, 2014

The 2014 North Dakota Petroleum Council Annual Meeting will be held September 23-25 at the Astoria Dickinson Hotel & Event Center. To register, go to www.ndoil.org.

SEPTEMBER 25-27, 2014

The 2014 North Dakota League of Cities Annual Conference will be held September 25-27 at the Grand Hotel in Minot, ND. To register, go to www.ndlc.org.

OCTOBER 12-14, 2014

The 2014 North Dakota Association of Counties Annual Conference is scheduled for October 12-14 at the Ramkota Hotel in Bismarck, ND. To register, go to www.ndaco.org.

RFP ISSUED FOR HWY 85 4-LANING

On June 23, 2014, the North Dakota Department of Transportation (NDDOT) issued a Request for Proposal (RFP) to perform preliminary engineering services related to expanding the roadway of U.S. Highway 85 from Watford City, ND south to I-94.

U.S. Hwy 85 has been experiencing an increase in traffic as a result of the increase in oil-related activities in western North Dakota. The NDDOT is proceeding with preliminary engineering and environmental studies to develop alternatives to four-lane the roadway and provide structures to meet the needs of the traveling public.

VISION WEST ND AWARDED GRANT

The Board of University & School Lands (Land Board) recently reviewed a summary of the Vision West ND Regional Plan. Commissioner Gaebe complimented the planning work done in western North Dakota, as it relates to reducing the impacts being felt due to oil and gas development.

The Land Board approved a grant of \$300,000 to the Vision West ND project, helping to fulfill the local match requirement of the \$1.5 million U.S. Department of Housing & Urban Development (HUD) grant for the project. For more information, please visit the project website at www.visionwestnd.com.

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Blackhawk Technology Company, an industry leader in piston pumps with above-well drivers, now offers a comprehensive reconditioning program as the low-cost alternative to pneumatic-drive replacement.

“You can refurbish a unit, not replace it, at a fraction of the expense, and we pay the freight for you both ways,” says Blackhawk’s Mark Bertane. “We return the driver in days, warrantied and factory fresh.”

A Blackhawk specialist will disassemble the unit shortly after it is received, clean each part by hand, install new seals and conduct a thorough 15-point inspection before packing. Free return shipment is generally three days or less from receipt at the factory. Blackhawk top-head pump drivers operate above the wellhead.

“Other units must spend their lives underground in toxic liquid. When their performance falls, these potentially poisonous pumps aren’t sent home for renewal—they’re replaced,” Bertane says. “Blackhawk has a better idea that significantly extends pump life and maximizes investment.”

Customers can simply contact Blackhawk for sales and instruction *before* shipping, then box the unit securely and send to Blackhawk prepaid. Damage repair and metal-part replacements are available at an additional cost. Blackhawk reconditions its pneumatic drive motors only; no other brands or power sources.

www.blackhawkco.com

WAUKESHA BEARINGS® PROVIDE LONGER LIFE, MINIMAL DOWNTIME

Waukesha Bearings®, a global leader in the design and manufacture of oil and process-lubricated engineered bearings, announces the availability of its Multi-Lobe Semi-Floating (MLSF®) bearings. The unique MLSF technology, which improves stability and reliability compared to conventional floating ring bearings, can extend the life of host equipment and surrounding parts.

By designing the MLSF bearing system to operate at optimized temperatures with minimal vibrations, the life of the equipment and surrounding parts is extended. In addition to global customer service and Waukesha Bearings’ proven results, the MLSF bearings offer an ideal solution for smaller, high-speed turbomachinery, as well as for turbochargers in large diesel or natural gas engines.

Waukesha Bearings’ MLSF bearings, available for use with shafts as small as 0.5 inches in a single bearing or cartridge, can handle a static unit load as light as 10 psi (.07MPa) to a dynamic unit load exceeding 700 psi (4.8 MPa). The MLSF, which can handle multi-viscosity oils, is engineered to accommodate temperature ranges up to 300°F (149°C) with even higher temperatures available.

The first Waukesha Bearings MLSF bearing, which has been in field operation for more than 30,000 hours, continues to surpass competitive bearing performance of only 500 hours in the same application.

www.waukeshabearings.com

FLOWROX LAUNCHES INSTRUMENT FOR IMAGING PARAFFIN WAX & ASPHALTENE DEPOSITIONS

Flowrox is releasing the Flowrox Deposition Watch—a new instrument designed to enhance the monitoring of pipelines and related flow-process equipment affected by paraffin wax and asphaltene depositions.

It is a predictive device, allowing operators to address deposition issues well before they reach critical levels that can cause downtime or costly damage. When paraffin wax crystallizes into a solid deposition on the pipe wall—along with the accumulation of asphaltene—it can reduce the fluid flow or plug pipes and valves. This is a common reason for a major decrease in production and revenue in oil wells, as it affects valves, pumps and pipelines, along with other pipeline components critical to the fluid control process.

The Flowrox Deposition Watch uses electrical capacitance tomography (ECT) to create real-time images of the inside of the piping and uses electrical capacitance tomography to detect the differences in permittivity of the various substances found in the piping system.

It also uses a patented algorithm that creates a 3-D image of the process fluid in the piping and generates trend data; in addition, it shows free volume inside the pipe and the growth rate of the deposition growth over time. It will also allow users to make better decisions on when to add chemicals, or when to disassemble a pipeline for manual cleaning.

www.flowrox.us

THE TOP 20 BAKKEN

The following are the top 20 oil and gas producers in North Dakota as of June 2014. The list, which shows the cumulative amount of oil and gas that the 20 companies have produced in North Dakota in 2014, was provided by the North Dakota Department of Mineral Resources in August 2014. This list also reflects how many wells were in production for each of these top producers during this time.

As of June 2014, there are 191 active rigs drilling in the North Dakota oil patch, according to the North Dakota Oil & Gas Division of the North Dakota Department of Mineral Resources. The number of producing wells in North Dakota, as of June 2014, is 10,892, and over 95 percent of drilling still targets the Bakken and Three Forks formations.

In April 2014, North Dakota reached the milestone of producing one million barrels of oil per day, an achievement only completed by four other states—Alaska, California, Louisiana and Texas—and only 22 other countries in the world to do so (go to page 36 to read about the state's *One Million Barrels, One Million Thanks* celebration held June 25 in Tioga, ND). The state is currently sitting as number two in oil production in the nation, and as the boom continues to shock the Bakken, our state will continue to strive for the number-one position that Texas has been calling its own.

1. **Continental Resources, Inc.**
Oil production (2014): 18,382,474 bbls
Gas production (2014): 25,562,471 mcf
Wells in production (2014): 1,124
Tel: (405) 234-9000
Toll-Free: (800) 256-8955
Killdeer: (701) 764-6582
Rhame: (701) 279-6688
Tioga: (701) 664-3001
Fax: (405) 234-9253
Web: www.contres.com
2. **Hess Bakken Investments II, LLC**
Oil production (2014): 15,211,024 bbls
Gas production (2014): 22,842,149 mcf
Wells in production (2014): 973
Tel: (713) 496-4000
Web: www.hess.com
3. **Whiting Oil & Gas Corp.**
Oil production (2014): 14,982,861 bbls
Gas production (2014): 15,486,901 mcf
Wells in production (2014): 942
Tel: (303) 837-1661
Fax: (303) 861-4023
Web: www.whiting.com
4. **EOG Resources, Inc.**
Oil production (2014): 13,454,525 bbls
Gas production (2014): 11,675,540 mcf
Wells in production (2014): 516
Tel: (713) 651-7000
Toll Free: (877) 363-3647 (EOGR)
Web: www.eogresources.com
5. **Burlington Resources Oil & Gas Co., LP**
Oil production (2014): 9,689,286 bbls
Gas production (2014): 11,338,030 mcf
Wells in production (2014): 352
Tel: (432) 688-6800
Web: www.br-inc.com
6. **Statoil Oil & Gas, LP**
Oil production (2014): 8,982,823 bbls
Gas production (2014): 10,538,250 mcf
Wells in production (2014): 422
Tel: (512) 427-3300
Web: www.statoil.com
7. **Oasis Petroleum North America, LLC**
Oil production (2014): 8,838,149 bbls
Gas production (2014): 8,213,878 mcf
Wells in production (2014): 519
Tel: (281) 404-9500
Web: www.oasispetroleum.com
8. **XTO Energy Inc.**
Oil production (2014): 8,785,816 bbls
Gas production (2014): 12,239,349 mcf
Wells in production (2014): 550
Tel: (817) 870-2800
Toll-Free: (800) 299-2800
Fax: (817) 870-1671
Web: www.xtoenergy.com
9. **Marathon Oil Co.**
Oil production (2014): 8,627,910 bbls
Gas production (2014): 7,396,870 mcf
Wells in production (2014): 422
Tel: (713) 629-6600
Web: www.marathonoil.com
10. **Kodiak Oil & Gas (USA), Inc.**
Oil production (2014): 7,762,386 bbls
Gas production (2014): 11,578,865 mcf
Wells in production (2014): 286
Tel: (303) 592-8075
Fax: (303) 592-8071
Web: www.kodiakog.com

11. **HRC Operating, LLC**
Oil production (2014): 6,115,372 bbls
Gas production (2014): 5,994,535 mcf
Wells in production (2014): 276
Tel: (832) 538-0300
Web: www.halconresources.com
12. **QEP Energy Co.**
Oil production (2014): 5,881,903 bbls
Gas production (2014): 6,291,000 mcf
Wells in production (2014): 178
Tel: (303) 672-6900
Web: www.qepres.com
13. **WPX Energy Williston, LLC**
Oil production (2014): 5,212,089 bbls
Gas production (2014): 4,060,749 mcf
Wells in production (2014): 150
Tel: (701) 837-2900
Web: www.wpxenergy.com
14. **Slawson Exploration Co., Inc.**
Oil production (2014): 4,323,625 bbls
Gas production (2014): 3,052,326 mcf
Wells in production (2014): 223
Tel: (316) 263-3201
Fax: (316) 268-0702
Web: www.slawsoncompanies.com/exploration.html
15. **Petro-Hunt, LLC**
Oil production (2014): 3,993,120 bbls
Gas production (2014): 6,428,017 mcf
Wells in production (2014): 256
Tel: (214) 880-8400
New Town: (701) 675-2467
Killdeer: (701) 863-6622
McGregor (Tioga): (701) 546-4601
Web: www.petro-hunt.com
16. **SM Energy Co.**
Oil production (2014): 3,884,129 bbls
Gas production (2014): 5,127,574 mcf
Wells in production (2014): 262
Tel: (406) 245-6248
Web: www.sm-energy.com
17. **Newfield Production Co.**
Oil production (2014): 3,465,285 bbls
Gas production (2014): 6,594,830 mcf
Wells in production (2014): 151
Tel: (281) 210-5100
Fax: (281) 210-5101
Web: www.newfld.com
18. **Oxy USA Inc.**
Oil production (2014): 3,434,283 bbls
Gas production (2014): 1,329,621 mcf
Wells in production (2014): 241
Tel: (713) 215-7000
Web: www.oxy.com
19. **Enerplus Resources USA Corp.**
Oil production (2014): 2,573,826 bbls
Gas production (2014): 1,980,718 mcf
Wells in production (2014): 95
Tel: (701) 675-2135
Web: www.enerplus.com
20. **Denbury Onshore, LLC**
Oil production (2014): 2,283,192 bbls
Gas production (2014): 713,083 mcf
Wells in production (2014): 333
Tel: (972) 673-2000
Web: www.denbury.com

EDITOR'S NOTE:

In July 2014, Whiting Petroleum agreed to buy smaller rival Kodiak Oil & Gas in a \$6 billion, all-stock deal. The purchase will form the largest producer and the second-biggest leaseholder in the Bakken shale and Three Forks oil region of North Dakota.

The deal is expected to close in the fourth quarter of 2014 and has been approved by the boards of directors of both companies. The purchase price includes Kodiak's net debt of \$2.2 billion.

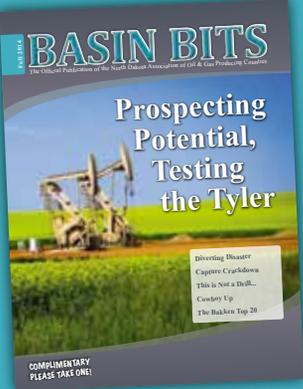
Become an Associate Member of the North Dakota Association of Oil & Gas Producing Counties

Oil and gas industry members, economic development organizations and other private businesses doing business in the Bakken are welcome to sign up their organizations for an Associate membership through the NDAOGPC online signup site.

The \$500 yearly membership fee for Associate members offers a variety of advantages, including networking opportunities with county, city and school district officials of the oil patch at various association functions throughout the year. An Associate Member Committee was established during the 2011 NDAOGPC Annual Meeting, offering the opportunity for members involved with the oil and gas industry to meet and better interact with officials in the areas in which they operate. Associate members are also featured through member profiles (like the ones on pages 112 and 114 of this magazine) in the biannual NDAOGPC publication, *Basin Bits*, which is distributed throughout the Bakken and the state.

More information on how to become an Associate member and its benefits can be found by contacting the NDAOGPC office at (701) 751-3597 or e-mailing sarah@ndteamworks.com.





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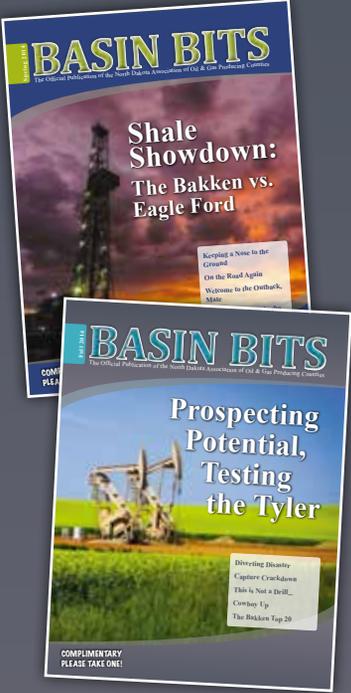


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This publication is also available to county auditors, county commissioners, online at www.ndenergy.org, in the NDAOGPC office in Bismarck and at industry events, like the annual Williston Basin Petroleum Conference!

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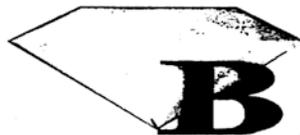
TRIVIA TIME

JOBS IN THE PETROLEUM INDUSTRY

There are many jobs available in the oil and gas industry—find the fit that works for you! Just a few of the careers you could find yourself in include the following:

1. Land Agent: Responsible for securing the rights and obtaining the proper permits for an oil company before the extracting process begins.
2. Geoscience Professional: Responsible for locating possible mineral, geothermal and petroleum deposits by studying rock formations, soil compositions and topography.
3. Safety Manager: Responsible for ensuring everyone involved with a project remains healthy and safe by training employees and contractors in hazardous material, first aid and safety equipment.
4. Pipeline Design Engineer: Responsible for providing durable and efficient plans for pipeline facilities and infrastructure, as well as overseeing the assembly and installation.
5. Pipeline Control Centre Operator: Responsible for monitoring oil as it moves through the pipes and controlling batches as they enter and exit the system.
6. Petrochemical Engineer: Responsible for developing formulas that break down molecules in oil to produce and sell consumer products, such as lubricating oils, polymers and plastics.
7. Fuel Transport Driver: Responsible for driving, loading, transporting and delivering fuel to clients.
8. Field Service Technician: Responsible for installing, maintaining and troubleshooting a company's equipment and systems.
9. Business Development Professional: Responsible for growing a company by retaining clients and attracting new ones.
10. Welding Engineer: Responsible for developing welding techniques and procedures to help solve problems involving fabricating metals used for oil and gas pipelines.

Sources: <http://talentegg.ca/incubator/2010/11/22/careers-in-the-oil-and-gas-industry-from-start-to-finish>
www.lonestar.edu/Oil-Field-Service-Technician.htm
www.mansfieldoil.com/jobs/815-petroleum-transport-driver-forest-view-il
www.oilandgaspeople.com/oil-and-gas-jobs-search/sales-marketing/business-development
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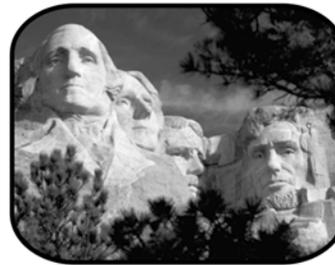
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- Places North Dakota among only 19 countries, one other state and one province to produce at this level today. Only four other states and 22 countries have ever reached this level.
- Is equivalent to about 75 percent of our nation's imports from Saudi Arabia. Our imports have declined 18.5 percent since 2006 when the Bakken took off.
- Will contribute about \$50 million per day to our state's economy, including about \$11 million per day to the state in oil and gas production and extraction taxes.

This milestone is a reflection of the many hard-working men and women who are living, working and investing in our strong and growing communities. The North Dakota Petroleum Council and its members want to thank you all for your patience and support during this historic decade, and we look forward to working with you to make our future even brighter.



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