Dakota Resource Council Comments Regarding Case No. 23084 (Oil Stabilization)

Introduction

The nation is waiting and watching North Dakota as it decides how to make Bakken crude safer to transport by rail. As trains throughout the US continue to carry explosive Bakken crude through communities across North America, people are expressing legitimate concerns. Fiery derailments involving Bakken crude are responsible for taking the lives of 47 people in Quebec as well as untold amounts of property and environmental damage in cities across the United States[1].

The debate is no longer whether or not Bakken crude is volatile; the debate now hinges on what can be done to make Bakken crude less volatile. Numerous industry-funded studies used faulty science in attempts to lead people to believe Bakken crude was not volatile. But such studies are akin to a fox guarding the henhouse and as a result need to be dismissed. Despite the science showing the relationship between vapor pressure, lights ends and volatility, a study funded by North Dakota Petroleum Council, an industry advocacy group, contains a disclaimer stating that they did not thoroughly investigate the possibility of vapor pressure or light ends as metrics impacting volatility[2].

Only studies regarding Bakken crude volatility completed by parties with no interest in profiting from Bakken crude should be considered. In contrast to the limited study funded by NDPC, the study completed by PHMSA (Pipeline and Hazardous Materials Safety Administration) found Bakken crude to be meet all metrics (including vapor pressure and lights ends) pointing towards Bakken having increased volatility[3]. This study should be considered over any industry-funded study

It must also be noted that North Dakota oil regulators have an excessively close relationship with the oil industry. North Dakota oil regulators often promote the oil industry and regulate only when it is an absolute last resort. This close-knit relationship between the oil industry and North Dakota oil regulators must be noted because it is has

[1] Justin Giovannetti, Grant Robertson And Jacquie Mcnish (2013-07-11). "As Lac-Mégantic death toll reaches 47, safety board calls for immediate rail-safety changes". The Globe and Mail. Retrieved 2014-09-10.

[2] Mikulka, Justin. "Oil Industry Study Claiming Bakken Crude Safe Contains Whopper of a Disclaimer." *DeSmogBlog*. DeSmogBlog, 5 Aug. 2014. Web. 14 Sept. 2014. <http://www.desmogblog.com/2014/08/13/oil-industry-study-claiming-bakken-crude-safe-contains-whopper-disclaimer>.

[3] Nowatzki, Mike. "ND Oil Regulators, Executives Say Bakken Crude's Volatility Unfairly Singled out." *Prairie Business Magazine*. Forum Communications, 7 Aug. 2014. Web. 15 Sept. 2014. <http://www.prairiebizmag.com/event/article/id/20306/>.

clouded past regulatory decisions and regulatory response regarding oil and gas activity in North Dakota.

At this time, there appear to be two potential solutions to make Bakken crude less volatile, which in turn would allow it to be safely shipped via rail: 1) Conditioning and 2) Stabilization. Both methods have their pros and cons. Regardless of which method is chosen, the safety of people along the rail lines must be the number one consideration.

In our comments we will cover the following topics:

1. Close relationship with oil industry impacts regulatory environment
2. Importance of stabilizing crude and timeline of accidents involving Bakken
3. Oil Stabilization: It works in Texas
4. Oil Conditioning: Short Term Solution?
5. The case for slowing down oil permitting

I. Close relationship with oil industry impacts regulatory environment

North Dakota oil regulators have an excessively close, almost exclusionary, relationship with oil and gas operators and oil advocacy groups such as the North Dakota Petroleum Council (NDPC). These cozy relationships often compromise regulation of the oil industry in North Dakota.

The cozy relationship between the oil industry and current state oil regulators stems from two major reasons: first, the chief oil and gas regulator, the director of the Department of Mineral Resources, is tasked with the conflicted job requirement of both promoting and regulating the oil industry per the North Dakota Century Code[4], and second, oil industry money via campaign contributions and other means dominates politics in the Capitol making it difficult for regulators to do anything negative from a regulatory standpoint to the oil industry without fear that they will be fired or reprimanded by their elected superiors who sit on the North Dakota Industrial Commission[5].

One need not look any further than the background of the current director of the Department of Mineral Resources Lynn Helms to see an apparent conflict of interest as a regulator. Prior to becoming North Dakota's chief oil and gas regulator, Lynn Helms spent over 20 years working for oil companies, such as Hess[6]. Helms consistently is in

[4] ND Century Code 38-08-01

[5] Kusnetz, Nicholas. "How Oil and Gas Firms Gained Influence and Transformed North Dakota." *Center for Public Integrity*. Center for Public Integrity, 21 July 2014. Web. 11 Sept. 2014. <http://www.publicintegrity.org/2014/07/21/15107/how-oil-and-gas-firms-gained-influence-and-transformed-north-dakota>.

[6] Dalrymple, Amy. "Lynn Helms Goes from Oil Industry to Oil Regulator |." *Oil Dispatch*. Forum Communications, 1 Apr. 2013. Web. 17 Sept. 2014. <http://oilpatchdispatch.areavoices.com/2013/04/01/lynn-helms-goes-from-oil-industry-to-oil-regulator/>.

lock step with the oil industry despite the fact that his role is to be a check and balance against the heavy-handed nature of the oil industry.

Another outcome of having a chief oil regulator whose past career was as an oil industry employee combined with money influencing elected officials tasked with codifying regulatory decisions is the creation of an environment where regulation only occurs in reaction to public outcry or a catastrophic event. Two very clear instances in which oil industry money combined with close relationships to the oil industry dominated the way regulators do their job are the 2013 Tioga oil spill and the regulation of flaring.

The Tioga oil spill, and the associated response by current North Dakota state government officials, is a great example of how oil industry influence dominates public disclosure and regulation. The Tioga oil spill occurred in October 2013 when a pipeline burst and spewed over 20,000 barrels of oil onto Steve and Patricia Jensen's farm[7]. The Tioga pipeline spill is one of the largest on-land oil spills in United States history[8]. Prior to the Tioga pipeline spill thousands of oil and wastewater spills occurred throughout the Bakken region with no public notification. Although groups asked for spill notification in the 2011 legislature, it fell on deaf ears with lawmakers when the oil industry opposed it[9]. In fact, from January 2012 until the Fall of 2013, over 750 oil field incidents and 300 oil spills were recorded without notice to the public[10]. Although it is commonplace for oil producing states to publicize oil spills, North Dakota regulators and elected officials found doing so to be unnecessary. Only after the Tioga spill and the bad public relations associated with the notification procedures and state government officials not even informing the public until 10 days after the Tioga spill did state officials have an inclination to start doing something as basic as notifying the public about spills[11].

Following the public outcry and investigations done by reporters, it was determined that state regulators in working on the Tioga spill response were complicit in working with the oil industry. For example, an open records request by Greenpeace contained evidence of efforts by Department of Health staff to help cover up the spill for Tesoro[12]. Following the public uproar, North Dakota officials decided to require spill reporting on a website at

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[7] Gerken, James. "North Dakota Oil Spill: Tesoro Corp. Pipeline Breaks Near Tioga; Dumps More Than 20,000 Barrels Of Crude." *The Huffington Post*. TheHuffingtonPost.com, 10 Oct. 2013. Web. 17 Sept. 2014. <http://www.huffingtonpost.com/2013/10/10/north-dakota-oil-spill-tesoro_n_4079323.html>.

[8] Id.

[9] McPherson, James. "Hundreds of North Dakota Spills Went Unreported." *Fuel Fix*. Associated Press, 26 Oct. 2013. Web. 17 Sept. 2014. <http://fuelfix.com/blog/2013/10/26/north-dakota-spills-went-unreported/>.

[10] Id.

[11] Gilberson, Lydia. "North Dakota's Oil Spill Website Now Live | Bakken.com." *Bakken.com*. Shale Play Media, 5 Dec. 2013. Web. 12 Sept. 2014. <http://bakken.com/news/id/53704/north-dakotas-spill-website-now-live/>.

[12] Horn, Steve. "Revealed: Never Before Seen Photos of Tesoro Fracked Oil Spill in North Dakota, Pipeline Restarted Today." *DeSmogBlog*. DeSmogBlog.com, 1 Nov. 2013. Web. 17 Sept. 2014. <http://www.desmogblog.com/2013/11/01/revealed-never-seen-photos-nd-fracked-oil-spill>.

the Department of Health[13]. If no public uproar would have been present in the case of the Tesoro spill, it is likely that regulators would have chalked the spill up as just another incident in the Bakken.

The regulation of flaring is another example where current North Dakota regulators' excessively close relationship to the oil industry combined with the influence of oil money in Bismarck idominated simple regulation. Despite the fact that North Dakota Century Code explicitly states that oil and gas must be developed while not wasting oil or gas, oil and gas regulators until very recently continually rubber stamped requests from companies asking to get an exemption to flare off valuable natural gas[14]. The result of the North Dakota Industrial Commission (NDIC) policy to hand out seemingly endless flaring exemptions was that by 2012 the level of flaring in North Dakota had become a national disgrace. Due to consistent exemptions given by the NDIC, flaring was so widespread in the Bakken that the North Dakota oil field was visible from space[15]. In addition, the lack of regulation by the NDIC resulted in lost taxable revenues for the state and lost royalty payments to mineral owners. The taxable revenues lost because of flaring amounted to approximately 100 million dollars of wasted natural gas according to investor group CERES[16].

In addition, several pieces of legislation were introduced during the 2013 Legislative Assembly only to be killed by oil industry lobbyists and oil regulators working in tandem and claiming the bills were too harsh on the oil industry. Most notable of these bills was Senate Bill 2315, which if passed would only have ended flaring exemptions beyond the first year[17].

Despite the shame involved with North Dakota officials allowing flaring at the same rate as in Third World countries such as Nigeria, North Dakota regulators did not move to curb flaring until they were approached by the North Dakota Petroleum Council (NDPC), the industry lobby group, with a proposal to address the flaring situation[18].

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[13] Gilberson, Lydia. "North Dakota's Oil Spill Website Now Live | Bakken.com." *Bakken.com*. Shale Play Media, 5 Dec. 2013. Web. 12 Sept. 2014. <http://bakken.com/news/id/53704/north-dakotas-spill-website-now-live/>.

[14] Krauss, Clifford. "Oil Companies Are Sued for Waste of Natural Gas." *The New York Times*. The New York Times, 17 Oct. 2013. Web. 17 Sept. 2014. <http://www.nytimes.com/2013/10/18/business/energy-environment/oil-companies-are-sued-over-natural-gas-flaring-in-north-dakota.html?_r=0>.

[15] Sklar, Julia. "Gas Flares from Bakken Fracking Are Visible from Space."*New Scientist.com*. New Scientist, 28 Jan. 2013. Web. 17 Sept. 2014. <http://www.newscientist.com/blogs/shortsharpscience/2013/01/julia-sklar-reporter.html>.

[16] "Flaring Up: North Dakota Natural Gas Flaring More Than Doubles in Two Years." *Ceres*. Ceres, July 2013. Web. 17 Sept. 2014. <http://www.ceres.org/resources/reports/flaring-up-north-dakota-natural-gas-flaring-more-than-doubles-in-two-years/view>.

[17] Smith, Nick. "Bill Bans Flaring after 1 Year : Energy News." *Bismarck Tribune*. 26 Jan. 2013. Web. 17 Sept. 2014. <http://bismarcktribune.com/bakken/bill-bans-flaring-after-year/article_7f83e23a-673f-11e2-bbe0-001a4bcf887a.html>.

[18] Krauss, Clifford. "Industry in North Dakota to Cut Flared Natural Gas." *The New York Times*. The New York Times, 29 Jan. 2014. Web. 17 Sept. 2014. <http://www.nytimes.com/2014/01/30/business/energy-environment/industry-in-north-dakota-promises-to-reduce-flared-natural-gas.html?_r=0>.

It should be noted that the NDPC is the same group that worked to defeat legislation aimed at curbing flaring in the 2013 Legislature because it would supposedly be too expensive for the industry. The fact that only when the NDPC came forward with a proposal to curb flaring did North Dakota regulators move to curb flaring exemplifies how North Dakota's regulatory environment is dominated by oil industry influence.

Both the Tioga spill and the inaction by regulators to curb flaring (until approached by the North Dakota Petroleum Council) highlight how the regulatory landscape in North Dakota has been dominated by the oil industry and its associated money. We hope in the case of stripping volatile gases and vapors from Bakken crude, that the decisions to be made by North Dakota regulators have not already been determined by oil industry power and influence. Solutions in this case must be made in the name of public safety for millions of people across North America, not in the name of preserving the profits and power of the oil industry.

II. Importance of Bakken stabilizing crude and timeline of accidents involving Bakken crude

The importance of the decision to be made by North Dakota regulators regarding how best to stabilize our oil (render crude not explosive) cannot be downplayed. Federal agencies such as the U.S. Department of Transportation are currently working on regulating the rail cars carrying Bakken crude as well as how Bakken is classified for shipment[19].

Though the efforts of the Federal Department of Transportation are important, such efforts do not get to the root of the problem. The root of the problem in the case of moving Bakken crude via rail lines is that it contains explosive elements and, in the case of an accident, can potentially explode[20]. North Dakota regulators have the authority to do what the Federal Government does not have the authority to do at this point to address the root of the problem regarding North Dakota crude. Whatever decision North Dakota regulators make regarding how to make Bakken crude safer for transportation, they first need consider the events involving Bakken crude over the past 15 months.

On July 6, 2013 a fiery derailment occurred in the Quebec resort town of Lac-Megantic[21]. 47 people died as a result of the derailment and the associated explosion[22]. The environmental damage resulting from the derailment included 26,000 gallons of oil

[19] Snow, Nick. "DOT Emergency Order Covers Bakken Crude Transportation by Rail." *Oil & Gas Journal*. Oil & Gas Journal, 10 Mar. 2014. Web. 18 Sept. 2014. <http://www.ogj.com/articles/print/volume-112/issue-3a/general-interest/dot-emergency-order-covers-bakken-crude-transportation-by-rail.html>.
[20] Gold, Russell, and Chester Dawson. "North Dakota Fracking: Behind the Oil Train Explosions." *The Wall Street Journal*. Dow Jones & Company, 7 July 2014. Web. 16 Sept. 2014. <http://online.wsj.com/articles/north-dakota-fracking-behind-the-oil-train-explosions-1404761720>.
[21] "Timeline: Lac Megantic Train Derailment - CBCNews.ca." *CBCnews*. CBC/Radio Canada, 02 Oct. 2013. Web. 18 Sept. 2014. <http://www.cbc.ca/news2/interactives/timeline-lac-megantic/>.
[22] Id.

spilling into the Chaudière River. Overall the cost of cleaning up Lac-Megantic disaster is estimated at 7.6 billion dollars.

On November 8, 2013 an explosive derailment involving Bakken crude occurred in Aliceville, Alabama[23]. Of the 90 cars traveling through Aliceville 25 oil cars derailed. The result was a nearby river contaminated by oil. Workers recovered more than 200,000 gallons of Bakken crude from a swampy marsh, which was contaminated by crude[24]. Despite the diligent cleanup efforts, oil still can be seen in the wetlands in the area of the spill[25].

On December 30, 2013 a train carrying Bakken crude crashed into a derailed grain train near North Dakota Governor Jack Dalyrmple's hometown of Casselton, North Dakota[26]. The derailment spilled over 400,000 gallons of crude near Casselton and the associated fires required that residents living in the area to be voluntarily evacuated[27]. The irony of the Casselton Derailment is that North Dakota's chief oil and gas regulator, Lynn Helms, was quoted two weeks earlier on December 13 stating, "we need to create a whitepaper to dispel this myth that it [Bakken crude] is somehow an explosive, really dangerous thing to have moving up and down our rail lines"[28]. This quote by Helms again shows his preference to protect and promote the oil and gas industry rather than serve as a regulator who would be concerned about public safety.

On April 30, 2014, 15 railcars traveling through Lynchburg, Virginia derailed causing another explosive event. Three railcars involved in the derailment ended up in the historic James River[29]. Smoke and fire was also highly visible from the Lynchburg city limits, causing heath concerns among residents[30].

The events over the past 15 months involving the explosive derailments of trains carrying Bakken crude should serve as reminder to North Dakota regulators that whatever regulatory decision they make regarding how to treat Bakken crude prior to transport will

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[23] Gates, Verna, and Edward McAllister. "Crude Oil Tank Cars Ablaze after Train Derails in Alabama." *Reuters*. Thomson Reuters, 08 Nov. 2013. Web. 18 Sept. 2014. <http://www.reuters.com/article/2013/11/09/us-crude-train-explosion-idUSBRE9A70Q920131109>.
[24] "Oil Mars West Alabama Swamp Months after Train Crash near Aliceville (photos)." *AL.com/Associated Press*. Associated Press, 15 Mar. 2014. Web. 15 Sept. 2014.
[25] Id.
[26] Shaffer, David, and Evan Ramstad. "NTSB: 400,000 Gallons of Crude Spilled in N.D. Train Wreck." *StarTribune.com: News, Weather, Sports from Minneapolis, St. Paul and Minnesota*. Star Tribune, 13 Jan. 2014. Web. 18 Sept. 2014. <http://www.startribune.com/business/239948631.html>.
[27] Id.
[28] Federman, Adam. "Hazardous Cargo: Shipping Highly Flammable Bakken Crude Oil by Rail." *Earth Island Institute*. Earth Island Journal, n.d. Web. 15 Sept. 2014. <http://www.earthisland.org/journal/index.php/eij/article/warning_highly_flammable/>.
[29] Nunez, Christina. "Oil Train Derails in Lynchburg, Virginia." *National Geographic*. National Geographic Society, 30 Apr. 2014. Web. 15 Sept. 2014. <http://news.nationalgeographic.com/news/energy/2014/04/140430-oil-train-derails-in-lynchburg-virginia/>.
[30] Id.

have huge ramifications on the safety and wellness of communities across the North American continent. This is a chance for North Dakota regulators to put safety first.

III. Oil Stabilization: It works in Texas

Oil stabilization is one solution that could potentially rid Bakken crude of its explosive elements. Stabilization is currently used in the Eagle Ford shale of Texas[31]. In layman's terms oil stabilization involves piping crude containing volatiles (raw crude) in a system of pipelines or trucks to "stabilizers." "Stabilizers" are micro-refineries which process between 10,000 to 200,000 barrels of oil per day and strip crude oil of its volatile elements prior to oil being shipped to refineries[32].

Requiring oil stabilization via the use of stabilizers will require a robust investment on behalf of the oil industry. Pipeline infrastructure and micro-refineries will have to be constructed for stabilization to work[33]. Currently North Dakota has over 11,000 active producing oil wells and it is apparent that pipeline and refinery infrastructure would need to be built. Only one micro-refinery, named the Dakota Prairie refinery, is in the works and is currently being constructed near Dickinson[34]. With several experts claiming that there will be more than 50,000 wells in North Dakota by the end of the boom, it can be argued that now is a better time than later to start investing in new infrastructure before the oil industry increases the number of wells by five-fold.

Although many oil producers in the Bakken will argue against stabilizers due to construction costs, one need not look any further than Texas' Eagle Ford shale to see how a rapid investment in stabilizers occurred almost overnight with little complaint from industry. For example, in 2012 Texas had almost no stabilizers, and after discovering a good market for the propane produced in association with Eagle Ford oil, combined with regulations from the Texas Rail Road Commission requiring the treatment of oil prior to shipment, Texas now has several stabilizers that are able to sustainably process its crude making it safer to transport[35].

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[31] Shaffer, David, and Evan Ramstad. "NTSB: 400,000 Gallons of Crude Spilled in N.D. Train Wreck." *StarTribune.com: News, Weather, Sports from Minneapolis, St. Paul and Minnesota*. Star Tribune, 13 Jan. 2014. Web. 15 Sept. 2014. <http://www.startribune.com/business/239948631.html>.

[32] Hays, Kristen. "Safety Debate Eyes Taming Bakken Crude before It Hits Rails." *Reuters*. Thomson Reuters, 12 May 2014. Web. 10 Sept. 2014. <http://www.reuters.com/article/2014/05/12/us-davegrailways-safety-crude-idUSBREA4B0JD20140512>.

[33] Id.

[34] Faulx, Nadya. "Refining the Final Touches: Dakota Prairie Refinery on Track to Open Later This Year." *The Dickinson Press*. Forum Communications, 27 Aug. 2014. Web. 18 Sept. 2014. <http://www.thedickinsonpress.com/content/refining-final-touches-dakota-prairie-refinery-track-open-later-year>.

[35] Gold, Russell, and Chester Dawson. "North Dakota Fracking: Behind the Oil Train Explosions." *The Wall Street Journal*. Dow Jones & Company, 7 July 2014. Web. 16 Sept. 2014. <http://online.wsj.com/articles/north-dakota-fracking-behind-the-oil-train-explosions-1404761720>.

If "stabilizers" or micro-refineries are the preferred method in North Dakota to remove explosive volatile elements prior to shipping North Dakota crude via rail, the footprint of the necessary infrastructure must be minimized as much as possible. A process of bringing together stakeholders including landowners, local government officials, state government officials, tribal officials, and oil companies must be employed in the planning of new pipelines and refineries. Pipelines should follow corridors that impact the least number of landowners and do not impact large swaths of land. In addition, new micro-refineries must be placed in a manner as to not impact the agricultural land uses that are common and necessary throughout western North Dakota.

There are several companies that build and operate stabilizers. Myron Goford heads one company, which leases oil stabilizers in Texas. When asked this past May by Reuters to explain the difference between North Dakota and Texas when it comes to rules regarding stabilization of crude, Goford responded by stating, "It's a little like the wild west up in the Bakken, where everybody gets to do what they want to do. In the Eagle Ford, you've got to play by the rules, which forces the oil companies to treat it differently." Goford added that companies are not going to invest in "stabilizers" unless they are required to incorporate it into their business plans via regulation [36].

It is time that North Dakota not be known by the nation as the Wild West, but rather as a modern safe oil development. Requiring that our oil be stripped of volatiles, while planning and investing in infrastructure that does no further burden to our residents' use and enjoyment of the land seems like a logical step in the right direction for North Dakota.

IV. Oil Conditioning: The Short Term Solution

Oil conditioning, unlike stabilization, does not require robust infrastructure. Oil conditioning typically can be completed with existing equipment and minor modifications to existing equipment at the well site[37]. Once the volatiles are separated from the oil, then the gases that were separated must be shipped via pipeline or flared[38]. By comparison to stabilization, conditioning is far less mechanized. As a result, if conditioning is chosen as the preferred method to strip volatile constituents out of Bakken crude, regulators must have uniform regulatory requirements on how each company conditions Bakken crude prior to being put in rail cars.

Conditioning in simple terms means using a variety of changes in temperature and pressure to separate volatile constituents from the crude[39]. It should only be used in the short run until stabilizers can be fully utilized. Due to the large changes in temperature in western North Dakota throughout the seasons, there is high likelihood for operator error in conditioning the crude. As a result, a uniform process must be required across operators so that conditioning can be effectively completed in all four seasons. In

[36] Id.
[37] Carney, S.c. Crude Oil Conditioning and Separation Process. Patent US 2303609 A. 1 Dec. 1942.
[38] Id.
[39] Id.

addition, "conditioned" crude should be tested prior to being put in rail cars so that it can be verified that trains will not be carrying potentially volatile crude that could explode in the case of a rail accident. When a test proves that a company did not condition the crude, it must result in a large fine and a suspension of drilling permits until they can prove to a regulator their competency in conditioning crude. Large fines for those who either are technically unable to stabilize their crude via oil conditioning, or simply refuse to do so to save money, would make companies think before they cut corners in conditioning Bakken crude.

In summary, oil conditioning could be used as a short-term solution with the caveat that the method must ensure public safety. If the NDIC chooses to require conditioning, the requirements must be of sound science and the nature of North Dakota temperature fluctuations must be taken in to account. Also flaring should be prohibited. Flaring is already a problem in North Dakota and any additional flaring would fly in the face of the recent effort by the NDIC to curb flaring[40]. New technologies, including remote capture technology, should be required if there is no gas capture infrastructure to send the separated gases/volatiles. Lastly, long-term solutions like "stabilizers" must also be considered for the future if conditioning becomes the preferred method through this current rule making.

V. The case for slowing down permitting

There are currently more than 11,000 active oil wells in the Bakken, and many experts predict that North Dakota will have over 50,000 active wells by the end of the boom[41]. It is clear that the pace of the boom is not congruent with safety. The rush to get oil out of ground at a breakneck pace combined with lack of oversight by North Dakota regulators regarding the composition of our oil has put North Dakota in this predicament. We propose that North Dakota drilling permits be temporarily suspended until the state can hire experts to oversee quality control for whatever method is chosen to stabilize the crude. There are three scenarios which we believe could potentially be implemented by North Dakota to make Bakken crude safe for transport: 1.Conditioning is required, 2. Stabilization is required, or 3. Phased approach, which allows conditioning to be employed until stabilization infrastructure is built.

Scenario one: conditioning required: If conditioning is chosen, we propose that the state not allow an operator to get any new drilling permits until they can prove to a third party expert that they have competency in their ability strip volatiles out of the oil. To pay a third party, companies would pay North Dakota a permit fee for the services. Once a

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[40] Smith, Nick. "Questions Remain over Flaring Policy : Energy News."*Bismarck Tribune*. Bismarck Tribune, 13 July 2014. Web. Sept. 2014. <http://bismarcktribune.com/bakken/questions-remain-over-flaring-policy/article_4a43d67a-0937-11e4-9254-001a4bcf887a.html>.

[41] "MillionDollarWay (All Bakken All The Time)." *Million Dollar Way Blog*. N.p., 18 June 2013. Web. 18 Sept. 2014. <http://willistonbasin.blogspot.com/2013/06/forty-eight-48-wells-per-spacing-unit.html>.

company proves its proficiency in stripping volatiles from its oil, then the company can apply for new drilling permits.

Scenario two: stabilization is required: If stabilizers are chosen, permitting must be slowed until the necessary infrastructure is built so that oil can be stabilized. In addition, a third party expert must certify that the installed stabilizers are sufficiently stripping volatiles out of the crude. In this scenario conditioning would be prohibited.

Scenario three: phased/blended approach: If a phased/blended approach is chosen, where conditioning is used until stabilization infrastructure can be built out, then permitting should be suspended for operators until they can prove to a third party expert proficiency in stripping out volatiles. In addition, companies that are in close proximity to stabilizers will be required to utilize stabilizers over doing conditioning regardless of economics. Companies that make use of stabilizers will not have to pay permit fees for their oil to be inspected and will not have to worry about having to prove competency in conditioning in order to get new drilling permits. This is the preferred route because it will allow our crude to be rendered safe, while also giving operators an incentive to build out new infrastructure. Under this scenario the emphasis will be on getting the stabilization infrastructure constructed.

It should be noted that a third party expert can be defined as either a government agency employee that is an expert on petroleum engineering or a third party consultant with expertise in petroleum engineering to be hired by North Dakota State Government.

Because this is a matter of safety, quality control will be paramount. Slowing down permitting until a company can prove proficiency in rendering oil stable will force companies to make their oil safe if they want to operate in the North Dakota. Further slowing down production means less oil cars on the rails, thus relieving congestion for North Dakota farmers trying to get their grain on the rail lines[42]. Lastly, slowing down permitting will also provide time for the Department of Transportation to phase out the dangerous DOT-111 cars and put safer oil cars on the rail[43].

Conclusion/Recommendations

1. Stripping volatile elements out of Bakken crude is a safety issue. Accidents from the United States and Canada highlight the dangers of Bakken crude containing volatile elements. Therefore, the volatility of Bakken crude needs to be addressed swiftly and pragmatically by North Dakota officials.
2. The excessively close-knit relationships between the oil industry and North Dakota officials are obvious. For this issue though, North Dakota officials need to

[42] Nixon, Ron. "Grain Piles Up, Waiting for a Ride, as Trains Move North Dakota Oil." *The New York Times*. The New York Times, 25 Aug. 2014. Web. 18 Sept. 2014.
[43] Gerken, James. "DOT-111 Oil Tank Cars, Like Those In Lac-Megantic, Quebec Disaster, Long Seen As Flawed." *The Huffington Post*. TheHuffingtonPost.com, 9 July 2013. Web. 18 Sept. 2014.

disregard their friends in the oil industry and make their decision based on public safety rather than making another effort to preserve oil industry profits.

3. Oil-permitting needs to be slowed so that a viable solution for stripping Bakken crude of its volatiles can be developed, implemented, and tested among all oil and gas operators in North Dakota.
4. Companies that refuse or cannot meet oil conditioning/stabilization standards set by North Dakota should be fined and barred from applying for new ADPs or drilling any new wells until they can prove competency in stripping light-ends or volatiles from Bakken crude.
5. The preferred regulatory route is to employ a phased/blended approach in which conditioning may be used until stabilization infrastructure is fully constructed. Under this regulatory route companies must prove competency in stripping volatiles out of the crude prior to being able to apply for new drilling permits. Emphasis must be on getting stabilizers constructed throughout the oil patch.