

**U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
SUBCOMMITTEES ON ENERGY AND OVERSIGHT**

JOINT SUBCOMMITTEE HEARING

Bakken Petroleum: The Substance of Energy Independence

Tuesday, September 9, 2014
2:00 p.m. – 4:00 p.m.
2318 Rayburn House Office Building

Purpose

The Energy and Oversight Subcommittees will hold a joint hearing titled *Bakken Petroleum: The Substance of Energy Independence* starting at 2:00 p.m. on Tuesday, September 9th in room 2318 of the Rayburn House Office Building. This hearing will examine the characteristics and behavior of crude oil produced from the Bakken region in North Dakota, Montana, and Canada pursuant to a report titled, “Operation Safe Delivery Update” released by the Pipeline and Hazardous Materials Safety Administration (PHMSA) in July 2014.

Witnesses

Panel 1

- Mr. Timothy Butters, Deputy Administrator, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation
- Mr. Chris Smith, Principal Deputy Assistant Secretary, Office of Fossil Energy, U.S. Department of Energy

Panel 2

- Ms. Kari Cutting, Vice President, North Dakota Petroleum Council
- Mr. John Auers, Executive Vice President, Turner, Mason & Company
- Mr. Mark Zoanetti, Deputy Chief, Special Operations, Syracuse Fire Department

Background

The Bakken shale formation underlying North Dakota, Montana, and Canada is a large unconventional petroleum and natural gas resource. As of April 2014, North Dakota crude oil production surpassed 1 million barrels per day (MMbbl/d) representing a substantial contribution

towards potential North American energy independence.¹ According to the Energy Information Administration's (EIA's) Annual Energy Outlook for 2014, U.S. crude oil production will peak over the next decade at around 9.6 MMbbl/d, an output of approximately 3.1 MMbbl/d above the 2012 U.S. production levels.² The United States currently satisfies approximately 66% of its demand for crude oil from North American resources.³

Due to increased production, insufficient pipeline capacity, and challenges associated with siting new pipelines, a substantial amount of the petroleum produced in the Bakken region is shipped by rail. In light of recent derailments, including accidents in Lac-Megantic, Quebec, and Casselton, North Dakota, Bakken petroleum shipped by rail has drawn increased scrutiny.⁴ Yet, overall shipment of hazardous substances by rail has demonstrated and noteworthy safety record. According to the Association of American Railroads, "99.997 percent of the approximately 1.7 million carloads of hazmat successfully [reach] their final destination without a release caused by an accident."⁵ Eastward shipment by rail of Bakken petroleum, which is a light sweet crude comparable to West Texas Intermediate (WTI) quality, has also increased the competitiveness of certain East Coast refineries that previously were reliant on higher cost petroleum from West Africa.⁶

PHMSA regulates the safety of hazardous materials transported by rail, and the Department of Energy (DOE) serves as a technical advisor to PHMSA for energy-related issues. The mission of PHMSA, a U.S. Department of Transportation agency, is "to protect people and the environment from the risks inherent in transportation of hazardous materials – by pipeline and other modes of transportation."⁷

The Department of Energy Organization Act established DOE in 1977 with the purpose of, among other things, "to develop plans and programs dealing with domestic energy production and import shortages."⁸ The Department currently defines its mission "to ensure America's

¹ See Energy Information Administration website, available here: <http://www.eia.gov/todayinenergy/detail.cfm?id=17391>.

² See Energy Information Administration, "Annual Energy Outlook 2014" (April 2014) at page MT-28.

³ Congressional Research Services, "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress" (May 5, 2014) at page 1.

⁴ See The Huffington Post: http://www.huffingtonpost.ca/kenneth-p-green/oil-tanker-spill_b_5683431.html; See also The Christian Science Monitor: <http://www.csmonitor.com/Environment/Energy-Voices/2014/0827/Train-delayed-again-Blame-the-oil-boom>.

⁵ See Association of American Railroads website, available here: <https://www.aar.org/safety/Pages/default.aspx#.VAiNWfldWCK>.

⁶ See Congressional Research Services, "U.S. Rail Transportation of Crude Oil: Background and Issues for Congress" (May 5, 2014) at pages 2 and 5.

⁷ See the PHMSA website, available here: <http://www.phmsa.dot.gov/about/agency>.

⁸ P.L. 95-91, Section 102(3) (August 4, 1977).

security and prosperity by addressing its energy, environmental and nuclear challenges through transformative science and technology solutions.”⁹

In January 2014, PHMSA released a safety alert as part of its “Operation Classification,” an initiative dating back to March 2013 following derailments in the United States and Canada that focuses on how shippers classify petroleum products originating in the Bakken region.¹⁰ The PHMSA alert concluded that Bakken petroleum “may be more flammable than traditional heavy crude oil.”¹¹ The PHMSA alert emphasized that offerors of hazardous materials must properly classify and describe hazardous materials before they may be transported, stressing the importance of appropriate packing group (PG) assignment of crude oil shipments. The alert also advised that “emergency responders should remember that light sweet crude oil, such as that coming from the Bakken region, is typically assigned a packing group I or II... this means the materials pose significant fire risk if released from the package in an accident.”¹²

In July 2014, PHMSA released a report titled, “Operation Safe Delivery Update” which concluded that “after months of unannounced inspections, testing, and analysis, Operation Classification has determined that the current classification applied to Bakken crude is accurate under the current classification system, but that the crude has a higher gas content, higher vapor pressure, lower flash point and boiling point and thus a higher degree of volatility than most other crudes in the U.S., which correlates to increased ignitability and flammability.”¹³

The North Dakota Petroleum Council (NDPC) also commissioned a comprehensive sampling and testing program on the physical and chemical characteristics of Bakken petroleum to establish a Bakken quality baseline and management best practices for field operations. Turner, Mason & Company (TM&C), an engineering consultancy, served as project coordinator for this program. Pursuant to this sampling and testing program, TM&C released a report, which concluded, among other things, that “Bakken is a light sweet crude oil with very consistent

⁹ See more at the Department of Energy’s website, available here: <http://www.energy.gov/mission>.

¹⁰ PHMSA Operation Classification:

<http://www.phmsa.dot.gov/portal/site/PHMSA/menuitem.6f23687cf7b00b0f22e4c6962d9c8789/?vgnextoid=4821ec1c60f23410VgnVCM100000d2c97898RCRD&vgnnextchannel=d248724dd7d6c010VgnVCM10000080e8a8c0RCRD&vgnnextfmt=print>.

¹¹ See Pipeline and Hazardous Materials Safety Administration website, available here:

<http://phmsa.dot.gov/portal/site/PHMSA/menuitem.ebdc7a8a7e39f2e55cf2031050248a0c/?vgnextoid=c6fefec1c60f23410VgnVCM100000d2c97898RCRD&vgnnextchannel=0f0b143389d8c010VgnVCM1000008049a8c0RCRD&vgnextfmt=print>.

¹² See Pipeline and Hazardous Materials Safety Administration website, available here:

<http://phmsa.dot.gov/portal/site/PHMSA/menuitem.ebdc7a8a7e39f2e55cf2031050248a0c/?vgnextoid=c6fefec1c60f23410VgnVCM100000d2c97898RCRD&vgnnextchannel=0f0b143389d8c010VgnVCM1000008049a8c0RCRD&vgnextfmt=print>.

¹³ Pipeline and Hazardous Materials Safety Administration, “Operation Safe Delivery Update” (July, 2014) at page 1.

properties throughout the entire production basin, and the properties measured meet all the requirements of 49 CFR 171-180 for safe transport by rail or truck.”¹⁴

Additional Reading

United States Pipeline and Hazardous Materials Safety Authority, *Operation Safe Delivery Update*, July 2014, available at:

http://www.phmsa.dot.gov/pv_obj_cache/pv_obj_id_8A422ABDC16B72E5F166FE34048CCCBFED3B0500/filename/07_23_14_Operation_Safe_Delivery_Report_final_clean.pdf

Turner, Mason & Company, *The North Dakota Petroleum Council Study on Bakken Crude Properties*, August 2014, available at: <http://www.ndoil.org/resources/bkn/>

¹⁴ See Turner, Mason & Company, “The North Dakota Petroleum Council Study on Bakken Crude Properties” (August 2014) at page 9.