



SIOUX FALLS AREA  
CHAMBER OF COMMERCE  
*Progress is everyone's business*

## ISSUE BRIEF:

### *Pipelines*

September 2015

#### **Background**

Pipelines used for the transport of oil have existed in the United States since 1859. These were short and simplistic pipes, which were used to move oil from drill holes to nearby tanks or refineries. With greater demand, the quality of pipe increased—from wood, to wrought iron to steel.

The United States has led the world in oil and natural gas production since 2012. The current pipeline network in the United States, the largest in the world, is comprised of crude oil, gasoline, diesel fuel, jet fuel, home heating oil and natural gas. Liquid petroleum constitutes over 190,000 miles of pipeline and natural gas pipelines number 2.4 million miles. In South Dakota, about 6,500 miles of pipelines are currently transporting products. Some lines are as short as one mile in length, while others extend 1,000 miles or more. This pipeline system moves energy resources throughout North America to consumers, airports, military bases, population centers and industry. In 2013, pipelines transported 8.3 billion barrels of crude oil and 6.6 billion barrels of petroleum products (gasoline, diesel, jet fuel, etc.).

#### **Safety**

As a sector within the U.S. Department of Transportation, the Pipeline and Hazardous Materials Safety Administration (PHMSA) performs comparative analysis among petroleum transportation involving pipelines, railway and roadway:

#### Petroleum Serious Incident Rates (2005-2009)

| Mode                      | Avg. billions ton-miles shipment per year | Avg. incidents Per Year | Incidents per billion ton-miles |
|---------------------------|---|-------------------------|---------------------------------|
| Road*                     | 34.8                                      | 695.2                   | 19.95                           |
| Railway*                  | 23.9                                      | 49.6                    | 2.08                            |
| Hazardous liquid pipeline | 584.1                                     | 339.6                   | 0.58                            |
| Natural gas pipeline      | 338.5                                     | 299.2                   | 0.89                            |

\*Only incidents involving and ton-mileage carrying those products carried by pipeline (petroleum products, liquid natural gas, etc.) are counted for road and railway.

Sources: Ton-Mileage values are based on Tables 1-50 (for Natural Gas Pipeline) and 1-61 (all others) of the Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics National Transportation Statistics, <[http://www.rita.dot.gov/bts/sites/rita.dot.gov/bts/files/publications/national\\_transportation\\_statistics/index.html](http://www.rita.dot.gov/bts/sites/rita.dot.gov/bts/files/publications/national_transportation_statistics/index.html)>. Incident and release volume data for Road and Railway were extracted from the Office of Hazardous Materials Safety Incident Reports Database Search, <<https://hazmatonline.phmsa.dot.gov/IncidentReportsSearch/>>, HL Pipeline release volumes were extracted from the Pipeline and Hazardous Material Safety Administration Hazardous Liquid Accident Data - 2002 to 2009 file, <<http://phmsa.dot.gov/portal/site/PHMSA/menuitem.ebdc7a8a7e39f2e55cf2031050248a0c/?vgnnextoid=fdd2dfa122a1d110VgnVCM1000009ed07898RCRD&vgnnextchannel=3430fb649a2dc110VgnVCM1000009ed07898RCRD&vgnnextfmt=print>>.

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Comparison of hazmat fatality statistics, operator personnel and general public (2005-2009)

|                               | 2005 | 2006 | 2007 | 2008 | 2009 | Total | Average per year |
|-------------------------------|------|------|------|------|------|-------|------------------|
| Road                          | 24   | 6    | 10   | 8    | 3    | 51    | 10.2             |
| Railway                       | 10   | 0    | 0    | 1    | 1    | 12    | 2.4              |
| Hazardous onshore only        | 2    | 0    | 4    | 2    | 4    | 12    | 2.4              |
| Gas transmission onshore only | 0    | 3    | 2    | 0    | 0    | 5     | 1.0              |

Source: Reproduced from US Department of Transportation, Pipeline, and Hazardous Materials Safety Administration, Office of Pipeline Safety, Building Safe Communities and its Application to Local Development Decisions, October, 2010, Table 3: 26, <<http://www.pstrust.org/library/docs/PIPA-PipelineRiskReport-Final-20101021.pdf>>.

Injuries resulting from petroleum incidents

**Table 10: Injuries resulting from petroleum incidents-pipelines vs. road and railway**

|                           |                 | 2005 | 2006 | 2007 | 2008 | 2009 | Total | Average per year |
|---------------------------|-----------------|------|------|------|------|------|-------|------------------|
| Road                      | Hospitalization | 9    | 10   | 10   | 6    | 9    | 44    | 0.2526           |
|                           | Total           | 38   | 37   | 38   | 17   | 41   | 171   | 0.9816           |
| Railway                   | Hospitalization | 20   | 2    | 1    | 0    | 0    | 23    | 0.1925           |
|                           | Total           | 24   | 2    | 4    | 0    | 1    | 31    | 0.2594           |
| Hazardous liquid pipeline | Hospitalization | 2    | 2    | 10   | 2    | 4    | 20    | 0.0068           |
| Natural gas pipeline      | Hospitalization | 45   | 32   | 37   | 53   | 58   | 225   | 0.133            |

Sources: Road and Railway injuries were counted in the data extracted for Table 6. Pipeline injuries are reproduced from <[http://primis.phmsa.dot.gov/comm/reports/safety/SerPSI.html?nocache=5757#\\_all](http://primis.phmsa.dot.gov/comm/reports/safety/SerPSI.html?nocache=5757#_all)>

Environmentally speaking, there have been frequent safety discussions involving the comparison between pipelines and rail. Pipelines average around 22 accidents per billion barrels of oil transported; comparatively, rail has a rate 10 to 20 times higher in recent years. However, rail does have a better spillage rate. For example, in 2012, rail was responsible for approximately 500 barrels of oil spilled for every billion moved. Consequently, pipelines lost about 2,000 barrels for every billion moved.

Over the past several years, improvements have been made regarding pipelines as they have safely transported crude oil and petroleum products with a 99.999 percent rate. Since 1999, corrosion-related incidents have decreased by 76 percent and from 1999 to 2013, liquid pipeline releases along pipeline rights of way decreased by 50 percent.

To give some perspective of the three most prolific ways to transport oil, three million barrels of product delivered by pipeline is the equivalent to 4,200 rail cars or 15,000 tanker trucks.

### **Technology**

Technological advances have improved efficiency and safety of pipelines and many companies have been very proactive to place additional resources in this area. Smart tools called “pigs,” which are inserted into the pipeline and advanced through the pipe by flowing product, have sensors that indicate metal loss on the pipe wall, cracks or other deformations along the pipeline route. Monitoring is done from a centralized, offsite location and if an abnormality is indicated, workers are dispatched to shut down sections of the pipeline. Another detection device uses

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sensors placed on the outside the pipeline and does not require the flow to be temporarily stopped like the smart pigs do.

Software has also been developed which has led to a much faster analysis of data— instantaneous in some cases. Temperature, pressure, rates of corrosion and strain of the pipe are all displayed in various charts, graphs and diagrams.

### **Pipeline Proponent Rationale**

- Pipelines are the fastest mode of transportation to deliver crude and petroleum products
- Require much less energy to operate than do rail or trucks and possess a much lower carbon footprint
- Additional jobs created by pipelines (pipeline construction, exploration, production, refining and project sustainment) significantly benefit the economy
- Contribute substantially toward local and state revenues
- Safest mode of transportation for crude oil and natural gas

### **Pipeline Opponent Rationale**

- Installation and sustainability concerns threaten endangered species and sensitive ecosystems
- Heritage and cultural values are minimized and/or disregarded
- Soil preservation can be compromised as leaks and spills may damage natural resources and reduce economic viability of farmland
- Once constructed, the number of full-time jobs that remain are few
- Even with technological advances, the threat of contamination to water supplies due to a leak in the line is of great concern

*Note: Detailing “Proponents” and “Opponents” rationale is designed to provide the reader with an understanding of the opinions and talking points from each perspective. They are not intended to reflect any position of the Sioux Falls Area Chamber of Commerce.*

### **Proposed Pipelines Affecting South Dakota**

#### **{ TransCanada Keystone XL }**

- TransCanada Corporation is based in Calgary, Alberta
- Proposed 1,179 mile, 36-inch diameter crude oil pipeline
- \$7 billion construction cost
- Route: Hardisty, Alberta and extending south to Steele City, Nebraska
- 830,000 barrels of oil per day capacity
  - Alberta tar sands
  - Bakken region (100,000 barrels per day)
- Estimated to generate 42,000 direct and indirect jobs during construction and \$20 billion to U.S. economy
- Proposed South Dakota Route
  - Approximately 313 miles of pipeline through the state
  - Traverses nine counties
    - Harding, Butte, Perkins, Meade, Pennington, Haakon, Jones, Lyman and Tripp

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- Seven electric pump stations
  - Harding (2), Meade, Haakon, Jones and Tripp (2) counties
- South Dakota estimates
  - Would add approximately 1,700 direct jobs and 1,800 indirect and induced jobs during construction
  - Would generate \$46.5 million in support of state government in the form of sales, use and contractors' excise taxes over the construction period.
  - Projected to increase ongoing property tax revenues for South Dakota counties by an estimated \$18 million to \$20 million annually

### Federal Timeline

- May 2012: TransCanada filed an application with State Department for a Presidential Permit
  - Projected in-service date two years after issuance
- March 2013: State Department released an Environmental Impact Statement that reaffirmed "there would be no significant impacts to most resources along the proposed project route."
- Recent Congressional activity
  - January 2015: House approved KXL Pipeline Approval Act, authorizing construction by a vote of 62-36
  - February 2015: President Obama vetoed the bill
  - March 2015: Veto override measure failed by a vote of 62-37
  - As of July 2015, no further action on this bill has been taken in the House

### South Dakota PUC Timeline

- The South Dakota Public Utilities Commission issued TransCanada a permit in 2010
  - Stated if construction had not begun within four years of issuance, TransCanada would need to certify that the commercial conditions under which permit was approved still apply
    - Since four years have passed and KXL remains in regulatory review at the federal level, the permit from the SD PUC now requires certification.
      - TransCanada filed for certification in September 2014, stating that KXL continues to meet and in some cases, exceeds the required conditions
        - Certification process will include evidentiary hearing (impacted parties or selected intervenors can provide evidence why project should be approved or denied)
          - Evidentiary hearing took place July 27-30, 2015 with a decision expected in late 2015

### **{ Dakota Access }**

- Dakota Access is a subsidiary of Energy Transfer Crude Oil Company, LLC (based in Texas)
- Proposed (approximate) 1,134-mile, 30-inch diameter crude oil pipeline
- Route: Bakken and Three Forks regions of North Dakota to Patoka, Illinois

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- 570,000 barrel per day capacity (approximately half the Bakken's daily crude oil production)
- \$3.7 billion construction cost
- Estimated to generate 8,000 to 12,000 jobs during construction
- Estimated to generate a combined annual state property tax revenue of \$55 million (North Dakota, South Dakota, Iowa and Illinois).
- Right-of-way payments to landowners will total approximately \$194 million
- Projected South Dakota route
  - Approximately 272 miles of pipeline through the state
  - Traverses 13 counties
    - Campbell, McPherson, Edmunds, Faulk, Spink, Beadle, Kingsbury, Miner, Lake, McCook, Minnehaha, Turner and Lincoln
  - One electric pump station (7 miles SE of Redfield in Spink County)
- South Dakota estimates
  - \$820 million capital investment
  - Property taxes: \$13.5 million in 2017
  - Sales/Income taxes during construction: \$38.5 million
  - 2,000 to 4,000 construction jobs
  - Will produce 12-15 permanent jobs
- South Dakota Public Utilities Commission Permit Timeline
  - July 2014: Initial meeting with PUC staff
  - October 2014: Project open houses
  - December 2014: Permit application filed with PUC
    - Sept. 29-Oct. 9: Evidentiary Hearings take place in Pierre where proponent and opponent testimony is heard
    - PUC must make a decision by Dec. 15, 2015 to either grant, deny, or grant with terms, conditions or modifications
  - 3<sup>rd</sup> Quarter 2015: Possible permit issuance
  - 4<sup>th</sup> Quarter 2016: Possible in-service date

### **Chamber Organizations Taking Positions**

The Sioux Falls Area Chamber of Commerce, South Dakota Chamber of Commerce, Mid-America Chamber Executives (MACE) and U.S. Chamber of Commerce have all taken positions in support of the Keystone XL Pipeline.

MACE and the South Dakota Chamber of Commerce have also taken a position to support the Dakota Access Pipeline.

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