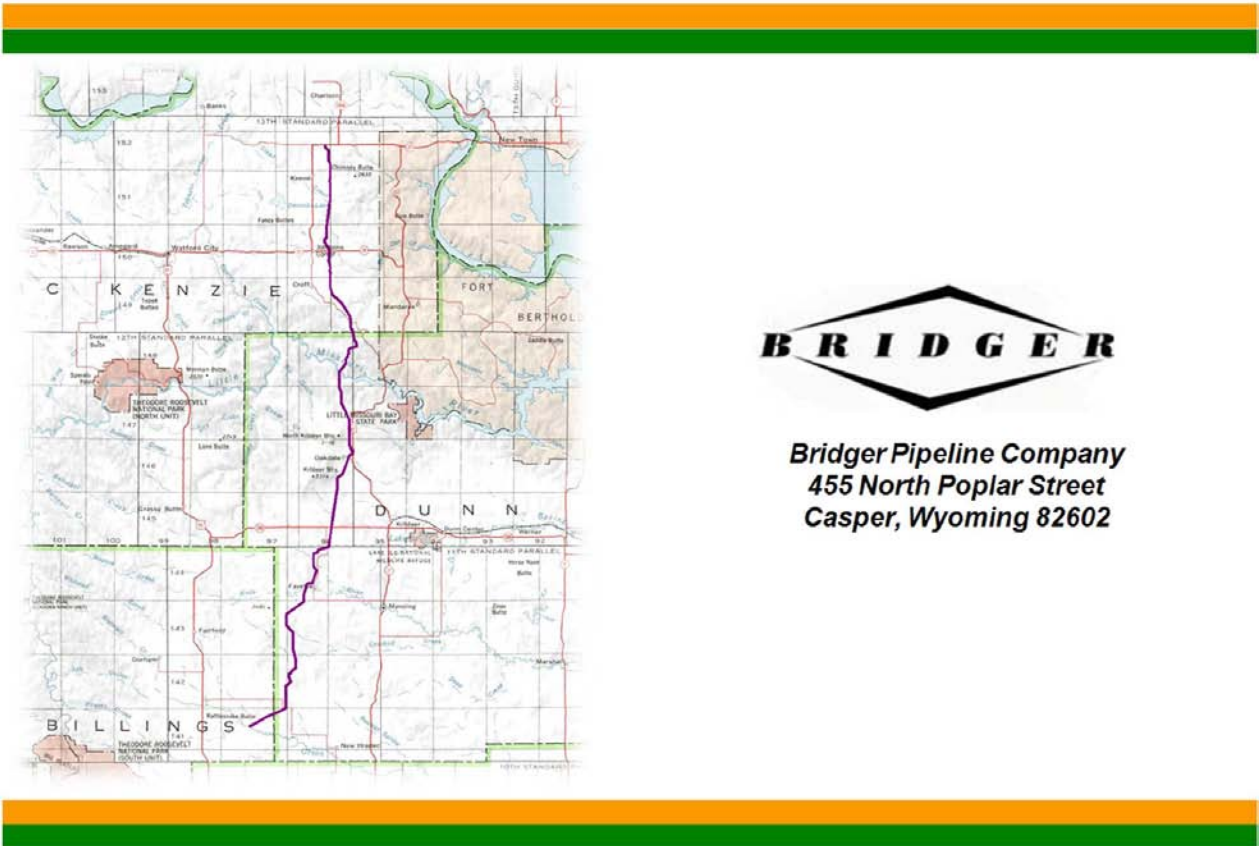


ND PSC Case No. PU-09-750

**12-inch Crude Oil Pipeline, Billings, Dunn, McKenzie Counties
Pipeline Corridor Application**

July 2010



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SECTION A DESCRIPTION OF PROPOSED FACILITY

A.1 Describe the type of transmission facility addressed in this application. The description shall include the purpose of the facility and the technology to be employed:

Bridger Pipeline LLC proposes to construct and operate a new 77-mile-long, 12-inch diameter crude oil pipeline that will interconnect with Bridger's Skunk Hill Junction in Billings County, North Dakota. This pipeline will span three counties in North Dakota: Billings, Dunn, and McKenzie. The purpose of the facility is to transport petroleum crude oil from bulk storage tanks and smaller crude field gathering systems to one of three existing destinations.

The pipeline is expected to have an initial capacity of 60,000 barrels per day. The segment will begin just north of ND Highway 23 approximately 15 miles west of the Four Bears Bridge in McKenzie County. At least three interconnections will be provided to link with current, under construction, or proposed crude oil gathering systems in the area. The southern end of the pipeline will connect into Bridger's existing Heart River Pipeline at Skunk Hill Junction approximately 18 miles northwest of Dickinson, ND or 11.5 miles northeast of Belfield, in Billings County. Bridger will also have two truck unloading stations located near the intersection of the proposed line and Highway 23 and another at the intersection of the proposed line and Highway 200.

The northern half of the pipeline generally parallels the existing Dakota Gasification Company's (DGC) 14-inch carbon-dioxide line in McKenzie County, North Dakota. The ND Public Service Commission issued Certificate No. 73 of Corridor Compatibility to Dakota Gasification Company on December 3, 1997 (PU-593-96-11). Bridger proposes to place the northern portion of this pipeline in the same pipeline corridor as the existing DGC pipeline. The southern half of the line generally follows the most direct route northeast to southwest as practical.

The pipeline will be buried underground. A truck terminal, storage tanks and pump facility will be installed at the northern end of the pipeline. A mid-route pumping station could be added in the future to boost the line's capacity to approximately 110,000 barrels per day. Additional surface facilities installed in the State of North Dakota will be limited to pipeline markers, rectifiers, "pig" launchers, receivers and block valves. Some small fenced-in enclosures to house associated power and control systems may be installed to allow valves to be operated remotely.

The steel pipeline will meet US Department of Transportation regulations, specifically the design criteria outlined in 49 CFR 195.100, constructed per 49 CFR 195.200 operated and maintained per 49 CFR 195.400.

The estimated cost of the Bridger 12-inch Crude Oil Pipeline Project (Project) is \$29 million.

A.2 Describe the type, source, and final destination of the product to be transmitted by the proposed facility:

Upon completion, the Bridger 12-inch Pipeline will provide pipeline transportation of McKenzie, Dunn, and Mountrail crude oil production to three major crude markets: (1) Guernsey, Wyoming via Bridger's Little Missouri and Heart River systems and the Butte pipeline system; (2) to Enbridge pipeline using Belle Fourche's connection at Alexander for further transportation to

Clearbrook, Minnesota; and (3) to Tesoro High Plains Pipeline via Belle Fourche’s existing connection at Treetop for further transport to the Mandan Refinery.

Bridger Pipeline LLC announced on February 27, 2010 an “open season” to extend its North Dakota crude oil pipeline transportation system. The open season provided an opportunity for potential shippers to make long-term volume commitments in exchange for a discounted rate for the transportation of light sweet crude. The solicitation closed on April 30, 2010. Due to strong demand, the planned size of the pipeline was increased from 10-inch to 12-inch nominal diameter.

Generally, liquid pipelines are designed at a specified capacity for a known liquid. Most liquid pipelines transport a variety of different liquids. The change in fluid characteristics (density, viscosity, etc.) of the transported liquids will affect the capacity of the pipeline. Liquids may also be batched in a pipeline generally in a repeatable sequence. Both fluid characteristics and batch sequence will affect the capacity of the pipeline.

Two definitions are used to describe pipeline capacity; Design Capacity and Annual Capacity.

- Design capacity is the theoretical capacity of the pipeline for given types of liquids and their batch sequence. Design capacity is calculated assuming theoretically ideal operating conditions.
- Annual capacity is the average sustainable throughput rate over a year. Annual Capacity is calculated assuming historic average annual and operating conditions. These operating conditions include scheduled and unscheduled maintenance, normal operating problems and crude supply ratability. Annual capacity of a pipeline is typically 97% of design capacity.

The design data pertinent to the proposed new 12-inch pipeline is presented below in Table 1.1.

Table 1.1 – Corridor Certificate Capacity Definitions		
12-inch Crude Oil Pipeline Project Capacities (bpd)		
Ultimate Capacity	Maximum economic expansion capacity of individual line. Requires additional pumping horsepower over current design to meet this capacity	115,000
Design Capacity	Theoretical capacity	60,000
Annual Capacity	Average sustainable rate over a year	58,000
Operating Factor	Historical percentage of full system utilization	97%

Although Bridger does not explicitly specify the type of crude it will transport; historically it is a light sweet common stream system and will continue to accept sweet crude oil into its common stream. This specification is consistent with the quality of crude oil produced from the Bakken formation which is currently the largest exploration play in the region.

Installation of a 12-inch pipeline line to Bridger's existing North Dakota network will add additional (1) market delivery point options on its system as well as (2) provide pipeline transportation alternative to trucking or raiiling crude oil to other shipping points and markets.

A.3 PIPELINE SIZE AND DESIGN: provide a description of the size and design of the PIPELINE facility including, but not limited to, the following:

- a. Width of right-of-way;
- b. Estimated distance between surface structures such as manholes or block valves;
- c. Pipe size;
- d. Approximate length of facility;
- e. Maximum design operating pressure and temperature;
- f. Maximum design flow rate;
- g. The number and general location of compressor or pumping stations

A.3 (a) Width of the Right of Way

Construction work space will generally be 100 feet wide to allow adequate room for topsoil separation, work equipment and pipe stringing. This right-of-way (ROW) will provide additional temporary work space during construction in areas such as steep slopes and staging areas for crossing streams, wetlands, and roads. The ROW is wide enough to provide areas for prefabrication of a section of pipeline and storage of top soil/subsoil material. Bridger is seeking a 75-foot permanent easement for the pipeline.

However due to the proximity of avoidance archeological avoidance areas, the ROW will be narrowed in five areas of the construction zone to a 50-foot width. These areas are noted in the Route Permit application found in Tab 3.

The right of way distance has been established based on the following criteria:

- Provision of adequate space and line separation for future line maintenance
- Allowance of adequate space to facilitate construction of the 12-inch pipeline while minimizing potential damage to the existing lines

A.3 (b) Estimated Distances Between Surface Structures

Unlike power transmission lines with towers, only a few surface structures are associated with an underground liquid pipeline system. Pumping equipment is to be installed at the north-end crude truck station just north of Highway 23. This facility will also be provided with one 40,000 barrel tank, pipeline pig launchers & receivers, truck unloading connections

as well as associated station piping. Block valves will be installed on either side of the Little Missouri River, Knife River, and Green River as required by US Department of Transportation regulations.

Above ground valve sets (block valves) will also be installed at any gathering line or other interconnection points. Interconnections are currently planned just north of Highway 73 (13 miles south of the north end of the route), just north of McKenzie County Road 53 (22 miles south of the north end of the route), adjacent to Highway 200 west of Killdeer (47 miles south of the north end of the route) and east of Fairfield south of the Knife River (63 miles south of the north end of the route). Pig launchers and/or receivers will also be provided at the south end of the line at the Skunk Hill Station (77 miles south of the north end of station). An additional above ground valve set with piping connections will also be installed (36 miles south of the north end of the line). This will serve as a future mid-line pump station.

Other surface structures will be limited to pipeline markers and rectifier sites, which are part of the cathodic protection system.

A.3 (c) Pipe Size

The December 2009 letter of intent for the project cited a 10-inch pipeline diameter. Due to the strong demand for transportation services, the size and therefore capacity of the proposed pipeline is now 12-inch nominal diameter. The pipe installed will have a nominal wall thickness of 0.250 inches denoted as API Code 5L specification x52 pipeline pipe and will be 0.375 inches for road and water crossings. The maximum allowable operating pressure will be 1440 psig.

The valves to be installed will be 12-inch ANSI 600, flange end by flange end, full port, quarter turn ball valves and 12-inch ANSI 600, flange end by flange end, swing check valves. These valves will be manufactured in accordance with API Standard 6D "API Specification for Steel, Gate, Plug, Ball and Check Valves for Pipeline Service". The maximum allowable operating pressure of the valve will be 1440 pounds of pressure per square inch gauge (psig).

A.3 (d) Approximate Length of Facility

The Project is expected to install approximately 77 miles of pipe. The December 2009 letter of intent for the project cited an 85-mile pipeline length, however a segment originally expected to be installed from south of ND Highway 23 north to a point ND Highway 1806 has been dropped from the project.

A.3 (e) Maximum Design Operating Pressure and Temperature

The maximum allowable operating pressure of the pipe will be 1440 psig. The maximum temperature of the petroleum will be 104°F. However the pipeline will be designed to operate with a peak maximum liquid temperature of 125°F.

A.3 (f) Maximum Design Flow Rate

The design flow rate of the Project as installed will be 60,000 barrels per day.

A.3 (g) The Number and General Location of Pumping Stations

Pumping units will be installed at the north end Highway 23 crude truck station. Connections will be installed for a mid-line pumping station near Killdeer, North Dakota, south of the Little Missouri River crossing. Pumping units may be installed at a midline point in the future when shipped volume warrants.

A.4 TIME SCHEDULE

With over 130 oil drilling rigs currently in operation, the state's oil production is expected to continue to climb. State and county roads are being degraded by high use by crude trucks. Highway safety is also being adversely affected by traffic count. The lack of pipeline transport flexibility may also contribute to steep crude oil price discounts associated with unbalanced crude oil supply and demand. It would benefit all stakeholders to begin construction as soon as possible.

A.4 (a) Certificate of Corridor Compatibility

Corridor Permit Application is being submitted in July 2010 as part of this consolidated Certificate of Corridor Compatibility and Route Application.

A.4.(b) Route Application

Route Permit Application is being submitted in July 2010 as part of this consolidated Certificate of Corridor Compatibility and Route Application.

A.4 (c) Route Permit

Route Permit approval is expected on or before September 15, 2010.

A.4 (d). Construction Start Date

Bridger Pipeline LLC would like to begin construction of the line as soon as possible after the spring nesting season is complete (i.e. July 16, 2010) Construction in third quarter 2010 would to allow the system to begin operation in the first quarter of 2011.

A.4 (e) Construction Complete

Estimated construction completion date is on or before January, 2011.

A.4 (f) In Service Date

Estimated in service date is on or before April 15, 2011.

SECTION B STUDIES

As approved by the Commission on January 27, 2010, the Project is performing its utility site studies using a 1-mile wide corridor (i.e. ½-mile on either side of the expected pipeline route). The study is undertaken to evaluate potential impacts to recreational, environmental and cultural resources which could be impacted by the pipeline operation, or its construction.

Project representatives attended a January 21, 2010 Federal Interagency Coordination Meeting in Bismarck. Contacts from the following Federal and State agencies were in attendance: US Army Corps of Engineers (COE), US Bureau of Reclamation (USBR), US Fish and Wildlife Service (FWS), Federal Highway Administration (USFHA), US National Resource Conservation Service (NRCS) as well as ND State Agencies including the ND State Water Commission and the ND Game and Fish Department (NDGFD). The proposed route was presented to attendees as stakeholders in the permitting process.

Significant observations from this group of stakeholders were offered. These Federal and state officials were (1) encouraged by the corridor being sited on the east side of Killdeer Mountains rather than the west side which avoids a concentrated area of sensitive wildlife and vegetation (2) encouraged by the effort to consolidate the utility into an existing pipeline corridor where possible (3) supportive of the conceptual design for the Little Missouri River crossing and (4) encouraged by the construction schedule slated for after nesting season. Other topics discussed were availability of electrical power from existing distribution points and threshold size for prairie dog town considered as feeding ground for black-footed ferret protected species. The agencies' representatives offered three points of caution (1) golden eagle nests have been spotted at the north end of the proposed corridor in years past, but construction outside of nesting season would address this issue and (2) short term impacts of the Project for whooping cranes migration in fall of year; (3) include potential construction lay-down areas in the field archeological survey. The group offered the names of other stakeholders, including the SW Water Resource District, which are typically interested in receiving advance notice of major pipeline projects and who subsequently were also contacted.

The proposed route corridor has also been provided to the US Forest Service McKenzie County Ranger District which has jurisdiction over the Dakota National Grasslands. The Project is pursuing as its primary, preferred route an option which does not include US Forest Service land. Given the width of the study corridor, several tracts of US Forest Service land fall within ½ mile of the expected pipeline route. Three small parcels of land under the jurisdiction of the US Bureau of Land Management (BLM) are within the corridor. Federal field survey protocols were followed during those portions of the project.

The ND Parks and Recreation Department's North Dakota Natural Heritage Inventory System data has been plotted relative to the proposed pipeline corridor. This database tracks species and ecologically significant habitats for federally listed endangered, threatened, candidate, sensitive, or watch species, State-listed protected species, and critical habitat.

Four instances on the south segment and four instances within the north segment corridor were identified. These items are presented in Figure 2 and Figure 3, respectively. Half of these possible areas of concern involved avian nesting areas, which if confirmed active during the subsequent field surveys, would be addressed by completing construction outside of the nesting season. The remaining four instances involve limited areas of vegetative species that will be

addressed during field studies by routing the pipeline construction corridor around these stands of trees and plants.

Wetlands listed in the National Wetlands Inventory (NWI) maintained by the US Fish and Wildlife Service were plotted against the proposed pipeline corridor. No wetlands were identified within the corridor for the south segment of the proposed pipeline. One small wetland (less than 2 acres) was identified in the northern segment pipeline corridor. The pipeline route was adjusted around the site. The wetland is also denoted in Figure 3.

The water well database maintained by the North Dakota Water Commission was accessed to determine impacts to drinking water sources. While a few stock wells and private water wells exist in the corridor, several routing options exist to avoid impacting these wells during construction. No public water well sources exist within the study corridor.

Attempts were undertaken to obtain information from the prior corridor study in 1997 conducted by Dakota Gasification Company. No major impacts were identified at that time. However, the Class 1 archeological survey is being repeated to incorporate information which may have come to light in the last 13 years and filed with the State Historic Preservation Office. Information was also reviewed from the 1980 and 1985 studies for Northern Border and other pipeline studies.

Topographic maps and aerial photography were reviewed to determine the amount of pedestrian survey as advised by the NDSHPO State Archaeologist. Unplowed regions, landforms such as prominent hills, terraces, and any other water related landform will be field surveyed. After determining the areas for inventory, the proposed corridor was inventoried by walking parallel pedestrian transects 20 meters apart across the Area of Potential Effect (APE) for a distance of 100 feet on either side of the proposed pipeline route, and 150 feet on either side when Federal Lands are involved.

Metcalf Archeological Consultants, Inc. of Bismarck, North Dakota was engaged to review existing site file data maintained by the State Historical Society of North Dakota State Historic Preservation Office (NDSHPO) to determine if any portion of the pipeline route was surveyed previously for cultural resources. Class I and Class III archeological surveys were completed for the entire pipeline corridor. In addition five teleconferences and one face-to-face meeting was held with the ND State Preservation Office to review cultural resource findings. One specific area within the corridor was, as expected, somewhat difficult due to its proximity to the Killdeer Mountains Battlefield site. As discussed in the route permit application, the approach when routing the pipeline was to avoid all significant or potentially significant archeological sites. Five archeological sites were not readily avoided. Additional information or site testing was conducted in consultation with the North Dakota Historic Preservation Office (NDSHPO) when required. All pre-historic sites transected by the route were determined to be not eligible to be included in the National Register of Historical Places. Specific findings are discussed in detail in the Route Application under Tab 3 and in the Cultural Resource Investigation Study report by Metcalf Archeological Consultants, Inc. presented in Tab 4 Appendix 4.A.

Tab 4 Appendix 4.B Mapbook presents aerial photographs and topographic maps of the study corridor and proposed route which denote the location of significant features identified during the corridor study relative to the proposed pipeline corridor. This information is also presented as shapefiles on the enclosed CD-ROM disk in Tab 7 suitable for viewing with ESRI's ArcGIS mapping software.

SECTION C NEED FOR FACILITY

C.1 Describe the need for the facility based on current and projected demand for the product transmitted for the facility including the most recent system studies supporting the analysis of the need.

a. Planned Use and Purpose

Application of horizontal drilling technology and steady and relatively historically high crude oil prices have resulted in a resurgence of oil drilling activity in North Dakota. Unprecedented success has occurred in the Bakken oil formation, resulting in a doubling of oil production in North Dakota in the last three years. A summary of annual crude oil production in the state is presented in Table 1.2, below.

Year	Total Crude Oil Production, Barrels	% Gain over 2006
2006	39.9 million	---
2007	45.1 million	13.0 %
2009	62.8 million	57.4 %
2009	79.7 million	99.7 %

A comparison for the most recent available information (January/February 2009 vs. 2010) shows a year-over-year increase of over 25%.¹

According to the January 22, 2010 issue of Business Week, the State’s forecast for oil production in 2010 was raised, again. “Output may reach 300,000 to 400,000 barrels a day by mid- 2011 and stay at that level for 10 to 15 years,” said Lynn Helms, Director of the North Dakota Mineral Resources Department. The state’s previous estimate was 220,000 to 280,000 barrels per day. If only assuming the predicted average range, North Dakota’s 2011 annual oil production is expected to reach over 128 million barrels.

The purpose of the Project is to provide “midstream” transportation alternatives for the expanding volumes of crude oil produced in North Dakota.

b. Pipeline Capacity is Constrained in Western North Dakota:

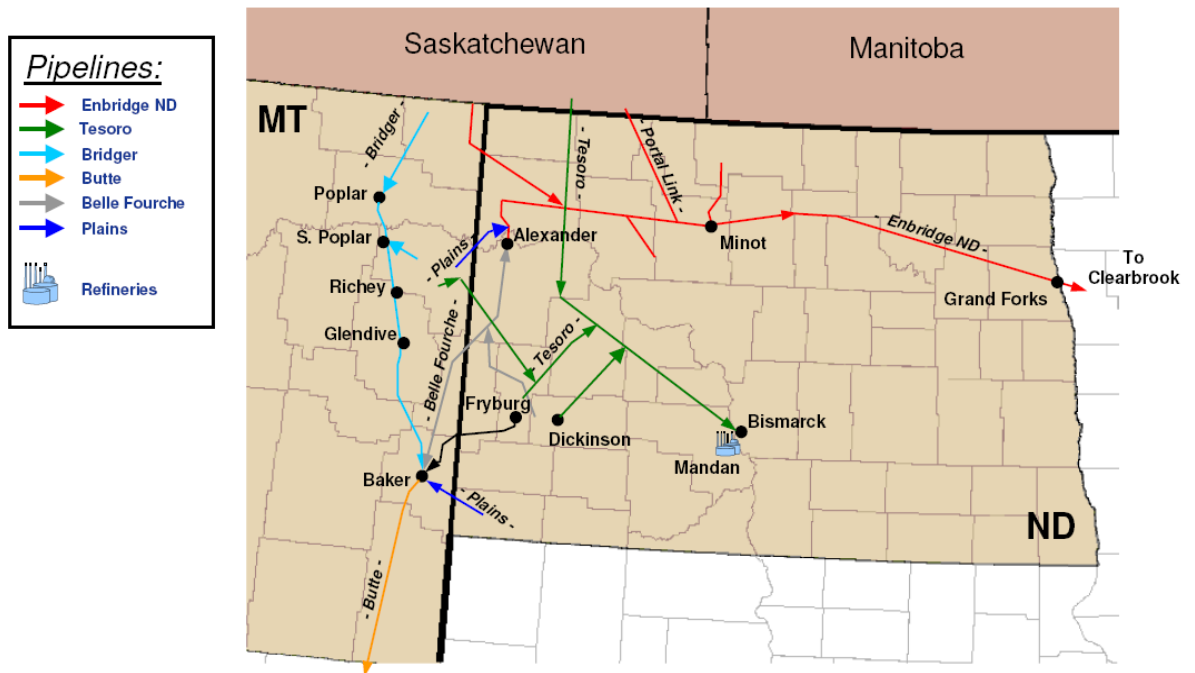
Crude oil produced in North Dakota when shipped by pipeline is destined for one of three market hubs: (1) Tesoro’s Mandan, ND refinery; (2) Guernsey WY interconnection hub; and/or (3) Clearbrook, MN interconnection hub. The crude oil pipeline network servicing the Williston Basin crude oil production fields is presented as Figure 1.C.1

¹ U.S. Department of Energy, EIA webpage statistics, crude oil production by state, Retrieved July 7, 2010

Crude oil into the Guernsey WY interconnection hub has suffered depressed prices relative to value at the Clearbrook, MN interconnection hub since mid-2005. However with the start of operation of TransCanada's Keystone Pipeline on June 30, 2010, significant volumes of Canadian oilsand "syncrude" will bypass this market and be delivered to the mid-continent refining centers in Illinois and eventually to Cushing Oklahoma. Secondary effects will unload and open-up capacity leaving Guernsey, allowing for more North Dakota production to access the mid-continent.

The "geographical market risk" of limited transportation options suffered by oil producers in the rapidly expanding crude oil production in Dunn and Mountrail Counties has caused millions of dollars per year in lost revenue. With constrained export capacity, local production lacks access to alternative markets, making it vulnerable to regional price swings.

Figure 1.C.1
Williston Basin Crude Oil Liquid Pipeline Transportation Network Map



c. Announced Pipeline Projects

Over the past several years, the North Dakota Pipeline Authority has been working with producers and regional pipeline companies to address the issues surrounding the safe transportation of this surge in crude oil volume. The North Dakota Pipeline Authority commissioned and completed a study in 2009 to look at possible "on ramp" access to either or both TransCanada's Keystone (which began operation June 30, 2010) or Keystone XL (proposed start operation in 2013) syncrude trunklines to major mid-

continent and gulf coast crude markets. While the study concluded that the most economical alternate was to build a link north from Stanley into Canada, Quintana Capital Group GP, LTD submitted a letter of intent in June 2010 to the ND Public Service Commission (Case PU-10-218) to pursue construction of a branchline to the proposed Keystone XL pipeline, connecting to it near Baker, MT in Fallon County, Montana. However, the project, slated for initial operations in 2013, may be delayed if environmental opposition to the Keystone XL continues to grow.

Enbridge Pipeline had announced on March 3, 2010 an effort to expand capacity northward. Referred to as Enbridge Phase 7 project, the company will evaluate construction and operation of 115,000 barrels of new pipeline capacity from Beaver Lodge Looping Station through Stanley into an existing portal at Berthold, ND. The company proposes to add pumps and reverse the portal into Steelman to allow producers to ship crude north into Canada, across Manitoba and return via an existing Enbridge connection back into the midcontinent refining market in the United States.

Plains All American Pipeline LP (Plains) filed a letter of intent with the ND Public Service Commission in June 2008 to construct a 6-inch crude oil pipeline in Dunn and Stark Counties. The line was expected to be tied into the company's existing crude oil gathering system to transfer oil into their crude terminal north of Killdeer, ND. The project, assigned case PU-08-424 is an example of a Williston Basin Transition Route. Work on the project was temporarily suspended to allow Plains to redeploy capital assets to another corporate project in the US midcontinent. No report of its status was found in the public domain. Plains also has since purchased Tesoro's Hwy 22 crude terminal adjacent to their Killdeer crude truck station which connects Tesoro's crude gathering system in Dunn County. Even if revived, the relatively small project line size and its location in north Stark County and southern Dunn County will not provide adequate relief to the transportation bottlenecks associated with the recent volume expansion in the state.

d. Remaining Transportation Issues

Even if Enbridge Phase 7 project is constructed in 2012 and Quintana's project to the Keystone XL project occurs in 2013 (and as recently as June 21, 2010, a spokesman from TransCanada announced as of that date, no agreement has been reached with Quintana or any other company wanting to ship domestic crude in its segregated oil sands pipeline system²) and/or others wish to pursue the most feasible "northern" alternative connection into the TransCanada connection, three major gaps in pipeline service remain which would be addressed by this project:

(1) Timeframe

Bridger Pipeline is prepared to begin construction in 2010 and place the line in service in early 2011. All other announced projects are expected to come on-stream in 2013 or later.

² Bismarck Tribune (Bismarck, ND) newspaper article, *Bakken Connector to Keystone Proposed*, June 21, 2010

(2) Williston Basin Transition Route

As depicted in Figure 1, the proposed Bridger 12-inch Crude Pipeline will transit three major oil producing counties in North Dakota, and will be within a few miles of Mountrail County. Its proximity to other crude gathering systems in all four counties provides a pipeline alternative to trucking crude oil to other crude shipping points. Access points to the system announced include

- (a) North truck unloading station at ND Highway 23 18 miles west of New Town, ND
- (b) Interconnections with the multiple proposed gathering system (s) being built on the western side of the Fort Berthold reservation and the existing Arrow pipeline.
- (c) Truck unloading station at ND Highway 200 11 miles west of Killdeer, ND

(3) Multi-Market Access Points

This pipeline will have direct or indirect access to all three crude oil markets currently available in North Dakota (a) Guernsey, Wyoming crude hub (b) Clearbrook Minnesota crude hub and (c) Tesoro Refinery at Mandan, ND. The proposed Bridger 12-inch Crude Pipeline will ship production from three major oil producing counties in North Dakota, and will be within a few miles of Mountrail County. Its proximity to other crude gathering systems in all four counties will provide a pipeline alternative to trucking crude oil to other crude shipping points.

Because of increased distances to market, North Dakota sweet crude generally fetches about 10 percent less than a barrel produced elsewhere and sold on the New York Mercantile Exchange. This gap grew by an additional \$4.161 per barrel in May 2010 during the Tesoro - Mandan Refinery outage. Without adequate flexibility in the pipeline network, this loss of 58,000 barrels per day of crude uptake was the major factor in the loss of \$37.5 million crude value (using 9,013,224 barrels production) in May 2010, relative to the average differential in 2010. A summary of the state's crude oil price and market benchmarks is presented in Table 1.3, below.

Month	Taxable Barrels	90% NYMEX Price	Average ND Price	Differential
January	7,326,490	\$70.32	\$69.50	(\$0.82)
February	7,251,538	\$68.67	\$69.21	\$0.54
March	8,466,539	\$73.06	\$73.48	\$0.42
April	8,470,816	\$76.12	\$75.41	(\$0.71)
May	9,013,224	\$67.07	\$62.91	(\$4.16)

³ Per email correspondence from Justin Kringstad of ND Pipeline Authority, courtesy of ND Tax Department, Received July 13, 2010

e. Applicant’s Project Increases Capacity in Western North Dakota:

The Project will ship 60,000 barrels per day to with connections to three different crude markets. Operation of this pipeline segment will reduce the need for truck transportation by shortening or eliminating the distance for the equivalent of over 300 crude oil tankers from lease to pipeline.

This project is just one of many steps necessary by the pipeline transportation industry to realign the supply patterns of the crude oil producing community and maximize capacity for transportation to consumer centers. A number of alternatives to the Bridger 12-inch Crude Oil Pipeline Project were considered, as discussed in Section C.2; but a dedicated pipeline will provide the most effective and efficient solution for accessing multiple crude oil markets, and opening options to bring oil off the well pad to market.

f. Recent System Studies Supporting the Analysis of the Need.

A copy of the presentation made by the ND Pipeline Authority Director Justin Kringstad in November 2009 at the Northern Energy Conference at Bismarck State College is enclosed in TAB 2 as Appendix 2.A. The presentation outlines both the TransCanada and Enbridge projects described. Their presentation also refers to this "Four Bears" 12-inch Crude Oil Pipeline project, as well as others reportedly under consideration. The North Dakota Industrial Commission coordinated a study of “on-ramp” alternatives to Keystone’s oilsand syncrude transmission pipelines. The Executive Summary from the study, completed in April 2010, is enclosed in TAB 2 as Appendix 2.B. The Applicant outlined the business case and service expected by this "Four Bears Pipeline" 12-inch crude pipeline at the May 2010 Williston Basin Conference in Bismarck. A copy of the slides used in that presentation is enclosed as in TAB 2 as Appendix 2.C.

C.2 Alternatives to the Proposed Facility

A rational and defensible de-bottleneck alternative analysis involves consideration of environmental, engineering, and economic factors in a multi-disciplinary and iterative fashion. Pipeline alternatives being pursued by other companies have been discussed previously in Section C.1.c. The no-action alternative and transportation via rail and truck modes of transportation are outlined in the following sections.

a. No Action Alternative:

The status quo could be allowed to continue, supported by trucking volumes to current truck unloading facilities at the existing Bridger, Tesoro or Enbridge pipeline unloading facilities. However delays in unloading crude trucks, already now from 1 to 3 hours, will increase. Finding qualified cargo tank operators, already a critical issue, will continue to become difficult, not to mention additional wear and tear to county and state road due to high traffic counts. Crude flexibility issues such as the May 2010 loss of an estimated \$37.5 million during the Tesoro - Mandan Refinery outage would also not be addressed.

A “no action” alternative is unacceptable to Bridger and its customers.

b. Trucking Alternative:

While this alternative is currently occurring on a limited basis in order to access higher value markets, there is not sufficient tanker trailer truck capacity to transport 60,000 barrels per day nor the additional production values expected to come on-line. Additional crude truck stations can be constructed to minimize unloading delays, however the trucking alternative significantly overburdens current public road capacity. While trucks are a vital part of the crude gathering and distribution network, pipelines are a safer and more economical alternative for transporting this volume of crude oil over these distances. The reliability of this alternative in northern climates is compromised by periodic restriction in truck traffic due to winter storms and spring road restrictions or other weather related or capacity availability restrictions. On-road transportation safety is especially a concern during winter time icy road conditions. As this alternative is considered infeasible, the economics for this alternative have not been estimated.

c. Rail Alternative:

While three years ago the rail alternative to mid-stream pipeline project was readily dismissed, the ability to permit, construct and operate these facilities in just a year have proved attractive to at least three separate transportation companies.

However the trend is not driven by efficient transportation, but rather the avoidance of the previously mentioned price differentials. The Rocky Mountain region and particularly the Williston Basin markets are negatively impacted. The driving factors behind this price differential are numerous, but most importantly include the limited regional refining capacity (exacerbated by refinery repair and retrofitting activities), the limited export pipeline capacity, near-term increasing crude production within the Rocky Mountain region, longer-term increasing production and importation of Canadian crude.

With typical discounts for North Dakota production approximately 90% that of NYMEX average posted crude prices rising from \$35 to today's \$75 per barrel price or beyond, 10% now represents suitable incentive to seek full value for production despite higher transportation costs.

Figure 1.C.2
Williston Basin NuStar Crude Oil Rail Transship Facilities



NuStar Transportation now offers transship loading points in eight (8) different locations throughout the state. Railing the crude to destination such as St. James not only recovers "full value" of the crude, but also gains a positive light, low sulfur quality differential above the standard price as West Texas intermediate (WTI) basis.

Up to 60,000 barrels per day is being railed by EOG Resources from its facility in Stanley ND to Stroud, OK and sent via a new 17-mile pipeline into the mid-America crude hub in Cushing, OK. On June 24, 2010, Hess Corporation announced its plans for a similar operation with twice the capacity from a proposed terminal in Tioga, ND.

Despite the additional costs associated with rail transportation, other companies are continuing to pursue this option as well. The most recent and largest project of this category, the proposed Hess Corporation Tioga, ND facility was announced over 6 weeks after the Open Season concluded for this Project. The timing suggests Hess Corporation still expects their rail alternative outweighs benefit to participation in this Project, or more likely the fact that the Tioga area is not served by this project.

These large scale rail projects are not economic for "short haul" mid-stream solutions due to the cost of building storage and transship facilities on both ends, and the high cost of labor to load and unload rail cars.

d. Alternative Bridger Pipeline Route:

Bridger identified and evaluated several options for routing this Project. These studies were designed to define a preferred route that achieves Project objectives, is

technologically and economically feasible to construct, and minimizes impacts on landowners and the environment. The key logistical considerations were:

- (1) Starting at the existing Bridger and Belle Fourche Pipeline connections at the Skunk Hill station on the south end
- (2) Ending at a convenient access point along ND Highway 23 approximately 15 miles west of New Town, ND
- (3) Reaching three interconnection points specified by potential pipeline customers near ND Highway 200

The Project generally runs in a north to south direction with a slight southwestern turn. From an overall perspective, alternative routings are best summarized as western options and eastern options.

A more western option was explored early in the Project but was discounted for two reasons: (1) the Federal Agency stakeholders who participated in the January 2010 Interagency Meeting in Bismarck advised us to avoid a more westerly route, especially on the west side of the Killdeer Mountains due to the relatively high concentration of wildlife and protected plant species in that area; (2) the US Forest Service Dakota Prairie Grasslands constitute a major portion of the land west of the proposed corridor. As advised by representatives of the McKenzie Ranger District in February 2010, new US Forest Service (USFS) policies in place prohibit placement of utilities on USFS lands unless all other private land options have been exhausted.

A critical consideration for the Project is the location of the Little Missouri River crossing. A more eastern option was also explored, albeit briefly. The site of the Little Missouri River crossing by the Tesoro Northern Plains 16-inch crude pipeline was evaluated. However this site is over 13 miles east of a more direct route. The Little Missouri River is also significantly wider at that point, also adding to the environmental impact and costs of the Project.

The current corridor is generally the most direct route from the existing pipeline connection to the desired destination given the desire to reroute to the eastern side of the Killdeer Mountains and avoidance of US Forest Service land.

e. Alternative Pipeline Design/Size:

Alternatives were examined with respect to sizing the 12-inch Crude Oil Pipeline Project to efficiently and cost effectively provide 60,000 bpd of crude petroleum annual capacity included 8-inch, 10-inch, 12-inch and 14-inch diameters. The 12-inch design provides the most efficient and cost effective combination of capital cost and pumping horsepower requirements for the required capacity.

The initial work on the Project started with an 8-inch diameter pipeline in September 2009. However based on revised crude petroleum forecasts and discussions with shippers and producers, the Applicant proposed a 10-diameter pipeline in its Letter of Intent filed in December 2009.

The Applicant held an Open Season for the Project beginning on February 27, 2010 with an announced 40,000 barrel per day of capacity. Interest in the service was so strong that the Applicant announced on March 24, 2010 the proposed pipeline size was to be increased to 12-inch diameter bringing the capacity to 60,000 barrels per day and extending the Open Season period by two additional weeks to April 30.

Current commitments for service cannot be met with a smaller diameter pipeline but can be met at the 12-inch nominal size; with additional capacity expansion available in the future with the addition of a mid-line booster station.

A 14-inch nominal pipeline diameter design was also investigated, but its costs are unnecessary to meet current and expected demand.

Key aspects of the economic analysis include:

- The in-service date for the Project is expected to be on or before March 31, 2011.
- The Project operations will be operationally integrated with the Bridger Pipeline transportation and gathering system located in North Dakota.
- The cost of the Bridger 12-inch Crude Oil Pipeline Project in Billings, Dunn and McKenzie Counties is \$29 million.
- The economic life of the Project for this purpose is based on 25-year depreciation; however, the functional life of this pipeline is indefinite following normal maintenance and inspection practices of a Federally regulated interstate pipeline system.
- The Project will reliably operate year-round, round-the-clock, with the exception of planned system down-time for inspection, maintenance or repair purposes or unplanned down-time due to interruptions in receipts or refinery outages and/or operational disruptions caused by regional power outages or other reasons.

f. Statement concerning Deviations from most recent 10-year Plan:

Bridger Pipeline LLC is not currently required to file a 10-year Plan with the North Dakota Public Service Commission. However, the surge in crude oil demand and subsequent price, paired with advances in petroleum production technology in the last 4 years has opened up significant new production in the Bakken Oil Field. Crude oil production has doubled in the last 3 years which is an unexpected but welcomed issue to deal with. This Project addresses the transportation associated with this concern.

SECTION D LOCATION

D.1 Study Area:

The study area and corridor selected can best be summarized in two parts; (1) northern section 37 miles long within an existing pipeline corridor (i.e. Dakota Gasification Company's 14-inch carbon dioxide pipeline Corridor and (2) southern 40 mile across level cropland and prairies is practically the most direct route northeast to southwest between the two connections.

The northern segment of the corridor is generally parallel to Dakota Gasification Company's existing 14-inch carbon dioxide pipeline in Dunn and McKenzie Counties. The ND Public Service Commission issued Certificate No. 73 of Corridor Compatibility to Dakota Gasification Company on December 3, 1997 (PU-593-96-11). The southern half of the line generally follows the most direct route northeast to southwest as practical.

As requested in Bridger's Letter of Intent accepted on January 27, 2010, the Public Service Commission waived the requirement that a study corridor width equal to ten percent of the length of the pipeline be studied and instead allowed a one-mile corridor, subject to deviations imposed by any exclusion or avoidance area or other selection criteria.

D.2 Map of Proposed Corridor:

Since a consolidated application for a Corridor Certificate and a Route Permit is being submitted, the copy of the Billings, Dunn and McKenzie County maps including U.S.G.S. Quad and Aerial Maps of the Project can be found in Tab 4 of the Route Application presented as Appendix 4.B Mapbook. The ND Public Service Commission Exclusion and Avoidance Areas within the corridor are depicted on the aerial photo map relative to the proposed pipeline route.

D.3 Relative Value of Each of the Criteria:

Since this application is a consolidated application for a Corridor Certificate and a Route Permit, these matters are discussed in Sections B.4, B.5 and B.6 of the Route Permit portion of the application (See Tab 3).

D.4 Criteria to be Evaluated:

Since this application is a consolidated application for a Corridor Certificate and a Route Permit, these matters are discussed in Sections B.4, B.5 and B.6 of the Route Permit portion of the application. (See Tab 3)

D.5 General Mitigative Measures to be Taken:

Since this application is a consolidated application for a corridor certificate and a Route Permit, these matters are discussed in Sections B.4, B.5 and B.6 of the Route Permit portion of the application. (See Tab 3)

D.6 Qualifications of Persons Contributing to the Study:

The qualifications of the personnel who contributed to the corridor location study are:

(1) Tad True, Vice President – Bridger Pipeline Company

Degree: Bachelor of Business Administration, University of Notre Dame
Experience: 6 years experience in petroleum transportation field

(2) Tyler Reece, Project Engineer – Bridger Pipeline Company

Degree: Bachelor of Mechanical Engineering, University of Wyoming

Experience: 3 years experience in petroleum transportation field as well as regulatory affairs and compliance

Professional License
Registered EIT: Wyoming

(3) Kathleen Spilman, Managing Director – Keitu Engineers & Consultants, Inc.

Degree: Bachelor of Science - Chemical Engineering, University of North Dakota
Masters in Management, University of Mary

Experience: 29 years experience in petroleum refining and fuels transportation field as well as regulatory affairs and compliance.

Professional License
Registered Professional Engineer: North Dakota, South Dakota, Montana

D.7 Maps:

a. Map of Criteria Within Study Area:

Since a consolidated application for a Corridor Certificate and a Route Permit is being submitted, the copy of the Billings, Dunn and McKenzie County maps including U.S.G.S. Quad and Aerial Maps of the Project can be found in Tab 4 Appendix 4.B of the route application presented in Tab 4 Mapbook. The ND Public Service Commission Exclusion and Avoidance Areas within the corridor are depicted on the aerial photo map relative to the proposed pipeline route.

b. Mylar maps of study area:

Use of Mylar[®] maps for recording and transmitting survey information has been replaced by geographic information systems (GIS) data management technology. A waiver from this requirement is submitted in conjunction with this Corridor Application.

The GIS software in current use by the ND Public Service Commission staff is ESRI's ArcGIS and companion software packages. A CD-ROM containing electronic copies of ArcGIS shapefiles outlining the proposed corridor has been included with this application in lieu of providing Mylar[®] map documentation.