

ND PSC Case No. PU-13-136

Crude Oil Pipeline, McKenzie, Williams, Mountrail Counties

Certificate of Corridor Compatibility Application

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INTRODUCTION

Hiland Crude, LLC (Hiland), submits this Certificate of Corridor Compatibility Application to the North Dakota Public Service Commission (Commission) for an approximately 197-mile-long, 8-inch existing crude oil gathering pipeline system. The pipeline system spans three counties in North Dakota: Williams, McKenzie, and Mountrail and is known collectively as Market Center Pipeline (the Project). The existing pipeline system is currently the only system capable of gathering crude oil from lease sites in Williams, McKenzie, and Mountrail Counties, North Dakota and connecting to transmission pipelines that can transport the crude oil to the refineries located on the Gulf Coast, without ever utilizing truck or rail transport. Hiland proposes to add storage tanks and pumping facilities to the Project, which will convert the gathering pipeline system into a transmission pipeline system. The pipeline system has removed 481 trucks per day from western North Dakota roads, and with the planned storage tanks and pumping facilities, could remove an additional 364 trucks per day.

In accordance with Chapter 49-22 of the North Dakota Century Code, Section 69-06-08-02 of the North Dakota Administrative Code, and the Commission's Energy Conversion and Transmission Facility Siting Guidelines, Hiland provides the following information to support its request for a Certificate of Corridor Compatibility for the Project.

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.

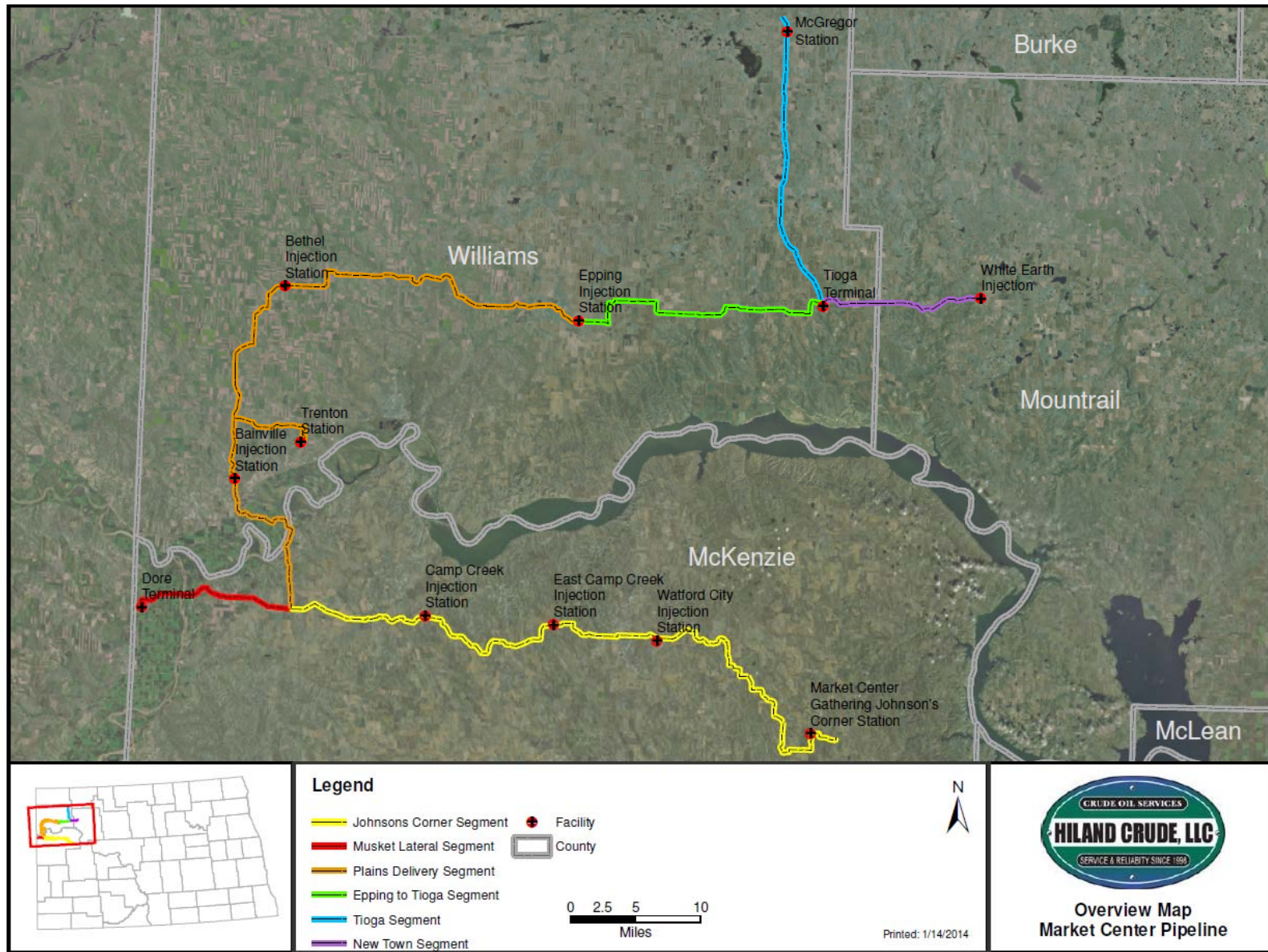
The Project consists of an existing underground gathering pipeline system, constructed over the past three years, that currently gathers crude oil. The Project consists of six segments of 8-inch steel pipeline. The 197-mile-long pipeline was constructed in six segments acting as crude oil gathering lines. Due to the increased volume of crude oil being gathered through the pipelines, it is necessary for Hiland to install storage tanks and pumping stations along the existing pipelines, converting the gathering lines into transmission lines. Future construction consists only of installation of storage tanks, pumping stations, and related above-ground facilities. No new underground pipeline will be installed.

After completion, the Project will act as a pipeline network that touches a significant number of major crude oil rail and pipeline network in northwestern North Dakota. Figure 3.A.1 shows the general location of the Project. The six segments are discussed individually, below.

Tioga Segment: This 23 mile segment originates approximately 14.5 miles northwest of Tioga, North Dakota at McGregor Station and terminates approximately 7.5 miles south of Tioga at Hiland's Tioga Terminal. An interconnection with Enbridge Pipeline's Beaver Lodge Crude Station and a 40,000 barrel tank exist at this site. Hiland proposes to install a 50,000-gallon storage tank at the McGregor Station with truck unloading facilities at the north end of this segment. Booster pumps will be installed at Tioga Terminal.

New Town Delivery Segment: This line originates five miles southwest of Ross, North Dakota at Hiland's White Earth Injection Station and runs 13 miles to the west, also terminating at Hiland's Tioga Terminal, approximately 7.5 miles south of Tioga. Again, an interconnection

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Keitu Engineers & Consultants, Inc.

FIGURE 1.A.1 – General Project Location Map

exists at this site with Enbridge Pipeline's Beaver Lodge Crude Station. Hiland proposes the addition of one storage tank at Hiland's White Earth Injection Station.

Epping to Tioga Segment: This segment moves crude from the Epping Injection Station approximately 2 miles southeast of Epping, North Dakota east to an interconnection with Enbridge Pipeline's Beaver Lodge. This segment is approximately 24 miles long. The addition of a storage tank is proposed at the Epping Injection Station.

Plains Delivery Segment: This 67 mile segment runs from the Epping Injection Station west to the proposed Bethel Injection Station located approximately 12 miles northwest of Williston, North Dakota and then south to the Dore Junction located approximately 8.5 miles northwest of Alexander, North Dakota. This segment interconnects with COLT Rail Terminal approximately one-half mile east of Epping and Savage Rail terminal approximately 3 miles south of Trenton. This segment also includes a lateral line originating approximately 5 miles northwest of Trenton, North Dakota and terminating with an interconnection with Plains' Bakken North Pipeline and Enbridge's pipeline approximately 5 miles northeast Trenton, North Dakota. This segment includes the Bainville Injection station located approximately 16 miles southeast of Bainville, Montana and approximately 1.7 miles west of Trenton, North Dakota. A total of three tanks are proposed to be added to this segment, one each at Trenton Station, Bainville Injection Station, and Bethel Injection Station. Truck unloading facilities are also proposed at each of these sites.

Musket Lateral Segment: This segment originates at the Dore Junction and terminates at Hiland's Dore Terminal near Dore, North Dakota. Their existing Dore Terminal supports both storage tanks as well as a crude oil rail loading facility. This segment is approximately 13 miles in length. The Dore Terminal will eventually become the origin of Hiland's Double H Pipeline.

Johnsons Corner Segment: This segment originates at the Dore Junction and terminates with an interconnection with Bridger Pipeline's Four Bears Pipeline near Johnson's Corner (approximately 17 miles east of Watford City, North Dakota). Hiland currently operates Johnson's Corner crude station here for delivery to Four Bears, consisting of storage tanks, pumps and truck unloading facilities. Capacity on this segment is proposed to be increased with the addition of storage tanks and new pumps at Camp Creek Injection Station (located approximately 6 miles northeast of Alexander, North Dakota), East Camp Creek Injection Station (located 8.5 miles northwest of Watford City, North Dakota), and Watford City Injection Station located 8.6 miles northeast of Watford City, North Dakota. Hiland is also looping a portion of this segment by installing approximately ten miles of gathering pipeline in the same right of way as the existing pipeline. The Johnson's Corner segment is approximately 58 miles in length.

The pipeline system was constructed to allow crude to flow in either direction. This feature allows for greater flexibility and access to more sales points depending on market conditions, and acts as a balancing point allowing the best price for North Dakota crude producers. The total length of the project is 197 miles. The Project is located in Williams, McKenzie, and Mountrail Counties, North Dakota.

The existing pipeline and any future pipeline segments will be buried underground. Storage tanks and pumping facilities will be installed as a part of this Project. Additional surface facilities 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 purpose of the Project will be to transport crude oil from smaller crude gathering systems and truck facilities to existing rail and pipeline network destinations. The Project will enable the transportation of crude oil produced in northwestern North Dakota to multiple shipping points for out of state sale.

The total cost of the Project is estimated to be \$55.3 million.

A.2 DESCRIBE THE TYPE, SOURCE AND FINAL DESTINATION OF THE PRODUCT TO BE TRANSMITTED BY THE PROPOSED FACILITY.

The Hiland Market Center Pipeline will transport crude oil from Williams, McKenzie, and Mountrail Counties to major markets via (1) Enbridge's pipeline using a connection at Beaver Lodge; (2) COLT Rail Hub using a connection near Epping, North Dakota; (3) Plains' origin at Trenton, Savage Rail Station, and Enbridge Trenton Station using connections near Trenton, North Dakota; (4) Musket Rail using a loading station near Dore, North Dakota with a potential connection to Hiland's proposed Double H pipeline at this location; and (5) Bridger's Four Bears pipeline using a connection near Johnson's Corner.

Although Hiland does not explicitly specify the type of crude it will transport, historically Hiland has operated 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.

The Project will have a maximum capacity of 65,000 bbls/day. This capacity, however, assumes one direction of flow with one destination. The Project will have the capability to flow in different directions with different segments providing crude to multiple destinations. This operation will allow shippers to receive the best available price for their crude and can act as a balancing point between the different crude networks touched by this pipeline.

The Project will add (1) additional pipeline shipping capacity in North Dakota; (2) market delivery options on Hiland's crude oil pipeline; and (3) a pipeline transportation alternative to trucking or railing crude oil to other shipping points and markets.

A.3 PROVIDE A DESCRIPTION OF THE SIZE AND DESIGN OF THE PIPELINE FACILITY.

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

The Project right-of-way (ROW) was generally 75 feet wide to allow adequate room for topsoil separation, work equipment and pipe stringing. This ROW consisted of both a permanent easement, 50 feet wide, and temporary workspace, 25 feet wide, which was utilized only during construction and included material staging areas and temporary access roads. The ROW width was required to provide areas for prefabrication of a section of pipeline and storage of topsoil/subsoil material. Hiland used existing public roads to access the ROW, and did not modify existing roads or construct new permanent access roads.

Hiland acquired a 50-foot permanent easement for the Project, as well as for possible future liquid pipeline(s) installation. The permanent easement width was selected based on the following criteria:

- Provision of adequate space and line separation for future line maintenance; and
- Allowance of adequate space to facilitate construction of additional lines, while minimizing potential damage to the existing line(s), if additional lines are installed in the future.

A.3 (b) Estimated Distances Between Surface Structures

The Project's pipeline segments are buried underground. Unlike power transmission lines with towers, only a few surface structures are associated with an underground pipeline system. Mid-route stations associated with this Project include McGregor Station, Tioga Terminal, White Earth Injection Station, Epping Injection Station, Bethel Injection Station, Trenton Station, Bainville Injection Station, Camp Creek Injection Station, Watford Injection Station, East Camp Creek Injection Station, and Johnsons Corner Station. These mid-route stations are proposed to be expanded to include 50,000 gallon tanks and/or pump facilities.

Additional surface facilities installed in the State of North Dakota will be limited to pipeline markers, rectifiers, "pig" launchers and 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.

Block valves were previously installed on either side of the Missouri River and Yellowstone River as required by US Department of Transportation regulations. Above-ground valve sets (block valves) were also installed at each gathering line and pipeline interconnection point. Pipeline interconnections are located with (1) Enbridge at Beaver Lodge; (2) Plains Bakken North northeast of Trenton, North Dakota; and (3) Bridger's Four Bears near Johnson's Corner. Pig launchers and/or receivers will also be installed at the north end of the Project at McGregor Station and the southeast end of the Project at the Johnsons Corner Station.

Surface structures along the route will be approximately 15 to 35 miles apart.

A.3 (c) Pipe Size

The Project involved the installation of 8-inch nominal diameter pipeline with a nominal wall thickness of 0.188 inches denoted as American Petroleum Institute (API) Code 5L specification X52 pipeline pipe. The maximum operating pressure (MOP) is 1440 pounds of pressure per square inch gauge (psig). The maximum temperature of the crude is 120°F which is within design parameters. However, the Project will typically operate between 60°F to 120°F.

Existing valves, as well as any future valves, are 8-inch ANSI 600, flange end by flange end, full port, rising stem gate valves and similar ball valves. These valves were manufactured in accordance with American Petroleum Institute (API) Standard 6D "API Specification for Steel, Gate, Plug, Ball and Check Valves for Pipeline Service." The MOP of the valves is 1440 psig.

The steel pipeline utilized for the Project meets United States Department of Transportation (US DOT) regulations, specifically the design criteria outlined in 49 CFR Subpart 195(C). The Project was constructed per 49 CFR Subpart 195(D), and will be operated and maintained per 49 CFR Subpart 195(F).

A.3 (d) Approximate Length of Facility

The Project required the installation of approximately 197 miles of pipe.

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

The MOP of the pipe is 1440 psig. The maximum temperature of the crude is 120°F which is within design parameters. However, the Project will typically operate at between 60°F to 120°F.

A.3 (f) Maximum Design Flow Rate

The maximum design flow rate of the Project as installed will be 65,000 bbls/day.

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

Pumping equipment is to be installed at mid-route locations including Trenton Terminal, Camp Creek Injection Station, Watford Injection Station, East Camp Creek Injection Station, and Johnsons Corner Station.

A.4 TIME SCHEDULE.

Hiland proposes to develop the Project on the following time schedule:

A.4 (a) Certificate of Corridor Compatibility

The Certificate of Corridor Compatibility Application is being submitted in March 2014 as part of this Consolidated Certificate of Corridor Compatibility and Route Permit Application.

A.4 (b) Route Application

The Route Permit Application is being submitted in March 2014 as part of this Consolidated Certificate of Corridor Compatibility and Route Permit Application.

A.4 (c) ROW Acquisition Date

ROW acquisition is complete.

A.4 (d) Issuance of Certificate of Corridor Compatibility and Route Permit

A Certificate of Corridor Compatibility and a Route Permit for the Project are expected to be issued on or before May 1, 2014.

A.4 (e) Construction Start Date

Construction for the new tankage and booster pumps will begin as soon as all necessary permits are acquired.

A.4 (f) Construction Complete

The addition of storage tanks, pumping stations and associated control features will be completed by May 30, 2014.

A.4 (g) Test Operations

Testing of all new facilities such as tanks and pumping stations will be performed prior to start of operation and is expected to be complete by June 31, 2014.

A.4 (h) In-Service Date

All facilities are expected to be in-service on or before July 1, 2014.

SECTION B **STUDIES**

Section 69-06-05-01(2)(f) of the North Dakota Administrative Code requires that a corridor's width be at least ten percent of the length of the proposed Project (i.e., 20 miles), but not less than one mile or greater than six miles wide unless approved by the Commission. A one- to two-mile-wide field corridor was studied. The accompanying waiver application requests that Hiland's application be approved using a one- to two-mile-wide study corridor, rather than the six-mile-wide corridor required by Section 69-06-05-01(2)(f).

Studies were undertaken to evaluate the Project's potential impacts on recreational, environmental and cultural resources. Specific study findings for the proposed corridor are discussed in detail in the Route Application (see Tab 3) and associated exhibits (see Tab 4). Significant features are depicted in Tab 4 on Figures 4. B.a which are overlaid on an aerial photograph taken June 2013. The route is also presented superimposed on a USGS Topographic map as Figures 4.B.b in Tab 4. 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.

Hiland engaged Keitu Engineers & Consultants, Inc. and Beaver Creek Archaeology, Inc. to perform the environmental and cultural resource siting studies for the Project.

Beaver Creek Archaeology, Inc. performed a Class I archeological file search in January 2013 using a 2-mile-wide study corridor on the entire 197 miles of the pipeline route. A Class III field survey was performed on a 250-foot-wide corridor in May, June, July, and August 2013. The cultural resource location details are not presented here in a publicly available document per request of the North Dakota State Historic Society. Beaver Creek Archaeology has provided a redacted version of the report to be submitted as part of this application. Additional details of these sites will be provided to the North Dakota Public Service Commission staff upon request.

Keitu Engineers & Consultants, Inc. conducted a database search using a 1-mile-wide study corridor for all other exclusion or avoidance criteria, as outlined in the North Dakota Administrative Code, along the pipeline route. Items reviewed included federal and state parks, protected and sensitive plant and animals as well as civil and social structures such as recreational areas and rural homes and farmsteads. In May, June, July, August, and September 2013 a field study was conducted using a 500-foot-wide corridor for botany and a 1-mile wide corridor for wildlife, in accordance with US Fish and Wildlife Service field study protocols.

SECTION C NEED FOR FACILITY

C.1 DESCRIBE THE NEED FOR THE FACILITY BASED ON CURRENT AND PROJECTED DEMAND FOR THE PRODUCT TRANSMITTED BY THE FACILITY, INCLUDING THE MOST RECENT SYSTEM STUDIES SUPPORTING THE ANALYSIS OF THE NEED.

C.1 (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 more than 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 1.1, below.

Year	Total Crude Oil Production, Barrels	% Gain over 2008
2008	62.8 million	---
2009	79.7 million	26.9 %
2010	113.1 million	80.1 %
2011	153.0 million	143.6 %
2012	242.5 million	286.1 %

Oil production in North Dakota is expected to continue to grow until 2025. The purpose of the Project is to provide “midstream” transportation alternatives for the expanding volumes of crude oil produced in North Dakota.

C.1 (b) Pipeline Capacity is Constrained in Western North Dakota

Crude oil produced in North Dakota is shipped to one of three pipeline sale outlets or demand points: (1) Tesoro’s Mandan, North Dakota refinery; (2) the Guernsey, Wyoming interconnection hub; and/or (3) the Clearbrook, Minnesota interconnection hub.

Rail transportation of crude oil increased more than tenfold during the period from April 2011 to April 2013 from approximately 60,000 bbls/day to over 650,000 bbls/day. Shipments are made to East Coast, West Coast and Gulf Coast destinations. Over 70% of all crude oil produced in North Dakota leaves the state by rail.²

¹ U.S. Department of Energy, EIA webpage statistics, crude oil production by state (accessed July 23, 2013).

² N.D. Pipeline Authority, North Dakota Oil and Gas Research Council Presentation, Justin J. Kringstad, May 23, 2013.

Crude oil into the Guernsey, Wyoming interconnection hub has suffered depressed prices relative to value at the Clearbrook, Minnesota interconnection hub since mid-2005. The differential as recently as February 2013 was over \$10 a barrel.³ The “geographical market risk” of limited transportation options suffered by oil producers in the rapidly expanding crude oil production in Williams, McKenzie, 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.

C.1 (c) Statement Concerning Deviations from Most Recent 10-year Plan

This system will be the first of Hiland Crude, LLC facilities to be subject to North Dakota Public Service Commission jurisdiction. No Ten-Year Plan for the company is on file with the Commission.

C.1 (d) Recent System Studies Supporting the Analysis of the Need

An excerpt from “The Williston Basin: Greasing the Gears for Growth in North Dakota” prepared by Bentek Energy, LLC under contract from the North Dakota Pipeline Authority is presented in Tab 2 as Appendix 2.A. The 129-page report released July 25, 2012 points out the fact that oil production from the Williston Basin, which includes the Dakotas and Montana, soared more than 400% in the five years prior to the report. Oil production from the Williston Basin is expected to continue to grow until 2025. In the report, Bentek Energy, LLC also estimates that planned refinery and pipeline projects will not be able to keep up with the increased production. Producers will continue to rely on more expensive transportation options.⁴

Due in large part to production from the Bakken and Three Forks formations, the State of North Dakota is currently the second largest producer of crude oil in the United States. The state produced an all-time high of 941,637 bbls/day in October 2013.⁵

One challenge North Dakota faces is moving crude oil intrastate. The Project touches three counties in North Dakota: McKenzie, Williams, and Mountrail. In each of these counties, over 50% of the production is currently being moved by truck from the wellhead. Williams was the highest with 75% of oil production transported by truck, McKenzie with 70%, and Mountrail with 59%.⁶ Gathering system pipelines are being encouraged throughout the state to limit truck transportation and provide a safer, more efficient solution.

Key slides from the May 23, 2013 presentation of North Dakota Pipeline Authority to the North Dakota Oil & Gas Research Council are presented in Tab 2 as Appendix 2.B.

³ N.D. Pipeline Authority, North Dakota Oil and Gas Research Council Presentation, Justin J. Kringstad, May 23, 2013

⁴ Bentek Energy, LLC, “The Williston Basin: Greasing the Gears for Growth in North Dakota,” July 25, 2012, pp. 35, 47.

⁵ NDIC, “Director’s Cut,” available at: <https://www.dmr.nd.gov/oilgas/directorscut/directorscut-2013-12-13.pdf> (accessed January 7, 2014).

⁶ N.D. Pipeline Authority, North Dakota Oil and Gas Research Council Presentation, Justin J. Kringstad, May 23, 2013

C.2 ALTERNATIVES TO THE PROPOSED FACILITY

Three alternatives to the proposed Project were considered.

C.2 (a) No Action Alternative

The status quo could be allowed to continue, supported by trucking crude oil to current truck unloading facilities at the existing pipeline unloading facilities and/or rail trans-ship facilities. Finding qualified cargo tank operators, already a critical issue, will continue to be difficult. Further, there will be additional wear and tear to county and state road due to high truck traffic. Pipeline transportation (1) reduces truck traffic on the area's road network; (2) provides access to a wider range of markets; and (3) is a more efficient and safer mode of transportation, reducing both costs and the potential for accidents.

C.2 (b) Alternative Pipeline Design/Size

The Project was originally designed and installed as a gathering system for committed producers. North Dakota regulations limit gathering system pipelines to a maximum 8-inch diameter pipe. A tremendous surge in oil production in the area combined with Market Center's strategic location prompted Hiland's management to revisit the decision to operate the system as a gathering system.

Because the pipe portion of the Project is currently operational, the decision to install larger or smaller diameter pipe is moot. However, if the addition of mid-route booster pump stations and tankage does not offer enough additional capacity, Hiland may revisit the possibility to loop some or all line segments. The decision of which line diameter is appropriate will be made at that point in time.

C.2 (c) Alternative Pipeline Route

The decision to modify the Project route is moot since the pipe is currently operational. The locations of new truck unloading facility locations were based on existing infrastructure such as highway access, access to utilities such as electrical connections, and in the case of mid-route booster pumps, hydraulics/fluid mechanics of the system. The proposed equipment additions to the Project will maximize capacity within the limits of the existing pipe.

SECTION D LOCATION

D.1 STUDY AREA

The study area and corridor can best be summarized in six segments.

Tioga Segment: This 21 mile segment originates approximately 14.5 miles northwest of Tioga, North Dakota at McGregor Station and terminates approximately 7.5 miles south of Tioga at the Hiland's Tioga Terminal.

New Town Segment: This line originates near Ross, North Dakota at White Earth Injection Station and runs 13 miles to the west, also terminating at Hiland's Tioga Terminal, approximately 7.5 miles south of Tioga.

Epping to Tioga Segment: This segment originates at the Epping Injection Station approximately 2 miles southeast of Epping, North Dakota and runs east to an interconnection with Enbridge Pipeline's Beaver Lodge. This segment is approximately 24 miles long.

Plains Delivery Segment: This 67 mile segment runs from the Epping Injection Station west to the proposed Bethel Injection Station located approximately 12 miles northwest of Williston, North Dakota and then south to the Dore Junction located approximately 8.5 miles northwest of Alexander, North Dakota. This segment also includes a lateral line originating approximately 5 miles northwest of Trenton, North Dakota and terminating with an interconnection with Plains' Bakken North Pipeline approximately 5 miles northeast Trenton, North Dakota.

Musket Lateral Segment: This segment originates at the Dore Junction and terminates at Hiland's Dore Terminal near Dore, North Dakota. This segment is approximately 13 miles in length.

Johnsons Corner Segment: This segment originates at the Dore Junction and terminates with an interconnection with Bridger Pipeline's Four Bears Pipeline near Johnson's Corner (approximately 17 miles east of Watford City, North Dakota) and Hiland's Johnson's Corner Station. This segment is approximately 58 miles in length.

The Project area is located in unincorporated rural areas of Williams, McKenzie, and Mountrail Counties, North Dakota.

As stated in the accompanying Application for Waiver, Hiland requests the Public Service Commission waive 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 Certificate of Corridor Compatibility and a Route Permit is being submitted, maps (including U.S.G.S. Quad and Aerial Maps) of the proposed corridor and route for the Project can be found in Appendix 4.B of the Route Application (see Tab 4). The location of Exclusion and Avoidance Areas, as defined in Section 69-06-08-02 of the North Dakota Administrative Code, within the corridor are also depicted on the maps provided.

D.3 CRITERIA TO BE EVALUATED

Since this application is part of a consolidated application for a Certificate of Corridor Compatibility 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 RELATIVE VALUE OF EACH OF THE CRITERIA

Since this application is part of a consolidated application for a Certificate of Corridor Compatibility and Route Permit, the relative value of each of the criteria considered is 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 part of a consolidated application for a Certificate of Corridor Compatibility and a Route Permit, the mitigative measures that Hiland proposes to take with respect to the Project are discussed in Sections B.4, B.5 and B.6 of the Route Permit 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) Jim Suttle, Senior Vice President - Hiland Crude, LLC

Degrees: Bachelor of Art — Political Science, Wichita State University
Masters of Philosophy, Houston Baptist University

Experience: 33 years in petroleum industry serving in multiple assignments including pipeline design, operation and construction. Senior Vice President of Hiland Crude, LLC since 2010.

(2) Kathleen Spilman, Managing Director — Keitu Engineers & Consultants, Inc.

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

Experience: 32 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

(3) Heather Patch, Staff Engineer (Chemical) — Keitu Engineers & Consultants, Inc.

Degree: Bachelor of Science - Chemical Engineering, University of North Dakota

Experience: 2 years' experience in regulatory affairs and compliance.

D.7 MAPS

D.7 (a) Map of Criteria Within Study Area

Since a consolidated application for a Certificate of Corridor Compatibility and a Route Permit is being submitted, the maps (including U.S.G.S. Quad and Aerial Maps) of the proposed corridor and route of the Project can be found in Appendix B of the Route Permit portion of the application (see Tab 4). The location of Exclusion and Avoidance Areas, as defined in Section 69-06-08-02 of the North Dakota Administrative Code, within the corridor are also depicted on the maps provided.

D.7 (b) Maps of Study Area

The GIS software in current use by the 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 as Tab 7.