



NORTH DAKOTA PUBLIC SERVICE COMMISSION

**APPLICATION OF
ENBRIDGE PIPELINES (NORTH DAKOTA) LLC
for
CERTIFICATE OF CORRIDOR COMPATIBILITY**

Docket No. PU-13-187

SANDPIPER PIPELINE PROJECT

October 2013

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**APPLICATION FOR CORRIDOR CERTIFICATE
SECTION A
DESCRIPTION OF PROPOSED FACILITY**

A.1. DESCRIBE THE TYPE OF FACILITY ADDRESSED IN THIS APPLICATION. THE DESCRIPTION SHALL INCLUDE THE PURPOSE OF THE FACILITY AND THE TECHNOLOGY TO BE EMPLOYED.

Background Information

In the past seven years, Enbridge Pipelines (North Dakota) LLC¹ (“EPND”) has responded to the market demand by methodically expanding its capabilities to export more than seven times the crude oil volumes originally transported in 2005. This approach has provided shippers of the Bakken and Three Forks Formation a cost effective and timely transportation solution that links the increasingly prolific petroleum producing Bakken and Three Forks regions to premium refinery and marketing hubs throughout the U.S. Midwest and beyond. Through a series of independent, stand alone, yet complementary, expansion projects², EPND incrementally increased its export capacity from 65,000 barrel per day (“bpd”) in 2005 to its current combined pipeline and rail export capacity of 475,000 bpd. (see Figure 1 for an overview map of EPND’s North Dakota Pipeline System.)



¹ EPND is a wholly owned subsidiary of Enbridge Energy Partners, L.P. (Enbridge Partners), which is a Delaware master limited partnership headquartered at 1100 Louisiana, Suite 3300, Houston, Texas 77002 (ph. 713-821-2000; www.enbridgepartners.com).

² In Docket No. PU-05-274, EPND’s Phase 1 and 2 Expansion Projects were approved by the North Dakota Public Service Commission (ND-PSC) and placed in service in 2005 and April 2007 respectively.

In Docket Nos. PU- 06-317; PU-06-330; and PU-06-349, EPND’s Phase 3, 4 and 5 Expansion Projects were approved by the ND-PSC and was fully placed in service on January 2008.

In Docket No. PU-07-791, EPND’s Phase 6 approved by the ND-PSC in July, 2008 and placed in service in January 2010.

In Docket Nos. PU-10-612 and PU-10-613, EPND’s Bakken Expansion Program was approved by the ND-PSC in May 5, 2011 and May 17, 2011 respectively, and as amended on September 6, 2011. Such pipeline and associated facilities were placed in service in December 2012.

In Docket No. PU-11-232, EPND’s Berthold Station Expansion Project was approved by the ND-PSC in May 30, 2012, and was placed in service on March 2013.

With the increasing production volumes coming online in the Bakken and Three Forks Formations³ of the Williston Basin region, EPND is experiencing a rising demand for additional pipeline export capacity on its North Dakota system. Shippers' current and future transportation requirements are escalating to meet the increasing production profiles of these formations in eastern Montana and western North Dakota. This growing demand for additional pipeline capacity is largely driven by demand for access to secure and reliable crude oil supplies produced in the Bakken and Three Forks regions by refineries located in the Midwest, upper Great Lakes region and along the East Coast.

Again, EPND is responding to the rising market demand for additional pipeline export capacity through the development of its newest expansion project referred to as the Sandpiper Pipeline Project ("Sandpiper" or "Project"). This Project expands the export capacity of EPND's existing North Dakota Pipeline System between the existing Beaver Lodge Station and a new terminal facility near Clearbrook, Minnesota, and extends EPND's pipeline system to Superior, Wisconsin. As designed, Sandpiper links shippers to premium refinery markets located in the U.S. Midwest, upper Great Lakes region and along the East Coast via the Enbridge Mainline System and other interconnecting third-party pipelines, as more fully described in this application.

A.1.a Type of Facility

EPND owns and operates a 970-mile existing underground petroleum gathering and mainline pipeline system that extends from eastern Montana through North Dakota to Clearbrook, Minnesota and also extends northward to the U.S.-Canadian International Boundary where EPND's transmission line (Line 26) ties to its Canadian counterpart's pipeline system near the town of Lignite in Burke County, North Dakota. (see Exhibit A.1, EPND System Map.)

In this application, EPND plans to construct, own and operate a new interstate common carrier crude oil pipeline, commercially known as the Sandpiper Pipeline. This new pipeline will be operated as an integral part of EPND's existing pipeline system. This new pipeline will consist of approximately 612 miles of new 24-inch and 30-inch diameter pipe and associated facilities, all being located in North Dakota, Minnesota and Wisconsin. The Sandpiper Pipeline begins at the existing Beaver Lodge Station near Tioga, North Dakota with a new 24-inch diameter pipeline, providing shippers access to 250,000 bpd of additional pipeline capacity and system flexibility from Beaver Lodge into Berthold, North Dakota, and 225,000 bpd of pipeline export capacity from Berthold to the new pump station and terminal facility near Clearbrook, Minnesota. The new 30-inch diameter pipeline begins at EPND's new Clearbrook Station and Terminal Facility and provides shippers' access to 375,000 bpd of export capacity into EPND's affiliated Superior Terminal Facility in Superior, Wisconsin. (see Section A.3 for more information on the facility description and Table 7 for more details on capacity.)

³ All located within the Williston Basin

Of the total mileage, Sandpiper will consist of 299 miles in North Dakota, 299 miles in Minnesota, and 14 miles in Wisconsin (see Figure 2). Approximately 139 miles of the 299 miles in North Dakota will follow and run parallel to existing pipelines or utility corridors, and the remaining 160 miles will involve greenfield areas where paralleling existing pipeline or utility corridors is not possible. The Project also includes the installation of new pump station facilities and tankage at EPND's existing Beaver Lodge, Stanley and Berthold Station sites (see Sections A.3.b.(7)(i)–A.3.b.(7)(iii) for more details on new facilities being installed at each station site and any specific new land requirements). Also, the Project includes the construction of a new greenfield pump station near Lakota, North Dakota (see Section A.3.b.(7)(iv). Additionally, Sandpiper's project scope in Minnesota requires the installation of a new pump station and terminal facility near EPND's existing Clearbrook Meter Station in Clearbrook, Minnesota.



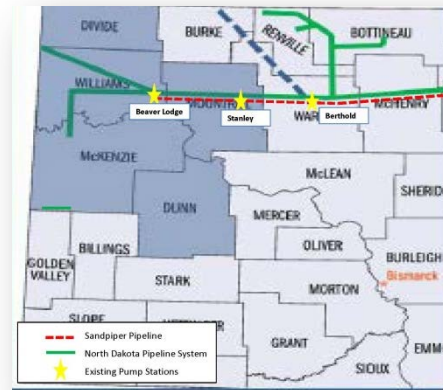
A.1.b Purpose of Proposed Facilities

The purpose of the proposed facilities is to address much of the current demand for pipeline export capacity out of the gathering hubs within the Bakken and Three Forks production areas, as well as to provide the foundation for timely future expansions, to meet the transportation needs of this region. As previously stated, Sandpiper will provide the new pipeline export capacity necessary to move current and forecasted Bakken and Three Forks production volumes from Beaver Lodge Station near Tioga, North Dakota to EPND's affiliated Superior Terminal Facility in Superior, Wisconsin. From Superior, EPND's shippers will have access to refinery markets via EPND's affiliated Enbridge Mainline System and other interconnecting third party pipelines.

The Sandpiper Pipeline Project provides a reliable, efficient, and cost effective solution to meet long-term demand and transportation requirements of EPND's Bakken and Three Forks shippers. It links the prolific producing regions of the Bakken and Three Forks Formation to a variety of premium markets hubs in the Midwest, upper Great Lakes region and the East Coast.

Significantly, Sandpiper is geographically located within the “Big Five” counties⁴, which is the largest producing area of the Williston Basin region (see Figure 3). This gives shippers serving U.S. refineries a competitive advantage through access to abundant, safe, and long-term stable sources of crude oil supplies to meet their feedstock requirements, further enabling them to meet the demands of the petroleum consuming public for refined products. Having access to secure and reliable sources of crude oil supplies helps to reduce reliance on crude oil imports from countries that are often unstable or unfriendly to U.S. interests, and, thus, helps to move North America towards energy security and independence. Additionally, refineries are able to purchase crude oil from production regions proximate to their respective locations, thereby reducing transit time and cost of shipping crude oil supplies north from the Gulf of Mexico. According to the most recent statistics available from the EIA, the petroleum-using public in the Midwest consumes over 4.42 million bpd of refined petroleum products in 2012, which includes gasoline, diesel, jet fuel, asphalt, heating fuel and petrochemical products.⁵

Figure 3



The total estimated cost of the proposed Sandpiper Pipeline Project is approximately \$2.6 billion. The estimated cost for the North Dakota portion of the Project is \$1.3 billion.

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

Type

The Project will transport Bakken and Three Forks production of light sweet domestic crude as defined in its Federal Energy Regulatory Commission (“FERC”) Tariff on Rules and Regulations.

Source

The primary source of supply for the Sandpiper Pipeline Project is production from the Williston Basin spanning Montana, North Dakota, South Dakota and Wyoming. The

⁴ Divide, McKenzie, Williams, Mountrail, Dunn
⁵ Source; EIA energy data at <http://www.eia.gov/>

primary geographical sources for North Dakota sweet crude production are those regions of Montana and North Dakota that comprise the western and central portion of the Williston Basin.

Final Destination

EPND (including the described Project) is an interstate common carrier crude oil pipeline, thus, the final destination of the crude oil volumes will be based on the shippers' month to month nominations. These supply volumes will have the ability to reach a wide number of refineries and marketing hubs through interconnecting facilities at:

- EPND's existing Berthold Station & Rail Terminal Facility for further transportation to market by rail or by interstate common carrier pipeline via EPND's existing North Dakota System (Line 26, Line 82 or Line 81); and
- EPND's existing Clearbrook meter station, located at its affiliated Enbridge Clearbrook Station and Terminal Facility, where barrels are delivered to Minnesota Pipe Line.
- EPND's affiliated Superior Terminal Facility in Douglas County, Wisconsin for further transportation by interstate common carrier pipeline via EPND's affiliated Enbridge Mainline System and other interconnecting third-party pipelines, as described in more detail in Section C.1.

A.3 SIZE AND DESIGN:

A.3.a Electric Facility

Not Applicable.

A.3.b The proposed size and design and any alternative size or design that was considered, including:

This new pipeline will consist of approximately 612 miles of new 24-inch and 30-inch diameter pipe and associated facilities, all being located in North Dakota, Minnesota and Wisconsin. In North Dakota, EPND plans to install 299 miles of new 24-inch diameter pipeline. (See Exhibit A.2 for an overview of map of the Project.)

A.3.b.(1) Width of the Right of Way

In North Dakota, EPND plans to install the new 24-inch diameter pipeline parallel to existing pipelines and utility corridors to the extent practicable. The new pipeline route will also include greenfield areas and minor route deviations to avoid specific areas such as encroachments near the existing pipeline, densely populated areas, or special land and/or environmental features identified thus far in the routing process.

Based on the location of the new 24-inch diameter pipeline, the typical construction workspace will be 120 feet in upland areas and 95 feet in wetland areas. To the extent practicable, EPND plans to co-locate its new 24-inch diameter pipeline within the existing pipeline right-of-way of its North Dakota Pipeline System. Where Sandpiper is co-located with the North Dakota Pipeline System, no new permanent right-of-way will be needed. However, new permanent right-of-way will be required for all other areas along the new pipeline route where Sandpiper parallels third-party pipelines, utility corridors or has greenfield pipeline segments or route deviations.

Described below is the construction workspace and new permanent right-of-way requirements for the new 24-inch diameter pipeline in North Dakota.

Co-located and Parallel to EPND’s existing North Dakota Pipeline System

EPND will co-locate the new 24-inch pipeline, between Beaver Lodge Station and Grand Forks, North Dakota, parallel to EPND’s Line 81, Line 82 and Line 87 for approximately 62 total miles. Where co-located, the centerline of the new pipeline will be located within EPND’s existing pipeline right-of-way and have a 40-foot offset or buffer zone from EPND’s existing pipeline, as shown on Exhibits B.1 and B.2. This buffer or offset zone provides for the safe construction, inspection, maintenance and operation of the new pipeline. No new permanent right-of-way will be required where the new pipeline is co-located within EPND’s existing pipeline right-of-way. Shown on Table 1 below is a breakdown of the construction workspace requirements for these locations. Also enclosed as Exhibits B.1 and B.2 are the typical configuration drawings, which provide a pictorial overview of the construction footprint described on Table 1.

Table 1 Co-located and Parallel to EPND’s Existing North Dakota Pipeline System		
Construction Workspace		
Land Type	Typical Construction Footprint	Extra Temporary Work Space at Crossings
Upland	120 ft.	Up to 20,000 sq. ft.
Wetland	95 ft.	Up to 20,000 sq. ft.

Parallel to third-party pipelines and small utility corridors:

Between Beaver Lodge Station and Grand Forks, North Dakota, sections of the new pipeline will follow third-party pipelines and small utility corridors for approximately 77 total miles. EPND plans to acquire a 50-foot wide new permanent right-of-way, which will provide a 25-foot buffer or offset zone on either side of the newly installed pipe. This

buffer or offset zone allows the safe construction, inspection, maintenance and operation of the new pipeline, and protects it from future encroachments. Shown on Table 2 below is a breakdown of the construction workspace and permanent right-of-way requirements for these locations parallel to third-party pipelines and utility corridors. Also enclosed as Exhibits B.3 and B.4 are the typical configuration drawings, which provide a pictorial overview of the land requirements described on Table 2.

Table 2 Parallel to Third-Party Pipelines and Utility Corridors				
	Construction Workspace			Permanent Right-of-Way
Land Type	Typical Construction Footprint	Typical Temporary Work Space	Extra Temporary Work Space at Crossings	New ROW
Upland	120 ft.	70 ft.	Up to 20,000 sq. ft.	50 ft.
Wetland	95 ft.	45 ft.	Up to 20,000 sq. ft.	50 ft.

Greenfield Pipeline Areas

The new pipeline route, between Beaver Lodge Station and Grand Forks, North Dakota, includes sections where the new pipeline traverses greenfield areas for approximately 160 total miles. Along these greenfield sections, EPND plans to acquire a 50-foot wide new permanent right-of-way, which provides a 25-foot buffer or offset zone on either side of the newly installed pipe. This buffer or offset zone allows the safe construction, inspection, maintenance and operation of the new pipeline, and protects it from future encroachments. Shown on Table 3 below is a breakdown of the construction workspace and permanent right-of-way requirements for the greenfield pipeline sections along the pipeline route. Also enclosed as Exhibits B.5 and B.6 are the typical configuration drawings, which provide a pictorial overview of the land requirements described on Table 3.

Table 3 Greenfield Pipeline Sections along New Pipeline Route					
	Construction Workspace				Permanent Right-of-Way
Land Type	Typical Construction Footprint	Typical Temporary Work Space		Extra Temporary Work Space at Crossings	New ROW
		Non-working Side	Working Side		
Upland	120 ft.	15 ft.	55 ft.	Up to 20,000 sq. ft.	50 ft.
Wetland	95 ft.	15 ft.	30 ft.	Up to 20,000 sq. ft.	50 ft.

For additional information regarding the right-of-way requirements, see Section B.4.d.(9) of the Route Permit Application, which is being filed as part of this combined application.

A.3.b.(2) Estimated Distances Between Surface Structures

Shown on Table 4 below are the mileage distances between the above ground surface structures associated with the Sandpiper Pipeline Project in North Dakota.

Table 4 Distance Between Surface Structures		
From	To	Mileage
Beaver Lodge Station	Stanley Station	28.9
Stanley Station	Berthold Station	28.1
Berthold Station	Lakota Station	172.6
Lakota Station	Clearbrook, MN Station	*146.4

* 68.7 miles of which are located in North Dakota

A.3.b.(3) Pipe Size

Shown on Table 5 are the pipeline specifications for the Project.

Table 5 Pipeline Specifications		
Explanation	Cross Country Pipe:	Crossing Pipe
Diameter	24-inch outside diameter 24" NPS	24-inch outside diameter 24" NPS
Wall thickness	0.375-inch wall thickness minimum	0.438 - 0.500-inch wall thickness minimum
Pipe	X70 Steel pipe manufactured according to American Petroleum Institute (API) Specifications 5L PS2 ERW	X70 Steel pipe manufactured according to American Petroleum Institute (API) Specifications 5L PS2 ERW
Coating	Fusion Bond Epoxy	Fusion Bond Epoxy / ARO
Specified Minimum Pipe Yield Pressure for 24-inch wall thickness (72% of yield)	1480 psig	1480 psig
Applicable Design Codes	49 CFR Part 195 and applicable national technical standards incorporated by reference.	49 CFR Part 195 and applicable national technical standards incorporated by reference.

A.3.b.(4) Approximate Length of Facility

As previously stated, the Sandpiper Pipeline Project will consist of approximately 612 miles of new 24-inch and 30-inch diameter pipelines and associated facilities, all being located in North Dakota, Minnesota and Wisconsin. Table 6 shows the length of the new 24-inch and 30-inch pipeline by state. (See overview map in Exhibit A.2.)

Table 6 Length of Sandpiper by State			
State	Miles of Pipe	Pipe Diameter	County
North Dakota	299	24-inch	Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, Grand Forks
Minnesota	299	24-inch and 30-inch	Polk, Red Lake, Clearwater, Hubbard, Cass, Crow Wing, Aitkin, and Carlton
Wisconsin	14	30-inch	Douglas

A.3.b.(5) Maximum Design Operating Pressure and Temperature

The design pressure for the 24-inch diameter pipeline is 1480 psig; normal operating pressures are anticipated to be less than 1480 psig. Operating temperatures will range from 41° to 65° F.

A.3.b.(6) Maximum Design Flow Rate

The maximum design flow rate for the new pipeline capacity is:

- 456,000 bpd from Beaver Lodge to Berthold
- 406,000 bpd from Berthold to Clearbrook

For more details, see Table 7 below.

A.3.b.(6)(i) Design and Annual Capacity

Generally, crude oil pipelines are designed at a specified capacity for a known commodity. Most crude oil pipelines transport a variety of liquids. The change in fluid characteristics (density, viscosity, etc.) of the transported liquids will affect the capacity of the pipeline. Liquids can also be batched in a pipeline in a repeatable sequence. Among other factors, the 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 and pumping facilities, at its current or proposed design state 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 capacity and operating conditions. These operating conditions include scheduled and unscheduled maintenance, normal operating conditions and crude supply rateability. Annual Capacity of a pipeline is typically 90 percent of Design Capacity.

Table 7			
Annual Capacity and Design			
Capacity Levels	Explanation	Pipeline Capacity from Beaver Lodge to Berthold	Pipeline Capacity from Berthold to Clearbrook, MN
Ultimate Design Capacity	Maximum economic expansion capacity of individual pipeline. Requires additional pumping horsepower over current design to meet this capacity	456,000	406,000
Ultimate Annual Capacity	Maximum economic expansion capacity of individual pipeline that is sustainable on an average rate per day over a year	410,000	365,000
Initial Design Capacity	Theoretical capacity	278,000	250,000
Initial Annual Capacity (90%)	Average sustainable rate average barrels per day over a year (90% of Design Capacity)	250,000	225,000

A.3.b.(7) The Requirement for and General Location of any New Associated Facilities

General Location of Pipeline: See Exhibit A.2 for general overview map of the Sandpiper Pipeline Project.

A.3.b.(7)(i) General Location of the Proposed Pump Stations and Terminals

Existing Beaver Lodge Pump Station and Terminal

Location

10351 60th Street NW
Tioga, North Dakota 58852

Legal Description

600' x 600' tract and Outlot 2 in SE ¼ of SW ¼ and SW ¼ of SE ¼ Section 32, Township 156 North, Range 95 West, Williams County, North Dakota.

Lot 1 of NE ¼ of the NE ¼ of Section 5, Township 155 North, Range 95 West, Williams County, North Dakota

Sublot 2 of SE ¼ of SW ¼ of Section 32, Township 156 North, Range 95 West, Williams County, North Dakota

New Facilities on Existing Property at Beaver Lodge Station

Existing Property North of CR8

- 1 New 400 HP transfer pump with 450 HP VFD
- Expand existing Electrical Services Building

Existing Property South of CR8

- Connect to existing Tank Fill/Transfer Manifold
- Expand Tank Suction Manifold
- 2 new 750 HP Booster Pumps with 1000 HP Variable Frequency Drives
- 2 New Leak Detection Meters
- New Pump Station Building
- 2 new 3500 HP Mainline Pump Assemblies with 4000 HP Variable Frequency Drives
- 2 New Electrical Services Buildings
- 2 New Electrical Transformers
- 1 New Nominal Pipe Size ("NPS") 24 Pig Launcher
- 1 New 5000 gallon Underground Sump Tank
- Interconnecting Station Pipe & Valves
- New Cold Storage Building
- Firewater pond

- All civil work required to prepare station site for proposed facilities.

Tankage

- 2 new 150,000 BBL Breakout and Storage Tanks

New Facilities on New Land at Beaver Lodge Station

Location

South of County Road 8 (60th Street NW) near 103rd Avenue NW, Tioga, North Dakota

Legal Description

SE ¼ of the NE ¼ of Section 5, Township 155 North, Range 95 West

Facilities

- Firewater System Pump Building
- Electrical Switchyard
- All civil work required to prepare the station site for proposed facilities.

Work by Others

- Electrical Substation

Land Requirements

EPND has purchased 40 acres of land located adjacent to the existing Beaver Lodge Station and Terminal site (see Exhibit C.1). The new 40-acre tract of land is located directly south of County Road 8 in Section 5, Township 155 North, Range 95 West, Williams County, North Dakota. The new 40 acres tract of land will be sited and approved as part of this application.

The existing Beaver Lodge Station consists of approximately 98 acres, all of which EPND owns in fee. Of the 98 acres, 29 acres were sited and approved by the North Dakota Public Service Commission (“ND-PSC”) in Docket No. PU-06-317 on August 23, 2006. Approximately 69 acres has been previously sited and approved by the ND-PSC on May 18, 2011 in Docket No. PU-10-613.

Plot Plan, Topographical, and Aerial Maps of Proposed Stations and Terminals

Maps are enclosed herewith as Exhibit C.1.

A.3.b.(7)(ii) Location of the Proposed Pump Stations and Terminals

Existing Stanley Pump Station and Terminal

Location

6150 Highway 8
Stanley, North Dakota 58784

Legal Description

The existing Stanley Pump Station and Terminal lies on 40.14 acres of land owned by EPND and located in the NW ¼ of the SW ¼ of Section 27, Township 156 North, Range 91 West, Mountrail County, North Dakota

New Facilities on Existing Property at Stanley Station

- New Suction Manifold
- 3 New 1250 HP Injection Pumps with 1500 HP Variable Frequency Drives
- 1 New 4000 Gallon Underground Sump Tank
- 2 New Leak Detection Meters
- 1 New Injection Valve set
- 1 New Electrical Services Building
- 1 New 4160V Arc-resistant Switch Gear
- 1 New Electrical Transformer
- Interconnecting pipe & valves
- Tank Fire Foam Building

Tankage

- 1 New 80,000 BBL Breakout and Storage Tank
- 1 New 55,000 BBL Breakout and Storage Tank

Other Work

- All civil work required to prepare station site for proposed station facilities

Land Requirements

The existing Stanley Station consists of approximately 40 acres, all of which EPND owns in fee. The 40 acres was previously sited and approved the ND- PSC on August 23, 2006 in Docket No. PU-06-317.

Acquire New Land Adjacent to existing Stanley Station

Location

Adjacent to the existing Stanley Station on the east side between Highway 8 and 80th Avenue NW

Legal Description

Outlot 1 of the E ½ of the SW ¼ of Section 27, Township 156 North, Range 91 West, Mountrail County, North Dakota

Land Requirements

EPND has purchased approximately 21 acres of land directly East of Stanley Station for future use. The tract of land is located in Outlot 1 of the E ½ of the SW ¼ of Section 27, Township 156 North, Range 91 West, Mountrail County, North Dakota. The new acreage will be sited and approved as part of this application.

New Facilities on newly acquired land at new Stanley Station site

Firewater Protection System including firewater pond and firewater pump building

Plot Plan, Topographical, and Aerial Maps of Proposed Stations and Terminals
Maps are enclosed herewith as Exhibit C.2.

A.3.b.(7)(iii) Location of the Proposed Pump Stations and Terminals:

Existing Berthold Pump Station and Terminal

Location

8501 296th NW
Berthold, North Dakota 58718

Legal Description

Berthold Classic Station Site – NE ¼ of Section 20, Township 156 North, Range 86 West and W ½ of NW ¼ of Section 21, Township 156 North, Range 86 West, Ward County, North Dakota

Berthold West Station Site – NE ¼ of Section 20, Township 156 North, Range 86 West, Less Outlots 1 and 3, less portion described in Book “192 of Deeds”, page 308 and Less portion described in Book “161 of Deeds”, page 629

New Facilities at Berthold West Site

- Common Suction/Fill Manifold
- Relief Manifold
- 2 New Pipeline Stripping Leak Detection Meters
- Connection to Existing Tank Fill Manifold
- Connection to Existing Suction Manifold
- Connection to Existing Tank Suction Manifold
- 2 New 650 HP Booster Pumps with 750 HP Variable Frequency Drives

- 2 New Pipeline Injection Leak Detection Meters
- 2 New Electrical Services Buildings
- 1 New 4000 Gallon Underground Sump Tank
- Interconnecting Station Pipe & Valves
- 1 New NPS 24 Pig Receiver
- 1 New NPS 24 Pig Launcher
- 3 new 3500 HP Mainline Pump Assemblies with 4000 HP Variable Frequency

Drives

- 1 New Electrical Transformer
- Electrical Switchyard
- 1 New 5000 Gallon Underground Sump Tank
- All civil work required to prepare station site for proposed station facilities.

Tankage

- 1 New 300,000 BBL Breakout and Storage Tank

New Facilities at Berthold Classic Site

- New Maintenance Building
- All civil work required to prepare station site for proposed station facilities.

Land Requirements

All work will be performed within the existing Berthold Classic and Berthold West Station sites. The Berthold Classic Station site, consisting of 106 acres, was previously sited and approved by the ND-PSC on August 4, 2010 in Docket No. PU-10-130. The Berthold West Station site, consisting of 92 acres, was sited and approved by the ND-PSC on May 30, 2012 in Docket No. PU-11-232.

Plot Plan, Topographical, and Aerial Maps of Proposed Stations and Terminals

Maps are enclosed herewith as Exhibit C.3.

A.3.b.(7)(iv) Location of New Greenfield Pump Station and Terminal

New Lakota Pump Station

Location

South of 42nd Street NE between 104th and 105th Avenue NE

Legal Description

The proposed Lakota Station is located in the E ½ of the NW ¼ of Section 4, Township 152 North, Range 60 West, in Nelson County, North Dakota

New Facilities on newly acquired land at new Lakota Station Site

- 1 New NPS 24 Pig Receiver
- 1 New NPS 24 Pig Launcher
- 2 New Leak Detection Meters
- 3 New 3500 HP Mainline Pump Assemblies and 4000 HP Variable Frequency Drives
- 1 New Pump Shelter
- 1 New Electrical Service Building
- 1 Electrical Switchyard
- 1 New Utility and Maintenance Building
- 1 New Storage Building
- Interconnecting Station Pipe & Valves
- New 5000 Gallon Underground Sump Tank
- 1 New Electrical Transformer
- All civil work required to prepare station site for proposed station facilities.

Work by Others

Electrical Substation

New Land Requirements at New Lakota Station Site

EPND has secured an option to purchase approximately 46 acres of land located on the south side of County Road 19, approximately 1 mile south of Lakota, ND. The new 46 acres of land will be sited and approved as part of this application.

Plot Plan, Topographical, and Aerial Maps of Proposed Stations and Terminals

Maps are enclosed herewith as Exhibit C.4.

A.3.b.(8) Alternative Pipeline Design/Size

Based on the crude petroleum forecast and discussions with shippers and producers, EPND determined that the annual capacity as defined below, provides the most efficient and flexible, long-term transportation solution necessary to meet the near-term and future take-away requirements of the Bakken and Three Forks regions.

- 250,000 bpd from Beaver Lodge Station to Berthold Station;
- 225,000 bpd from ex-Berthold to a new station and terminal facility in Clearbrook, Minnesota; and
- 375,000 bpd from ex-Clearbrook to EPND's affiliated Superior Terminal Facility in Superior, Wisconsin.

Such design also enables EPND to further expand its pipeline capacity through the installation of new pumping units should the market demand require additional capacity in the future (see Table 7 for ultimate design capacity.)

EPND also examined the efficiencies of sizing this Project with 16-inch or 20-inch diameter pipe to meet the same annual capacity requirements. It was determined that the smaller diameter pipe was less efficient, would require more energy to be expended to meet the same transportation requirements, and would require installation of more pipeline and related facilities in the future to expand its capacity.

Therefore, EPND concluded that the engineering design of the combined 24-inch and 30-inch diameter pipe and related facilities as defined in this Application, provides the most efficient and cost-effective use of added capital costs. As designed, it meets the current and future transportation requirements of the Bakken and Three Forks region, while also meeting the state's policies for energy conservation in the most environmentally responsible manner.

A.4 TIME SCHEDULE:

A.4.a Certificate of Corridor Compatibility

EPND respectfully requests that the ND-PSC issue a Certificate of Corridor Compatibility for the Project by March 2014.

A.4.b Route Permit Application

EPND's Route Permit Application was submitted by EPND in October 2013 concurrent with this consolidated Application for a Certificate of Corridor Compatibility and Route Permit. EPND respectfully requests that the ND-PSC issue a route permit for the Project by March 2014.

A.4.c Completing Right-of-Way Acquisition

EPND has contacted all of its affected landowners for permission to enter their respective properties to perform civil, cultural and biological surveys for the Sandpiper Pipeline Project. To date, EPND has received approval from 96% of its landowners.

EPND has begun its landowner negotiations for acquisition of right-of-way easement rights. As stated earlier, EPND has purchased in fee, certain tracts of land needed for its station facilities at Beaver Lodge and Stanley, and has secured an option agreement for the tract of land needed for the new Lakota Pump Station in Nelson County, North Dakota.

A.4.d Construction Start Date

Proposed commencement of construction is immediately upon receipt of appropriate approvals. EPND plans to first commence its construction work activities on those facilities which have the longest lead time to complete. Civil work activities are scheduled to commence in May 2014. Such work will begin at existing station sites for the construction of new tanks and pumping stations. EPND plans to commence its construction of the new pipeline and its related facilities on or before September/October 2014.

A.4.e Construction Complete

Estimated construction completion date is the First Quarter 2016.

A.4.f Testing Operations

The estimated testing and commissioning of the new pipeline and associated facilities is the First Quarter 2016.

A.4g Commencing Operations

Estimated in-service date is the First Quarter 2016.

APPLICATION FOR CORRIDOR CERTIFICATE
SECTION B
STUDIES

In North Dakota, the Project involves the construction of approximately 299 miles of new 24-inch-diameter pipeline, including the installation of new station facilities to upgrade, and expand three of EPND's existing station sites at Beaver Lodge, Stanley, and Berthold, as well as the construction of one new greenfield pump station near Lakota, North Dakota (referred to as the "Lakota" Station). The analysis of the Project's merits, with regard to location are discussed throughout the Application, more specifically in Sections C and D of the Application for a Certificate of Corridor Compatibility, and in Section B of the Application for a Route Permit.

EPND defined its study area as a 2-mile-wide corridor centered on the pipeline and on areas associated with facility expansion that have not been previously sited by the ND-PSC (see Section D.1 for a more detailed description of environmental survey corridor). The 2-mile wide study area includes land around the new Lakota facility, a new 21 acre parcel located adjacent to the Stanley Station and a new 40-acre parcel located adjacent to the Beaver Lodge station. The existing Berthold Pump Station and Terminal has been previously sited; therefore, the 2-mile wide study area in this location is associated with the proposed pipeline and not the facility boundaries.

EPND consulted with multiple federal, state, and local agencies to identify environmental resources within the 2-mile wide study area and along the proposed route, as well as to determine what, if any, environmental studies or assessments would be required for the Project.

Summaries of these consultations and the field surveys conducted are included in this section of this Certificate of Corridor Compatibility application. Additional details regarding agency consultations and field surveys as they relate to Exclusion Areas, Avoidance Areas, and Selection Criteria, as well as specific impacts and mitigation measures are included in Section B.6 of the Route Permit Application. Documentation of agency consultations is included in Exhibit H.

EPND performed cultural, wetland, and biological surveys based on the proposed pipeline route and environmental survey corridor as described in Section D of this Application. At the time of this filing, EPND has completed approximately 97 percent of its field surveys. This application discusses field data that has been acquired through September 14, 2013. The remaining field survey work will continue through the 2013 field season with some field survey work being completed by Summer 2014. All applicable permits specified on the Table 21 of the Application for a Route Permit, including the related supporting documentation, will be submitted as a supplemental filing to this application.

B.1 CULTURAL RESOURCE INVESTIGATIONS

B.1.a State Historical Society of North Dakota (“State Historic Preservation Office or NDSHPO”)

The State Historical Society of North Dakota (“SHSND”) is the agency responsible for protecting historic properties in North Dakota. Within the Historic Preservation District (“HDP”) of the SHSND, the North Dakota State Historic Preservation Office (“NDSHPO”) reviews federally-proposed, licensed and/or funded projects, evaluates cultural resources identified during preconstruction surveys, reviews protection, preservation, and mitigation measures proposed and implements the permitting process. Further, the HPD is responsible for preservation and interpretation of antiquities that may be impacted by non-federal projects within the state. North Dakota Century Code (“NDCC”) Chapter 55-03 outlines the state permitting process for cultural resource investigations.

EPND engaged the NDSHPO regarding archaeological site and historic structure investigations for the Project. EPND contacted the NDSHPO in March 2013 to introduce the Project and provide preliminary information. On April 9, 2013, EPND met with the NDSHPO to discuss the use of a statistically-based Geographic Information Systems (“GIS”) site predictive model that can be used to provide information to perform field surveys. The NDSHPO communicated at this meeting that they were supportive of EPND’s use of this model. The goal of the predictive model is to focus field surveys on areas most likely to contain historic properties, and eliminate or modify survey methods for very low potential sites. EPND also provided information regarding proposed field methods, investigation schedule, and field logistics concerns.

Archaeological field investigations for the Project commenced in May 2013. In July 2013, EPND met with the NDSHPO to discuss survey progress and the application of the predictive model. EPND also presented plans to target specific areas in the environmental survey corridor.

Upon completion, EPND will submit its cultural resource investigation reports to the NDSHPO for its review and concurrence. EPND will continue to consult with the agency regarding cultural resources site evaluations and mitigation.

B.1.a.(1) Cultural Resource Investigations

EPND reviewed existing file data maintained by the NDSHPO to determine if any portion of the environmental survey corridor has been surveyed previously for cultural resources. (See Section D.1 of this Application for more information on the width of the environmental survey corridor.) Approximately 25 previous cultural resources inventories were completed over the last 30 years which covered approximately one-fourth of the current environmental survey corridor. EPND determined the previous survey coverage was insufficient, and/or the inventories were not adequate according to current standards to cover the Project. However, since 2006, EPND has conducted six cultural

resources surveys within or adjacent to the environmental survey corridor, as listed in Table 8.

TABLE 8			
Cultural Resources Reports on file with NDSHPO Related to the Sandpiper Pipeline Survey Corridor			
Author	Report Title	Date	Manuscript Number
D. Klinner, and J. Morrison/ KLJ	Enbridge Pipelines (North Dakota) LLC, Phase 4 Pipeline Expansion Project Pumping Stations: A Class III Cultural Resource Inventory, Grand Forks, McHenry, Mountrail, and Ramsey Counties, North Dakota	2006	9855
D. Klinner, J. Harty, and M. Shropshire/ KLJ	Beaver Lodge to Berthold Pipeline: A Class III Cultural Resource Inventory, Mountrail, Ward, and Williams Counties, North Dakota	2010	11686
M. Shropshire, D. Klinner, and J. Harty/ KLJ	Testing of Site 32MN844, Addendum to the Beaver Lodge to Berthold Pipeline: Additional Class III Cultural Resource Inventory and Limited Site Testing in Mountrail County, North Dakota	2011	11974
D. Reinhart/ MAC	Enbridge's Beaver Lodge Loop Project, Re-Route and Extra Work Space: A Class III Cultural Resources Inventory in Ward County, North Dakota	2011	12172
M. Kinsey and E. Stine/ MAC	Enbridge Sanish Pipeline Project, an Addendum for Reroutes Along the Sorti and Dunn Pipeline Project: A Class III Inventory in McKenzie and Williams Counties, North Dakota	2012	13002
M. Kinsey/ MAC	Merjent-Enbridge's Shoo-Flies: A Class III Cultural Resource Inventory to Support the Beaver Lodge Loop Project (SHPO Reference 10-1957) in Mountrail County, North Dakota	2012	13602

Records on file at the NDSHPO indicate there are 16 previously identified archaeological or historic structure sites and five archaeological or historic structure isolates or site leads that intersect the environmental survey corridor, as listed in Table 9. Three previously recorded sites are determined eligible for listing on the National Register of Historic Places ("NRHP"). The remaining sites are determined not eligible for listing or have not been evaluated for eligibility. Information about previously recorded sites for ancillary facilities and off-corridor yards has not been compiled at this time.

TABLE 9					
Cultural Resources Sites Previously Recorded within the Sandpiper Pipeline Survey Corridor					
County	Site Number/ Name	Site Type	Cultural Affiliation	Eligibility	Date recorded
Grand Forks	32GF0008	Mound, Material Scatter	Pre-Contact	Eligible	1979/ 2000
Grand Forks	32GF3228	Structural - Bridge	Historic Period	Not eligible	2000
Grand Forks	32GFx0148	Isolated Lithic Flake	Pre-contact	Not eligible	1999
Grand Forks	32GFx0308	Isolated Lithic Flake	Pre-contact	Not eligible	2000
McHenry	32MH0200	BNSF Railroad	Historic	Eligible	2006/ 2012
McHenry	32MHx0286	Structural - Barn	Historic Site Lead	Not evaluated	2012
Mountrail	32MN0568	Structural - Shed	Historic Site Lead	Not eligible	2000
Mountrail	32MN0721	Architectural - Farmstead	Historic	Not eligible	2006
Mountrail	32MN0784	Foundation, Material Scatter	Historic	Not evaluated	2008
Mountrail	32MN0844	Stone Features	Pre-Contact	Not evaluated	2010
Mountrail	32MN0845	Stone Features	Pre-Contact	Not evaluated	2010
Mountrail	32MN0846	Foundation	Historic	Not eligible	2010/ 2012
Mountrail	32MN0916	Stone Feature	Pre-Contact	Not evaluated	2011
Mountrail	32MN0926	Cairn	Pre-Contact	Not evaluated	2012
Mountrail	32MN0927	Machinery, Material Scatter	Historic	Not eligible	2012
Mountrail	32MN0929	Cairn	Pre-Contact	Not evaluated	2012
Mountrail	32MNx0583	Isolated Lithic Flake	Pre-Contact	Not eligible	2009
Mountrail	32MNx0839	Isolated Lithic Flake	Pre-Contact	Not eligible	2007
Ward	32WD0089	Linear Trail	Historic	Eligible	1999/ 2002
Ward	32WD1556	Depression, Material Scatter	Historic	Not eligible	2000
Williams	32WI0138	Stone Feature, Material Scatter	Pre-Contact	Not evaluated	1985

ENPD engaged Metcalf Archaeological Consultants, Inc. (“MAC”) to conduct Class III cultural resources inventories for the entire Project. Between May and early August 2013, MAC completed archaeological and historic structure field survey inventories for approximately 75 percent of the environmental survey corridor.

ENPD will have completed 98 percent of the archaeological site and historic structure inventory survey in 2013. The remaining 2 percent of the inventory survey will be completed in 2014, including any remaining areas in the environmental survey corridor, ancillary facilities, and off-corridor yards. ENPD is currently completing an analysis of the potential for deeply buried archaeological sites and site evaluations as needed. A Cultural Resource Abstract will be prepared and included in the supplemental filing as Exhibit E.1. Per the July 11, 2012 letter between the ND-PSC and the NDSHPO, ENPD

will not submit information about the location of cultural sites with this application. For this application and other public filings, only the title page and abstract of cultural resource reports will be submitted as documentation of the cultural resources investigations (see Exhibit E.2). However, the entire report will be submitted to the NDSHPO.

EPND prefers to avoid inventoried archaeological sites and historic structures. In the event EPND is unable to avoid Project impacts to a site through engineering controls, EPND will conduct formal evaluations in consultation with the NDSHPO and seek resolution through mitigation for those sites that meet the criteria for listing on the NRHP.

B.2 WETLAND ASSESSMENT

B.2.a U.S. Army Corps of Engineers (“COE”)

EPND consulted with the COE-Omaha District, which has jurisdiction in North Dakota over construction activities affecting “waters of the United States”, including wetlands and waterbodies that are crossed by the proposed route.

The COE may authorize construction projects through its Nationwide Permit (“NWP”) program, if the project meets the prescribed thresholds and compliance measures. The COE NWP 12 is specifically designed for the construction of utility lines, including pipelines, which do not result in the permanent loss of greater than 0.5-acre of waters of the United States. The COE has indicated they intend to implement NWP 12 as the basis for its analysis and permitting vehicle..

The installation of the pipeline will result in temporary impacts to jurisdictional wetlands and waterbodies. However, those impacts will be less than 0.5 acre of permanent impacts to COE-jurisdictional wetlands or waterbodies as a result of expansion work at Beaver Lodge, Stanley, and Berthold Stations, and the construction of the new Lakota Pump Station.

EPND commissioned Carlson McCain, Inc. (“Carlson McCain”) to complete wetland and waterbody delineations in the Project’s environmental survey corridor as defined in Section D.1 of this Application. The delineation protocols are in accordance with prescribed federal and/or state methodologies. These surveys collect quantitative, qualitative, and location information that will be submitted to the COE during the permitting process and used for construction planning.

As of September 14, 2013, Carlson McCain completed field delineations for approximately 94 percent of the environmental survey corridor. Upon completion of the 2013 field season, EPND will submit a copy of the wetland delineation report to the COE-Omaha District with a Request for Jurisdictional Determination. It is anticipated that the majority of the delineated wetlands will be identified as isolated basins with no

hydrologic connection to waters of the United States, and thus, considered non-jurisdictional with respect to COE authority. EPND will continue to coordinate with the COE-Omaha District throughout the permitting process.

B.2.a.(1) Wetland Assessment

For a more detailed discussion on the delineated wetlands and waterbodies, estimates of temporary wetland impacts and mitigation measures that will be implemented during construction, please refer to Section B.4.c.(5) of the Application for a Route Permit. EPND plans to submit to the ND-PSC, a copy of its final wetland delineation report⁶ concurrent with its submittal to the COE-Omaha District.

B.2.b U.S. Department of Agriculture, Natural Resource Conservation Service (“NRCS”)

The NRCS administers the Wetland Reserve Program (“WRP”) and the Grassland Reserve Program (“GRP”). These voluntary programs offer landowners the opportunity to protect, restore, and enhance wetlands and grasslands on their property. In April 2013, EPND submitted a consultation request to the NRCS District Conservationists to determine if the 2-mile wide study area included any lands enrolled in the WRP. In an April 29, 2013 response, the NRCS state office shared shapefiles of easements currently recorded in North Dakota.

EPND has actively engaged landowners along the pipeline route to determine if their property contains a conservation easement and it has been registered in the WRP or GRP programs. Information gathered from these discussions will be combined with the data provided by NRCS to develop a full list of parcels crossed that contain WRP, GRP, and other conservation easements.

Relevant correspondence with the NRCS is included in Exhibit H.1.

B.2.c North Dakota Game and Fish Department (“NDGF”)

EPND initiated consultation with NDGF on April 2, 2013. In a May 1, 2013 response, NDGF commented that various wetlands are located within the 2-mile wide study area based on an evaluation of National Wetland Inventory (“NWI”) data. NDGF recommended that steps should be taken to protect any wetlands that cannot be avoided, no alterations should be made to existing drainage patterns, and above-ground appurtenances should not be placed in wetland areas.

⁶ As a convenience to ND-PSC and its Staff, EPND has created a placeholder designated as Exhibit F.1 for this documentation. Other documentation which EPND plans to submit upon completion is footnoted with an assignment exhibit as its placeholder.

NDGF also identified several streams classified as valuable fisheries that would be crossed by the proposed pipeline. NDGF recommended that streams designated as valuable fisheries be crossed by directional boring, if possible, and if that method is not feasible, construction should not occur within the waterway between April 15 and June 1. NDGF further commented that appropriate controls should be implemented to minimize erosion and sedimentation.

EPND is currently evaluating crossing methods for individual waterbodies, and will comply with the conditions or timeframes specified by the NDGF. Additionally, EPND will construct the Project in accordance with its Environmental Protection Plan (“EPP”), which includes measures to minimize erosion and sedimentation at waterbody and wetland crossings (see Exhibit J).

A copy of the correspondence with the NDGF is attached herein as Exhibit H.2, and additional information is described in Section B.4.c.(10) and on Table 21 of the Route Permit Application.

B.3 BIOLOGICAL RESOURCES

B.3.a U.S. Fish and Wildlife Service (“USFWS”)

The USFWS administers multiple programs that are designed to identify and protect plant and animal species of special status and their habitats. EPND submitted letters to the USFWS North Dakota Ecological Services Field Office (“USFWS-ES”) and National Wildlife Refuge System (“USFWS-NWRS”) on April 2, 2013. The letters requested information on wetlands and grassland easements, and survey requirements for species listed under the Endangered Species Act (“ESA”), and recommendations on Migratory Bird Treaty Act (“MBTA”) and Bald and Golden Eagle Protection Act (“BGEPA”) compliance.

The USFWS-NWRS provided the locations of piping plover critical habitat and wetland and grassland easements on April 4 and 8, 2013, respectively.

The USFWS-ES indicated the need for a lead federal agency to be identified prior to conducting a formal Section 7 consultation; therefore, data presented within this application and supplemental reports are based on informal information exchanges between EPND and USFWS-ES or publicly available datasets. EPND anticipates that USFWS-ES will be in a position to consult on the Project in December 2013.

Eight federally listed, candidate, or under review species have been documented in the counties crossed by the Project (see Table 10). This information is based on research that was conducted by reviewing the USFWS-ES county specific lists of federally-listed and candidate species on their website and by evaluating via desktop analysis. The Dakota skipper and Sprague’s pipit are currently candidate species, and the northern long-eared bat is under review by USFWS-ES for possible inclusion as a listed species.

While no legal requirement exists to protect candidate or under review species, both may be listed as threatened or endangered prior to the completion of construction of the Project; therefore, EPND is evaluating them as though they are currently listed species.

A desktop analysis was also conducted with respect to USFWS-designated critical habitat, a specific geographic area that is essential to the conservation of a threatened or endangered species that may require special management and protection. Designated critical habitat for the piping plover (a threatened species) occurs in five of the nine counties crossed by the Project in North Dakota. In conjunction with the wetland delineation field survey, EPND conducted a habitat assessment survey for piping plover during the 2013 field season. In Williams, Mountrail, Ward, McHenry, and Pierce counties, survey crews recorded wetland features that are potentially suitable piping plover habitat through preliminary desktop analysis and examination of aerial imagery. Results of the habitat assessment will be documented in a 2013 Piping Plover Habitat Assessment Report⁷, which will be submitted to the ND-PSC following completion. EPND will also use the data presented in the report to evaluate potential impacts and to develop appropriate conservation measures as necessary in future discussions with the USFWS.

TABLE 10 Status and Occurrence of Federally Listed Candidate, or Under Review Species and Designated Critical Habitat										
Species	Status	County								
		Williams	Mountrail	Ward	McHenry	Pierce	Towner	Ramsey	Nelson	Grand Forks
Interior Least Tern	Endangered	X	X							
Pallid Sturgeon	Endangered	X	X							
Gray Wolf	Endangered	X	X	X						
Whooping Crane	Endangered	X	X	X	X	X	X	X	X	X
Piping Plover	Threatened	X	X	X	X	X				
Dakota Skipper	Candidate		X	X	X					
Sprague's Pipit	Candidate	X	X	X	X	X	X	X		
Northern Long-eared Bat	Under Review	X	X	X	X	X	X	X	X	X
Species	Designated Critical Habitat	County								
		Williams	Mountrail	Ward	McHenry	Pierce	Towner	Ramsey	Nelson	Grand Forks
Piping Plover	Threatened	X	X	X	X	X				

Sources: <http://ecos.fws.gov>; and http://www.fws.gov/endangered/improving_ESA/FY13-18_ESA_Listing_workplan.pdf

⁷ As a convenience, EPND has created a place holder designated as Exhibit G.1 for this documentation.

Native prairie and non-native grasslands are the preferred habitat for the Dakota skipper and Sprague's pipit as these areas provide foraging, sheltering, breeding and dispersal habitat. EPND completed a field survey of grassland areas to evaluate the potential for suitable habitat for Dakota skippers and Sprague's pipit. In preparation for the field survey, a desktop assessment of the environmental survey corridor was completed to identify grasslands using high-resolution aerial photography in counties where Dakota skippers and Sprague's pipit are known to occur. Potential habitats identified in the desktop assessment were then surveyed in the field to confirm the suitability for successful habitat. Results of the habitat assessment will be documented in a 2013 Grassland and Native Prairie Habitat Assessment Report⁸, which will be submitted to ND-PSC following completion.

EPND will use the data presented in the Grassland and Native Prairie Habitat Assessment Report described above to develop a plan for addressing the Project's effects on migratory birds. In consultation with state and federal agencies, EPND will develop appropriate conservation measures to avoid, minimize, or mitigate for potential impacts on migratory birds.

EPND will also conduct aerial surveys of eagle nests along the route in February and March 2014 to determine if eagle nests occur in the construction right-of-way or outside of the construction right-of-way but within the disturbance distance for eagles. EPND will develop appropriate conservation measures to avoid potential impacts on eagles in consultation with appropriate state and federal agencies.

In general, potential impacts to wildlife include temporary displacement due to construction activities and temporary loss of habitat in native and planted grassland areas. These effects are not likely to cause long-term declines in populations in the area. EPND analyzed the potential for project-related impacts under the ESA. EPND assessed the effects for each federally listed candidate and under review species by evaluating historic and present occurrences, availability of potential habitat within the 2-mile wide study area, the species' natural history, and results of desktop and field-based habitat assessments and surveys. Using USFWS terminology, EPND evaluated each species and characterized the direct, indirect, and cumulative effects of the proposed activities on each species based on past pipeline projects and USFWS interactions on those projects. Potential determination outcomes that may be reached for federally listed species under the ESA include:

- No effect;
- May affect, but is not likely to adversely affect; or
- May affect, and is likely to adversely affect.

⁸ As a convenience, EPND has created a place holder designated as Exhibit G.2 for this documentation.

Additional details on each of the listed species are included in Section B.4.a.(4) of the Route Permit (see Exhibit H.3). EPND will file copies of any relevant correspondence with the USFWS as they are received.

B.3.b North Dakota Game and Fish Department (“NDGF”)

EPND initiated consultation with the NDGF on April 2, 2013 requesting any information the NDGF may have with respect to wildlife species of concern and their habitats that may be affected by the Project. NDGF confirmed that North Dakota did not have state-protected species, and no survey requirements exist for North Dakota species of concern. However, NDGF also recommended avoiding disturbance to native prairie and woody vegetation, and requested that disturbed areas should be reclaimed to pre-project conditions.

NDGF further noted that wildlife management areas (“WMA”) exist within or adjacent to the 2-mile wide study area. EPND identified four WMAs within the 2-mile wide study area including: Palermo in Mountrail County, Sand Hill in McHenry County, Horseshoe Lake in Pierce County, and Crawford in Grand Forks County. However, none of the WMAs are directly crossed by the route. EPND has confirmed with NDGF that further consultation is not necessary and no permits are required.

A copy of the correspondence with the NDGF is attached herein as Exhibit H.2.

B.3.c North Dakota Parks and Recreation Department (“NDPR”)

EPND initiated consultation with the NDPR on April 2, 2013 requesting any information the NDPR may have with respect to rare plants or animals or significant ecological communities that may be affected by the Project. In an April 10, 2013 response letter, the NDPR provided a report derived from the Natural Heritage Biological Conservation Database that identified historical occurrences of plant or animal species of concern, and other significant ecological communities known to occur within a 2-mile-wide study area.

The report identified several plants, animal and significant ecological communities located within or adjacent to the 2-mile wide study area. The NDPR also sent GIS shapefile data of the locations in a subsequent email, allowing EPND to precisely evaluate the location of each biological resource as it relates to the proposed centerline of the pipeline.

EPND determined that one NDPR-identified resource occurs within the environment survey corridor: a northern wet-mesic tallgrass prairie. The construction right-of-way crosses an outside edge of the prairie. The results of EPND’s evaluation are discussed in further detail in Section B.4.c.(10) of the Route Permit Application. Based on on-going discussions with NDPR, the mitigation measures for this prairie location will

include revegetating the construction right-of-way and workspace with an NDPR-recommended prairie seed mix.

The NDPR deferred detailed comments regarding animal species to the USFWS (see Section B.3.a) and the NDGF (see Section B.3.b). The NDPR also recommended constructing the Project with minimal impacts, implementing measures to protect critical habitats, and revegetating any disturbed areas with species native to the area.

NDPR further confirmed that the Project will not affect state park lands but was in the vicinity of five lands managed by NDPR's Land and Water Conservation Fund ("LWCF"), and along the Sheyenne River Valley Scenic Byway. An updated mapset was provided that showed more precise locational information of the five LWCF lands. None of the managed LWCF lands are in the immediate vicinity of the Project and no impacts are anticipated.

A copy of the correspondence with the NDPR is included herein as Exhibit H.4.

B.4 OTHER AGENCY CONSULTATIONS

Other agencies that EPND has consulted include the following:

B.4.a North Dakota Department of Agriculture ("NDDA")

EPND initiated consultation with NDDA on April 22, 2013. To date, EPND has not received a reply. EPND will submit any responses from NDDA in a supplemental filing. The formal consultation letter sent to the NDDA is included in Exhibit H.5.

B.4.b North Dakota Department of Health ("NDDH")

The NDDH administers regulatory programs governing the state's interest in air and water quality. EPND performed a desktop review of waterbodies crossed in North Dakota which may have special designations. These include waterbodies considered "impaired" with respect to Section 303(d) of the federal Clean Water Act and "Class I or IA" waterbodies (defined in North Dakota Administrative Code Section 33-16.02.1-09), which are protected for special uses such as fish propagation, drinking water, and recreation.

Through a desktop review, EPND identified nine impaired waterbodies, and four Class I or IA waters within the 2-mile wide study area. EPND initiated consultation with NDDH on August 13, 2013 to confirm the results of its desktop review, and requested NDDH provide recommendations or identify special requirements necessary to construct in these areas. In a response from the NDDH dated August 22, 2013, the NDDH confirmed EPND's assessment of 303(d) waters and stream classifications within the 2-mile wide study area. The NDDH did not provide recommendations; EPND will continue to consult with the NDDH.

The NDDH also identified two Nonpoint Source Pollution watershed projects (the Red River Riparian Project and the Turtle River Riparian Project) and recommended EPND contact each watershed project. EPND sent a consultation letter on September 23, 2013 to each Nonpoint Source Pollution contact to introduce the Project and inquire about specific concerns the watershed projects may have. The Red River Riparian Project responded on October 10, 2013 confirming that Sandpiper would not have an impact on past or present river restoration projects.

NDDH also manages the state's Source Water Protection Program that seeks to prevent contamination of public water supplies. EPND consulted with NDDH to identify wellhead protection areas ("WHPAs"). WHPAs were identified for Cities of Deering and Grand Forks, which the new pipeline will cross in that area. EPND has been, and will continue to work with the City of Grand Forks in the routing of its new pipeline to address concerns and solicit recommendations related to protecting municipal water supplies, as more fully described in Section B.2.e and Section B.4.b of the Application for a Route Permit.

Additional discussion regarding NDDH permits related to water quality is included in Section B.4.c.1.(iv) of the Route Permit. Correspondence with the NDDH is included in Exhibit H.6.

B.4.b.(1) North Dakota Pollutant Discharge Elimination System Program ("NDPDES")

Water Quality-Construction Stormwater

EPND will obtain coverage under construction stormwater General Permit NDR10-0000 (Authorization to Discharge under the NDPDES) for ground disturbing activities associated with the construction of the Project. A Project-specific Stormwater Pollution Prevention Plan ("SWPPP") will be prepared in accordance with NDPDES permit requirements and will be implemented to manage run-off in a manner that minimizes the potential for sediment and waste products discharge outside of the construction right-of-way. An environmental inspector will be on-site for the duration of construction activities to monitor the effectiveness of sediment and erosion control measures.

Water Quality-Construction Site Trench Dewatering and Hydrostatic Test Discharges

EPND will apply for coverage under NDPDES General Permit NDG07-0000 (Authorization to Discharge under the NDPDES) for temporary discharges associated with construction dewatering and hydrostatic test water discharges. Site dewatering will be required where stormwater collects or groundwater seeps into trenches and must be removed.

Discharges of trench dewatering will be monitored by the environmental inspector, and water quality samples will be collected, analyzed, and reported as required by provisions

in the General Permit. Pursuant to industry safety standards, each new pipeline segment and new facility tankage will be hydrostatically tested to verify the integrity of the welds and the pipe prior to being placed into service. EPND will obtain coverage under NDG07-0000 prior to discharge of hydrostatic test water.

Water Quality Certification

Pursuant to the Clean Water Act, Section 401, EPND is required to obtain a Water Quality Certification (“WQC”) from the NDDH. EPND will pursue coverage under the COE’s NWP 12, and will receive WQC in conjunction with the issuance of the COE permit.

EPND will provide a copy of the NDDH permits required to start construction activities to the ND-PSC in a supplemental filing.

B.4.b.(2) Air Quality

The NDDH administers the state’s air quality protection programs. Pursuant to North Dakota Administrative Code Section 33-15-14, EPND will apply for the required permits for construction and operation of the new stationary emission sources, including new storage tanks and associated equipment for the Beaver Lodge, Stanley, and Berthold Terminals. The permits will address net potential emissions from the facilities. EPND’s design plans incorporate control measures that will reduce total emission from the facilities and meet compliance standards. After the facilities have been constructed and appropriate testing has occurred, EPND will notify the NDDH to acquire Operating Permits.

B.4.c North Dakota Department of Trust Lands (“NDDTL”)

The primary responsibility of the NDDTL is to manage educational trust funds and assets under the Board of University and School Lands’ control. The Department also manages several funds and mineral acres in addition to the trust assets.

On April 5, 2013, EPND contacted the NDDTL to introduce the Project and inquire about specific survey requirements. The NDDTL noted that the right-of-way application process requires identifying the proposed tracts to be surveyed and information on the surveyors. (For more details on NDDTL, see Section B.4.b.(2)(ii) of the Application for a Route Permit.)

Exhibit H.7 provides correspondence with NDDTL.

B.4.d North Dakota State Water Commission (“NDSWC”)

The primary responsibility of the NDSWC is to provide management of North Dakota’s water resources, including state sovereign lands (*i.e.*, navigable waters) and water appropriations. In its desktop review, EPND identified the Red River of the North as the

only state sovereign land crossed by the Project. EPND submitted a consultation letter to the NDSWC on July 9, 2013 to confirm this finding. While a response has not been received, based on EPND's experience in North Dakota, an "Application for Authorization to Construct a Project within Islands and Beds of Navigable Streams and Waters" will be submitted prior to construction.

EPND will also submit an "Application for a Temporary Water Permit" to appropriate surface or groundwater that will be used for horizontal directional drilling, direct bores, dust suppression, and hydrostatic testing of new pipe and facility infrastructure.

EPND will provide the ND-PSC with copies of these permits prior to commencing activities associated thereto. Correspondence with the NDSWC is included in Exhibit H.8.

B.4.e U.S. Department of Agriculture, North Dakota Farm Service Agency ("FSA")

The U.S. Department of Agriculture, Farm Service Agency ("FSA") administers the Conservation Reserve Program ("CRP") and Conservation Reserve Enhancement Program ("CREP"). These voluntary conservation programs provide compensation to landowners for placing tillable lands into non-agricultural conservation programs. FSA also addresses concerns relating to designated prime farmland.

EPND submitted consultation requests to the nine county-level, as well as state, FSA offices on April 22, 2013 requesting identification of lands with FSA-administered programs that are crossed by the Project. Grand Forks and Towner County FSA officials responded on April 24, 2013, stating they forwarded the consultation request to the FSA State Office in Fargo.

In a May 13, 2013 response, the state FSA noted they located 10 County CRP shapefiles; however, they have elected to withhold disclosing this information to EPND, pursuant to 5 U.S.C. 552(b)(3) of the Freedom of Information Act.

EPND has actively engaged landowners along the pipeline route to determine if their property is enrolled in FSA-administered conservation programs. Information gathered from these discussions will be combined with any future data provided by FSA to develop a list of parcels crossed containing CRP, CREP, and other conservation easements.

Additional discussion regarding CRP lands and impacts to prime farmland is provided in Sections B.4.c.(1)(i) of the Route Permit Application. Relevant correspondence with the FSA is included in Exhibit H.9. Additional correspondence or response letters from FSA will be filed with the ND-PSC as a supplement filing.

B.4.f U.S. Department of Interior, Bureau of Land Management (“BLM”)

Based on a desktop review of publicly available information, no BLM-managed land is located within the Project’s 2-mile wide study area. EPND submitted a consultation letter on June 27, 2013 to the BLM to introduce the Project and confirm no BLM-managed land is crossed by Sandpiper. To date, a formal response has not been received. However, informal discussions have confirmed that no BLM-managed land is present in the 2-mile wide study area. Exhibit H.10 includes the formal consultation letter sent to the BLM.

B.4.g U.S. Department of Interior, Bureau of Reclamation (“BOR”)

EPND initiated consultation with BOR on August 13, 2013 to determine if any BOR-administered lands were located within the Project’s 2-mile wide study area. In an August 20, 2013 response BOR confirmed no administered lands were located within the 2-mile wide study area. BOR also noted in the response the 2-mile wide study area traverses the service area of North Dakota’s Northwest Area Water Supply (“NAWS”) project being constructed by the NDSWC. NAWS is a water supply project piping water from Lake Sakakawea to Minot and other cities farther north.

The Project would cross two completed sections of this water pipeline near Berthold (MP 91.1) and north of Minot (MP 48.9). The remaining portions of the NAWS project to be constructed are north of the Sandpiper route and would not be impacted. EPND sent a follow-up consultation letter on September 24, 2013 to NDSWC to request additional information on NAWS and inquire about specific concerns NDSWC may have (see Exhibit H.8).

Correspondence received from BOR is included as Exhibit H.11.

B.4.h North Dakota County Water Resource Boards

Each county in North Dakota has a Water Resource Board (“WRB”), which manages county-level drainage issues. County-level WRBs frequently work in tandem with NDSWC on issues pertaining to drainage and filling of wetlands.

Nine WRBs are crossed by the Project route. EPND initiated consultation with each of the nine WRBs in July 2013. To date the Williams County and Grand Forks WRBs have responded.

The Williams County WRB responded on July 7, 2013 indicating the Williams County Commissioners and County Road Superintendent be contacted for further concerns related to crossing of legal drains and ditches. EPND will continue to consult with the County Commissioners.

The Grand Forks WRB responded requesting more detailed maps to assist in identifying the locations of county-regulated drainage features. EPND provided an updated mapset

on August 13, 2013. On September 9, 2013 Grand Forks WRB provided detailed county-level maps showing the locations of legal drains, dams and channels in Grand Forks County.

Exhibit H.12 includes correspondence from the Williams and Grand Forks counties WRBs.

B.4.i North Dakota County Weed Control Boards

Each county in North Dakota has a County Weed Control Board (“WCB”), which develops and maintains county-level lists of noxious weeds and implements noxious weed control.

EPND submitted consultation letters in July 2013 to nine county WCB officers. The consultation letter requested each county board to confirm the County’s list of noxious and invasive weeds and identify known locations of noxious and invasive species within the Project’s 2-mile wide study area. EPND also requested recommendations on county-specific guidance for weed control, pesticide use, and non-chemical treatment options.

To date the Nelson County, Ramsey County and McHenry County WCBs have responded.

On August 9, 2013, the Nelson County WCB responded with a list of known locations of noxious and invasive weeds. The Nelson County WCB also forwarded the consultation letter to the Nelson County Highway Department for additional information. To date, a response from the Nelson County Highway Department has not been received.

On July 23, 2013, the Ramsey County WCB responded via telephone with a list of known noxious and invasive weeds. Locational information provided indicated a scattering of pockets of noxious and invasive weeds throughout the county with no real concentrations that could be identified.

On August 20, 2013, the McHenry County WCB responded with additional questions related to EPND’s request. On August 29, 2013, EPND provided an updated mapset for the WCB to mark up and send back to EPND. The McHenry County WCB responded again on September 26, 2013 by stating there are a variety of weeds located throughout the county, and provided a weed identification booklet, and Weed Control Guide, and the North Dakota Noxious Weed Law and Regulation Book.

Exhibit H.13 includes correspondence from the Ramsey and Nelson County WCBs. Subsequent WCB correspondence will be included in a supplemental filing as it is received.

B.4.j U.S. National Park Service (“USNPS”)

Based on a desktop review of publicly available information, no USNPS-managed land, trails, or National River Inventory (“NRI”) river segments are located within the Project’s 2-mile wide study area. EPND submitted a consultation letter on August 12, 2013 to two offices of the USNPS (i.e., the Midwest Regional Office for NRI, and the office that manages the North Country National Scenic Trail) to introduce the Project and confirm no land, trails, or NRI river segments are crossed by Sandpiper. A formal response was received from the superintendent of the North Country National Scenic Trail. Exhibit H.14 includes the formal consultation letter sent to the USNPS.

B.4.k U.S. Department of Defense

In August 2013, EPND initiated contact with the U.S. Department of Defense, specifically, the U.S. Air Force (“USAF”) Cable Affairs office to determine if the Sandpiper route would be within 1200 feet of the geographic center of an intercontinental ballistic missile (“ICBM”) launch or launch control facility, or if the Sandpiper route would be within 30 feet on either side of a direct line between an ICBM or launch control facility. The USAF Cable Affairs office confirmed that the Sandpiper route does not pose any concerns with the ICBM or launch control facility. Sandpiper will cross a cable associated with a facility, but there is adequate clearance and the crossing angle meets the USAF’s specifications. In addition, there are no areas of the Sandpiper route that encroach on restricted easement areas surrounding the missile sites. Exhibit H.15 includes correspondence from the USAF Cable Affairs office.

**APPLICATION FOR CORRIDOR CERTIFICATE
SECTION C
NEED FOR FACILITY**

C.1 AN ANALYSIS OF THE NEED FOR THE PROPOSED FACILITY BASED ON PRESENT AND PROJECTED DEMAND FOR THE PRODUCT TRANSMITTED, INCLUDING THE MOST RECENT SYSTEM STUDIES SUPPORTING THE ANALYSIS OF THE NEED.

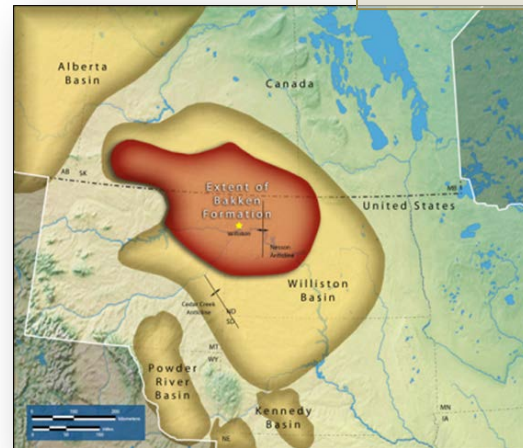
C.1.a Planned Use and Purpose

As the demand for the crude oil production from the Williston Basin increases so does the demand for additional pipeline export capacity on EPND's North Dakota pipeline system. As previously stated, EPND has been responding to these market demands with the execution of numerous phased-in expansion projects since 2005, and has increased its overall export capacity more than seven fold in the last seven years. The Sandpiper Pipeline Project is the next phase of EPND's capacity expansion efforts to meet the market demands of the Bakken and Three Forks shippers, as more fully described below.

As production activity rises in the Bakken and Three Forks Formations, so has the demand for EPND to increase its pipeline takeaway capacity. This Project expands EPND's existing North Dakota Pipeline System from Beaver Lodge Station near Tioga, North Dakota to a new station and terminal facility in Clearbrook, Minnesota, and extends its pipeline system from Clearbrook to its affiliated Superior Terminal Facility in Superior, Wisconsin. As designed, the new pipeline adds additional pipeline capacity and further system flexibility of 250,000 bpd to EPND's existing pipeline system between Beaver Lodge and Berthold, 225,000 bpd of new export capacity ex-Berthold to Clearbrook, Minnesota, and 375,000 bpd of new export capacity ex-Clearbrook into Superior, Wisconsin. The Project will be operated as an integral part of EPND's pipeline system. This Project provides the critical pipeline infrastructure necessary to accommodate the current and future transportation requirements of the Williston Basin region for access to premium marketing hubs across the U.S. Midwest and beyond.

Supply. The Williston Basin spans parts of western North Dakota, eastern Montana and parts of Saskatchewan and Manitoba. The subsurface Bakken and Devonian Three Forks formations (see Figure 4), are the direct or indirect source for most of the crude oil currently produced in the Williston Basin. Since the Bakken formation is currently the largest contributor to the total crude oil production in the Williston Basin, the oil industry refers to all of the crude oil production in the Williston Basin as “Bakken crude oil”.

Figure 4



Producers in this region have experienced unprecedented success with the recent improvements in drilling technology to extract crude oil from tight and dense formations. The active drilling rig count in North Dakota has risen from 50 in September 2009 to 188 in September 2013, which is over a 300 percent increase. North Dakota is the second largest crude oil producing state in the country, with only Texas producing more on-shore crude oil on a daily basis, according to the North Dakota Petroleum Council.

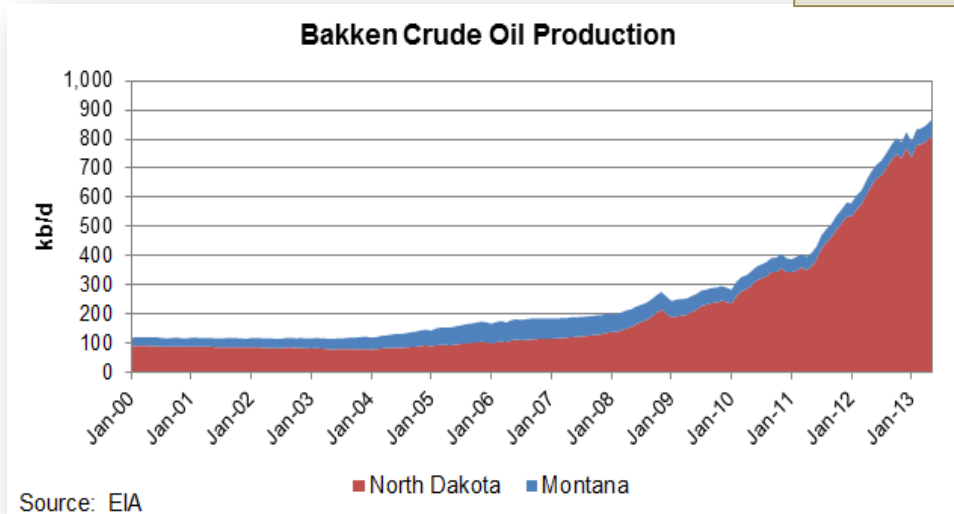
As seen in Table 11, North Dakota’s daily average oil production in the Bakken Formation has grown significantly from 137,644 bpd in January 2008 to 911,242 bpd in August, 2013, rising more than 100 percent on an annual basis and more than 500 percent during the overall time period. (see quarterly *The Pipeline Publication* reports posted on the North Dakota Pipeline Authority’s website at www.pipeline.nd.gov.) The production volumes are expected to continue to rise in this region as drilling activities continue to increase.

Table 11

North Dakota's Average Daily Oil Production (bpd) From Bakken Formation						
Year	Jan	Feb	March	April	May	June
2013	737,787	779,050	782,999	793,852	811,262	821,598
2012	546,047	558,584	577,491	609,394	643,123	664,618
2011	342,089	349,063	360,279	351,183	364,134	385,799
2010	236,114	261,179	277,418	288,435	298,060	314,477
2009	187,821	192,272	195,798	196,701	206,078	215,074
2008	137,644	137,837	143,776	150,694	156,365	166,190
Year	July	Aug	Sept	Oct	Nov	Dec
2013	875,736	911,242				
2012	674,067	701,409	729,336	749,212	733,078	768,885
2011	424,975	446,100	464,122	487,724	510,391	535,048
2010	321,042	328,883	342,094	342,247	356,505	344,064
2009	227,879	232,367	238,173	240,042	245,854	242,107
2008	172,939	177,740	188,246	203,773	215,717	202,347

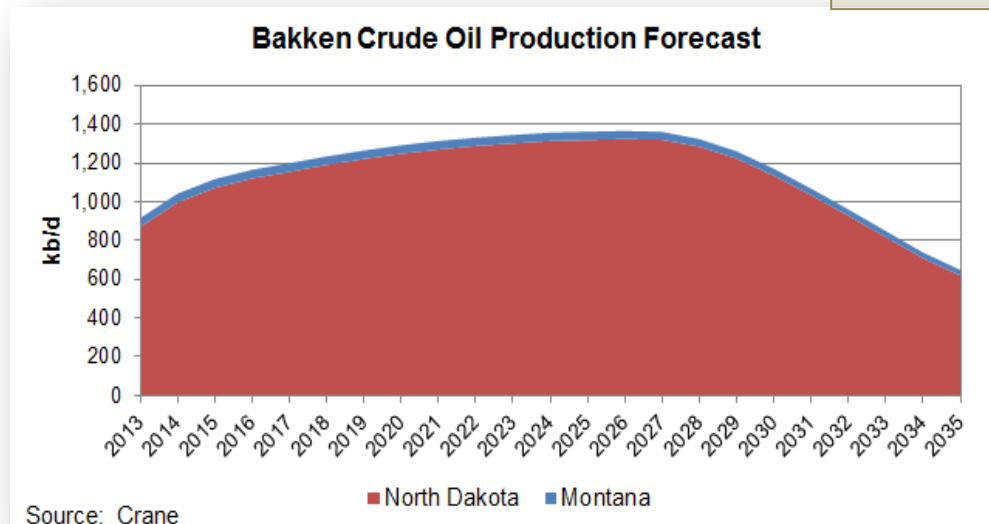
Forecast: The Bakken crude oil production has been, and continues to rapidly rise in the Williston Basin, as seen in Figure 5. The Williston Basin now ranks as one of the largest producing areas in the world.

Figure 5

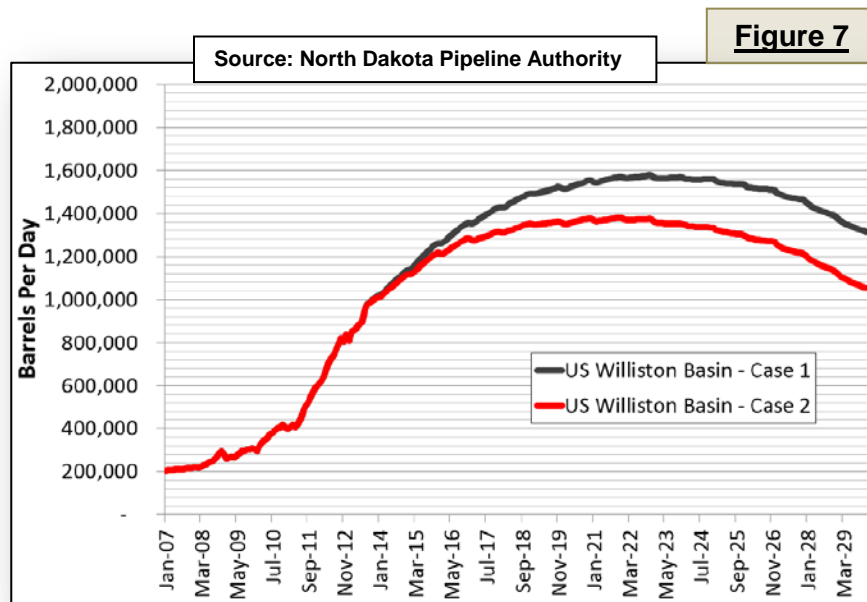


Bakken crude oil production forecasts project continued increase at a rapid growth rate before moderating. Forecast studies support that the production growth will be steady through the 2023 to 2025 timeframe, as shown in Figure Nos. 6 and 7. Moreover, peak production of Bakken crude is forecast to peak at 1.33 to 1.35 million bpd in 2026, before beginning to decline as seen in Figure 6 to 1.10 million bpd in 2029 according to a forecast study generated by Crane Energy LLC.

Figure 6



Consistent with the supply forecast in the Crane Report, the North Dakota Pipeline Authority also predicts continued growth in Bakken production over the next 8 to 10 years and then a gradual decline over the following 10 years, but still maintaining production levels above 1 million bpd as seen in Figure 7.⁹



Generally, forecast studies¹⁰ show that the total U.S. Williston Basin Bakken and Three Forks production (eastern Montana combined with North Dakota) is expected to exceed 1 million bpd by 2015. Forecasts of peak year production range from a low of 1.3 million bpd to a high of 2 million bpd from 2022 to 2026.¹¹

Based on these supply forecasts, existing long-haul pipeline capacity will not be sufficient to accommodate this growth by 2017, even if similar planned expansion projects are built.¹² Rail capacity exists to move these incremental volumes but pipeline transportation is more economic, safer and less environmentally harmful. For example, transportation cost analysis indicates that pipeline transport is roughly 60 percent of the cost of rail transport. Moreover, pipeline transportation incurs far lower labor and energy costs and greenhouse gas emissions than other competing transportation modes, and only pipeline transport avoids the need to return an empty shipping container back to the point of origination (rail alternatives are discussed in more detail in Section C.2.c).

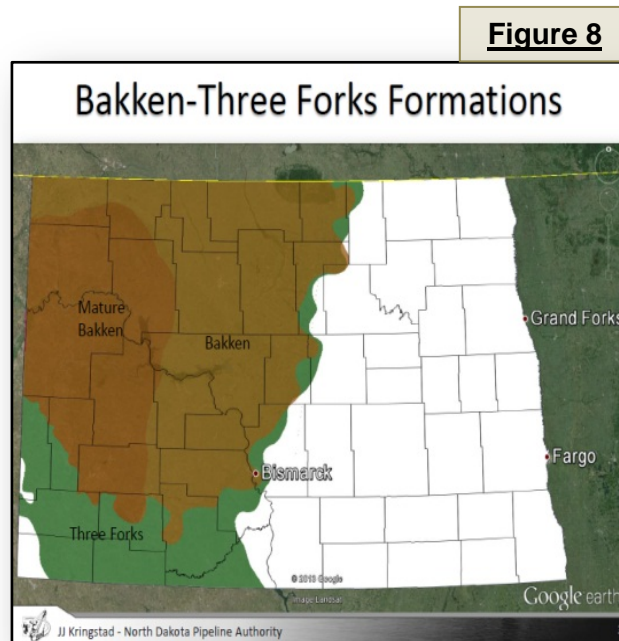
⁹ Information source can be found at <http://ndpipelines.files.wordpress.com/2012/04/ndpa-edt-10-14-2013.pdf>

¹⁰ Source: Crane, Bentek, Goldman Sachs, & WoodMac

¹¹ Id. Footnote 7.

¹² NDPA House Energy and Natural Resources Committee Presentation on January 11, 2013at <https://www.dmr.nd.gov/pipeline/>.

Reserves: Additionally, a new assessment of oil and gas reserves in the Bakken region by the U.S. Geological Survey¹³ concludes that industry could have access to almost double the early supply forecasted, especially considering the rapid increase in the reserve estimates coming mainly from the Three Forks Formation. The government estimates that Three Forks holds about 3.73 billion barrels of recoverable crude oil, compared with 3.65 billion barrels for the Bakken Shale. When combining the Three Forks and the Bakken together, USGS now believes the region holds approximately 7.4 billion barrels of undiscovered, technically recoverable crude oil. This finding almost doubles the initial assessment the agency made back in 2008. (Figure 8 shows the location of the Bakken and Three Forks Formation in the Williston Basin.)



Therefore, the Project is needed and in the public interest as it will provide the timely addition of new pipeline export capacity necessary to link the increasing Bakken production to refining centers in the Midwest and beyond. This new long-haul pipeline provides a timely, cost effective and long-term transportation solution, thereby serving the public's interest in improved access to an abundant, secure, and reliable crude oil supply to satisfy consumers' demand for refined products.¹⁴

C.1.b Future North Dakota System Expansion(s)

EPND's long-term planning to better serve its shippers' increasing pipeline capacity requirements is an ongoing effort requiring EPND to work closely with its shippers and assess various forecasts of production activity.

At this time, EPND has no other expansion projects being developed other than the Project described herein. Upon completion of this Project, EPND will have 580,000 bpd of

¹³ Cited from Energy Wire (Nathaniel Gronewold, E&E reporter) – 5-1-2013, Prosperous play's new oil estimates could influence pipeline plans

¹⁴ Refer to Williston Basin Crude Oil Transportation Options Table at <http://northdakotapipelines.com/oil-transportation-table/>.

pipeline export capacity, linking the Bakken and Three Forks production volumes to premium markets throughout the U.S. Midwest and beyond via EPND's affiliated Enbridge Mainline System and other interconnecting third-party pipeline companies. The design of the Project allows for future expandability up to 406,000 bpd from Berthold, North Dakota to Clearbrook, Minnesota and 711,000 bpd from Clearbrook to Superior, Wisconsin, through the addition of pumping stations should future growth of Bakken crude production and demand for additional pipeline capacity require such expansions. Currently, no active expansion plans are being considered for the Project. EPND and its customers continuously assess demand and supply patterns and various other pipeline infrastructure development projects to determine if and when future expansions or changes are needed to meet market demand.

C.2 FEASIBLE ALTERNATIVE METHODS FOR SERVING THE NEED FOR THE PROPOSED FACILITY

In order to review reasonable alternatives in lieu of constructing the Sandpiper Pipeline Project, it is important to first recap the scope of the Project against each alternative that needs to be compared.

Sandpiper Pipeline Project

The Project is a new 612-mile, 24-inch and 30-inch diameter crude oil pipeline that expands the export capacity of EPND's North Dakota Pipeline System from Beaver Lodge Station near Tioga, North Dakota into Clearbrook, Minnesota, and extends EPND's pipeline system from Clearbrook into Superior, Wisconsin. This Project provides the additional export capacity required by the market to meet the transportation requirements of upstream producers and the refined product needs of the public served by the refineries that are supplied either directly or indirectly by the Project. Other aspects of the Project were considered in the comparative analysis, including:

- Ability to utilize and follow existing pipeline and utility corridors;
- Ability to install station facilities on existing, previously disturbed station sites;
- Ability to integrate new pipeline at Clearbrook for secondary back-up delivery service to Minnesota Pipeline, and receipt of up to 150,000 bpd from EPND's existing Line 81, for the ultimate delivery of 375,000 bpd to Superior; and
- Ability to interconnect new pipeline facilities at the Superior Terminal with other petroleum pipelines east and south of Superior to maximize potential markets served and flexibility for shippers.

Using the above factors, EPND has performed a reasonable and defensible alternative analysis that involves consideration of environmental, engineering and economic factors in a multi-disciplinary and iterative fashion. Thus, discussed below are potential alternatives to the Project that EPND considered.

C.2.a No Action Alternative

In light of the overall increase in Williston Basin production and the requirement of production shippers to have additional export capacity for market access and for U.S. refinery shippers to have access to secure and reliable sources of crude oil supplies to meet the demands of the petroleum consuming public for refined products, a “no action” alternative is unacceptable to EPND and its shippers.

Alternative transportation options to the Project are limited and would result in more impacts than the proposed pipeline expansion project. The only other alternatives for shippers delivering into the North Dakota pipeline system would be to (1) reduce production, if transport options out of North Dakota are capacity constrained; (2) truck or rail all or portions of the increased Bakken production to refineries outside North Dakota with the attendant problems noted in Sections C.2.b and C.2.c below; or (3) transport crude on non-Enbridge pipelines that are expected to be operating at capacity, and thus, would require new pipe or facilities to be constructed. While pipeline expansions have been proposed or are under consideration by other companies, no project can provide the same transportation solution for incremental export capacity to the same premium refineries and marketing hubs as the Project. The facts regarding publicly announced pipeline projects described in Sections C.2.a.(1), C.2.a.(2), and C.2.a.(3) below were considered as part of EPND’s comparative analysis.

C.2.a.(1) Plains Bakken North Pipeline Project

- **a discussion of the design and the geographical area affected**

On November 3, 2010, Plains All American Pipeline LP (“PAA”) announced its plans to reverse its Wascana pipeline system and build a new pipeline, Bakken North, to provide additional takeaway capacity for growing Bakken crude production.

The Bakken North pipeline, consisting of approximately 79 miles of new 12-inch diameter pipeline, extends from Trenton, North Dakota to the southern terminus of Plains’ Wascana system approximately 2.5 miles north of the town of Outlook in Sheridan County, Montana. The new pipeline will have an initial design capacity of 48,000 bpd, with a maximum capacity of up to 75,000 bpd. PAA plans to reverse the flow of its Wascana System in order to provide further transportation service to Regina, Saskatchewan. At Regina, PAA connects to third-party carriers providing access to Cushing, Okla. and Petroleum Administration Defense District (PADD II) delivery points.

Public information about the project can be found on its website at <http://www.paalp.com>. The website also provides links to news releases.

- **an estimate of the in-service date**

No in service date is available. ND-PSC filings show construction completed in late 2012.

- **a discussion of the method of operation**

As an interstate common carrier crude oil pipeline, Bakken North will be required to operate and maintain the new pipeline in accordance with extensive federal and state regulations, specifically 49 CFR Parts 194 and 195 of the USDOT's PHMSA Rules and Regulations, and any applicable national technical standards.

- **its costs**

In the public announcement, PAA estimates the project cost (to the 75,000 bpd capacity) at \$160-200 million.

- **its economic life**

Current information is not available to EPND.

- **its reliability**

EPND assumes that the new pipeline will be constructed, operated and maintained in accordance with all applicable federal/state rules and regulations and industry standards as an interstate common carrier crude oil pipeline

C.2.a.(2) High Prairie Pipeline Project

- **a discussion of the design and the geographical area affected**

Based on the press release issued on March 12, 2012, the High Prairie Pipeline Project will consist of approximately 450 miles of new 16-inch diameter pipeline, beginning north of Alexander, North Dakota in McKenzie County and ending near Clearbrook, Minnesota in Clearwater County. High Prairie is also proposing to construct two laterals: a 17-mile lateral originating at Johnsons Corner, North Dakota in McKenzie County and connecting with the High Prairie Pipeline, and an 8-mile lateral beginning near Robinson Lake, North Dakota in Mountrail County and connecting with the High Prairie Pipeline. The new pipeline will have an initial design capacity of 150,000 bpd and will interconnect with the Enbridge Mainline system at or near Clearbrook, Minnesota for further transportation to marketing centers.

Public information about the project can be found on its website at <http://www.sbpipeline.com>. The website also provides links to news releases.

- **an estimate of the in-service date**

The in-service date has been publicly stated as fourth quarter of 2013. However, EPND is not aware of any construction activities being undertaken at this time.

- **a discussion of the method of operation**

As an interstate common carrier crude oil pipeline, High Prairie will be required to operate and maintain the new pipeline in accordance with extensive federal and state regulations, specifically 49 CFR Parts 194 and 195 of the USDOT's PHMSA Rules and Regulations, and any applicable national technical standards.

- **its costs**

The estimated cost is \$650 million.

- **its economic life**

Current information is not available to EPND.

- **its reliability**

EPND assumes that the new pipeline will be constructed, operated and maintained in accordance with all applicable federal/state rules and regulations and industry standards as an interstate common carrier crude oil pipeline.

C.2.a.(3) Koch Pipeline Company Dakota Express Pipeline

- **a discussion of the design and the geographical area affected**

The Dakota Express Pipeline ("Dakota Express") is a proposed pipeline project with a capacity of 250,000 bpd. The proposed pipeline will transport Bakken crude oil from western North Dakota to Hartford, Illinois and Patoka, Illinois. Koch Pipeline Company also intends to explore a connection at Patoka, Illinois, to the Eastern Gulf Crude Access Pipeline, which would be capable of delivering Bakken crude oil to eastern U.S. Gulf Coast refineries. The new pipeline will be constructed, owned and operated by Koch Pipeline Company. In July 2013, Koch announced a 45-day nonbinding open season to gauge interest from potential shippers in the proposed project.

Public information about the project can be found on its website at <http://www.kochpipeline.com>. The website also provides links to news releases.

- **an estimate of the in-service date**

According to recent news releases, Koch Pipeline Company states an in-service date in 2016.

- **a discussion of the method of operation**

As an interstate common carrier crude oil pipeline, Dakota Express will be required to operate and maintain the new pipeline in accordance with extensive federal and state regulations, specifically 49 CFR Parts 194 and 195 of the USDOT's PHMSA Rules and Regulations, and any applicable national technical standards.

- **its costs**

Current cost information is not available to EPND.

- **its economic life**

Current information is not available to EPND.

- **its reliability**

EPND assumes that the new pipeline will be constructed, operated and maintained in accordance with all applicable federal/state rules and regulations and industry standards as an interstate common carrier crude oil pipeline.

C.2.b Trucking Alternative

Currently, there are certain volumes of crude oil that are transported by truck, due to the lack of pipeline take-away capacity in certain producing regions in North Dakota. As demonstrated herein, the trucking alternative significantly overburdens public roadway capacity, especially considering that trucks require round-trip routing. Also, the reliability of this alternative in northern climates is compromised by periodic restrictions in truck traffic due to winter storms and spring road restrictions or other weather related or capacity availability restrictions. 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 for short or long distances.

Additionally, sufficient tank trailer truck capacity does not exist to transport the same barrels of crude oil per day from Beaver Lodge to Superior, Wisconsin as this Project. However, should the truck capacity issue be resolved, EPND or its shippers would need to expand truck loading/unloading facilities at EPND's existing Beaver Lodge and Berthold Stations to allow receipt of such volumes into EPND's pipeline system, and also add similar trucking facilities at the new Clearbrook Terminal in Clearbrook, Minnesota and at EPND's affiliated Superior Terminal Facility in Superior, Wisconsin. The potential in-service date of additional trucking, road and off-loading capacity is not known.

- **a discussion of the design and the geographical area affected**

For the purpose of this analysis, EPND assumes that trucking companies will optimize the use of its trucking fleet to transport the same crude oil volumes as this Project. EPND

further assumes that the trucking company will divide its transportation requirements into three individual truck hauls that will make round-trips between specified locations; two beginning at the Beaver Lodge Station near Tioga, North Dakota and ending at Berthold, North Dakota or Superior, Wisconsin and a third that begins at Clearbrook, Minnesota and ends at Superior. To achieve maximum optimization of its trucking operations, EPND also assumes that a fleet of trucks would be scheduled to run round-trip deliveries between the following three locations:

- Leaving Beaver Lodge Station near Tioga, North Dakota to deliver 25,000 bpd at Berthold, North Dakota; returning empty from Berthold back to Beaver Lodge;
- Leaving Beaver Lodge to deliver 225,000 bpd at Superior, Wisconsin; returning empty from Superior back to Beaver Lodge; and
- Leaving Clearbrook, Minnesota to deliver up to 150,000 bpd at Superior Wisconsin; returning empty from Superior back to Clearbrook.

In order to transport the same incremental volumes of 25,000 bpd of crude oil from Beaver Lodge to Berthold, 225,000 bpd from Beaver Lodge to Superior, and up to 150,000 bpd from Clearbrook to Superior as proposed by EPND, a fleet of 4,354 trucks $(77+3377+900=4,354)$ ¹⁵ would be required as detailed on Table No. 12:

Table No. 12 Trucking Requirements			
Explanation	Beaver Lodge to Berthold	Beaver Lodge to Superior	Clearbrook to Superior
Crude oil volumes	25,000 bpd	225,000 bpd	Up to 150,000 bpd
Per Truck Capacity	200 barrels	200 barrels	200 barrels
Number of trucks required	$25,000/200 = 125$	$225,000/200 = 1125$	$150,000/200 = 750$
Mileage per trip – each way	61 miles	560 miles	190 miles
Days/trip – one way	0.25	1.25	0.5
No of drivers required for round trip	1	1	1
Number of trucks in transit, full	32 <i>(125 x 0.25=32)</i>	1407 <i>(1125 x 1.25= 1407)</i>	375 <i>(750 x 0.5= 375)</i>
Number of trucks returning empty	32 <i>(125 x 0.25=32)</i>	1407 <i>(1125 x 1.25= 1407)</i>	375 <i>(750 x 0.5= 375)</i>
Number of trucks loading/unloading – assume 20 %	13 <i>(32+32) x 0.20%= 13)</i>	563 <i>(1125+1125) x .20%= 563)</i>	150 <i>(375+375) x 20%= 150)</i>
Total trucks	77 <i>(32+32+13=77)</i>	3377 <i>(1147+1407+563=3377)</i>	900 <i>(375+375+150=900)</i>

¹⁵ ignoring scheduled/unscheduled down time

In total, approximately 4,354 trucks (see Table 12, Total trucks: $77+3,377+900= 4,354$) would be required to transport the same volumes as this Project. Of that total, EPND assumes that 3,628 trucks would be making round trips on the state highways each day, while the remaining 726 trucks would be stationary at designated locations for loading and unloading of the crude oil volumes. Under that same assumption, EPND calculates that this Project will reduce the burden on state highways between Beaver Lodge Station near Tioga, North Dakota and Superior, Wisconsin by 3,444,488 truck-miles per day. In North Dakota, the burden on its state highways is reduced by 1,668,068 truck-miles per day.

In order to facilitate this operation, significant truck loading and/or offloading terminal facilities would have to be constructed at EPND's existing Beaver Lodge Station and Berthold Station in North Dakota, while also installing the same significant trucking loading and/or offloading terminal facilities at EPND's new station and terminal facility at Clearbrook, Minnesota, and EPND's affiliated Superior Terminal Facility in Superior, Wisconsin. In addition, it is likely that substantial upgrades and on-going maintenance would be required (at public expense) to the connecting roadways along the entire route.

- **an estimate of the in-service date**

EPND does not have an estimate of the time required to acquire the trucking fleet described above, how long it would take to attract and train the associated drivers, nor how extensive the roadway upgrade program would be.

- **a discussion of the method of operation**

This operation would be highly labor-intensive, with a significant workforce required at both terminal locations, to allow for the constant loading and offloading requirements. EPND estimates that this option would require a significant driver pool of approximately 4,354 truck drivers to maintain the constant movement of the entire truck fleet.

- **its costs**

EPND is not aware of any trucking operation capable of transporting on a scale equivalent to this Project that it can provide reliable cost comparisons. However, the trucking costs for this alternative could be anticipated to be in the hundreds of millions of dollars per year range (ignoring the costs of maintaining and replacing vehicles over the economic life of the project, fuel, additional overhead costs such as general administration, and necessary public and private infrastructure).

For example, the base capital investment needed to order a fleet of 4,354 trucks to transport the same volumes as this Project (see Table 12) is estimated to be \$870,800,000, assuming each trucking rig would cost approximately \$200,000. Annual wages are estimated to be approximately \$384,588,820 which assumes 4,354 drivers are on the road 365 days per year at the rate of \$242 per day per driver. This means the initial capital investment for the first year of operation would be \$1.255 billion for just the fleet of trucks and its drivers. EPND assumes that the initial capital cost of \$870,800,000 must be accrued at least five (5) more times over the life of the project, assuming the economic life of the truck will not exceed 5 years.

- **its economic life**

With mileage that the trucks would incur in steady service, EPND estimates that the economic life of a truck would not exceed 4 to 5 years. The truck loading and offloading terminals would have an estimated economic life of 25 years. EPND does not have an assessment of the impact that this amount of incremental truck traffic would have on the various roadways.

- **its reliability**

This operation would be inherently much less reliable than the Sandpiper Pipeline Project, as truck traffic is affected by weather conditions, mechanical failure, manpower (driver shortages), road maintenance or closures. Furthermore, according to the National Transportation Safety Board, trucks have a significantly higher rate of accidents affecting driver and public safety than compared to pipelines (see Table 14). Trucking cannot compete with pipelines for volumes over long distances given the physical limitations of trucks and unloading facilities that are required to sustain operations of this nature. Therefore, this alternative was not considered further.

C.2.c Rail Alternative

The use of rail transportation in the Bakken region has increased. This shift in transportation mode is primarily driven by the lack of pipeline take-away capacity to the more attractive markets providing a higher net back to producers. Due to this rise in demand for rail service, sufficient rail tanker car capacity does not exist to transport the same barrels of crude oil per day from Beaver Lodge to Superior, Wisconsin as this Project. (see Table 13.)

This alternative would require (by EPND or its shippers) the construction of new or expanded rail car loading and/or off-loading facilities at EPND's existing Beaver Lodge and Berthold Stations for the receipt and delivery of such volumes to/from third-party rail transportation providers, and also add similar rail loading and off-loading facilities at the new Clearbrook Terminal in Clearbrook, Minnesota and at EPND's affiliated Superior Terminal Facility in Superior, Wisconsin for the same purpose. Simply, the size of the rail fleet and its ancillary facilities would require significant land acquisition and conversion of its use from agricultural to industrial. Moreover, construction of new lateral above-ground rail service lines would be required and would pose additional risk and impact to landowners and the public. While rail tanker cars are a vital part of the short-haul distribution network for crude oil, pipelines are a safer and more economic transportation alternative. The potential in-service date of additional truck-to-rail, rail tanker car, rail line, and off-loading capacity is not known.

- **a discussion of the design and the geographical area affected**

For the purpose of this analysis, EPND assumes rail transportation providers will optimize the use of their rail fleet to transport the same crude oil volumes as the Project. EPND also assumes that the rail service provider will use long-haul unit or manifest trains with deliveries at intermediate stops between Beaver Lodge Station and Superior, Wisconsin.

EPND further assumes that numerous unit and manifest trains will be needed to make the following deliveries equivalent to this Project.

- Leaving Beaver Lodge Station near Tioga, North Dakota with a rail fleet capacity of 250,000 bpd, and the ability to offload deliveries of 25,000 bpd of crude oil supplies at Berthold, North Dakota; no guarantee that empty rail tank cars would return to Beaver Lodge for reloading;
- Leaving Berthold with a rail fleet capacity of 225,000 bpd and the ability to offload entire capacity of rail fleet at Superior, Wisconsin; no guarantee that empty rail fleet would return to Beaver Lodge for reloading; and
- Leaving Clearbrook, Minnesota with a rail fleet capacity up to 150,000 bpd, and the ability to offload entire capacity of rail fleet at Superior, Wisconsin; no guarantee that empty rail fleet would return to Clearbrook for reloading.

In order to meet the rail transportation requirements described above, EPND assumes a rail fleet of 2,052 tank cars¹⁶ would be needed as detailed on Table 13.

Table 13 Rail Requirements			
Explanation	Beaver Lodge to Berthold	Beaver Lodge to Superior	Clearbrook to Superior
Crude oil volumes	25,000 bpd	225,000 bpd	Up to 150,000 bpd
Per railcar Capacity	600 barrels	600 barrels	600 barrels
Number of railcars required	$25,000/600 = 42$	$225,000/600 = 375$	$150,000/600 = 250$
Mileage per trip – each way	61 miles	560 miles	190 miles
Days/trip – one way	1	1.5	1
Number of railcars in transit, full	42 <i>(42 x 1=42)</i>	563 <i>(375 x 1.5=563)</i>	250 <i>(250 x 1=250)</i>
Number of railcars returning empty	42 <i>(42 x 1=42)</i>	563 <i>(375 x 1.5=563)</i>	250 <i>(250 x 1=250)</i>
Number of railcars loading/unloading – assume 20 %	17 <i>(42+42) x 0.20%= 17)</i>	225 <i>(563+563) x 0.20%= 225)</i>	100 <i>(250+250) x 0.20%= 100)</i>
Total railcars	101 <i>(42+42+17=101)</i>	1351 <i>(563+563+225=1351)</i>	600 <i>(250+250+100=600)</i>

¹⁶ ignoring scheduled/unscheduled down time

Approximately 2,052 rail cars (see Table 13, Total rail cars: $101+1351+600=2,052$) would be required to transport the same volumes as this Project. Of that total, 1701 rail cars have to be in route each day, making the roundtrip between Beaver Lodge, North Dakota and Berthold, North Dakota (84 rail cars); Beaver Lodge to Superior, Wisconsin (1126 rail cars); and Clearbrook, Minnesota and Superior, Wisconsin (500 rail cars). The remaining 342 rail cars represent the total number of rail cars that EPND assumes would be stationary at the rail facilities while loading/off-loading of the crude oil volumes. In order to facilitate this operation, significant spur lines, rail sidings, and terminal facilities would have to be constructed at Beaver Lodge Station near Tioga, North Dakota, Berthold Station at Berthold, North Dakota, new station and terminal facility at Clearbrook, Minnesota and at existing Superior terminal at Superior, Wisconsin. In North Dakota alone, EPND assumes that approximately 500 acres of agricultural land would be converted to industrial use in order to build a new rail terminal facility at Beaver Lodge Station, and expand the existing rail facility at Berthold. In addition, substantial upgrades and on-going maintenance would be required to the connecting railways.

- **an estimate of the in-service date**

As stated previously, rail deliveries have become more significant due to lack of pipeline capacity to move production to the more attractive markets as compared to the ability for rail to reach market centers that provide a higher net back to producers. In 2012, rail delivered 0.2 percent of the total crude oil processed by PADD II refineries. For the U.S. as a whole, crude oil deliveries by rail comprised 0.6 percent of the total deliveries in 2012, which is up five-fold from the 2011 rail deliveries.

The current demand for crude-by-rail transportation has created 100% utilization of the tank car construction industry.¹⁷ Crude shipments by rail are continuing to increase, creating a supply shortage of new tank cars. According to data from the Freight Transportation Research Associates, available through the Bloomberg service, tank car manufacturers have a backlog order of roughly 47,000 tank cars. The timeline to process an order and receive delivery of such tank cars is now estimated at 15-18 months.¹⁸ Therefore, EPND concluded crude-by-rail transportation is not a viable option, since the timeline necessary to manufacture 2052 new tank cars would far exceed the in-service date for this Project. EPND does not have an estimate of the time required to construct the necessary upgrades associated with the railway infrastructure.

- **a discussion of the method of operation**

This operation would be highly labor-intensive, with a significant workforce required at EPND's existing Beaver Lodge and Berthold Stations and at the new Clearbrook and Terminal Facility in Clearbrook, Minnesota, and the existing Superior Station and Terminal facility in Superior, Wisconsin to allow for the constant loading and offloading requirements and rail car operation.

¹⁷ Wall Street Journal, Oil Boom Heats Up the Rail, July 18, 2013

¹⁸ <http://wire.kapitall.com/investment-idea/tank-car-manufacturers-to-benefit-from-crude-by-rail>.

- **its costs**

EPND is not aware of any rail operation on the same scale of this Project that could provide guidance on estimating the capital costs required for rail service of this magnitude. EPND also is unsure if rail carriers have or would provide a joint rail tariff(s) for the service contemplated. The rail costs for this alternative could be anticipated to be in the hundreds of millions of dollars per year range (without considering the costs of new rolling stock and infrastructure facilities necessary). For example, the base capital investment needed to order a fleet of 2,052 tank cars is estimated to range between \$285,228,000 to \$293,436,000. This estimate is based on the latest specific new-build prices that range from \$139,000 to \$143,000 for a 25,500 gallon/600 barrel coiled/insulated tank car.¹⁹ This cost estimate does not include land costs, new rail infrastructure, railway maintenance, labor costs, fuel, or other associated expenses.

- **its economic life**

With mileage that the cars would incur in steady service, the applicant estimates that the economic life of a rail car would not exceed 10 to 15 years. The rail loading and offloading terminals would have an estimated economic life of 25 years.

- **its reliability**

This operation would be inherently much less reliable than the Project. The entire operation would be subject to weather-related delays, delays caused by scheduling conflicting rail traffic, and a significant mechanical/maintenance requirement based on the number of rail cars involved in this operation.

The transporting of crude oil by rail has increased due to the urgent need for additional pipeline infrastructure and transportation capacity.²⁰ Transportation cost analysis indicate that pipeline transport is roughly 60 percent of the cost of rail, and risk of rail accidents is approximately 9 times higher than that of a pipeline.²¹ Rail accidents result in fires and/or explosions about 2 times more frequently per barrel of oil transported per mile.²²

C.2.d Alternative EPND Pipeline Route

The preference for route selection was to co-locate and run parallel to existing pipelines and utility corridors to the extent practicable. The goal in selecting the proposed route was the ability to utilize existing pipeline right-of-way, station sites, associated station facilities and power access to the extent possible, and to minimize environmental impacts, reduce overall construction costs, and ensure the constructability of the potential route alignment.

¹⁹ <http://www.rbenergy.com/i-can-see-for-miles-and-miles-and-miles-and-miles-tank-cars>, Page 2.

²⁰ 2012 Annual CAPP Long-Term Outlook Report, Page iii.

²¹ See RITA, Bureau of Transportation Statistics, Table 2-3: Transportation Accidents by Mode at http://www.bts.gov/publications/national_transportation_statistics/html/table_02_03.html

²² Source: Allegro Energy Group as posted on the Association of Oil Pipelines website, comparison was based on calculated rates per ton-mile.

While route variants were minimized to the extent practicable, a number of considerations were evaluated when determining whether a deviation from EPND's existing North Dakota pipeline system was prudent. The considerations that EPND used as its criteria for route variances included, but were not limited, to the following: poor waterbody crossing points or alignments, road bore staging areas located within wetlands, improvement of road crossing angles, landowner concerns, congested utility corridors and/or facility encroachments, and avoidance of environmentally sensitive areas when feasible.

After evaluating the route selection for this Project, EPND determined that certain route variants will be necessary to address the following issues: 1) encroachments near the existing pipeline; 2) densely populated areas; 3) communities' concerns in routing; or 4) to avoid special land or environmental features. These route variants are discussed in Section B.2.e of the Route Permit Application.

C.2.e A summary of the conclusions reached with respect to the alternative and the reason for its rejection

Based on the forecast of demand and supply for crude oil discussed in Section C.1 (Needs Summary), EPND determined and shippers have supported the need to construct the Project, as described herein, to meet the increasing demand for additional pipeline capacity in the Williston Basin region.

EPND has evaluated the various alternative transportation options which are limited to rail, truck and pipelines. Based on factors considered for each alternative, it was determined that:

- "No Action" was not acceptable to EPND and its shippers because additional pipeline capacity is needed to meet its shippers' current and future transportation requirements.
- Alternative Pipelines: Based on the supporting forecast studies discussed in Section C of this Application, EPND determined that Sandpiper and other potential pipeline projects are not competing for the same production volumes, and are needed to meet the market demand for additional pipeline export capacity. Moreover, based on the table data from the "U.S. Williston Basin Crude Oil Export Options [table] dated June 19, 2013,"²³ the total existing and planned pipeline export capacity anticipated to be available in 2015 is 1.083 million bpd. This also aligns with and complements other forecast reports discussed herein that show production exceeding 1.0 million bpd in 2015, as well. Not constructing the Project would result in limited pipeline capacity, which would require new and increasing production volumes to be apportioned among the existing pipelines, or transported to market by other modes of transportation,

²³ Source: North Dakota Pipeline Authority's website at <https://www.dmr.nd.gov/pipeline/>

such as truck or rail, which are more costly to producers based on the current pricing at key marketing hubs.

Pipelines still remain the safest and most cost-effective modes of transporting crude oil to market. According to EIA data, over the last 10 years, pipelines have made 99.4 percent of the total crude oil deliveries to PADD II refineries. In 2012, pipelines delivered 98.5 percent of the total crude oil processed by PADD II refineries.

Table 14 shows the accident rates of other modes of transportation in comparison to a crude oil pipeline. According to the Manhattan Institute,²⁴ road and rail have higher rates of serious incidents and injuries than pipelines, even though more road and rail incidents go unreported. Crude oil pipelines transport 94% more billion ton-miles²⁵ of shipments than are transported by road and 96% more billion ton-miles of shipments than are transported by rail but have the lowest incident rate. Road transport has the highest rate of incidents, with 19.95 per billion ton-miles per year followed by rail, with 2.08 per billion ton-miles per year. Hazardous liquid pipelines were the safest, with 0.58 serious incidents per billion ton-miles.

- **Truck and Rail:** Alternative modes of transportation, such as trucking and rail options discussed in Sections C.2.b and C.2.c above, are cost-prohibitive or impose higher public and environmental costs than the Project described herein.

Table 14 Comparative Statistics for Petroleum Incident Rates Onshore Transmission Pipelines vs. Road and Railway (2005--2009) ^[3]			
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", available at http://www.rita.dot.gov/bts/sites/rita.dot.gov/bts/files/publications/national_transportation_statistics/index.html, accessed April 2013. Incident and release volume data for Road and Railway were extracted from the Office of Hazardous Materials Safety "Incident Reports Database Search" at <https://hazmatonline.phmsa.dot.gov/incidentReportsSearch/>, accessed April 2013. HL Pipeline release volumes were extracted from the Pipeline and Hazardous Material Safety Administration "Hazardous Liquid Accident Data - 2002 to 2009" file available at <http://phmsa.dot.gov/portal/site/PHMSA/menuitem.ebdc7a8a7e39f2e55cf2031050248a0c/?vgnextoid=fd2dfa122a1d110VgnVCM100009ed07898RCRD&vgnextchannel=3430fb649a2dc110VgnVCM1000009ed07898RCRD&vgnextfmt=print>, accessed April 2013.

²⁴ Manhattan Institute. Pipelines Are Safest for Transportation of Oil and Gas. Issue Brief No. 23. June 2013. http://www.manhattan-institute.org/html/ib_23.htm

²⁵ A unit of freight transportation measurement equivalent to a ton of freight transported one mile.

Therefore, EPND has concluded that this Project provides a cost effective and efficient method that:

- provides a long-term transportation solution for moving Bakken and Three Forks production to premium U.S. refineries and marketing hubs;
- increases the pipeline capacity of EPND's North Dakota pipeline system from Beaver Lodge to Superior, Wisconsin to meet the current and future transportation requirements of its shippers;
- helps reduce the current reliance on long-haul truck deliveries and rail export options; and
- helps reduce the transportation costs borne by Williston Basin producers who would otherwise be forced to resort to non-pipeline transport options, allowing their savings to be immediately re-directed toward the development of the oil and gas resources in the State, resulting in additional economic benefits to North Dakota.

As proposed, this Project minimizes environmental and landowner impacts to the extent practicable and, when integrated with the existing EPND System, provides the safest, most efficient and cost effective alternative to bridge the gap between the growing demand for crude oil supplies in the Midwest and the increased and reliable domestic supplies from North Dakota and Montana.

APPLICATION FOR CORRIDOR CERTIFICATE
SECTION D
LOCATION

D.1 STUDY AREA

EPND defined its study area as a 2-mile wide corridor²⁶ centered on the proposed pipeline route. Section 69.06.04.01.e of the North Dakota Administrative Code (“NDAC”) would typically require a 6-mile wide study area based on the Project length. However, EPND is requesting that the ND-PSC reduce the width of the corridor to 2 miles, centered on the proposed pipeline. Based on the factors subject to the ND-PSC’s consideration for the evaluation and designation of sites, corridors and routes for this Project, EPND has determined that a 2-mile wide study area is sufficient to allow the ND-PSC to comply with the requirements under NDCC Chapter 49-22-09. A discussion of the factors subject to the ND-PSC’s evaluation for this Project are addressed in Section B.2 of the Application for a Route Permit.

EPND conducted a desktop analysis consisting of mapping, GIS, and internet research, and then completed agency consultations over the 2-mile wide study area (see Section B of the Route Permit Application). In addition, cultural resource, biological and wetland/waterbody field surveys were conducted, generally on an approximately 250 to 450-foot wide environmental survey corridor, along the proposed route within the 2-mile wide study area. However, EPND has widened its environmental survey corridor beyond 450 feet in certain locations to address any known environmental and encroachment issues or additional temporary workspace requirements (see route maps enclosed herein as Exhibit D).

D.2 MAP OF PROPOSED CORRIDOR

Maps showing the location of exclusion and avoidance areas in the area of the corridor are attached as Exhibit I.1 and I.2.

D.3 RELATIVE VALUE OF EVALUATION CRITERION

This Application is a Consolidated Application for a Corridor Certificate and Route Permit. The relative value of evaluation criterion is discussed in Sections B.4, B.5, and B.6 of the Route Permit portion of this Application.

²⁶ As seen in Case Nos. PU-11-232 and PU-11-606, the ND-PSC found that a study area less than 6 miles is sufficient to allow it to evaluate the factors address in Chapter 49-22-09 of the NDCC (The factors to be considered in evaluating applications and designation of sites, corridors and routes are discussed in Section B.2 of the Application for a Route Permit.

D.4 GENERAL MITIGATIVE MEASURES TO BE TAKEN

The general mitigation measures that EPND will employ in the construction of this Project are discussed in detailed in Section B.6 of the Application for a Route Permit.

D.5 QUALIFICATIONS OF PERSONS CONTRIBUTING TO THE STUDY

D.5.a Sara Ploetz

Environmental Analyst II, Enbridge Major Projects (US)

Degree: B.A., Environmental Studies, University of Minnesota-Duluth, Duluth, Minnesota

Experience: 7 years of experience in environmental and regulatory permitting and construction oversight compliance

D.5.b Gayle Konik

Manager, Enbridge Major Projects (US)

Degree: B.A., Anthropology, Co-Major-Environmental Studies, Wayne State University, Detroit, Michigan

Experience: 20+ years of experience in environmental and regulatory permitting and construction oversight compliance

D.5.c Angela Ronayne, P.E.

Senior Analyst, Merjent, Inc.

Degree: B.S., Civil Engineering, University of Minnesota, Twin Cities.

Experience: 15 years of experience in pipeline environmental and regulatory compliance

Other Training and Licenses: Professional Engineer – Minnesota

D.5.d Bill Regan

Senior Analyst, Merjent, Inc.

Degree: B.S., Biology, University of Minnesota, Twin Cities

Experience: 20+ years of experience in environmental and regulatory permitting, oversight, and compliance

D.5.e April Brehm

Senior Analyst, Merjent, Inc.

Degree: B.A., Environmental Policy and Planning, Alaska Pacific University, Anchorage, Alaska

Experience: 12 years of experience in environmental and regulatory permitting, oversight, and compliance

D.6 MAPS

D.6.a Map of Evaluation Criteria within Study Area

EPND encloses herewith as Exhibit C, station plot plans, topographical maps and aerial maps for the station facilities proposed herein. Also, enclosed herewith as Exhibit D are the route maps showing the location of the new proposed 299-mile transmission line. County maps of the Project are enclosed herewith as part of Exhibit D.

D.6.b Map and GIS Requirements

In accordance with NDAC Section 69-06-05.01(2)(q), EPND is filing, under a separate cover, a CD which contains the GIS data required by ND-PSC for its proposed Sandpiper Pipeline route, as described in this Application. This CD contains detailed design information and aerial imagery which shows the exact location of this Project and other existing energy infrastructure located within a close proximity of this new pipeline. EPND operates an interstate common carrier pipeline which is considered critical energy infrastructure, as it plays an important role in the distribution of vital energy supplies to the refinery markets in the Midwest and beyond. Such detailed information would be of great benefit to anyone with a desire to disrupt the economy through an attack on this infrastructure, and thus, constitutes the treatment of Critical Energy Infrastructure Information (CEII) under the USA Patriot Act of 2001 and other federal guidelines. Accordingly, distribution of detailed maps must be controlled and not released within the public domain without good cause shown.

In a separate filing, EPND is submitting the CD as Privileged and Confidential Information to be treated as CEII data, and, therefore, exempt from the public domain by a requested Protective Order so issued by the ND-PSC.