



NORTH DAKOTA PUBLIC SERVICE COMMISSION

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

**LITTLE MUDDY STATION CONNECTION PROJECT
November 2011**

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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.

A.1.a Type of Facility

Enbridge Pipelines (North Dakota) LLC (EPND) currently owns and operates a 968-mile underground petroleum gathering and mainline pipeline system that extends from eastern Montana through the state of North Dakota to Clearbrook, Minnesota. This system also extends northward to the US-Canadian International Boundary where EPND's transmission line (Line 26) ties to its Canadian counterpart's pipeline system near the town of Lignite, Burke County, North Dakota (see Exhibit A.1 EPND System Map).

In this application, EPND proposes to expand the western portion of its North Dakota Pipeline System in Williams County, North Dakota. The Little Muddy Station Connection Project (Project) is a standalone project complementing EPND's other expansion projects¹. The Project is designed to meet the transportation requirements of the Bakken shippers, especially as increased drilling activity comes online and additional transportation pipeline capacity is needed to move Williston Basin production to market. This Project involves the construction of a new pump station and terminal facility, including all associated facilities, and a new 10-inch transmission line as more fully described in Section A.3 of this Application.

As proposed, the new station referred to hereinafter as the "Little Muddy Station" is designed to receive new and existing receipt volumes from two sources, which will be located within the new station site.

¹ As approved by this Commission in the following docketed proceedings:
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 were fully placed in-service on January 2008.
In Docket No. PU-07-791, EPND's Phase 6 was approved by the ND-PSC in July, 2008 and was fully placed in service in January 2010.
In Docket Nos. PU-10-612 & PU-10-613, EPND's Bakken Expansion Program was approved by the ND-PSC in May 2011, and are currently under construction.

Those receipt sources are as follows:

1. A new shipper owned and operated truck unloading facility, which will be located on property leased from EPND at its new Little Muddy Station site; and
2. A new future interconnect with one or more third-party pipelines, which will be also located within the new Little Muddy Station site.

The Little Muddy Station is designed to inject new receipt volumes into the new 10-inch pipeline transmission line, where such volumes will be transported to EPND's existing East Fork Station and then further transported to its Beaver Lodge Station via Lines 84 or 86. At Beaver Lodge, shippers will have the option to utilize EPND's existing Mainline System and the new Beaver Lodge Loop Line (beginning in 1st Quarter of 2013) for access to export pipeline capacity to move volumes to mid-western markets and beyond, as more fully described below.

A.1.b Purpose of Proposed Facilities

The purpose of the Project is to address the current demand for pipeline capacity out of the gathering hubs within the Bakken and Three Forks production areas. This Project will enable EPND to receive incremental crude oil volumes from a new shipper owned and operated truck unloading facility and also from a future interconnect with a third party pipeline. The new station will be designed with an initial annual capacity to receive and inject approximately 55,000 barrels per day (bpd) into the new 10-inch transmission line. The new pipeline will provide new pipeline capacity to move 55,000 bpd of Bakken and Three Forks production from the new Little Muddy Station to EPND's existing East Fork Station. From East Fork, volumes will be transported on EPND's existing Lines 84 or 86 to its Beaver Lodge Station and Terminal Facility. From Beaver Lodge, shippers will have a number of options for access to export pipeline capacity and ultimate delivery to refinery and marketing centers throughout the Upper Midwest and the Midcontinent, including those connected to the Cushing, Oklahoma hub.

Therefore, the Little Muddy Station Connection Project is a reliable, efficient, and cost effective solution to meet long-term demand and transportation requirements of EPND's shippers who require access to refineries in the Upper Midwest and Great Lakes region. This independent Project complements EPND's previous Mainline expansion projects, serving as a feeder line to transport new and increasing crude oil volumes being received from Bakken and Three Forks Formation receipt locations to Beaver Lodge where shippers have access to the best options and greatest connectivity into North American refinery and marketing hubs via EPND's pipeline



system to Clearbrook or its newly expanded Line 26 where Enbridge's Mainline System connects with destination refinery hubs.

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

Type

As defined in its FERC Tariff on Rules and Regulations, EPND currently transports the following commodities within its multi-pipeline system:

US High Sweet Crude (UHC)

Source

The primary source of new supply for the Project originates from new and increasing receipt volumes being delivered to EPND from gathering areas in Williams County, which is one of the top producing counties in North Dakota.

Final Destination

EPND's Mainline System provides shippers with the flexibility to transport Bakken crude oil volumes east to Clearbrook, MN, or north via Line 26 to the US-Canadian International Border. From that point, shippers will have access to EPND's affiliated pipelines in Canada for further transportation to the Enbridge Mainline System at Cromer, Manitoba. Once supply volumes reach Cromer, Manitoba or Clearbrook, MN, shippers have access to numerous refinery markets throughout the Upper Midwest and the Midcontinent, including those connected to the Cushing, Oklahoma hub via Enbridge's Mainline System or other third-party interconnecting pipelines.

A.3 SIZE AND DESIGN

A.3.a Electric Facility

Not Applicable.

A.3.b Provide a description of the size and design of the PIPELINE facility including, but not limited to, the following:



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

Pipeline: New pipeline right-of-way easements will be required to construct approximately 6 miles of new 10-inch diameter pipeline in Williams County. As shown on Table 1 below, the Project will have the following typical right-of-way requirements and construction footprint.

Table 1 Typical Right-of-Way Requirements and Construction Footprint						
Land Type	Study Area	Survey Corridor	Typical Construction Footprint	Typical Temporary Work Space	Extra Temporary Work Space at Crossing	New Permanent ROW
Upland	1-mile	400 feet	110 feet	60 feet	75 feet wide X 300 feet long	50 feet
Wetland	1-mile	400 feet	85 feet	35 feet	75 feet wide X 300 feet long	50 feet

For more detailed information regarding the right-of-way requirements and typical right-of-way configuration drawings, see Section B.4.c.(9) of the Route Permit Application and Exhibit K, which are being filed as part of this combined application.

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

The distance between the new Little Muddy Station and EPND’s East Fork Booster Station, the next above-ground facility, is approximately 6 miles in length. All above ground facilities will be located in Williams County. For more detailed information on the individual stations see Section A.3.b.(7) of this Application.



A.3.b.(3) Pipe Size

The new 10-inch transmission line originates at the new Little Muddy Station and extends to the southeast to terminate at EPND’s East Fork Station. The pipeline will have the following characteristics:

Table 2 Pipe Size and Characteristics	
Cross Country Pipe	Crossing Pipe
10.75-inch outside diameter (10-inch nominal)	10.75-inch outside diameter (10-inch nominal)
.219-inch wall thickness	.312/.365-inch wall thickness
Grade X-52 API 5L	Grade X-52 API 5L
Steel Pipe	Steel Pipe

EPND will install station piping at the new Little Muddy Station and its East Fork Station with the following pipe characteristics:

Table 3 Station Pipe Size and Characteristics				
Nominal Size	Outside Diameter	Wall Thickness	API Standards	Type
4-inch	4.5 inch	0.337	API 5L Grade B/X-42	Steel
6-inch	6.625 inch	0.280	API 5L Grade B/X-42	Steel
8-inch	8.625 inch	0.322	API 5L Grade B/X-42	Steel
10-inch	10.75 inch	0.365	API 5L Grade B/X-42	Steel
12-inch*	12.75 inch	0.375	API 5L Grade B/X-42	Steel
16-inch	16.00 inch	0.375	API 5L Grade B/X-42	Steel

*Little Muddy Station only



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

EPND will construct, own, and operate approximately 6 miles of new 10-inch diameter pipeline, all being located in Williams County. As previously stated, the pipeline will originate at the new Little Muddy Station in Section 17, Township 156 North, Range 100 West and terminate at the East Fork Station in Section 36 Township 156 North, Range 100 West, in Williams County, North Dakota.

EPND will install station piping at the new Little Muddy Station as outlined below:

Table 4 Little Muddy Station Piping	
Nominal Pipe Size	Approximate Length in Feet
4-inch	790
6-inch	560
8-inch	270
10-inch	2,910
12-inch	530
16-inch	10

EPND will install station piping at the East Fork Station as outlined below:

Table 5 East Fork Station Piping	
Nominal Pipe Size	Approximate Length in Feet
4-inch	150
6-inch	20
8-inch	575
10-inch	600
16-inch	10



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

The design pressure for the pipeline and station discharge piping is 1480 psig; normal operating pressures are anticipated to be less than 600 psig, but will range higher during some pumping situations. Operating temperatures will range from 41° to 65° F.

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

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

- Design Capacity is the theoretical capacity of the pipeline for given types of liquids and their batch sequence. Design Capacity is calculated assuming theoretically ideal operating conditions.
- Annual Capacity is the average sustainable throughput rate over a year. Annual Capacity is calculated assuming historic average annual and operating conditions. These operating conditions include scheduled and unscheduled maintenance, normal operating issues and crude supply rateability. Annual Capacity of a pipeline is typically 90% of Design Capacity (see Table 6 below).

Table 6 Little Muddy Pipeline Capacity		
		Project Capacities (bpd)
Ultimate Design Capacity	Maximum economic expansion capacity of individual pipeline. Requires additional pumping horsepower over current design to meet this capacity	187,000
Ultimate Annual Capacity	Maximum economic expansion capacity of individual pipeline that is sustainable average daily rate per day over a year	168,000
Design Capacity	Theoretical capacity	61,100
Annual Capacity 90%	Average sustainable rate average barrels per day over a year (90% of design)	55,000



Maximum Design Flow Rate

New Receipt Capacity for New Shipper Owned and Operated Truck Unloading Facility

The new Little Muddy Pump Station and Terminal Facility will be designed to receive new and existing crude oil supply volumes from a new shipper owned and operated truck offloading facility at the maximum design flow rate of 7,200 barrels per hour (“bph”). The maximum design flow rate for each truck unloading lot is 900 barrels per hour (“bph”). With eight truck unloading lots planned, the maximum design flow rate from the truck unloading lots into the Little Muddy Station is 7,200 bph. (Calculation: 8 shipper-owned pumping units x a maximum flow rate of 900 bph = maximum design flow rate of 7,200 bph).

New Receipt Capacity for Future Interconnect with Third-Party Pipelines

The new Little Muddy Pump Station and Terminal Facility will be designed to receive new and existing crude oil supply volumes from a future interconnect with a third-party pipeline. The maximum design flow rate for the interconnection is 20,000 bpd.

New Injection Capacity of Little Muddy Station

The Little Muddy Station will have an initial maximum design injection capacity of 61,100 bpd with an annual flow rate of 55,000 bpd.

A.3.b.(7) The General Location

See Exhibit A.2 for general overview map of the Project.

Location of the Proposed Pipeline

The pipeline will originate at the new Little Muddy Station in Section 17, Township 156 North, Range 100 West and terminate at the East Fork Station in Section 36, Township 156 North, Range 100 West, in Williams County, North Dakota.

Location of the Proposed Pump Stations and Terminals

New Proposed Little Muddy Pump Station:

Location

The new Little Muddy Pump Station is located 18 miles west of Ray, ND just south of U.S. Highway 2 and County Road 9 (133rd Avenue NW) intersection in Williams County, ND.

Legal Description

The new Little Muddy Pump Station will be located in the SE $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 17, Township 156 North, Range 100 West, Williams County, North Dakota.

Facilities

- Two (2) New Mainline 500 HP Pumps and 600-HP variable frequency drives
- Two (2) New 125 HP Booster Pumps
- New Metering Facility including (2) x 6" meters and all valves and appurtenances
- New Sump Pump and Tank
- New Pig Launcher
- New 12- inch Tank Suction Header
- New 10-inch Tank Fill Manifold
- New Control Building
- Cable & wiring to power, control & communicate with new equipment

Other Work

All civil work required to site and access these station facilities.

Tankage

Two (2) New 30,000 barrel tanks

Land Requirements

EPND has secured a Purchase Option from the landowner to acquire approximately 40 acres of land in Williams County, North Dakota to site its new Little Muddy Pump Station and Terminal.

Plot Plan, Topographical and Aerial Maps of the new proposed pump station and terminal facility

Maps are enclosed herewith as:

- Exhibit B.1 (Little Muddy Station Overall Plot Plan)
- Exhibit B.1.1 (Little Muddy Station Detail Plot Plan)



- Exhibit B.1.2 (Little Muddy Station Piping Plan)
- Exhibit B.2 (Little Muddy Station Topographic Map)
- Exhibit B.3 (Little Muddy Station Aerial Map)

Construction at site by others

EPND will lease property to third-party shippers who will construct, own and operate eight (8) truck unloading facilities, including a Leased Automatic Custody Transfer (LACT) unit and an associated storage tank.

Additionally, the utility company will install a new electric transformer.



Existing East Fork Station

Location

The existing East Fork Station is immediately northwest of the intersection of 60th St. NW and 129th Ave. NW (County Rd. 11), Williams County, North Dakota.

Legal Description

The existing East Fork Pump Station is located in the SE ¼ of SE ¼ of Section 36, Township 156 North, Range 100 West, North Dakota.

New Facilities

Existing facilities at East Fork Station include 1 pumping unit, skid-mounted drag reducing agent injection equipment, suction and discharge piping, valves, sump tank and drain lines, instrumentation and control building.

New facilities consist of:

- Pig receiver
- Metering facility including (2) x 6" meters and all valves and appurtenances
- Electric transformer
- Cable & wiring to power, control & communicate with new equipment

Other Work

All civil service work required to site these station facilities.

Tankage

Not applicable.

Land Requirements

All work activities will be performed within EPND's existing 5 acre site as previously approved and permitted by this Commission on July 28, 2005 in PU-05-274. No new land will be required for the work at East Fork Station.

Plot Plan, Topographical and Aerial Maps of the proposed pump station

Maps are enclosed herewith as:

- Exhibit B.4 (East Fork Station Plot Plan)
- Exhibit B.5 (East Fork Station Topographic Map)
- Exhibit B.6 (East Fork Station Aerial Map)

A.4 TIME SCHEDULE

A.4.a Certificate of Corridor Compatibility

EPND respectfully requests the North Dakota Public Service Commission to approve its certificate by April 18, 2012.

A.4.b Route Application

A route application was submitted by EPND in November 2011 as part of this consolidated Application for a Certificate of Corridor Compatibility and Route Permit.

A.4.c Route Permit

EPND respectfully requests the North Dakota Public Service Commission to approve its route permit by April 18, 2012.

A.4.d Construction Start Date

Construction will commence immediately upon receipt of appropriate approvals. EPND's expected start construction date is first week in May 2012.

A.4.e Construction Complete

EPND's estimated construction completion date is on or before the end of 4th Quarter 2012.

APPLICATION FOR CORRIDOR CERTIFICATE
SECTION B
STUDIES

EPND consulted with several federal, state, and local agencies to identify environmental resources in the Project area and determine what, if any, environmental studies or assessments would be required of the Project. In these consultations, EPND requested a review of the Little Muddy Pump Station and Terminal Facility, pipeline route and a one-mile wide “study area” centered on the pipeline, as well as a one-half-mile buffer around the perimeter of the new Little Muddy Pump Station. In the southeast portion of the Project route, EPND was considering an approximately 1.5 mile segment alternative prior to environmental survey and submittal of agency consultations. Since these surveys were completed and agency consultations submitted, EPND has removed this segment alternative from consideration, and has finalized the pipeline route presented herein.

Additionally, EPND commissioned field surveys for cultural resources, wetlands and waterbodies, and biological resources. The “survey corridor” includes an approximately 40-acre block associated with the Little Muddy Station, and an approximately 400-foot wide corridor generally centered on the pipeline. As described above, environmental surveys were also conducted on an approximately 1.5 mile segment alternative. Although this alternative is no longer being considered, data associated with this survey is included in this filing. In anticipation of extra workspace needs (e.g., roads, waterbody crossings), additional adjacent areas were surveyed.

Discussion of issues and concerns raised by agency personnel and a summary of the field surveys are included below. Further details regarding these consultations and field surveys as they relate to Exclusion Areas, Avoidance Areas, and Selection Criteria are included in Section B.4 of the Application for a Route Permit. Discussion of specific impacts and mitigation measures are included in Section B.6 of the Application for a Route Permit.

B.1 CULTURAL RESOURCE INVESTIGATIONS

B.1.a State Historical Society of North Dakota (SHSND) / State Historic Preservation Office (ND-SHPO)

The State Historical Society of North Dakota (SHSND) is the agency within North Dakota responsible for protecting the state’s cultural resources. The North Dakota State Historic Preservation Office (ND-SHPO) within the Historic Preservation Division (HPD) of the SHSND reviews proposed

federally licensed and/or funded projects and the concomitant cultural resources identification, evaluation, protection, preservation, and development and/or mitigation efforts. Further, the HPD, through the Director, is responsible for preservation and interpretation of the state's archaeological and historic architectural sites. The SHSND is responsible for implementing the cultural resources investigation permitting process, as outlined in North Dakota Century Code 55-03.

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

On behalf of EPND, Metcalf Archaeological Consultants, Inc. (MAC) of Bismarck, North Dakota, completed the cultural resources investigations for the Project, beginning with a search of the ND-SHPO files on September 8 and 9, 2011. This literature review did not identify any archaeological sites or historic architecture sites in the survey corridor. Within the one-mile study area of the Project, nine prehistoric archaeological sites and four historic architecture sites were previously recorded. The literature review also revealed that five previous cultural resources inventories have been conducted within one mile of the Project area.

The area of potential effect (APE) for direct impacts to cultural resources is the geographic surface and subsurface that will be directly impacted by pipeline construction and installation. For above ground facilities, there is an area of potential visual impacts; the distance for visual impacts depends on several factors, such as topography and tree lines, but is generally a maximum of one-quarter mile.

MAC conducted a Class III inventory field survey of the Project area during the week of September 19, 2011. The survey consisted of pedestrian survey along uniform transects spaced at 15 to 20 meter intervals for the entire 400-foot-wide survey corridor, and the station footprint. Ground visibility was variable but averaged 40 to 70 percent. The observed land use of the survey corridor was mostly agricultural, and included fallow farm fields, fields with crop residue, cultivated fields, and about 10 percent native prairie.

The field survey recorded a single Knife River Flint utilized flake found in a cultivated field. As an isolated artifact without archaeological context, the lithic flake is not considered eligible for listing on the National Register of Historic Places (NRHP). Also, one historic archaeological site was

recorded. In the northeast $\frac{1}{4}$ of Section 35, Township 156 North, Range 100 West, a foundation, well, and refuse scatter was observed and documented. MAC recommends that this site does not have sufficient integrity to be eligible for listing on the NRHP.

MAC submitted a technical report of their methods and findings to the ND-SHPO for review. On November 1, 2011, the ND-SHPO sent a letter providing written concurrence with the finding of *No Historic Properties Affected*. A copy of the technical report and ND-SHPO concurrence letter are submitted as Exhibits C.1 and C.2, respectively.

B.2 WETLAND ASSESSMENT

B.2.a US Army Corps of Engineers (COE)

EPND has been in recent communication with the U.S. Army Corps of Engineers (COE)-Omaha District, who has regulatory jurisdiction in the Project vicinity, as well as COE representatives from its regional North Dakota branch offices. The COE has broad regulatory jurisdiction over construction activities affecting waters of the United States, such as wetlands and waterbodies, which are crossed by the pipeline route. The COE authorizes several classes of construction projects through a Nationwide Permit (NWP) program, if the project has minimal environmental impact, and if the project can meet certain environmental compliance objectives. The COE NWP 12 is specifically issued for the construction of utility lines, such as pipelines, which do not result in the loss of greater than $\frac{1}{2}$ acre of waters (wetlands and waterbodies) of the United States.

There will be no permanent impacts to wetlands or waterbodies as result of construction activities at the new Little Muddy Station. With the proper construction techniques used in current pipeline projects, the installation of the approximately 6-mile pipeline will result in only temporary impacts to wetlands and waterbodies under the jurisdiction of the COE.

Based on previous discussion with COE representatives and the fact that no permanent loss of wetlands or waterbodies is anticipated due to the Project, EPND anticipates the COE will authorize the Project under NWP 12. EPND will continue to coordinate with the COE-Omaha District through the permitting process.

B.2.a.(1) Wetland Assessment

In September and October 2011, EPND commissioned Carlson McCain, Inc. (Carlson McCain) of Bismarck, North Dakota to complete a wetland delineation of the survey corridor. Twelve wetlands totaling 6.6 acres, and seven intermittent streams totaling 1.7 acres were identified within the survey corridor. A copy of the delineation report, including map sets showing the location of delineated wetlands and waterbodies, is included as Exhibit D.1. Further discussion is provided in Section B.4.b.(8) of the Route Permit Application.

On October 24, 2011, on behalf of EPND, Merjent, Inc. (Merjent) of Minneapolis, MN, submitted a request for Jurisdictional Determination to the U.S. Army Corps of Engineers (COE) - Omaha District (North Dakota Regulatory Office) for the delineated features described above. At the time of this filing, no response has been received.

EPND will implement mitigation measures to minimize these impacts as described in EPND's Environmental Mitigation Plan (EMP) (see Exhibit E).

B.2.b US Department of Agriculture: Farm Service Agency (FSA)

The US Department of Agriculture-Farm Service Authority (FSA) administers the Wetland Reserve Program (WRP), a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. EPND submitted a consultation request to the FSA on September 23, 2011 to determine if the study area included any lands enrolled in the WRP. In a response received on September 23, 2011, FSA confirmed that no WRP contracts are located in Williams County. Unless there are major route revisions that may impact WRP easements, no authorization will be required.

A copy of the correspondence with the FSA with respect to the WRP is included in Exhibit F.4.

B.3 BIOLOGICAL RESOURCES

B.3.a US Department of Interior, Fish and Wildlife Service (USFWS)

In September 2011, EPND initiated consultation with the USFWS requesting review of the study area for concerns related to federally listed species and critical habitats that may be affected by the Project, as well as the location of USFWS-administered wetland and grassland easements. A desktop review of the study area did not reveal any federally listed critical habitats or other USFWS-administrated lands.

Further information is described in Section B.2.j of the Route Permit Application. At the time of this filing, no response from USFWS has been received.

B.3.b. Biological Assessment and Raptor Nest Survey

In September and October 2011, EPND commissioned Carlson McCain, Inc. (Carlson McCain) of Bismarck, North Dakota to complete a species of concern habitat assessment and raptor nest survey of the survey corridor.

The assessment did not reveal threatened and endangered species or critical habitat areas of concern. Suitable nesting habitat for migratory birds was identified within the pipeline route. A ground survey for tree and ground raptor nests was conducted within the survey corridor during the on-site evaluation. No raptor nests were observed during the on-site evaluation. The species of concern habitat assessment and raptor nest survey is included in Exhibit D.1. Further details are provided in Section B.2.j of the Application for a Route Permit.

EPND will implement mitigation measures to minimize impacts to suitable nesting habitats as described in EPND's Environmental Mitigation Plan (EMP) (see Exhibit E).

B.3.c North Dakota Game and Fish Department (NDGF)

EPND initiated consultation with the NDGF requesting review of the study area for concerns related to state-listed species and their habitats that may be affected by the Project. In an October 24, 2011 response, NDGF concluded that the Project will not have any significant adverse effects on wildlife or wildlife habitat, including conservation species, provided any unavoidable destruction or degradation of wetland acres is mitigated in kind.

Further information is described in Section B.2.j of the Route Permit Application. A copy of the correspondence with the NDGF is included as Exhibit F.2.

B.4 OTHER AGENCY CONSULTATIONS

Other agencies that EPND has consulted include the following:

B.4.a North Dakota State Water Commission (NDSWC)

A desktop review of the study area did not identify any sovereign lands (navigable waterbodies) within the jurisdiction of the North Dakota State Water Commission (NDSWC). EPND submitted a consultation request to the NDSWC on September 23, 2011, and received confirmation in a September 26, 2011 response that no sovereign lands are located within the study area.

A copy of the correspondence with the NDSWC is included as Exhibit F.5.

B.4.b North Dakota Parks and Recreation Department (NDPRD)

EPND initiated consultation with the North Dakota Parks and Recreation (NDPRD) department, requesting review of the Project study area for concerns related to species listed in the agency's Natural Heritage Inventory (NHI) database and other ND-PRD recreation and biological resources.

In an October 7, 2011 response, ND-PRD confirmed that the study area does not affect ND-PRD-managed state parks or Land and Water Conservation Fund projects. ND-PRD also reviewed their NHI biological conservation database, and determined there are no documented occurrences of any plant or animal species of concern or other significant ecological communities within study area. ND-PRD recommended that impacted areas be revegetated with species native to the area.

A copy of the correspondence with the ND-PRD is included herein as Exhibit F.3.

B.4.c US Department of Interior, Bureau of Reclamation (BOR)

A desktop review of the Project did not identify any Bureau of Reclamation (BOR)-administered lands within the Project study area. EPND submitted a consultation request to the BOR on September 23, 2011 and received

confirmation in a September 29, 2011 response that no BOR-administered lands are located within the study area.

A copy of the correspondence with the BOR is included herein as Exhibit F.6.

B.4.d US Department of Interior, Bureau of Land Management (BLM)

A desktop review of the project did not identify any Bureau of Land Management (BLM)-administered lands within the Project study area. EPND submitted a consultation request to the BLM on September 23, 2011 to determine if BLM-administered land would be impacted by the Project. In a September 26, 2011 response, BLM confirmed that there are no BLM-administered lands located within the study area.

A copy of the correspondence with the BLM is included as Exhibit F.7.

B.4.e US Department of Agriculture: Farm Service Agency (FSA)

The FSA administers the Conservation Reserve Program (CRP) and Grassland Reserve Program (GRP), voluntary conservation programs focused on enhancing plant and animal diversity and improving long term soil fertility. FSA also addresses concerns related to designated prime farmland.

EPND submitted a consultation request to the FSA on September 23, 2011 to determine if CRP lands would be impacted by the Project. In a September 27, 2011 response, FSA identified approximately nine acres within the one-mile study area although did confirm that no CRP lands are directly crossed by the route or within the Little Muddy Station property boundary.

In addition, EPND submitted a consultation request to the FSA on September 23, 2011 to determine if GRP lands would be impacted by the Project. In a response received on September 23, 2011, FSA confirmed that no GRP contracts are located in Williams County.

Correspondences with the FSA regarding CRP and WRP are included in Exhibit F.4.

B.4.f North Dakota State Lands Department (ND-SLD)

A desktop review of the Project identified one North Dakota State Land Department (ND-SLD)-administered lands (School Trust Lands) within the study area. EPND submitted a consultation request to the ND-SLD on September 30, 2011 to determine if School Trust Lands would be impacted by the Project, and received confirmation in an October 3, 2011 response that

one School Trust Land is located within the study area; however, no School Trust Lands are crossed by the survey corridor or pipeline route. As such, School Trusts Lands would not be impacted by the Project.

A copy of the correspondence with the ND-SLD is included as Exhibit F.8 and further information is described in Section B.4.a(1)(i) of the Route Permit Application.

B.4.g North Dakota Department of Health (NDDH)

Pursuant to North Dakota Administrative Code 33-15-14, EPND will be required to obtain air permits from the North Dakota Department of Health (“NDDH”) for construction of new storage tanks and associated equipment at Little Muddy Station.

EPND plans to submit its applications prior to the initiation of its construction activities at each location. Prior to placing these tanks into service, a complete inspection of each tank will be performed to verify information used for estimating emissions and documenting compliance with the permits. EPND will provide a copy of the NDDH permits to the ND-PSC prior to the commencement of any construction activities.



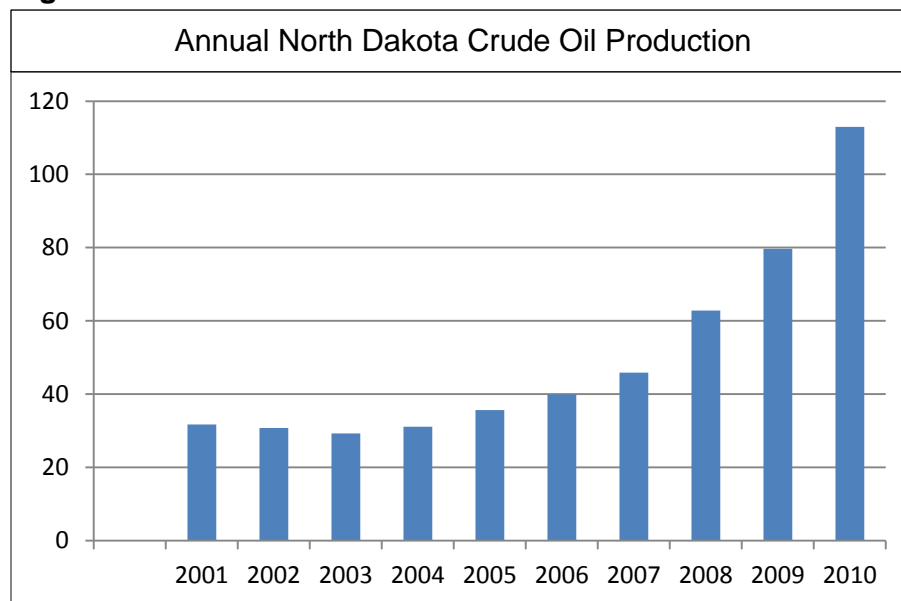
APPLICATION FOR CORRIDOR CERTIFICATE
SECTION C
NEED FOR FACILITY

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

C.1.a Planned Use and Purpose

As demand for the crude oil production from the Williston Basin of North Dakota continues to increase, so does the demand for additional pipeline capacity for crude oil transportation on the EPND System. The North Dakota Petroleum Council reports that the state's average production in 2010 was 309,679 barrels per day, totalling approximately 113 million barrels of crude oil production for the year. As shown on the graph in Figure 1, there has been a steady increase in the annual crude oil production since 2003, with the largest annual increase occurring in 2010 with 33 million more barrels produced in 2010 than 2009.

Figure 1



(in millions of barrels)



Additionally, the drilling rig count, which is a prime barometer for measuring new oil and gas activity, averaged 126 rigs per day in 2010, as compared to 52 in 2009 and 75 in 2008². The 2010 rig count broke the previous record of 119 rigs per day, which was set in 1981.

As shown on Figure 2 of this Application, the Little Muddy Station Connection Project is strategically located in Williams County, one of the primary producing counties in northwestern North Dakota. According to the North Dakota Petroleum Council, Williams County along with Mountrail, McKenzie, and Dunn Counties are the top producing counties in North Dakota³. Table 7 below indicates how the Williams County production volumes have steadily increased since January 2010, and further demonstrates the rapid growth in this county as some production months have more than doubled in volumes when compared to production volumes in January 2010. This drilling activity clearly demonstrates the need for additional take-away pipeline capacity in this prolific producing region of the Bakken and Three Forks Formations.

Table 7			
*Williams County Monthly Production Volumes (Jan 2010 – Aug 2011)			
Date	Production Volumes	Date	Production Volumes
Jan – 2010	620,057	Nov – 2010	1,152,759
Feb – 2010	545,902	Dec - 2010	1,146,295
Mar – 2010	632,356	Jan – 2011	1,224,368
Apr – 2010	628,395	Feb – 2011	1,115,810
May – 2010	736,137	Mar – 2011	1,263,859
June – 2010	744,235	Apr – 2011	1,119,836
July - 2010	848,725	May – 2011	1,209,025
Aug – 2010	897,271	June – 2011	1,421,960
Sept – 2010	925,231	July – 2011	1,722,623
Oct - 2010	986,338	Aug – 2011	1,606,654

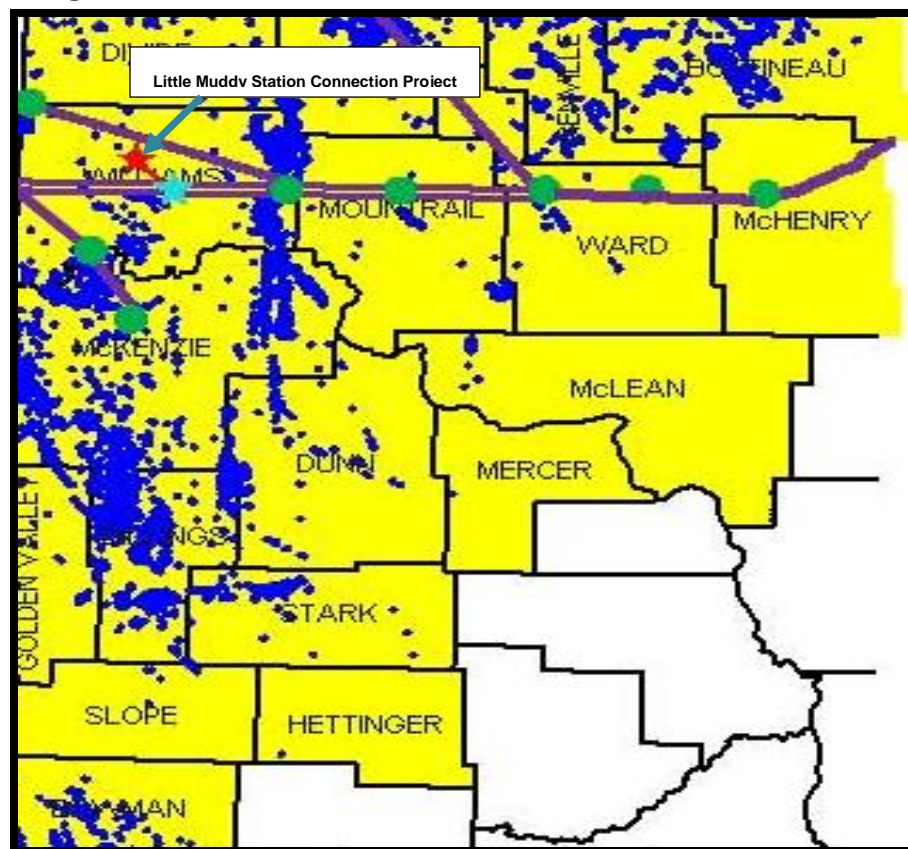
*Source: ND Oil & Gas Industry, ND Historical Barrels of Oil Produced by County

² See the North Dakota Oil & Gas Industry “Facts & Figures” 2011 Edition

³.Id. in Footnote 2

Based on discussions with its shippers regarding their 2012 through 2015 forecasted production volumes, EPND believes that the average production in this prolific oil producing region will be at least 170,000 bpd with a significant upside for additional production to come online in Williams, McKenzie, Mountrail and Dunn Counties. EPND believes that these forecasted and anticipated production volumes support the initial 55,000 bpd annual design capacity of the Little Muddy Station Connection Project, and is, therefore, in the public convenience and necessity.

Figure 2



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

EPND continually works closely with its shippers to develop a long term plan that best serves the shippers' increasing pipeline capacity requirements.

With the increasing drilling activity in the Williston Basin production area, EPND continues to receive requests for additional pipeline capacity on the western segment of its North Dakota pipeline system. EPND is responding to

those requests with a number of potential future projects that are (subject to approvals) designed to meet the shippers' needs and provide access to the Enbridge mainline system at Clearbrook, MN or Line 26 north to Cromer and back to the U.S, where shippers will have numerous refinery and marketing options via Enbridge's mainline system or through other third-party pipelines.

C.2 ALTERNATIVES TO THE PROPOSED FACILITY

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. Alternatives to the Project are discussed below:

C.2.a No Action Alternative

In light of the overall increase in Williston Basin production, the requirements by shippers to increase pipeline capacity and the current apportionment that is being experienced on EPND's North Dakota pipeline system today, a "no action" alternative is unacceptable to EPND and its shippers.

C.2.b Trucking Alternative

Trucking is a vital part of the crude oil gathering and distribution network. Although this Project does not directly eliminate truck traffic in North Dakota, as shown on Table 8, this alternative may help to significantly reduce the overburden on current public road capacity by at least 20 trucks. Of more importance, this Project will significantly reduce the distances that trucks will have to travel to deliver crude into stations located near Williston and Tioga. Additionally, this Project provides the necessary facilities that will enable future gathering pipelines in Williams County to access mainline pipeline capacity on EPND's North Dakota system.



Furthermore, transporting 55,000 bpd of new incremental Bakken and Three Forks production will require new truck offloading facilities at EPND’s East Fork Station or require such volumes to be transported to EPND’s existing Beaver Lodge Station where existing truck offloading facilities are available. Under either scenario, a significant number of trucks and drivers would be required as demonstrated on Table 8 below.

Table 8 Computation of Trucking Requirement to Transport 55,000 bpd (55,000 / 200 = 275 truck per day)		
Explanation	To East Fork Station*	To Beaver Lodge Station**
Number of truck required	$275 \times 1/3 = 92$	$275 \times 1/2 = 138$
Number of trucks in transit	$275 \times 1/3 = 92$	$275 \times 1/2 = 138$
Number of trucks returning empty	$275 \times 1/3 = 92$	$275 \times 1/2 = 138$
20% of the in-transit trucks loading and unloading	36	55
Total truck requirements (ignoring scheduled / unscheduled down time)	$92+92+36 = 220$ trucks	$138+138+55 = 331$ trucks
Number of drivers required for 1/2-day round-trip including loading/unloading	220 drivers	331 drivers

* Assume each truck requires loading, in-transit full (1/3 day), in-transit empty (1/3 day), and unloading time

** Assume each truck requires loading, in-transit full (1/2 day), in-transit empty (1/2 day), and unloading time.

- its costs

Based on the North Dakota Petroleum Council’s “Williston Basin Crude Oil Transportation Bottleneck White Paper” dated March, 2006, the approximate transportation costs to move 55,000 bpd by truck would range from \$6.00 to \$10.00 per barrel. Using the United States Department of Labor’s Consumer Products Index Inflation Calculator (<http://www.bls.gov/data/inflationcalculator.htm>), the 2011 rates to move those same barrels would range from \$6.72 to \$11.21 per barrel. Therefore, the estimated transportation costs to truck 55,000 bpd would range between approximately \$135 and \$225 million dollars per year (ignoring the cost of new vehicles and infrastructure facilities necessary).

- its reliability

As previously stated, this operation would be inherently much less reliable than this 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 as compared to pipelines. Trucking cannot compete with pipelines for transporting volumes over short or long distances given the physical limitations of trucks and associated transportation costs. Therefore, this alternative was not further considered.

C.2.c Rail Alternative

Although many rail projects have been proposed in North Dakota recently, another concern alleviated by Little Muddy is creating the direct access to pipeline capacity. Many rail facilities require trucks to travel across county dirt roads to feed the rail tanker cars. The need for additional North Dakota infrastructure caused by increased rail traffic is becoming evident. Chief of these are the challenges to industrial demand as the number of rail cars required increases significantly and the 18-24 month delay waiting for new rail cars to be placed into service. Moreover, EPND does not have a good estimate of the long term viability of this alternative or the time and costs associated with the construction of the necessary upgrades associated with the railway infrastructure. Finally, the reliability of this rail export alternative in northern climates is compromised by periodic restriction in truck traffic to deliver to rail due to winter storms and spring road restrictions or other weather-related or capacity availability restrictions. Therefore, this alternative was not further considered.

C.2.d Alternatives to the Project

With limited existing export pipeline capacity in the Williston Basin area, the only other alternatives for shippers 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 additional 55,000 bpd to refineries outside North Dakota with attendant problems detailed Sections C.2.b and C.2.c above; or
- (3) transport crude on non-Enbridge pipelines that are also at capacity and, thus, would require new pipe or facilities.

EPND considered two other routes in the same general vicinity of the Little Muddy Pipeline route, using desktop aerial photography, topographic and other publicly-available information, followed by a review in the field. Ultimately, the chosen route had the least effect on wetlands, farmland, treed areas, and avoided oil and gas facilities, both existing and under construction.

While pipeline expansions have been proposed or are under consideration by other companies, EPND concluded that the Project proposed herein provides the most cost-effective incremental capacity in the near term to help relieve the capacity constraints being experienced by Bakken producers in the Williston Basin region.

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

The objective of the Project is to provide a cost effective and efficient method to:

- receive incremental supply volumes from a shipper-owned and operated truck unloading facility and allow for future pipeline connections;
- help reduce the current reliance on long-haul truck deliveries; and
- reduce the transportation costs borne by Williston Basin producers, allowing their savings to be immediately re-directed toward the development of the oil and gas resources in the State thereby providing additional economic benefits to North Dakota.

This Project minimizes environmental and landowner impacts and, when integrated with the existing EPND System, provides the safest, most efficient and cost effective alternative to link the growing demand for crude oil supplies



in the Midwest with increased and reliable domestic supplies from North Dakota and Montana. Thus, all other alternatives discussed herein were rejected.

C.3 STATEMENT CONCERNING DEVIATION FROM MOST RECENT 10-YEAR PLAN

EPND's currently filed 10-year plan with the ND-PSC is enclosed herein as Exhibit J. At the time of filing, EPND did anticipate the need for this Project as disclosed in Schedule H of this plan.

APPLICATION FOR CORRIDOR CERTIFICATE
SECTION D
LOCATION

D.1 STUDY AREA

EPND defined its study area as a one-mile-wide corridor generally centered on the pipeline route, and a one-half mile buffer around the perimeter of the new Little Muddy Station. Section 69-06-04-02.1.b. of the North Dakota Administrative Code requires that the width of the study area for the pipeline be at least 10 percent of its length, but not less than 1 mile and not greater than 6 miles unless approved by the Commission. The Project, therefore, requires a 1-mile-wide study area for the evaluation of factors addressed in Chapter 49-22-09 of the North Dakota Century Code (see Section B.2 in the Route Permit Application for further discussion of these factors).

EPND conducted a desktop analysis consisting of mapping, GIS, and internet research, and then completed agency consultations over the one-mile-wide study area (see Section B of the Route Permit Application). In addition, cultural resource field surveys, biological and wetland/waterbody field surveys were conducted on an approximate 400-foot-wide survey corridor generally centered along the route within the one-mile wide study area. See Section B above for further details on the survey corridor.

D.2 MAP OF PROPOSED CORRIDOR

This Application is a Consolidated Application for a Corridor Certificate and Route Permit. Maps showing the location of exclusion and avoidance areas in the area of the corridor are attached as Exhibit H.1.

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.

D.4 CRITERIA TO BE EVALUATED

This Application is a Consolidated Application for a Corridor Certificate and Route Permit. The criteria to be evaluated are discussed in Sections B.4, B.5, and B.6 of the Route Permit portion of this Application.

D.5 GENERAL MITIGATIVE MEASURES TO BE TAKEN

Mitigation measures to minimize adverse impacts of the Project are identified throughout this Consolidated Application for a Corridor Certificate and Route Permit. In addition, EPND has developed an EMP for this Project (See Exhibit E). The EMP provides a more detailed discussion of the guidelines and mitigation measures that EPND would implement during this Project. It was developed based on EPND's corporate experience implementing best management practices during construction of pipelines and associated station facilities.

In addition, EPND has developed a Spill Prevention, Containment, and Control Plan (SPCCP) that describes planning, prevention and control measures to minimize impacts of construction-related spills. (See Exhibit G). EPND's EMP and SPCCP are comprehensive, controlling documents that will be included in contract specifications.

D.6 QUALIFICATIONS OF PERSONS CONTRIBUTING TO THE STUDY

D.6.a Sara Ploetz

Environmental Analyst II, Enbridge Major Projects (US)

Degree: BA, Environmental Studies, University of Minnesota-Duluth, Duluth, Minnesota

Experience: 5 years of experience in environmental and regulatory permitting and construction oversight compliance

D.6.b Paul Meneghini

Supervisor, Enbridge Major Projects (US)

Degree: BS, Civil Engineering, Michigan Technological University, Houghton, Michigan.

MBA, Environmental Management, University of St. Thomas, St. Paul, Minnesota

Experience: 17 years of experience in environmental and regulatory permitting and construction oversight compliance.

Other Training and Licenses: Professional Engineer – Minnesota.



D.6.c Paul Hartzheim

Senior Analyst, Merjent, Inc.

Degree: B.S., Environmental Science (Hydrology emphasis), University of Minnesota, Twin Cities

M.S., Water Resources Science (pending), University of Minnesota, Twin Cities

Experience: 7 years of experience in environmental and regulatory compliance

Other Training and Licenses: Design of Construction Stormwater Pollution Prevention Plans, Construction Installer –University of Minnesota Erosion and Stormwater Management Certification Program.

D.7 MAPS

D.7.a Map of Evaluation Criteria within Study Area

EPND encloses herewith as Exhibit B, its station plot plans, topographical maps and aerial maps. Also enclosed herewith as Exhibit I are the route maps showing the location of the 6-mile pipeline, and the location of new and existing pump stations as described in Section A above.

D.7.b Mylar Maps of Study Area

Mylar maps have not been included with this application, because this map producing process is no longer in use.