NORTH DAKOTA PUBLIC SERVICE COMMISSION

APPLICATION OF

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

for

ROUTE PERMIT

BAKKEN PIPELINE PROJECT US
November 2010

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A.2. PRODUCT

This is a Consolidated Application for a Corridor Certificate and Route Permit. These matters are discussed in Section A.2 of the Corridor Certificate portion of this Application.

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LOCATION

B.1 APPLICANT'S POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT

EPND's Environmental Policy states that protection of the environment is an integral element in the conduct of Company business. The Environmental Policy is a component of Enbridge's overall Corporate Social Responsibility (CSR) practices which is detailed in an annual CSR report where EPND's performance is disclosed along with other Enbridge business units. Environmental protection efforts will span the entire project, from planning through construction, restoration, and into commissioning and operation.

B.1.a Construction

The project involves replacing approximately 11 miles of 12-inch diameter pipeline, installing two new pump stations (Lignite and Kenaston), and upgrading an existing station (Berthold Terminal and Pump Station). Construction will result in temporary short-term impacts along the pipeline route, and minimal permanent wetland impacts at Berthold and Kenaston Stations.

Planning, design, construction, and restoration will incorporate the equipment and mitigation measures discussed in Section B.6. Environmental monitoring, in the form of ongoing environmental inspection, will be conducted during and following construction. Environmental inspectors will monitor compliance with required environmental protection measures, permit conditions, and specifications, and provide ongoing oversight for day-to-day issues that may arise during construction. The environmental inspectors will be trained and well-versed in the implementation of environmental Best Management Practices (BMPs) to be utilized throughout construction. Contract specifications will incorporate environmental protection and mitigation measures, and contractors will be expected to implement these measures in the field. EPND will provide contractor training and project orientation.

Except for road crossings, the entire proposed pipeline route is located on privately owned land. Landowner concerns will be addressed during all phases of construction, including final restoration. EPND has assigned land agents to the project who will work closely with landowners to negotiate agreements and be responsive to issues that may arise during the course of the project.

Environmental data collected to date includes information on soils, land use, wetland and waterbody crossings, protected species, and cultural resources. EPND has also conducted various field studies, detailed in Route Permit Sections B.2 and B.4 and Corridor Certificate Section B of this Consolidated Application. EPND will continue to gather comprehensive information during the permitting process and work with the appropriate regulatory agencies.

B.1.b Ongoing Pipeline Operation

The pipeline is a permanent, ongoing interstate common carrier transportation pipeline system; as such, EPND has a continuing commitment to conduct its operations in an environmentally responsible manner and in accordance with national codes and standards, federal pipeline safety rules promulgated in 49 CFR Parts 194 and 195 and extensive EPND Operating and Maintenance Procedures and Emergency Response Plan. Substantial, continual effort is placed on pipeline integrity, operational safeguards, emergency response, and public awareness, all of which reduce the impact of the pipeline to the local and regional environment. EPND also dedicates internal environmental staff to monitoring compliance with company policy, as well as various federal and state environmental regulations and permits. EPND maintains a review program to ensure policies and procedures are effective and comply with applicable permit requirements. Additional discussion on operations and safety is provided in Section B.9.c.

B.1.c Energy Conservation Considerations

Energy conservation is a major concern for EPND since energy/power costs represent the largest single recurring expense in pipeline operation. Managing energy costs, including energy conservation, is a high priority for operation of EPND's pipeline system.

EPND works closely with its individual energy providers to assure economical and efficient power use for its North Dakota pipeline system. EPND also reviews and tracks firm and non-firm power requirements, and works closely with electrical utilities in planning for transmission and generation needs.

EPND's energy conservation goal is to minimize power/energy unit costs through the implementation of internal programs directed at continuous improvement of energy utilization efficiency. EPND has considered several energy efficiency and conservation programs. The following provides a brief explanation of the programs reviewed during the Project development phase:

B.1.c.(1) Pipeline Diameter

EPND proposes to replace a 11-mile segment of its existing 12-inch diameter pipeline (Line 26) with like-size diameter pipeline. EPND did not consider a larger or smaller diameter pipeline in its engineering analysis because both upstream and downstream segments of Line 26 consist of 12-inch diameter pipeline.

B.1.c.(2) Variable Frequency Drives (VFDs)

The installation of variable frequency induction motor drives is a program that has been in place for approximately 16 years. VFDs allow the pipeline operator to vary the pump rotation speed thereby controlling the pressure produced to match the desired flow rate. This eliminates the need to dissipate or waste pressure (energy) with pressure control valves (PCVs). VFDs, however, do introduce energy losses and, therefore, are considered only when there is a range of operating conditions (primarily flow rate, density and viscosity) that would often require dissipation of pressures produced by the pumps. Ideally, given consistent operating conditions, the pump would deliver constant pressures eliminating the need for pressure dissipation. Therefore, operating conditions play a key role in designing the pumping stations for optimum efficiency.

VFD's will be specified to control the operating speed of the new mainline pumps being installed at the proposed Lignite and Kenaston stations and at the existing Berthold Station.

B.1.c.(3) Pipeline Control Center

EPND pipeline control operators are trained in applied hydraulics and pipeline control through the use of a computerized pipeline control simulation system. They are trained to operate the pipeline at an optimum flow rate using efficient combinations of pumps which minimizes energy consumption. Operators have the capability to start and stop pumps and monitor pipeline operating conditions to assist in achieving an energy efficient operation

B.1.c.(4) Energy Efficient Pumps and Motors

For new installations, EPND purchases high efficiency pumps and motors at a premium initial cost in an effort to conserve long range energy requirements. Specifically, a high polish is used on the pump impeller, and motors are custom designed for high efficiency. For example, a fully loaded 2,500 horsepower pump and motor unit, operating 300 days per year at 80% efficiency will consume 17 million kilowatt hours (kWh) of energy annually and sets a demand of 2,331 kW. Increasing the efficiency by only 1% translates into 170,000 kWh of energy savings. With this substantial potential for energy savings, it is desirable to optimize efficiency. Pumps are hydraulically designed and selected to obtain a high best efficiency point (BEP) at the desired flow rates. The forecasts are continually being

evaluated and if the flow rate is outside the BEP range, impeller changes are typically implemented for improved efficiency.

B.1.c.(5) Electric Service Agreements

When applicable, EPND works with its various energy providers to renegotiate new electric service agreements and will continue to do so to meet the needs of the proposed Project's new facilities.

B.1.c.(6) Drag Reducing Agents (DRA)

Injections of DRA have been considered for use within the EPND system for over 11 years. Injection of DRA reduces flow turbulence of liquid hydrocarbons which results in reduced pressure loss between stations. This allows a high flow rate (increased throughput) at the same operating pressure, or a decrease in operating pressure while maintaining flow rate. These two scenarios allow increased throughput or decreased power use. The flexibility furthers EPND's opportunities to shift power use to improve economics or accommodate the utilities. In these cases, the economic benefits realized with the implementation of the DRA program have outweighed the material cost of the DRA. As a result, lower unit energy costs and greater efficiency have occurred.

In addition, during high throughput periods, 23% of our power is supplied on a non-firm basis which has reduced utility needs to add generation and transmission. Overall utility load factors and utilization of assets have improved, benefiting all regional electric customers.

B.2. DISCUSS THE FACTORS LISTED IN SECTION 49-22-09 NDCC TO AID THE COMMISSION'S EVALUATION OF THE PROPOSED PIPELINE ROUTE

Factors which the North Dakota Public Service Commission (ND-PSC or Commission) considers in evaluating the designation of corridors and routes include the following:

B.2.a Available Research and Investigations Relating to the Effects of the Location, Construction, and Operation of the Proposed Facility on Public Health and Welfare, Natural Resources, and the Environment

A discussion of the effects of the location, construction, and operation of the proposed pipeline on public health and welfare, natural resources, and the environment is included in Section B.4. Research and investigation related to these effects have included thorough cultural resources reviews, wetland delineation surveys, and protected species and sensitive areas reviews. EPND is also proposing to conduct raptor surveys prior to construction (Spring 2011) to address concerns raised by the US Department of Interior, Fish and Wildlife Service (USFWS) and North Dakota Game and Fish Department (NDGF). Please refer to Section B.2.j of this Application for a more detailed discussion.

B.2.b The Effects of New Energy Conversion and Transmission Technologies and Systems Designed to Minimize Adverse Environmental Effects

The project does not include new energy conversion or transmission technologies that are expressly designed to minimize adverse environmental effects. As described in EPND's Environmental Mitigation Plan (EMP), current construction techniques and mitigation measures will be employed to minimize the effect of construction on environmental resources. EPND's EMP is provided as Exhibit E. These measures are also discussed in Sections B.6 and B.9.

B.2.c The Potential for Beneficial Uses of Waste Energy from a Proposed Energy Conversion Facility

The project does not involve new energy conversion facilities; no usable waste energy will result from the project.

B.2.d Adverse Direct and Indirect Environmental Effects, Which Cannot be Avoided Should the Proposed Site or Route be Designated

Unavoidable adverse direct and indirect environmental effects may include short-term or temporary effects on vegetation, wildlife, agricultural operations, transportation, and noise levels as described in Section B.4. EPND will implement mitigation measures to minimize these impacts as described in Section B.6 and in EPND's EMP (see Exhibit E).

B.2.e Alternatives to the Proposed Site, Corridor or Route, Which are Developed During the Hearing Process and Which Minimize Adverse Effects

Alternatives that EPND considered during Project development are discussed in Section C.2 of the Application for Certificate of Corridor Compatibility.

B.2.f Irreversible and Irretrievable Commitments of Natural Resources Should the Proposed Site, Corridor or Route be Designated

The proposed replacement segment will follow an existing utility corridor running parallel to and adjacent to EPND's existing, previously disturbed pipeline right-of-way where possible and, therefore, minimal irreversible or irretrievable commitments of natural resources will result from the project.

B.2.g The Direct and Indirect Economic Impacts of the Proposed Facility

B.2.g.(1) The Bakken Pipeline Project US presents an opportunity for EPND to upgrade its existing Line 26 optimizing both the existing and new pipeline capacity being proposed herein and meeting the immediate and future transportation requirements of its shippers in the most timely and effective manner.

B.2.g.(2) The Bakken Pipeline Project has significant economic benefits

The Project has significant economic benefits, including:

- Minimizing the discount of Williston basin supplies by providing adequate pipeline capacity to producers.
- Providing a stable source of crude oil supplies to the PADD II refineries and supporting a healthy economic environment throughout the entire Upper Midwest.
- Providing an increase of approximately $900,000 in property taxes.

B.2.g.(3) EPND is solely a transportation company

EPND owns and operates a non-shipper-owned liquid hydrocarbon pipeline system. EPND does not own any of the crude petroleum transported in its pipeline system. EPND does not determine markets or destinations for the crude oil transported. EPND provides a service which is available to anyone tendering commodities for transportation pursuant to tariffs published and on file with the Federal Energy Regulatory Commission ("FERC") and in accordance with their rules and regulations and the Interstate Commerce Act on its interstate pipeline system, including the facilities in this proposed Project. EPND attempts to anticipate the need for additional pipeline capacity by relying upon forecasts for throughput generated by shippers on the system.

B.2.h Existing Plans of the State, Local Government, and Private Entities for Other Developments at or in the Vicinity of the Proposed Site, Corridor, or Route

EPND is not aware of other proposed plans for development by state, local or governmental entities at or in the vicinity of the proposed project corridor that would conflict with the presence of the proposed pipeline facilities.

B.2.i The Effect of the Proposed Site or Route on Existing Scenic Areas, Historic Sites and Structures, and Paleontological or Archaeological Sites

Regarding existing scenic areas, the project area is located in a part of North Dakota that is flat or rolling farm fields or original prairie, with no mountains, valleys, or other topography to break up the landscape. The current land use is predominately agricultural, as detailed in Section B.4.b.(1) of this Application. The majority of the project will result in below ground installation of pipeline, which will not be visible and will not affect the gently rolling vista.

The proposed project is not expected to affect any paleontological resources. The bedrock of the region is covered with quaternary glacial till, which only rarely contains fossilized material dating to the Quaternary Period.

No historic sites or structures that are listed on the National Register of Historic Places (NRHP) or the North Dakota list of historic sites are located within the area of potential effects of the proposed pipeline corridor and above ground facilities. Cultural resources studies, including field surveys, were conducted for the proposed pipeline expansion corridor between Lignite and Woburn. Two rural cemeteries near the town of Lignite (St. Mary's Cemetery in Section 1 of Vale Township, and the Swedish Cemetery in Section 7 of Dale Township) are located within 300 feet of the proposed pipeline corridor. The historic setting of the cemeteries will not be permanently affected by construction of the pipeline because it will be buried. The cemeteries will be treated as sensitive resources during pipeline construction, as detailed in EPND's EMP. The cemeteries will be marked on construction maps. During construction noise and dust control measures will be used at these locations as necessary. Erosion control measures will also be implemented to minimize the potential for surface runoff and off-site sedimentation impacts within the cemeteries.

EPND also commissioned Kadrmas, Lee & Jackson (KL&J) to conduct a literature review and Class III inventory field survey of the survey corridor. KL&J prepared a technical report of their methods and findings and submitted it to the North Dakota State Historic Preservation Office (NDSHPO) on July 20, 2010 (See Exhibit C.1). The report included a recommendation for a finding of "No Historic Properties Affected" for the proposed project. In a letter dated July 27, 2010, NDSHPO concurred with the finding of No Historic Properties Affected.

Copies of KL&J's technical report, NDSHPO's concurrence letter, and email correspondence addressing the rural cemeteries are enclosed herewith as Exhibits C.1, C.2 and C.3, respectively. Further discussion is provided in Section B.1.a.(1) of the Application for a Certificate of Corridor Compatibility.

Since the initial surveys were conducted, EPND has made some minor route adjustments and identified areas (outside of the original survey corridor) which will require additional cultural surveys. At this time, EPND is completing its surveys in these specific areas; and once completed, the results of these surveys will be submitted to NDSHPO for their review. EPND plans to continue its consultations with NDSHPO to obtain clearance for these specific areas. A supplemental filing to the ND-PSC will be submitted upon receipt of NDSHPO's findings.

B.2.j The Effect of the Proposed Route on Areas Which Are Unique Because of Biological Wealth or Because They are Habitats for Rare and Endangered Species

The proposed pipeline route will not affect areas that are unique because of biological wealth or where there are habitats for rare and endangered species. No unique biological areas, habitats, or protected species were identified along the proposed route by regulatory agencies, or through EPND's biological field surveys.

Additional Information on USFWS Consultations

USFWS Easements – The USFWS holds wetland conservation easements on a few sections of private land crossed by the proposed corridor. These lands are managed by the USFWS as part of the agency's National Wildlife Refuge System. No Waterfowl Production lands or grassland easements are crossed by the proposed route corridor or the pipeline route.

When EPND first began planning the pipeline route, it initiated discussions with Tim Kessler, the USFWS local wetland refuge manager, regarding the placement of the pipeline relative to lands containing wetland easements. EPND met with Mr. Kessler on October 13, 2010 to conduct an on-site field inspection to review site-specific proposed USFWS wetland crossing locations.

EPND will adjust the initial route of the pipeline as necessary to avoid USFWS wetlands, and/or construct the pipeline using a guided directional bore technique to cross certain wetlands.

Maps showing the proposed pipeline route in relation to USFWS easement wetlands are included as Exhibit J.3.

Habitat Assessment

To address biological resources concerns the USFWS identified during agency consultations, EPND commissioned a habitat assessment of the pipeline route in July 2010. McCain and Associates Inc. ("McCain"), of Bismarck, North Dakota completed a species of concern habitat assessment within the study area. (See Exhibit Q).

The assessment did not reveal habitat areas of concern. The proposed project is not located across or near any significant ecological community and is not likely to adversely affect critical wildlife habitats. Potential impacts to wildlife include temporary displacement due to construction activities and temporary loss of ground cover in native and planted grassland areas. These effects are not likely to cause long-term declines in populations in the area. Ground clearing may temporarily impact habitat for unlisted species, including small migratory birds, ground dwelling mammals, and other wildlife species.

Assessments for federally listed threatened, endangered and candidate species were conducted by evaluating historic and present occurrences, and by determining if potential habitats exist within the project area. McCain made determinations concerning direct and cumulative effects of the proposed activities on each species and their habitat. Currently, three federally listed species have been documented in Burke County. In addition, critical habitat for the piping plover is listed as present in the county.

The Dakota Skipper has been determined to be a candidate species under the Endangered Species Act. No legal requirement exists to protect candidate species; however, the USFWS considers this species to have significant value and worth protecting.

Table 1
Burke County Status of Endangered, Threatened, and Candidate Species and Designated Critical Habitat*

Species	Status	County
		Burke
Whooping Crane	Endangered	X
Gray Wolf	Endangered	X
Piping Plover	Threatened	X
Dakota Skipper	Candidate	X
Designated Critical Habitat - Piping Plover		X

*USFWS (updated March 17, 2010)

B.2.j.(1) Species Assessments

Assessments for federally listed threatened, endangered species were conducted by McCain evaluating historic and present occurrences and by determining if potential habitat exists within the study area. A determination was made concerning direct and cumulative effects of the proposed activities on each species. Determinations made for federally listed species are:

- No effect;
- May affect, but is not likely to adversely affect;
- May affect, and is likely to adversely affect;
- Is likely to jeopardize a proposed species or adversely modify critical habitat; and
- Is not likely to jeopardize a proposed species or adversely modify critical habitat.

The habitat assessment completed by McCain assessed potential project impacts to the species listed in Table 1 and made the following determinations:

Whooping Crane

The primary nesting area for the whooping crane is in Canada's Wood Buffalo National Park. Arkansas National Wildlife Refuge in Texas is the primary wintering area for whooping cranes. In the spring and fall, the cranes migrate primarily along the Central Flyway. During the migration, cranes make numerous stops, roosting in large shallow marshes, and feeding and loafing in harvested grain fields. The primary threats to whooping cranes are power lines, illegal hunting, and habitat loss (Texas Park and Wildlife 2008).

The proposed project is located within the Central Flyway. Approximately 75% of the whooping state sightings in North Dakota occur within a 90-mile corridor that includes the Bakken Pipeline Project US. Historic sightings have occurred within two miles of the proposed Bakken Pipeline Project US, adjacent to large wetlands that may be possible roost areas. No roost areas are located within ½ mile of the Bakken Pipeline Project US. The large wetland areas within the study area have deep water and tall emergent vegetation in them.

Construction activities may cause migratory cranes to divert from the area but is not likely to result in any fatalities. Construction should be stopped if whooping cranes are sighted within one mile of the construction activities and not resume until the birds have left the area. Any sightings should be immediately reported to the USFWS and NDGF. Following these guidelines, it is reasonable to expect that the proposed activities may affect, but is not likely to adversely affect whooping cranes.

Gray Wolf

Gray wolves were historically found throughout much of North America including the Upper Great Plains. Human activities have restricted their present range to the northern forests of Minnesota, Wisconsin, and Michigan and the Northern Rocky Mountains of Idaho, Montana, and Wyoming. They now only occur as occasional visitors in North Dakota. The most suitable habitat for the gray wolf is found around the Turtle Mountains region (located approximately 100 miles east of Lignite) where documented and unconfirmed reports of gray wolves in North Dakota have occurred (Grondahl and Martin, no date). The proposed project may affect, but is not likely to adversely affect this species.

Piping Plover

Piping plovers are found along the Missouri and Yellowstone River systems and on large alkaline wetlands. Nesting sites and critical habitat have been documented on the shorelines of Lake Sakakawea and on large alkaline

wetlands. Suitable nesting habitat is not located within the study area. Uncultivated wetlands within the evaluated route have extensive emergent vegetation growing in them.

No piping plovers were observed during the on-site assessment and the project will not disrupt any designated critical habitat. The proposed project may affect, but is not likely to adversely affect this species at this time and will have no effect on critical habitat.

Dakota Skipper

Dakota skippers are currently listed as a candidate species in North Dakota and have been documented in Burke County. Larvae of the Dakota skipper feed on grasses, favoring little bluestem. Adults emerge in mid-June, feeding on the nectar of flowering native forbs. Harebell (*Campanula rotundifolia*), wood lily (*Lilium philadelphicum*), and purple coneflower (*Echinacea angustifolia*) are common components of their diet (Canadian Wildlife Service, 2004). Dakota skippers are most likely to be found along river valleys or in mesic segments of mixed grass prairie. Although no individuals were seen during the on-site review, small patches of preferred plant species were present along the Bakken Pipeline Project US route in the lone native prairie area and in the adjacent railroad right-of-way.

Activities from pipeline installation may temporarily disturb some forage species of the Dakota skipper but is not likely to cause a decline in the Dakota skipper population. The proposed project may affect, but is not likely to adversely affect this species.

Raptors and Migratory Birds

The proposed project may affect raptor and migratory bird species through direct mortality, habitat degradation, and/or displacement of individual birds. These impacts are regulated in part through the Migratory Bird Treaty Act (916 USC 703-711) and the Bald and Golden Eagle Protection Act (BGEPA).

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 but buteos and northern harriers were sighted along the route.

Suitable nesting habitat for migratory birds exists within the study area. The majority of the suitable habitat is located adjacent to wetlands and road crossings. The on-site evaluation was performed outside of the nesting season for migratory birds; therefore, nesting sites were not observed. EPND will implement mitigation measures to minimize impacts to suitable nesting habitats

as described in EPND's EMP (see Exhibit E). In addition, EPND is proposing to conduct raptor surveys in Spring 2011 prior to construction.

B.2.k Problems Raised by Federal Agencies, Other State Agencies, and Local Entities

EPND consulted with several federal, state, and local agencies to identify potential environmental resources in the project area that may be affected. Resource issues raised by agencies included USFWS wetland and grassland easement lands, threatened and endangered species and critical habitat protection, wetland protection, erosion control, and restoration/reseeding procedures. As a result of these consultations and agency concerns, EPND has incorporated a combination of route adjustments to avoid certain resources, and mitigation measures to address remaining resource issues. Further discussion on agency consultations and concerns are found in Section B.1 of the Certificate of Corridor Compatibility enclosed herewith in this combined application, and discussions on proposed avoidance and mitigation measures are found in Sections B.3 and B.4 of this application.

B.3 IDENTIFY AND MAP CRITERIA LEADING TO PROPOSED PIPELINE ROUTE LOCATION WITHIN CORRIDOR

This section presents EPND's inventory of environmental and land use information consistent with North Dakota Administrative Code (North Dakota Rules) Chapter 69-06-08-02 for evaluating siting criteria, including areas referred to as exclusion and avoidance areas, and the project's compatibility with selection and policy criteria. Project components assessed include the proposed pipeline route, Lignite Pump Station, and Kenaston Pump Station. The existing Berthold Pump Station and Terminal has not been included in this assessment as it has been previously sited and approved by this Commission on August 4, 2010 in PU-10-130 under Certificate of Corridor Compatibility No. 114 and Route Permit No.124. All work activities will have been identified in the Corridor Certificate of this combined application, and will be performed within the existing approved and permitted Berthold Station site.

Detailed discussions of these criteria, including descriptions, potential impacts, and mitigation measures where appropriate are provided in Sections B.4, B.5, and B.6 of this application. Route adjustments adopted to avoid identified criteria are also discussed. Siting criteria identified within the study area or along the proposed route are shown on route maps enclosed as Exhibits J.1, J.2 and J.3.

B.4. RELATIVE VALUE AND EFFECTS UPON EACH CRITERION INCLUDING LOCATION, CONSTRUCTION, AND OPERATION OF THE FACILITY

In accordance with North Dakota Rules Chapter 69-06-08-02, the proposed pipeline route has been situated after consideration of its impact on humans and the environment.

B.4.a Exclusion and Avoidance Areas (North Dakota Rules Chapter 69-06-08-02.1 and 69-06-08-02.2)

The ND-PSC has identified certain sensitive or otherwise important environmental features that must be considered during the selection of a route for transmission facilities. These features have been classified as either "Exclusion Areas" or "Avoidance Areas." As defined in North Dakota Rules Chapters 69-06-08-02.1 and 69-06-08-02.2, "Exclusion Areas" are areas that are to be excluded from consideration for energy conversion sites and transmission facility routes. "Avoidance Areas" are areas not to be considered in the routing of a transmission facility unless it is shown that, under the circumstances, there are no reasonable alternatives. In 1978, the ND-PSC published the Inventory of Exclusion and Avoidance areas for the Siting of Energy Conversion and Transmission Facilities, which lists these areas for each county in North Dakota (see Table 2). EPND has confirmed with ND-PSC staff that no new types of Exclusion or Avoidance Areas have been added to the inventory to date.

Exhibit J.1 contains maps depicting Exclusion and Avoidance Areas within a one mile study corridor centered on the proposed pipeline route.

TABLE 2

North Dakota Public Service Commission Exclusion and Avoidance Areas – Transmission Facility Siting

Avoidance and Exclusion Area	Category	Crossed By Route	Administering Agency
National Memorial Parks	Exclusion	No	National Park Service (NPS)
National Historic Sites and Landmarks	Exclusion	No	NPS
National Natural Landmarks	Exclusion	No	NPS
National Wilderness Areas	Exclusion	No	NPS and US Forest Service (FS)
National Parks	Exclusion	No	NPS
National Monuments	Exclusion	No	NPS and State Historical Society
State Parks	Exclusion	No	State Park Service
State Historic Sites	Exclusion	No	State Historical Board
State Historical Markers	Exclusion	No	State Historical Board
State Archaeological Sites	Exclusion	No	State Historical Board
State Monuments	Exclusion	No	State Historical Society
State Nature Preserves	Exclusion	No	State Park Service
Areas Critical to the Life Stages of Threatened or Endangered Animal or Plant Species	Exclusion	No	US Fish and Wildlife Service (FWS)
Areas Where Animal or Plant Species Unique or Rare in the State Would be Irreversibly Damaged	Exclusion	No	Various
County Parks and Recreation Areas, Municipal Parks, and Parks under other Governmental Jurisdiction	Exclusion	No	Various
National Wildlife Areas	Avoidance	No	FWS
National Wildlife Refuges	Avoidance	No	FWS
National Grasslands	Avoidance	No	FS
National Historic Districts	Avoidance	No	State Historic Society
National Wild, Scenic or Recreational Rivers	Avoidance	No	Heritage Conservation Recreation Service, State Outdoor Recreation Agency
State Wild, Scenic or Recreational Rivers	Avoidance	No	State of North Dakota Legislative Assembly
State Game Refuges	Avoidance	No	North Dakota Game and Fish Department
State Game Management and Management Areas	Avoidance	Yes	North Dakota Game and Fish Department
State Forests	Avoidance	No	State Forest Service
State Forest Management Lands	Avoidance	No	State Forest Service
State Grasslands	Avoidance	No	State Park Service
Irrigated Land	Avoidance	No	State Water Commission
Areas of Historic, Archaeological or Paleontological Significance not specifically designated as Exclusion or Avoidance Areas	Avoidance	No	State and County Historical Society
Areas of Recreational Significance	Avoidance	No	Various
Reservoirs	Avoidance	No	US Army Corps of Engineers and State Water Resource Commission
Municipal Water Supplies	Avoidance	Yes	State Water Resource Commission
Water Sources for Organized Rural Water Districts	Avoidance	No	State Water Commission
Areas which are Geologically Unstable	Avoidance	No	State Geologist Geological Survey
Within 500 Feet of an Inhabited Residence, School, or Place of Business	Avoidance	Yes	Landowner

B.4.a.(1) Designated or Registered State: Wild, Scenic, or Recreational Rivers; Game Refuges; Game Management Areas; Management Areas; Forests; Forest Management Lands; and Grasslands

No designated or registered state: wild, scenic or recreational rivers; game refuges; game management areas; forests; forest management areas; or grasslands were identified within the study area or the survey corridor.

The following three types of "management areas" are crossed by the proposed pipeline route:

B.4.a.(1)(i) School Trust Land

One parcel of NDSLD School Trust Land is located within the proposed study area (near MP 29). EPND's proposed pipeline route avoids crossing this land. The Trust land is separated from the proposed pipeline route by the Burlington Northern Santa Fe railroad. The location of the School Trust Land in relation to the proposed route corridor and the proposed pipeline route is shown on the avoidance criteria maps as Exhibit J.1.

B.4.a.(1)(ii) Conservation Reserve Program (CRP) Land and Private Land open to Sportsmen (PLOTS)

Seven parcels of CRP lands and one PLOTS parcel are crossed by the proposed study area. One parcel of CRP land is crossed by the proposed pipeline route. The only construction implication of crossing these lands is that the area must be restored to pre-construction conditions, a standard construction mitigation technique described later in this application. Therefore, the consideration of the location of CRP land or PLOTS relative to the route location is not factored into the routing criteria. To minimize project impacts to CRP land and PLOTS, EPND would:

- Restore the lands to preconstruction conditions; and
- Reseed the CRP land following seeding specifications from the NRCS.

B.4.a.(2) Municipal Water Supplies

One municipal water supply was identified along the proposed route (see Exhibit J.1). This water supply aquifer is described as covering an approximate 3 square-mile area, is comprised of sand and gravel and overlain by silty loam/silty clay. It is at a depth of 28 feet below the ground surface. The North Dakota Department of Health (NDDH) considers this a "Susceptible" aquifer (based on the NDDH DRASTIC scoring model) and has defined a Well Head Protection Area (WHPA) for the City water supply. The City water supply is considered a Transient Non-Community Public Water System. The pipeline route crosses approximately 1.3 miles within the WHPA.

Construction and staging areas within the WHPA would be confined to the smallest necessary area and clearly marked. Parking of equipment and storage of materials would be confined to designated areas. EPND's Spill Prevention, Control, and Countermeasure Plan (SPCCP), included as Exhibit I, provides additional protective measures that would be implemented near sensitive water resources. An Environmental Inspector would conduct on-site monitoring during construction to ensure that groundwater areas are protected as planned.

B.4.a.(3) Areas within 500 feet of Inhabited Residence, Schools or Place of Business

One business is located within 500 feet of the new proposed pipeline (*see* Table 3 below). EPND has secured a waiver from the landowner, which is enclosed herewith as Exhibit M. No schools or inhabited residences were identified within 500 feet of the proposed pipeline.

TABLE 3
Business Within 500 Feet of the Bakken Pipeline Route

Feature	Nearest Milepost	Approximate Distance from Pipeline (feet)
Business/Office	40	450

No residences or other occupied structures will be razed due to construction, nor will future residential development be precluded following completion of the pipeline, except as required by state and/or local setback ordinances and easement restrictions. Construction could temporarily restrict access to residences along the pipeline route. Where this potential exists, EPND will either limit the time such restrictions are in place or will make arrangements to accommodate the landowner's needs.

During construction, residences in close proximity to construction activities will be exposed to short-term increases in construction-related noise and dust. Minor dust production is inevitable in any construction project; however, if excessive, the

construction right-of-way and access roads near residential areas will be watered down to control dust production during construction. After construction is completed, the prompt use of measures to stabilize and revegetate the right-of-way will prevent further dust production.

The heavy construction equipment needed to install the pipeline will generate unavoidable short-term increases in ambient noise levels. Increases in ambient noise levels due to equipment operation will be limited to the period of construction and will generally be limited to daylight hours.

Although one business is located within 500 feet of the pipeline route and is considered an Avoidance Area, EPND believes there is no reasonable alternative to avoid it. Disturbance of this business will be temporary and short-term; long-term incremental impacts will be minimal. A new route may prevent impacts to this business, but will likely result in greater environmental impacts and increase the number of affected landowners.

B.4.b Selection Criteria (North Dakota Rules Chapter 69-06-08-02.3)

North Dakota Rules specify several selection criteria to be considered in designating a pipeline corridor or route. Specifically, the ND-PSC considers whether adverse effects from the location, construction, and maintenance of the facility as they relate to these criteria, will be at an acceptable minimum, and whether these effects will be managed and maintained at an acceptable minimum. Table 4 below identifies the selection criteria that were considered for the Project. Potential impacts, as they relate to each of the selection criteria, are discussed below. EPND will implement several measures to minimize these impacts, which are discussed in greater detail below.

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Table 4
Bakken Pipeline Project US
Selection Criteria Considered

SELECTION CRITERIA CONSIDERED	CROSSED BY PROPOSED PIPELINE
Agricultural Production	Yes
Family Farms and Ranches	Minimal
Land Suitable for Irrigation	Minimal
Surface and Groundwater Flow Patterns	Minimal
Noise Sensitive Areas	Minimal
Visual Effects	Minimal

Table 4 Bakken Pipeline Project US Selection Criteria Considered	
SELECTION CRITERIA CONSIDERED	**CROSSED BY PROPOSED PIPELINE**
Extractive and Storage Resources	Minimal
Wetlands	Minimal
Woodlands	Minimal
Communication or Electric Control Facilities	Minimal
Human Health and Safety	Minimal
Animal Health and Safety	Minimal
Plant Life	Minimal

B.4.b.(1) Agricultural Production

Agriculture is the predominant land use, comprising approximately 94 % of the study area. The maps (see Exhibit J.2) illustrate the location of agricultural land within the study area and along the proposed route.

The effects of construction on agriculture would be minor and short-term. The primary impact would be the loss of standing crops within the construction work area for the growing seasons during which project-related activities occur. It is possible for construction to result in soil compaction; mixing of topsoil and subsoil, including introduction of rocks into the topsoil from the subsoil; erosion; the introduction of weeds; and damage to irrigation and drainage systems. These impacts can lower soil productivity and reduce crop yields following construction.

Permanent impacts on agriculture production are not anticipated. EPND would bury the pipeline deeper than typical tillage depths to allow continued use of the land. Following construction, EPND would restore the right-of-way to its pre-construction contours and stabilize the ground until the next growing season. Planting and harvesting would be allowed to continue over the permanent right-of-way. EPND expects that fields would return to normal yields within a year or two of construction.

EPND is proposing to implement mitigation measures to minimize the potential for short-term impacts on agriculture productivity. EPND would:

- bury the pipeline deeper than typical tillage depths to allow continued use of the land for agriculture after construction;
- clean heavy equipment that is capable of transporting weed prop gules or soil pests prior to use on the project;

- prohibit construction during periods of prolonged, heavy rainfall to minimize the potential for soil compaction and reduced soil productivity;
- alleviate soil compaction caused by construction by deep tilling or chisel plowing soils (or alternative methods approved by the landowner or land management agency) where compaction has been shown to have been caused by construction;
- strip the existing amount of topsoil, up to a maximum depth of 12 inches, from over the trench line and subsoil storage area to maintain topsoil integrity and minimize impacts on soil productivity (where there is less than 12 inches of topsoil, strip the existing amount or to the bottom of the plow layer, whichever is deepest);
- store topsoil and subsoil in a manner that prevents mixing, and return topsoil to its original horizon during backfilling;
- implement temporary erosion best management practices (*e.g.*, slope breakers, sediment barriers, and mulch) to minimize the potential for soil loss due to wind or water erosion during construction;
- compensate landowners for crop loss and other associated damages for the year of construction;
- coordinate with landowners to assess crop productivity following construction and provide compensation where crop yields show decline;
- coordinate the interruption of irrigation and drainage systems with each landowner and compensate the landowner for damages and lost production that result from interruption of irrigation and/or drainage systems;
- repair, replace, or compensate landowners where irrigation and/or drainage systems are damaged by construction; and
- compensate landowners for a permanent easement on their property.

B.4.b.(2) Family Farms and Ranches

Family farms and ranches do occur within the study area. The primary impact on family farms would be the loss of standing crops within the work area for the growing seasons during which project-related activities occur, as well as potential diminished yields for a year or two following construction. EPND would mitigate these temporary effects by following the measures listed in Section B.4.b.(1) as stated above.

Herbaceous rangeland suitable for livestock grazing comprises approximately 0.5% of the study area. The primary impact on family ranches would be prohibition of livestock grazing in the project area and restricting livestock movement across the project area during construction. Given the narrow, linear nature of the project and the alignment of the pipeline along property boundaries and the small amount of

rangeland along the route, livestock grazing reductions and restricted livestock movement would be minor.

Long-term or permanent impacts on family farms and ranches are not anticipated. The project would not result in changes of land ownership. Following construction, the work area would be restored and farming and ranching would be allowed to continue over the permanent right-of-way. Livestock grazing may displaced until right-of-way vegetation becomes reestablished, landowners would be compensated for temporary land use loss. Grazing would return to normal after re-vegetation.

EPND is proposing to implement mitigation measures to minimize the potential for short-term impacts on livestock grazing and movement. EPND would:

- where practical, relocate livestock grazing in the area until right-of-way vegetation becomes re-established;
- compensate landowners for temporary land use loss;
- compensate landowners for a permanent easement on their property;
- make arrangements with landowners to keep livestock in fields not affected by the proposed project where practical;
- cut and brace fences crossed by the proposed pipeline in a manner to prevent slack, and install gates across the opening to prevent livestock passage, if required;
- install temporary fences as necessary to prevent livestock from entering the construction area;
- where there is a poorly established sod layer, strip the existing amount of topsoil, up to a maximum depth of 12 inches, from over the trench and spoil side of the right-of-way (where there is less than 12 inches of topsoil, strip the existing amount);
- where there is a well established sod layer, strip the existing amount of topsoil, up to a maximum depth of 12 inches, from over the trench only (where there is less than 12 inches of topsoil, strip the existing amount);
- store topsoil and subsoil in a manner that prevents mixing, and return topsoil to its original horizon during backfilling; and
- restore the work area its pre-construction contours and re-seed with mixtures approved by the landowner.

B.4.b.(3) Lands Suitable for Irrigation

In addition to impacts on actively cultivated fields, the project could impact land capable of supporting future cultivation. This includes land which the owner can demonstrate has soil, topography, drainage, and an available water supply that cause the land to be economically suitable for irrigation.

Generally, land suitable for cultivation within the study area, regardless of whether it is actually cultivated or not, is designated as "prime farmland" or "farmland that is of statewide or local importance." The NRCS has defined prime farmland and farmland that is of statewide or local importance as land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, and oilseed crops. These designations include cultivated land, pasture, woodland, and other land that is either used for food or fiber crops or are available for these uses. Urbanized land and open water are generally excluded from prime farmland and farmland that is of statewide or local importance.

Prime farmland and farmland that is of statewide or local importance typically contains few or no rocks; is not subject to excessive erosion; is relatively permeable to air and water; and is not subject to prolonged periods of flooding during the growing season. Soils that do not meet these criteria may be considered prime or important farmland if the limiting factor is mitigated (*e.g.,* artificial drainage). The NRCS defines the specific criteria for determining prime farmland. State and local government agencies define the criteria for determining farmland that is of statewide or local importance.

Prime farmland (if drained) and farmland that is of statewide or local importance does occur within the study area and along the proposed route (see Exhibit J.3). Approximately 51% of the study area contains prime farmland (if drained) or farmland that is of statewide or local importance.

A number of factors used to designate prime farmland and farmland that is of statewide or local importance would not be affected by the proposed project. For example, rainfall and the length of the growing season would not change. Criteria that could be affected by the proposed project are mainly related to soil productivity and are the same as those discussed for agriculture production. For example, it is possible for construction to result in soil compaction; mixing of topsoil and subsoil, including introduction of rocks into the topsoil from the subsoil; erosion; introduction of weeds; and damage to irrigation and drainage systems.

The actual effects of the proposed project on prime farmland and farmland that is of statewide or local importance varies by the actual land use and/or land cover affected. For example, effects on actively cultivated land are different than uncultivated land. On actively cultivated land, EPND would implement mitigation measures to minimize effects on agriculture production as noted above and there would be only minor, short-term impacts on the land. Where land is used for other purposes, EPND would implement other mitigation measures suitable to the current

land use and/or land cover. Additionally, if construction activities were to adversely affect soil productivity in prime or important farmland, productivity could be reestablished by mitigating for the limiting factors in the future.

Long-term impacts on prime farmland and farmland that is of statewide or local importance would be minor. Following construction, the work area would be restored to its pre-construction condition and stabilized. Future drain and irrigation systems would be allowed on the permanent right-of-way in accordance with specifications that allow for the safe and continued use of the pipeline.

B.4.b.(4) Surface and Groundwater Flow Patterns

B.4.b.(4)(i) Surface Drainage

The proposed route corridor and pipeline route lie in the Upper Souris River and Des Lacs River drainage basin. Surface water generally drains to the northeast in the Des Lacs River watershed (Kenaston Station and along the pipeline route between MP 29 to 32.5), and to the southwest in the Upper Souris River watershed (Lignite Station and on the remainder of the pipeline route). The proposed pipeline route does not cross any waterbodies.

EPND commissioned wetland assessments of the survey corridor and proposed stations sites. Results of these assessments are described in Section B.4.b.(8).

B.4.b.(4)(ii) Groundwater Flow Patterns

Groundwater aquifers within the project area include bedrock and glacial drift aquifers. Bedrock aquifers are generally found at a depth of approximately 2,300 feet. Glacial drift aquifers are found at depths ranging from a few feet to more than 250 feet.

Groundwater aquifers within the project area include unconsolidated-deposit bedrock and glacial drift aquifers. Water in these aquifers moves in response to gravity from recharge areas down the hydraulic gradient to discharge areas. Much of the recharge is from precipitation that falls directly on the aquifers where they are at or near the land surface in topographically high areas, but some of the recharge is by leakage through the beds of streams that cross the aquifers. The water percolates downward, enters the aquifers, and subsequently moves toward discharge areas at lower altitudes. Local aquifers in bedrock receive recharge directly from precipitation; some of the water then moves laterally into the unconsolidated-deposit aquifers that partially fill basins in the bedrock. The water moves through the unconsolidated-deposit aquifers and discharges to surface-water bodies, such as lakes or streams, near the basin centers.

Ground disturbance associated with pipeline construction is generally limited to 6 feet or less below the existing ground surface. Most construction activity would be above surficial aquifers. Construction activities such as trenching, blasting, drilling, dewatering, and backfilling could encounter shallow aquifers and cause minor fluctuations in groundwater levels and/or increased turbidity within the aquifer adjacent to the activity. Given the low permeability of soils crossed by the project, dewatering activities, if necessary, are not expected to have a significant effect on regional groundwater flow patterns. Since most shallow aquifers exhibit rapid recharge and groundwater movement, shallow aquifers would quickly reestablish equilibrium if disturbed, and turbidity levels would rapidly subside. Consequently, the effects of construction would be minor and short term. Impacts on deeper aquifers are not anticipated.

B.4.b.(5) Impact of Noise Sensitive Land Uses

A review of the project study area identified five types of noise sensitive areas and land uses within the proposed corridor and along the proposed route: residences, schools, places of business, grazing, and hunting. One business is located within 500 feet of the proposed pipeline route. No schools were identified within 500 feet of the proposed pipeline. Grazing and hunting occur throughout the corridor and along the proposed route.

The study area and survey corridor are located in a predominately rural setting characterized by an inherently low ambient noise level. Most of the noise generated in any given area is due to human activity, mainly vehicle traffic, train traffic, and agricultural machinery. Lesser amounts of noise can be attributed to natural causes, such as wind, birds, and insects.

The effects of noise on people, livestock, and wildlife is strongly influenced by the level and timing of the noise. Some people become annoyed with noise levels during nighttime hours above 40 decibels (a quiet room). Livestock and wildlife may

disperse from an area when the noise levels exceed about 50 decibels (a moderate rainfall).

The heavy equipment needed to construct the pipeline is expected to generate between 80 and 90 decibels within 50 feet of the equipment. Noise sensitive receptors close to construction would be exposed to temporary increases in noise. People living, working, teaching, learning, hunting, or otherwise occupying areas near the work area may become annoyed, and livestock and wildlife may relocate to adjacent areas. The effects of noise would be diminished where the project is adjacent to existing railroad and roads because these areas already experience increased noise levels from train and car/truck traffic (estimated between 60 and 95 decibels when cars, trucks, and/or trains are traveling on roads/railroads at higher speeds). Nighttime noise levels would normally be unaffected by construction, as most construction is typically restricted to daylight hours.

EPND plans to perform a noise survey at its new proposed Lignite Pump Station in Burke County due to its close proximity to the town of Lignite. No noise surveys are planned for the Kenaston and Berthold Stations since the nearest sensitive area (NSA) is over ½ away. (See Table 5 below)

Table 5
List of Pump Stations and Nearest Sensitive Areas

Name of Pump Station	County	Distance to Nearest NSA	Noise Study Planned
Lignite	Burke	500 feet – cemetery 2,750 feet – town of Lignite	Yes
Kenaston	Ward	3000 feet - residence	No
Berthold	Ward	3000 feet - residence	No

B.4.b.(6) Impact on Visual Effect on the Adjacent Area

No designated scenic outlooks or viewing areas were identified within the study area. The study area and pipeline route traverse a landscape consisting primarily of grasslands and agricultural fields where the line of sight is broken by rolling hills and the occasional wooded draw or shelterbelt. Additionally, a significant portion of the route is located parallel to an existing Burlington Northern Santa Fe railroad. Temporary visual effects would exist during active construction during which time heavy equipment, open trenches, and spoil piles would change the colors and textures of the landscape. The duration of visual impacts would be relatively short-

term as the re-establishment of vegetation on grasslands and agricultural land following construction would occur relatively fast. The only permanent impacts on visual resources would be the conversion of agricultural land to industrial use where the pump stations would be built. These facilities would be located in rural agricultural areas where very few people would see them.

B.4.b.(7) Impact on Extractive and Storage Resources

A review of the project study area identified two types of actively mined extractive resources at various locations within the study area: oil and gas and sand and gravel. Neither of these extractive resources would be affected by the proposed route. Although these resources may exist within the study area, mines for these resources were not identified. Additionally, storage resources within the proposed corridor were not identified.

B.4.b.(7)(i) Oil and Gas

Known oil and gas reserves in North Dakota are associated with the Williston Basin in the western half of the state. The Williston Basin is a structurally simple basin. It is roughly circular, deepest in its center, and the strata become both shallower and thinner towards its margins. It is a large basin, covering approximately 300,000 square miles over parts of North Dakota, South Dakota, Montana, and the adjacent Canadian provinces of Saskatchewan and Manitoba.

The proposed corridor would pass over the Bakken Formation, a thin but widespread unit within the central and deeper portions of the Williston Basin. There are an estimated 41 oil wells within the study area, with the majority of these concentrated near the northwestern portion of the corridor. Five wells are adjacent to the proposed route within the survey corridor (see Exhibit J.3).

Typically, the pipeline trench would be less than 6 feet deep to account for the pipe and a minimum of 4 feet cover, except at road crossings where bores may require additional depth. Because oil and gas is generally produced from depths in excess of 1,000 feet, construction of the pipeline would not be expected to affect the ability of the wells to produce petroleum and/or natural gas. Rather, any construction-related damage that could occur would be limited to surface or near-surface components of the wells and gathering systems, which could temporarily disrupt production until repairs are made. To minimize the potential for impacting surface and near-surface components, EPND would:

- Avoid direct impact to the five wells located within the vicinity of the construction right-of-way; and
- Identify any associated underground gathering lines along the proposed route and take appropriate precautions to protect the integrity of such facilities.

B.4.b.(7)(ii) Sand and Gravel

A review of the study area identified one existing sand and/or gravel mining operation within the study area (northeast of the City of Lignite). No sand and/or gravel mining operations are located within the survey corridor; therefore, neither short- nor long-term impacts associated with the proposed pipeline are anticipated.

B.4.b.(8) Impact on Wetlands

In July 2010, EPND commissioned a wetland assessment of the project area. McCain and Associates Inc. ("McCain"), of Bismarck, North Dakota, completed a wetland delineation survey along the proposed route. EPND also commissioned Merjent, Inc. ("Merjent") of Minneapolis to complete a wetland assessment of the Lignite and Kenaston Pump Stations, and Barr Engineering Company ("Barr") of Duluth, Minnesota and Merjent completed a wetland delineation survey of the Berthold Pump Station and Terminal. (See Exhibit D.1, McCain Report; Exhibit D.2, Barr Report, Exhibit D.3, Merjent Report).

B.4.b.(8)(i) Route

A total of 60 wetlands were identified and delineated during the field delineation completed by McCain (see Figure 2 in Exhibit D.1 – McCain Report). Nearly all wetlands are depression pothole wetlands. Fifty eight wetlands are considered isolated depression wetlands and two wetlands were identified as connected to intermittent drainages. The pipeline route directly crosses 30 wetlands totaling approximately 1.36 miles in length. A list of the wetland crossings by milepost are described in Table 6 below.

TABLE 6
Field Delineated Wetlands Crossed by the Bakken Pipeline Route

Milepost In	Milepost Out	Crossing Length (Feet)	Wetland Type [b]
29.11	29.12	74	PEMA
29.51	29.56	291	PEMC
29.83	29.94	571	PEMF
30.10	30.11	80	PEMF
30.40	30.41	17	PEMC
30.48	30.49	37	PEMCx
30.84	31.01	883	PEMF
31.43	31.49	322	PEMC
31.80	31.82	94	PEMC/PABF/PABFx
31.84	31.84	10	PEMC/PABF/PABFx
32.33	32.34	51	none
32.61	32.63	139	PEMA
32.65	32.72	351	PEMC
32.97	32.99	95	PEMC
33.05	33.18	710	PEMC
33.28	33.32	231	PEMC
33.89	33.94	217	PEMC
34.12	34.18	310	PEMC
34.33	34.34	68	PEMC
34.53	34.60	346	PEMC
35.16	35.34	977	PEMC
35.51	35.52	31	none
36.11	36.16	291	PEMA
37.36	37.43	345	PEMA
38.29	38.29	45	PEMA
38.76	38.77	16	PEMC
38.78	38.78	15	PEMC
39.52	39.57	256	PEMC
39.82	39.86	214	PEMC/PEMF/PABFx
39.92	39.94	100	PEMC/PEMF/PABFx
	TOTAL	**7187**	

[b] Wetland Types based on Cowardin et al. wetland classification system, 1979.
PEMA-Palustrine, Emergent, Temporarily Flooded;
PEMC-Palustrine, Emergent, Seasonally Flooded,
PEMF-Palustrine, Emergent, Semipermanently Flooded;
PEMCX- Palustrine, Emergent, Seasonally Flooded, excavated;
PABF-Palustrine, Aquatic Bed, Semipermanently Flooded
PABFx- Palustrine, Aquatic Bed, Semipermanently Flooded, excavated

Assuming a construction right-of-way neck-down width of 85 feet in wetlands (see EMP in Exhibit E), approximately 14 acres[1] of wetlands would be temporarily impacted along the pipeline route during construction.

Since the initial surveys were conducted, EPND has made some minor route adjustments and identified areas (outside of the original survey corridor) which will require additional cultural surveys. At this time, EPND is completing its surveys in these specific areas; and once completed, the results of these surveys will be submitted to ND-PSC as a supplemental filing. McCain will also conduct an on-site habitat assessment concurrent with these additional surveys (see Section B.2.j for further details).

B.4.b.(8)(ii) Stations

Lignite and Kenaston Pump Stations:

EPND commissioned Merjent to conduct wetland delineations at the proposed Lignite and Kenaston Pump Stations. No COE-jurisdictional wetlands are located at the Lignite or Kenaston Pump Stations. An isolated (non COE-jurisdictional) 0.154-acre temporarily flooded, farmed palustrine emergent wetland (PEMAf[2]) is located at Kenaston Station, and will be permanently impacted as a result of project activities (see Exhibit D.3).

Berthold Pump Station and Terminal:

EPND commissioned wetland delineations within the fence line (Barr) and outside of the fence-line (Merjent) at Berthold Pump Station. Barr identified three wetlands within the fence line (*see* Exhibit D.2), and Merjent identified 3 wetlands within the existing Berthold Station boundary that are located outside of the fence line (*see* Exhibit D.3). Two wetlands (totalling approximately 1.5 acres) would be impacted by the proposed Project within the Berthold Station fence line (*see* Figure 5 of Exhibit D.2).

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

B.4.b.(8)(iii) Impacts to wetlands as a result of construction will be mitigated as follows:

EPND also completed a "desktop" wetland review of the study area. As shown on route maps enclosed herewith as Exhibit H, there are wetlands are scattered throughout the study area along the proposed route. Based on USFWS National Wetland Inventory (NWI) data, wetlands occupy about 1,140 acres (15 percent) of the study area.

[1] Calculated as crossing length listed in Table X (15,981 ft) * Reduced Construction right-of-way width (85 ft)
[2] PEMA-Palustrine, Emergent, Temporarily Flooded, farmed

The most common wetlands within the study area are freshwater emergent wetlands, which are characterized by rooted herbaceous vegetation. Water sources for these wetland communities include seepage from ditches and drainages, irrigation runoff, and ponding on poorly drained soils. Common emergent wetland species along the pipeline study area are foxtail barley, water smartweed, spike rush, curly dock, uptight sedge, inland rush, and bluegrass. In addition to emergent wetlands, freshwater ponds and lakes occur within the study area.

Construction in wetlands would primarily result in short-term impacts including temporary loss of wetland vegetation, soil disturbance, and increases in turbidity and fluctuations in wetland hydrology. Additionally, wetlands could be contaminated by accidental spills during vehicle refueling and maintenance, or from other potential hazardous material spills that might occur during construction. EPND is proposing to implement mitigation measures to minimize impacts on wetlands, as detailed in the project's EMP (Exhibit E). To minimize impacts on wetlands, EPND would:

- mark wetland boundaries prior to construction;
- reduce the width of the construction work area to 85 feet or less through wetland areas;
- restrict the equipment working in and passing through wetlands to the extent practical;
- strip the existing amount of topsoil, up to a maximum depth of 12 inches, from over the trench in unsaturated wetlands (where there is less than 12 inches of topsoil strip the existing amount);
- in unsaturated wetlands, store topsoil and subsoil in a manner that prevents mixing, and return topsoil to its original horizon during backfilling;
- implement temporary erosion best management practices (e.g., slope breakers, and sediment barriers) to minimize the potential for erosion and sedimentation in wetlands during and after construction;
- use equipment pads or timber riprap as needed to support construction equipment in saturated wetlands and reduce the potential for soil compaction;
- prohibit equipment refueling and the storage of fuels and hazardous substances in or within 100 feet of wetlands;
- re-seed unsaturated wetlands with annual ryegrass or similar cover crop at a rate of 40 pounds per acre to temporarily stabilize the soils and allow native vegetation to reestablish without excessive competition; and
- prohibit installation of surface facilities within wetlands as requested by the NDGF.

B.4.b.(9) Impact on Woodlands and Wooded Areas

The US Geological Survey (USGS), National Land Cover Data Set (2001) did not identify wooded areas within the study area. As such, impacts to wooded areas and woody vegetation are expected to be minimal. Actual acreages will be determined prior to construction when EPND conducts a tree and shrub survey along the construction corridor.

If required, clearing of woody vegetation within the construction work area would result in some long-term change. In this region, it is anticipated that re-growth of trees to mature conditions could take up to 50 years, depending on the species. Permanent impacts would be limited to the permanent right-of-way and easements, which EPND would maintain in an herbaceous state by occasional mowing or brush clearing. EPND is also proposing to implement additional mitigation to minimize impacts on wooded areas. EPND would:

- reduce the width of the construction work area to 85 feet or less in wooded areas;
- conduct a tree and shrub survey prior to clearing;
- selectively cut and remove shrubs and trees within the 85-foot-wide construction work area leaving mature shrubs and trees in place where practical;
- cut woody vegetation flush with the surface of the ground such that root stock is left in place to aid in re-vegetation after construction (except over the trench line, in areas requiring grading, and where necessary to provide a safe work surface); and
- replace shrubs and trees affected by construction with bare root seedlings of similar species on a 2 to 1 basis as recommended by the NDGF provided that the shrubs and trees replaced are outside the permanent right-of-way, not within other utility rights-of-way, and authorized by the landowner or land management agency.

B.4.b.(10) Impact on Radio and Television Reception, and Other Communication of Electronic Control Facilities

A review of the project study area did not identify radio, television, or other communication or control facilities within the proposed corridor or route. No effects on radio or television reception, or other communication or electronic control facilities are expected as a result of the proposed project.

B.4.b.(11) Impact on Human Health and Human Safety

Presently, EPND owns and operates a 968-mile existing underground petroleum gathering and mainline pipeline system that extends from eastern Montana through North Dakota to Clearbrook, Minnesota and to the international boundary between the US and Canada. EPND has successfully planned, designed, permitted, constructed and placed into operation a number of liquid petroleum pipeline expansion projects since 2006, and is experienced in managing construction and operating pipeline systems that protect the public's health and safety.

EPND will design, construct, test, operate, and maintain the proposed Project in accordance with all applicable laws and standards. The US Department of Transportation's pipeline standards are published in 49 Code of Federal Regulations, Parts 194 and 195. The regulations are intended to ensure adequate protection of the public and to prevent accidents and failures. 49 CFR Part 195 specifically addresses petroleum pipeline operating, maintenance, inspection and safety issues. It specifies material selection and qualification; minimum design requirements; and protection from internal, external, and atmospheric corrosion as well as operator qualification and pipeline inspections. 49 CFR Part 194 prescribes emergency planning for liquid petroleum pipelines to prepare for prompt shutdown, containment and cleanup to minimize the effects of a pipeline release, should one occur. EPND has prepared an Emergency Response Plan in compliance with 49 CFR Part 194 and filed the plan with the US Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA).

Compliance with the federal pipeline safety regulations is periodically inspected by PHMSA.

Causes of and Prevention of Accidents on Pipelines

The major causes of pipeline leaks in the United States are corrosion (both internal and external), excavation damage, pipe or weld failure, incorrect operations, or natural causes (e.g. floods or outside force). To prevent these categories of failures, EPND will construct the proposed upgrades to Line 26 and continue to maintain this line to meet or exceed industry and governmental requirements and standards. Specifically, the steel pipe will meet PHMSA federal codes under 49 CFR Part 195, follow standards issued by the American Society of Mechanical Engineers, National Association for Corrosion Engineers and American Petroleum Institute (API). As a safety factor, the proposed Bakken Pipeline is designed to withstand pressures over and above its normal operating pressures and will operate according to codes and regulations. All pipe is inspected and integrity-tested at the factory and transported in accordance with the American Petroleum Institute technical standard,. All of the pipe will be manufactured with fusion-bonded epoxy coating to protect against corrosion. The actual installation of the pipeline and all construction and testing records will be subject to regulatory inspection, which includes PHMSA inspectors.

PHMSA also conducts regularly scheduled field inspections of the pipeline facilities to ensure compliance with federal regulatory requirements, including the integrity testing of the pipeline through the use of internal inspection devices.

Once installed, the pipeline will be subjected to careful testing to verify its integrity and compliance with specifications. Such testing will include checking coating integrity, examining by X-ray 100% of field welds (over and above the 10% required by regulations), internally inspecting the entire length of each line by using an in-line inspection tool known as a caliper pig, and hydrostatically testing the line to establish the maximum allowable operating pressure. The pipeline will be placed into service only after inspection to verify compliance with all construction standards and requirements are met.

This pipeline and facilities are maintained and inspected according to PHMSA regulations, industry codes and prudent pipeline operating techniques. All of EPND's transmission liquids pipelines are externally coated to resist corrosion, internally inspected at regular intervals using in-line inspection technology, and equipped with a cathodic-protection system to prevent external corrosion. EPND's cathodic protection system and internal inspection program were implemented prior to these techniques becoming a federal regulatory standard[3].

EPND's pipeline system is patrolled and inspected by air at least every three weeks but not less than 26 times per year to watch for abnormal conditions or dangerous activities (e.g., unauthorized excavation along the pipeline routes). EPND also conducts extensive public education and outreach programs that exceed industry (API Recommended Practice 1162) and federal (49 CFR 195.440) requirements concerning public awareness of pipelines and pipeline-safety matters. EPND pipeline routes and pump station facilities are marked with signage and warnings, to meet or exceed federal regulations. Pipeline route signage is placed at road and highway crossings, railroad crossings, navigable rivers, and other locations to alert the public to the presence of underground lines and to provide information, contact numbers, and emergency data.

Pipeline workers and contractors performing critical tasks are qualified under OSHA safety standards and PHMSA "operator qualification" rules and are subjected to federal drug and alcohol testing requirements. EPND meets, and often exceeds, these requirements so that human error in construction and operation is avoided.

Baseline Transportation Accident Rates

Releases from interstate liquid petroleum pipelines are reportable to PHMSA as required by 49 CFR Part 195 Subpart B. Currently, the federal regulations require reporting of all releases greater than 5 gallons (and/or if other threshold reporting criteria are met), which becomes public record on PHMSA's website. In addition,

[3] Beginning in 2004, federal regulations required periodic integrity assessment testing of pipelines in high consequence areas.

EPND is required by North Dakota to report releases to the North Dakota Department of Health.

There is no alternative mode of transportation or route to transport the equivalent daily volumes proposed by the Bakken Pipeline Project US. However, it is illustrative to compare pipeline safety to other modes of transportation. Pipelines operate more safely than any other mode of oil transportation. In Table 7, the numbers show how much more likely a transportation mode is to have an accident of a particular type compared to an oil pipeline. For example, truck accidents result in deaths at least 87 times more often than pipeline accidents. Likewise, truck accidents result in fires and/or explosions about 35 times more frequently per barrel of oil transported per mile. (These figures include only accidents involving petroleum shipments, not all accidents for a given transportation mode).

Table 7
Accident Rates of Petroleum Transportation Methods [a]

Method	Death	Fire/Explosion	Injury
Truck	87.3	34.7	2.3
Rail	2.7	8.6	0.1
Barge	0.2	4.0	3.6
Tank Ship	4.0	1.2	3.1

[a] Values less/more than 1.0 indicate risk of accident is lower/greater than pipeline transportation. Comparisons based on calculated rates per ton-mile.
Source: Allegro Energy Group as posted on the Association of Oil Pipelines website: http://www.aopl.org

Crude Oil Pipeline Accident Rates

An analysis of the historical record shows that the liquid petroleum pipeline industry's safety performance has improved significantly over the last 30 years. These improvements correlate with advancements in technology as well as increased environmental awareness. The annual number of spills has decreased by nearly 40%. Over the last 30 years, the number of spills has also dropped from an average of 318 in the first six years (1969 to 1974) to the most recent six year running average of 197 spills nationwide. The median size of a spill has greatly decreased. The annual volume of oil spilled from pipeline systems has fallen by about 60%, based on six year running averages (PHMSA website and Association of Oil Pipelines website).

B.4.b.(12) Impact on Animal Health and Safety

General construction-related effects on domestic animals and wildlife will result primarily from activity in the Project area during construction. The clearing of herbaceous and woody vegetation will temporarily reduce cover, nesting, and foraging habitat for some species. Clearing may also result in the loss of some members of small, slower moving species. However, most will move into adjacent

undisturbed habitats until construction and restoration are complete. Overall habitat availability is not expected to change in the long term.

Pipeline trenching activities and associated spoil piles may result in a short-term barrier to movement of some wildlife species (typically two to four weeks at any one area).

Except for short-term interruptions during construction, existing public roads, farm lanes, and livestock crossings will be kept open, providing crossing access. Shelter belts and trees will be protected to the extent practicable in a manner compatible with the safe operation, maintenance, and inspection of the pipeline. Mitigation measures will be implemented to avoid or minimize potential adverse impacts on animal health and safety as described in EPND's EMP (see Exhibit E).

B.4.b.(13) Impact on Plant Life

During construction, vegetation will be removed from the construction right-of-way. Where extra workspace is required, additional vegetation will be removed. In nonagricultural areas, trees and shrubs cleared from extra workspace will be allowed to reestablish after construction, and revegetation measures will take into account recommendations from applicable regulatory agencies and arrangements with landowners. Overall, significant change in plant life is not anticipated.

B.4.c Policy Criteria (North Dakota Rules Chapter 69-06-08-02.4)

The ND-PSC may give preference to an applicant that will maximize benefits resulting from the adoption of policies and practices of the ND-PSC. These policies, and the extent to which the project aligns with or reinforces these policies, are described below.

B.4.c.(1) Location and Design

EPND has designed the proposed Project to take advantage of its existing facilities to the maximum extent practical. The proposed pumping stations are located on the existing EPND Line 26 and located to optimize pipeline hydraulics, while minimizing the number of additional pump stations to meet throughput needs. Additionally, the proposed 11-mile replacement is located (for most of its length) parallel and adjacent to the existing Line 26. However, there are several locations where EPND has selected its route location to avoid special land features, thus minimizing human and environmental impacts to the extent possible. EPND has also designed this replacement Project to optimize the pipeline capacity of its Line 26, providing Bakken producers with a timely and cost effective long-term solution to meet their transportation needs in this region.

No designated Exclusion Areas are crossed by the route. Mitigation measures will be implemented to avoid or minimize potential adverse impacts on Avoidance Areas crossed as seen on Table 2 of this application.

The project is designed and will be operated in a manner that meets or exceeds state and federal engineering, safety and operational design standards.

B.4.c.(2) Training and Utilization of Available Labor in this State for the General and Specialized Skills Required

No training of local labor is anticipated as a direct result of this pipeline expansion. During construction of the proposed facility, skilled and unskilled labor, both local and non-local workers will be employed by EPND or by the General Contractor selected to construct this proposed pipeline.

B.4.c.(3) Economies of Construction and Operation

Crude oil and natural gas is the leading mineral product in North Dakota, making North Dakota the fourth largest producer of crude oil in the country. The proposed project would boost the state's economy and allow the state to capitalize on tax revenue gathered from production and extraction taxes.

Beneficial impacts on the economy would also result during construction from temporarily hiring local employees, and from a relatively large-scale, temporary influx of non-local construction workers. Unemployment in the area would see a temporary drop, and payroll taxes would temporarily rise.

Also, based on economic modeling by the Federal Bureau of Economic Analysis and consultation with EPND's economic expert, it is estimated that the Project construction will lead to 1,252 person-years of jobs and $145 million in economic activity in North Dakota over the 2011 and 2012 period. This activity will be concentrated in the northwest part of the state. Additionally, the incremental capacity, as proposed herein, is expected to lead to an increase in average annual revenues over the 2013-2022 periods of nearly $47 million, which will further generate an estimated 341 jobs and nearly $69 million in average annual state economic activity over that period.

Local businesses would benefit from the demand for goods and services generated by the temporary workforce's need for food and lodging. In addition, EPND would purchase some of the materials necessary for the Project's construction locally. EPND estimates that local purchases made for construction of the project would primarily include consumables, fuel, equipment rental, and miscellaneous construction-related materials (*e.g.*, office supplies).

B.4.c.(4) Use of Citizen Coordinating Committees

No Citizen Coordinating Committee is anticipated as a result of the project.

B.4.c.(5) Commitment of a Portion of the Transmitted Product for Use in this State

EPND does not own any of the crude oil in its system, and does not determine the destinations for the products transported by its system. The nature of EPND's crude oil transmission pipeline business is to provide transportation service to its customers as a common carrier, and to receive a fee for that service pursuant to tariffs authorized by the FERC under the Interstate Commerce Act.

B.4.c.(6) Labor Relations

The project will have no anticipated effect on labor relations within North Dakota.

B.4.c.(7) Coordination of Facilities

As previously mentioned, EPND has designed the proposed expansion Project to take advantage of its existing facilities to the maximum extent practical and site new facilities to minimize human and environmental impacts to the greatest extent possible.

B.4.c.(8) Monitoring of Impacts

EPND is committed to protecting the environment and complying with all applicable environmental laws, regulations, and standards. EPND plans to implement the following procedures for environmental training and environmental inspection throughout the course of the Project.

B.4.c.(8)(i) Environmental Training

EPND will communicate the environmental requirements of the Project to project personnel, and implement the following procedures to ensure that environmental compliance is maintained at the construction site.

- require environmental training for all Project personnel (both contractor and EPND)prior to construction;

- require Project personnel visiting the work site receive environmental training;

- require everyone who attends training to sign an acknowledgement form and be issued, as a proof-of-training, a copy of the training booklet and a hardhat sticker; and

- require all personnel to display a hardhat sticker when on a job site or dismiss personnel from the job site until the person obtains a hardhat sticker through completion of training.

B.4.c.(8)(ii) Environmental Monitoring

Environmental monitoring, in the form of ongoing site inspection, will be conducted during and following construction. Contract specifications will incorporate environmental protection and mitigation measures, and contractors will be expected to implement these measures in the field. Contractor training and project orientation will also be provided by EPND.

Environmental data has been assessed, specifically cultural resources, wetlands and protected species, as described in Section B of the Application for Certificate for Corridor Compatibility. EPND will continue to work with appropriate regulatory agencies and will continue to gather comprehensive information during the permitting process.

EPND believes that construction-related impacts will be adequately mitigated throughout the project route by the use of best management practices, good construction techniques, and environmental inspection. Therefore, long-term monitoring of impacts directly related to the project is not anticipated. Following the installation of the pipeline, a thorough inspection will be performed to ensure restoration efforts have been completed.

B.4.c.(9) Utilization of Existing and Proposed Rights-of-way and Corridors

As previously stated, EPND plans to replace a 11-mile segment of its 12-inch diameter Line 26 beginning in Section 31, Township 162 North, Range 90 West and ending in Section 34 Township 162 North, Range 92 West, all being located in Burke County. The ending tie-in point is located approximately 7.9 miles south of the US-Canadian international boundary at the location of the existing mainline sectionalizing block valve.

Of those 11 miles, approximately 5.7 miles of new 12-inch diameter pipeline will run parallel and adjacent to EPND's existing pipeline corridor. For the remaining 5.3 miles of EPND's proposed route, there are three locations where EPND will not be paralleling its existing pipeline corridor in order to minimize or avoid, to the extent possible, human and environmental impacts. (*See* Table 8 for more details.)

Table 8:
Proposed Route to Avoid Special Land Features

Route Maps Sheet No.	Beginning Location	Ending Location	County	Special Features	Distance
1	Section 30, T-162-N, R-90-W	Section 25, T-162-N, R-90-W	Burke	Lignite Dump Site	0.82 miles
2	Section 23, T-162-N, R-91-W	Section 22, T-162-N, R-91-W	Burke	Woburn	0.53 miles
3-4	Section 7, T-162-N, R- 91-W	Section 34, T-162-N, R- 92-W	Burke	Town of Lignite	3.95 miles

Right of Way Requirements

For the construction of the 11-mile replacement of 12-inch diameter pipeline, this Project will require up to 50 feet of permanent easement and 60 feet of temporary workspace as shown on Table 9 of this application. This Project will require a 110-foot-wide construction footprint consisting of new easements and 60 feet of temporary work space (*see* Exhibit P depicting a typical configuration of the new right-of-way requirements and construction footprint). Additional temporary extra workspace of up to 75 feet in width and 300 feet in length will be required at feature crossings such as but not limited to road crossings and railroad crossings. No pipe storage yards or private or new access roads have been identified at this time. This information will be filed prior to construction. EPND will acquire additional workspace from the landowners where necessary; use of unauthorized workspace is prohibited without the landowner and EPND's approval. In all cases, the size of additional temporary workspace will be kept to the minimum necessary to safely conduct work. Temporary working areas will not be restricted by or subject to permanent easement restrictions upon completion of construction.

EPND has established a 250-foot wide survey corridor along the proposed route within the one-mile study area and has performed civil, biological, wetland and cultural survey work activities for the purpose of siting this Project (*see* table below) within the rules and regulations under the North Dakota Siting Act.

Table 9
Right-of-way Requirements and Construction Workspace

Study Area	Survey Corridor	Construction Footprint	Temporary Work Space	Permanent ROW
1-mile	250 feet	110 feet	60 feet	50 feet

B.4.c.(10) Other Existing and Proposed Transmission Facilities

No other existing or proposed transmission facilities will be involved in the Project within North Dakota.

B.4.d Design and Construction Limitations

See Section A.3 of the Application for Corridor Certificate.

B.4.e Economic Considerations

See Section B.2.g of this application and Section C of the Application for Certificate of Corridor Compatibility.

B.4.f Human Environment

The Project area is sparsely populated and farming is the predominant economic activity. Within Burke County, the route crosses approximately 35 separate tracts of land owned by approximately 22 different landowners. Except for roads such as the Kings Highway crossing, the remaining land crossed by the route is privately owned. One business is located within 500 feet of the right-of-way (see section B.4.a.(3)). The route does not pass through parks or the incorporated limits of cities. One PLOTS recreation area is crossed by the route (See section B.4.a.(1)(ii)).

Road crossings for the route are summarized in Table 10. All 14 maintained roads will be bored unless the applicable permitting agency specifically permits EPND to open cut the road.

TABLE 10
Roads Crossed by the US Bakken Pipeline Route [a]

Milepost	Crossing Length (Feet)	Name
29.05	120	97TH ST NW
29.46	160	CR13 / 61ST AVE NW
30.47	120	CR 4 / 82ND AVE NW
32.07	120	80TH AVE NW
32.54	120	99TH AVE NW
33.23	120	81ST AVE NW
34.40	120	82ND AVE NW
34.48	120	100TH ST NW
35.51	120	83RD AVE NW
36.70	120	101ST ST NW
37.24	120	84TH AVE NW
38.25	120	KINGS HWY
39.31	120	86TH AVE
39.66	220	HWY 5

B.4.g Terrain and Geology

The surface elevation near Kenaston Station is 2,045 feet. Surface elevations along the route range from 1,952 feet near Woburn, ND (Milepost 29) to approximately 1,950 feet near Lignite, ND (Milepost 40). The hydrogeologic setting in this general area is defined by the USGS (Guide to North Dakota Ground-Water Resources, 1990) as underlain by a series of Tertiary-age aquifers composed of sandstone and lignite beds. The USGS maps the Burke County area as having nonspecific surficial deposits of Paleogene age overlying these bedrock units.

B.4.h Soils

The route crosses the Northern Black Glaciated Plains Major Land Resource Area (MLRA). The mostly nearly level to gently rolling till plains include areas of kettle holes, kames, and moraines. Some of the depressions contain lakes. Also in the area are nearly level glacial lake plains and some steep slopes adjacent to streams. The dominant soils in this MLRA are Mollisols. These generally very deep, well drained to poorly drained soils have a loamy or “clay-like” texture and a frigid temperature regime. In general, the pipeline route crosses soils that formed in glacial till deposits.

Detailed soil characteristics along the pipeline route were identified and assessed using the NRCS Soil Survey Geographic database (SSURGOUS). The SSURGO database is a digital version of the original county soil surveys developed by the NRCS for use with geographic information systems (GIS). It provides the most detailed level of soils information for natural resource planning and management.

The SSURGO database was used to define soil characteristics along the pipeline route in Burke County. SSURGO attribute data consist of physical properties, chemical properties, and interpretive groupings. Attribute data apply to the whole soil (e.g., listed hydric, prime farmland soils, slope class) as well as to layer data for soil horizons (e.g., texture, permeability). The soil attribute data can be used in conjunction with spatial data to describe the soils in a particular area.

Tables 11, 12, and 13 list the soil associations, the approximate crossing length of each soil association, and provides a summary of soil limitations for the pipeline route. Approximately 10 percent of the soils crossed by the pipeline route are NRCS-classified prime farmland, provided there is sufficient artificial drainage to remove excess surface water.

TABLE 11
Soil Characteristics in the Bakken Pipeline Project US Survey Corridor

County	Total Acres	Prime Farmland[a]	Hydric Soils	Compact. Prone	Highly Erodible		Revegetation. Concerns	Stony/ Rocky	Shallow to Bedrock[b]
					Water	Wind			
		Acres (percent)							
Burke	427	43 (10.1)	1 (0.3)	<1 (<0.1)	11 (2.6)	3 (0.7)	160 (37.6)	0 (0)	218 (51.0)

[a] Prime farmland includes soils that are designated as prime farmland or prime farmland if drained or irrigated. "Farmlands of Statewide or Local Importance" were not included in this estimate.

[b] Depth to bedrock information was not available for Burke County; however, available data on "depth to a restrictive or natric layer (e.g., bedrock, cemented layers, heavy clay, and frozen layers) was available. The value above includes soils which had a depth to a restrictive or natric layer of 60 inches or less.

TABLE 12
Topsoil Depths and Slope Class in the Bakken Pipeline Project US Survey Corridor

County	Total Acres	Topsoil Depth (inches)				Slope Class (percent)[a]				
		0-6	6-12	12-18	>18	0-3[b]	3-6	6-9	9-15	>15
		Acres (percent)								
Burke	427	375 (87.8)	46 (10.8)	6 (1.4)	0 (0)	293 (68.7)	123 (28.7)	11 (2.6)	<1 (0.1)	0 (0)

TABLE 13

Topsoil Depths on Prime Agricultural Land in the Bakken Pipeline Project US Survey Corridor [a]

		Topsoil Depth (inches)			
		0-6	>6-12	>12-18	>18
County	Total Acres	Acres (percent)			
Burke	427	0 (0)	39 (9.0)	5 (1.1)	0 (0)

Potential temporary effects on soil resources include the loss of soil productivity due to erosion, soil mixing, or soil compaction. Soil disturbances associated with clearing, grading and trenching will expose soils to water and wind and increase the potential for erosion. Analysis of SSURGO data indicates that soils in the Project area are not susceptible to erosion by wind. Soil erosion by water is not common along the pipeline route because the land is nearly level. During construction, the effects of erosion by water on steep slopes will be mitigated by use of silt fence and other erosion control measures as described in EPND's EMP (see Exhibit E).

Soil productivity could potentially be affected if topsoil were to become mixed with subsoil during construction. To minimize this potential in agricultural land and other areas where soil productivity is an important concern, EPND will segregate topsoil during trench excavation. In cropland, topsoil will be removed to a maximum depth of 12 inches from the trench and spoil storage area unless otherwise requested by the landowner. Topsoil will be stored separately from the trench spoil and will be returned to its approximate original location after the trench is backfilled. Heavy equipment used to construct the pipeline may cause soil compaction along the right-of-way. Soils will be tilled with a chisel plow or other deep-tillage equipment to loosen the soil to the reasonable satisfaction of the landowner.

B.4.i Vegetation and Wildlife

Vegetation

As discussed in Sections B.4.b.(1) and B.4.j, the study area is comprised predominantly of agricultural land (cropland and pasture). Non-agricultural areas include wetlands, waterbodies, grasslands (herbaceous rangeland) and a small amount of developed and barren land.

The primary impact on vegetation will result from construction-related removal or disturbance of vegetation on the right-of-way. Vegetation will also be removed from areas where extra workspace is required (*e.g.*, road and waterbody crossings).

EPND will clear the right-of-way only to the extent necessary to assure suitable access for construction, safe operation, and maintenance of the pipeline. At

waterbody crossings, EPND will maintain a 10-foot-wide vegetative cover until the actual crossing of the waterbody takes place.

In areas that require permanent revegetation, EPND will specify appropriate seed mixes, application rates, and seeding dates, taking into account recommendations of appropriate state and federal agencies and landowner requests.

During construction in unsaturated wetlands, topsoil will be segregated from the trench line to preserve natural sources of seed and rootstock. After the trench is backfilled, the topsoil will be replaced to facilitate the natural revegetation process. Consequently, significant changes in cover types are not anticipated.

Wildlife

As discussed in Section B.2.j of the Route Permit application and Section B.3 of the Application for a Corridor Certificate, EPND contacted NDGF and USFWS to identify known occurrences of state and federally listed threatened or endangered species and critical habitat located within the study area. To address biological resources concerns that the NDGF and USFWS identified during agency consultations, EPND commissioned a habitat assessment of the study area in August 2010.

The assessment did not reveal threatened and endangered species or critical habitat areas of concern, and concluded the project is not located across or near any significant ecological community and is not likely to adversely affect critical wildlife habitats. Suitable nesting habitat for migratory birds was identified within the proposed pipeline route. The majority of the suitable habitat is located adjacent to wetlands and road crossings, and within portions of the project that cross native prairies.

A ground survey for tree and ground raptor nests was conducted within the survey corridor during the on-site evaluation. Shelter belt tree plantings, which may provide nesting habitat for raptors were observed around farmsteads and scattered in crop fields along the route. No raptor nests were observed during the on-site evaluation; however, the on-site evaluation was performed outside of the nesting season for migratory birds; therefore, nesting sites were not observed. EPND is proposing to conduct raptor surveys in spring 2011, prior to construction.

Although some loss of members of smaller, slower moving species may occur during construction, most species will move away from the right-of-way into adjacent undisturbed habitats until construction and restoration are complete. Long-term habitat availability is not expected to change as a result of the Project, as the right-of-way will be restored to pre-construction conditions to the extent feasible. Construction-related impacts on aquatic species will be temporary and limited primarily to areas immediately at or downstream from the pipeline crossings.

B.4.j Land Use

Agricultural production is the predominant land use (94%) in the study area. Principal crops include wheat, barley, dry beans, sunflowers, sugar beets, canola, flaxseed, peas, and alfalfa. The Project will have only a temporary effect on agricultural land use. Crop production will be temporarily disrupted in cases where the construction period overlaps with the growing season. Landowners will be compensated for crop loss or reduced yields caused by construction of the pipeline. Deep tillage or other measures will be implemented as necessary to mitigate effects of soil compaction.

Herbaceous rangeland suitable for livestock grazing comprises less than one percent of the study area. The primary impact would be temporary prohibition of livestock grazing in the project area and restricted livestock movement across the project area during construction. Given the narrow, linear nature of the project and the alignment of the pipeline along property boundaries, where possible, livestock grazing reductions and livestock movement restrictions are expected to be minor.

Urban, built-up ad barren land comprises less than one percent of the study area, the vast majority of which occurs along the outer edges of the one-mile wide study area. Construction of the proposed pipeline is not anticipated to affect developed or barren land.

Construction and operation of the pipeline will preclude future unrelated industrial development on lands occupied by the permanent maintained right-of-way. Furthermore, after installation of the pipeline, disturbed areas will be restored to preconstruction conditions to the extent practicable, and will generally revert to preconstruction uses. Therefore, no long-term change in land use is anticipated.

B.4.k Water Resources

Groundwater

No wells will be installed or abandoned as part of this Project, nor will connection to a municipal water supply be required. Groundwater can be adversely affected by pipeline construction that involves blasting. For the Project, no blasting of bedrock is anticipated, and other construction-related disturbance of soils is not expected to adversely affect groundwater.

A potential source of adverse impacts on groundwater is the introduction of contaminants resulting from accidental spills of construction-related chemicals, fuels, or hydraulic fluid. This potential effect is greatest near water wells. EPND's EMP and SPCCP (see Exhibits E and I) describe preventative measures that the Company will implement to prevent accidental discharges of fuels or other hazardous substances, including specific storage and handling requirements. The SPCCP also describes response, containment, and reporting and clean-up

procedures. With the implementation of these preventative measures, contamination of groundwater due to construction activities is not anticipated.

Surface Waters

The proposed route corridor and pipeline route lie in the Upper Souris River and Des Lacs River drainage basin. Surface water generally drains to the northeast in the Des Lacs River watershed (Kenaston Station and along the pipeline route between MP 29 to 32.5), and to the southwest in the Upper Souris River watershed (Lignite Station and on the remainder of the pipeline route).

The proposed pipeline route does not cross any waterbodies.

Wetlands

EPND commissioned a wetland and waterbody assessment of the survey corridor. McCain and Associates Inc. ("McCain") completed a wetland delineation survey along the proposed route within a 250-foot-wide survey corridor. Results of the delineation are discussed in Section B.4.b.(8)(i).

Construction of the Project will not result in the permanent drainage or filling of wetlands. EPND will implement the measures identified in its EMP to minimize adverse effects on wetlands during construction and restore wetlands following construction. Effects on wetlands are, therefore, expected to be short-term and minor. During trenching, water quality of inundated wetlands will be temporarily affected due to the suspension of sediments and organic matter. Construction of the Project will result in temporary disturbance to some of the existing vegetation along the pipeline route and within the right-of-way.

During construction in unsaturated wetlands, topsoil will be segregated from the trench line to preserve natural sources of seed and rootstock. After the trench is backfilled, the topsoil will be replaced to facilitate the natural revegetation process. The long-term operation and maintenance of the pipeline will not have adverse effects on wetland function or value.

Construction in wetlands will require authorization by the COE-Omaha District. EPND will be obtaining necessary authorization for wetland crossings and work in wetlands will be conducted in accordance with applicable permit conditions.

Water Use

As stated above, the Project does not cross any waterbodies, and will not significantly affect water use patterns. The Project will require temporary appropriations of water for use in the hydrostatic testing of the newly installed pipeline. Additionally, some temporary trench dewatering may be required, particularly during road bores. No significant effect on existing and future water uses is anticipated.

Discharge of water used to hydrostatically test the new pipeline is not expected to have an impact on the environment or receiving waters. The discharge is regulated by the NDDH under a North Dakota Pollutant Discharge Elimination System (NDPDES) general permit. This permit allows for temporary discharge of water resulting from trench dewatering and hydrostatic testing activities (Permit No. NDG-07-0000). Water appropriated for hydrostatic testing will be subject to permit conditions from the NDSWC and is not expected to have an environmental impact.

Surface Water Runoff

Potential construction-related effects on surface waters are primarily related to sedimentation from uncontrolled erosion of disturbed areas. Much of the pipeline route is level or only gently sloping, which limits the potential for runoff effects. Because the right-of-way will be restored to preconstruction conditions, area runoff following construction will generally reflect surrounding land use and pre-existing conditions.

EPND will obtain authorization under a general permit for Storm Water Discharges Associated with Construction Activity from the NDDH (NDPDES Permit No. NDR-10-0000). EPND's EMP, which was developed in part to meet requirements of this permit, describes best management practices which EPND will implement to minimize off-site erosion from site storm water runoff. These practices will protect surface water and soil resources within the Project area. EPND's EMP will be included in the construction specifications for the Project and enforced by one or more environmental inspectors during construction.

Discharges to Surface Waters

During construction, point source wastewater discharge will be generated from hydrostatically testing the new pipeline prior to placing it in service. Discharges will also occur as needed for trench dewatering during construction. The NDDH has developed a General Permit (NDPDES Permit No. NDG-070000) which authorizes the discharge of waters related to temporary dewatering and hydrostatic testing. EPND will obtain authorization for construction-related discharges and will conduct trench dewatering and hydrotest water discharges in a manner consistent with the NDPDES General Permit.

Testing and discharge are anticipated to be consistent with past practices and experience. Discharges of hydrostatic test water typically are controlled discharges directly to the ground surface or occasionally into Waters of the State. Specific discharge point(s) for hydrostatic test water for the pipeline have not been determined at this time. The NDPDES permit specifies that discharge water must be free from process and other wastewater discharge.

Protection from Fuel Spills

EPND has developed a SPCCP (see Exhibit I) to minimize the potential for accidental releases of petroleum or other substances during construction. Water resources will be protected from fuel spills by prohibiting the storage of fuel within 100 feet of a wetland or surface water body. Refueling and overnight parking of equipment will not be allowed within this zone unless, due to site-specific conditions, there is no practical alternative. EPND's EMP and SPCCP describe the protective measures that must be implemented. Contractors will be required to provide adequately trained personnel, and proper equipment and materials to contain and clean up spills of fuel, lubricating oil or hydraulic fluid that result from equipment failure.

B.4.l Cultural Resources

As described in Section B.2.i, EPND commissioned KL&J to conduct a literature review and Class III inventory field survey of the project corridor. KL&J prepared a technical report of their methods and findings and submitted it to the NDSHPO on July 20, 2010 (*see* Exhibit C.1). The report included a recommendation for a finding of "No Historic Properties Affected" for the proposed project, provided that two cemeteries within 300 feet of the project corridor are protected during construction. In a letter dated July 27, 2010, NDSHPO concurred with the report's findings and recommendations (*see* Exhibit C.2).

As described in Section B.2.i, KL&J is conducting additional review and surveys, and will submit the results of these surveys to NDSHPO and will continue to consult with NDSHPO to obtain clearance for these areas. A supplemental filing to the ND-PSC will be submitted upon completion of these surveys and reviews.

B.5. THE CRITERIA TO BE EVALUATED SHALL INCLUDE AT A MINIMUM ALL OF THE FOLLOWING, WHICH ARE WITHIN THE DESIGNATED CORRIDOR:

- Exclusion areas;
- Avoidance areas;
- Selection criteria;
- Policy criteria;
- Design and construction limitations; and
- Economic considerations

Complete descriptions, potential impacts, and mitigation measures relevant to the six criteria cited above are provided in Section B.4 in conjunction with the descriptions of potential impacts. Below is a discussion of additional measures EPND will employ.

B.6. MITIGATION MEASURES

B.6.a Measures to Preserve the Human Environment

EPND will require its construction contractor to clean up on a daily basis personal litter, bottles and paper deposited by right-of-way preparation and construction crews. Waste and scrap that is the product of pipeline construction will be removed and properly disposed of in accordance with applicable regulations before construction is completed.

To the maximum extent practicable, EPND will minimize noise and dust resulting from construction near residential areas.

EPND will obtain applicable permits prior to conducting road crossings. Temporary signs will be posted at each crossing as appropriate to alert motorists of construction activity. Paved roads and railroads will be bored which will minimize interference with traffic flow caused by construction activities.

B.6.b Measures to Protect Terrain and Geological Resources

EPND will, to the maximum extent practicable, restore the area affected by pipeline construction to its pre-construction condition. Restoration will be compatible with the safe operation, maintenance, and inspection of the pipeline.

To the maximum extent practicable, EPND will restore the construction area to pre-construction contours. Measures such as slope breakers, erosion control blankets and re-vegetation will be employed to maintain the stability of slopes along the right-of-way. No crown of backfill material will be left over the trench in wetlands.

Fuel and all other hazardous materials will be stored in accordance with the requirements of EPND's SPCCP (*see* Exhibit I). The SPCCP also describes response, containment, and cleanup measures.

B.6.c Measures to Protect Soils

EPND will implement temporary and permanent erosion control measures as specified in the project EMP (Exhibit E). The EMP will be included in contract documents and enforced as such throughout the project.

Temporary erosion and sedimentation control measures may include installation of silt fence, straw bales, slope breakers, trench breakers, erosion control fabric and mulch.

To minimize potential impacts on soil productivity, topsoil will be segregated during trench excavation in agricultural land, unsaturated wetlands, and if applicable, other areas where soil productivity is an important consideration. Unless otherwise requested by the landowner, topsoil in cropland will be removed to a maximum depth of 12 inches from the trench and spoil storage area and stored separately from the trench spoil. After the trench is backfilled, topsoil will be returned to its approximate original location.

Compaction of agricultural soils will be minimized by restricting construction activities during periods of prolonged rainfall. Where unacceptable levels of compaction occur in agricultural lands, deep tillage, a chisel plow or other deep tillage equipment will be utilized to loosen the soil to the reasonable satisfaction of the landowner.

EPND will retain environmental inspectors to monitor the contractor's compliance with applicable requirements to protect soil resources during construction of the project.

B.6.d Measures to Protect Vegetation and Wildlife

EPND will clear the right-of-way to the extent necessary to assure suitable access for construction, safe operation, and maintenance of the pipeline. In areas that require permanent re-vegetation, EPND will specify appropriate seed mixes, application rates, and seeding dates, taking into account recommendations of appropriate state and federal agencies and landowner requests. In non-agricultural areas, vegetation cleared from extra workspace will be allowed to re-vegetate after construction depending on arrangements with the landowner. Consequently, significant changes in cover types are not anticipated.

During construction in unsaturated wetlands, topsoil will be segregated from the trench line to preserve natural sources of seed and rootstock. After the trench is backfilled, the topsoil will be replaced to facilitate the natural re-vegetation process.

EPND will take appropriate precautions to protect livestock and crops affected by construction. Operation of the proposed pipeline is not anticipated to significantly affect terrestrial wildlife, fisheries resources, or other aquatic species. Shelter belts and trees will be protected and restored by EPND to the extent practicable in a

manner compatible with the safe operation, maintenance, and inspection of the pipeline.

B.6.e Measures to Protect Land Use Permits

EPND will obtain and comply with applicable county permits regulating zoning and land use. These permits may include, but are not limited to grade and fill permits, ditch crossing permits, road and utility permits and conditional use permits. EPND will retain one or more environmental inspectors to monitor compliance with environmental conditions of county permits.

EPND will repair surface drains disturbed during right-of-way preparation, construction and maintenance activities. EPND will repair private roads and farm lanes damaged when moving equipment or when obtaining access to the right-of-way. EPND will repair or replace fences and gates removed or damaged as a result of right-of-way preparation, construction or maintenance activities.

The pipeline will be installed at a minimum depth of 4 feet from the surface contour to minimize the potential for environmental damage resulting from deep tillage activities unless modified to accommodate special construction issues at the site.

Shelter belts and trees will be protected by EPND to the extent possible in a manner compatible with the safe operation, maintenance, and inspection of the pipeline.

B.6.f Measures to Protect Water Resources

Construction and staging areas within the vicinity of water resources and the Well Head Protection Area (WHPA) would be confined to the smallest necessary area and clearly marked. Parking of equipment and storage of materials would be confined to designated areas. EPND's SPCCP (Exhibit I) provides additional protective measures that would be implemented near sensitive water resources. An Environmental Inspector would conduct on-site monitoring during construction to ensure that groundwater areas are protected as planned.

B.6.g Measures to Protect Cultural Resources

Cultural resources studies sponsored by EPND determined that no cultural resources are located within the project corridor. NDSHPO concurred with these findings in a letter dated July 27, 2010, and subsequent email communication (see Section B.1.a.(1) of the Application for a Certificate of Corridor Compatibility).

Two rural cemeteries are located within 300 feet of the project corridor and will be treated as sensitive cultural resources during pipeline construction.

There is always the potential during construction to encounter previously unknown cultural resources or human remains. In the event an unanticipated discovery is

encountered, EPND would implement the following mitigation measures to minimize the potential impacts on unanticipated discoveries:

- immediately stop work in the vicinity of an unanticipated discovery of cultural resources or human remains and notify appropriate personnel at the NDSHPO, North Dakota State Health Department, and/or law enforcement; and;
- prohibit work in the vicinity of the unanticipated discovery until all appropriate contacts, consultations, evaluations, disposition, treatments, and authorizations have been obtained.

B.7. QUALIFICATIONS OF PERSONS CONTRIBUTING TO THE STUDY

See Section D.6 of the Application for Corridor Certificate.

B.8. MAPS

See Section D.7 of the Application for Corridor Certificate.

B.9. OTHER MATTERS

The information provided below is in accordance with North Dakota Century Code 49-22-08.1 Sections 1.e, 1.f, and 1.g.

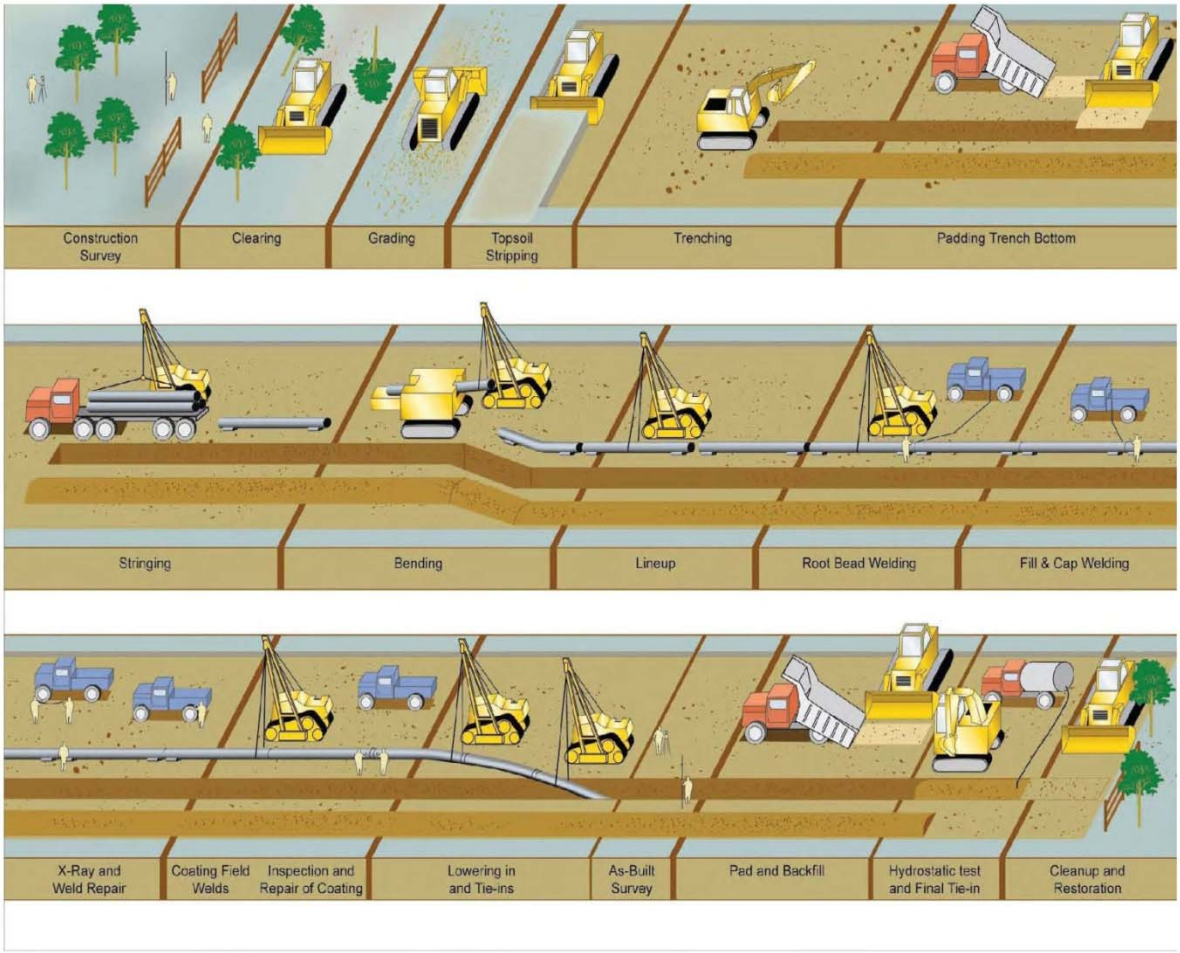
B.9.a Right-of-Way Preparation, Construction and Reclamation Procedures

This section provides a general overview of the typical construction sequence for a pipeline. **Figure 1** shows the typical steps of cross-country pipeline construction. Standard pipeline construction proceeds in the manner of an outdoor assembly line composed of specific activities that make up the linear construction sequence.

These operations collectively include survey and staking of the right-of-way, clearing and grading, topsoil stripping, pipe stringing and bending, welding and coating, trenching, lowering-in and backfilling, hydrostatic testing, cleanup, and restoration and revegetation.

Figure 1

Typical Pipeline Construction Sequence



B.9.a.(1) Survey and Staking

Before construction, EPND crews will survey and stake the location of the proposed pipeline and the exterior boundaries of the construction right-of-way. The exterior boundary stakes will mark the limit of approved disturbance areas, which will be maintained throughout the construction period. The North Dakota One Call system will be contacted to identify and mark the locations of underground utilities. During this period, equipment involved in pipeline construction will be moved onto the right-of-way using existing roads for access wherever practicable.

B.9.a.(2) Clearing and Grading

EPND will clear the 110-foot wide construction right-of-way and additional temporary extra workspaces of shrubs and trees. The clearing crew will typically mow, chip, mulch and/or haul off all non-merchantable timber. Burning of non-merchantable wood may be allowed when the contractor has obtained the necessary permits and approvals. All merchantable timber will be property of the Company unless other arrangements are made with the landowner.

Following clearing, grading of the ground surface may be done to provide a relatively smooth working surface and a safe working area. Typically, a 10-foot wide buffer will be left relatively undisturbed at waterbody crossings, except where grading is needed for bridge installation, until immediately before the pipelines are installed across the waterbody.

Following clearing and grading, temporary bridges will be installed at waterbodies, except for drainage ditches, intermittent waterbodies, and other non-fisheries water, along the pipeline route to provide temporary access for equipment traveling along the construction right-of-way. In addition, temporary erosion control measures will be installed in accordance with EPND's EMP (see Exhibit E).

B.9.a.(3) Topsoil Stripping

Topsoil will be stripped and segregated in agricultural areas, cropland, hayfields, pasture, residential areas, and other areas as requested by the landowner along the pipeline route in accordance with EPND's EMP. In unsaturated wetlands, topsoil will also be stripped up to maximum of 12-inches in trench areas. Topsoil will be stripped to a maximum depth of 12-inches in cultivated lands.

B.9.a.(4) Stringing and Bending

Before excavating pipeline trenches, individual joints of pipe will be strung along the construction right-of-way and arranged to be accessible to construction personnel. This operation typically involves specially designed stringing trucks to deliver pipe from pipe yards to the right-of-way. Small portable cranes and/or side-boom tractors are used to unload the stringing trucks and place pipe along the right-of-way. A mechanical pipe-bending machine will bend individual joints of pipe to the desired

angle to accommodate natural ground contours or pipeline alignment. In certain areas, prefabricated fittings will be used where field bending is not practicable.

B.9.a.(5) Welding and Coating

After stringing and bending are complete, pipe sections will be aligned, welded together, and placed on temporary supports along the edge of the proposed trench. EPND will inspect the welds, both visually and radiographically. The pipe is typically delivered with a factory coating of fusion-bonded epoxy or similar material to prevent corrosion. EPND will apply coating at welded joints and will electronically inspect the pipeline coating before the pipe is lowered into the trench.

B.9.a.(6) Trenching

Backhoes and/or ditching machines will be used to excavate trenches in accordance with the United States Department of Transportation, which stipulates a minimum three feet of cover for normal excavations and 18 to 30 inches of cover in rocky areas. The trench walls will generally be kept vertical to the extent practicable and the trenches will typically be 4 to 8 feet wide, but may be wider in unstable or saturated soils.

Where trench dewatering is needed, water will be discharged directly to the ground if there is adequate vegetation along the right-of-way to filter the water effectively. Where vegetation is sparse or absent, or in environmentally sensitive areas (e.g., adjacent to waterbodies or wetlands), straw bale dewatering structures or suitable filtering alternatives will be used to minimize siltation in adjacent waterbodies.

B.9.a.(7) Lowering In, Padding, and Backfilling

After welding and coating are completed and the trench is excavated, the pipe will be lowered into the trench by side-boom tractors. Bladed equipment or a specially designed backfilling machine will be used to backfill the trench to the approximate ground surface elevation. This generally consists of replacing the material excavated from the trench. In areas where topsoil has been segregated, subsoil will be replaced first, and topsoil will be spread uniformly on top. Directly above the pipeline, an excess of soil or “crown” will be placed to allow for future settling, excluding wetlands. Construction debris, including wooden supports, welding rods, containers, brush, trees, or refuse of any kind, will not be permitted in the backfill. If an excessive amount of rocks are present in the backfill, the pipeline will be protected with rock shield or similar protective coating and/or backfilled with clean padding prior to backfilling with the rocky material.

B.9.a.(8) Hydrostatic Testing

After backfilling, EPND will hydrostatically test the pipeline in accordance with PHMSA's 49 CFR Part 195 regulations to ensure that the system is capable of operating at the design pressure. The testing process will involve filling a segment of the pipeline with water and maintaining a prescribed pressure for a specified amount of time.

The length of individual test segments will be determined by topography and water availability. Water withdrawals used to fill and test the pipelines will be consistent with state regulations and EPND's EMP. (See Exhibit E). EPND will obtain hydrostatic test water from municipal sources or suitable water source along the pipeline route. Adequate flow will be maintained to protect aquatic life and allow for downstream uses. The test water will be discharged through energy dissipation devices to the ground surface or to a nearby waterbody. These discharges will be done in accordance with EPND's EMP and permits issued by state agencies.

B.9.a.(9) Clean-up

After the backfilling is completed, EPND will regrade and restore work areas as nearly as practicable to the original contour of the land. Topsoil will be redistributed over areas from which it was originally removed. Permanent soil stabilization efforts will primarily include revegetation of the right-of-way. Fences that are removed to install the pipelines will be reconstructed .

B.9.a.(10) Restoration and Revegetation

Following installation and final cleanup of the pipelines, original grade and contours will be restored to the extent practicable and temporary and permanent erosion controls will be installed. Disturbed areas will be revegetated in accordance with EPND's Revegetation Plan, other permit requirements, and site-specific landowner requests.

B.9.b Landowner Issues

B.9.b.(1) Procedures for Landowner Relations

EPND engages experienced land agents to support the land acquisition efforts for the proposed project. Landowners along the 11-mile line replacement segment have been personally contacted and made aware of the proposed project and EPND's land agents received 100% survey permission to perform civil and environmental survey work activities. In addition to the proposed project information that has been provided and discussed with landowners during the personal visits, EPND is committed to keeping landowners informed about the project, including throughout construction and cleanup. EPND has secured option agreements to purchase the land needed for the new proposed Lignite and Kenaston pump stations sites. And, EPND's land agents are beginning direct negotiations with landowners to secure option agreements for the new pipeline easements needed for the 11-mile replacement segment of Line 26.

B.9.b.(2) List of Landowners

By use of county records, a current list of landowners was generated and used for making initial contacts. The landowner list will be kept current via conducting Title Searches as well as by using information gained during personal visits in the future. In addition to landowners, all known tenant farmers in the construction area have been notified of the project. A list of landowners and tenants who have been supplied information regarding the project is attached as Exhibit N.

B.9.c Operations and Safety

B.9.c.(1) Pipeline Operation and Control

EPND's pipeline control center is located in Estevan, Saskatchewan.

The Control Center is manned by pipeline operators 24 hours a day. A computerized pipeline control system allows these operators to remotely monitor and control the pipeline and related facilities. The Control Center also serves as an emergency center to receive calls from employees, the public or public officials reporting unusual conditions or pipeline failures. The computerized pipeline control system has been designed to control the pipeline within pre-established minimum and maximum operating pressures. Both the computer system and operating practices include procedures for abnormal operating conditions, including emergency shutdown and isolation of the pipeline and notification procedures in the event of suspected emergencies.

B.9.c.(2) Communications Capabilities

Land lines are used to exchange the necessary computerized data for pipeline monitoring and control. EPND maintains a UHF radio system, supplemented by cellular phones, to facilitate personnel communications during operation, maintenance, or emergency activities.

B.9.c.(3) Protection of the Pipe from Damage

EPND has an aggressive program in educating excavators and the public about the presence of the pipeline and preventing damage to the pipeline from excavating equipment. As in all other states where EPND and affiliates have existing facilities, EPND has joined and supports the North Dakota One-Call system.

The pipeline is protected from corrosion in a number of ways, as discussed in Sections B.4.b.(11); B.9.a(5) and B.9.c(5) of this application. Pipelines are also covered with a protective coating. Moreover, all buried or submerged metallic structures (pipeline systems) are under a cathodic protection system, as required by Pipeline Safety Regulations.

B.9.c.(4) Inspections

EPND conducts routine inspections of the pipeline and facilities to ensure that the system is operating properly, in compliance with 49 CFR Part 195.

Each calendar year (not to exceed a 15-month interval), the cathodic protection system is monitored by taking pipe/structure-to-soil and line current (where possible) readings. Additionally, each rectifier and anode ground bed used to impose cathodic protection on the pipeline and associated below-grade facilities is inspected to ensure proper operation. Repairs and adjustments to the cathodic protection system are either made during the annual survey or during later maintenance activities. At least six times per year, each rectifier and critical cathodic protection interference bond to foreign structures is inspected. Abnormalities or deficiencies are corrected if necessary.

In addition, EPND periodically evaluates the effectiveness of its cathodic protection system by conducting supplemental close interval surveys (*e.g.*, close interval pipe to soil, etc.) of the system. Although not required by regulation, this method allows EPND to assess the overall effectiveness of the pipeline system.

The pipeline route including pump stations and related facilities is patrolled by air at least 26 times per year to inspect the surface conditions of land on or adjacent to the pipeline right-of-way. If weather and other conditions permit, this aerial inspection is conducted weekly. Line walking inspection of the right-of-way is sometimes used to supplement aerial inspections in congested areas. This inspection also assists in identifying unknown construction or other unsafe activity on the pipeline right-of-way.

Transmission pipeline isolating valves are inspected at least twice per year to ensure proper operation. In the event of a leak, it is important for valves to close properly to isolate the section of pipeline and minimize the amount of petroleum that may escape. Other components of the pipeline, such as tanks and pump stations are also routinely inspected.

EPND periodically completes an integrity assessment test on the transmission segments of its pipeline system designated as high consequence areas (HCA), in accordance with the integrity management standards under 49 CFR Part 195. Enbridge exceeds these regulations by expanding these assessments with the use of internal electronic inspection tool – called "instrument pigs." These devices are equipped with computers and travel through the inside of the pipeline examining the pipe's condition , i.e., detecting dents, gouges, corrosion, cracks or other anomalies in the pipe. Afterwards, inspection results are analyzed, the pipe is inspected to verify preliminary findings, as necessary, and repairs are then made, as required.

All overpressure safety devices capable of limiting, regulating, controlling, and/or relieving operating pressures are inspected and tested to ensure the device is in good mechanical condition and functioning properly.

Periodically, inspectors from the PHMSA inspect EPND's compliance with applicable federal regulations. PHMSA inspectors also periodically inspect EPND's written procedures, records, facilities and new construction.

B.9.c.(5) Maintenance

Many other maintenance activities are performed on the pipeline and related facilities. EPND has a comprehensive preventative maintenance program that meets, and in many cases exceeds, minimum federal safety standards set forth in 49 CFR Part 195. When facilities are added or replaced, there are comprehensive standards for their design and installation in both EPND procedure manuals and contract specifications. Repair pipe is pre-tested and other components used to repair the pipeline meet national standards and regulatory requirements. Other procedures, such as welding procedures, movement of the pipe, coating repair, corrosion control, and tank maintenance are all guided by written procedures, which have been reviewed by the DOT-PHMSA inspectors.

B.9.c.(6) Training of Personnel

EPND has established a comprehensive orientation, technical, safety, emergency, and on-the-job training program that is in compliance with the Operator Qualification rules issued under 49 CFR Part 195. As personnel progress in pipeline operation and maintenance positions, they receive hundreds of hours of formal and on-the-job training. Demonstrations of competence are shown through review of job performance, periodic pipeline control system simulators, emergency exercises, welding certification tests, and other functions required to maintain safe pipeline operation and maintenance.

B.9.c.(7) Public Awareness Program

EPND conducts a comprehensive public education program to ensure that the affected public (those who work and live in the vicinity of the pipeline), excavators, local public officials, and emergency units of government are aware of how to recognize and avoid or respond to a pipeline emergency. EPND has also been active at the local, county, and state level in emergency response planning and joint training/exercises to prepare all potential responders to deal with emergencies.

The pipeline route is marked at all public roads and railway crossings (at a minimum) to increase the public's awareness of the underground pipeline. Additional markings are posted at valves, other pipeline facilities, and stations along the pipeline route.

B.9.c.(8) Emergency Preparedness

EPND's operating and maintenance practices are aimed at preventing emergencies. However, it is imperative that EPND is prepared to respond to an emergency. In addition to preventative activities described above, EPND's Emergency Response Program has been prepared in compliance with PHMSA rules under 49 CFR Part 194. The Emergency Response Plan has been submitted to and approved by PHMSA, and includes pre-planning, equipment staging, notifications, and emergency and leak containment procedures.

B.9.d.(9) Spill Response

EPND has developed a SPCCP (*see* Exhibit I) that describes planning, prevention and control measures to minimize impacts of project-related spills.

B.9.e Status of Required Permits

As discussed herein, EPND is presently working with various federal, state and local agencies to secure the appropriate permits required for the Bakken Pipeline Project US. *See* Table 14 which shows EPND's current status in obtaining those permits.

Table 14
Status of Environmental Permits

Permit/Authorization	Status of Permit/Authorization
FEDERAL	
1. US Army Corps of Engineers (COE) Omaha District – Individual 404 Permit (for permanent wetland impacts at Berthold Pump Station and Terminal	Anticipated Submittal: December 2010 Anticipated Issuance: April 2011
2. US Army Corps of Engineers (COE) Omaha District, Nationwide Permit (NWP) 12 Section 404 Permit	Anticipated Submittal: February 2011 Anticipated Issuance: May 2011
3. COE-Omaha District/North Dakota State Historic Preservation Office (NDSHPO) National Historic Preservation Act (NHPA), Section 106 Compliance	EPND has completed cultural surveys on the initial route and has been in active consultation with the NDSHPO. In a July 2010 response, NDSHPO concurred with a "No Historic Properties Affected" determination. EPND is currently surveying additional areas which were not included in the original consultation with NDSHPO, and will continue to work with NDSHPO to ensure no historic properties will be impacted. EPND expects NDSHPO clearance for these areas in December 2010.
4. US Fish and Wildlife Service Agency (USFWS) – Endangered Species Act Section 7 Compliance	Consultation initiated April 2010. To address biological resources concerns, EPND commissioned a habitat assessment of the study area in August 2010; aerial raptor surveys to be conducted prior to construction (Spring 2011).

Table 14
Status of Environmental Permits

Permit/Authorization	Status of Permit/Authorization
5. USFWS - Wetland and Grassland Easements	Consultation initiated in Spring 2010 and EPND has had on-site meeting with USFWS staff; EPND will adjust the initial route of the pipeline as necessary to avoid USFWS wetlands, and/or agreed to construct the pipeline using a guided directional bore technique to cross certain USFWS wetlands.
STATE	
1. North Dakota Department of Health (NDDH) Individual Section 401 Water Quality Certification	Submittal concurrent with COE Individual 404 Permit Anticipated Issuance: April 2011
2. NDDH - Construction Stormwater and Temporary Dewatering General Permit (NDR10-0000) and Stormwater Pollution Prevention Plan (SWPPP)	Anticipated submittal: April 2011 Anticipated issuance: May 2011
3. NDDH - Hydrostatic Discharge Permit (General Permit NDG-070000)	Anticipated submittal: 3rd Quarter 2011 Anticipated issuance: 4th Quarter 2011
4. North Dakota Game and Fish (NDGF) – State-Protected Species and Critical Habitat Review	Consultation initiated April 2010; aerial raptor surveys to be conducted prior to construction (Spring 2011) to address agency concerns.
5. North Dakota State Water Commission (NDSWC) - Temporary Water Permit/Water Withdrawal Permit	Anticipated submittal: 3rd Quarter 2011 Anticipated issuance: 4th Quarter 2011
LOCAL	
1. NDSWC/Ward County Water Resources District – Drain Permit (required for permanent wetland impacts at Berthold Station)	Anticipated submittal: December 2010 Anticipated issuance: April 2011