ND PSC Case No. PU-07-596

8-inch Crude Oil Loop Pipeline, McKenzie County

Route Application

September 2007

Belle Fourche Pipeline Company
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SECTION A DESCRIPTION OF PROPOSED FACILITY

A.1 TYPE OF FACILITY

Belle Fourche Pipeline Company proposes to construct and operate a new 32-mile-long, 8-inch liquid petroleum pipeline that will interconnect with Enbridge facilities at Alexander, North Dakota, for subsequent delivery to interconnected facilities near Clearbrook, Minnesota. The new section of pipeline essentially parallels the existing 6-inch line from Bowline Junction to Alexander Station and will be operationally integrated into the existing operations of Belle Fourche Pipeline Company.

The pipeline will be buried underground. All landowners have been notified and new rights of way have been acquired.

Figure 1 shows the general location of the facility.

The new pipeline will provide needed capacity to transport increased production of petroleum from Bowman County, North Dakota and Fallon County, Montana where nominal daily production has tripled in the last three years. This additional pipeline will increase the capacity of the system from 10,000 barrels per day to approximately 30,000 barrels per day on an annual average.

The estimated cost of the Project is estimated at $10.2 million.

A.2 PRODUCT

This 8-inch-diameter pipeline is expected to transport sweet crude petroleum. Although Belle Fourche does not explicitly specify the type of crude it will transport; historically it is a sweet common stream system and will continue to accept sweet crude oil into its common stream. Belle Fourche does not have any plans to accept any other crude other than sweet crude from Baker, Montana.

A.3 SIZE AND DESIGN

The pipe to be installed will have an 8-inch outside diameter, 0.188 wall, X52 pipeline pipe. Road crossings will be 8-inch .250”WT with Powercrete.

A.4 TIME SCHEDULE

Belle Fourche is planning to start construction in October 2007, with a planned completion and in-service date of December 2007. The Project is on an aggressive schedule to minimize price discounts during the upcoming winter season. Crude oil delivered south to the Guernsey, Wyoming markets historically experiences deep discounts due to slacking demand and fixed supply. Opening access to higher value markets benefits all owners of interests in the production. The State of North Dakota and its citizens also benefit from higher crude prices and its impacts on production and extraction revenues. Belle Fourche has assured its customers that the upgraded system would be operational by late 2007 or early 2008. To accomplish this, Belle Fourche needs to begin construction at the earliest possible date.

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FIGURE 3.1 – General Project Location Map

SECTION B LOCATION

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

Belle Fourche Pipeline is a liquids pipeline operator that gathers and transports about 50,000 bbls/day of crude oil in the Williston Basin of western North Dakota and the Powder River Basin of Wyoming. We also transport about 3000 bbls/day of diesel fuel into the Gillette, WY market area. BFPL operates some 1500 miles of pipeline in 3 states.

Belle Fourche and Bridger Pipelines are a part of the True companies of Casper, Wyoming operating over 3,400 miles of pipeline systems in western North Dakota, eastern Montana and Wyoming. The True companies have been family owned and operated since 1948, and now have over 1000 employees in Wyoming, Colorado, Montana, North Dakota, Utah, Texas, Louisiana, Mississippi, New Mexico, Missouri, Oklahoma and Arizona.

Belle Fouche Pipeline works to protect the environment, home to its employees and customers. Protection of the environment is an integral element in the conduct of Belle Fouche Pipeline Company. Environmental protection efforts will span the entire Project, from planning through construction, restoration, and into full operation.

B.1.a Construction

The Project involves looping (i.e. laying a parallel section of pipeline) an existing 6-inch pipeline in newly acquired Right-Of-Way adjacent its existing line. Construction of the new 8-inch-diameter pipeline will result in temporary short-term impacts, but is not expected to result in significant long-term change to the environment.

Planning, design, construction, and restoration will incorporate the equipment and 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 during 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 Belle Fourche Pipeline Company.

Approximately 24.2 of the 31.3 miles of the proposed pipeline route (i.e. 77.3%) is located on private land, and landowner concerns will be addressed during all phases of construction including final restoration. Land agents assigned to the Project will work closely with landowners to the extent practicable, be responsive to issues that may arise during the course of the Project. Permission from all private land owners has already been obtained.

The remaining 7.1 miles of the proposed route (i.e. 22.7% of route) will be located on Federal land, within the Little Missouri National Grasslands, and located in a pre-existing pipeline corridor. An application to the US Forest Service for a Special Use Permit has

already been submitted, and project representatives are working to define the necessary construction precautions to minimize impacts to the area.

Environmental data collected to date includes information on soils, land use, wetland and water body crossings, protected species, and cultural resources. Belle Fourche Pipeline Company will continue to work with appropriate regulatory agencies and will continue to gather comprehensive information during the permitting process.

B.1.b Ongoing Pipeline Operation

The pipeline is a permanent, ongoing system; as such, Belle Fourche has a continuing commitment to conduct its operations in an environmentally responsible manner. Substantial, continual effort is placed on pipeline integrity, operational safeguards, emergency response, and landowner relationships, all of which reduce the impact of the pipeline to the environment. The Company supplements the support from the existing internal environmental staff with engineering and environmental consultants as necessary to assure compliance with environmental regulations and applicable Company policy. Additional discussion on operations and safety is provided in section B.9.c.

B.1.c Energy Conservation Considerations

Installation of an 8-inch parallel line to the existing Bowline to Alexander pipeline section in Belle Fourche North Dakota pipeline network will add additional pipeline capacity on its system. The total crude petroleum throughput increase is expected to be proportionately higher than the energy usage (actual kilowatts per hour) increase.

However the key energy economic impact will be the substitution of the most energy efficient mode of crude oil transportation, e.g. pipeline for the least efficient mode of transportation, e.g. on-road transport via cargo tanker truck. Installing this new segment will open 20,000 barrels per day of capacity from an existing system which will be used to move crude oil the Baker, Montana and Bowman, North Dakota areas to the Enbridge Alexander, North Dakota shipping point. This additional capacity represents approximately 95 cargo tanker trucks traveling 270 miles round trip each on each day. Trucks have been moving crude oil to the Alexander pipeline station from these areas to access the higher value markets at the Clearbrook, Minnesota interconnect facilities rather than the Guernsey, Wyoming interconnected pipeline facilities.

Beyond the direct energy benefit of using a more efficient mode of transportation, energy conservation is a major concern at Belle Fourche Pipeline Company. Energy/power costs represent the largest single recurring expense in pipeline operation. Attention is continually being directed toward energy conservation.

Belle Fouche Pipeline Company'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. The following provides a brief explanation of the programs reviewed during the project development phase:

Pipeline Control Center

Belle Fourche Pipeline Company 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 a natural flow rate using efficient combinations of pumps, thereby minimizing energy consumption. Operators have the capability to start and stop pumps and monitor pipeline operating conditions to assist in achieving an energy efficient operation.

Energy Efficient Pumps and Motors

For new installations, Belle Fourche Pipeline Company 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.

Drag Reducing Agents (DRA)

Belle Fourche Pipeline Company currently uses drag reducing agents in selected segments of its pipeline system. 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 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.

Other energy efficiency programs being investigated for future implementation include:

- Enhancements to the pipeline control system to allow further energy use optimization;
- Coordination of our energy use between utilities for mutual benefit; and
- Improve pump efficiency by upgrading to geometrically optimized pump wear rings.

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) consider 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 pipeline on public health and welfare, natural resources, and the environment is included in section B.4. as well as the Application for Corridor Certificate presented in Tab 1. Research and investigation relating to these effects have included thorough cultural resource reviews, protected species and sensitive area reviews, and a field studies conducted during August 2007.

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. The pipeline design is consistent with existing pipeline technologies. However as described in section B.1.c above, Belle Fourche Pipeline Company is constantly evaluating new energy conservation technologies to reduce the energy consumed in its operations.

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, however since construction is scheduled to begin and be completed (1) outside of the prime growing season and (2) on an accelerated timeline, impacts to agricultural operations will be minimal and impacts to transportation will be short-term. Belle Fourche will implement thorough mitigation measures to minimize these impacts as described in its Environmental Mitigation Plan (EMP) presented as Tab 5 and Tab 6 in this consolidated application.

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

Belle Fourche has operated a pipeline system in North Dakota since the 1980s, when the current pipeline was purchased from its prior operator, Western Gas Processors.

This pipeline corridor provides an established, direct route between Bowline Junction and the crude pipelines which connect there and the Alexander Station of the Enbridge Pipeline. This corridor was originally selected to avoid or minimize environmental and socioeconomic impact. Use of this corridor takes advantage of Belle Fourche's existing right-of-way, and mostly or in large part precluding the establishment of new permanent right-of-way and new severance on properties. No other corridor will offer these advantages over the pipeline route. That route is described in section B.3 and depicted in diagrams presented in Tab 4.

The proposed route on the public land of the Little Missouri National Grassland shares the corridor with the existing Belle Fourche and sometimes a Bear Paw Company gas pipeline. The portion on private land north and west of US 85 / ND 68 is transected by at least 6 other pipelines, including the Northern Border Gas Pipeline and the Interstate Gas Pipeline. These pipelines transect the generally south to north proposed Belle Fourche Pipeline route/corridor in a northwest to south east direction.

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

Belle Fourche is installing the pipeline within a previously disturbed corridor 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 8-inch Crude Oil Loop Pipeline Project presents an optimization of new and existing pipeline capacity to meet the needs for additional liquid petroleum transportation to this region.

As presented in Tab 1 section C.2 of Belle Fourche's Application for Corridor Certificate, which provides a description of feasible alternatives, projects considered for meeting these transportation needs can be classified as follows:

1. Optimize existing pipelines without addition of new pipelines.

2. Construct new pipe in connection with existing pipelines through existing routes (Belle Fourche's existing route).

3. Construct an entirely new pipeline.

4. Utilize alternative modes of transportation other than pipelines.

During the initial design of the 8-inch Crude Oil Loop Project, all but two of these options were rejected as not feasible and/or uneconomical. Belle Fourche's proposal represents an optimal use of new and existing pipelines on an existing route. Belle Fourche's shippers support Belle Fourche's proposal to be an appropriate economical response to the need for additional capacity.

B.2.g.(2) The 8-inch Crude Oil Loop Project has significant economic benefits.

As described in the Application for Corridor Certificate presented as Tab 1 section C.2.a of this consolidated application, crude oil production in Bowman County in North Dakota and adjacent Richland and Bowman Counties in Montana has tripled in the past few years. Larger volumes of West Canadian Syncrude (WCS) are being shipped south via expanded Express Pipeline capacity in eastern Montana into the Guernsey Wyoming interconnection hub. These new supplies and fixed demand of the Denver/Cheyenne refinery market has produced significant price discounts for crude moved into this market. Redirecting 20,000 barrels per day away from Guernsey and into the Clearbrook Minnesota hub could provide over $75 million of additional value to crude oil producers and stakeholders.

Belle Fourche currently operates a pipeline running from Baker, Montana to a connection point with Enbridge Pipelines (North Dakota) LLC near Alexander. The pipeline was previously designed to transport crude oil from locations in western North Dakota to the Butte Pipeline at Baker, Montana for further delivery to Guernsey, Wyoming. As a consequence, the northern portions of the pipeline are smaller diameter than the southern portions. The line from Baker to Belle Fourche's Bicentennial station is a 10 inch pipe. The line from Bicentennial to Bowline field is an 8-inch pipe. The line from Bowline to Alexander is a 6-inch pipe. This line is the constraint and currently restricts the volume of crude that producers wish to ship into the Enbridge North Dakota Pipeline System for delivery to Clearbrook, Minnesota.

Belle Fourche's current property taxes in North Dakota are approximately $170,000 per year. The total assessed value resulting from the Project will increase the estimated property taxes in McKenzie County by about $90,000. An additional direct economic benefit to North Dakota is that through the expansion of the Belle Fourche System, the growing over supply of crude into the Guernsey, Wyoming hub will be lessened, improving prices received by North Dakota producers for these barrels in addition to providing a low cost transportation outlet for North Dakota producers to higher valued markets at Clearbrook.

The cost of the 8-inch Crude Oil Loop Project in North Dakota will be approximately $10.2 million. Approximately over 50+ construction workers will be hired from pipeline contractors, equipment contractors, suppliers, and regional testing firms. Forty to fifty percent of the labor force is expected to be hired from the regional labor pool. In addition, environmental consultants and safety, environmental, and construction inspectors will also be employed during the Project. During the months of preparation, construction, and testing, these workers will have a significant positive economic impact (e.g., payroll tax, local expenditures, sales tax) on McKenzie County.

Pipe and other materials for the expansion are all expected to be from U.S. and North American suppliers. Much of the materials and equipment needed for construction, including welding supplies, heavy equipment, electrical components, and building materials will be supplied from this region. Operation of the Project may require Belle Fourche to hire at least two new full-time permanent employees.

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

Belle Fourche owns and operates a non-shipper-owned liquid hydrocarbon pipeline facility. Belle Fourche does not own any of the crude petroleum or natural gas liquids transported in its pipeline system. Belle Fourche does not determine markets or destinations for petroleum commodities. Belle Fourche's business activity is to provide a service which is available to anyone tendering commodities for transportation pursuant to tariffs published and on file with the FERC and in accordance with their rules and regulations and the Interstate Commerce Act. Belle Fourche 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

Belle Fourche is not aware of other development by state, local or governmental entities at or in the vicinity of the Project corridor. Belle Fourche is planning the 8-inch Crude Oil Loop Project, which will be buried petroleum pipeline within or adjacent to the existing Belle Fourche corridor.

Belle Fourche is aware of another petroleum transmission system project currently underway in northern North Dakota, namely Enbridge's expansion of capacity within its Northern Tier Pipeline (formally known as the Portal Pipeline System). Belle Fourche's proposed project will help to fill the open supply created by this project and utilize the additional capacity to the Clearbrook Minnesota crude oil hub created by their project.

Another privately funded pipeline project, the Keystone Pipeline, which is planned to be located in the eastern part of North Dakota. The Keystone Pipeline does not relate to or otherwise affect the routing, construction or operation of the 8-inch Crude Oil Loop Project.

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

Beaver Creek Archaeology of Linton, North Dakota was engaged to review existing site file data maintained by the State Historical Society of North Dakota (SHSND), State Historic Preservation Office (SHPO) to determine if any portion of the pipeline route was surveyed previously for cultural resources. Topographic maps and aerial photography were reviewed to determine the amount of pedestrian survey as advised by the NDSHPO State Archaeologist. Unplowed regions, landforms such as prominent hills, terraces, and any other water related landform were surveyed. After determining the areas for inventory, the proposed corridor was inventoried by walking parallel pedestrian transects 20 meters apart across the Area of Potential Effect (APE).

One site new site (Site Number TBA by SHSND) was located during the course of the Cultural Resource Inventory. This site consisted of a foundation/basement feature with a historic cultural material scatter. Debitage has been and is currently being discarded and burned within the feature. Items in the debitage included wire, glass, metal, wood, and plastic. The items in the feature have been deposited in recent times, less than 50 years.

A historic materials scatter is situated on top of the hill to the south which is associated to the feature. This scatter contained remnants of a 1920s automobile, a horse drawn binder and wagon and other miscellaneous items for agricultural machinery associated with the early twentieth century. Based upon criteria for National Register of Historic Places (NRHP) listing, the site was found ineligible. Re-routing the pipeline around this area, therefore, would not be expected to be required.

During the course of the investigation, one previously identified site (32MZ835) was revisited which could be impacted by the project. The site was re-evaluated and concluded again as ineligible for National Register of Historic Places (NRHP) listing since the site (32MZ835) did not meet any of the criteria in any of the specified categories to be deemed eligible.

All of the other previously identified sites are well outside of the Area of Potential Effect (APE) and in no way will be impacted by the 8-inch Crude Oil Loop Pipeline project.

Beaver Creek Archaeology recommends a finding of No Historic Properties Affected for the proposed project. A copy of their report is presented as Tab 4 Attachment A.

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

Contacts have been made with the North Dakota Game and Fish Department (NDGFD), the Dakota Prairie Grasslands (DPG), Little Missouri National Grasslands (LMNG), McKenzie County Ranger District, the U.S. Fish and Wildlife Service (FWS), as well as the North Dakota Parks and Recreation Department's North Dakota Natural Heritage Inventory System to identify species and ecologically significant habitats within the right-of-way and the Project corridor. Possible areas of concern discussed were federally listed endangered, threatened, candidate, sensitive, watch species, state-listed protected species, and critical habitats that are located on or within the pipeline route.

The NDGFD was provided with the proposed route and is currently under review. Areas that will be analyzed by the department will be state-listed protected species or unique biological areas with the proposed route.

The LMNG, McKenzie County Ranger District's Wildlife Biologist and Botanist were both informed of the Project route. Botany concerns are currently under review. Wildlife concerns that arose were potentially occurring golden eagle nests and lek areas within the surrounding vicinity of the Project area. Preliminary discussions with the McKenzie Ranger District concluded that lek areas which could be affected within the corridor are not a concern due to Project construction occurring past the time restriction requirements. Land use is restricted within 0.5 miles of golden eagle nesting areas. Golden eagle nests that exist within the area are out of the Project corridor and the minimum distance required by the Forest Service. Therefore construction activity will not affect reproductive success or habitat loss.

The U.S. Fish and Wildlife Service discussed federally listed endangered, threatened, and candidate species in North Dakota. Recommendations were made to avoid areas where prairie dog colonies occur and to take consideration of the candidate species, the

Dakota skipper. The endangered black footed ferret occupies prairie dog colonies and avoidance is required to prevent habitat loss. The FWS also recommended that consideration be taken in the event a Dakota skipper is identified in the Project area. However, the Dakota skipper's field duration will be expired prior to the commencement of construction operations.

The North Dakota Natural Heritage Inventory System listed Species of Concern in the state that have been identified within the Project area. A map was provided to allow for the analysis of each location of concern.

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

No problems or concerns other than those identified in section B.2.j have been raised by commenters or identified by Belle Fourche Pipeline Company, or its consultants.

The Bismarck office of the US Army Corps of Engineers was contacted to discuss requirements crossing areas deemed "waters of the United States." These types of crossings can be bored without triggering permitting requirements. If the corresponding Section 404 permits can not be obtained for open cut crossings during the project, these crossings will be bored.

The proposed pipeline route passes within the western city limits of the City of Alexander, North Dakota. Representatives from the city were contacted and no special precautions during routing or installation were identified.

The proposed project and routing was reviewed with Mr. John Holter, McKenzie County Engineer. Background information and proposed routing on the 8-inch Crude Oil Loop Pipeline project was presented to the McKenzie County Commission on September 4, 2007. Road and section line permit applications will be filed with the County Engineer as required by the County and pipeline installation will be performed in conformance with the specifications discussed. No objection to the project was voiced at that time. This aspect of the project will be managed via the permitting procedure currently in place by the ND DOT for this purpose.

The proposed project and routing was reviewed with Walt A. Peterson, Williston District Engineer for the North Dakota Department of Transportation (ND DOT). Background information and proposed routing on the 8-inch Crude Oil Loop Pipeline project was provided. The pipeline is expected to cross an east-west 2-lane paved asphalt portion of both ND Highway 200 and ND Highway 68. These crossings will be bored and installed pipe meeting or exceeding ND DOT requirements and consistent with policies outlined in published State specifications. No objection to the project was voiced at that time. This aspect of the project will be managed via the permitting procedure currently in place by the ND DOT for this purpose.

One resident, Bernie Mrachek, operates a small grain farm just north of Alexander, North Dakota in Section 31, Township 151N, R101W. He requests the project avoid a natural spring which exists on the property he leases. The natural spring is located approximately 350 feet west of the proposed pipeline routing and construction activities should not impact this area.

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

The following criteria, which include but are not limited to the criteria required by North Dakota Administrative Code Chapter 69-06-08-02, were considered in evaluating the location of the pipeline route: Exclusion and Avoidance Areas, Selection and Policy Criteria, Design and Construction Limitation, Economic Considerations, Human Environment, Soils, Vegetation/Wildlife, Land Use, Water Resources, and Cultural Resources. Each criteria is discussed in detail, including descriptions, potential impacts, and mitigation measures where appropriate are given in sections B.4, B.5, and B.6. The pipeline route will cross or is in close proximity to only one type of Avoidance Area, the Little Missouri National Grasslands. A Special Use Permit, to be issued by the US Forest Service, will be required to install the pipeline at the proposed location and efforts to secure this permit have already begun.

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

In accordance with Chapter 69-06-08-02, the pipeline route has been developed after consideration of its impact on humans and the environment. Adverse effects of construction of the pipeline are substantially minimized by using the existing Belle Fourche right-of-way. Alternative routes or options, which are discussed in Tab 1 section C.2 of the Application for Corridor Certificate, are not preferable and will typically result in more significant impacts.

Underground pipeline installation minimizes potential impacts on human or animal welfare and aesthetics. Construction of the new pipeline will cause temporary disruption to the environment, but will not result in long-term changes to the environment. The following is a general analysis of the existing human and natural environment along the pipeline route and the potential impacts of pipeline right-of-way preparation, construction practices, and operation and maintenance procedures.

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 Chapter 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 1). Belle Fourche has confirmed with ND PSC staff that no new types of Exclusion or Avoidance Areas have been added to the inventory to date.

Tab 2 Appendix B contains maps depicting Exclusion and Avoidance Areas within a one mile study corridor centered on the pipeline route.

Table 3.1
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 USFS
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	U.S. 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	Yes	US Forest Service (FS)

Table 3.1

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

Avoidance and Exclusion Area	Category	Crossed By Route	Administering Agency
National Historic Districts	Avoidance	No	State Historical 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	No	North Dakota Game and Fish Department
State Forests	Avoidance	No	State Forest Service
State Forests 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	Avoidance	No	State and County Historical Society
Areas of Recreational Significance	Avoidance	No	Various
Reservoirs	Avoidance	No	U.S. 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 a Residence, School, or Place of Business	Avoidance	No	Landowners

B.4.a.(1) Dakota Prairie Grasslands Region

The northern part of the LMNG (which is administered by the McKenzie County Ranger District) was identified in the environmental analysis of the Project area. National Grasslands are Avoidance Areas as identified in the ND PSC's 1978 inventory. The Belle Fourche project route crosses the extreme south edge of the northwest corner of the northeast corner of Section 10 in Township 148N, Range 102W.

The US Forest Service reissued the Special Use Permit for the existing 6-inch Belle Fourche Pipeline in September 2007. Belle Fourche and its representatives have already started the application process to obtain a Special Use permit prior to construction and is currently under review by the McKenzie Ranger District.

B.4.a.(2) Areas of Historic, Archaeological, or Paleontological Significance.

A cultural survey was conducted to determine if any portion of the pipeline route was surveyed previously for cultural resources. Topographic maps and aerial photography were reviewed to determine the amount of pedestrian survey advised by the NDSHPO State Archaeologist. Unplowed regions, landforms such as prominent hills, terraces, and any other water related landform were surveyed. After determining the areas for inventory, the proposed corridor was inventoried by walking parallel pedestrian transects 20 meters apart across the Area of Potential Effect (APE).

One site new site (Site Number TBA by SHSND) was located during the course of the Cultural Resource Inventory. This site consisted of a foundation/basement feature with a historic cultural material scatter. Debitage has been and is currently being discarded and burned within the feature. Items in the debitage included wire, glass, metal, wood, and plastic. The items in the feature have been deposited in recent times, less than 50 years. However, there is a historic materials scatter situated on top of the hill to the south which is associated to the feature. This scatter contained remnants of a 1920s automobile, a horse drawn binder and wagon and other miscellaneous items for agricultural machinery associated with the early twentieth century. Based upon criteria for National Register of Historic Places (NRHP) listing, the site was found ineligible. Re-routing the pipeline around this area, therefore, would not be expected to be required.

During the course of the investigation, one previously identified site (32MZ835) was revisited which could be impacted by the project. The site was re-evaluated and concluded again as ineligible for National Register of Historic Places (NRHP) listing since the site (32MZ835) did not meet any of the criteria in any of the specified categories to be deemed eligible.

All of the other previously identified sites are well outside of the Area of Potential Effect (APE) and in no way will be impacted by the 8-inch Crude Oil Loop Pipeline project.

Beaver Creek Archaeology recommends a finding of No Historic Properties Affected for the proposed project. A copy of their report is presented as Tab 2 Appendix A.

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

The pipeline route will not pass within 500 feet of either farmhouses or rural residences nor place of business. The rural residence located nearest the proposed pipeline route is the Melvin & Shirley Green residence. Their farmhouse is located approximately 600 feet from the proposed route and is located in Section 19, T152N, R101W just south of Enbridge Pipeline Alexander, North Dakota crude pipeline terminal.

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, Belle Fourche 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. Some minor dust emissions are 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 during construction. After construction is completed, measures to stabilize and revegetate the right-of-way promptly will prevent further dust emissions.

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. No noise will be generated along the right-of-way during normal operation of the pipeline.

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

State of 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. Potential impacts, as they relate to each of the selection criteria, are discussed below. Measures Belle Fourche will implement to minimize these impacts are noted below and discussed in greater detail in section B.6.

B.4.b.(1) Impact on Agriculture.

The Project will be installed within a new right-of-way, adjacent to Belle Fourche's existing pipeline right-of-way in McKenzie County in northwestern North Dakota. A significant quantity of the pipeline route will cross agricultural and pasture lands where crop and livestock production are the extensive economic activity. The primary crops cultivated in the area include wheat, grain, corn, and alfalfa.

Agricultural Production

The Project will generate temporary effects on agricultural land use such as landscape modifications and an introduction of noxious weeds and invasive species when agricultural areas are reclaimed. Belle Fourche will take appropriate management practices to restore all areas to the land owners' satisfaction. Belle Fourche will also implement mitigation requirements to avert the infestation of noxious weeds on reclaimed land. Species that are considered noxious weeds under North Dakota state law are provided in the table below. These noxious weeds will out-compete desirable forbs and grasses in pastures, fields, and native grasslands, reducing biodiversity. Noxious weeds that have been recorded in the county and that are a concern on farm and pasture land are absinth wormwood, field bindweed, leafy spurge, purple loosestrife, Canada thistle, musk thistle, yellow starthistle, diffuse knapweed, Russian knapweed, and spotted knapweed. According to the ND, Department of Agriculture records for 2002 – 2005, the primary noxious weeds that were located in the vicinity of proposed route were leafy spurge and Canada thistle.

Table 3.2
Noxious Weeds Listed Under North Dakota State Law

Species	Habitat	Impact
Absinth Wormwood	Generally found on dry soils in pastures, cropland, farmsteads, shelterbelts, roadsides, fence rows and waster areas. Infestation occurs on over-grazed or disturbed areas.	Reported to contaminate the milk produced by cattle. Species inhibits grow in desirable forage.
Dalmatian Toadflax	Most competitive in drought prone areas. Often found in soils varying from coarse gravels to sandy loams. Establishes on rangelands, pastures, disturbed areas, and roadsides.	Unpalatable to livestock and will flourish over native species. No record of occurrence in the county.
Field Bindweed	Species is drought tolerant and tends to invade cultivated fields, pastures, roadsides, and waste areas.	Extremely difficult to control. The extensive root system and twine-like growth disrupts harvesting operations and replaces desirable vegetation.
Leafy Spurge	Species adapts to a variety of habitats such as river banks, floodplains, slopes, open woodlands, roadsides, and grasslands. Species commonly associates itself with invasive such as Kentucky bluegrass and smooth brome.	Contains milky latex which causes oral and digestive irritation in cattle. The plant also replaces desirable forage.
Purple Loosestrife	Establishes in wetland habitats.	Quickly displaces native wetland vegetation and has the potential to cause a severe impact on wildlife. Roots of the plant can cause obstruction of water flow in ditches in canals.
Saltcedar	Occurs in moist areas, along lakes and waterways. Often associated with cottonwoods. Alkali, saline, and drought tolerant	Displaces native vegetation by releasing salts to inhibit the growth of vegetation.
Diffused Knapweed	Occurs in excessively grazed and disturbed	No known occurrences in the

	areas.	county.
Russian Knapweed	Occurs in poorly drained, saline, or alkaline soils. Establishes is cultivated land, alfalfa fields, pastures, waste sites, and along roadsides and ditches.	Most distributed knapweed and most difficult to control. Inhibits growth in crop plants and other desirable plant species.
Spotted Knapweed	Establishes on roadsides, construction sites, overgrazed land, and waterways. Adapts best in semi-arid areas.	Reduces livestock and wildlife forage and increases surface water runoff, soil erosion, and stream sedimentation.
Canada Thistle	Occurs in stream banks, long ditches, roadsides, cultivated fields, pastures, construction sites, and other disturbed areas.	Displaces desirable plant species and is unpalatable to livestock. Infestations decreases land value for crop production and grazing.
Musk Thistle	Occurs on pastures, rangelands, disturbed sites, grain fields, stream banks, and soils with high sand content.	Corrupt pastures and reduce grazing in the vicinity. Currently inhabits in the northeast corner of ND.
Yellow starthistle	Occurs on pastures, rangelands, grain fields, cultivated land, and roadsides.	Toxic to horses and can cause injury to livestock and wildlife when grazing upon. Reduces cropland yields. No record of occurrence in the county.
Information provided by the North Dakota Department of Agriculture		

The pipeline will be installed at a depth that is equivalent to the depth of other pipelines within the project route and at a depth that exceeds the typical tillage depth. Therefore, the pipeline will not interfere with normal agricultural operations on cropland after construction is complete. Construction operations are scheduled post harvest season, 2007 and prior to the 2008 growing season. Therefore, minimal disruption is expected.

Above-ground facilities that may be located on cropland are limited to pipeline appurtenances such as valves, line markers, and cathodic protection rectifiers. Therefore, minimal long-term loss of farmland use is expected. Approximately 34.8 percent (87.7 acres) of the 252 acres of pipeline route will cross prime farmlands in North Dakota as classified by the Natural Resource Conservation Service (NRCS) (see table 7). This total includes prime farmland and land that would be considered prime farmland if drained. Prime farmland is defined as land with the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Prime farmland has the soil quality, growing season, and moisture supply needed to economically produce sustained high yield crops when treated and managed according to acceptable farming methods. Construction activities will not significantly affect the factors such as soil quality, growing season, or moisture supply that are considered in determining whether land is prime farmland.

Following construction, agricultural lands will be returned to preconstruction uses to the optimum extent practicable.

Family Farms and Ranches

The construction activity will not alter the patterns of landownership or create long-term disruptions of family farming operations. The construction zone will be within a new right-of-way, adjacent to an existing right-of-way. Easement payments will be beneficial to landowners within the route and with schedule permitting; there will be no interference

during growth season. However, Belle Fourche's crop loss compensation program will amend landowners if any crop damage were to occur. Crop damage of resulting, future pipeline maintenance and repairs will also be amended by Belle Fourche. All maintenance equipment used will be limited to access routes in agreement with the landowners to minimize disruption to soil, drainage, and crops.

Construction activity can create short-term disruption to livestock operations, and inconvenience to farm activities. Possible impacts include removal or damage of fences, gates, and private roads. Belle Fourche will work to minimize construction interference while in operation. Temporary access routes will be made to allow for livestock and farm equipment to mobilize as needed. Temporary fences and gates will be constructed as necessary to prevent livestock from entering into the construction zone, where injury is a potential occurrence. The Project will be conducted in a timely matter and upon completion, fences, gates, and roads will be restored to the landowner's satisfaction.

Lands Suitable for Irrigation

Construction activity will not impact irrigated lands. Land that is most efficient for irrigation is relatively level and has soils that are well drained and highly permeable. The route crosses silt and clay soils which contain low permeability, making them unsuitable for irrigated agriculture. No aboveground irrigation systems have been identified along the route.

Surface Drainage Patterns

Construction of the Project will not alter surface drainage patterns. Streams, swales, ditches, and other natural drains will be restored to preconstruction contours after construction is complete. The pipe will be installed beneath drainage ditches in a manner that will not interfere with flow or future maintenance efforts by landowners or the drainage authority. Mitigation measures will include installation of the pipe at a sufficient depth to avoid being encountered by drain cleaning equipment, or installing concrete slabs above the pipe but below the grade of the ditch.

Groundwater Flow Patterns

Ground water suitable for domestic and livestock supplies in McKenzie County is available from three aquifer systems. The Fox Hills and basal Hell Creek aquifer system is used as a source for livestock and domestic supplies. It generally is 1,100 to 1,800 feet in depth. The Ludlow aquifer underlies all of McKenzie County at depths greater than 500 feet. The Tongue River aquifer is also suitable for domestic and livestock use and is found at depths between 140 and 500 feet. Local flow for all three aquifers below the Project area will flow in a southeasterly to northwesterly direction toward the Missouri River.

The 1985 study "Groundwater Resources in McKenzie County" conducted by the US Geological Survey estimated 150 wells were tapping the Fox Hills and basal Hell Creek aquifer system and the Ludlow aquifer system to provide a low volume source of stock water and other uses. One resident, Bernie Mrachek, operates a small grain farm just north of Alexander, North Dakota in Section 31, Township 151N, Range 101W. He

identified a natural spring which exists on his leased property. The natural spring is located approximately 350 feet west of the proposed pipeline routing and construction activities is not expected to impact the well flow.

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Groundwater flow could potentially be altered by pipeline construction through blasting and trenching activities. As described in section B.4.g, no exposed bedrock or areas of shallow bedrock will be encountered. Therefore, blasting is not anticipated. Other construction-related disturbance and excavation (trenching) could temporarily disturb the level of groundwater and increase the sediment in the groundwater. However given the shallow depth of construction activities and the relatively deep location of the area's aquifers, installation of the proposed pipeline is not expected to have a significant effect on regional groundwater flow patterns.

The use of regulated materials, such as fuel, lubricants, and coolants during construction could present a potential for accidental discharges, which could affect groundwater. Belle Fourche's Environmental Mitigation Plan (EMP) presented in Tab 5 and supporting diagrams in Tab 6 outlines precautions to be taken to prevent sedimentation or other materials from entering the water supplies in the area. Project contractors will be expected to have a current oil spill prevention control and countermeasure (SPCC) plan and implement it fully if the facility contains an aggregate oil storage capacity above 1320 gallons, consistent with US Environmental Protection Agency requirements outlined in 40 CFR 112. Regardless of the total storage capacity, no bulk oil storage facilities will be sited within 100 feet of surface water.

A description of Belle Fourche's pipeline protection and emergency response procedures for pipeline operations and maintenance is provided in section B.9.c.

B.4.b.(2) Impact of Noise Sensitive Land Uses.

No farmsteads are located within 500 feet of the proposed pipeline (see table 3.2). No other sensitive noise receptors such as schools or hospitals are located in the vicinity of the Project. During construction, residences in close proximity to the construction spread will experience short-term increases in construction-related noise. The heavy construction equipment needed to construct the pipeline will generate short-term increases in ambient noise levels. Typical bulldozers, backhoes, and side booms used to install large-diameter pipelines generate between 80 to 90 decibels within 50 feet of the equipment. Increases in ambient noise levels due to heavy equipment operation will be limited to the period of construction, typically during daylight hours.

No noise is generated along the right-of-way during normal operation of the pipeline. No additional pump stations or noise increases at the pump station are proposed as part of the Project in North Dakota.

B.4.b.(3) Impact on Visual Effect on the Adjacent Area.

The only aboveground facilities that will be constructed in North Dakota as part of the Project are pipeline appurtenances such as mainline valves, line markers, and cathodic protection equipment. Mainline valves will be sited at existing aboveground facility sites.

Other than these permanent above ground facilities, the Project will result in only short-term visual effects related to construction activities.

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

No extractive or storage resources were identified which would be affected by the Project.

B.4.b.(5) Impact on Water bodies.

The route contains 9 creek crossings totaling approximately 0.16 miles in length. Creek crossings by milepost are described in Table 3.2 below. No wetland areas were identified within the proposed pipeline route, as identified in the National wetlands Inventory posted by the US Fish and Wildlife Service at http://www.fws.gov/nwt.

Table 3.3

Waterbodies Crossed by the 8-inch Crude Oil Loop Pipeline Route

Miles South of Northern Terminus	Crossing Length (ft)	Creek Name
4.0	70	Camp Creek
10.0	35	Lonesome Creek
10.5	335	Lonesome Creek
14.5	40	Antelope Creek
21.0	25	Charbonneau Creek
23.3	145	Spring Creek
23.8	45	Spring Creek
27.0	80	Spring Creek
28.5	70	Spring Creek

Pipeline construction by creeks will be conducted in accordance with applicable regulatory requirements. No creek will be permanently drained or filled as part of the Project, and effects on creeks are expected to be short-term and minor. Belle Fourche Pipeline Company will restore the area as close to its previous state and naturally functioning condition as possible.

In unsaturated wetlands, topsoil will be segregated from the trench line during construction to preserve natural sources of seed and rootstock. During trenching, water

quality of inundated wetlands adjacent to the construction area could be temporarily affected due to the suspension of sediments and organic matter. Silt fence or straw bales will be installed as needed to minimize this effect. Although wetland vegetation will be cleared for pipeline construction, these areas will be allowed to revegetate to their preconstruction structure and function. After the trench is backfilled, the topsoil will be replaced to facilitate the natural re-vegetation process in unsaturated wetlands.

Unsaturated wetlands may be revegetated with a temporary cover crop if specified by permitting agencies. No fertilizer, lime, or mulch would be applied in wetlands. The long-term operation and maintenance of the pipeline will not have adverse effects on wetland function or value.

B.4.b(6) Impact on Woodlands and Wooded Areas.

Tree rows and woody areas occur in limited amounts, as isolated islands or rows throughout the Project area. The proposed route crosses through wooded areas on rangeland and federal land. Wooded habitat provides shelter and safety for a number of wildlife species. Any trees will be protected to the extent practicable in a manner compatible with safe operation, maintenance, and inspection of the pipeline. Impacts on wooded areas due to construction activity are anticipated to be temporary. It may be necessary to clear some mature trees during construction. However, Belle Fourche will work with the appropriate state agencies to identify efficient restoration measures following construction.

B.4.b.(7) Impact on Radio and Television Reception, and Other Communication of Electronic Control Facilities.

No impacts on television or radio reception or communication or electronic control facilities are anticipated as a result of the Project.

B.4.b.(8) Impact on Human Health and Human Safety.

Belle Fourche Pipeline is a liquids pipeline operator that gathers and transports about 50,000 bbls/day of crude oil in the Williston Basin of western North Dakota and the Powder River Basin of Wyoming. We also transport about 3000 bbls/day of diesel fuel into the Gillette, WY market area. Belle Fourche Pipeline operates some 1500 miles of pipeline in 3 states.

Belle Fourche and Bridger Pipelines are a part of the True companies of Casper, Wyoming operating over 3,400 miles of pipeline systems in western North Dakota, eastern Montana and Wyoming. By building and operating this extensive network, Belle Fourche has become one of the largest pipeline companies in North Dakota and experienced in managing construction and operating pipeline systems that protect the public’s health and safety.

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, Belle Fourche will construct and maintain the Alexander 8" Loop Line to meet or exceed industry and governmental requirements and standards. Specifically the steel pipe will meet U.S. Department of Transportation Pipeline and Hazardous Material Safety Administration (PHMSA) federal codes under 49 CFR Part 195 (referred to hereafter as PHMSA regulations), 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 Alexander 8" Loop Project 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 per the highest technical standards. 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, including by 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 qualify 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 new pipeline, as well as the existing pipelines in this same right-of-way, are maintained and inspected according to PHMSA regulations, industry codes and prudent pipeline operating techniques. All of Belle Fourche's mainline 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. Belle Fourche's cathodic protection system and internal inspection program were implemented prior to these techniques becoming a regulatory standard.

The Belle Fourche System rights-of-way are 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 routes of the lines. Belle Fourche also conducts extensive public education and outreach programs that exceed industry (API Recommended Practice 1162) and PHMSA (49 CFR 195.440) requirements concerning public awareness of pipelines and pipeline-safety matters. All Belle Fourche lines are marked with signage and warnings, per federal regulations, 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. Belle Fourche 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. In addition, Belle Fourche is required by North Dakota to report petroleum 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 Project, although anecdotal evidence suggest a significant number of crude oil transport trucks are hauling crude oil to Enbridge's Alexander station from the production fields to access higher value markets at the Clearbrook, Minnesota pipeline hub rather than lower valued markets via the Guernsey crude interconnection. The proposed new pipeline capacity of 20,000 barrels per day represents the equivalent of approximately 95 crude truck tankers operating a day.

It is therefore illustrative to compare pipeline safety to other modes of transportation. Pipelines operate more safely than any other mode of oil transportation. In Table 3.4 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 3.4

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

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).

Belle Fourche Pipeline Incidents and Public Safety

According to available records or knowledge of staff, there have been no deaths or major injuries of landowners or members of the public as a direct result of a pipeline leak on the Belle Fourche System since the system began operations in the U.S. in 1987.

Belle Fourche Ten Year Pipeline Accident Record

The Belle Fourche's Pipeline reportable incident record on the existing Bowline Junction to Alexander segment was obtained from the US Coast Guard National Response Center for the 10 year period September 1, 1997 to August 31, 2007. No spills were reported on the segment. For the same 10-year period, only one reportable spill was identified, representing a 9 barrel spill from a pump stuffing box on a gathering line was identified for all of Belle Fourche's operation in North Dakota. The database lists a total of 46 reportable incidents involving crude oil during the same period,

Modifying the search for all pipeline incidents in North Dakota for all materials for all companies, this single event was the only one which involved Belle Fouche Pipeline of the total of 68 pipeline incidents; or 646 total incidents reported for all modes of transportation and sources for the same 10-year period.

B.4.b.(9) Impact on Animal Health and Safety.

Construction activity within the Project area is expected to have temporary impacts on domestic animals and wildlife. The clearing of vegetation will temporarily reduce cover, nesting, and foraging habitat for some species. Small, slower moving species may even be lost during construction. However, species will generally establish into adjacent habitats, away from the disturbance area. Once habitat alterations are reclaimed, it is expected that wildlife habitat will reestablish within the area.

Pipeline trenching activities and associated spoil piles may result in a short-term barrier, restricting the 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.

B.4.b.(10) Impact on Plant Life.

During construction operations, vegetation will be removed within the project right-of-way and where extra workspace is needed. Trees and shrubs that are cleared will be reestablished once construction activity is complete. All areas where vegetation will be removed will be reestablished to regulation standards from county agencies and satisfaction of landowners. Permanent impacts on vegetation are not anticipated. Special consideration will be taken for known occurrences of sensitive populations and habitat which could potentially establish new sensitive populations within the LMNG section of the Project.

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.

Belle Fourche believes that the Project has been placed in the optimal alignment. 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. Further, the alignment is generally on or adjacent to Belle Fourche's pipeline right-of-way, minimizing the need for new right-of-way and the environmental and human impacts associated with a new route.

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 facility, skilled and unskilled labor, both local and non-local workers will be employed by Belle Fourche Pipeline or by the General Contractor selected to construct this pipeline.

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

The Project is believed to be the most cost-effective and operationally sound means of meeting Belle Fourche's delivery obligations. Refer to section B.2.g of this Application and section C.2 of the Application for Corridor Certificate.

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

No Citizen Coordinating Committee is anticipated as a result of the Project. Belle Fourche Pipeline believes a Citizen Coordinating Committee is not appropriate for this type of project given that the pipeline will be installed in right-of-way adjacent to an existing pipeline right of way and completely within an existing pipeline corridor.

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

All the crude oil transported by the proposed 8-inch line loop will connect to the Enbridge Pipeline northern tier crude pipeline at its Alexander, North Dakota location. While this crude oil network does not supply the only petroleum refinery in the state, it does service the Flint Hills Refinery in Pine Bend Minnesota and the Marathon-Ashland Refinery at St Paul Park Minnesota. Both of these refineries do source refined petroleum products through direct and/or via exchange to the North Dakota markets via the existing Valero and Magellan product pipeline networks.

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.

Belle Fourche currently operates a pipeline running from Baker, Montana to a connection point with Enbridge Pipelines (North Dakota) LLC near Alexander. The pipeline was previously designed to transport crude oil from locations in western North Dakota to the Butte Pipeline at Baker, Montana for further delivery to Guernsey, Wyoming. As a consequence, the northern portions of the pipeline are smaller diameter than the southern portions.

The line from Baker to Belle Fourche's Bicentennial station is a 10 inch pipe. The line from Bicentennial to Bowline field is an 8-inch pipe. The line from Bowline to Alexander is only a 6-inch pipe. This line is the constraint and currently restricts the volume of crude that producers wish to ship.

Over the past several years, a substantial increase in production from oil fields in Bowman County, North Dakota and Fallon County, Montana, combined with increased volumes of crude oil available from other sources, including Canada, has resulted in an oversupply of crude oil at the Guernsey market, which in turn has resulted in significant price discounts for crude oil delivered to Guernsey. As a result, producers in Bowman and Fallon Counties have been desirous of shipping as much oil as possible to Enbridge for delivery to Clearbrook, Minnesota. The Project has been designed to optimally utilize Belle Fourche's existing transportation system by removing the single constraint which prevents this system from giving area oil producers access to better markets.

Both the existing 6-inch line and proposed new 8-inch line and their associated pumping, control and operating systems will be used in conjunction with each other to optimize system capacity.

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

Belle Fourche Pipeline 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 successful.

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

The 8-inch Crude Loop Pipeline Project will be constructed in recently acquired new right-of-way located adjacent to the existing Belle Fourche Pipeline right-of-way. Generally the new right-of-way has a width of 66 feet.

No pipe storage yards or private or new access roads have been identified at this time. This information will be filed when available, approximately November 2007. Belle Fourche will acquire additional workspace from the landowners where necessary; use of unauthorized workspace is prohibited without the landowner and Belle Fourche'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.

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

This Project will be an addition to the existing liquids pipeline that gathers and transports about 50,000 bbls/day of crude oil in the Williston Basin of western North Dakota and the Powder River Basin of Wyoming. Approximately 3000 bbls/day of diesel fuel are transported via pipeline into the Gillette, Wyoming market area; but this system is not interconnected to the proposed crude network. In total, Belle Fourche Pipeline operates some 1500 miles of pipeline in 3 states. Belle Fourche and Bridger Pipelines are a part of the True companies of Casper, Wyoming operating over 3,400 miles of pipeline systems in western North Dakota, eastern Montana and Wyoming.

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 route application and section C of the Application for Corridor Certificate found in Tab 1.

B.4.f Human Environment

The Project area is sparsely populated and farming is the predominant economic activity. The proposed route crosses 65 parcels of land owned by 24 different landowners.

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FIGURE 3.2 – Typical Right-of-Way Configuration

The proposed pipeline route does not pass within 500 feet of a home or rural residence. The route also does not pass through parks or recreational areas other than the Little Missouri National Grasslands – which is discussed in detail in subsequent paragraphs.

The pipeline route does run through the undeveloped parcels of land which run along western edge of the city limits of Alexander, North Dakota. The pipeline route runs approximately 600 to the west of the edge of the city's sewage treatment ponds.

Two production water wells were identified within the survey corridor, both within the city of Alexander. Both are located more than 500 feet from the proposed pipeline route. The North Dakota Water Commission online database lists drinking water production well 150-101-05 CCC1 which is approximately 1050 feet away from the proposed pipeline corridor. The second drinking water production well 150-101-05 BCD3 is over 2000 feet away and is located near the center of town.

While a domestic water well does not meet the definition of a "municipal water supply" or a "water source for organized rural water districts," two such wells were also identified within the survey corridor and both near the city of Alexander, North Dakota. The first site, 150-101-06 DAA, is located approximately 600 feet away. The second domestic well in Alexander, 150-101-06 ADA, is 650 feet away from the proposed pipeline route.

Approximately 24.2 of the 31.3 miles of the proposed pipeline route (i.e. 77.3%) is located on private land, and landowner concerns will be addressed during all phases of construction including final restoration. Land agents assigned to the Project will work closely with landowners to the extent practicable, be responsive to issues that may arise during the course of the Project. Permission from all private land owners has already been obtained.

The remaining 7.1 miles of the proposed route (i.e. 22.7%) will be located on federal land, within the Little Missouri National Grasslands, and located in a pre-existing pipeline corridor. An application to the US Forest Service for a Special Use Permit has already been submitted, and project representatives are working to define the necessary construction precautions to minimize impacts to the area. However no appreciable population resides in this area.

The pipeline will not transect any Federal highways. The proposed pipeline route will cross 2 state highways (ND State Highway 200 and ND State Highway 86) both of which are two lane paved roads. Of the 18 county roads, one is a two-lane paved roads 21 are improved county roads (i.e. gravel) and seven are two wheel section line trails.

Paved roads will be bored. Use of these facilities will not be disrupted as a result of the Project. Gravel roads will be open cut. Open cutting a county road will temporarily close it to traffic; however, the road network throughout the Project area is sufficient that suitable alternative routes are readily available.

Road crossings for the route are summarized in Table 3.5.

Table 3.5

Roads Crossed by the Belle Fouche 8-inch Crude Oil Loop Project

Pipeline Station	Road Identification	Description of Road
3+00	County Road 16 / 39th ST NW	Asphalt Paved Road
110+60	37th ST NW	Gravel Road
163+45	36th ST NW	Gravel Road
216+20	35th ST NW	Gravel Road
275+40	34th ST NW	Gravel Road
328+30	33rd ST NW	Gravel Road
381+00	ND State HWY 200 / 32nd ST NW	Asphalt Paved Road
433+70	31st ST NW	Unimproved - Two-Track Road
486+75	1st Ave Alexander	Unimproved - Two-Track Road
540+32	29th ST NW	Gravel Road
590+90	28th ST NW	Gravel Road
633+10	County Road 15 / 27th ST NW	Gravel Road
699+40	26th ST NW	Gravel Road
752+05	25th ST NW	Unimproved - Two-Track Road
805+30	24th ST NW	Gravel Road
857+80	23rd ST NW	Unimproved - Two-Track Road
910+90	22nd ST NW	Gravel Road
1017+70	20th ST NW	Gravel Road
1070+95	19th ST NW	Unimproved - Two-Track Road
1125+05	ND State HWY 68 / 20th ST NW	Asphalt Paved Road
1171+50	Section Line 10 Road	Unimproved - Two-Track Road
1225+20	Section Line 15 Road	Unimproved - Two-Track Road
1245+95	US Forest Service Road 835	Gravel Road
1265+18	Oil Lease Road - Nance Lease	Gravel Road
1266+35	Oil Lease Road - Bear Paw Compressor Stn	Gravel Road
1271+70	US Forest Service Road 835	Gravel Road
1273+64	US Forest Service Road 835	Gravel Road
1409+00	Oil Lease Road - Nance Lease	Gravel Road
1454+80	US Forest Service Road 835	Gravel Road
1550+70	US Forest Service Road 834	Gravel Road
1562+05	US Forest Service Road 834	Gravel Road

All roads and section line crossings are subject to review and approval by the McKenzie County Engineer and County Commission. Applications will be submitted and permits obtained for the road crossings before start of construction. Roads on the Little Missouri National Grasslands are also subject to approval by the oil lease holder. Approval from these companies has also been obtained.

B.4.g Terrain and Geology

McKenzie County is located in northwestern North Dakota in the Missouri Plateau Section of the Great Plains Province. The project area lies within the glaciated portion of the Missouri Plateau characterized by thin drift except for valley fill so the topography reflects the pre-glacial topography. Major drainages are the Missouri, Yellowstone, and Little Missouri Rivers. The Missouri River formed when glaciers blocked the northeastward flowing drainages and the diverted drainage flowing southeastward along the margin of the glacier was entrenched in that course after the ice melted. The Little Missouri River flowed northward in the valleys now occupied by Red Wing Creek and Tobacco Garden Creek prior to glaciation. Subsequently it was diverted eastward from Red Wing Creek. Similarly the Yellowstone River flowed through the Charbonneau Creek-Timber Creek Valley prior to glaciation. The process of adjustment to the lowered base level of the Missouri River is developing a band of badlands along these drainages

The area includes rocks of each of the geologic periods with the thickest accumulations of sedimentary rocks near the center of the Williston Basin. The near-surface sediment is of Recent, Pleistocene, or Tertiary age. Recent sediment consists of alluvium or colluvium which is generally confined to lowland areas of current or Pleistocene drainage. Pleistocene sediments consist of till on the upland areas and water-sorted sediment in an along glacial drainages. Soil horizons have developed on the poorly consolidated Tertiary formations in the unglaciated areas.

The Project will cross the bed of the Missouri Plateau, characterized by low relief and gentle slopes interrupted by buttes and ridges. Surface elevations along the route range from 2280 feet MSL near the northern junction with Enbridge's Alexander Pipeline Terminal, to 2000 feet MSL at Camp Creek located four (4) miles to the south. The pipeline route surface elevation returns to over 2380 feet MSL at two points, adjacent to the buttes both north and south of Alexander. Surface elevation retreats to a level of only 2200 feet MSL at Charbonneau Creek. The pipeline route returns to an elevation of approximately 2400 feet MSL before entering the Little Missouri National Grasslands. Surface elevation remains generally flat between 2225 feet MSL and 2275 feet MSL for the majority of the 7.1 mile long section, before dropping to an elevation of 2160 feet at Bowline Creek. Route surface elevation climbs to 2250 feet MSL at a ridge location approximately one mile west of the loop terminus, before falling to a final elevation of 2175 feet MSL at Bowline Junction.

B.4.h Soils

Detailed soil characteristics along the pipeline route were identified and assessed using the Soil Survey Geographic database (SSURGO; U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), 2003). 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 mapping scale in the Project area is 1:20,000, with a minimum delineation size of 4.0 acres. SSURGO is linked to an attribute database that gives the proportionate extent of the component soils and their properties for each map unit (USDA, NRCS 1995). The SSURGO database was used to define soil characteristics along the pipeline route in McKenzie 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.

The majority of McKenzie County is in the Rolling Soft Shale Plain (Major Land Resource Area 54) of the Northern Great Plains Spring Wheat Region. The project area lies within the Glaciated Missouri Plateau Section of the Great Plains Province.

The soils in the project area belong to one of two classifications. The area north of ND highway 68 to the Alexander Terminal which represents approximately 75% of the pipeline route is predominately a fine loam mixed soil. These soils are well suited for cropland. The southeastern 25 % of the pipeline route, predominately on the Little Missouri National Grasslands is fine and fine silty soils, with a higher tendency for erosion. These areas are best suited to rangeland. Soils on areas adjacent to creeks and streams are shallow to very deep and hilly to very steep. Many soils are in complex with Badlands.

Wind erosion may be a hazard on most of the soils in McKenzie County. It is severe on the coarse textured and moderately coarse textured soils. These are primarily the Beisigl, Chinook, Dooley, Flasher, Glendive, Rhame, Tally, and Vebar soils. Certain soils have a relatively high content of lime. They are primarily the Cabba, Cabbart, Chama, Havre, Havrelon, Korchea, Lambert, Lonna, Maschetah, Patent, and Zahl soils. They are susceptible to wind erosion in the spring if they have been bare throughout the winter. Because of freezing and thawing, soil structure can break down, resulting in aggregates that are susceptible to movement. This can also cause fine textured soils such as Grano, Heil, Hoffmanville, Lallie, Lawther, Moreau, Scorio, Wayden, and Wolf Point to have a severe wind erosion hazard. Nearly all soils can be damaged by wind erosion if they are not protected by residue.

Water erosion is a severe hazard on gently rolling and steeper soils, such as Beisigl, Cabba, Cabbart, Chama, Cherry, Dogtooth, Flasher, Janesburg, Lonna, Vebar, Williams, and Zahl. The hazard is greatest when the surface is bare therefore the precautions outlined in the Environmental Mitigation Plan found in Tab 5 will be implemented to minimize impacts.

Tables 6, 7, and 8 list the soil associations, the approximate crossing length of each soil association, STATSGO map unit identification numbers (MUIDs) crossed by the pipeline route, and provides a summary of soil limitations for the pipeline route. STATSGO MUIDs are geologically and geographically related soils which correspond to soil associations. Approximately 34.8 percent of the soils crossed by the pipeline route (87.7 acres of the 252 acres within the pipeline route) are NRCS-classified prime farmland. provided there is sufficient artificial drainage to remove excess surface water. Approximately 1.8 miles of the pipeline route cross soils classified as saline, which in severe cases precludes their use for agricultural production.

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 STATSGO data indicates that soils in the Project area, specifically in areas of the Little Missouri National Grasslands are susceptible to erosion by wind. Soil erosion by water is also common along the pipeline route located within the National Grasslands. 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 Belle Fourche's EMP (see Tab 5).

Table 3.6

Soil Characteristics in the Project Area[a]

County	Total Project Acres in County	Prime Farmland	Hydric Soils	Compact Prone	Highly Erodible		Revegatn Concerns	Stony/ Rocky	Shallow to Bedrock
					Water	Wind			
		Acres (percent)							
McKenzie	252	>1	10	15	40	49	45	>1	>1
		--	(4)	(6)	(16)	(19)	(18)	--	--

[a] Acreage is based on a 66-foot-wide construction right-of-way and does not include access roads, temporary extra workspace, or areas of open water, and does not account for reduced right-of-way widths in wetlands and forested areas.

Table 3.7

Topsoil Depths and Slope Class in the Project Area[a]

County	Total Project Acres in County	Topsoil Depth (inches)				Slope Class (percent)				
		0-6	>6-12	>12-18	>18	0-6	>6-9	>9-15	>15-30	>30
		Acres (percent)								
McKenzie	252	45 (18)	113 (45)	33 (13)	61 (24)	110 (44)	53 (21)	50 (20)	20 (8)	18 (7)

[a] Acreage is based on a 66-foot-wide construction right-of-way and does not include access roads, temporary extra workspace, or areas of open water, and does not account for reduced right-of-way widths in wetlands and forested areas.

Table 3.8

Topsoil Depths on Prime Agricultural Land in the Project Area[a]

County	Total Project Acres in County	Topsoil Depth (inches)			
		0-6	>6-12	>12-18	>18
		Acres (percent)			
McKenzie	252	0	0	0	0
		--	--	--	--

[a] Acreage is based on a 66-foot-wide construction right-of-way and does not include access roads, temporary extra workspace, or areas of open water, and does not account for reduced right-of-way widths in wetlands and forested areas.

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, Belle Fourche 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.

The project construction will cause temporary removal of vegetation and result in exposure of soil. These actions may result in some minor temporary erosion. With the re-vegetation of disturbed areas, with native species, would mitigate these concerns.

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. Because the soils of the project area generally have a high shrink-swell potential, compaction will correct itself over time as the soil goes through wet-dry and freeze-thaw cycles.

B.4.i Vegetation and Wildlife

Investigations were conducted on potential impacts the Project could inflict upon wildlife and plant species. Information was gathered from a variety of sources to compile the existing conditions of plant and wildlife within the proposed route. These sources included field surveys, literature, and personal communications with the NDGF, the LMNG, McKenzie Ranger District, the FWS, and the ND Parks and Recreational Department (The ND National Heritage Inventory). Field surveys were conducted on foot and via ATV. Field data was collected with a Trimble GEOXT 2005 GPS and photographs were taken along the entire length of the proposed route. If species locations were unknown or state-wide, literature, personal communications, and knowledge of species and species habitat were used to make a justified determination on the potential effects that may occur from the Project.

Vegetation

Botany surveys were performed along the 32 mile proposed pipeline route in McKenzie County, during August 2007. Two surveyors conducted a thorough inspection of private land (starting north and proceeding south along the route), which consisted of cropland, rangeland, and pastureland, as well as potential wetland areas and approximately 8.5 miles of federal land (LMNG) in McKenzie County.

The Project route crosses predominantly agricultural land, which is discussed in detail in sections B.4.b(1) and B.4.j. Crested wheatgrass and smooth brome were primarily found in abundance throughout the majority of the route. Other grasses that were commonly identified were: blue grama, side oats grama, little bluestem, prairie Junegrass, Indianwheat, and needle and thread grass. Other vegetation often found established in the Project area include alfalfa, white aster, cudweed sagewort, fringed sagewort, curlycup gumweed, blazing star, kochia, goldenrod, prairie clover, prairie cone flowers, prairie rose, prickly pear cactus, rubber rabbitbrush, silver leaf surfpea, skeletonweed, wild licorice, wild sunflower, yarrow, buffaloberry bush, chokecherry,

cottonwood, and western snowberry. Noxious weed that were identified were field bindweed, Canada thistle, and leafy spurge. Field bindweed occurrences were primarily along access roads, and well sites. Canada thistle was found in small populations spread throughout rangeland and pastures.

In the proximity of mile one, in Section 19 T152N R101W, the proposed pipeline will run adjacent to a shelterbelt (approximately 0.19 mile long). The route is located approximately 105 feet away at its closest point. Potential impacts are unlikely to occur at this distance. However, Belle Fourche will restore the tree row to the land owner's agreement, in the event the Project would disturb it during construction operation.

In the proximity of mile 3, in Section 36 T152N R102W, contains an approximate 0.75 mile long section of state land that is within the Project corridor. Commonly found grasses included: crested wheatgrass, smooth brome, prairie June grass, and side oats grama. Other vegetation identified included: prairie cone flowers, sunflowers, cudweed sagewort, silver leaf scurfpea, alfalfa, stiff goldenrod, wild licorice, curlycup gumweed, Canada thistle, and leafy spurge. Potential wetland habitat occurred within a lowland section running through the area. Vegetation in the lowland area consisted mainly of smooth brome, western dock, western snowberry, cottonwood, chokecherry, and buffaloberry bush. However, the Project is located approximately 0.35 mile (at its closest point) from the area and will not cross this section. Therefore, there will be no potential impact during construction operations.

In the proximity of mile 4, Camp creek occurs, running east to west, within the Project right-of-way. The creek is approximately 1.52 miles in length and occurs in Section 6 T 151N R101W through Section 1 T151N R102W in the Project right-of-way. However, communication with the landowner and field investigation of the within the Project corridor established this ebbed creek with remain potential for wetland habitat. Vegetation consisted of primarily cattails and smooth brome. A tree row existed directly south of the lowland consisting mainly of chokecherry.

Lonesome Creek occurs in Sections 5 and 6 T150N R101W, which is in the proximity of mile eleven. This creek is located directly south of Alexander, ND and is in the Project right-of-way. Dominant species within the area were cattails and smooth brome. Smaller populations of vegetation established were, red samphire, common reed grass, Canada thistle, sowthistle, sunflowers, and some crested wheatgrass. Tree rows were also noted to be nearby. The red samphire population identified was located on a saline slough and was the only population found throughout the proposed route.

Currently, no Endangered or Threatened plant species occur in the LMNG. However, thirteen sensitive species and twenty-three watch species occur within the LMNG. The thirteen sensitive plants along with their general habitat are provided in the table below.

No sensitive plant populations were discovered during the plant survey of LMNG land. Communications with the McKenzie Ranger District Botanist, Kimberly Dolatta, concluded there are no records of any known locations of sensitive species within the Project area. Section 35 T148N R102W was surveyed in 1995, in the south and east portions of the pipeline route. Six additional surveys were also conducted south and east in Section 35, 1, 6, and 8. North portions of Section 15 and 22 T148N R102W

Table 3.9
Sensitive Species occurring in the Little Missouri National Grasslands

Sensitive Species	Habitat	Impact
Smooth goosefoot *Chenopodium subglabrum*	Loose sand, silt, and gravel deposits. Sandy river terraces, sand colluviums, sand dunes, and sand blowouts are potentially occurring habitat.	Known populations occur in Stark County. The project doesn't. There would be no impact.
Blue-eyed Mary *Collinsia parviflora*	Open woodlands/shrublands, moderately moist slopes, pine slopes, and dry plains.	Known populations occur in Slope County and Dunn County. There would be no impact.
Torrey's Cryptantha *Cryptantha torreyana*	Dry plains, badland slopes, and pine slopes	Known populations occur in Bowman County. There would be no impact.
Nodding buckwheat *Eriogonum cernuum*	Sand and silt colluvium and sand blowouts	State awareness. No occurrences record within the Project area. There would be no effect.
Dakota buckwheat *Eriogonum visheri*	Erosional breaks with barren clays, badland slopes and outwash plains, and eroding bedrock.	Known populations occur approximately 5 miles from Project area. There could be potential impact on suitable habitat.(western ND)
Sand lily *Leucocrinum montanum*	Open structure short grass prairie with sandy/silty soil, or open conifer woodlands	Known populations occur in Golden County and Slope County. There would be no effect from the Project.
Dwarf Mentzelia *Mentzelia pumila*	Weathered/fractured scoria bedrock, arid slopes, and sandy plains.	Occurs statewide, but there are no records of occurrences within the Project area. There would be no effect.
Sedge mousetail *Myosurus aristatus*	Stream banks, vernal pools, moist lowlands.	Known populations occur in Williams County, Ward County, and Slope County. There would be no effect from the Project
Alyssum-leaved phlox *Phlox alyssifolia*	Weathered bedrock, sandy gravelly soil.	Known populations occur in Williams County. There would be no effect from the Project.
Limber pine *Pinus flexilis*	Shallow soils over fractured bedrock (only one population site on the LMNG and may be cultural in origin).	Known populations occur in Slope County. There would be no effect from the Project.
Lanceleaf cottonwood *Populus acuminata*	Floodplains and stream banks	Known populations occur in Billings County and Slope County. There would be no effects from the Project.
Alkali Sacaton *Sporobolus airoides*	Sandy or gravelly soils, clay banks, and limestone ridges. Prefers warmer climates due to a high drought tolerance.	Known populations occur in Billings County and Bowman County. There would be no effects from the project.
Easter daisy *Townsendia hookeri*	Non-sandy weathered outcrops, dry short-grass plains and hillsides.	Occurs statewide, but there are no records of occurrences in the county.

Information provided by the USDA and the DPG, Little Missouri National Grasslands

were previously surveyed in 1993, 1998, 2002, 2005, and 2006. A large population of Dakota buckwheat (Eriogonum visheri) occurs approximately five mile northeast of the Project area. Recommendations were given to investigate and record suitable habitats for sensitive plants found within the proposed route. Potential habitats included badland slopes, sand blowouts, clay and sand outwash on flats and at the base of buttes, and scoria bedrock and hills.

Vegetation that were commonly associated with clay outwash and buttes included rubber rabbitbrush, broom snakeweed, sage brush, prairie sandreed, and prickly pear cactus. Buttes with scoria caps contained yucca, creeping juniper, goldenrod, little bluestem, and ox-eye daisy. The Project area does contain potential, suitable habitats for establishing sensitive species. However, the proposed route runs through previously reclaimed area, existing well sites, and access roads. Crested wheatgrass was found to be a dominant grass throughout the entire pipeline route. Japanese brome was also identified in areas along the route. Crested wheatgrass, along with the majority of invasive species, does not associate well with sensitive species and will usually inhibit the establishment of sensitive species. However, sensitive species that occur in only distinct areas should receive full protection from potential threats to prevent establishment disruptions. No suitable habitat areas were found to be within the Project right-of-way.

The primary impact is expected to be the removal of vegetation in the right-of-way during construction activity. Additional vegetation may be removed in areas where extra workspace is required, such as a road or waterbody crossing. Noxious weeds such as, Canada thistle and field bindweed are currently established along the route, primarily along access roads.

In areas that require revegetation, Belle Fourche will specify appropriate seed mixes, application rates, and seeding dates, taking into account the recommendations of appropriate state and federal agencies.

Wildlife

Grasslands also provided habitat for a wide variety of small mammals, including prairie dogs (Cynomys spp.), jackrabbits (Lepus spp.), ground squirrels (Spermophilus spp.), gophers (Geomys spp. and Thomomys spp.) and moles (Microtus spp.). Originally, several species of prairie dogs occupied over 800,000 ha of grasslands in central USA (Kreitzer and Cully, 2001; Summer and Linder, 1978), but by the early 1990s their distribution had been reduced by 98 percent (Vanderhoff, Robel and Kemp, 1994).

Common terrestrial wildlife identified in the Project area include ground squirrel, mole, muskrat, badger, pheasant, sharp-tailed grouse, Hungarian partridge, songbirds, migratory waterfowl, raptors, and deer.

Contact has been made with the NDGFD, the USDA Forest Service, McKenzie Ranger District, the FWS, and the National Heritage Inventory System to identify known occurrences of state and federally listed threatened or endangered species and critical habitat located along the proposed route.

Table 3.10
County Occurrences of Endangered, Threatened, and Candidate Species

Federally Listed Species	Habitat	Impact
Inferior Least Tern (endangered)	Inferior least terns nest in sandbars and islands and exist in the northern part of McKenzie County. Very few are found around Lake Sakawea.	Species habitat is not present. There would be no effect.
Whooping Crane (endangered)	Inhabit shallow wetlands, by cattails, bulrushes, and sedges. Potential occurrences may happen during migration season. Migration occurs in the spring during April to May and in the fall during September to October. Breeding grounds are located at Wood Buffalo National Park in Canada's Northwest Territories (approximately 900 miles north of the North Dakota border). The population is slightly over 200, therefore foraging and roosting stops are uncommon to occur within project area.	Species habitat is not present. The population that occurs in the state is slightly over 200. Therefore, foraging and roosting stops during migration is uncommon within the Project area. There would be no adverse effect.
Black-footed Ferret	Inhabits close proximity to prairie dog towns. Black-footed ferrets utilize the burrows for shelter, especially for their young.	Specie habitat is not within the Project area. There would be no effect.
Gray Wolf (endangered)	The Gray wolf is found in the western portion of ND.	There are rare sightings (about 1-2 a year) of the gray wolf. They are transient that move through North Dakota from Minnesota and Manitoba. There would be no effect.
Pallet sturgeon (endangered)	The Pallet sturgeon exists in the Yellowstone River.	Species habitat is not present. There would be no effect.
Bald eagle (threatened) *Removed from the Endangered Species list in July of 2007.	Prefers forested habitats near bodies of water. Found throughout the state. However, potential nesting habitat is east of the Little Missouri River.	Species habitat is not present. There would be no effect.
Piping plover (threatened)	Inhabit the shores of rivers and lakes. In ND, they primarily establish on alkaline encrusted, white beaches and barren river sandbars, typically found along the Missouri and Yellowstone Rivers. Many are located around Lake Sakawea.	Species habitat not present. There would be no effect.
Dakota skipper (candidate)	Found in native prairies which sustain a diversity of wildflowers and grasses. Potential occurrences are in prairies that are dominated by bluestem grasses, coneflowers, blanketflowers, wood lilies, and harebells.	Known occurrences have been in the eastern portion of McKenzie County, outside of the Project area. There have been no records of sighting in Alexander, ND proceeding south (proposed route). There would be little to no effect.
Information provided by the U.S. Fish and Wildlife Service Bismarck, ND		

The NDGFD was given the Project route for review and recommendations of threatened or endangered species or management areas that may need to be addressed. Analysis is currently being awaited from the department. However, the State of North Dakota does not contain a list of endangered species. References were made to the FWS's federal list of McKenzie County occurrences. (Refer to Table 3.10).

The FWS, Fish and Wildlife Biologist (Endangered Species and Highway Projects) discussed each potentially occurring species. Recommendations were made for the black-footed ferret and the Dakota skipper. The black-footed ferret inhabits prairie dog colonies. Although there have been no records of this species since the 1970's, disruptions of prairie dog colonies should be avoided to prevent any impact on habitat or potential occurrences. The proposed route does not invade any known prairie dog colonies. However, Belle Fourche is aware the route contains potential habitat for burrowing species. The Dakota skipper is known to occur in the eastern part of the county. The FWS recommends that special consideration be taken for this candidate species due to potential habitat within the proposed route. Construction operations will be active during fall, in which there will be no potential impact of the Dakota skipper. Belle Fourche will take the appropriate actions in the event these species are identified within the Project area.

The National Heritage Inventory data was reviewed for the county to site species of concern and significant ecological communities that exist in the Project area. The information below was provided by the North Dakota Parks & Recreation Department, Bismarck office.

Table 3.11
North Dakota National Heritage Inventory
Species of Concern and Significant Ecological Communities

Species of Concern	Quad Name	Town ship & Range	Section	Managed Area Name	State Rank / Global Rank
Sprague's Pipit *Anthus spragueii*	Moline School	148N 102W	18	Data unavailable	S3 / G4
Golden Eagle *Aquila chrysaetos*	Red Wing Creek	148N 102W	25	LMNG	S3 / G5
Golden Eagle *Aquila chrysaetos*	Red Wing Creek	148N 102W	36	State Land Department	S3 / G5
Golden Eagle *Aquila chrysaetos*	Sheep Creek	148N 103W	24	LMNG	S3 / G5
Burrowing Owl *Athene cunicularia*	Sather Lake	149N 103W	12	LMNG	SU / G4
Burrowing Owl *Athene cunicularia*	Sather Lake	149N 103W	25	LMNG	SU / G4
Smooth Cliffbrake *Pellaea glabella*	Alexander	150N 101W	7	Data unavailable	S4 / G5
Sprague's Pipit *Anthus spragueII*	Charbonneau	150N 102W	31	LMNG	S3 / G4

The species listed above are out of the Project corridor and will not be impacted by disturbances that construction activity could create.

Impacts from the 8-inch Crude Oil Loop Pipeline Project and human activity during construction will create no significant effects to the USFS, State Sensitive Species for ND, listed in the table below. The proposed construction activity is scheduled to begin in October of 2007. Construction operations will occur after breeding seasons when migratory species are unlikely to occur. The proposed route runs primarily along land that has been previously disturbed and reclaimed due to agriculture, livestock and wildlife grazing, access roads, and oil and gas activity. The Project may impact habitat. However, it is unlikely that the effect will be significant enough to alter a species population due it already occurring where there's been similar activity.

Table 3.12
USFS Region 1 State Listed Sensitive Species

State Listed Sensitive Species	Habitat	Impact
American Peregrine Falcon *Falco peregrinus anatum*	Utilizes any habitat that provides hunting opportunities. Cliffs are the preferred nesting habitat	No known active breeding that occurs in the project area. Current use of the LMNG is strictly migratory. There would be no impact.
Baird's Sparrow *Ammodramus bairdii*	Upland prairies of mixed-grass or tall grass. Common grasses commonly found its habitat are blue grama, needle-and-thread, and little blue stem.	Only occurs during breeding season. Breeding occurs from early June to late July. Project construction will succeed breeding season. There would be no impact.
Burrowing Owl *Athene cunicularia*	Prefers open, dry grasslands and deserts. Commonly found where there are burrows created such as prairie dog colonies.	Burrowing owls utilize land in the surrounding area for summer breeding (May through early September). There would be no impact.
Greater Prairie Chicken *Tympanuchus cupido*	Prefer native tallgrass prairie, but will establish in a variety of grasslands.	There are two known populations in ND. One around the Sheyenne National Grasslands and the other in Grand Forks County. The Project does not occur in or near the known greater prairie chicken habitats. There would be no impact.
Greater Sage-Grouse *Centrocercus urophasianus*	Areas where there's an abundance of sagebrush for nesting and for feeding on during winter.	Species is limited to the far southwestern portion of ND. The Project will not disturb a significant amount of sagebrush habitat There will be little to no impact.
Loggerhead Shrike *Lanius ludovicianus*	Open country with native prairie or cropland, wooded coulees, and shelterbelts.	Occurs only during breeding season. McKenzie. Breeding occurs from May to July. Project construction will succeed breeding season. There would be no impact.

Table 3.12 (continued)
USFS Region 1 State Listed Sensitive Species

Long-Billed Curlew *Numenius americanus*	Short-grass prairie or grazed mixed-grass prairie, west of the Missouri River.	Mainly limited to the extreme southwest counties. Project construction will succeed breeding season. Population and habitat impact is unlikely within the proposed route. There would be no significant impact.
Sprague's Pipit *Anthus spragueii*	Prefers extensive tracts of Ungrazed or lightly-grazed prairie.	Found statewide, excluding the Red River Valley. Species is more abundant in native prairie than exotic vegetation. The majority of the proposed route contains invasive species. Also, Project construction will succeed breading season. The Project would have no impact on the species or specie's habitat.
Black-tailed Prairie Dog *Cynomys ludovicianus*	Prefer short grass of grazed rangeland in southwestern, ND.	Is thought to no longer be present in ND. Consideration is to still be taken in the vicinity of prairie dog colonies. Prairie dog colonies do not occur within the proposed route. There would be no impact.
California Bighorn Sheep *Ovis canadensis californiana*	Prefer areas with rugged terrain and rocky slopes, such as the badlands.	NDGF gave no recommendations of avoiding potential areas within the route that would cause disturbance. There would be no impact.
Arogos Skipper *Atrytone arogos iowa*	Undisturbed grasslands and prairies. Commonly found in areas that contain purple vetch, Canada thistle, dogbane, stiff coreopsis, purple coneflower, green milkweed, and ox-eye daisy.	Commonly found in southeastern ND. The area contain potential habitat for the Arogos Skipper. However, Project construction will occur in mid autumn when the species is not present. There would be no impact.
Broad-winged Skipper *Poanes viator*	Tall marsh grasses and ditches near marshes. Associated with areas that contains hairy sedge, and swamp milkweed.	Records identifying occurrences in Ransom and Richland counties, in the southeast part of ND.
Dakota Skipper *Hesperia dacotae*	Undisturbed native prairies that contain white camass.	Species is recorded as being occurring in the county, but the Project is out of the species field duration for the season. There would be no impact.
Dion Skipper *Fuphyes dion*	Rare, lush marshes with sedges, cattails, and swamp milkweed.	Records identifying occurrences in Ransom and Richland counties, in the southeast part of ND.

Table 3.12 (continued)
USFS Region 1 State Listed Sensitive Species

Mulberry Wing *Poanes massasoit*	Woody hummock sedge meadows, particularly upright sedge, and dogwood.	Records of species occurring in the far southeast counties of ND. Project is out of the species field duration for the season and habitat range. There would be no impact.
Ottoe Skipper *Hesperia Ottoe*	Ungrazed or lightly grazed native prairie hilltops, often found perched on coneflower blooms	Species is recorded as being occurring in the county, but the Project is out of the species field duration for the season. There would be no impact.
Powesheik Skipper *Oarisma Powesheik*	Undisturbed, tallgrass meadows	Records of species occurring in the far southeast counties of ND. Project is out of the species field duration for the season and habitat range. There would be no impact.
Regal Fritillary *Speyeria idalia*	Found in native prairies that contain milkweeds, thistles, and blazing stars.	Species is recorded as being occurring in the county, but the Project is out of the species field duration for the season. There would be no impact.
Tawny Crescent *Phyciodes batessi*	Woodland roadsides, usually near bluestem prairie. Associated with dogbane, leafy spurge, hobomok skippers, silver-spotted skippers, and Canadian tiger swallowtails.	Species is recorded as being occurring in the county, but the Project is out of the species field duration for the season. There would be no impact.
Northern Redbelly Dace *Phoxinus eos*	Prefer slower stretches of rivers, with clear water and some vegetation.	Found in the Heart, Knife and Cannonball rivers. The Project does not provide specie habitat. There would be no impact.
Sturgeon Chub *Macrhybopsis gelida*	Sand, gravel, or rock rapids. Commonly found where there's high turbidity , swift currents, and shallow water.	Species habitat is not present within the Project area. There would be no impact.
Information provided by the USFS Region 1		

Oil and Gas Stipulation for the Dakota Prairie Grasslands are presented in Table 3.13 below. Stipulations are separated into Timing Limitations, Controlled Surface Use, and No Surface Occupancy.

The McKenzie Ranger District provided a list of known lek grounds within the vicinity of the proposed route. However, the construction activity occurs when the display grounds are not active. Therefore, the Project will have no effect on reproductive success of sharp-tailed grouse and sage grouse.

Table 3.13 DPG Oil and Gas Time Limiting Stipulations	
Habitat	**Time Limitation**
Sharp-tailed Grouse Display Grounds	March 1 – June 15
Sage Grouse Display Grounds	March 1 – June 15
Bighorn Sheep Lambing Area	April 1 – June 15
Black-footed Ferret Habitat	March 1 – August 31
Swift Fox Dens	March 1 – July 31
Pronghorn Antelope Winter Range	January 1 – March 31

Table 3.14 DPG Oil and Gas Controlled Surface Use Stipulations	
Habitat	**Controlled Surface Use Locations**
Black-footed Ferret Habitat	Prairie dog colonies known or thought to be occupied by black-footed ferrets.
Bighorn Sheep Habitat	Within 1 mile of lambing areas.

The Project area will not disturb any known prairie dog colonies. In the event that a colony should be discovered, Belle Fourche will notify the McKenzie Ranger District and modify the route to avoid any disruption to the colony.

Table 3.15 DPG Oil and Gas No Surface Occupancy Stipulations	
Habitat	**Minimum Distance**
Sharp-tailed Grouse Display Grounds	No surface use within 0.25 mile of display grounds.
Sage Grouse Display Grounds	No surface use within 0.25 mile of display grounds.
Bald Eagle Nests	No surface use within 1.0 mile of nests.
Bald Eagle Winter Roosts	No surface use within 1.0 mile of roosting areas.
Golden Eagle Nests	No surface use within 0.5 mile of nests.
Peregrine Falcon Nests	No surface use within 1.0 mile of nests
Prairie Falcon Nests	No surface use within 0.25 mile of nests
Merlin Nests	No surface use within 0.5 mile of nests.
Ferruginous Hawk Nests	No surface use within 0.5 mile of nests.
Burrowing Owl Nests	No surface use within 0.25 mile of nests

The Project may impact habitat if within close range of lek grounds. Belle Fourche will not be within (0.25) mile of a display ground. This will efficiently mitigate any potential for lek ground abandonment. The McKenzie Ranger District provided locations of golden eagle nest in the vicinity of the Project. The proposed route is within 0.5 mile of each existing nest. However, due to the topography of golden eagle nesting areas, which are primarily located on cliffs, it's highly unlikely that any will be disrupted from construction activity. The distance from each one also is within far enough distance to isolate the nesting areas from any noise disturbance (See Table 16). Disturbance during egg incubation, hatching, and the last days before young fledge could potentially cause significant impacts such as nest abandonment and loss of reproductivity (February 1 – July 31). Project construction will also succeed the time restriction for noise or activities. The Project will have no effect on the golden eagles in the area or their habitat.

Table 3.16
USFS Region 1 McKenzie Ranger District
Management Indicator Species

Nest / Lek Grounds	Township, Range, and Section	Approximate Distance from Route
Lek Ground	T148N R102W Sec 22	0.6 miles
Lek Ground	T148N R102W Sec 3	1.35 miles
Golden Eagle Nest	T148N R102W Sec 26	0.5 miles
Golden Eagle Nest	T148N R102W Sec 35	.0.55 miles
Golden Eagle Nest	T147N R102W Sec 36	0.5 miles
Golden Eagle Nest	T147N R102W Sec 36	0.5 miles
Lek Ground	T147N R102W Sec 6	0.15 miles
Lek Ground	T147N R101 Sec 5	0.6 miles

Information provided by the McKenzie Ranger District of the LMNG

Prior to 1900, most of the land in McKenzie County was used as open cattle range. Between 1904 and 1910, rapid settlement occurred with homesteaders arriving from eastern North Dakota, Minnesota, Iowa, and Wisconsin. Gently rolling areas around Alexander, Arnegard, and Grassy Butte were the first to be settled.

About 35 percent of McKenzie County is cropland or pasture, 30 percent is privately owned native rangeland, 30 percent is federal land, and 5 percent is other land. The federal land is administered by the USDA-Forest Service, USDI-Bureau of Indian Affairs, and USDI-National Park Service.

Specific to the project area, agricultural production is the predominant land use. Approximately 68 % is cropland or pasture, 5% native rangeland, 23% federal land (i.e the Little Missouri National Grasslands which is preserved as native rangeland) and 4% municipality (i.e. the area within the city limits of Alexander, North Dakota). It is

noteworthy the area of Alexander proposed for the pipeline route are all undeveloped parcels of land within the city.

The primary crops cultivated in the area include wheat, grain, corn, 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.

The only industrial area crossed by the pipeline route is at both ends of the pipeline loop where the line connects into existing pipeline junctions or pipeline terminal. The proposed route also skirts the east edge of a Nance Petroleum oil production lease site on the National Grasslands. Construction and operation of the pipelines will preclude future unrelated industrial development on lands occupied by the permanent maintained right-of-way; however, as previously noted, the Project will be located on or adjacent to existing right-of-way; therefore, impacts to land use are anticipated to be minimal. 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. No long-term change in land use is anticipated.

B.4.k Water Resources-Ground Water

Ground water suitable for domestic and livestock supplies in McKenzie County is available from three aquifer systems in semi-consolidated rocks of Late Cretaceous and Tertiary age. Ground water from aquifers in unconsolidated sand and gravel of Quaternary age is suitable for domestic, livestock, municipal, industrial, and irrigation uses. Rocks older than Late Cretaceous age extend to 15,000 feet (4,572 meters) and generally contain brackish water that is unsuitable for most purposes.

The Fox Hills and basal Hell Creek aquifer system is used as a source for livestock and domestic supplies. It generally is 1,100 to 1,800 feet (335 to 549 meters) in depth, and the transmissivity is 200 to 300 feet squared per day (19 to 28 meters squared per day). The water is lower in dissolved solids than water in overlying aquifers of Tertiary age and has a median dissolved-solids concentration of about 1,325 milligrams per liter. Wells may yield 100 gallons per minute (6 .3 liters per second). Six aquifers, each consisting of 50 to 176 feet (15 to 54 meters) of unconsolidated sand and gravel of Quaternary age, occur in McKenzie County. The sand and gravel could yield 100 to more than 500 gallons per minute (6.3 to 32 liters per second) . The water from four of the aquifers generally is a sodium bicarbonate type and has a median dissolved-solids concentration of 1,100 to 2,330 milligrams per liter. Water from the Charbonneau, Tobacco Garden, and Yellowstone-Missouri aquifers is suitable for irrigation.

No sub-surface injection of water is expected for this project. Any released water will be discharged to surface water, and subject to the requirements of the general NPDES permit issued by the ND Department of Health – Environmental Section.

This project is not expected to impact North Dakota ground water quality.

Water Resources-Surface Waters

Topographic maps and current aerial photos were reviewed to identify streams, rivers, and lakes crossed by the pipeline route. A pedestrian field survey was also conducted in August 2007 to characterize any surface waters and wetlands that exist in the route of the proposed pipeline.

No major waterbody crossings were identified. No lakes or ponds were identified in the route of the proposed pipeline.

The route contains 10 creek crossings totaling approximately 0.17 miles in length. Creek crossings by milepost are described in Table 3.17 below.

Pipeline construction by creeks will be conducted in accordance with applicable regulatory requirements. No creek will be permanently drained or filled as part of the Project, and effects on creeks are expected to be short-term and minor. Belle Fourche will restore the area as close to its previous state and naturally functioning condition as possible.

Table 3.17

Waterbodies Crossed by the 8-inch Crude Oil Loop Pipeline Route

Pipeline Station	Crossing Length (ft)	Creek Name
205+50	70	Camp Creek
537+10	35	Lonesome Creek
556+00	335	Lonesome Creek
611+60	45	Unnamed Tributary to Antelope Creek
766+15	40	Antelope Creek
971+30	25	Charbonneau Creek
1247+60	145	Spring Creek
1394+90	45	Spring Creek
1422+90	80	Spring Creek
1501+50	70	Spring Creek

The pipeline route also crosses several drainage ditches and draws which channel water to the listed waterbodies; however the slope of these areas prevent the accumulation of water and the establishment of hydroponic plants. The proposed pipeline route does not cross any lakes or ponds. No state or federally designated wild or scenic rivers are crossed by the route. Waterbodies crossed by the Project are listed in Table 3.17.

All pipeline construction will occur outside of the fish migration and spawning periods from April 15 – June 1 and that appropriate erosion control measures be installed to reduce sediment transport into waterbodies and wetlands. Implementation of the measures described in Belle Fourche's EMP will provide adequate protection to water resources during construction.

Waterbody crossings are planned to be constructed using either horizontal directional drill (HDD) or open-cut construction techniques, with most waterbodies crossed by the open-cut method.

Construction across waterbodies will require authorization by the U.S. Army Corps of Engineers (ACE). Belle Fourche will be obtaining necessary authorization for water crossings in wetlands and construction will be conducted in accordance with applicable permit conditions.

These small waterbodies will typically be crossed by means of the "wet trench" (open-cut) construction technique. In a wet trench crossing, backhoes excavate a trench in the waterbody channel, leaving "hard plugs" of soil in place on each bank of the crossing. When the trench has been excavated and the crossing section fabricated, the hard plugs are removed and the pipe segment is moved into place. The newly installed pipeline is welded in place and the trench is backfilled with native materials or as required by applicable permits.

Temporary, incremental increases in sediment load can be expected downstream of open-cut waterbody crossings during the excavation and backfilling phases of construction. Additionally, some incremental increase in surface run-off sedimentation may be expected to occur at each of the crossings due to the close proximity of exposed soils. No significant or long-term increase in sedimentation is expected from construction of the waterbody crossings.

Wetlands

Belle Fourche made arrangements to conduct field wetland delineations to identify wetlands crossed by the pipeline route. This wetland delineation, in conjunction with aerial photo-based alignment sheets and USGS topographic maps and US Corps of Engineers waters of concern within North Dakota, were used to identify wetlands along the pipeline route.

Section B.4.b.(5), Impact on Wetlands

Construction in wetlands will require authorization by the U.S. Army Corps of Engineers (ACE). Belle Fourche will be obtaining necessary authorization for wetland crossings and work in wetlands will be conducted in accordance with applicable permit conditions.

For water and wetland crossings which are not bored, construction in unsaturated wetlands, topsoil will be segregated from the trench line to preserve natural sources of seed and rootstock. During trenching, water quality of inundated wetlands will be temporarily affected due to the suspension of sediments and organic matter. After the trench is backfilled, the topsoil will be replaced to facilitate the natural re-vegetation process. The long-term operation and maintenance of the pipeline will not have adverse effects on wetland function or value.

Construction of the Project will not result in the permanent drainage or filling of wetlands. Belle Fourche 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.

Water Use

The Project will not significantly affect water use patterns. Following construction, drains, swales, and flowages will be restored to preconstruction conditions to the extent practicable to minimize disruption of water resources.

The Project will require temporary appropriations of water (likely surface water) for use in the hydrostatic testing of the newly installed pipeline. Additionally, some temporary trench dewatering will 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 North Dakota Department of Health under a North Dakota Pollutant Discharge Elimination System (NDPDES) general permit issued specifically for temporary dewatering activities including hydrostatic testing and trench dewatering (Permit No. NDG-070000).

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.

Belle Fourche will obtain authorization under a general permit for Storm Water Discharges Associated with Construction Activity from the North Dakota Department of Health, which implements a federal program under the Clean Water Act. Belle Fourche's EMP, which was developed in part to meet requirements of this permit, describes best management practices Belle Fourche Pipeline, its General Contractor and project subcontractors will implement to minimize off-site erosion from site stormwater runoff. These practices will protect surface water and soil resources within the Project area. Belle Fourche'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 North Dakota Department of Public Health has developed a General Permit (Permit No. NDG-070000) which authorizes the discharge of waters related to temporary dewatering and hydrostatic testing. Belle Fourche will obtain authorization for construction-related discharges and will conduct trench dewatering and hydrotest water discharges in a manner consistent with the NPDES General Permit.

Testing and discharge is 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. In most cases, it is anticipated that this water will be acquired from several of the rivers crossed by the pipeline route and discharged back to the original source. The NPDES permit specifies that discharge water must be free from process and other wastewater discharge.

Protection from Fuel Spills

Construction equipment should be expected to be self-propelled and/or motorized and are expected to be powered by gasoline or diesel fueled engines. Fuel for construction vehicles will be used and stored consistent with regulations of the US Environmental Protection in 49 CFR 112 for areas with at least 1320 gallons of aggregate storage capacity and/or consistent with the National Fire Protection Association Code 395 for storage and handling of petroleum-based fuels in isolated and/or remote areas. If more than 1320 gallons of oil storage occurs at one area, the contractor will be required to prepare and implement a oil spill prevention, control and countermeasure (SPCC) plan in accordance with 49 CFR 112 including having the plan reviewed and certified as adequate by a registered professional engineer licensed by the State of North Dakota. A SPCC Plan outlines required secondary containment measures to be installed around bulk storage containers (i.e. tanks and drums) as well as other oil-handling areas such as unloading and dispensing areas. The Plan also describes response, containment, and cleanup measures. Training requirements of impacted employees are also outlined.

Contractors will be required to provide trained personnel, appropriate equipment and materials to contain and clean up spills of fuel, lubricating oil or hydraulic fluid that result from equipment failure when working in or near wetlands or surface water bodies.

Storage of bulk fuels will not be allowed within 100 feet of an open waterway.

B.4.l Cultural Resources

Belle Fourche engaged the services of Beaver Creek Archaeology of Linton, North Dakota reviewed existing site file data maintained by the North Dakota SHPO to determine if any portion of the route was surveyed previously for cultural resources.

The proposed project area was inventoried on August 21-23, 2007. The pipeline corridor was visited and reviewed in addition to studying topographic maps and aerial photography to determine the amount of pedestrian survey as advised by the NDSHPO State Archaeologist Paul Pica. Unplowed regions, landforms such as prominent hills, terraces, and any other water related landform were surveyed. After determining the areas for inventory, the proposed corridor was inventoried by walking parallel pedestrian transects 20 meters apart across the Area of Potential Effect (APE).

One site new site (Site Number TBA by SHSND) was located during the course of the Cultural Resource Inventory. This site consisted of a foundation/basement feature with a historic cultural material scatter. Debitage has been and is currently being discarded and burned within the feature. Items in the debitage included wire, glass, metal, wood, and plastic. The items in the feature have been deposited in recent times, less than 50 years. However, there is a historic materials scatter situated on top of the hill to the south which is associated to the feature. This scatter contained remnants of a 1920s automobile, a horse drawn binder and wagon and other miscellaneous items for agricultural machinery associated with the early twentieth century. Based upon criteria for National Register of Historic Places (NRHP) listing, the site was found ineligible. Re-routing the pipeline around this area, if necessary, would not be expected to be required.

During the course of the investigation, one previously identified site (32MZ835) was revisited which could be impacted by the project. The site was re-evaluated and concluded again as ineligible for National Register of Historic Places (NRHP) listing since the site (32MZ835) did not meet any of the criteria in any of the specified categories to be deemed eligible.

All of the other previously identified sites are well outside of the Area of Potential Effect (APE) and in no way will be impacted by the 8-inch Crude Oil Loop Pipeline project.

Beaver Creek Archaeology recommends a finding of No Historic Properties Affected for the proposed project. A complete copy of their report is presented as Attachment A in Tab 4.

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 Belle Fourche will employ.

B.6. MITIGATION MEASURES

B.6.a Measures to Preserve the Human Environment

The Company 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, the Company will minimize noise and dust resulting from construction near residential areas.

The Company will obtain applicable permits prior to conducting road crossings from both McKenzie County, the US Forest Service where applicable. Permission will also be obtained from all owners of private roads including oil lease roads in the National Grasslands. Temporary signs will be posted at each crossing as appropriate to alert motorists of construction activity. Paved roads will be bored which will minimize interference with traffic flow caused by construction activities, and as required by state and county regulations.

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

The Company will, to the maximum extent practicable, restore the area affected by pipeline construction to the natural conditions that existed immediately before construction of the pipeline. Restoration will be compatible with the safe operation, maintenance, and inspection of the pipeline.

To the maximum extent practicable, the Company 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 Contractor's oil SPCC Plan, if applicable. A SPCC Plan describes response, containment, and cleanup measures. However, even for small quantities of oil-based liquids, containers and fueled equipment will not be stored within 100 feet of surface water.

B.6.c Measures to Protect Soils

Belle Fourche will implement temporary and permanent erosion control measures as specified in the EMP (Tab 5 and Tab 6). 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.

The Company 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

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

Belle Fourche Pipeline and its contractors will effectively control or limit the spread of invasive plant species through control treatments and avoiding existing populations where possible. On US Forest Service land, Belle Fouche will utilize strategies in the USDA Forest Service National Strategy and Implementation Plan for Invasive Species Management (2004), and the Guide to Noxious Weed Prevention Practices (USDA Forest Service 2001c), to control invasive species. Treatments will be initiated prior to pipeline construction to lessen the potential for this activity to disperse propagules along the freshly disturbed route. Monitoring and treatment should then be conducted on an annual basis to ensure a high degree of control and maximize treatment effectiveness.

In areas that require permanent revegetation, Belle Fourche 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 revegetate after construction depending on arrangements with the landowner. Consequently, significant changes in cover types are not anticipated.

After completion of waterbody crossings, the Company will revegetate disturbed stream banks in accordance with the EMP and requirements of applicable state or federal permits. 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.

The Company will take appropriate precautions to protect livestock and crops affected by construction. Operation of the 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 the Company 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

The Company will obtain and comply with applicable county permits regulating zoning and land use. Per prior discussion with the McKenzie County engineer, these permits are limited road and utility permits permits. The Company will retain one or more environmental inspectors to monitor compliance with environmental conditions of county permits.

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

The Project will be installed at a minimum depth of 36 inches 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 the Company 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

Belle Fourche will obtain applicable permits for crossing wetlands and waterbodies and for water appropriations related to hydrostatic testing and trench dewatering. Environmental inspectors will monitor compliance with applicable waterbody and wetland protection requirements during construction of the facilities.

Measures to protect water resources have been discussed to some extent in section B.4.k and in previous mitigation sections on soils (see section B.6.c) and vegetation and wildlife (see section B.6.d). Belle Fourche's EMP describes these measures in detail, and contains illustrations of how sediment control devices are typically installed at waterbody crossings. Additionally, Belle Fourche will maintain a 10-foot-wide vegetative buffer until the actual crossing of the waterbody takes place. Temporary sediment control measures such as silt fence installed at each crossing will minimize the introduction of sediment into waterbodies during construction and minimize the movement of spoil and sediment from surface runoff during and after construction. Permanent erosion control measures, such as vegetation and installation of slope breakers, will effectively stabilize riparian zones. The Company will stabilize streambanks disturbed during construction using methods as directed by applicable state and/or federal permits.

For open-cut crossings, "hard plugs" of soil prevent the flow of water from the waterbody into the adjacent trench and the migration of sediment from the adjacent trench into the waterbody. After the pipe is installed, the trench will be backfilled in such a manner to restore the natural contours of the waterbody to the extent practicable. Directional drilling of the rivers and creeks will minimize construction-related disturbance of this river because in-stream trenching and backfilling will not be necessary.

Wetland crossings will be conducted in accordance with applicable regulatory requirements. If construction mats or timbers are placed in wetlands to support

equipment, they will be removed after construction is completed. In order to maintain surface water hydrology within wetlands, preconstruction contours will be restored and no crown will be left over the trench. If there is a potential for a wetland to be drained by trenching, trench plugs will be installed as needed at the edge of a wetland. In unsaturated wetlands, topsoil will be replaced to facilitate the natural revegetation process.

Belle Fourche's Environmental Mitigation Plan (EMP) specify several measures to protect wetlands and waterbodies from pollution during construction by fuels or other hazardous materials. The EMP also specifies that equipment must be refueled at least 100 feet from waterbodies. If due to site-specific conditions there is no practical alternative, the contractor must implement site-specific protective measures and containment procedures described in the contractor's SPCC Plan. Contractors will be required to provide trained personnel, appropriate equipment and materials to contain and clean up spills of fuel, lubricating oil or hydraulic fluid that result from equipment failure when working in or near wetlands or surface water bodies.

Water appropriations for hydrostatic testing will be conducted in accordance with applicable permits. The Company will conduct trench dewatering and hydrostatic test discharges in a manner consistent with the NDPDES General Permit. Belle Fourche's EMP describes best management practices that will be implemented to minimize off-site erosion from surface water runoff, and protect water and soil resources within the Project area.

Much of the concerns associated with the quality of the water being discharged are addressed by the fact that no additives to the water are permitted unless written approval is received from Belle Fourche and applicable permits authorize such additives. Environmental Inspectors will monitor compliance with permits. Where appropriate, water will be discharged into an energy dissipation and/or filtering device to remove sediment and to reduce the erosive energy of the discharge.

B.6.g Measures to Protect Cultural Resources

Beaver Creek Archaeology of Linton, North Dakota was engaged to review existing site file data maintained by the State Historical Society of North Dakota (SHSND), State Historic Preservation Office (SHPO) to determine if any portion of the pipeline route was surveyed previously for cultural resources. Topographic maps and aerial photography were reviewed to determine the amount of pedestrian survey as advised by the NDSHPO State Archaeologist. Unplowed regions, landforms such as prominent hills, terraces, and any other water related landform were surveyed. After determining the areas for inventory, the proposed corridor was inventoried by walking parallel pedestrian transects 20 meters apart across the Area of Potential Effect (APE).

One site new site (Site Number TBA by SHSND) was located during the course of the Cultural Resource Inventory. This site consisted of a foundation/basement feature with a historic cultural material scatter. Debitage has been and is currently being discarded and burned within the feature. Items in the debitage included wire, glass, metal, wood, and plastic. The items in the feature have been deposited in recent times, less than 50 years. A historic materials scatter is situated on top of the hill to the south which is associated

to the feature. This scatter contained remnants of a 1920s automobile, a horse drawn binder and wagon and other miscellaneous items for agricultural machinery associated with the early twentieth century. Based upon criteria for National Register of Historic Places (NRHP) listing, the site was found ineligible. Re-routing the pipeline around this area, therefore, would not be expected to be required.

During the course of the investigation, one previously identified site (32MZ835) was revisited which could be impacted by the project. The site was re-evaluated and concluded again as ineligible for National Register of Historic Places (NRHP) listing since the site (32MZ835) did not meet any of the criteria in any of the specified categories to be deemed eligible.

All of the other previously identified sites are well outside of the Area of Potential Effect (APE) and in no way will be impacted by the 8-inch Crude Oil Loop Pipeline project.

Beaver Creek Archaeology recommends a finding of No Historic Properties Affected for the proposed project. A copy of their report is presented as Tab 4 Attachment A.

B.7. QUALIFICATIONS OF PERSONS CONTRIBUTING TO THE STUDY

See Tab 1 section D.6 of the Application for Corridor Certificate.

B.8. MAPS

See Tab 1 section D.7 of the Application for Corridor Certificate and Tab 2.

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

Critical safety aspects of pipeline installation are governed by US Department of Transportation regulations subject to the jurisdiction of its Pipeline and Hazardous Material Safety Administration (PHMSA) which had tended to standardize installation techniques. The advance of technology has introduced significant improvements in the techniques and equipment available to install underground pipe lines, reducing both the time required and the size or “footprint” of impact.

Construction of the pipeline will follow standard techniques employed by other projects installed in North Dakota such as Dakota Gasification Company 14-inch CO2 pipeline and the Enbridge Pipeline’s Alberta Clipper projects. Essentially an outdoor assembly line, the major steps typically include (1) survey and staking of the right-of-way; (2) clearing; (3) front-end grading; (4) right-of-way topsoil stripping; (5) pipeline route staking; (6) pipe stringing; (7) pipe bending; (8) pipe alignment and initial weld; (9) fill and cap with final weld; (10) as built footage; (11) x-ray inspection and weld repair; (12) coating field welds and coating inspection; (13) Trenching; (14) lowering pipe into trench;

(15) as-built survey; (16) pad, backfill to rough grade; (17) hydrostatic testing and system tie-in; (18) clean-up; (19) restoration and re-vegetation.

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

Before construction, Belle Fourche crews will survey and stake the centerline and 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 in the construction corridor. 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

Belle Fourche will clear the 66-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.

B.9.a.(3) Grading

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-footwide buffer will be left relatively undisturbed, except where grading is needed for bridge installation, at waterbody crossings until immediately before the pipelines are installed across the waterbody. Where necessary, grading of the adjacent 50 foot of right-of way to accommodate staging equipment an materials will also occur.

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 Belle Fourche's Environmental Mitigation Plan (EMP). See Tab 5 and the drawings presenting in Tab 6 for additional details.

B.9.a.(4) 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 Belle Fourche's EMP. In unsaturated wetlands, a maximum of 12 inches of surficial soils will also be stripped from the trench areas. Topsoil will be stripped to a maximum depth of 12 inches in cultivated lands.

B.9.a.(5) Pipeline Route Staking

Once the topsoil has been stripped and stockpiled, the route will be resurveyed and the pipeline route staked.

B.9.a.(6) Pipe Stringing

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.

B.9.a.(7) Pipe Bending.

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.(8) Pipe Alignment and Initial Weld

After stringing and bending are complete, pipe sections will be aligned and placed on temporary supports located adjacent to the proposed trench locations. Pipe ends will be attached to each other using short welds.

B.9.a.(9) Fill and Cap Segment Welds

Final welds will be completed around the entire circumference of the pipe joints in compliance with applicable industry standards and PHMSA requirements.

B.9.a.(10) As-built Footage

Once welding is complete, Belle Fouche will compare the as-built condition and length of the pipe with construction drawings. Documents will be edited to reflect impacts of field decisions as well as final locations of lateral tie-in points, other pipeline apertures and cathodic protection connections.

B.9.a.(11) X-Ray Inspection and Weld Repair

A third-party inspection service provider meeting US DOT certification requirements will be engaged to inspect all field-welds, both visually and radiographically. When welds are deemed inadequate, appropriate repairs will be made consistent with US DOT PHMSA regulations trenches in accordance with PHMSA regulations and re-inspected. Inspection records will be cross referenced against the final “as-built” footage of the pipeline.

B.9.a.(12) Coating and Coating Inspection of Field Welds

The pipe is typically delivered with a factory coating of fusion-bonded epoxy or similar material to prevent corrosion. Belle Fourche will apply coating at welded joints and will electronically inspect the pipeline coating before the pipe is lowered into the trench.

B.9.a.(13) Trenching

Backhoes and/or ditching machines will be used to excavate trenches in accordance with PHMSA regulations, which require a minimum thirty inches 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 less stable 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.(14) Lowering Pipe Into Trench.

After welding and coating are completed and the trench is excavated, the pipe will be lowered into the trench by side-boom tractors.

B.9.a.(15) As-built Survey

A survey of the final location of the pipeline will be made.

B.9.a.(16) Pad and Backfill to Grade.

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.(17) Hydrostatic Testing.

After backfilling, Belle Fourche will hydrostatically test the pipelines in accordance with the PHMSA 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 Belle Fourche's EMP. Belle Fourche will obtain hydrostatic test water from major waterbodies crossed by the pipeline and/or municipal sources 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 Belle Fourche's EMP and permits issued by the state agencies.

B.9.a.(18) Cleanup.

After the backfilling is completed, Belle Fourche will regrade and restore work areas as nearly as practicable to the original contour of the land. Fences that are removed to install the pipelines will be reconstructed across the right-of-way.

B.9.a.(19) Restoration and Revegetation.

Following installation and final cleanup of the pipeline construction area, 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 US Forest Service and other permit requirements, and site-specific landowner requests.

B.9.b Landowner Issues

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

Landowners have already been contacted in person, by telephone and/or by mail to secure permission for the new pipeline right-of-way adjacent to Belle Fourche's current pipeline right-of-way. In conjunction with several landowner requests construction has been scheduled after this year's harvest, and prior to next spring's planting season. They have been advised to expect pipeline construction to begin in late 2007 them that survey crews will be working along the pipeline route.

Once the necessary permits have been acquired, a brief description of the Project will be mailed to landowners. Belle Fourche is committed to giving landowners complete information about the Project and keeping them informed throughout construction. Belle Fourche has begun to personally contact landowners to discuss methods of damage settlements, tenant's rights, and to address any unique property concerns.

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

By use of county records, a current list of landowners was generated and used for to contact residents and will also be used for future personal contacts. In addition to landowners, all known tenant farmers in the construction area have been notified on the Project. A list of landowners and tenants who have been contacted regarding the Project is attached as Tab B Appendix C.

B.9.c Operations and Safety

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

The Belle Fourche Pipeline system is controlled via one of two control centers located near Donkey Creek, Wyoming or Watford City, North Dakota.

The Control Center is manned by pipeline operators 24 hours a day. 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.

A telemetry (SCADA) system provides 24-hour monitoring of the pipeline and pump operations, including pressures, temperatures and flow rates. This telemetry system enhances immediate response capability to any potential problems. The pipeline is also designed to accommodate an instrumented internal inspection device to detect and record the type and location of corrosion or other defects for long-term monitoring of the pipeline integrity.

B.9.c.(2) Communications Capabilities.

Land-lines and satellite communications are used to exchange the necessary computerized data for pipeline monitoring and control. Belle Fourche uses cellular phones as needed, to facilitate personnel communications during operation, maintenance, or emergency activities.

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

Belle Fourche 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. Belle Fourche has joined and supports the North Dakota One-Call system and other one-call systems in the states where they exist.

The pipeline is protected from corrosion in a number of ways. Pipelines are covered with a protective coating. In addition, all buried or submerged metallic structures (pipeline systems) are under a cathodic protection system, as required by PHMSA regulations.

B.9.c.(4) Inspections.

The Company conducts routine inspections of the pipeline and facilities to determine that the system is operating properly, in compliance with PHMSA regulations.

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 groundbed used to impose cathodic protection on the pipeline 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 and corrective measures taken, if needed.

Belle Fourche also 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.

The pipeline route 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. Linewalking 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.

Isolating valves are checked 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.

The Company began a program in the 1980s of periodically inspecting the pipeline internally with an electronic inspection tool – called “instrument pigs.” These devices travel through the inside of the pipeline and either mechanically, ultrasonically, or magnetically examine the condition (dents, gouges, corrosion, or cracks) of the pipe by on-board computers. Results of the inspection are then analyzed, and the pipe inspected to verify preliminary findings and then repaired 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, government officials inspect the Company’s compliance with applicable government regulations. Inspections of the Company’s written procedures, records, and facilities are routinely conducted by the PHMSA.

B.9.c.(5) Maintenance.

Many other maintenance activities are performed on the pipeline and related facilities. Belle Fourche has a comprehensive preventative maintenance program that meets and, in many cases exceeds, minimum federal safety standards set forth PHMSA regulations, including 49 CFR Part 195. When facilities are added or replaced, there are comprehensive standards for their design and installation in both Belle Fourche 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 PHMSA inspectors.

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

The Company has established a comprehensive orientation, technical, safety, emergency, and on-the-job training program that is in compliance with the Operator Qualification rules issued by the PHMSA 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 continue safe pipeline operation and maintenance.

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

Belle Fourche conducts a public education program to ensure that the affected public (those who work and live along 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. Belle Fourche 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 road 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.

Belle Fourche's operating and maintenance practices are aimed at preventing emergencies on the pipeline. However, it is imperative that Belle Fourche be prepared to respond to an emergency should one occur. In addition to preventative activities described above, Belle Fourche's emergency response program includes pre-planning, equipment staging, notifications, and emergency and leak containment procedures and engaging the services of area contract spill responders. Oil Spill Prevention Control and Countermeasure (SPCC) plans have been prepared for all North Dakota transportation and non-transportation related storage and use facilities with aggregate storage capacities in excess of 1320 gallons. The emergency response plan has been submitted and approved by PHMSA as required by 49 CFR Part 194.