

NORTH DAKOTA PUBLIC SERVICE COMMISSION

Application for Certificate of Corridor Compatibility

Hess Corporation
Tioga NGL Project

Prepared by E3 Environmental, LLC
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INTRODUCTION

Hess Corporation (Hess) owns and operates several crude oil, and natural gas facilities in North Dakota including the Tioga Gas Plant and the Tioga Rail Terminal which are both located in Williams County. Hess is planning the construction of three (3) pipelines which will connect the Tioga Gas Plant (TGP) and the Tioga Rail Terminal (TRT). The Project is being referred to as the Tioga natural gas liquids project (TNGL or Project.) For the purposes of this application NGLs include propane (C3), butane (C4) and other residual natural gas liquids constituents (C5). Three (3) pipelines will be installed as a part of this project, one 8-inch un-odorized propane pipeline (C3 Line), one 6-inch un-odorized butane pipeline (C4 Line) and one 6-inch other natural gas liquids pipeline (C5 Line); the pipelines will be co-located in the same right-of-way (ROW). The proposed Project will be a uniform length of approximately 3.6 miles and will occur entirely within Williams County, North Dakota. The proposed Transmission Facility Corridor (Corridor) is comprised entirely of private land.

Hess is submitting to the North Dakota Public Service Commission (Commission or PSC) a single consolidated application for a Certificate of Corridor Compatibility and Route Permit for the Project.

The application provides the information required by:

- North Dakota Century Code, Energy Conversion and Transmission Facility Siting Act, Chapter 49-22-08; and
- North Dakota Administrative Code, Article 69-06-04, Certificate of Site or Corridor Compatibility.

The information presented in this application is organized according to the format prescribed in the Commission's Application Guidelines for a Certificate of Site or Corridor Compatibility, which divides the information into the following six main categories:

SECTION 1: DESCRIPTION

SECTION 2: STUDIES

SECTION 3: NEED FOR FACILITY

SECTION 4: LOCATION

SECTION 5: MITIGATIVE MEASURES

SECTION 6: LIST OF PREPARERS

SECTION 1: DESCRIPTION

1.1 PURPOSE OF FACILITY

The Bakken Formation is a rock unit from the Late Devonian to Early Mississippian age occupying about 200,000 square miles of the subsurface of the Williston Basin, covering parts of Montana, North Dakota, and Saskatchewan. The formation is entirely in the subsurface, and has no surface outcrop. Oil was first produced from the Bakken more than 50 years ago, but production at that time was primarily from a few vertical wells. In the late 1980's when horizontal technology became available, oil production significantly expanded.

The total recoverable amount of Bakken Shale oil reserves are subject to interpretation and speculation. Studies conducted by the North Dakota Department of Mineral Resources (NDDMR) in 2008 and 2010 indicate that 4.0 to 6.3 billion barrels of recoverable reserves are available in North Dakota's Bakken and Three Forks formations. Information from the NDDMR indicates that oil production has increased dramatically over the three years from nearly 110,000 barrels per day (bpd) in 2007 to nearly 386,600 bpd in June, 2010 (NDDMR, 2010). Oil production is expected to increase by approximately 200,000 to 300,000 bpd by 2015.

The major constraint in transporting oil from North Dakota to refining centers is the lack of pipeline capacity. Several major projects have been planned to address the growing volumes of crude oil, but pipeline capacity is not expected to keep pace with production until early 2013 leaving incremental volumes to find alternative transportation methods, primarily rail.

The Project would provide NGL transportation service between Hess's TGP and the TRT. From the TRT the product will be shipped to markets throughout the United States and Canada; currently approximately half of the project will service markets in the upper Midwest and Canada.

Hess estimates that the Project will cost approximately \$4.05 million to develop. The Project will occur entirely in Williams County, and will include the installation of a uniform 3.62 miles of pipeline and related capital improvements.

1.2 TYPE AND SIZE OF FACILITY

1.2.1 TYPE

The Project is a transmission pipeline project. The steel pipelines will meet U.S. Department of Transportation (DOT) regulations, specifically the design, installation, pressure testing, operation and maintenance requirements as outlined in 49 CFR Part 195.

1.2.2 SIZE

The Project will include the installation of three (3) pipelines with the following specifications:

- One-8" Nominal Diameter Steel Pipe (C3 Line)
 - ASME Class 300 Carbon Steel; API 5L, X-52 Std., HFI/ERW, FBE Coated Line Pipe
 - Wall Thickness of 0.322 inches; pipeline casing will be installed at State and US Highway crossings and Railroad crossings.
 - Maximum/Normal Operating Pressure: 740/456 psig
 - Maximum/Normal Throughput: 37,000/18,050 bpd
- One-6" Nominal Diameter Steel Pipe (C4 Line)
 - ASME Class 300 Carbon Steel; API 5L, X-52 Std., HFI/ERW, FBE Coated Line Pipe
 - Wall Thickness of 0.280 inches; pipeline casing will be installed at State and US Highway crossings and Railroad crossings.
 - Maximum/Normal Operating Pressure: 740/295 psig
 - Maximum/Normal Throughput: 16,000/8,000 bpd
- One-6" Nominal Diameter Steel Pipe (C5 Line)
 - ASME Class 300 Carbon Steel; API 5L, X-52 Std., HFI/ERW, FBE Coated Line Pipe
 - Wall Thickness of 0.280 inches; pipeline casing will be installed at State and US Highway crossings and Railroad crossings.
 - Maximum/Normal Operating Pressure: 740/138 psig
 - Maximum/Normal Throughput: 10,000/5,000 bpd

The proposed Project will include two (2) mainline valves (MLV) for each of the three (3) pipelines. These facilities will be installed to meet DOT regulations and will allow for the isolation of select segments of the pipeline for inspection and maintenance purposes. These MLVs will be installed within the existing TGP and TRT facilities.

The valves will be actuated, fail safe and automated, controlled by both the local actuation and by a 24-hour Hess Control Center located in Tioga, ND.

1.2.3 LENGTH

The proposed TNGL is a uniform length of approximately 3.6 miles in total length. The entire Project will be located in Williams County, North Dakota.

1.2.4 LOCATION

The Project will be located in Williams County, North Dakota, originating at the TGP located approximately 1-mile east of Tioga North Dakota, and terminating at the TRT located approximately 1- mile southwest of Tioga North Dakota. Please refer to the project maps provided in Appendix B.

1.2.5 ABOVEGROUND FACILITIES

The proposed Project will include two (2) mainline valves (MLV) for each of the three (3) pipelines. These facilities will be installed to meet DOT regulations and will allow for the isolation of select segments of the pipeline for inspection and maintenance purposes. These MLVs will be installed within the existing TGP and TRT facilities.

1.3 PROJECT SCHEDULE

1.3.1 CERTIFICATE OF CORRIDOR COMPATIBILITY

Hess is seeking a Certificate of Corridor Compatibility in or before April 2012.

1.3.2 ROUTE PERMIT

Hess is submitting the application for a Route Permit in January 2012, concurrently with this application for Certificate of Corridor Compatibility. The two applications have been combined to form this Consolidated Application.

Hess is seeking a Route Permit in or before April 2012.

1.3.3 CONSTRUCTION SCHEDULE

Hess has scheduled construction to commence as early as April 1, 2012. Pipeline construction is expected to take approximately four (4) months to complete. The pipelines will be installed simultaneously in the same trench. Restoration and commissioning activities will commence immediately after construction. Restoration will begin in 2012 and shall continue as long as seasonal conditions allow, these efforts shall be temporarily suspended as necessary during frozen or saturated conditions, resuming in 2013. Hess will continue restoration efforts until final restoration has been achieved which is anticipated to occur in 2013.

SECTION 2: STUDIES

2.1 CORRIDOR

Hess selected the proposed Corridor based upon several criteria designed to conform with the PSC's siting requirements and to avoid and minimize socioeconomic and environmental impacts, while maximizing the benefits to local resource developers in the Williston Basin. The selection process was also influenced by the location of existing assets.

Hess has completed advance routing analysis as a function of the Project development. The planning narrowed potential alignments to that presented in this Consolidated Application. A benefit of this approach is to narrow the focus of supporting Corridor studies to the minimum required while demonstrating to the Commission that State siting criteria can be satisfied within the constrained study area. The proposed Corridor is a one-mile wide area that is centered upon the proposed project alignment (*e.g.*, one-half mile on either side of the proposed project alignment). The proposed Corridor and preferred Route are illustrated on the maps located in the Appendix B.

A comprehensive desktop analysis of the Corridor was augmented with consultations with the Federal and State agencies identified below, as well as a Class I Cultural Resource Inventory. The results of this environmental analysis are summarized below. Records of consultations with the agencies listed below are provided in Appendix C.

- U.S. Fish and Wildlife Service (USFWS)
- U.S. Farm Service Agency (FSA)
- North Dakota Game and Fish Department (NDGFD)
- North Dakota Parks and Recreation-Natural Heritage Program (NDPRD)
- North Dakota State Lands Department (NDSLDD)
- North Dakota State Preservation Office (SHPO)
- North Dakota Department of Health (NDDoH)

2.2 ENVIRONMENTAL DESKTOP ANALYSIS

2.2.1 WILDLIFE INVENTORY

Approximately 160 wildlife species are resident or seasonal visitors to the Missouri River ecosystem, and hundreds of native fish species live in the mainstream and tributaries. Some of the animal species commonly found in the Missouri River ecosystem include various mammals, such as beaver, muskrat, eastern cottontail, elk, moose, mule deer, white-tailed deer, and pronghorn; various song birds; waterfowl species, such as mallard and Canada goose; upland birds, such as crows, woodpeckers, and sharp-tailed grouse; water birds, including grebes, plovers, and

yellow-headed blackbirds; and various raptors, including golden eagles and bald eagles.

Land use throughout the Corridor is dominated by agriculture (*e.g.*, cultivated crops or rangeland) and as such, the landscape has been modified to promote agricultural production. The most common landscape modifications result in the loss of natural habitats which often includes tilling of native grasslands as well as the modification of wetlands and waterbodies. These changes to the landscape influence the wildlife inhabiting the area.

The agencies listed above were consulted regarding the potential occurrence of protected or sensitive species and their critical habitats within the Corridor. Wildlife species inhabiting or present in the Corridor are those commonly associated with the northwestern North Dakota region. The composition of mammals, birds, amphibian and reptiles that potentially occur in the Corridor are typical of a mixed grass, dry prairie system. While some species have increased with agricultural development, others have declined. The greatest degree of species richness can be expected to be associated with native prairie, wetlands, prairie potholes and lakes, and the riparian corridor along the waterways.

Species diversity associated with agricultural areas will be constrained by the lack of suitable native habitat and will often be limited to remnant habitats such as uncropped swales, or incised watercourses. Species may also be found utilizing marginal habitats adjacent to active agricultural field areas, such as the edges of crop fields, road ditches, and on the uncut banks and beds of unimproved county roads. Quality wildlife habitat in the Corridor is limited and wildlife species composition reflects the extensively modified landscape.

Hess engaged various Federal and State agencies in Project-specific consultations to identify potential occurrences of sensitive species or their critical habit(s) (please see Appendix C for complete record of agency consultations). In addition to agency consultations and desktop analysis, Hess also commissioned field studies of the Corridor and more specifically the proposed Route to record the presence or absence of sensitive species or their critical habitats. The information gathered from these surveys will be used for final routing, permitting, and mitigation planning where necessary. The results of these studies are included in Appendix D and proposed mitigation is detailed in SECTION 4: Mitigative Measures of the application for a Route Permit.

2.2.2 WETLAND AND WATERBODIES ANALYSIS

Desktop analysis of aerial photography and National Wetland Inventory (NWI) maps was used to evaluate the location and extent of mapped wetlands and waterbody features within the Corridor. In general the Corridor was moderately populated with mapped wetland features, an estimated five (5) wetland basins were identified as potentially occurring along the proposed centerline.

The inventory of waterbodies within the proposed Corridor found one (1) unnamed waterway. Routing has taken this feature into consideration and has avoided direct impacts where practicable.

Hess commissioned additional field studies of the Corridor and more specifically the proposed Route to delineate wetland and waterbody boundaries. The information gathered from these surveys will be used for final routing, permitting, and mitigation planning where necessary. The results of these studies are included in Appendix D and proposed mitigation is detailed in SECTION 4: Mitigative Measures of the application for a Route Permit.

2.2.3 TREE/SAPLING/SHRUB ANALYSIS

Desktop analysis of aerial photography was used to evaluate the location and extent of woody vegetation within the Corridor. The density of the woody cover was sparse, and appears to be typically either associated with a cultivated windrow feature or a natural feature, such as waterbody, or more commonly with significant topographic relief, such as defined banks or incised drainage ways. Hess has commissioned additional studies of the Corridor and more specifically the proposed route to inventory woody vegetation, study avoidance mitigation and inventory proposed impacts for mitigation. The results of these studies are included in Appendix D and proposed mitigation is detailed in SECTION 4: Mitigative Measures of the application for a Route Permit.

2.3 AGENCY CONSULTATIONS

2.3.1 U.S. FISH AND WILDLIFE SERVICE

The USFWS administers several programs designed to identify and protect special status plant and animal species and critical habitats. E3 Environmental, LLC (E3), on behalf of Hess, requested a Project review of the Corridor by USFWS on May 23, August 17 and most recently November 23, 2011; agency response was received to each of these written requests and is contained in Appendix C.

2.3.1.1 FEDERALLY PROTECTED SPECIES REVIEW

Under authority of the Endangered Species Act (ESA), the USFWS has identified and maintains a list of species and critical habitats that have been afforded protection under the ESA. The ESA provides a program for the conservation of threatened and endangered plants and animals and the habitats that they inhabit.

On behalf of Hess, E3 provided technical assistance with protected species review and subsequent consultations with the USFWS. E3 reviewed USFWS published data and identified the following listed species and the potential for the species to occur within the Corridor.

- Black-footed Ferret (*Mustela nigripes*)-Endangered
- Gray wolf (*Canis lupus*) – Endangered

- Whooping crane (*Grus americana*) – Endangered
- Piping plover (*Charadrius melodus*) – Threatened
- Interior Least tern (*Sterna antillarum*) – Endangered
- Pallid sturgeon (*Scaphirhynchus albus*) – Endangered

E3 reviewed the available information that described the life history, critical habitats, and conservation measures associated with each species to assess the potential effects of the Project on these resources. The results of the assessment are provided below:

Black-footed ferret:

Black-footed ferrets are nocturnal, solitary carnivores. North Dakota is host to experimental populations however; this species has not been observed in the wild for more than 20 years. Ferrets inhabit extensive prairie dog complexes typically composed of several smaller colonies in proximity to one another that provide a sustainable prey base; research has shown that these complexes need to be greater than 80 acres in size to be successful in the reintroduction of the black-footed ferret.

Gray wolf:

The gray wolf is a large carnivore that through conservation measures has experienced strong population recovery, particularly in the Great Lakes states of the upper Midwest. As populations rebound, individuals may break from packs to explore opportunities to establish packs in unoccupied territory. Roaming individuals can cover great distances without establishing viable breeding populations in previously unoccupied habitat(s). This species is not tolerant of human disturbance and will tend to avoid interaction with humans. The activities associated with construction would likely serve as a deterrent to this species. Once the pipeline is in-service human interactions will be minimal and limited to only times of right-of-way/pipeline inspection, maintenance or repair.

Whooping crane:

The Aransas Wood Buffalo Population of whooping cranes engages in semi-annual migration through North Dakota. This flock breeds in the Wood Buffalo National Park in Alberta and Northwest Territories, Canada, and winters in the Aransas National Wildlife Refuge in Texas. This species has been closely studied and monitored in recent years due to its small, fragile population. North Dakota provides migratory habitat for the species, providing roosting and feeding opportunities during migration. During migration, the species is most closely associated with larger wetland complexes for roosting habitat, typically using adjacent uplands to forage.

Piping plover:

The piping plover (plover) is associated with shorelines along small alkaline lakes, large reservoir beaches, and river islands and adjacent sand pits. Breeding birds select wide beaches with highly clumped vegetation covering less than 25 percent of the area. The Missouri and Yellowstone Rivers are frequently cited by the USFWS as locations within the region that are known to host breeding populations of the plovers. The Project does not cross either river and the entire Project is more than 37 miles away from the Missouri River. No suitable habitat is present within the Corridor.

Least tern:

The interior population(s) of the least tern has historically been associated with large river systems for breeding and migratory habitats. Breeding birds are known to breed in colonies, utilizing sandbar habitat common to larger rivers. The Missouri and Yellowstone Rivers are frequently cited by the USFWS as locations within the region that are known to host breeding populations of the least terns. The Project does not cross either river and the entire Project is more than 37 miles away from the Missouri River. No suitable habitat is present within the Corridor.

Pallid sturgeon:

The pallid sturgeons' preferred habitat includes the benthic environment associated with swift waters of large turbid, free-flowing rivers with braided channels, dynamic flow patterns, periodic flooding of terrestrial habitats, and requiring extensive microhabitat diversity. Portions of the Missouri River are thought to provide the required habitat for the pallid sturgeon though much of the habitat has been compromised due to channelization, installation of impoundments and altered flow regimes. Due to the Project's distance from the Missouri River (e.g., approximately 37.5 miles), the Project will not affect the Pallid Sturgeon.

2.3.1.2 MIGRATORY BIRD TREATY ACT CONSULTATION

On May 23, August 17 and most recently November 23, 2011; E3, on behalf of Hess, initiated consultation with the USFWS with respect to several topics that fall under the purview of the USFWS including the Migratory Bird Treaty Act (MBTA). The management of MBTA concerns correspond with the regional timing associated with annual phenology of migratory species. In North Dakota, it is generally acknowledged that MBTA species of concern may be present in North Dakota from February 1 through July 15 annually. Hence, MBTA mitigation may be required if construction will take place during this timeframe. The current project schedule suggests that this may be the case. Hess will continue to consult with agencies as necessary regarding this subject and shall develop MBTA mitigation as required (see Appendix C for related consultations, and SECTION 4: Mitigative Measures of the Route Permit application for additional details regarding proposed mitigation).

2.3.1.3 BALD AND GOLDEN EAGLES PROTECTION ACT CONSULTATION

The Bald and Golden Eagle Act (BGEA) prohibits anyone without a permit from taking a bald or golden eagle, including their parts, nests, or eggs. The BGEA defines “take” as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. The BGEA also addresses impacts resulting from human-induced alterations occurring around previously used nesting sites.

On May 23, August 17 and most recently November 23, 2011; E3, on behalf of Hess, initiated BGEA consultations with the USFWS seeking confirmation of presence or absence of known nesting locations for either eagle species within the Corridor. A response from the USFWS to each of these requests was received; refer to Appendix C for a record of this communication.

Hess augmented agency consultation with field surveys to confirm the presence or absence of eagle’s nests within ½ mile of the proposed Route. These efforts were conducted between June and September of 2011. Field biologists confirmed the absence of active eagle nests within the surveyed corridor. The results of these studies are fully detailed in Appendix D.

2.3.1.4 U.S. FISH AND WILDLIFE SERVICE MANAGED LANDS

On May 23, August 17 and most recently November 23, 2011, E3, on behalf of Hess, initiated consultations with the USFWS seeking confirmation of the presence or absence of USFWS managed lands within the Corridor. The USFWS provided a response to each of these requests and identified a Waterfowl Protection Area (WPA) within the project Corridor (see Appendix C for related consultations).

2.3.2 U.S. FARM SERVICE AGENCY

On November 23, 2011, E3, on behalf of Hess’ consulted with the local FSA office to confirm the presence or absence of Conservation Reserve Program (CRP) or Grassland Reserve Program (GRP) lands within the proposed Corridor. The FSA confirmed the absence of CRP or GRP lands within the project Corridor in their response dated November 25, 2011 (refer to Appendix C for a record of this communication.)

2.3.3 NORTH DAKOTA GAME AND FISH DEPARTMENT

The NDGFD exercises oversight and management of the state’s game species and certain state-managed lands (*e.g.*, PLOTS Program). On November 23, 2011, E3 initiated Project-specific consultations with NDGFD and requested a Project review seeking confirmation regarding the presence or the absence of both state-managed lands and wildlife concerns within the proposed Corridor. On December 8, 2011 the NDGFD responded confirming the absence of both state-managed lands and wildlife concerns within the proposed Corridor.

The NDGFD also requested that Hess minimize impacts to native prairies or wooded draws when constructing the pipeline or creating construction access. In addition, the agency noted that the Corridor included National Wetland Inventory (NWI) mapped waterbody features. The agency suggested avoidance of all of these features when

practicable, and restoration and reclamation of disturbed features crossed by the project to avoid permanent impacts. See Appendix C for a copy of the correspondence.

2.3.4 NORTH DAKOTA PARKS AND RECREATION DEPARTMENT

The NDPRD Natural Resource Division's scope of authority and expertise covers recreation and biological resources (in particular rare species and ecological communities). The NDPRD also maintains a database comprised of the location and recorded occurrences of plant and animal species of special concern. The NDPRD authority includes management of state park lands and Land and Water Conservation Funded recreation projects.

On November 23, 2011, E3 initiated Project-specific consultations with NDPRD and requested a Project review seeking confirmation regarding the presence or the absence of managed lands, ecological resources, rare species or their critical habitats.

On December 14, 2011 the NDPRD confirmed the absence of the managed lands, ecological resources; rare species or their critical habitats (refer to Appendix C for related consultation).

2.3.5 NORTH DAKOTA STATE LANDS DEPARTMENT

The NDSL D is in charge of managing surface acres and mineral interests held in trust for various schools and institutions. On November 23rd, 2011, E3 initiated consultations with the NDSL D requesting comments regarding the presence of school trust lands within the Corridor; the NDSL D responded on December 1, 2011 confirming the absence of school trust lands within the project corridor. See Appendix C for a copy of this correspondence.

On November 23rd, 2011, E3 initiated consultations with the NDSL D requesting comments regarding the presence of state mineral trust lands within the Corridor. The NDSL D responded the same day identifying no mineral trust lands are within the Corridor; the Route will not cross lands managed by the SLD. See Appendix C for a copy of this correspondence.

2.3.6 NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

The SHPO is responsible for managing the historic and archaeological resources of the state; as such, the SHPO maintains records of all previously recorded cultural resources within the state. Hess commissioned, SWCA, Inc. (SWCA), to conduct a Class I Cultural Resource Inventory of the Corridor, and background research was conducted April 26, 2011. The purpose of a Class I Cultural Resource Inventory is to review the existing records maintained by the SHPO. Research conducted by SWCA for the TNG L identified 17 previously recorded cultural resource sites located within the proposed Corridor. These results of this inventory were used to assess Corridor compatibility for routing and later for Route refinement and preparation for field studies.

Please refer to Appendix C for related agency consultations, Appendix E for Cultural Resource Survey Reports and SECTION 4: Mitigative Measures of the Route Permit application for proposed mitigation measures.

2.3.7 NORTH DAKOTA DEPARTMENT OF HEALTH

The NDDoH administers regulatory programs governing certain water discharges. Hess is currently in the process of preparing NDDoH permit application materials to acquire the requisite approval with respect to water discharges.

2.3.7.1 NDDOH POLLUTION DISCHARGE ELIMINATION SYSTEM

The NDDoH administers the North Dakota Pollution Discharge Elimination System (NDPDES) a regulatory program that regulates and issues permits for water discharges, such as construction stormwater, site dewatering and hydrostatic discharge permits. Hess will obtain the following NDPDES permits from the NDDoH.

Construction Stormwater: Hess will be seeking coverage under NDR10-0000 *Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination System* general permit for construction sites as required when disturbing an area greater than five (5) acres. A project-specific erosion control plan referred to as Storm Water Pollution Prevention Plan (SWPPP) will be prepared and maintained on-site for the duration of the Project. Hess will properly implement the SWPPP which will be designed to manage run-off and trench dewatering discharges in a manner that will minimize exposure to chemicals, waste, and petroleum products, as well as describe erosion control measures designed to minimize off-site transfer of sediments.

Hydrostatic test water discharges: Hess will be seeking coverage under NDG07-0000 *Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination System* general permit for various temporary discharges, including both construction site dewatering and hydrostatic test water discharges.

SECTION 3: NEED FOR FACILITY

3.1 ANALYSIS OF NEED BASED ON PRESENT AND PROJECTED DEMAND, INCLUDING SYSTEM STUDIES

The development of hydrocarbon production in the Williston Basin has increased significantly in recent years due to advancements in deep horizontal directional drilling techniques and subsequent oil extraction in the Bakken and Three Forks shale formations. The total recoverable amount of Bakken Shale and Three Forks oil reserves are subject to interpretation and speculation. Studies conducted by the North Dakota Department of Mineral Resources and U.S. Geologic Survey (USGS) in 2008 and 2010 indicate that 4.0 to 6.3 billion barrels of recoverable crude oil reserves may be available in North Dakota's deep shale formations. Oil production statistics from the Bakken and Three Forks formations indicate that oil production has increased dramatically over the past three years from nearly 110,000 bpd in 2007 to nearly 386,600 bpd in June, 2010. Oil production is expected to increase by an additional 200,000 to 300,000 bpd by 2015.

A major constraint in transporting hydrocarbons from North Dakota to distribution centers and eventual end users in the United States is the lack of pipeline capacity. To relieve the pipeline constraints, several projects have been planned to address the growing volumes of crude oil, natural gas, and NGL. However, pipeline capacity is not expected to keep pace with production, leaving incremental volumes to find alternative transportation methods, primarily rail or other surface transportation alternatives.

Construction of the TNGL will provide firm, reliable service for 31,500 barrels of NGL per day and provide a critical link between the TGP and the TRT. From the TRT, the product will be shipped via rail to end users throughout the United States and Canada.

3.2 DESCRIPTION OF FEASIBLE ALTERNATIVE METHODS OF SERVING THE NEED

The Project will deliver an average of 31,500 bpd of NGLs from the TGP to the TRT for transport to markets throughout the United States and Canada primarily, with a maximum capacity to transport up to 63,000 bpd. Hess identified and evaluated several project alternatives; however, none of these alternatives effectively satisfied the Project objective. These alternatives included:

- No Action Alternative;
- Trucking Alternative; and
- Rail Alternative.

No Action Alternative:

A No Action Alternative would leave the region constrained by limited transport capacity for safe and reliable transmission of NGL products to markets. Hess TGP is being expanded to process up to 250 MMscfd of natural gas (PSC Cas PU-10-120). Without a viable NGL outlet, the TGP will be required to operate at significantly reduced volumes due to the inability to transport NGLs to market. Overall, regional oil and gas production would continue to be constrained by the limited volume of product that could be shipped utilizing existing infrastructure, resulting in continued or increased flaring and/or curtailment of crude oil production. This alternative is not desirable. For these reasons, Hess rejected a *No Action Alternative*.

Trucking Alternative:

This scenario was reviewed and eliminated due to the volumes of NGLs that are produced at the Plant. The maximum capacity of the pipeline is equal to an estimated 63,000 barrels or 2,646,000 gallons of NGLs, the majority of which would be subscribed by daily production from the Plants. The average load for an NGL truck is approximately 10,000 gallons per truck. Thus, it will require 265 trucks per day to be loaded at the TGP, an average of 11.1 trucks every hour for 24 hours a day. Similarly it would require these 265 trucks per day to be unloaded (trans-loaded) at the railcar facility at the TRT. This level of truck activity is not logistically feasible; it would cause an unacceptable amount of heavy vehicle traffic for the area residents' as well additional wear and tear on the infrastructure. Any disruption in the trucking capacity due to seasonal load restrictions on roads, inclement weather, or road repairs would result in a Plant shutdown and flaring of gas production. This alternative is not desirable; therefore, Hess rejected a *Trucking Alternative*.

Rail Alternative:

Rail transportation of NGLs is generally an accepted alternative to other methods of surface transportation. Hess asset management has determined that a rail terminal at the western terminus of the proposed project would provide the greatest long-term strategic development to the movement of locally produced petroleum products out of the region. Existing rail infrastructure is readily available at this location and proximity to other existing assets owned or operated by Hess would provide an integrated approach in the transmission of locally produced NGLs. This analysis included the evaluation of developing a rail terminal at the eastern terminus of the Project but there are several factors that dissuaded the pursuit of this alternative: first, there is not sufficient space available at the eastern terminus to site a rail loading rack; secondly the siting and construction of a rail spur would result in permanent environmental impacts associated with the construction and operation of this above-ground feature; finally, the combination of financial, logistic, and timing constraints are not compatible with the proposed Project. Hess determined that to maximize the benefits of the project while minimizing impacts that it is advantageous to make use of existing infrastructure where available.

SECTION 4: LOCATION

4.1 CORRIDOR

Hess has identified a preferred Corridor, which is a one-mile-wide area centered upon the proposed pipeline Route. The selection of the proposed Corridor was a multi-disciplinary effort that included socio economic, environmental, logistics, engineering and financial considerations. The Corridor described in this application provides Hess with the opportunity to access existing operating assets, minimizes landowner impacts, and minimizes environmental impacts.

Hess owns and operates several assets in the region. The operations of these assets are conducted in a manner that maximizes overall value of the resource, which benefits regional stakeholders (producers, royalty owners, and the state, through tax revenues). Furthermore, the Corridor was developed to take advantage of available transmission capacity at the TRT.

Hess has initiated agency consultations, and performed internet-based research and desktop analysis of the Corridor. These efforts were augmented by site visits, including natural and cultural resource field surveys. These results are discussed in detail in the application for a Route Permit.

4.2 IDENTIFY AND MAP CRITERIA

The information presented in this section was developed to demonstrate conformation with the Commission's siting criteria for transmission facilities. Hess has conducted a thorough inventory of the Corridor and evaluated the resources that occur within it to sufficiently assess the compatibility of the Project with the PSC's siting criteria. The following sections identify and discuss the presence or absence of siting criteria within the Corridor. Where siting criteria are identified, the location of each is shown on the maps in Appendix B.

4.3 EXCLUSION AREA INVENTORY AND ANALYSIS

Exclusion areas are geographical areas that should be excluded from consideration when siting an energy transmission facility. A proposed corridor may contain exclusion areas, but exclusion areas may not encompass more than fifty (50) percent of the corridor width at any point, unless there is no reasonable alternative. The following table and text identify and discuss exclusion areas identified within the Corridor.

Exclusion Area	Within Corridor
Federal	
National Parks or Memorial Parks	No
Historic Sites, Districts, or Landmarks	Yes
Natural Landmarks or Monuments	No
Wilderness Areas	No
State	
Historic Sites, Monuments, or Historical Markers	No
Archaeological Sites	No
Parks	No
Nature Preserves	No
County	
Parks	No
Recreation Areas	No
Municipal Parks	No
Other	
Areas Critical to the Life Stages of Threatened and Endangered Animal or Plant Species	No
Areas where Animal or Plant Species that are Unique or Rare to this State would be Irreversibly Damaged	No

4.3.1 FEDERAL RESOURCE REVIEW

Hess initiated consultations with various Federal agencies and has conducted a comprehensive review of published information. Hess concluded that no national parks or memorial parks; natural landmarks or monuments; and no wilderness areas will be crossed or will be affected by the Project. Please refer to SECTION 2: Studies of this document for a comprehensive discussion of Hess’ consultations and Appendix C for reference.

Hess completed a Class I Cultural Resource Inventory of the Corridor. A subsequent Class III Cultural Resource Inventory was conducted of the survey corridor. These efforts identified a newly recorded segment of the historic Great Northern Railway. Hess will avoid impacts to this site. Please refer to SECTION 2: Studies of this document for a comprehensive discussion of Hess’ related consultations, and Appendices D and E for copies of field survey reports. Mitigation details are discussed in SECTION 4: Mitigative Measures of the Route Permit Application.

4.3.2 STATE RESOURCE REVIEW

Hess has confirmed through a combination of agency consultations, review of publicly-available information and field studies the absence of state parks, historic sites, monuments, historical markers, or nature preserves within the proposed Corridor. Please refer to SECTION 2: Studies of this document for a comprehensive discussion of Hess’ related consultations.

4.3.3 COUNTY RESOURCE REVIEW

Hess has confirmed through a combination of agency consultations, review of publicly-available information and field studies the absence of county parks or recreation areas, municipal parks, or parks owned by other subdivisions of government bodies within the proposed Corridor. Please refer to SECTION 2: Studies of this document for a comprehensive discussion of Hess' consultations and Appendix C for documentation of agency consultations.

4.3.4 AREAS CRITICAL TO THE LIFE STAGES OF THREATENED AND ENDANGERED ANIMAL OR PLANT SPECIES

Hess has conducted a comprehensive desktop review of the Corridor; these efforts were augmented with agency consultations and additional Hess-commissioned field surveys of the proposed Corridor to confirm presence or absence of critical habitat.

Please refer to Appendix C for documentation of the agency consultation as well as SECTION 2: Route Analysis and Findings of the application for a Route Permit for details of the field studies.

4.3.5 AREAS WHERE ANIMAL OR PLANT SPECIES THAT ARE UNIQUE OR RARE TO THIS STATE WOULD BE IRREVERSIBLY DAMAGED

Hess has engaged in federal and state agency consultations, reviewed published information regarding critical habitat, and conducted a desk top analysis of the Corridor for the purpose of assessing potential environmental impacts. Based on these studies, Hess has confirmed the absence of protected species and/or their critical habitats. Please refer to Section 2 of the Route Permit application for a detailed description of field studies, Section 4 for detailed mitigation measures, and Appendix C for supporting documentation of agency consultations.

4.4 AVOIDANCE AREA INVENTORY AND ANALYSIS

Avoidance areas are geographical areas that shall not be considered in the routing of a transmission facility unless, under the circumstances, it is shown that there is no reasonable alternative. A proposed corridor may contain avoidance areas, but may not encompass more than fifty (50) percent of the corridor width at any point, unless there is no reasonable alternative. The following table and text identify and discuss avoidance areas within the proposed Corridor.

Avoidance Area	Within Corridor
Federal	
Historic Districts	No
Wildlife Areas	Yes
Wild, Scenic or Recreational Rivers	No
Wildlife Refuges	No
Grasslands	No
State	
Wild, Scenic, or Recreational Rivers	No

Avoidance Area	Within Corridor
Game Refuges or Game Management Areas	No
Forests or Forest Management Areas	No
Grasslands	No
Other	
Other Historic Resources not meeting Exclusion Areas criteria	No
Areas of Known Geologic Instability	No
Areas within 500-Feet of a Residence, School, or Place of Business	No
Reservoirs and Municipal Water Supplies	No
Water Sources for Organized Rural Water Districts	No
Irrigated Land (not applicable to underground facilities)	NA
Areas of Recreational Significance which are not designated as Exclusion Areas	No

4.4.1 FEDERAL RESOURCE REVIEW

Hess managed a comprehensive review of publicly available information, Project-specific agency consultations and field studies of the proposed Corridor, which indicated the absence of designated or registered historic districts, or refuges, grasslands, or wild, scenic, or recreational rivers within the Corridor.

During consultations with the USFWS a Waterfowl Protection Area was identified in the northwest corner of the Corridor. Please refer to Appendix C for documentation of the agency consultation.

4.4.2 STATE RESOURCE REVIEW

Hess conducted a review of publicly available information and has concluded that there are no designated or registered state game refuges, game management areas, management areas, forests, forest management lands, grasslands, or wild, scenic, or recreational rivers within the Corridor.

4.4.3 HISTORICAL RESOURCES NOT MEETING EXCLUSION AREA CRITERIA

Hess commissioned a Class I Cultural Resource Inventory of the Corridor and a Class III Cultural Resource Inventory of the proposed pipeline Route. These studies identified and confirmed the presence of historical resources and Hess's final routing will avoid impacts to these sites.

Please refer to Section 2 of this document for a comprehensive discussion of ONEOK's consultations, and Appendices C and E for reference. Mitigation details are discussed in Section 4 of the Route Permit application.

4.4.4 AREAS OF KNOWN GEOLOGIC INSTABILITY

The North Dakota Geological Survey (NDGS) has recorded very few landslides within the approximately 1,536 square miles that includes the Project area on its Stanley Sheet (Sheet). This landslide Sheet encompasses the entire project footprint. The geomorphology of the project area can be characterized as gently rolling glacial topography which is stable and not prone to slides. There are 888 slides recorded on the Sheet representing approximately 0.05 percent of the total Sheet area. Regionally, the locations which are prone to slides are associated with the White Earth and Little Knife rivers. No landslides or topography that is susceptible to landslides is included in the project corridor

Additionally, North Dakota has not experienced an earthquake of sufficient magnitude to damage steel welded pipe or structural steel structures in recorded history. Sinkholes are known to occur in the region, but these are related to subsurface mining activities as opposed to limestone dissolution. Hess has determined that no mining activities are located in the in the Corridor or proposed Route.

4.4.5 AREAS WITHIN 500-FEET OF A RESIDENCE, SCHOOL OR PLACE OF BUSINESS

Hess utilized aerial photography to identify structures located within 500 feet of the proposed pipeline alignment. Field surveys were conducted of each structure to characterize the structure as rural residence, school or place of business. Hess confirmed that there are no occupied structures located within 500 feet of the proposed alignment.

4.4.6 RESERVOIRS AND MUNICIPAL WATER SUPPLIES

Hess has confirmed that the Corridor does not contain reservoirs or municipal water supply sources.

4.4.7 WATER SOURCES FOR ORGANIZED RURAL WATER DISTRICTS

Hess has utilized available data and noted the presence of seven wells located within the Corridor.

4.4.8 IRRIGATED LAND

This criterion does not apply to underground transmission facilities; as such, it is not applicable to this Project.

4.4.9 AREAS OF RECREATIONAL SIGNIFICANCE WHICH ARE NOT DESIGNATED AS EXCLUSION AREAS

Hess has confirmed that the Corridor does not contain any other areas of Recreational Significance.

4.5 SELECTION CRITERIA

The selection criteria require assessment of the environmental impacts and alterations to land use that may result from the siting of the proposed Project. Hess has successfully avoided or minimized negative effects to the maximum extent practicable.

4.5.1 AGRICULTURAL IMPACT ASSESSMENT

Agricultural Production: The Project will temporarily impact approximately 44 acres of private land in North Dakota. Once the construction is complete, the land will be restored to its pre-construction contours and land use, to the extent practicable. Hess will provide payments to landowners for crop loss resulting from Project construction.

Family Farms and Ranches: The Project will temporarily impact approximately 44 acres of private land in North Dakota. Prior to clearing, landowner fences will be braced and cut to allow the passage and operation of equipment; temporary gates and fences will be installed to control livestock where necessary. Once construction is complete, the land will be restored to its pre-construction contours and land use to the extent practicable. Fences and gates impacted by the project will be replaced in accordance with landowner agreements. Hess will negotiate easements with all affected landowners.

The Project will have minimal impact to lifestyle or farm/ranch operations once construction has been completed. Buried pipelines will not impact typical farm or ranch operations, and those areas directly impacted by construction will be restored to their pre-construction condition to the extent practicable.

Lands Suitable for Irrigation: This section is not applicable to buried pipelines (69-06-08-02.2h).

Surface Drainage: Standard pipeline construction techniques to be employed will not modify existing surface drainage patterns. Care will be taken throughout the construction process to minimize environmental impacts, including modification of drainage patterns. During restoration, those areas that were disturbed during construction shall be restored, the local topography shall be restored to its original contours, vegetation shall be reestablished, and impacts shall be minimal and temporary.

Ground Water: Groundwater resources in the project corridor include sedimentary rocks of the Fort Union Group of Tertiary age and glacial drift of Quaternary age. The Fort Union Formation includes the lower Tertiary aquifer and consists of alternating beds of sandstone, siltstone, and claystone; these commonly contain beds of lignite and sub-bituminous coal. The thickness of the Fort Union Formation in the Project area is variable, but in most location it is approximately 300 feet deep. The sandstone beds of the Fort Union are coarse grained and permeable. Wells finished in bedrock typically yield up to 50 gallons per minute, and wells finished in glacial drift can yield 300 gallons per minute.

The majority of the region is covered by relatively thin drift and only very local aquifers exist above the Fort Union Group. Water levels in these local aquifers compare with the regional water table which generally parallels the land surface. Groundwater divides are in the general areas of the surface-water divides. The piezometric surface generally slopes toward large drainages, such as Bennie Peer Creek.

Well data has been recorded by the State Water Commission for the area where the Project Site is proposed. Well data indicates that groundwater is located between 72-140 feet below the surface, and yields were less than 10 gallons per minute.

Subsurface excavations associated with the project will not extend to more than 10 feet below the ground surface. At that depth, the project will not intersect the groundwater table, nor will the project alter recharge rates or the infiltration, permeability, percolation of water into the groundwater reservoir. Additionally, the lateral movement and groundwater quality will not be affected by construction of the Project.

Surficial aquifer along streams and wetlands may be affected, but surficial aquifers are localized and typically do not provide a domestic water supply. Impacts to surficial aquifers will be minor and short term.

4.5.2 THE IMPACTS UPON

Noise-Sensitive Land Uses: The Project is located in a rural setting, effectively isolating it from the majority of sensitive receptors. Once constructed and in-service, normal pipeline operations are not audible.

Visual Effect on Adjacent Areas: The proposed Project will include the installation of six (6) MLVs. These facilities are small aboveground features which will be installed within the existing footprint of the TGP and TRT respectively. The visible piping and equipment are finished and maintained with a white painted surface. No other permanent aboveground features are to be installed as a part of the Project.

Extractive and Storage Resources: This Project will not impact any extractive or storage resources.

Wetlands, Woodlands, and Wooded Areas: A comprehensive desktop review of published data, including aerial photography and NWI data, was conducted to assess the presence or absence of wetlands, woodlands, and wooded areas. The review of the proposed Corridor confirmed the presence of these resources. Hess commissioned field surveys to identify and record the locations of these resources along the proposed Route. The results of these field studies will be used to determine a preferred alignment to minimize impacts to wetlands, woodlands, and wooded areas. Please refer to SECTION 2: Studies of the Corridor Certificate Application for a comprehensive discussion of Hess' consultations. See also Appendices C and D. Mitigation details are discussed in SECTION 4: Mitigative Measures of the Route Permit Application.

Radio and Television Reception, and other Communication or Electronic Control Facilities: Hess does not anticipate that the Project will impact radio, television, or other electronic control facilities.

Human Health and Safety: Hess' corporate Health and Safety policy meets or exceeds Federal and State laws, rules and regulations and is enforced equally with respect to both Hess' and contractor employees. The implementation of this policy promotes a safe and healthy workplace during construction and operation of all Hess' assets.

The design of TNGL has incorporated the use of MLVs at regular intervals. The purpose of the MLV is to segment the system and allow for the isolation of select portions of the system to facilitate maintenance in a safe and controlled manner. Additionally, in the event of an abnormal operating condition, MLVs can be closed as necessary to prevent an uncontrolled release of crude oil. Finally, the operation of the TNGL will be continuously monitored via Hess' Supervisory Control and Data Acquisition system, which is designed to shut in any section that exhibits abnormal operating parameters.

Animal Health and Safety: The wildlife currently inhabiting the Corridor are common and are generally mobile. The local wildlife inhabitants will be temporarily displaced by the Project without a measurable impact to the viability of these populations. No species of special concern are anticipated to experience direct impacts due to construction or operation of the Project.

Plant Life: All impacts will be temporary in nature and disturbed areas will be returned to pre-construction conditions, to the extent practicable. No species of special concern will be impacted by the Project.

4.6 POLICY CRITERIA

4.6.1 POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT

Hess will comply with requirements contained in the Corridor Certificate and Route Permit. Hess will conduct its activities with the objectives of providing a healthful and safe workplace for its employees, and preventing accidents and environmental incidents. All persons and firms providing service to Hess are required to conduct their work in compliance with environmental conditions, permit authorizations, and applicable regulations, and will be held accountable for their actions in that regard. Hess is committed to conducting its business in compliance with all applicable environmental laws and regulations. These laws, regulations and standards are designed to safeguard the environment, human health, wildlife, and natural resources.

4.6.2 LOCATION AND DESIGN

The Project will be located in Williams County, North Dakota, originating at the TGP located approximately 1-mile east of Tioga North Dakota, and terminating at the TRT

located approximately 1- mile southwest of Tioga North Dakota. Please refer to maps provided in Appendix B.

Three (3) pipelines will be installed as a part of this project, one 8-inch un-odorized propane pipeline (C3 Line), one 6-inch un-odorized butane pipeline (C4 Line) and one 6-inch other natural gas liquids pipeline (C5 Line); the pipelines will be co-located in the same right-of-way (ROW).

The proposed Project will include two (2) MLVs for each pipeline. These MLVs will be installed within the existing TGP and TRT facilities.

4.6.3 TRAINING AND UTILIZATION OF AVAILABLE LABOR IN THIS STATE FOR THE GENERAL AND SPECIALIZED SKILLS REQUIRED

The construction labor pool utilized by the Project will be primarily comprised of a non-local workforce because pipeline construction is a specialized niche construction market that relies extensively on skilled trades with specific knowledge of pipeline construction techniques. The primary contractor will be a non-local contractor, supplying specialized skilled labor. Hess will draw upon the local labor force to supply general laborers. The workforce is anticipated to reach a peak of approximately 50 personnel of which up to 10 percent could be local hires.

4.6.4 ECONOMIES OF CONSTRUCTION AND OPERATION

The Project represents a total investment of approximately \$4.05 million will be spent in Williams County, North Dakota on the TNGL pipeline and appurtenant facilities. Once constructed and in-service, the continued costs of maintenance and operation of the proposed pipeline are expected to be minimal.

4.6.5 USE OF CITIZEN COORDINATING COMMITTEES

Through its long-term corporate presence in the region, Hess has established and maintains a good relationship with the local community officials and the local population. These relationships provide multiple grass roots communication channels to inform local residents regarding the developments associated with the Project.

4.6.6 COMMITMENT OF A PORTION OF THE TRANSMITTED PRODUCT FOR USE IN THIS STATE.

The proposed Project will interconnect with existing facilities. The products that are currently handled, transferred, and shipped at these facilities are currently delivered to markets located out of the state.

4.6.7 LABOR RELATIONS

A plain maintains positive labor relations with its staff and contract work force and does not anticipate encountering any adverse labor relations on this Project. The labor market in the Project area is supportive of the oil and gas industry.

4.6.8 THE COORDINATION OF FACILITIES

Hess owns and operates all of the affected facilities; thus, coordination will be seamless and executed from within Hess' internal management systems.

4.6.9 MONITORING OF IMPACTS

Hess has operated pipeline gathering and station assets in the area since 1954 and through these operations has established and maintained positive landowner and community relationships throughout the region. Hess' operations reflect its commitment to corporate citizenship standards that are founded on integrity. Hess will monitor landowner concerns, if any, through its Land Department and will respond to all reasonable concerns. Similarly, Hess will monitor community concerns and will respond to all reasonable concerns brought to its attention by local community leaders. Hess is currently in the process of selecting a primary contractor for the construction of the Project, and will coordinate with this contractor with respect to the oversight responsibilities for construction activities. Environmental responsibilities shall be coordinated in the same manner.

4.6.10 UTILIZATION OF EXISTING AND PROPOSED RIGHTS-OF-WAY AND CORRIDORS

The TNGL pipeline route will parallel existing or proposed pipelines 100% of the total 3.6 miles of Project right-of-way.

4.6.11 OTHER EXISTING OR PROPOSED TRANSMISSION FACILITIES

The TNGL was designed to transport a maximum of 63,000 bpd of NGLs to the TRT for distribution throughout the United States and Canada. Market conditions and demand for transmission capacity will be taken into consideration when evaluating future development timing. Hess anticipates the conversion, from gathering service to transmission service, approximately 9.5 miles an existing 14-inch pipeline; approximately 2 miles would be collocated with the Project from MP 1.5 to the western terminus. No other transmission facilities are currently planned. Appendix F contains Hess' 10-Year Plan.

SECTION 5: MITIGATIVE MEASURES

5.1 LOCATION

The selection of the proposed Corridor was a multi-disciplinary effort that included socio economic, environmental, logistics, engineering and financial considerations. The Corridor described in this application meets the siting criteria, minimizes Project length, and utilizes existing Hess' assets, avoiding the need to build additional assets and thereby minimizing collateral environmental impacts.

Landowner considerations also factored into the Corridor selection. The proposed Corridor limits the number of potentially affected landowners while providing potential routing opportunities that would further minimize individual impacts to current land practices. All affected landowners will be compensated for Project impacts through negotiated easement agreements and payments for seasonal crop losses.

The proposed Corridor selection was influenced by environmental studies that suggested the area lacked sensitive features, such as critical wildlife habitat, major wetlands or waterbodies, or other unique environmental features. The proposed Corridor will allow routing options that will further minimize waterbody crossings and potentially avoid at least one waterbody crossing entirely. In addition to these routing considerations, compliance with environmental permits procured for the Project will serve to effectively mitigate the impacts of construction along the final approved route. Standard pipeline construction techniques will involve temporary impacts, but long-term or permanent impacts will be avoided through implementation of modern construction techniques, adherence to permit requirements, and avoidance of sensitive features identified during routing studies.

Hess owns and operates several assets in the region. Planning and development of these assets are conducted in a manner that maximizes the benefits to the region's resources. The proposed Corridor and Route will allow Hess to draw upon existing pipeline and facility assets in the region.

5.2 CONSTRUCTION

Construction of the proposed Project will be conducted in an orderly sequence designed to complete the Project in the minimum amount of time required to safely prepare the site, install the pipeline and restore the areas disturbed by construction.

Construction is estimated to require a minimum of 120 days from initial clearing to commissioning, with restoration to immediately follow. Construction techniques will be employed that minimize the area of ground disturbance, off-site deposition of sediments and long-term impacts to agricultural productivity. Construction activities shall conform to all applicable permit stipulations; these requirements are mandated by the agency and implemented by the Project sponsor for the purpose of minimizing impacts to the environment.

Restoration will immediately follow Project construction. Final grading will restore the original contours of the land, to the extent practicable. Disturbed areas will be prepared for re-seeding and restoration will be coordinated to meet landowner and applicable agency specifications.

5.3 OPERATION

Once constructed and put into service, the proposed Project will operate continuously, delivering crude NGLs from Hess' TGP to the TRT. Normal pipeline operations are imperceptible to the general public, as they are silent, buried and therefore not visible, and require only minimal aboveground activity. Standard operating procedures will conform to applicable DOT requirements, which include regular pipeline monitoring and periodic inspection; additionally, routine maintenance of the right-of-way will likely be required on a regular basis to remain in compliance.

SECTION 6: LIST OF PREPARERS

Tyler Bohan

Facilities Engineer
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B.S. Chemical Engineering, University of North Dakota. Mr. Bohan is a Facilities Engineer assigned to projects for both the Tioga Gas Plant and the Tioga Rail Terminal as part of Hess' Bakken asset development. As a Facilities Engineer his experience includes indentifying and developing optimization and replacement projects for Hess assets, coordinating the TGP Process Safety Management Program, and upholding Hess design specifications and safety practices in new construction projects and base oil and gas operations.

William McCarthy, C.W.B.

Senior Environmental Compliance Analyst
E3 Environmental, LLC, 817 Vandalia Street, St. Paul, MN 55114

M.S. Wildlife Biology, University of Minnesota – Twin Cities; and B.S. Wildlife Biology, Michigan State University. Mr. McCarthy is an environmental compliance analyst with 15 years of environmental consulting experience working with various energy assets and regulatory agencies. As a compliance analyst he has managed the environmental requirements for facility siting, pipeline routing, federal licensing, and various federal, state and local permits. Mr. McCarthy is a certified wildliffe biologist and in this role conducts and coordinates field studies, agency consulations, mitigation and avoidance plans.

Katie Schmidt, EIT

Environmental Engineer and Compliance Analyst
E3 Environmental, LLC, 817 Vandalia Street, St. Paul, MN 55114

B.S. Civil Engineering with an emphasis in Environmental Engineering-Iowa State University. Ms. Schmidt has pursued a career focused on regulatory compliance. Her experience includes providing permitting and compliance support associated with maintaining assets for safe and reliable distribution and transmission of energy throughout the continent. Ms. Schmidt has developed a broad working knowledge of NPDES construction stormwater compliance by working with distribution systems located in MN, OK, TX, LA and AR. Ms Schmidt also has extensive experience working with transmission assets involving COE permitting, ESA and SHPO consultations.

Judith Cooper. Ph.D.

Archaeologist/ Principle Investigator
SWCA, Inc., 116 North 4th Street, Suite 200, Bismarck, ND 58501

Ph.D. and M.A. Anthropology, Southern Methodist University and B.A. Anthropology, Pennsylvania State University. Dr. Cooper has over ten years of experience in North American archaeology and has worked on field (survey, testing, and recovery) and research projects in the northern Great Plains and Rocky Mountains. Dr. Cooper is experienced in federal and state cultural resources law and regulations, including Section 106 of the National Historic Preservation Act. As the Cultural Resources Lead in the SWCA's Bismarck office, she serves as a member of multi-disciplinary project teams to assure cultural resource concerns are appropriately addressed during the regulatory process.