

NORTH DAKOTA PUBLIC SERVICE COMMISSION

# Application for Certificate of Corridor Compatibility

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Hess Corporation RTF  
Tie-In 14" Crude Oil Pipeline Project

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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 (Plant), the Ramburg Truck Facility (RTF) and the Tioga Rail Terminal (TRT); all of which are located in Williams County, North Dakota. The proposed Hess RTF Tie-in to 14" Crude Oil Pipeline project (RTF Tie-in or Project) is a planned conversion of existing gathering pipelines into a crude oil transmission pipeline which will connect the RTF to the TRT.

The Project consists of three segments of existing pipe which are being repurposed to transport product between the RTF and the TRT. No new ground disturbance will be associated with the Project with the exception of a small amount of construction which would be wholly contained within the confines of the RTF and TRT properties. The proposed Project will be approximately 10.2 miles in length. The proposed Transmission Facility Corridor (Corridor) is comprised entirely of private land.

The conversion of this gathering line into a transmission pipeline places the Project under the purview of the North Dakota Public Service Commission (PSC or Commission); as such, Hess submits to the Commission 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 categories:

SECTION 1: DESCRIPTION

SECTION 2: STUDIES

SECTION 3: NEED FOR FACILITY

SECTION 4: LOCATION

SECTION 5: MITIGATIVE MEASURES

SECTION 6: LIST OF PREPARERS

To assist the PSC in its review of Hess' application, Hess has included with this application the information described in Section 49-22-09 of the Century Code, Factors to Consider in Evaluating Applications and Designation of Sites, Corridors, and Routes. This information can be found in Section 4.

## **SECTION 1: DESCRIPTION**

### **1.1 PURPOSE OF FACILITY**

The purpose of the Project is to transport crude oil between Hess's RTF and the TRT. From the TRT the product will be shipped to markets throughout the United States and Canada.

Hess estimates that the Project will cost approximately \$1.0 million to develop. The Project will include the conversion of an existing gathering pipeline to a 10.2 mile-long transmission pipeline.

### **1.2 TYPE AND SIZE OF FACILITY**

#### **1.2.1 TYPE**

The Project is a crude oil transmission pipeline project. The steel pipeline meets 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 conversion of an existing oil gathering pipeline to a crude oil transmission pipeline with the following specifications:

- One 14" Nominal Diameter Steel Pipe
  - ASME Class 300 Carbon Steel; API 5L, X-42 Std., HFI/ERW, FBE Coated Line Pipe
  - Wall Thickness of 0.500 inches; pipeline casing has been installed at State and US Highway crossings and Railroad crossings.
  - Maximum/Normal Operating Pressure: 740/100 psig
  - Maximum/Normal Throughput: 120,000/54,000 barrels per day (bpd)

The proposed Project includes two (2) mainline valves (MLV) for the transmission pipeline. These facilities meet DOT regulations and will allow for the isolation of select segments of the pipeline for inspection and maintenance purposes. The MLVs are installed within the existing RTF and TRT facilities. A block valve will be installed at the tie-in location at the RTF.

The valves will be actuated, fail safe, automated, and controlled by both the local actuation and by a 24-hour Hess Control Center located in the City of Tioga, North Dakota. Please see Appendix A for engineering documents.

#### **1.2.3 LENGTH**

The proposed Project is approximately 10.2 miles in length.

#### **1.2.4 LOCATION**

The Project will be located in Williams County, North Dakota, originating at the RTF located approximately 7.5 miles south of the city of Tioga, North Dakota, and terminating at the TRT located approximately 1 mile west of Tioga. Please refer to the project maps provided in Appendix B.

#### **1.2.5 ABOVEGROUND FACILITIES**

The proposed Project includes two (2) MLVs located within the existing RTF and TRT facilities, as well as a block valve to be installed at the tie-in location at the RTF. These facilities will meet DOT regulations and will allow for the isolation of select segments of the pipeline for inspection and maintenance purposes.

### **1.3 PROJECT SCHEDULE**

#### **1.3.1 CERTIFICATE OF CORRIDOR COMPATIBILITY**

Hess is seeking a Certificate of Corridor Compatibility in or before January 2013.

#### **1.3.2 ROUTE PERMIT**

Hess submitted an application for a Route Permit in November, 2012 as part of this Consolidated Application for a Certificate of Corridor Compatibility and Route Permit.

Hess is seeking a Route Permit in or before January 2013.

#### **1.3.3 CONSTRUCTION SCHEDULE**

Hess has scheduled construction to commence as early as the first quarter of 2013. All ground-disturbing construction activities associated with the Project will be contained within the boundaries of the RTF and TRT facilities. Construction is expected to take approximately four (4) weeks to complete. Commissioning activities will commence immediately after construction.

## **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 evaluated the construction of new assets and new routing versus utilizing existing assets and infrastructure. Hess concluded that the repurposing of the existing gathering pipeline greatly reduces impacts to the environment and the local infrastructure by avoiding a large-scale construction project across the landscape.

Hess has completed advance routing analysis as a function of 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 Appendix B.

A comprehensive desktop analysis of the Corridor was augmented with a Class I Cultural Resource Inventory and consultations with the Federal and state agencies identified below. The results of this environmental analysis are summarized in SECTION 2.2: Environmental Desktop Analysis in this document. 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 (NDSHPO)
- North Dakota Department of Health (NDDoH)

## **2.2 ENVIRONMENTAL DESKTOP ANALYSIS**

### **2.2.1 WILDLIFE INVENTORY**

Approximately 160 wildlife species are residents or seasonal visitors to the Missouri River ecosystem, and hundreds of native fish species live in the river and its tributaries. Some of the 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 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 which result in the loss of natural habitats often include 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, amphibians 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 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 habitats (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 results of these studies are included in Appendix D and proposed mitigation is detailed in SECTION 4: Mitigative Measures of the Route Permit application.

### **2.2.2 WETLAND AND WATERBODIES ANALYSIS**

Desktop analysis of aerial photography and National Wetland Inventory (NWI) maps were 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 one (1) wetland basin was identified as potentially occurring along the proposed centerline. The desktop review also identified three (3) unnamed waterways within the proposed Corridor.

Hess commissioned additional field studies of the Corridor and, more specifically, the proposed Route, to delineate wetland and waterbody boundaries. The results of these studies are included in Appendix D and proposed mitigation is detailed in SECTION 4: Mitigative Measures of the Route Permit application.

### **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 typically be associated either with a cultivated windrow feature or a natural feature, such as waterbody. More commonly, woody vegetation is associated 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. The results of these studies are included in Appendix D and proposed mitigation is detailed in SECTION 4: Mitigative Measures of the Route Permit application.

## **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. On behalf of Hess, E3 Environmental, LLC (E3) requested a Project review of the Corridor by USFWS on July 9, 2012 and received comments as described below in a consultation dated October 9, 2012.

#### **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.

- 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 describing 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:

**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.

**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. In the October 9, 2012 consultation response, the USFWS noted that potential crane habitat is located within the project Corridor. Hess commissioned surveys of the route and developed mitigation plans for environmental resources identified within the route. Please refer to Section 4: Mitigative Measures of the Route Permit application for additional details.

**Piping Plover:** The Piping 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 River is frequently cited by the USFWS as a location within the region that is known to host breeding populations of Piping Plovers. The Project is a minimum of 9 miles from the Missouri River and does not intersect it at any point. No suitable habitat is present within the Corridor. In the October 9, 2012 response, the USFWS did not provide comments specific to the Piping Plover.

**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 River is frequently cited by the USFWS as a location within the region

that is known to host breeding populations of Least Terns. The Project is a minimum of 9 miles from the Missouri River and does not intersect it at any point. No suitable habitat is present within the Corridor. In the October 9, 2012 response, the USFWS did not provide comments specific to the Least Tern.

**Pallid sturgeon:** The preferred habitat of the pallid sturgeon 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 extensive microhabitat diversity. Portions of the Missouri River are thought to provide the required habitat for the pallid sturgeon; however, 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.*, a minimum of 9 miles), the Project will not affect the pallid sturgeon. In the October 9, 2012 response, the USFWS did not provide comments specific to the pallid sturgeon.

### **2.3.1.2 MIGRATORY BIRD TREATY ACT CONSULTATION**

On July 9, 2012, 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 and active in North Dakota from February 1 through July 15 annually. In their October 9, 2012 response to the consultation request, the FWS recommended a construction schedule that avoids this period. If construction were to take place during this interval, MBTA mitigation may be required. The current Project schedule avoids this sensitive timeframe. This, combined with the lack of any large-scale ground disturbance or construction activity across the landscape, will allow Hess to avoid impacting MBTA species of concern. Hess will continue to consult with agencies as necessary regarding this subject and shall develop MBTA mitigation as required. Please see Appendix C for related agency 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 July 9, 2012, 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. In the October 9, 2012 response, the USFWS did not provide comments specific to Bald or Golden Eagles. See Appendix C for related consultations.

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 early June and early September of 2011, and in March and August of 2012. 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**

The USFWS administers National Wildlife Refuges and Waterfowl Production Areas as well as wetland and grassland easements throughout North Dakota. In the October 9, 2012 consultation response from the USFWS, the agency noted that USFWS property interests are located in the planning area. See Appendix C for a copy of the correspondence.

#### **2.3.2 U.S. FARM SERVICE AGENCY**

On July 12, 2012, 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 responded in a phone conversation on August 7, 2012 noting that they did not have any concerns regarding the Project. See 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 July 9, 2012, E3 initiated 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 August 6, 2012, the NDGFD responded confirming the absence of state-managed lands. The NDGFD also stated that given that ground disturbance will be limited to the confines of the RTF and TRT properties; the agency does not believe the Project will have any significant adverse effects on wildlife or wildlife habitat. The NDGFD requested that any unavoidable wetland impacts be mitigated and that disturbed features crossed by the Project are restored and reclaimed to pre-project conditions. 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 July 9, 2012, E3 initiated 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 August 23, 2012 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 NDSLDD is in charge of managing surface acres and mineral interests held in trust for various schools and institutions. On July 12, 2012, E3 initiated consultations with the NDSLDD requesting comments regarding the presence of school trust lands within the Corridor; the NDSLDD responded on the same day confirming the absence of school trust lands within the Project Corridor. See Appendix C for a copy of this correspondence.

On July 12, 2012, E3 initiated consultations with the NDSLDD requesting comments regarding the presence or absence of state mineral trust lands within the Corridor. The NDSLDD responded on July 16, 2012 confirming mineral trust lands are present within the proposed Project Corridor. However, there will be no ground-disturbing activities in the areas where mineral trust lands are present; as such, there is no need for any further avoidance or mitigation. 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. This research was completed May 2, 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 Project identified 21 previously recorded cultural resource sites located within the proposed Corridor. These results of this inventory were used to prepare 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. As there are no new ground-disturbing construction activities taking place outside the boundaries of Hess facilities, the Project will not require agency 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 storm water, site dewatering and hydrostatic discharge permits. Hess will obtain the following NDPDES permits from the NDDoH.

**Construction Stormwater:** Coverage under the NDR10-0000 *Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination System* general permit for construction sites will not be required as there will be no ground-disturbing activities associated with the Project.

**Hydrostatic test water discharges:** Hess will be seeking coverage under the NDG07-0000 *Authorization to Discharge Under the North Dakota Pollutant Discharge Elimination System* general permit as necessary for any temporary discharges associated with the Project.

### **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. Studies conducted by the North Dakota Department of Mineral Resources and U.S. Geologic Survey (USGS) in 2010 estimated mean undiscovered volumes of 3.65 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 natural gas liquids. 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 Project will provide firm, reliable service for 54,000 barrels of crude oil per day and provide a critical link between the RTF 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 54,000 bpd of crude oil from the RTF to the TRT for transport to markets throughout the United States and Canada primarily, with a maximum capacity to transport up to 120,000 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:**

This alternative would leave the region constrained by limited transport capacity for safe and reliable transmission of crude oil products to markets. 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 alternative was reviewed and eliminated due to the volume of crude oil produced at the Plant. The maximum capacity of the pipeline is equal to an estimated 120,000 barrels or 5,040,000 gallons of crude, the majority of which would be subscribed by daily production from the Plant. The average load for a truck carrying crude oil is approximately 7,500 gallons per truck. Thus, it will require 667 trucks per day to be loaded at the RTF, an average of 27.8 trucks every hour for 24 hours a day. Similarly it would require these 667 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's 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*.

**Greenfield Development Alternative:**

This alternative was reviewed and eliminated due to the higher costs, extended timelines, and increased ground disturbance associated with traditional pipeline construction relative to repurposing existing pipelines. In pursuing this option, Hess would have been required to strike new easements with landowners and to pinpoint and gain access to existing corridors for collocation. In addition, this alternative would increase environmental impacts associated with construction activities, and carries a risk of encountering cultural and natural resources along the route. For these reasons, Hess rejected a *Greenfield Development Alternative*.

## **SECTION 4: LOCATION**

### **4.1 CORRIDOR**

Hess has identified a preferred Corridor, which is a one-mile-wide area centered upon the proposed pipeline alignment. 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 utilize 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 Route Permit application.

### **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.

<b>Exclusion Area</b>	<b>Within Corridor</b>
<b>Federal</b>	
National Parks or Memorial Parks	No
Historic Sites, Districts, or Landmarks	No
Natural Landmarks or Monuments	No
Wilderness Areas	No
<b>State</b>	
Historic Sites, Monuments, or Historical Markers	No
Archaeological Sites	Yes
Parks	No
Nature Preserves	No
<b>County</b>	
Parks	No
Recreation Areas	No
Municipal Parks	No
<b>Other</b>	
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 or memorial parks, natural landmarks or monuments, or 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' agency consultations and Appendix C for copies of the documents.

#### **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.

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 both previously recorded and newly recorded cultural resources. As there are no ground-disturbing activities associated with this Project, Hess will avoid impacts to these sites. Please refer to SECTION 2: Studies of this document for a comprehensive discussion of Hess' related consultations, and Appendix E for the Cultural Resource report. Mitigation details are discussed in SECTION 4: Mitigative Measures of the Route Permit Application.

#### **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 field surveys of the proposed Corridor to confirm presence or absence of critical habitat.

Please refer to Appendix C for documentation of the agency consultations 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 desktop 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 geographic areas that shall not be considered in the routing of a transmission facility unless it is shown that there is no reasonable alternative under the circumstances. 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.

<b>Avoidance Area</b>	<b>Within Corridor</b>
<b>Federal</b>	
Historic Districts	No
Wildlife Areas	Yes
Wild, Scenic or Recreational Rivers	No
Wildlife Refuges	No
Grasslands	No
<b>State</b>	
Wild, Scenic, or Recreational Rivers	No
Game Refuges or Game Management Areas	No
Forests or Forest Management Areas	No
Grasslands	No
<b>Other</b>	
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)	N/A
Areas of Recreational Significance which are not designated as Exclusion Areas	No

#### **4.4.1 FEDERAL RESOURCE REVIEW**

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

During consultations with the USFWS, Service property interests were identified within the planning area of the Project. Further communication with the USFWS regarding these lands is ongoing. 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; however, there will be no impacts to these sites given the absence of ground-disturbing activities related to the Project.

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 in the approximately 1,536 square miles depicted on the NDGS' *Areas of Landslides, Stanley 100K Sheet, North Dakota* map. This landslide map encompasses the entire footprint of the proposed Project. 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 in this geographic area, representing approximately 0.05 percent of the total area depicted on the map. Regionally, the locations which are prone to slides are associated with the White Earth and Little Knife rivers. Topography that is susceptible to landslides does not occur in the project area, and no landslides have been recorded 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 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**

Desktop analysis confirmed the presence of ten (10) 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 FACTORS TO CONSIDER IN EVALUATING APPLICATIONS AND DESIGNATION OF SITES, CORRIDORS, AND ROUTES**

#### **4.5.1 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 due to the lack of ground-disturbing activities outside of Hess facility boundaries.

##### **4.5.1.1 AGRICULTURAL IMPACT ASSESSMENT**

**Agricultural Production:** The Project will not impact private land in North Dakota. All ground-disturbing activities will occur within the fenced confines of the RTF and the TRT.

**Family Farms and Ranches:** The Project will not impact private land in North Dakota. All ground-disturbing activities will occur within the fenced confines of the RTF and the TRT.

The Project will have no impact to lifestyle or farm/ranch operations as no construction activities will be taking place on private lands. Ground-disturbing activities will take place only within the confines of Hess facilities. Buried pipelines will not impact typical farm or ranch operations.

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

**Surface Drainage:** As there are no ground-disturbing activities taking place outside of the Hess facilities, there will be no modification to existing surface drainage patterns.

**Ground Water:** Groundwater resources in the 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 Project area. Well data indicates that groundwater is located between 72-140 feet below the surface, and yields were less than 10 gallons per minute.

No subsurface excavations will be associated with this Project as there will be no new ground disturbance. As such, 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 quality of groundwater will not be affected by the Project. Surficial aquifer along streams and wetlands will also not be affected.

#### **4.5.1.2 THE IMPACTS UPON**

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

**Visual Effect on Adjacent Areas:** The proposed Project will include the installation of a block valve at the tie-in location at the RTF. These facilities are small aboveground features which will be installed within the existing footprint of the facility. 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. Please see Appendix A for engineering documents.

**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. Please refer to SECTION 2: Studies in this document for a comprehensive discussion of Hess' consultations, as well as Appendices C and D for copies of the consultations. 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 the Project 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 pipeline 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 is common and is generally mobile. The local wildlife inhabitants will not be displaced by the Project with no 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:** There will be no impacts to plant life as there is no ground disturbance associated with the Project. 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 RTF located approximately 9-miles south of the city of Tioga, and terminating at the TRT located approximately 1-mile southwest of Tioga. Please refer to maps provided in Appendix B.

One (1) pipeline will be converted from a natural gas gathering line to a crude oil transmission pipeline as a part of this Project, and will include two (2) MLVs. These features are installed within the existing RTF and TRT facilities.

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

The Project will require minimal labor with a variety of backgrounds ranging from general laborers and welders to inspectors and engineers. Hess will draw upon the local labor force to supply project personnel. The workforce is anticipated to reach a peak of approximately 20 personnel.

#### **4.6.4 ECONOMIES OF CONSTRUCTION AND OPERATION**

The Project represents a total investment of approximately \$1.0 million to be spent in Williams County, North Dakota on the conversion of the pipeline and appurtenant facilities. Once 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**

Hess 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 entire Project right-of-way is collocated with other utilities. Segment E is collocated with four (4) gathering pipelines, one (1) fuel gas pipeline, three (3) PSC regulated product lines, and two (2) fiber optic cables. Segment B is collocated with one (1) gathering pipeline and one (1) sales pipeline. Segment C is collocated with two (2) gathering pipelines. As such 100% of the Project will utilize existing and proposed right-or-way.

#### **4.6.11 OTHER EXISTING OR PROPOSED TRANSMISSION FACILITIES**

The RTF Tie-in was designed to transport a maximum of 120,000 bpd of product 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 plans to install three (3) NGL product pipelines connecting the Hess Tioga Gas Plant to the newly-built TRT. Construction of these pipelines is anticipated to occur within the next five years. See Appendix F for 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 Project as proposed limits the number of potentially affected landowners and minimizes individual impacts to current land practices. Ground disturbance for the Project would be limited to that within Hess-owned facilities; no other land owners will be affected.

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 avoids all waterbody crossings, and will not have an impact on the surrounding natural environment.

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 limited to the installation of tie-in lines, a block valve at the tie-in location, and two (2) MLVs. All construction activities will take place on the RTF and TRT properties.

Construction is estimated to require a total of 4 weeks. All ground-disturbing activities will take place within Hess-owned facilities.

### **5.3 OPERATION**

Once converted and put into service, the proposed Project will operate continuously, delivering crude oil from Hess' RTF 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  
Hess Corporation, 10384 68<sup>th</sup> Street Northwest, Tioga, ND 58852

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 identifying 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 wildlife biologist and in this role conducts and coordinates field studies, agency consultations, mitigation and avoidance plans.

### **Andrea Sampson**

Associate Consultant  
E3 Environmental, LLC, 817 Vandalia Street, St. Paul, MN 55114

B.A. Environmental Studies – University of St. Thomas, St. Paul, MN. Ms. Sampson is a compliance specialist and throughout her career she has emphasized energy related projects. Her experience includes providing permitting and siting support associated with energy transmission projects located across the Upper Midwest. Ms. Sampson has experience in all levels of federal, state and local permitting. She has recently worked on several ND PSC filings and has managed agency consultations and construction permitting related to these projects.

**Judith Cooper. Ph.D.**

Archaeologist/ Principle Investigator

SWCA, Inc., 116 North 4<sup>th</sup> 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.