



**Federal Energy
Regulatory
Commission**

**Office of
Energy
Projects**

June 2018

Steel Reef Pipelines US LLC

Docket No. CP18-24-000

Saskatchewan Pipeline Project Environmental Assessment



Washington, DC 20426

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TECHNICAL ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Properties
BIA	U.S. Department of Interior Bureau of Indian Affairs
Certificate	Certificate of Public Convenience and Necessity
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH ₄	methane
CO	carbon monoxide
CO ₂	carbon dioxide
Commission	Federal Energy Regulatory Commission
DOT	U.S. Department of Transportation
EA	Environmental Assessment
EI	Environmental Inspector
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act of 1973
FERC	Federal Energy Regulatory Commission
FWS	U.S. Fish and Wildlife Service
GHG	greenhouse gas
HAP	hazardous air pollutants
HDD	horizontal directional drilling
HAP	hazardous air pollutant
HUC	Hydrologic Unit Code
L _{eq}	equivalent sound level
L _{dn}	day-night sound level
NAAQS	National Ambient Air Quality Standards
NDGFD	North Dakota Game and Fish Department
NEPA	National Environmental Policy Act of 1969
NGA	Natural Gas Act of 1935
NHPA	National Historic Preservation Act of 1966
NO ₂	nitrogen dioxide
NDSWC	North Dakota State Water Commission
NO _x	nitrogen oxides
N ₂ O	nitrous oxide
NOI	<i>Notice of Intent to Prepare an Environmental Assessment for the Proposed Saskatchewan Pipeline Project and Request for Comments on Environmental Issues</i>
NSA	noise sensitive area
NRHP	National Register of Historic Places
O ₃	Ozone
OEP	Office of Energy Projects
Petro Harvester	Petro Harvester Oil & Gas, LLC

Plan	<i>FERC Upland Erosion Control, Revegetation, and Maintenance Plan</i>
PM _{2.5}	particulate matter less than 2.5 microns in diameter
PM ₁₀	particulate matter less than 10 microns in diameter
Project	Saskatchewan Pipeline Project
Secretary	Secretary of the Commission
SHPO	State Historic Preservation Officer
SSA Project	South Saskatchewan Access Pipeline Project
Steel Reef	Steel Reef Pipelines US LLC
SO ₂	sulfur dioxide
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
VOC	volatile organic compounds

Environmental Assessment
Saskatchewan Pipeline Project

Steel Reef Pipelines US LLC (Steel Reef)
Docket No. CP18-24-000

A. Proposed Action

1. Purpose, Need, and Proposed Facilities

Steel Reef filed an application on December 8, 2017, indicating its plans to construct and operate its Saskatchewan Pipeline Project (Project), consisting of a 250-foot-long bended 10.75-inch-diameter pipeline along with aboveground facilities including a meter station, a remote telemetry unit, a custody transfer point, and a pig trap launcher (see figure 1 in appendix A). Steel Reef states that the Project's purpose is to permit the transport of up to 30 million standard cubic feet per day of sour (unprocessed) natural gas from the United States to Canada. Currently, the originating gas wells that would produce this gas are under development in Burke County and would be connected to the Project by a non-jurisdictional project (Petro Harvester Project) discussed below in sections A.3 and A.5.

The Federal Energy Regulatory Commission (FERC or Commission) is the federal agency responsible for evaluating applications pursuant to section 3 of the Natural Gas Act (NGA) for natural gas import and export facilities, and for Presidential Permits which are necessary pursuant to Executive Order 10485 when export/import facilities are to be constructed at international borders. Under Section 3 of the NGA, the FERC considers all factors bearing on the public interest as part of its decision to authorize natural gas facilities. Specifically, regarding whether to authorize natural gas facilities used for importation or exportation, the FERC shall authorize the proposal unless it finds that the proposed facilities will not be consistent with the public interest.

Section 3 of the NGA also requires prior approval from the U.S. Department of Energy (DOE) for the import or export of natural gas from or to a foreign country. Section 3(c) of the NGA, as amended by section 201 of the Energy Policy Act of 1992 (Public Law 102-148), requires that applications to the DOE Office of Fossil Energy for the import and export of natural gas from and to any nation with which the United States currently has, or in the future will have, a Free Trade Agreement be deemed consistent with the public interest and granted without modification or delay.

We¹ prepared this environmental assessment (EA) to discuss the environmental impacts of the proposed action, assess reasonable alternatives to avoid or minimize adverse effects on the environment, and identify specific mitigation measures, as necessary, to minimize impacts.

¹ "We", "us", and "our" refer to the environmental staff of the Office of Energy Projects (OEP).

This EA will be used by the Commission in its decision-making process whether to authorize Steel Reef's proposal.

No federal agencies elected to participate as cooperating agencies in the preparation of the EA.

2. Public Review and Comment

On January 11, 2018, the Commission issued a *Notice of Intent to Prepare an Environmental Assessment for the proposed Saskatchewan Pipeline Project and Request for Comments on Environmental Issues* (NOI). The NOI was sent to affected landowners; federal, state, and local government agencies; elected officials; environmental and public interest groups; other interested parties; and local libraries and newspapers. In response to the NOI, the Commission received comments from the U.S. Department of Interior's Bureau of Indian Affairs (BIA) and the North Dakota State Water Commission (NDSWC). Following the NOI comment period, we also received a letter from the Chippewa Cree Cultural Resources Preservation Department. All comments are addressed in the applicable sections of this EA.

3. Land Requirements

Steel Reef would construct the Project within a square-shaped block of temporary right-of-way with dimensions of 160 feet by 212 feet, totaling 0.75 acre. The completed Project would reside within an L-shaped permanent right-of-way with a typical pipeline right-of-way width of 65 feet, totaling 0.35 acre. This permanent right-of-way would enclose the pipeline and aboveground facilities within a 0.14 acre 70-foot by 90-foot fenced-in site. Although Steel Reef has identified areas where extra workspace would be required, no additional workspaces are proposed. Additional or alternative workspaces could be identified in the future due to changes in site-specific construction requirements. Steel Reef would be required to file information on each of those areas for our review and approval prior to use.

The Project would use an access pad during operations to be constructed by the adjacent Petro Harvester Project, a non-jurisdictional facility to be built by Petro Harvester Oil & Gas, LLC (Petro Harvester) described below in this section and in section A.5. No waterbodies or wetlands are located within the Project's construction work limits. The permanent right-of-way for the Project would be maintained in a combination of impervious industrial cover (gravel and pavement) and mowed herbaceous cover.

Steel Reef would obtain a shared land use agreement with Petro Harvester. Petro Harvester already has a lease for the Petro Harvester Project. The Petro Harvester Project's aboveground facility would be confined within a fenced-in site located immediately adjacent to the east and south sides of the Project's temporary right-of-way limits. Including the Project's temporary 0.75-acre right-of-way, the Petro Harvester Project's site would comprise a 5.2-acre 450-foot by 500-foot fenced-in site during construction and operation. Petro Harvester would convert its entire fenced-in site to industrial use, permitting no agriculture following

construction. Thus, the Project's entire right-of-way would be converted to industrial use with no continuation of agriculture during operations. While the Petro Harvester lease does not currently contain any facilities, Petro Harvester intends to construct its project starting in June 2018 for operations beginning in September 2018.

4. Construction, Operation, and Maintenance

Steel Reef would design, construct, and operate the Project facilities in accordance with the U.S. Department of Transportation (DOT) Minimum Federal Safety Standards in Title 49 Code of Federal Regulations (CFR) Part 192. Steel Reef would use conventional pipeline construction methods along its proposed pipeline including clearing, grading, ditching, stringing, bending, welding, lowering in, backfilling, regrading, hydrostatic testing, cleanup and restoration. No blasting would be required for pipeline installation.

The pipeline would be hydrostatically tested in accordance with 49 CFR 192 to verify pipeline integrity and ability to withstand designed maximum operating pressures. Approximately 52,000 gallons of water used for hydrostatic testing would be appropriated from a local Canadian municipality and would be returned to Canada for disposal. If hydrostatic testing occurs when temperatures are below freezing, water with an anti-freezing depressant additive mixture would be rented and returned to a local Canadian supplier.

Steel Reef would use the horizontal directional drilling (HDD) method to install 135 feet of the pipeline to the International Boundary. This HDD would continue for another 605 feet into Canada in order to cross the International Boundary as well as a roadway and wetland on the Canadian side. Steel Reef would use the United States side for its entry point and the Canadian side for the exit side and to locate its HDD pullback area. The Project pipeline would be buried at a minimum depth of 5 feet where trenching is used, and up to 40 feet in depth where the HDD method would be used.

HDD techniques are often used to cross waterbodies and areas where conventional trenching could produce unacceptable environmental impacts or disturbance of existing uses. The HDD method involves drilling a pilot borehole under the waterbody, or targeted feature, then enlarging that borehole through successive reaming until the borehole is large enough to accommodate the pipe. For HDD construction, drilling equipment would be set up at the entry point on one side of the targeted feature; on the other side (exit side) of the targeted feature, pipe for the crossing would be strung out and welded along the right-of-way or within a pullback area that lines up with the drill path. During HDD operations, bentonite-based drilling mud would be pumped under pressure through the inside of the drill pipe and would flow back (circulate) to the drill entry/exit point along annular space between the outside of the drill pipe and the drilled hole.

The pipe would be hydrostatically tested before being pulled through the drill hole. Vegetation clearing along the HDD path would be restricted to within the permanent right-of-way and performed in the same manner as in non-HDD areas to allow for proper patrol during

HDD activities and operation and maintenance. Additional discussion on HDD risks to environmental resources is in section B.1.

Steel Reef proposes to begin construction in June 2018 and for an anticipated in-service date of October 2018. Steel Reef would construct the Project with separate Canadian and United States crews. The total construction workforce in the United States would vary between 6 and 12 people depending on which construction activities are taking place. This includes the survey, construction, hydrostatic testing, and inspection personnel. Work would be typically performed using 12-hour work days (7:00 am to 7:00 pm), 7 days per week, with a total Project construction period of 2-4 weeks depending on weather.

Steel Reef would employ its environmental consultants to inspect and monitor the Project for environmental compliance during construction and restoration. The consultants would function as environmental inspectors. Steel Reef would maintain compliance with permit and agency requirements, and the permits are listed in table 1.

5. Non-jurisdictional Facilities

Occasionally, projects have associated facilities that are constructed in support of a project, but do not come under the jurisdiction of the FERC. Such non-jurisdictional facilities are often constructed upstream or downstream of the jurisdictional facilities for the purpose of delivering, receiving, or using the proposed gas volumes. The Project would interconnect with two non-jurisdictional pipelines; the non-jurisdictional Petro Harvester Project on its southern end in the United States and the non-jurisdictional South Saskatchewan Access Pipeline Project (SSA Project) at the International Boundary.

Petro Harvester Project in North Dakota, United States

The Petro Harvester Project would transport approximately 3-percent sour natural gas eastward that would be gathered from gas wells currently being developed by Petro Harvester within Burke County, North Dakota. Petro Harvester would construct and operate a 4.5-mile-long 8-inch-diameter connector pipeline as part of its overall planned Petro Harvester Project, which is a planned intrastate gathering line system. An aboveground facility site would include a fenced-in 5.2-acre site adjacent to the Project. This site would contain a:

- pig launcher,
- slug catcher,
- condensate storage tank,
- 25-foot-high flare stack, and
- header system for potential future addition of a 3-unit compressor station (approximately 1,350 horsepower total).

The Petro Harvester Project's pipeline would proceed mostly westward from the Project for 4.5 miles. Petro Harvester would also build an access road on the southwest side of its

aboveground facility extending south 1.4 miles to Burke County Highway 2 by improving and extending township road 80th Avenue NW.

The Petro Harvester Project would require 70 acres of temporary construction right-of-way, which includes 43 acres of permanent right-of-way for the pipeline and aboveground facilities. The pipeline right-of-way width required would be 100 feet for construction and 50 feet for operations. The land use would be primarily cultivated wheat cropland with several crossings of emergent wetlands. No wetlands would be impacted by the aboveground facilities. A majority of wetlands that would be crossed by the Petro Harvester Project's pipeline have been confirmed by the U.S. Army Corps of Engineers (USACE) to be non-jurisdictional waters of the United States and thus would not require a permit from the USACE. The Petro Harvester Project would cross lands that are encumbered by waterfowl easements owned by the U.S. Fish and Wildlife Service (FWS). If a trenchless crossing method is used to cross these encumbered easements, it would not require a permit from the FWS. The North Dakota Industrial Commission would regulate the construction and operation of this pipeline. Prior to construction, the North Dakota Department of Health Division of Water Quality would require an amendment to its Stormwater Pollutant Prevention Plan currently held by Petro Harvester.

Petro Harvester estimates that operations of the Petro Harvester Project would incur annual impacts of approximately 73 tons per year of NO_x and 70 tons per year of CO. The Project is in an Attainment area for all criteria contaminants. It is not expected that the emissions from the compression engines would cause or contribute to an exceedance of NO₂, PM_{2.5}, or CO National Ambient Air Quality Standards during their operation due to their relatively low emissions (approximately 2 grams per second total for all three units).

Petro Harvester may install and operate in the future up to three 450-horsepower General Electric Waukesha Series Four natural gas-fired engines at its proposed header system facilities. Given that the nearest noise sensitive area (NSA) is located more than one mile from the Project, this level of noise would not likely be distinguishable from ambient noise levels.

Because the timing and location of construction of this project would overlap with the proposed action, we have considered this project in our cumulative impact analysis in section B.8 of this EA.

South Saskatchewan Access Pipeline Project, Canada

The Project would interconnect with Steel Reef's planned 2.2-mile-long 10.75-inch-diameter pipeline SSA Project at the International Boundary. The SSA Project would transport natural gas from the International Boundary to an existing natural gas processing plant owned by Steel Reef Infrastructure Corporation near North Portal in Saskatchewan, Canada. Steel Reef estimates that construction of this pipeline would take about 30 days. As the SSA Project occurs entirely within Canada, it is not assessed further in this EA.

6. Permits

Applicable permits and approvals for the Project would be obtained by Steel Reef prior to construction (see table 1).

Table 1 - Environmental Permits, Approvals, and Consultations		
Permit/Approval	Administering Agency	Status
Federal		
NGA 3 Authorization	Federal Energy Regulatory Commission	Application submitted December 8, 2017. Pending.
Endangered Species Act and Migratory Bird Treaty Act	U.S. Fish and Wildlife Service (FWS), North Dakota Field Office	Consultation initiated February 13, 2018. FWS concurred on February 14, 2018.
International Boundary Commission	United States Section; Canadian Section	December 11, 2017. Approval January 16, 2018.
State		
State Threatened and Endangered Species Consultation and Clearance	North Dakota Game and Fish Department	North Dakota Game and Fish Department defers consultation for protected species to the FWS.
Section 106 National Historic Preservation Act (NHPA) Consultation	North Dakota State Historical Society	Submitted survey reports on February 23, 2018. Concurrence received on March 1, 2018 that the proposed Project would have no effects on historic properties.
Local		
Local municipal construction permits and approval.	Burke County, North Dakota	Pending. Steel Reef would coordinate with Burke County on local permitting requirements prior to work activities.

The NDSWC commented that a state water permit would be required if Steel Reef would divert any groundwater or surface water for construction of the Project. Given that Steel Reef would not use surface water for hydrostatic testing, that water obtained would be from the local municipality, and that it would use only a short length of trenching to install the pipeline, it is unlikely that a state water permit would be required.

B. Environmental Analysis

The following analysis describes the environmental resources and the potential affects resulting from the installation and operation of the facilities. Based on our review of Steel Reef's proposal and the lands required for the Project, we have determined that installing and operating the facilities would not impact the following:

- public use areas (national or state forests and parks, and wild and scenic rivers);
- wetlands or waterbodies (Project does not cross or is not located within 150 feet of any wetlands or waterbodies); and
- groundwater resources (proposed trenching and HDD methods would expose a small amount of surface for short duration).

Because these resources would not be affected by the Project, we are not addressing them further in this analysis.

1. Geology and Soils

The Project is located in the Drift Prairie physiographic region within the Central Lowland physiographic province (Armstrong, 1971; Sun and Weeks, 1991). Topographic conditions include gently undulating glaciated plains with low relief occupied by frequent shallow depressions serving as prairie potholes. The underlying bedrock units are relatively deep and the surface strata is comprised of collapsed glacial sediment consisting of mixed clay, silt, sand pebbles and some boulders (U.S. Geological Survey [USGS], 2017).

According to the Seismicity Map of North Dakota, no earthquakes are recorded in North Dakota within 50 miles of the Project through 1979 (Reagor et al., 1981). Little indication exists that earthquakes have originated in South Dakota in recent years. The USGS lists two small earthquakes originating in mid-South Dakota in 2012, and two others originating 70 miles away in Montana during 1982 and 1998 (USGS, 2018). The USGS states lists North Dakota among ten states that are least likely to suffer earthquake damage. Thus, the seismic risk is very low for the area. USGS mapping does not identify any karst features in the area (Weary and Doctor, 2014). Carbonate bedrock strata that could lead to bedrock dissolution and karst development is generally quite deep (>50 feet) in the area (Weary and Doctor, 2014). Subsidence risk is considered low given the lack of karst terrain and lack of intensive groundwater withdrawal.

Steel Reef has determined that, given its consultations with the North Dakota Paleontological Resource Management Program concerning the use of trenching and HDD methods, its activities would be unlikely to result in a negative impact on paleontological resources (Boyd, 2017). According to the North Dakota Geological Survey, there are no active or significant inactive mines located within 0.25 mile of the Project (Kruger, 2017). Two active oil and gas wells are located approximately 1.25 miles from the Project and would not be affected by construction or operation. Given the lack of potential for modification of

the bedrock strata, we conclude that the Project would have no significant impacts on geologic resources or hazards.

The Project lies within well-drained Williams-Zahl loams on 3 to 6 percent slopes (Natural Resource Conservation Service, 2017). This soil series is not hydric, does not frequently flood or pond, and is not prone to compaction or wind and water erosion. It is considered a farmland soil of statewide importance and is not considered prime farmland soil.

Temporary and potential long-term impacts on soils from construction include erosion, mixing of topsoil and subsoil, compaction, and rutting in excessively, wet soils. Steel Reef would implement our *Upland Erosion Control, Revegetation and Maintenance Plan* (Plan), which contains measures for avoiding and mitigating potential soil impacts. These measures include topsoil stripping, avoidance of construction in excessively, wet soils or in inordinately windy conditions, protection of stockpiled soil from wind erosion, use of standard erosion control practices, proper discharge of trench water, and limiting unnecessary construction traffic.

Horizontal Directional Drilling

Length of an HDD alignment, pipeline diameter, and subsurface material are factors in the technical feasibility of an HDD installation. Subsurface conditions that can affect feasibility of an HDD installation include excessive rock strength and abrasivity, poor rock quality, solution cavities, and artesian conditions. Because the drilling mud is pressurized, it can be lost, resulting in an inadvertent release of drilling mud to the ground surface if the drill path encounters a pathway of less resistance such as porous material and/or fractures or fissures in the bedrock. Chances for an inadvertent release to occur increase near the drill entry and exit points where the drill path has the least amount of ground cover. Steel Reef has designed the HDD profile (depth and length) based on site-specific conditions to minimize the risk of inadvertent release.

Steel Reef's use of the HDD method would minimize direct impacts on soils and vegetation along the HDD alignment. However, HDDs have an inherent risk of unanticipated release of drilling fluids to the ground surface during drilling. Steel Reef has not submitted geotechnical documentation or a feasibility assessment verifying that the proposed drill is likely to succeed, or specific measures to reduce the likelihood of or minimize potential impacts from inadvertent releases of drilling fluid during HDD activities. **Therefore, we recommend that:**

- **Prior to commencing HDD construction, Steel Reef should file with the Secretary of the Commission (Secretary) for review and written approval by the Director of the Office of Energy Projects (OEP):**
 - a) **the results of site-specific geotechnical investigations conducted (including a description of the subsurface lithology along the drill path, standard**

penetration test results, soil mechanic properties/Atterberg limits, and/or rock coring results including core recovery, and rock quality designation for each bedrock core run [depict the lithology, standard penetration test results and rock quality designation data on each HDD profile]);

- b) an HDD feasibility study conducted by a qualified contractor including an analysis of the potential for hydrofracture and an inadvertent return to the ground surface using the USACE Delft method (or equivalent) for crossings through unconsolidated material, and/or a qualitative analysis for an inadvertent return through bedrock utilizing rock quality designation values obtained from bedrock cores;
- c) a description of any subsurface conditions that were identified as a result of geotechnical investigations that may increase the risk of drill complications (e.g., unplanned inadvertent returns, drill hole collapse, contamination), and a description of the measures that Steel Reef would implement to minimize these risks;
- d) a description of Steel Reef's planned frequency of the HDD alignment monitoring activities and how Steel Reef would ensure the monitoring activity records are maintained, by whom, and the availability of this documentation for agency review;
- e) a description of how inadvertent release of drilling mud to the ground surface would be contained and cleaned up;
- f) a commitment that if drill hole abandonment is necessary, abandonment procedures would be approved by the appropriate permitting and regulatory agencies (including the FERC) prior to implementation; and
- g) a commitment that Steel Reef would report incidents involving drilling mud circulation loss and inadvertent returns to the ground surface in the biweekly status reports.

The drilling fluid for the HDD would consist of bentonite mixed with fresh water obtained from a local North Dakota municipality. Steel Reef estimates that 16,000 gallons of water would be required for the HDD. If additives in addition to bentonite are determined necessary to complete the HDD, we recommend that:

- **Prior to commencing HDD construction, Steel Reef should file with the Secretary for review and approval by the Director of OEP a list of any additional drilling fluid additives that could be used, as well as the Safety Data Sheets for each additive, and an affirmative statement that Steel Reef would utilize only pre-approved, non-petrochemical-based, non-hazardous additives that comply with permit requirements and environmental regulations.**

Drilling mud remaining after drilling from the entry pit (in North Dakota) would be disposed of in a well-vegetated upland area, hauled to an approved facility, or properly

disposed in another fashion (e.g., as an agricultural amendment). To fully comply with the FERC Plan at section III.E, we recommend that:

- **Prior to construction, Steel Reef should file an affirmative statement with the Secretary, that if Steel Reef intends to dispose of drilling mud in upland areas or as an agricultural amendment, Steel Reef would conduct laboratory testing of excess drilling mud for inorganic and organic environmental contaminants to ensure that such use would not result in adverse environmental impact or otherwise conflict with landowner or land management agency approvals or permit requirements.**

Although it is anticipated that most drilling mud returns would be to the entry pit, any drilling mud from the exit pit (in Saskatchewan, Canada) would be disposed of in accordance with the Saskatchewan Drilling Waste Management Guidelines.

Based on Steel Reef's proposed use of the HDD method, adherence to our Plan and above recommended HDD mitigation measures, we conclude that the Project's impacts on soils would be adequately minimized.

2. Vegetation, Wildlife, and Threatened and Endangered Species

The Project would impact approximately 0.75 acre of agricultural land comprised of durum wheat. No other vegetation types would be affected by the Project. We conclude that impacts on vegetation would be negligible and not significant.

The Project is located on active agricultural land, which would not be conducive to wildlife habitat. One bird species, killdeer, was observed in the Project area during the field habitat assessment. Construction-related noise would likely result in avoidance of the area by any wildlife in the vicinity of the Project. However, this impact would be limited to the relatively short duration of construction (1 month). Additionally, no suitable breeding habitat for migratory birds would be affected by the Project. Further, Steel Reef would restore all temporarily disturbed areas in accordance with its Plan. Therefore, we conclude that the Project would not significantly impact wildlife and migratory birds.

As identified on the Project's Official Information for Planning and Conservation species list obtained from the Federal Register (2015), FWS (1987; 2015a; 2015b), and North Dakota Game and Fish Department ([NDGFD], 2017a; 2017b), the northern long-eared bat, piping plover, red knot, whooping crane, Dakota skipper, and the gray wolf are potentially present in the area. The area lacks (1) forested areas for the northern long-eared bat; (2) wide, flat, open sandy beaches with little vegetation for the piping plover; (3) marine habitats or alkaline or freshwater lakes for the red knot; (4) wetlands or cropland ponds for the whooping crane; and (5) remnant (untilled) high quality prairie habitats dominated by native grasses for the Dakota skipper. Because the area lacks suitable habitat for the northern long-eared bat, piping plover, red knot, whooping crane, and the Dakota skipper, we conclude that the Project

would have no effect on these species. Therefore, no further consultation is necessary for these species.

The Project is located within an active agricultural field and would not contain preferred habitat for the gray wolf, which consists of areas with minimal human interaction with a year-round prey base. Construction-related noise would likely result in avoidance of the area by any gray wolves in the vicinity. However, these impacts would be temporary and limited to the relatively short construction timeframe (1 month). Therefore, we conclude that the Project may affect, but is not likely to adversely affect the gray wolf. As our non-federal representative, Steel Reef submitted a consultation letter to the FWS dated February 13, 2018. The FWS concurred on February 14, 2018. We agree.

The State of North Dakota does not keep a list of state threatened or endangered species, but rather adopts the federal list for North Dakota established by the Endangered Species Act. The NDGFD thus defers consultation for protected species to the FWS. There are no defined state focal areas or sensitive habitat within the Project limits.

3. Land Use and Visual Resources

The Project would occur in cultivated crop land (wheat). Steel Reef would permanently convert 0.14 acres of its permanent right-of-way housing its aboveground facilities to industrial use. This would result in a minor but permanent impact to agricultural land use. Mitigation measures employed by Steel Reef include soil protective and restoration best management practices. Although Steel Reef would restore all temporarily disturbed areas in accordance with our Plan, we note that the Petro Harvester non-jurisdictional facility would preclude agricultural land use within the Project's temporary and permanent rights-of-way, as Petro Harvester intends to convert surfaces to a combination of impervious coverage and mowed herbaceous vegetation.

Sight impacts are expected to be insignificant given the small stature of the Project's aboveground facilities, comprised of a small meter station run and remote telemetry unit. These facilities would not be readily visible over the large distances to the nearest residences (see figure 2 in Appendix A). Given the remoteness of the location and abundance of cultivated agricultural land adjacent to the Project, we conclude that impacts on land use would be distinct but minor and impacts to visually sensitive resources would not be significant.

4. Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA) requires that all federal agencies take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Properties (ACHP) an opportunity to comment. Historic properties are archaeological sites, historic districts, buildings, structures, objects, or properties of traditional, religious, or cultural importance that are listed on or eligible for the National Register of Historic Places (NRHP). Steel Reef is assisting us by providing information,

analyses, and recommendations, as allowed by the regulations for implementing Section 106 at Part 800.2(a)(3), and FERC's regulations at 18 CFR 380.12(f). FERC remains responsible for all findings and determinations under Section 106. This section summarizes the current status of compliance with the NHPA for this Project.

Consultations

We sent copies of our NOI issued January 11, 2018 for the Saskatchewan Pipeline Project to a wide range of stakeholders, including other federal agencies, such as the ACHP, the U.S. Department of the Interior's National Park Service, BIA, and Bureau of Land Management; and state and local agencies, such as the North Dakota State Historic Preservation Officer (SHPO). The NOI contained a paragraph about Section 106 of the NHPA, stating our use of the notice to initiate consultations with the SHPO, to solicit their views and those of other government agencies, interested Indian tribes (Tribes), and the public on the Project's potential effects on historic properties. The SHPO did not respond to our NOI.

On January 12, 2018, the BIA indicated that Indian Tribes or Tribal members may have fee lands in the vicinity of the Project. However, Steel Reef stated that the pipeline would only cross privately-owned lands; and stated that no Tribal lands would be affected. The BIA stated that it had no environmental objections to the Project.

Tribal

On April 9, 2018, FERC sent letters to the following 21 Tribes requesting comments about the Project: Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation in Montana; Blackfeet Nation of Montana; Cheyenne River Sioux Tribe of South Dakota; Chippewa Cree Indians of the Rocky Boy Reservation in Montana (Chippewa Cree); Crow Creek Sioux Tribe of South Dakota; Fort Belknap Indian Community of Montana; Lower Brule Sioux Tribe of South Dakota; Lower Sioux Community of Minnesota; Minnesota Chippewa Tribe; Northern Arapaho Tribe of the Wind River Reservation in Wyoming; Northern Cheyenne Tribe of Montana; Oglala Sioux Tribe of South Dakota; Rosebud Sioux Tribe of South Dakota; Shakopee Mdewakanton Sioux Community of Minnesota; Sisseton-Wahpeton Oyate Tribe of South Dakota; Spirit Lake Nation of North Dakota; Standing Rock Sioux Tribe of North Dakota; Three Affiliated Tribes of the Fort Berthold Reservation in North Dakota; Turtle Mountain Band of Chippewa Indians in North Dakota; Upper Sioux Community of Minnesota; and Yankton Sioux Tribe of South Dakota. Two Tribes (Blackfeet Nation of Montana and Chippewa Cree) responded, indicating an interest in the Project.

On May 8, 2018, the Chippewa Cree wrote a letter to the Commission recommending that a pedestrian inventory be conducted for the Project, and that a Tribal monitor should be present during construction. In a May 11, 2018 filing with FERC, Steel Reef stated in response to our data request concerning the Tribe that it had already conducted an archaeological survey of the Project. In addition, the company agreed to allow a Tribal

cultural monitor on-site during Project construction. We therefore conclude that the Chippewa Cree's concerns have been addressed.

In addition to FERC's consultations, Steel Reef sent letters on August 21, September 21, and October 17, 2017 to the following 12 Tribes: Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation in Montana; Chippewa Creek; Keweennaw Bay Indian Community; Lower Brule Sioux Tribe; Northern Arapaho Tribe; Northern Cheyenne; Spirit Lake Nation of North Dakota; Standing Rock Sioux Tribe of North Dakota; Three Affiliated Tribes of the Fort Berthold Reservation in North Dakota; Turtle Mountain Band of Chippewa Indians in North Dakota; Upper Sioux Community of Minnesota; and Yankton Sioux Tribe of South Dakota. Responses were received from the Upper Sioux Community of Minnesota and Northern Cheyenne Tribe of Montana; who deferred to closer tribes.

State Historic Preservation Officer

In a letter dated August 16, 2017, Steel Reef introduced the Project to the SHPO. On August 17, 2017, Steel Reef met with the SHPO and the SHPO requested an inventory survey. Steel Reef revised the Project area in a letter to the SHPO dated September 6, 2017. On September 20, 2017 and February 23, 2018 Steel Reef provided reports to the SHPO for review and comment. On September 25, 2017 and March 1, 2018, the SHPO provided comments that the Project would have no effects on historic properties.

Investigations

The area of potential effects (APE) is the "geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties" (36 CFR 800.16d). The APE for direct effects includes the area that may be affected by construction and operation of the Project. The indirect APE takes into account visual, auditory, and atmospheric effects on historic properties. The Project consists of a 250-foot-long pipeline in Burke County, North Dakota. The Project would impact about 0.75 acre during construction in the United States. Steel Reef defined the APE to include a 200-foot-wide corridor around the pipeline. The SHPO did not object to the APE when it accepted the revised inventory report on March 1, 2018. We find the APE as defined by Steel Reef acceptable.

Steel Reef provided an Ethnographic Report with an emphasis on the Assiniboine and Sioux Tribes related to the Saskatchewan Pipeline Project. Steel Reef conducted an on-the-ground (Class III pedestrian) inventory of the Project on September 12, 2017. No cultural resources were identified in the APE.

Unanticipated Discovery Plan

Steel Reef provided an Unanticipated Discovery Plan, included as Attachment F to Resource Report 4, of its application to the FERC. The SHPO accepted the plan in a letter dated March 1, 2018. We agree.

Compliance with the National Historic Preservation Act

Steel Reef consulted with the SHPO regarding the potential effects to cultural resources. The SHPO did not object to the APE and stated that the Project would have no effects on historic properties. The FERC staff and the SHPO agree that the Project would have no effects on historic properties.

5. Air Quality

Federal and state air quality standards are designed to protect human health. The U.S. Environmental Protection Agency (EPA) has developed National Ambient Air Quality Standards (NAAQS) for criteria air pollutants such as oxides of nitrogen (NO_x) and carbon monoxide (CO), sulfur dioxide (SO₂), and inhalable particulate matter (PM_{2.5} and PM₁₀). PM_{2.5} includes particles with an aerodynamic diameter less than or equal to 2.5 micrometers, and PM₁₀ includes particles with an aerodynamic diameter less than or equal to 10 micrometers. The NAAQS were set at levels the EPA believes are necessary to protect human health and welfare. Volatile organic compounds (VOC) are regulated by the EPA mostly to prevent the formation of ozone, a constituent of photochemical smog. Many VOCs form ground-level ozone by reacting with sources of oxygen molecules such as NO_x in the atmosphere in the presence of sunlight. NO_x and VOCs are referred to as ozone precursors. Hazardous air pollutants (HAP) are also emitted during fossil fuel combustion and are suspected or known to cause cancer or other serious health effects; such as reproductive effects or birth defects; or adverse environmental effects.

Greenhouse Gases (GHG) produced by fossil-fuel combustion are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). GHGs status as a pollutant is not related to toxicity. GHGs are non-toxic and non-hazardous at normal ambient concentrations, and there are no applicable ambient standards or emission limits for GHG under the Clean Air Act. GHGs emissions due to human activity are the primary cause of increased atmospheric concentration of GHGs since the industrial age. These elevated levels of GHGs are the primary cause of warming of the climatic system. During construction of the Project, these GHGs would be emitted from construction equipment.

If measured ambient air pollutant concentrations for a subject area remain below the NAAQS criteria, the area is considered to be in attainment with the NAAQS. The Project areas are in attainment for all NAAQS.

The Clean Air Act is the basic federal statute governing air pollution in the United States. We have reviewed the following federal requirements and determined that they are not applicable to the proposed Project:

- New Source Review;
- Title V;

- National Emissions Standards for Hazardous Air Pollutants;
- New Source Performance Standards;
- Greenhouse Gas Reporting Rule; and
- General Conformity of Federal Actions

During construction, a temporary reduction in ambient air quality may result from criteria pollutant emissions and fugitive dust generated by construction equipment. The quantity of fugitive dust emissions would depend on the moisture content and texture of the soils that would be disturbed. Fugitive dust and other emissions due to construction activities generally do not pose a significant increase in regional pollutant levels; however, local pollutant levels could increase.

There would be no emissions of criteria pollutants from the pipeline during operation. Minor fugitive emissions would be expected from the meter station. However, they would not result in any significant impact to local or regional air quality.

Based on our review of the estimated emission levels from construction and operation of the Project, taking into account the distance of the nearest residences and short duration of construction activities, we conclude there would be no significant impacts on air quality.

6. Noise Impacts

The noise environment can be affected both during construction and operation of pipeline projects. The magnitude and frequency of environmental noise may vary considerably over the course of the day, throughout the week, and across seasons, in part due to changing weather conditions and the effects of seasonal vegetative cover. Two measures to relate the time-varying quality of environmental noise to its known effect on people are the 24-hour equivalent sound level (L_{eq}) and day-night sound level (L_{dn}). The L_{eq} is the level of steady sound with the same total (equivalent) energy as the time-varying sound of interest, averaged over a 24-hour period. The L_{dn} is the L_{eq} plus 10 decibels on the A-weighted scale (dBA) added to account for people's greater sensitivity to nighttime sound levels during late evening and early morning hours (between the hours of 10:00 p.m. and 7:00 a.m.). The A-weighted scale is used because human hearing is less sensitive to low and high frequencies than mid-range frequencies. The human ear's threshold of perception for noise change is considered to be 3 dBA; 6 dBA is clearly noticeable to the human ear, and 10 dBA is perceived as a doubling of noise.

Construction noise is highly variable. Many construction machines operate intermittently, and the types of machines in use at a construction site change with the construction phase. The sound level impacts from construction activities would depend on the type of equipment used, the duration of use for each piece of equipment, the number of construction vehicles and machines used simultaneously, and the distance between the sound source and receptor. Steel Reef plans one HDD crossing underneath the International Boundary. We estimate that construction noise, including HDD activities, could reach levels of up to 92 dBA at 50 feet from the Project work limits, resulting in a noise impact level of 45-

51 dBA at one mile from the Project, below our noise level criteria of 55 dBA. Nighttime noise is not anticipated given Steel Reef's intention to construct during daylight hours only (7:00 am to 7:00 pm). There are no occupied structures and no noise-sensitive areas within one mile of the Project. Therefore, given these considerations, we find that there would be no significant construction noise impacts.

The proposed meter station would also be a source of noise during operation of the Project. We estimate that a meter station emanating a relatively loud level of noise of 85 dBA at 50 feet would result in a noise level of less than 44 dBA at a distance of one mile from the Project, below our noise level criteria of 55 dBA. Therefore, we conclude that the pipeline would have no significant operational noise impacts.

Because of the temporary nature of construction activities and lack of permanent aboveground facilities that would emit noise at long distances, we conclude that no significant noise impacts are anticipated from construction or operation of the proposed Project.

7. Reliability and Safety

The transportation of natural gas by pipeline involves some risk to the public in the event of an accident and subsequent release of gas. The greatest hazard is a fire or explosion following a major pipeline rupture. Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death.

The pipeline and aboveground facilities associated with the project must be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures.

The DOT pipeline standards are published in Parts 190-199 of Title 49 of the CFR. For example, Part 192 of 49 CFR specifically addresses natural gas pipeline safety issues, prescribes the minimum standards for operating and maintaining pipeline facilities, and incorporates compressor station design, including emergency shutdowns and safety equipment. Part 192 also requires a pipeline operator to establish a written emergency plan that includes procedures to minimize the hazards in a natural gas pipeline emergency.

The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials.

Facilities associated with the Project must be designed, constructed, operated, and maintained in accordance with DOT standards, including the provisions for written emergency plans and emergency shutdowns. Steel Reef would provide the appropriate training to local

emergency service personnel before the facilities are placed in service.

Pipeline construction and operation would represent a minimum increase in risk to the public and we are confident that with the options available in the detailed design of Steel Reef's facilities, that they would be constructed and operated safely.

8. Cumulative Impacts

In accordance with NEPA, we identified other actions located in the vicinity of the proposed Project facilities and evaluated the potential for a cumulative impact on the environment. As defined by the Council on Environmental Quality (CEQ), a cumulative effect is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions, taking place over time. In general, small-scale projects with minimal impacts of short duration do not significantly contribute to cumulative impacts.

This cumulative effects analysis generally follows a method set forth in relevant CEQ and EPA guidance and focuses on potential impacts from the proposed Project on resource areas or issues where the incremental contribution would be potentially significant when added to the potential impacts of other actions. To avoid unnecessary discussions of insignificant impacts and projects and to adequately address and accomplish the purposes of this analysis, an action must first meet the following three criteria to be included in the cumulative analysis:

- affect a resource potentially affected by the Project;
- cause this impact within all, or part of, the Project's impact area; and
- cause this impact within all, or part of, the time span for the potential impact from the Project.

Resources Affected by the Project

Our cumulative impacts analysis considers actions that impact environmental resources affected by the proposed action, within all or part of the Project area affected by the proposed action (i.e., Project), and within all or part of the time span of the impacts. As described in the environmental analysis section of this EA, constructing and operating the Project would result in some temporary and permanent impacts on the environment. Given the small scale and short duration of construction activities, and Steel Reef's implementation of mitigation measures, the Project would not impact or would have minor and highly localized impacts on geologic resources and hazards, soils, groundwater, surface water, wetlands, vegetation, wildlife, cultural resources, and air and noise quality. Therefore, we conclude that the impacts from this Project, when considered cumulatively with past, present, and reasonably foreseeable projects, would not contribute to significant cumulative impacts on these resources, and these resources will not be discussed further in this section.

Geographic Scope

We use a geographic scope to determine which of the other actions could affect resources affected by the proposed action within all or part of the Project area. Actions located outside the geographic scope are generally not evaluated because their potential to contribute to a cumulative impact diminishes with increasing distance from the Project.

The geographic scope is a series of resource-specific proximity criteria which we use in this cumulative impacts analysis to describe the geographical limits within which the Project could contribute to cumulative impacts. The geographic scope for our analysis of cumulative impacts varies depending on the resources affected and the magnitude of impact. For the most part, the geographic scope is limited to the area directly affected by the Project and, depending on the resources, in the adjacent areas.

Based on the Project impacts identified and described in this EA and consistent with CEQ and EPA guidance (CEQ, 1997; EPA, 1999; USGS, 2013), we have determined that the following resource-specific geographic scopes are appropriate to assess potential cumulative impacts on land use and endangered species:

- impacts on endangered species: endangered species and their habitat could extend outside of the workspaces but would generally be contained to a relatively small area within or adjacent to proposed Project work limits. We conclude the watershed scale is most appropriate to evaluate impacts as it provides a natural boundary to accommodate general wildlife habitat and ecology characteristics in the Project area. Therefore, we assessed impacts within a geographic scope defined by the USGS Hydrologic Unit Code (HUC-12); and
- impacts on land use: given that land uses are by definition locally restricted, we assessed impacts within a geographic scope defined by a 1.0 mile radius of the Project.

Projects Within the Geographic Scope

An evaluation was performed to identify past, present, and reasonably foreseeable future projects within the resource-specific geographic scopes for potential cumulative impacts in conjunction with the Project. Steel Reef consulted information from the South Dakota Burke County Planning & Zoning Commission and Petro Harvester. Only the Petro Harvester Project was identified as being within any of the resource-specific geographic scopes. Other close by projects occurring outside the geographic scope consisted of a windmill farm, an organic grains rail facility, and a natural gas electric generation plant. These would be located 8 to 15 miles from the Project and not begin construction until 2019. Because of its limited scope, the Project would not have a meaningful contribution to cumulative impacts at a larger geographic scale. Therefore, effects of these more distant projects were not assessed because their impacts would not be additive with those of the Project.

Endangered Species

As previously discussed, the Project area would be located within an active agricultural field and would not contain preferred habitat for the gray wolf, which consists of areas with minimal human interaction with a year-round prey base. We concluded, and the FWS concurred that the Project may affect, but is not likely to adversely affect the gray wolf. The Petro Harvester Project would also be primarily constructed in active agricultural land. While construction of the Project and the non-jurisdictional facility would convert 5.2 acres to industrial land, there is abundant similar habitats in the surrounding area. Therefore, we conclude that the cumulative effect on gray wolves and their habitat would not be significant

Land Use

The primary land use in the Project area consists of cultivated agriculture. Steel Reef and the Petro Harvester Project would bury the proposed pipeline facilities and restore soil profile restored to pre-construction contours following construction. The pipeline portion of the Petro Harvester Project would be permitted to return to pre-construction cultivated agriculture, thereby limiting the long-term impacts to agriculture in areas further away from the aboveground facilities. Agricultural activities within the shared aboveground facility site would be interrupted during construction and likely not permitted to continue during operations for either the Project or the Petro Harvester Project. This permanent conversion of 5.2 acres of cultivated cropland to industrial land use would result in a distinct but minor cumulative impact on land use. However, aboveground facilities proposed for both projects would be limited in extent and closely positioned together to maximize the compactness of the facilities' footprint. The dominant extent of additional cultivated agriculture within the surrounding landscape would lessen the adverse impact on farming by the projects. Steel Reef's and Petro Harvester's implementation of construction mitigation and ground restoration measures establishing a stable protective cover of industrial surfaces and mowed herbaceous cover across the shared site would protect soils during operations. We conclude that the Project would not contribute to any significant long-term cumulative land use impacts in combination with other projects.

C. Alternatives

In accordance with NEPA and Commission policy, we evaluated alternatives to the Project. Our evaluation criteria included whether the alternatives would: 1) provide a significant environmental advantage over the Project; 2) meet the Project's stated objectives; and 3) be technically and economically feasible and practical.

Under the no-action alternative, Steel Reef would not construct the Project. While this alternative would eliminate the potential impact on the environment, Steel Reef's stated purpose would not be met, to permit the transport of up to 30 million standard cubic feet per day of sour (unprocessed) natural gas from the United States to Canada. Other natural gas companies could construct projects to substitute for connecting the upstream and downstream non-jurisdictional pipelines identified in section A.5. Such alternative projects could require the construction of additional and/or new pipeline facilities to connect to the same custody transfer point to transport the gas volumes proposed by the Project. These projects would result in their own set of specific environmental impacts that could be equal to or greater than those described for the current proposal. Thus, we did not consider further the no-action alternative.

The Project's proposed natural gas pipeline route was selected to traverse the shortest distance necessary to provide the necessary interconnection with the custody transfer point proposed to be constructed along the Petro Harvester Project and SSA Project's proposed pipeline route. Given the limited construction impacts and lack of sensitive resources in the Project area, we did not identify any substantial adverse impacts of the Project's pipeline route. Therefore, we did not identify any route alternatives that could provide a significant environmental advantage over the proposed route. Therefore, we conclude that the proposed action is the preferred alternative to meet the Project objectives.

D. Staff's Conclusion and Recommendations

Based on the analysis in this EA, the mitigation measures proposed by Steel Reef, and the implementation of our recommendations below, we have determined that if constructed in accordance with its application and supplements, approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment.

If the Commission authorizes the proposed Project, we recommend that the Commission order contain a finding of no significant impact and include the following mitigation measures to any certificate the Commission may issue.

1. Steel Reef shall follow the construction procedures and mitigation measures described in its application and supplements including responses to staff data requests and as identified in the environmental assessment (EA), unless modified by the Order. Steel Reef must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (Secretary);
 - b. justify each modification relative to site-specific conditions;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
 - d. receive approval in writing from the Director of the Office of Energy Projects (OEP) **before using that modification.**
2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of all environmental resources during construction and operation of the project. This authority shall allow:
 - a. the modification of conditions of the Order;
 - b. stop-work authority; and
 - c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from project construction and operation.
3. **Prior to any construction**, Steel Reef shall file an affirmative statement with the Secretary, that all company personnel, environmental inspectors (EIs), and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.

4. The authorized facility locations shall be as shown in the EA, as supplemented by filed alignment sheets. **As soon as they are available, and before the start of construction**, Steel Reef shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.
5. Steel Reef shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**.

This requirement does not apply to extra workspace allowed by the Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan* and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

- a. implementation of cultural resources mitigation measures;
 - b. implementation of endangered, threatened, or special concern species mitigation measures;
 - c. recommendations by state regulatory authorities; and
 - d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.
6. **Within 60 days of the acceptance of the authorization and before construction begins**, Steel Reef shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. Steel Reef must file revisions to the plan as schedules change. The plan shall identify:
 - a. how Steel Reef will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;

- b. how Steel Reef will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
- c. the number of EIs assigned, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
- d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
- e. the location and dates of the environmental compliance training and instructions Steel Reef will give to all personnel involved with construction and restoration (initial and refresher training as the project progresses and personnel change);
- f. the company personnel (if known) and specific portion of Steel Reef 's organization having responsibility for compliance;
- g. the procedures (including use of contract penalties) Steel Reef will follow if noncompliance occurs; and
- h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
 - (1) the completion of all required surveys and reports;
 - (2) the environmental compliance training of onsite personnel;
 - (3) the start of construction; and
 - (4) the start and completion of restoration.

7. Steel Reef shall employ at least one EI for the project. The EI shall be:

- a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
- b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;
- c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
- d. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
- e. responsible for maintaining status reports.

8. Beginning with the filing of its Implementation Plan, Steel Reef shall file updated status reports with the Secretary on a **biweekly** basis until all construction and restoration activities are complete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

- a. an update on Steel Reef's efforts to obtain the necessary federal authorizations;

- b. the construction status of the project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally-sensitive areas;
 - c. a listing of all problems encountered and each instance of noncompliance observed by the EIs during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
 - d. a description of the corrective actions implemented in response to all instances of noncompliance, and their cost;
 - e. the effectiveness of all corrective actions implemented;
 - f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
 - g. copies of any correspondence received by Steel Reef from other federal, state, or local permitting agencies concerning instances of noncompliance, and Steel Reef's response.
9. Steel Reef must receive written authorization from the Director of OEP **before commencing construction of any project facilities**. To obtain such authorization, must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).
10. Steel Reef must receive written authorization from the Director of OEP **before placing the project into service**. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the project are proceeding satisfactorily.
11. **Within 30 days of placing the authorized facilities in service**, Steel Reef shall file an affirmative statement with the Secretary, certified by a senior company official:
- a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
 - b. identifying which of the conditions in the Order Steel Reef has complied with or will comply with. This statement shall also identify any areas affected by the project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.
12. **Prior to commencing HDD construction**, Steel Reef shall file with the Secretary for review and written approval by the Director of OEP:
- a. the results of site-specific geotechnical investigations conducted (including a description of the subsurface lithology along the drill path, standard penetration

test results, soil mechanic properties/Atterberg limits, and/or rock coring results including core recovery, and rock quality designation for each bedrock core run [depict the lithology, standard penetration test results and rock quality designation data on each HDD profile]);

- b. an HDD feasibility study conducted by a qualified contractor including an analysis of the potential for hydrofracture and an inadvertent return to the ground surface using the USACE Delft method (or equivalent) for crossings through unconsolidated material, and/or a qualitative analysis for an inadvertent return through bedrock utilizing rock quality designation values obtained from bedrock cores;
 - c. a description of any subsurface conditions that were identified as a result of geotechnical investigations that may increase the risk of drill complications (e.g., unplanned inadvertent returns, drill hole collapse, contamination), and a description of the measures that Steel Reef would implement to minimize these risks;
 - d. a description of Steel Reef's planned frequency of the HDD alignment monitoring activities and how Steel Reef will ensure the monitoring activity records are maintained, by whom, and the availability of this documentation for agency review;
 - e. a description of how inadvertent release of drilling mud to the ground surface will be contained and cleaned up;
 - f. a commitment that if drill hole abandonment is necessary, abandonment procedures will be approved by the appropriate permitting and regulatory agencies (including the FERC) prior to implementation; and
 - g. a commitment that Steel Reef will report incidents involving drilling mud circulation loss and inadvertent returns to the ground surface in the biweekly status reports.
13. **Prior to commencing HDD construction**, Steel Reef shall file with the Secretary for review and approval by the Director of OEP a list of any additional drilling fluid additives that could be used, as well as the Safety Data Sheets for each additive, and an affirmative statement that Steel Reef will utilize only pre-approved, non-petrochemical-based, non-hazardous additives that comply with permit requirements and environmental regulations.
14. **Prior to construction**, Steel Reef shall file an affirmative statement with the Secretary, certified by a senior company official, that if Steel Reef intends to dispose of drilling mud in upland areas or as an agricultural amendment, Steel Reef will conduct laboratory testing of excess drilling mud for inorganic and organic environmental contaminants to ensure that such use will not result in adverse environmental impact or otherwise conflict with landowner or land management agency approvals or permit requirements.

E. REFERENCES

Armstrong, C.A. 1971. Ground-Water Resources of Burke and Mountrail Counties – Bulletin 55 – Part III, North Dakota Geological Survey. 94 pp.

Boyd, Clint A. 2017. Electronic Mail communication with Joe Thacker (CH2M). August 15, 2017.

Council on Environmental Quality. 1997. Considering Cumulative Effects Under the National Environmental Policy Act. 122 pp. Washington, D.C.: Council on Environmental Quality, Executive Office of the President

Federal Register. 2015. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Dakota Skipper and Poweshiek Skipperling; Final Rule, Volume 80, No. 190. Available at: <https://www.gpo.gov/fdsys/pkg/FR-2015-10-01/pdf/2015-24184.pdf>. Accessed September 12, 2017

Kruger, Ned. 2017. Personal Communication with geologist of the North Dakota Geological Survey.

North Dakota Game and Fish Department (NDGFD). 2017a. Red Knot Fact Sheet. Available at: <https://gf.nd.gov/wildlife/id/shorebirds/red-knot>. Accessed September 12, 2017.

NDGFD. 2017b. Whooping Crane Fact Sheet. Available at: <https://gf.nd.gov/wildlife/id/grassland-birds/whooping-crane>. Accessed September 12, 2017.

Reagor, B.G., C. W. Stover and St. T. Algermissen. 1981. Seismicity Map of the State of North Dakota. USGS Miscellaneous Field Studies Map MF-1326. <https://pubs.usgs.gov/mf/1326/plate-1.pdf>.

Sun, R.J., and J.B. Weeks, 1991. Bibliography of Regional Aquifer-System Analysis program of the United States Geological Survey Water-Resources Investigation Report 91-4122, 92 pp.

U.S. Department of Agriculture, Natural Resources Conservation Service. 2017. Soil Survey Geographic (SSURGO) Database viewed online in the Web Soil Survey <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed August 18, 2017.

United States Environmental Protection Agency (EPA). 1999. Consideration of Cumulative Impacts in EPA Review of NEPA Documents. EPA 315-R-99-002/May 1999. <https://www.epa.gov/sites/production/files/2014-08/documents/cumulative.pdf>. Accessed July 2016.

U.S. Fish and Wildlife Service (FWS). 2015a. Northern Long-Eared Bat Fact Sheet. Available at: <https://www.fws.gov/midwest/endangered/mammals/nleb/nlebFactSheet.html>. Accessed September 12, 2017.

FWS. 2015b. Piping Plover Fact Sheet. Available at: <https://www.fws.gov/midwest/Endangered/pipingplover/pipingpl.html>. Accessed September 12, 2017.

FWS. 1987. Northern Rocky Mountain Wolf Recovery Plan. Available at: https://www.fws.gov/montanafieldoffice/Endangered_Species/Recovery_and_Mgmt_Plans/Northern_Rocky_Mountain_Gray_Wolf_Recovery_Plan.pdf. Accessed September 12, 2017.

U.S. Geological Survey (USGS). 2017. EHP Quaternary Faults. <http://geohazards.usgs.gov/qfaults/map.php>. Accessed August 2017.

USGS. 2018. All Earthquakes (North Dakota) – 1900 to Present. <https://earthquake.usgs.gov/earthquakes/byregion/northdakota.php>. Accessed May 2018.

USGS. 2013. Federal Standards and Procedures for the National Watershed Boundary Dataset (WBD) Chapter 3 of Section A, Federal Standards Book 11, Collection and Delineation of Spatial Data.

Weary, D.J., and Doctor, D.H. 2014. Karst in the United States: A digital map compilation and database: USGS Open-File Report 2014–1156, 23 p. <http://dx.doi.org/10.3133/ofr20141156>.

F. LIST OF PREPARERS

Polit, Juan, Project Manager - Proposed Action, Geology, Soils, Groundwater, Land Use, Cumulative Impacts, Alternatives

M.S., Forest Ecology, 1992, University of Illinois

B.S., Forest Science, 1989, University of Illinois

Friedman, Paul - Cultural Resources

M.A., History, 1980, University of California, Santa Barbara

B.A., Anthropology and History, 1976, University of California, Santa Barbara

Mallory, Christine - Surface Water, Wetlands, Vegetation, Wildlife, Migratory Birds, Fisheries, Special Status Species

M.S., Environmental Management, 2013, Samford University

B.S., Biology, 2012, Stillman College

Monib, Kareem – Air and Noise Quality, Reliability and Safety

B.S., Chemical Engineering, 1998, University of Delaware

M.S., Chemical Engineering, 2000, Penn State

Figures 1-2



