



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Great Plains Regional Office
115 Fourth Avenue S.E.
Aberdeen, South Dakota 57401



IN REPLY REFER TO:
DESCRM
MC-208

OCT 01 2010

MEMORANDUM

TO: Superintendent, Fort Berthold Agency

FROM: *Acting* Regional Director, Great Plains Regional Office

SUBJECT: Environmental Assessment and Finding of No Significant Impact

In compliance with the regulations of the National Environmental Policy Act (NEPA) of 1969, as amended, for two proposed exploratory wells by Petro-Hunt, LLC on Fort Berthold 151-94-34C-27-1H and Fort Berthold 150-94-3B-10-1H on the Fort Berthold Reservation, an Environmental Assessment (EA) has been completed and a Finding of No Significant Impact (FONSI) has been issued.

All the necessary requirements of the National Environmental Policy Act have been completed. Attached for your files is a copy of the EA, FONSI and Notice of Availability. The Council on Environmental Quality (CEQ) regulations require that there be a public notice of availability of the FONSI (1506.6(b)). Please post the attached notice of availability at the agency and tribal buildings for 30 days.

If you have any questions, please call Marilyn Bercier, Regional Environmental Scientist, Division of Environment, Safety and Cultural Resources Management, at (605) 226-7656.

Attachment

cc: Marcus Levings, Chairman, Three Affiliated Tribes (with attachment)
Perry "No Tears" Brady, THPO (with attachment)
Roy Swalling, Bureau of Land Management (with attachment)
Jonathon Shelman, Corps of Engineers (with attachment)
Jeffrey Hunt, Virtual One Stop Shop

**Finding of No Significant Impact
Petro-Hunt, LLC**

**Two Bakken Exploratory Oil Wells:
Fort Berthold #151-94-34C-27-1H
Fort Berthold #150-94-3B-10-1H**

**Fort Berthold Indian Reservation
McKenzie County, North Dakota**

The U.S. Bureau of Indian Affairs (BIA) has received a proposal for two oil/gas wells, access roads and related infrastructure on the Fort Berthold Indian Reservation to be located in NW¼ NW¼, Section 3, Township (T) 150 North (N), Range (R) 94 West (W), McKenzie County, North Dakota. Associated federal actions by BIA include determinations of effect regarding cultural resources, approvals of leases, rights-of-way and easements, and a positive recommendation to the Bureau of Land Management regarding the Applications for Permit to Drill.

The potential of the proposed actions to impact the human environment is analyzed in the attached Environmental Assessment (EA), as required by the National Environmental Policy Act. Based on the recently completed EA, I have determined that the proposed projects will not significantly affect the quality of the human environment. No Environmental Impact Statement is required for any portion of the proposed activities.

This determination is based on the following factors:

1. Agency and public involvement was solicited and environmental issues related to the proposal were identified.
2. Protective and prudent measures were designed to minimize impacts to air, water, soil, vegetation, wetlands, wildlife, public safety, water resources, and cultural resources. The remaining potential for impacts was disclosed for both the proposed action and the No Action alternative.
3. Guidance from the U.S. Fish and Wildlife Service has been fully considered regarding wildlife impacts, particularly in regard to threatened or endangered species.
4. The proposed actions are designed to avoid adverse effects to historic, archaeological, cultural and traditional properties, sites and practices. Compliance with the procedures of the National Historic Preservation Act is complete.
5. Environmental justice was fully considered.
6. Cumulative effects to the environment are either mitigated or minimal.
7. No regulatory requirements have been waived or require compensatory mitigation measures.
8. The proposed projects will improve the socio-economic condition of the affected Indian community.



Regional Director

10/1/10

Date

ENVIRONMENTAL ASSESSMENT

**United States Department of the Interior
Bureau of Indian Affairs**

**Great Plains Regional Office
Aberdeen, South Dakota**

Cooperating Agency:

Bureau of Land Management

**North Dakota State Office
Dickinson, North Dakota**



Petro-Hunt, LLC

Two Three-Forks Exploratory Oil Wells:

**Fort Berthold #151-94-34C-27-1H
Fort Berthold #150-94-3B-10-1H**

Fort Berthold Indian Reservation

September 2010

For information contact:
Bureau of Indian Affairs, Great Plains Regional Office
Division of Environment, Safety and Cultural Resources Management
115 4th Avenue SE, Aberdeen, South Dakota 57401 (605) 226-7656

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

Petro-Hunt, LLC (Petro-Hunt) has acquired the leases and is proposing to drill two horizontal oil and gas wells, in the form of one dual well pad location, on the Fort Berthold Indian Reservation (Reservation). The development has been proposed on land in McKenzie County, North Dakota, and owned by the tribe and tribal members. The purpose and need for the wells is to evaluate, and possibly develop, the commercial potential of natural resources, in keeping with the Bureau of Indian Affairs (BIA) management objective for subsurface mineral rights on lands held in trust by the United States (Indian Mineral Development Act of 1982 [25 United States Code (USC) 2101, et seq.]). The BIA is the surface management agency for potentially affected tribal land and individual allotments.

Developments have been proposed that target specific areas within the Three Forks Formation, a known oil reserve. The following proposed well sites, illustrated in Figures 1 and 2, will be located within the Reservation where the majority of the external boundaries are located above the Three Forks Formation.

- **Fort Berthold 151-94-34C-27-1H and Fort Berthold 150-94-3B-10-1H:** NW¼ NW¼, Section 3, Township (T) 150 North (N), Range (R) 94 West (W), McKenzie County, North Dakota

Existing access roads will be upgraded and new access roads will be constructed to facilitate the construction and operation of each proposed well. The dual well pad will be constructed to accommodate drilling activities and well operations. Pits constructed for drilled cuttings will be used during drilling operations and reclaimed once operations have ceased. Should any of the proposed well sites result in long-term commercial production, supporting facilities may be constructed on site. All components (e.g., roads, well pads, supporting facilities) will be reclaimed upon final abandonment unless formally transferred with federal approval to either the BIA or the landowner. The proposed wells are exploratory; should they prove productive, further exploration of surrounding areas is possible. This environmental assessment (EA) addresses the potential impacts associated with the construction and possible long-term operation of the above-listed wells and directly related infrastructure and facilities. Further oil and gas exploration and development will require additional National Environmental Policy Act (NEPA) analysis and federal actions.

Environmental Assessment: Petro-Hunt, LLC
Fort Berthold #151-94-34C-27-1H and Fort Berthold #150-94-3B-10-1H

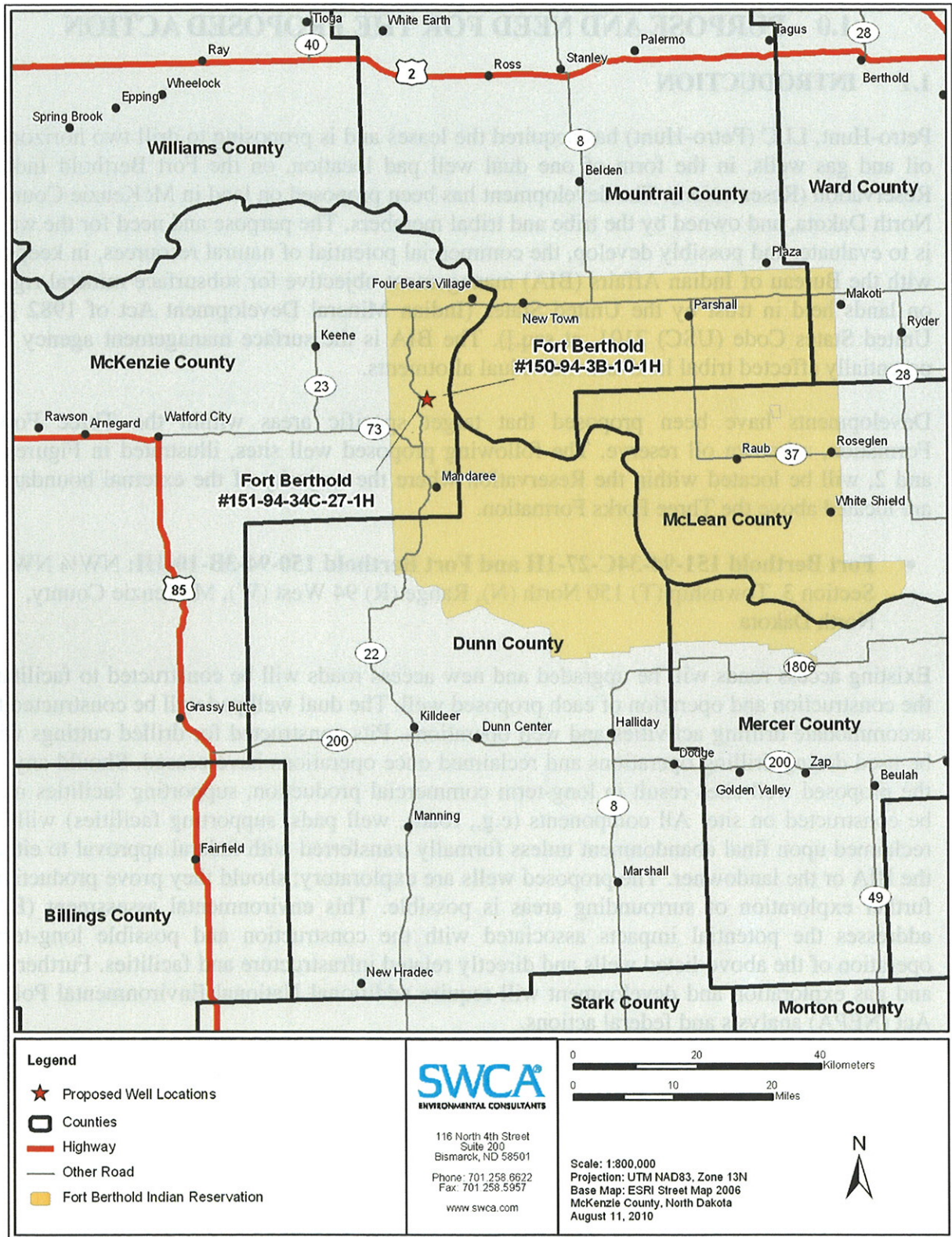


Figure 1. Project location.

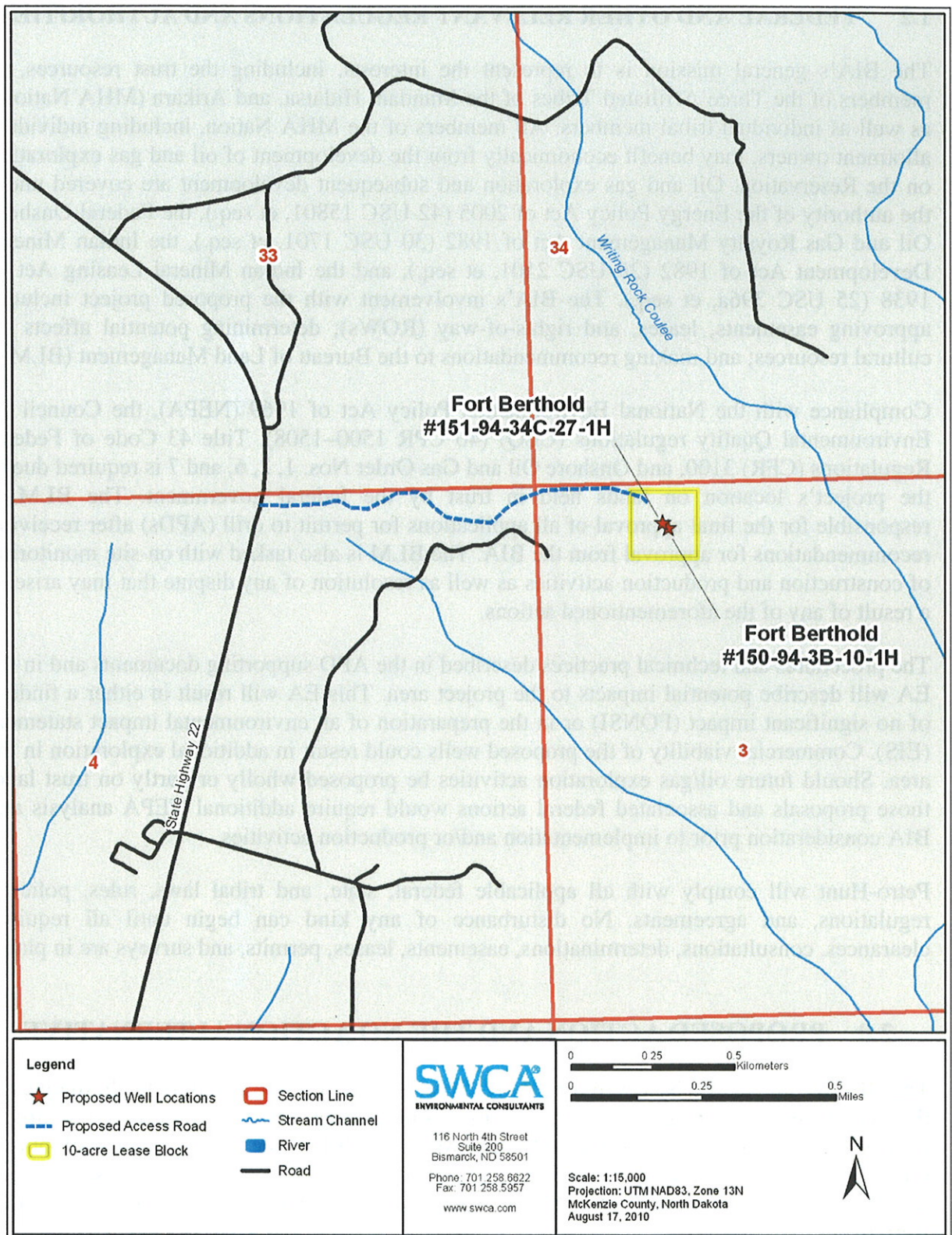


Figure 2. Fort Berthold #151-94-34C-27-1H and Fort Berthold #150-94-3B-10-1H proposed locations.

1.2 FEDERAL AND OTHER RELEVANT REGULATIONS AND AUTHORITIES

The BIA's general mission is to represent the interests, including the trust resources, of members of the Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara (MHA Nation), as well as individual tribal members. All members of the MHA Nation, including individual allotment owners, may benefit economically from the development of oil and gas exploration on the Reservation. Oil and gas exploration and subsequent development are covered under the authority of the Energy Policy Act of 2005 (42 USC 15801, et seq.), the Federal Onshore Oil and Gas Royalty Management Act of 1982 (30 USC 1701, et seq.), the Indian Mineral Development Act of 1982 (25 USC 2101, et seq.), and the Indian Mineral Leasing Act of 1938 (25 USC 396a, et seq.). The BIA's involvement with the proposed project includes approving easements, leases, and rights-of-way (ROWs); determining potential affects on cultural resources; and making recommendations to the Bureau of Land Management (BLM).

Compliance with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations (CEQ) (40 CFR 1500–1508), Title 43 Code of Federal Regulations (CFR) 3100, and Onshore Oil and Gas Order Nos. 1, 2, 6, and 7 is required due to the project's location on lands held in trust by the federal government. The BLM is responsible for the final approval of all applications for permit to drill (APDs) after receiving recommendations for approval from the BIA. The BLM is also tasked with on-site monitoring of construction and production activities as well as resolution of any dispute that may arise as a result of any of the aforementioned actions.

The procedures and technical practices described in the APD supporting documents and in the EA will describe potential impacts to the project area. This EA will result in either a finding of no significant impact (FONSI) or in the preparation of an environmental impact statement (EIS). Commercial viability of the proposed wells could result in additional exploration in the area. Should future oil/gas exploration activities be proposed wholly or partly on trust land, those proposals and associated federal actions would require additional NEPA analysis and BIA consideration prior to implementation and/or production activities.

Petro-Hunt will comply with all applicable federal, state, and tribal laws, rules, policies, regulations, and agreements. No disturbance of any kind can begin until all required clearances, consultations, determinations, easements, leases, permits, and surveys are in place.

2.0 PROPOSED ACTION AND THE NO ACTION ALTERNATIVE

The BIA, as directed by NEPA, must “study, develop, and describe appropriate alternatives to the recommended course of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources...” (NEPA Sec 102[2][e]). Developing a range of alternatives allows for exploration of options designed to meet the purpose and need for the action. Along with the No Action Alternative, the BIA is considering the Proposed Action.

2.1 THE NO ACTION ALTERNATIVE

Under the No Action Alternative, the proposed project (including the well pad, wells, and access road) would not be constructed, drilled, installed, or operated. The BIA would not approve easements, leases, or ROWs for the proposed locations and the BLM would not approve the APD. No impacts would occur as a result of this project to the following critical elements: air quality, public health and safety, water resources, wetland/riparian habitat, threatened and endangered species, soils, vegetation and invasive species, cultural resources, socioeconomic conditions, and environmental justice. There would be no project-related ground disturbance, use of hazardous materials, or trucking of product to collection areas. Surface disturbance, deposition of potentially harmful biological material, and traffic levels would not change from present levels. Under the No Action Alternative, the MHA Nation, tribal members, and allottees would not have the opportunity to realize potential financial gains from the discovery and resulting development of resources at these well locations.

2.2 THE PROPOSED ACTION

This document analyzes the potential impacts of two exploratory oil and gas wells with varied surface and mineral estates located in the southwest portions of the Reservation in McKenzie County. Sites were chosen by Petro-Hunt in consultation with tribal and BIA resource managers to provide information for future development. Well site locations underwent a pre-clearance process that included surveys for cultural, archaeological, and natural (i.e., biological and physical) resources. The proposed wells would test the commercial potential of the Three Forks Formation.

2.2.1 Field Camps

A few personnel would be housed in self-contained trailers for a very short period of time. Long-term housing is not proposed. Most personnel, both construction and drilling, would commute to the site. Human waste would be collected on-site in portable toilets and trailers and transported off site to a state-approved wastewater treatment facility. All other solid waste would be contained in enclosed containers and transported to, and disposed of at, state-approved facilities.

2.2.2 Access Road

Up to 4,154 feet of new access road would be constructed. A maximum disturbed ROW width of 66 feet for the access road would result in up to 6.3 acres of new surface disturbance. Signed agreements would be in place allowing road construction across affected private and allotted land surfaces, and any applicable approach permits and/or easements would be obtained prior to any construction activity.

Construction would follow road design standards outlined in the BLM Gold Book (BLM and U.S. Forest Service [USFS] 2007). At a minimum, 6 inches of topsoil would be removed from the access road corridors. This stockpiled topsoil would then be placed on the outside slopes of the ditches following road construction. The ditches would be reseeded as quickly as possible using a seed mixture determined by the BIA. Care would be taken during road construction to avoid disturbing or disrupting any buried utilities that may exist near State

Highway (SH) 22. The access road would be surfaced with a minimum of 4 inches of aggregate if the site were to be established as a commercial production site. Also, the roadway would remain in use for the life of the well(s). Details of road construction are addressed in the APD. A diagram of typical road cross sections is shown in Figure 3.

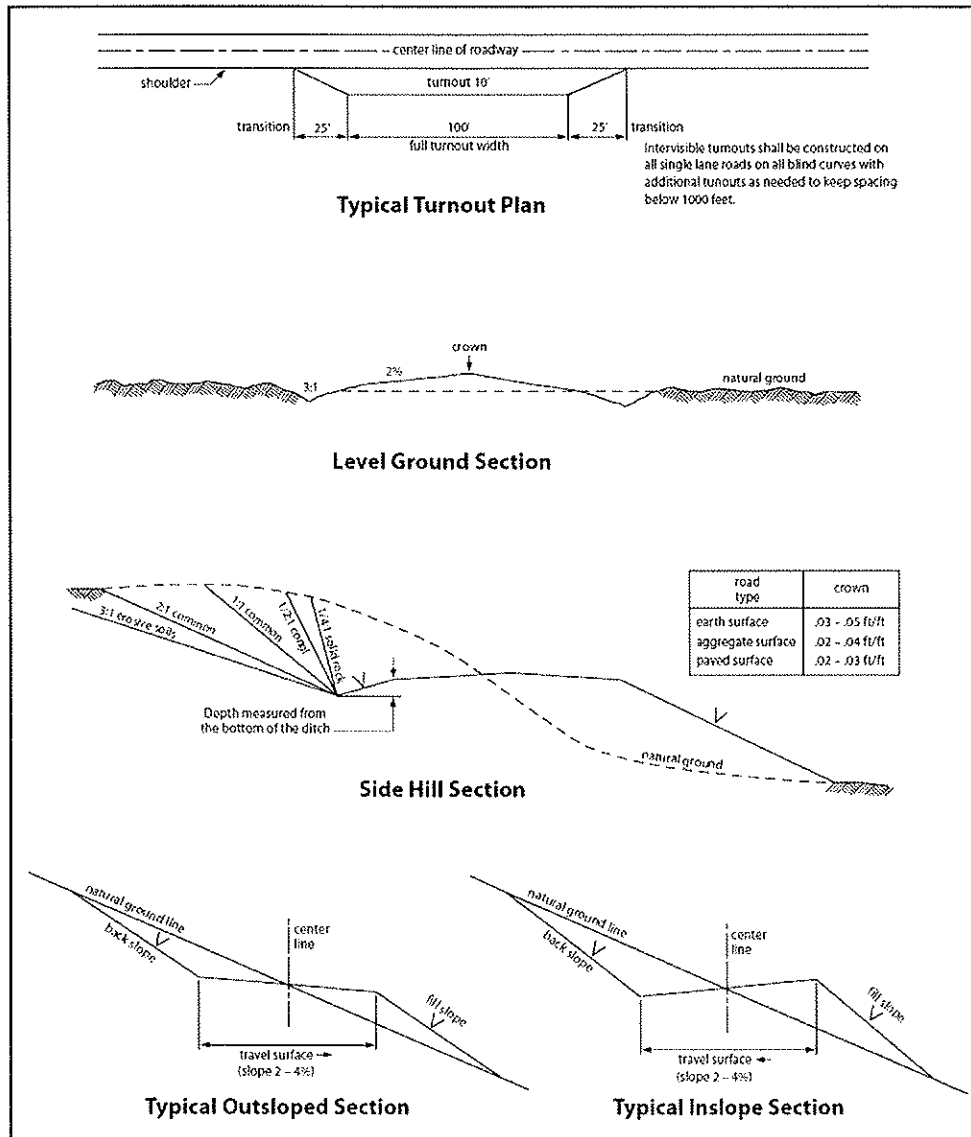


Figure 3. Typical road cross sections (BLM and USFS 2007).

2.2.3 Well Pad

The proposed well pad would include a leveled area (pad) and a pit. The pad would be used for the drilling rig and equipment, and the pit would be excavated, lined, and used for drilling fluids and cuttings. The pad would be stripped of topsoil and vegetation and then graded. The topsoil would be stockpiled and stabilized with a cover crop until it could be used to reclaim and revegetate the disturbed area. The subsoils would be used in the construction of the pad and the finished pads would be graded to ensure that water drains away from the pad. Erosion

control best management practices (BMPs) would be implemented and could include surface drainage controls, soil surface protection methodologies, and sediment capture features.

The dual well pad would measure approximately 350 by 525 feet (4.2 acres). Cut-and-fill slopes, stockpiled topsoil, and reserve pit backfill placed on the edge of the pad would result in approximately 1.3 acres of additional surface disturbance. Total surface disturbance would be approximately 5.5 acres. Details of pad construction and reclamation can be found in the APD.

2.2.4 Drilling

After securing mineral leases, Petro-Hunt submitted the Notice of Staking (NOS) to the BLM on the following dates:

- **Fort Berthold #151-94-34C-27-1H:** August 12, 2010
- **Fort Berthold #150-94-3B-10-1H:** August 12, 2010

The BIA's office in New Town, North Dakota, received copies of the NOS from the BLM North Dakota Field Office. Construction will begin when the BIA completes the NEPA process and the APDs are then approved by the BLM.

Rig transport and on-site assembly would take approximately five days for each well; a typical drill rig is shown in Figure 4. Drilling would require approximately 35 days to reach target depth, using a rotary drilling rig rated for drilling to approximately 30,000 feet. For the first 2,200 feet drilled, a freshwater-based mud system with non-hazardous additives would be used to minimize contaminant concerns. Water would be obtained from a commercial source for this drilling stage, using approximately 50 gallons of water per foot of hole drilled.

After setting and cementing the near-surface casing, an oil-based mud system (80% to 85% diesel fuel and 15% to 20% water) would be used to drill to the 7-inch casing point. Oil-based drilling fluids reduce the potential for hole sloughing while drilling through water-sensitive formations (shales). Approximately 9,000 gallons of water and 25,000 gallons of diesel fuel per well would be used to complete vertical drilling. The lateral reach of the borehole would be drilled using approximately 85,000 gallons of fresh water as mud and adding polymer sweeps as necessary to clean the hole.



Figure 4. Typical drilling rig (Ruffo 2009).

2.2.5 Casing and Cementing

Surface casing would be set at an approximate depth of 2,500 feet and cemented back to the surface during drilling, in order to ensure the isolation of any potential near-surface freshwater aquifers in the project area. The Pierre Formation would be encountered at a depth of approximately 1,500 feet. Production casing would be cemented from approximately 10,800 feet deep to a depth of about 4,000 feet in order to isolate the hydrocarbon zone present in the Dakota Formation below a depth of 5,000 feet. Casing and cementing operations would be conducted in full compliance with Onshore Oil and Gas Order No. 2 (43 CFR 3160).

2.2.6 Completion Activities

A completion rig unit would be moved on-site following the conclusion of drilling and casing activities. Approximately 30 days is usually required, at the proposed well depths, to clean out the well bore, pressure test the casing, perforate and fracture the horizontal portion of the hole, and run production tubing for commercial production. The typical procedure for fracturing a target formation to increase production includes pumping a mixture of sand and a carrier (e.g., water and/or nitrogen) downhole under extreme pressure. The resulting fractures are propped open by the sand, increasing the capture zone of the well and subsequently maximizing the efficient drainage of the field. After fracturing, the well is “flowed back” to the surface where fracture fluids are recovered and disposed of in accordance with North Dakota Industrial Commission (NDIC) rules and regulations.

2.2.7 Commercial Production

If drilling, testing, and production support commercial production from either of the two proposed wells, additional equipment would be installed, including a pumping unit at the well head, a vertical heater/treater, tanks (usually 400-barrel steel tanks), and a flare pit (Figure 5). An impervious dike sized to hold 100% of the capacity of the largest tank plus one full day's production would surround the tanks and the heater/treater. Load out lines would be located inside the diked area, and a heavy screen-covered drip barrel would be installed under the outlet. A metal access staircase would protect the dike and support flexible hoses used by tanker trucks. For all above-ground facilities not subject to safety requirements, the BIA would choose a paint color recommended by the BLM or the Rocky Mountain Five-State Interagency Committee, which would blend with the natural color of the landscape. Commercial production would be discussed more fully in subsequent NEPA analyses.



Figure 5. Typical producing oil well pad (Sobotka 2008).

Initially, oil would be collected in tanks and periodically trucked to an existing oil terminal for sales. Any produced water would be captured in tanks and periodically trucked to an approved disposal site. The frequency of trucking activities for both oil and produced water would depend upon volumes and rates of production. The duration of production operations cannot be reliably predicted, but some oil wells have pumped for more than 100 years. The operator estimates that each well would yield approximately 100 million barrels of oil and 25 million barrels of water during the first year of production. After the first year, the operator estimates that each well would produce approximately 300 million barrels of oil and 60 barrels of water over its lifetime. Produced water is mostly recovered frac fluids and is expected to become minimal after two years.

Large volumes of gas are not expected from these locations. Small volumes would be flared in accordance with Notice to Lessees 4A and adopted NDIC regulations, which prohibit unrestricted flaring for more than the initial year of operation (North Dakota Century Code [NDCC] 38-08-06.4).

2.2.8 Construction Details

2.2.8.1 Fort Berthold #151-94-34C-27-1H and Fort Berthold #150-94-3B-10-1H (Dual Well Pad Location)

The proposed Fort Berthold #151-94-34C-27-1H and Fort Berthold #150-94-3B-10-1H dual well pad, shown in Figure 6, is located approximately 8.3 miles north-northwest of Mandaree in the NW¼ NW¼ of Section 3, T150N, R94W, McKenzie County, North Dakota. A new access road approximately 4,154 feet long would be constructed from SH 22 to the well site (Figure 7). The new road would disturb approximately 6.3 acres and the proposed well pad would disturb approximately 5.5 acres; the total anticipated new disturbance would be 11.8 acres.

The spacing unit for Fort Berthold #151-94-34C-27-1H consists of 1,280 acres (+/-) with the bottom hole located in the NW¼ NW¼ of Section 27, T151N, R94W (Figure 8). Vertical drilling would be completed to an approximate total vertical depth (TVD) of 10,978 feet and a measured depth (MD) of 11,415 feet. The complete drilling string would be completed to an approximate TVD of 10,900 feet and a MD of 21,481 feet, including approximately 10,707 feet of lateral reach into the Three Forks Formation. The drilling target is located approximately 250 feet from the north line (FNL) and 1,320 feet from the west line (FWL), approximately 10,701 feet north-northeast of the surface hole location. A setback of at least 200 feet would be maintained.

The spacing unit for Fort Berthold #150-94-3B-10-1H consists of 1,280 acres (+/-) with the bottom hole located in the SW¼ SW¼ of Section 10, T150N, R94W (Figure 9). Vertical drilling would be completed to an approximate TVD of 10,980 feet and a MD of 11,249 feet. The complete drilling string would be completed to an approximate TVD of 11,030 feet and a MD of 20,634 feet, including approximately 9,862 feet of lateral reach into the Three Forks Formation. The drilling target is located approximately 250 feet from the south line (FSL) and 1,320 feet FWL, approximately 9,857 feet south-southeast of the surface hole location. A setback of at least 200 feet would be maintained.



Figure 6. Fort Berthold #151-94-34C-27-1H and Fort Berthold #150-94-3B-10-1H dual well pad area, looking east.



Figure 7. Fort Berthold #151-94-34C-27-1H and Fort Berthold #150-94-3B-10-1H access road, looking east.

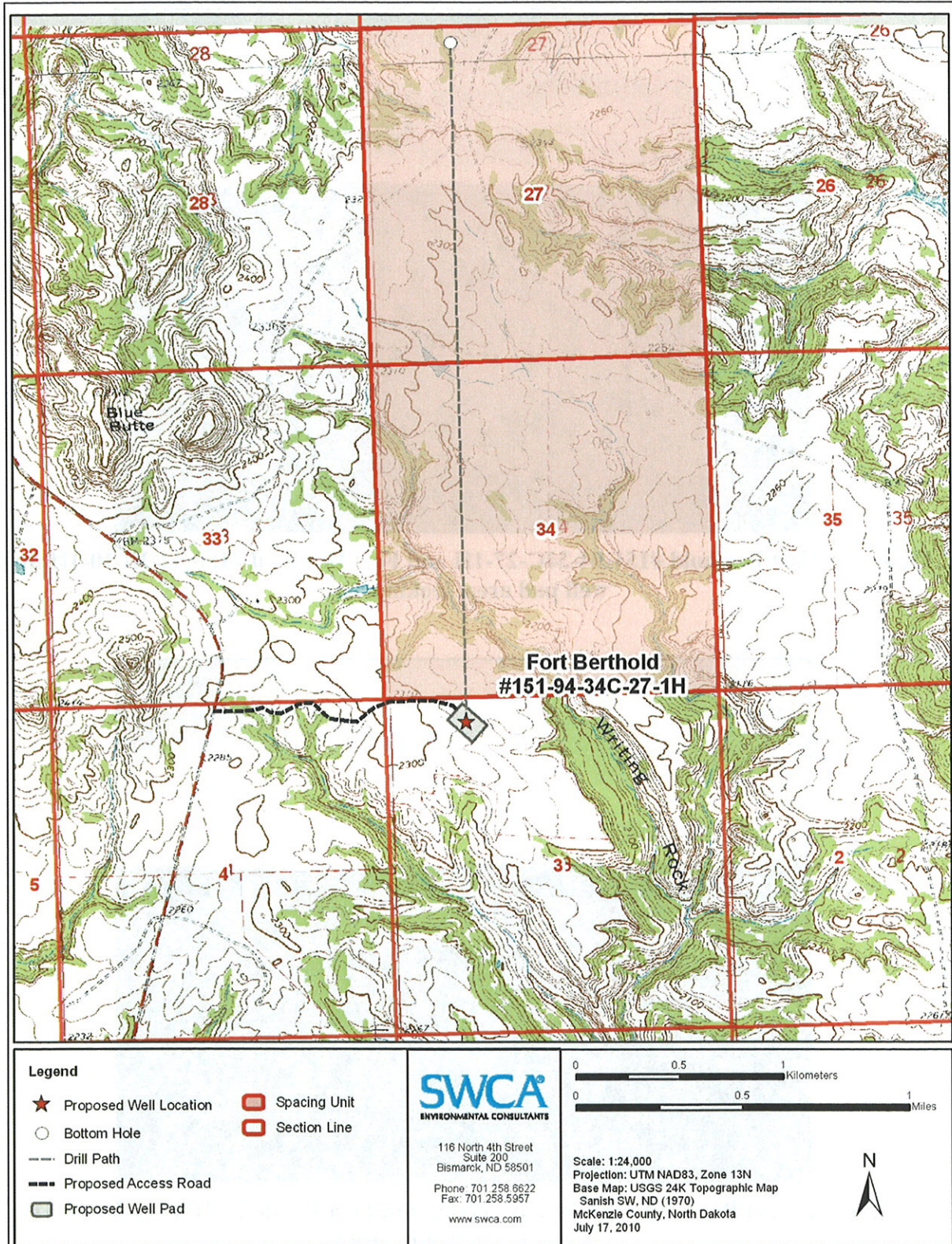


Figure 8. Fort Berthold #151-94-34C-27-1H proposed location showing spacing unit and drilling target.

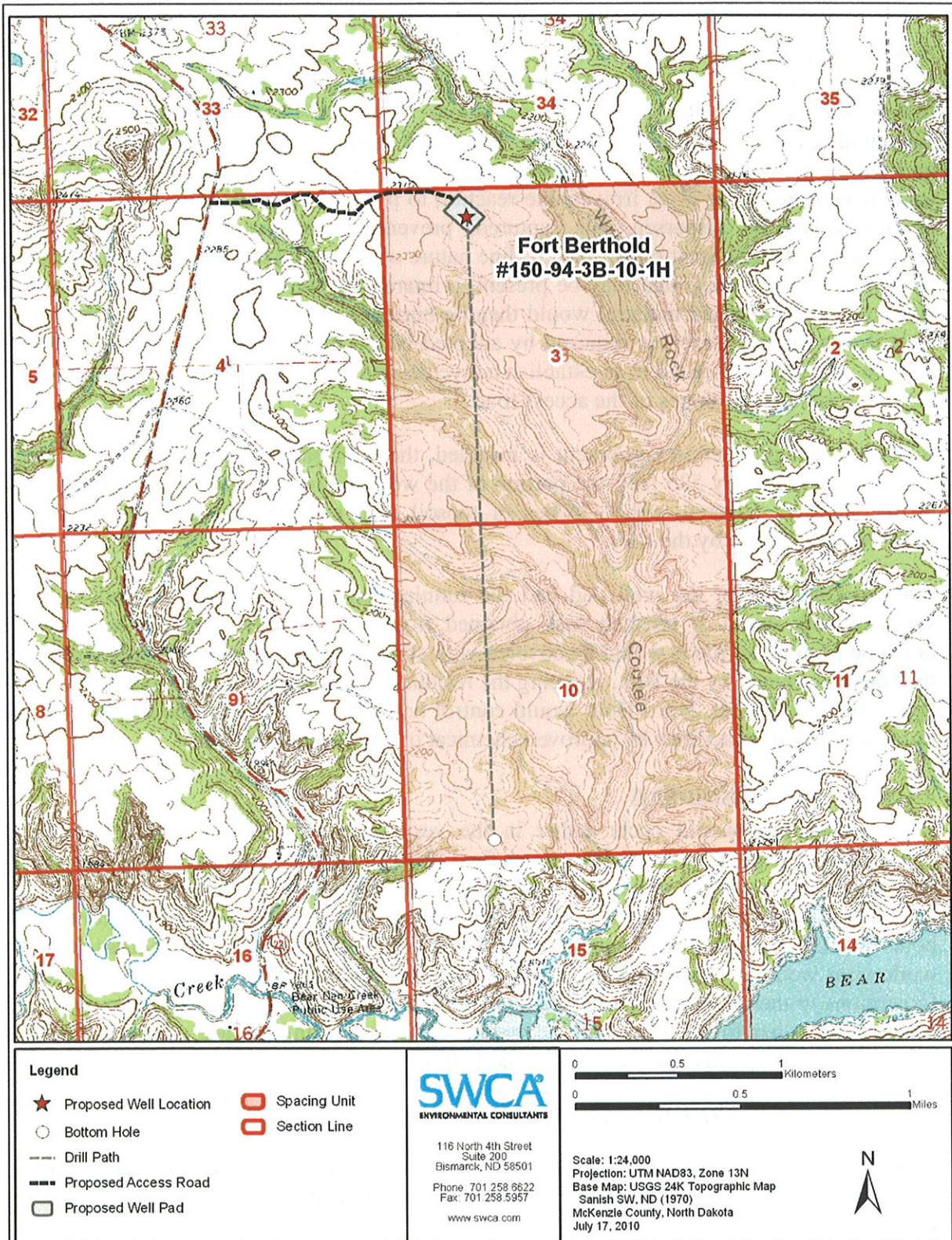


Figure 9. Fort Berthold #150-94-3B-10-1H proposed location showing spacing unit and drilling target.

2.2.9 Reclamation

Interim reclamation would consist of reclaiming all areas not needed for production operations for the life of a well. Immediately after well completion, all equipment and materials unnecessary for production operations would be removed from a location and surrounding area. The reserve pit and drill cuttings would be treated, solidified, backfilled, and buried as soon as possible after well completion. Cuttings would be mixed with a non-toxic reagent resulting in an irreversible reaction to produce an inert, solid material. Any oil residue would be dispersed and captured, preventing coalescence and release to the environment at significant rates. The alkaline nature of the stabilized material also chemically stabilizes various metals that may be present, primarily by converting them into less soluble compounds. The treated material would then be buried in the reserve pit, and overlain by at least 4 feet of overburden as required by adopted NDIC regulations. The surface above the reserve pit would be seeded to re-establish native/desired vegetation. Topsoil would be spread along the cut and fill slopes of the access road.

If commercial production equipment is installed, the well pad would be reduced in size to approximately 250 by 525 feet; the portion of the well pad not needed for production would be recontoured, covered with 6 inches of topsoil, and reseeded using methods and seed mixtures determined by the BIA.

The working area of the well pad and the running surface of the access road would be surfaced with scoria or crushed rock obtained from a previously approved location. The outslope portions of roads would be covered with stockpiled topsoil and reseeded with a seed mixture determined by the BIA, reducing the residual access-related disturbance to a width of approximately 28 feet. Petro-Hunt would control noxious weeds within the ROW, well pad, or other applicable facilities by approved chemical or mechanical methods.

2.2.9.1 Final Reclamation

Final reclamation would occur either in the very short term if the proposed wells are commercially unproductive, or later upon final abandonment of commercial operations. All disturbed areas would be reclaimed, reflecting the BIA view of oil and gas exploration and production as temporary intrusions on the landscape. All facilities would be removed, well bores would be plugged with cement, and dry hole markers would be set. Access roads and work areas would be leveled or backfilled as necessary, scarified, recontoured, and reseeded. Exceptions to these reclamation measures might occur if the BIA approves assignment of an access road either to the BIA roads inventory or to concurring surface allottees. Figure 10 shows an example of reclamation (BLM and USFS 2007).

2.3 BIA-PREFERRED ALTERNATIVE

The BIA-preferred alternative is to complete all administrative actions and approvals necessary to authorize or facilitate oil and gas developments at the proposed dual well location.



The well pad and access road are constructed to the minimum size necessary to safely conduct drilling and completion operations.



The well pad and access road have been recontoured back to the original contour, the topsoil respread, and the site revegetated.

Figure 10. Example of reclamation from the BLM Gold Book (BLM and USFS 2007).

3.0 THE AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

The Reservation is the home of the MHA Nation. Located in west-central North Dakota, the Reservation encompasses more than one million acres, of which almost half are held in trust by the United States for either the MHA Nation or individual allottees. The remainder of the land is owned in fee simple title, sometimes by the MHA Nation or tribal members, but usually by non-Indians. The Reservation occupies portions of six counties, including Dunn, McKenzie, McLean, Mercer, Mountrail, and Ward. In 1945, the Garrison Dam was completed, inundating much of the Reservation. The remaining land was divided into three sections near Lake Sakakawea, an impoundment of the Missouri River upstream of the Garrison Dam.

The proposed wells and access road are geologically situated in the Williston Basin, where the shallow structure consists of sandstones, silts, and shales dating to the Tertiary period (65 to 2 million years ago), including the Sentinel Butte and Golden Valley formations. The underlying Bakken Formation is a well-known source of hydrocarbons. The Three Forks Formation is the source of hydrocarbons that this project will target. Although earlier oil/gas exploration activity in the Reservation was limited and commercially unproductive, recent economic changes and technological advances now make accessing oil in the Three Forks Formation feasible.

The Reservation is within the Northwestern Great Plains Ecoregion, which consists of four level 4 ecoregions: 1) the Missouri Coteau Slope north of Lake Sakakawea; 2) the River Breaks; 3) the Little Missouri River Badlands; and 4) the Missouri Plateau south and west of Lake Sakakawea (Bryce et al. 1998). Elevations of the glaciated, gently rolling landscape range from a normal pool elevation of 1,838 feet at Lake Sakakawea to more than 2,600 feet on Phaelan's Butte near Mandaree. Annual precipitation on the plateau averages between 15 and 17 inches. Mean temperatures fluctuate between -3 and 21 degrees Fahrenheit (°F) in January and between 55°F and 83°F in July, with 95 to 130 frost-free days each year (Bryce et al. 1998; High Plains Regional Climate Center 2008).

The proposed wells and spacing units are in a rural area consisting of badlands formations with shrubs and pasture land interspersed between buttes. The landscape has been previously disturbed by dirt trails and gravel and paved roadways. One residence is within 1 mile of the proposed well site (4,300 feet south-southwest of the project location).

The broad definition of the human and natural environment under NEPA leads to the consideration of the following elements: air quality, public health and safety, water resources, wetland/riparian habitat, threatened and endangered species, soils, vegetation and invasive species, cultural resources, socioeconomic conditions, and environmental justice. Potential impacts to these elements are analyzed for both the No Action Alternative (described in Section 2.1) and the Proposed Action. Impacts may be beneficial or detrimental, direct or indirect, and short-term or long-term. This EA also analyzes the potential for cumulative impacts, and ultimately makes a determination as to the significance of any impacts. In the absence of significant negative consequences, it should be noted that a significant benefit from the project does *not* in itself require preparation of an EIS.

3.1 AIR QUALITY

3.1.1 Introduction

The federal Clean Air Act (CAA), as amended in 1990, established national ambient air quality standards for criteria pollutants to protect public health and welfare. It also set standards for cancer-causing compounds, regulated emissions that cause acid rain, and required federal permits for large sources. National standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, and lead. These standards were set for pervasive compounds that are generally emitted by industry or motor vehicles. Standards for each pollutant meet specific public health and welfare criteria; thus they are called the "criteria pollutants." Some states have adopted more stringent standards for criteria pollutants, or have chosen to adopt new standards for other pollutants. For instance, North Dakota has a standard for hydrogen sulfide that the Environmental Protection Agency (EPA) does not.

3.1.2 Greenhouse Gas Emissions and Climate Change

Carbon dioxide (CO₂) is the primary greenhouse gas (GHG), responsible for approximately 90% of radiative forcing (the rate of energy change as measured at the top of the atmosphere; this can be positive [warmer] or negative [cooler]). To simplify discussion of the various GHGs, the term "equivalent CO₂, or CO₂e" has been developed. CO₂e is the amount of CO₂ that would cause the same level of radiative forcing as a unit of one of the other GHGs. For example, 1 ton of methane (CH₄) has a CO₂e of 22 tons; therefore, 22 tons of CO₂ would cause the same level of radiative forcing as 1 ton of CH₄. Nitrogen dioxide has a CO₂e value of 310. Thus, control strategies often focus on the gases with the highest CO₂e value. CH₄ is a common fugitive gas emission in oil and gas fields and is emitted at many phases of exploration and production.

According to the Center for Integrative Environmental Research at the University of Maryland (2008), climate change will affect North Dakota's climate significantly over time. North Dakota will experience an increase in the unpredictability of droughts, floods, and pests making it harder for farmers to remain economically viable in the agricultural industry. This damage to the agricultural community will subsequently be a detriment to the livestock industry. Additionally, due to reductions in the amount of available wildlife habitat, including receding water levels, North Dakota's hunting, fishing, and tourism industries will be damaged.

3.1.3 Criteria Pollutants

Ozone is a colorless gas with a pungent, irritating odor, and creates a widespread air quality problem in most of the world's industrialized areas. Ozone smog is not emitted directly into the atmosphere but is primarily formed through the reaction of hydrocarbons and nitrogen oxides in the presence of sunlight. Ozone's health effects can include reduced lung function; aggravated respiratory illness; and irritated eyes, nose, and throat. Chronic exposure can cause permanent damage to the alveoli of the lungs. Ozone can persist for many days after formation, and travel several hundred miles.

Respirable particulate matter is a class of compounds that can lodge deep in the lungs causing health problems. Based on extensive health studies, particulate matter is regulated under two classes. PM₁₀ describes particles 10 microns or smaller, and PM_{2.5} is 2.5 microns or smaller. Respirable particulate matter can range from inorganic wind-blown soil to organic and toxic compounds found in diesel exhaust. Toxic compounds such as benzene often find a route into the body via inhalation of fine particulate matter.

Nitrogen dioxide (NO₂) is a reddish-brown gas with an irritating odor. Primary sources include motor vehicles, industrial facilities, and power plants. In the summer months, nitrogen dioxide is a major component of photochemical smog. Nitrogen dioxide is an irritating gas that may constrict airways, especially of asthmatics, and increase the susceptibility to infection in the general population. Nitrogen dioxide is also involved in ozone smog production.

Carbon monoxide (CO) is a colorless, odorless gas that is a byproduct of incomplete combustion. Carbon monoxide concentrations typically peak nearest a source such as roadways or areas with high fireplace use, and decrease rapidly as distance from the source increases. Ambient levels are typically found during periods of stagnant weather, such as on still winter evenings with a strong temperature inversion. Carbon monoxide is readily absorbed into the body from the air. It decreases the capacity of the blood to transport oxygen, leading to health risks for unborn children and people suffering from heart and lung disease. The symptoms of excessive exposure are headaches, fatigue, slow reflexes, and dizziness.

Sulfur dioxide (SO₂) is a colorless gas with a strong, suffocating odor. Sulfur dioxide is produced by burning coal, fuel oil, and diesel fuel. Sulfur dioxide can trigger constriction of the airways, causing particular difficulties for asthmatics. Long-term exposure is associated with increased risk of mortality from respiratory or cardiovascular disease. Sulfur dioxide emissions are also a primary cause of acid rain and plant damage.

The federal and state governments have set standards based on set criteria for various air pollutants caused by human activity. Table summarizes the standards for these criteria pollutants.

Table 1. Air Quality Standards and Monitored Data.

Pollutant	Averaging Period	NAAQS ($\mu\text{g}/\text{m}^3$) or (ppm)	Year		
			2006	2007	2008
SO ₂ (in ppm)	24-hour	0.14	0.011	0.011	0.009
	Annual Mean	0.03	0.002	0.002	0.002
PM ₁₀ (in $\mu\text{g}/\text{m}^3$)	24-hour	150	50	57	108
PM _{2.5} (in $\mu\text{g}/\text{m}^3$)	24-hour	35	18.9	13.5	16.4
	Weighted Annual Mean	15	6.3	6.6	6.7
NO ₂ (in ppm)	Annual Mean	0.053	0.003	0.003	0.003
O ₃ (in ppm)	1-hour	0.12	0.076	0.076	0.069
	8-hour	0.08	0.067	0.065	0.063

Source: EPA 2009. $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter; ppm = parts per million

Note: For PM_{2.5} the fourth-highest 24-hour value is reported per EPA attainment evaluation protocol.

3.1.4 Hazardous Air Pollutants

Hazardous air pollutants (HAPs) are a class of compounds known to cause cancer, mutation, or other serious health problems. HAPs are usually a localized problem near an emission source. HAPs are regulated separately from criteria air pollutants. Several hundred HAPs are recognized by the EPA and the State of North Dakota. Health effects of HAPs may occur at exceptionally low levels; for many HAPs, it is not possible to identify exposure levels that do *not* produce adverse health effects. Major sources of toxic air contaminants include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), wood smoke, and motor vehicle exhaust. Unlike regulations for criteria pollutants, there are no ambient air quality standards for HAPs. Examples of HAPs found in gases released by oil field development and operation include benzene, toluene, xylene, and formaldehyde (BLM 2009). HAP emissions receive evaluation based on the degree of exposure that can cause risk of premature mortality, usually from cancer.

Risk assessments express premature mortality in terms of the number of deaths expected per million persons. The North Dakota Department of Health (NDDH) typically reviews projects and either requires an applicant to prepare a risk assessment or assign the state engineers to do the work. The state requires that maximum individual cancer risk be calculated using its adopted protocol (the Determination of Compliance in the state's Air Toxics Policy). For new sources emitting HAPs with known negative health effects, an applicant must demonstrate that the combined impact of new HAP emission does not result in a maximum individual cancer risk greater than 1×10^{-5} (1 in 100,000).

3.1.5 Air Monitoring

Although the State of North Dakota does not have jurisdiction over air quality matters on the Reservation, it is helpful to note the monitoring efforts being made by the state and industry in the area. The NDDH operates a network of monitoring stations around the state that continuously measure pollution levels. Industry also operates monitoring stations as required by the state. The data from all these stations are subject to quality assurance, and when approved, is the data are published on the Internet (available from the EPA and other sources). Monitoring stations near the project site include Watford City in McKenzie County, Dunn Center in Dunn County, and Beulah in Mercer County. These stations are located west, south, and southeast of the proposed well sites, respectively. Criteria pollutants measured include SO₂, PM₁₀, NO₂, and ozone. Lead and carbon monoxide are not monitored by any of the three stations. Table summarizes federal air quality standards and available air quality data from the three-county study area. The highest value at any of the three monitoring locations is shown for each year.

Note that North Dakota has separate state standards for several pollutants that are different from the federal criteria standards. These are:

- SO₂ (parts per million [ppm]) – 0.023 annual arithmetic mean, 0.099 24-hour concentration, and 0.273 one-hour concentration
- Hydrogen sulfide (H₂S) (ppm) – 10 instantaneous, 0.20 one-hour, 0.10 24-hour, and 0.02 three-month arithmetic mean

All other state criteria pollutant standards are the same as the federal standards (shown in Table). North Dakota was one of 13 states that met standards for all federal criteria pollutants in 2008.

The CAA mandates prevention of significant deterioration in the designated attainment areas. Class I attainment areas have national significance and include national parks greater than 6,000 acres, national monuments, national seashores, and federal wilderness areas larger than 5,000 acres that were designated prior to 1977. Theodore Roosevelt National Park, a Class I area that covers about 110 square miles in three units within the Little Missouri National Grassland, lies between Medora and Watford City and is roughly 30 to 40 miles west of the proposed well sites. All other parts of the state, including the Reservation, are classified as Class II, affording them a lower level of protection from significant deterioration.

3.1.6 Response to the Threat of Climate Change

The EPA has proposed an endangerment finding that would allow regulation of GHGs under the CAA. The first step is a regulation that requires sources emitting 25,000 tons or more CO₂e to report their emissions. The EPA and the National Highway Traffic Safety Administration have increased corporate fuel economy standards to promote national energy security and reduce GHGs. Standards will equal 35 miles per gallon by 2020, with an estimated savings to drivers of \$100 billion annually. Many U.S. states and foreign nations have adopted goals and actions to reduce GHGs to levels scientists forecast will allow the earth's climate to stabilize at 1 to 2 degrees Celsius above the current level. Additional regulation is currently being developed by Congress to roll back emissions to levels recommended by atmospheric scientists.

3.1.7 Typical Project Emissions

Oil field emissions encompass three primary areas: combustion, fugitive, and vented.

- Combustion emissions include SO₂, ozone precursors called volatile organic compounds (VOCs), GHGs, and HAPs. Sources include engine exhaust, dehydrators, and flaring.
- Fugitive emissions include criteria pollutants, H₂S, VOCs, HAPs, and GHGs. Sources include equipment leaks, evaporation ponds and pits, condensate tanks, storage tanks, and wind-blown dust (from truck and construction activity).
- Vented emissions include GHGs, VOCs, and HAPs. Primary sources are emergency pressure relief valves and dehydrator vents.

Pad and road construction, drilling activities, and tanker traffic would generate emissions of criteria pollutants and HAPs. Primary emissions sources during drilling are diesel exhaust, wind-blown dust from disturbed areas and travel on dirt roads, evaporation from pits and sumps, and gas venting. Diesel emissions are being progressively controlled by the EPA in a nationwide program. This program takes a two-pronged approach. First, fuels are improving to the ultra-low sulfur standard, and second, manufacturers must produce progressively lower engine emissions.

3.1.8 Air Quality Best Management Practices

Under the CAA, federal land management agencies have an affirmative responsibility to protect air quality. Tribes, federal land managers, and private entities can make emission controls part of a lease agreement. BMPs can be adopted for various portions of an oil/gas well's lifecycle. BMPs fall into six general categories.

- **Transportation BMPs to reduce the amount of fugitive dust and vehicle emissions**
 - Use directional drilling to drill multiple wells from a single well pad;
 - use centralized water storage and delivery, well fracturing, gathering systems;
 - use telemetry to remotely monitor and control production;
 - use water or dust suppressants to control fugitive dust on roads;
 - control road speeds; and
 - use van or carpooling.
- **Drilling BMPs to reduce rig emissions**
 - Use cleaner diesel (Tier 2, 3, and 4) engines;
 - use natural gas-powered engines; and
 - use “green” completions to recapture product that otherwise would have been vented or flared.
- **Unplanned or emergency releases**
 - Use high-temperature flaring if gas is not recoverable.
- **Vapor recovery**
 - Use enclosed tanks instead of open pits to reduce fugitive VOC emissions; and
 - use vapor recovery units on storage tanks.
- **Inspection and maintenance**
 - Use and maintain proper hatches, seals, and valves;
 - optimize glycol circulation and install a flash tank separator;
 - use selective catalytic reduction; and
 - replace high-bleed with low-bleed devices on pneumatic pumps.
- **Monitoring and repair**
 - Use directed inspection and maintenance methods to identify and cost-effectively fix fugitive gas leaks; and
 - install an air quality monitoring station.

3.2 WATER RESOURCES

3.2.1 Surface Water

The proposed Fort Berthold #150-94-3B-10-1H and Fort Berthold #151-94-34C-27-1H wells would be located in the Bear Den Bay subwatershed (hydrologic unit code [HUC] 101101012004) of the Bear Den Creek Watershed (HUC 1011010120) (Figure 11). The Bear Den Bay subwatershed is part of the Lake Sakakawea sub-basin.

The Fort Berthold #150-94-3B-10-1H and Fort Berthold #151-94-34C-27-1H well pad would be located approximately 1.85 miles west of Lake Sakakawea, which is classified by the U.S. Geological Survey (USGS) as perennial. Given the topography of the individual sites over the project area, runoff occurs largely as sheet-flow. Runoff that concentrates near the proposed project area would flow via sheet-flow, and would transport run-off from the south and west sides of the well pad into an ephemeral channel which drains southeast into Writing Rock Coulee (HUC 10110101014608) flowing south into Bear Den Bay (Figure 12).

The proposed project would be engineered and constructed to minimize or maintain normal concentrations of suspended solids (i.e., turbidity) in surface runoff, avoid disruption of drainages, and avoid direct impacts to surface water. No surface water would be used for well drilling operations. Any chemicals or potentially hazardous materials would be handled in accordance with the operator's spill prevention, control, and countermeasure plan. Provisions established under this plan would minimize potential impacts to any surface waters associated with an accidental spill.

3.2.2 Groundwater

Aquifers in the project area include, from deepest to most shallow, the Cretaceous Fox Hills and Hell Creek formations and the Tertiary Ludlow, Tongue River, and Sentinel Butte formations (Table 2). Several shallow aquifers related to post-glacial outwash composed of till, silt, sand, and gravel are located in Dunn and McKenzie counties. However, none are within the proposed project area (Figure 11). The shallow Sentinel Butte Formation, commonly used for domestic supply in the area, outcrops in Dunn County and meets standards of the NDDH (Croft 1985). Detailed analyses are available from the North Dakota Geological Survey, Bulletin 68, Part III, 1976.

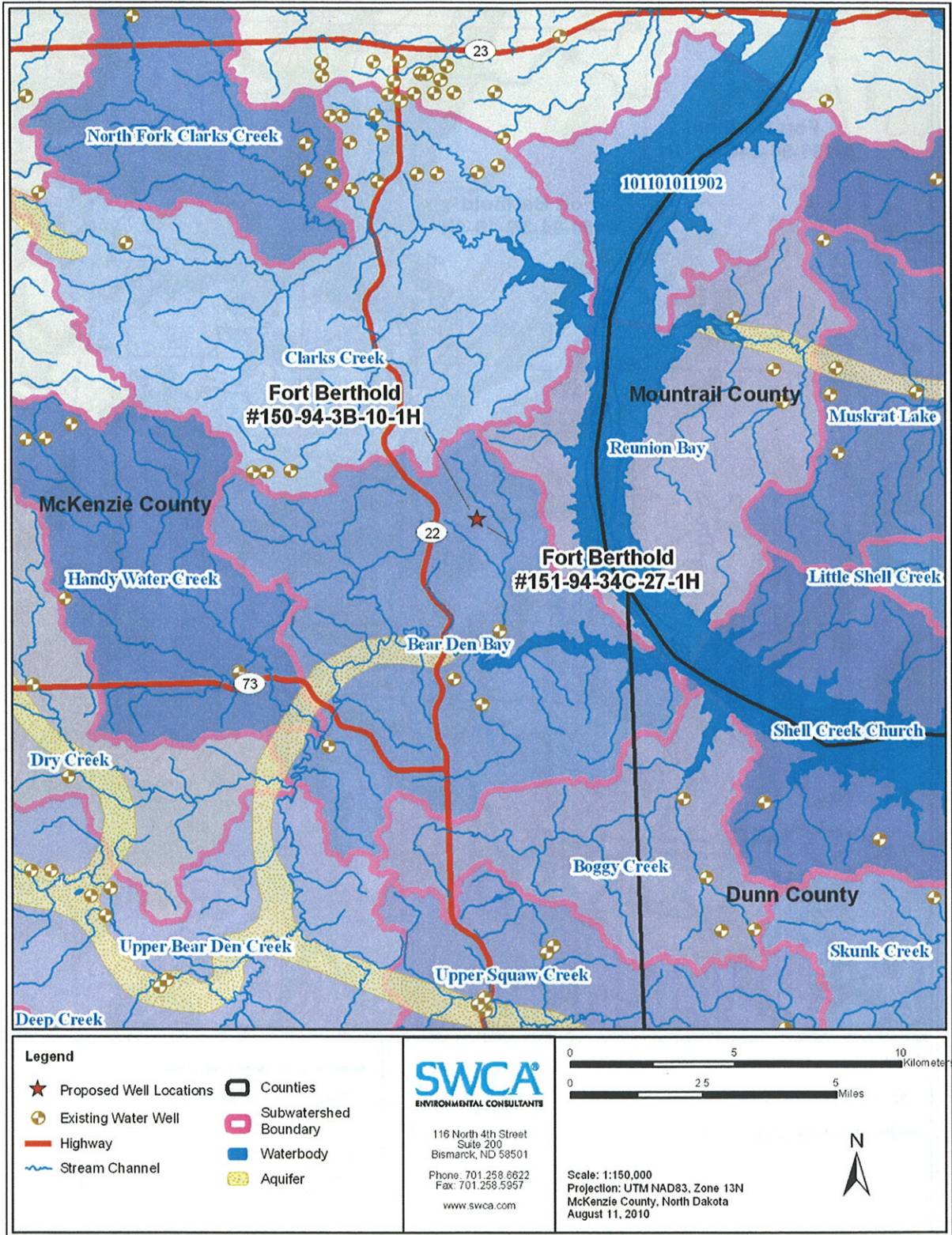


Figure 11. Watersheds and aquifers.

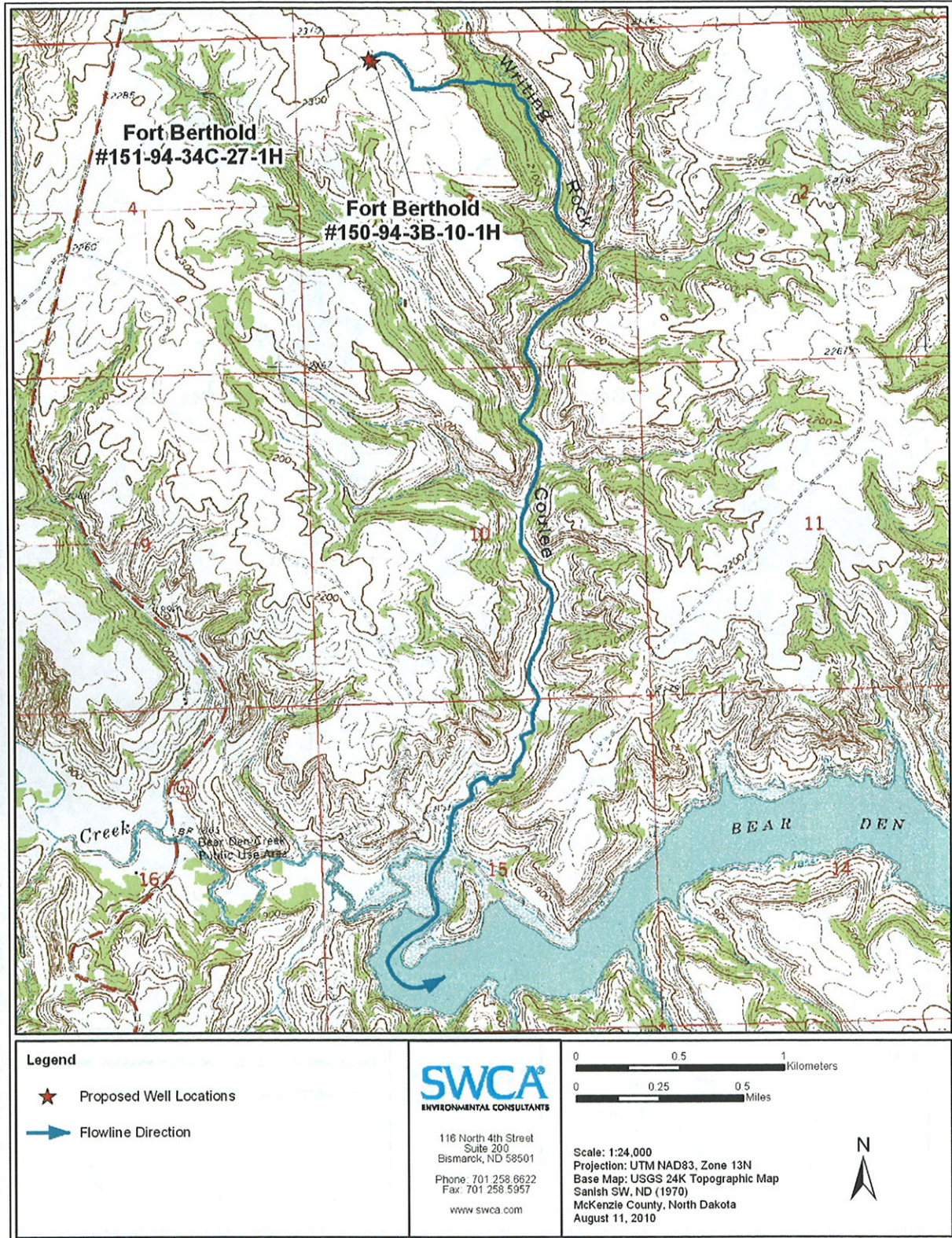


Figure 12. Flow lines from the well locations.

Table 1. Common Aquifers in the Proposed Project Area and Surrounding Region.

Period	Formation	Depth Range (feet)	Thickness (feet)	Lithology	Water-Yielding Characteristics	
Quaternary	Alluvium	0-40	40	Silt, sand, and gravel	Maximum yield of 50 gal/min to individual wells from sand and gravel deposits.	
Tertiary	Fort Union Group	Sentinel Butte	0-670	0-670	Silty, clay, sand and lignite	5 to 100 gal/min in sandstone. 1 to 200 gal/min in lignite.
		Tongue River	140-750	350-490	Silty, clay, sand and lignite	Generally less than 100 gal/min in sandstone.
		Cannonball/Ludlow	500-1,150	550-660	Fine- to medium-grained sandstone, siltstone, and lignite	Generally less than 50 gal/min in sandstone.
Cretaceous	Hell Creek	1,000-1,750	200-300	Claystone, sandstone, and mudstone	5 to 100 gal/min in sandstone.	
	Fox Hills	1,100-2,000	200-300	Fine- to medium-grained sandstone and some shale	Generally less than 200 gal/min in sandstone. Some up to 400 gal/min.	

Source: Croft (1985) and Klausning (1979).
gal/min =gallons per minute

Review of electronic records of the North Dakota State Water Commission (2009) revealed 19 existing water wells within an approximate 5-mile boundary of the proposed project area (Table 3). None of these water wells are located within 1 mile of proposed project well pad. Water quality would be protected by drilling with freshwater to a point below the base of the Fox Hills Formation, implementing proper hazardous materials management, and using appropriate casing and cementing. Drilling would proceed in compliance with Onshore Oil and Gas Order No. 2, *Drilling Operations* (43 CFR 3160).

Since none of the proposed project area lies within the boundaries of the post-glacial outwash aquifers, low porosity bedrock near the project wells would act as confining layers to prevent impacts to groundwater resources. Additionally, well completion methods would prevent cross contamination between aquifers or the introduction of hazardous materials into aquifers. The majority of the identified groundwater wells may have minimal hydrologic connections due to their respective distance from the project wells.

Table 2. Existing Water Wells near the Project Area.

Well Number	Owner	Date Drilled	Section	Township/Range	Type/Use	Depth (feet)	Aquifer	Nearest Well	Miles to Proposed Well
150-093-19ACB	Waterford City	10/7/1988	19	150N/93W	Municipal	95	Unknown	150-94-3B-10-1H	4.26
150-094-09ACC	Howard Fettig	2/24/2001	9	150N/94W	Stock	1,620	Unknown	150-94-3B-10-1H	1.50
150-094-15ABC	Fox, Nick	1962	15	150N/94W	Stock	414	Unknown	150-94-3B-10-1H	2.13
150-094-16ACC1	NDSWC 11360	9/11/1980	16	150N/94W	Unused	40	Unknown	150-94-3B-10-1H	2.44
150-094-16ACC2	NDSWC 11361	9/11/1980	16	150N/94W	Unused	40	Unknown	150-94-3B-10-1H	2.44
150-094-16CAA	Diane Avery	10/12/1994	16	150N/94W	Domestic	280	Unknown	150-94-3B-10-1H	2.59
150-094-19BDD	Shane Johnson	7/5/2000	19	150N/94W	Domestic and Stock	185	Unknown	150-94-3B-10-1H	4.34
150-094-19BDD	Shane Johnson	8/27/2004	19	150N/94W	Domestic	217	Unknown	150-94-3B-10-1H	4.34
150-094-19DDD	Veronica Serdahl	4/21/1989	19	150N/94W	Domestic	830	Unknown	150-94-3B-10-1H	4.47
150-094-21ABA	Youngwolf	1964	21	150N/94W	Stock	380	Unknown	150-94-3B-10-1H	3.03
150-094-22CBA	Youngwolf	1964	22	150N/94W	Stock	327	Unknown	150-94-3B-10-1H	3.47
150-094-30AAC	Lawrence Birdsbill	8/25/1986	30	150N/94W	Stock	200	Unknown	150-94-3B-10-1H4	4.75
150-095-11BA	Joe Wheeler	Unknown	11	150N/95W	Unknown	Unknown	Unknown	151-94-34C-27-1H	4.85
150-095-14DAD	Dean Levang	Unknown	14	150N/95W	Unknown	Unknown	Unknown	151-94-34C-27-1H	4.95
151-093-29ADD	C.B. Shobe	1952	29	151N/93W	Domestic and Stock	270	Unknown	151-94-34C-27-1H	4.98
151-093-29BDD	Charles Shoebe	1996	29	151N/93W	Domestic and Stock	420	Unknown	151-94-34C-27-1H	4.50
151-093-33CBB	G. Larsen	1952	33	151N/93W	Unused	78	Unknown	151-94-34C-27-1H	4.79
151-095-36ABA	Jim Hall	1973	36	151N/95W	Domestic	40	Unknown	150-94-3B-10-1H4	3.61
151-095-36BBA	NDSWC	1982	36	151N/95W	Unknown	1,280	Unknown	150-94-3B-10-1H4	4.01

3.3 WETLANDS, HABITAT, AND WILDLIFE

3.3.1 Wetlands

National Wetland Inventory maps maintained by the U.S. Fish and Wildlife Service (USFWS) do not identify any jurisdictional wetlands in the area of the proposed well pads or access road (USFWS 2009). No wetlands were observed along any access road ROWs or at the well sites during surveys conducted in May 2010. No riparian or wetland habitats are anticipated to be directly or indirectly impacted by the proposed access road or wells.

According to the USFWS National Wetland Inventory database, three palustrine emergent wetlands occur within 1 mile of the proposed project area (Table 4). The project area is approximately 1.8 miles west of Lake Sakakawea.

Table 4. Palustrine Emergent Wetlands within a 1-mile Radius of the Project Area.

Palustrine Emergent Wetland	Distance (miles)	Bearings (degrees)
#1	0.27	59.92
#2	0.49	91.03
#3	0.73	175.37

3.3.2 Wildlife

Several wildlife species that may exist in McKenzie County are listed as threatened or endangered under the Endangered Species Act (ESA). Listed species in McKenzie County include the black-footed ferret, gray wolf, interior least tern, pallid sturgeon, piping plover, and whooping crane. Although delisted in 2007, the bald eagle remains a species of special concern to the BIA and the Department of the Interior, and is effectively treated the same as a listed species. Tribes and states may recognize additional species of concern; such lists are taken under advisement by federal agencies but are not legally binding in the manner of the ESA. Listed species are described below.

ENDANGERED SPECIES

Black-footed Ferret (*Mustela nigripes*)

Status: Endangered

Likelihood of impact: No Effect

Black-footed ferrets are nocturnal, solitary carnivores of the weasel family that have been largely extirpated from the wild primarily due to range-wide decimation of their primary prey species, the prairie dog (*Cynomys* sp.) (USFWS 1988a). They have been listed by the USFWS as endangered since 1967, and have been the object of extensive re-introduction programs (USFWS 2010a). Ferrets inhabit extensive prairie dog complexes of the Great Plains, typically composed of several smaller colonies in proximity to one another that provide a sustainable prey base. Habitat suitable to support ferret families must include prairie dog towns or complexes greater than 80 acres in size (USFWS 1988a). Prairie dog towns of this size are not found in the project or analysis area. In addition, this species has not been observed in the wild for more than 20 years. The proposed project will have no impact on the survival of this species.

Gray Wolf (*Canis lupus*)

Status: Endangered

Likelihood of impact: No Effect

The gray wolf was believed extirpated from North Dakota in the 1920s and 1930s with only sporadic reports from the 1930s to present (Licht and Huffman 1996). The presence of wolves in most of North Dakota is sporadic and consists of occasional dispersing animals from Minnesota and Manitoba (Licht and Fritts 1994; Licht and Huffman 1996). The Turtle Mountains region in north-central North Dakota provides marginal habitat that may be able to support a very small population of wolves. The closest known pack of wolves is the Minnesota population located approximately 28 kilometers (km) from the northeast corner of North Dakota. The gray wolf uses a variety of habitats that support a large prey base, including montane and low-elevation forests, grasslands, and desert scrub (USFWS 2010b).

The proposed project area does not contain suitable habitat for occupation or colonization by gray wolves. Due to the distance of known gray wolf populations in Minnesota, Canada, Montana, and Wyoming, wolves are not expected to occur in the area, and no impacts would occur to this species as a result of the project.

Whooping Crane (*Grus americana*)

Status: Endangered

Likelihood of impact: May Affect, but is Not Likely to Adversely Affect

The whooping crane was listed as Endangered in 1970 in the United States by the USFWS, and in 1978 in Canada. Historically, population declines were caused by shooting and destruction of nesting habitat in the prairies from agricultural development, and current threats to the species include habitat destruction, especially suitable wetland habitats that support breeding and nesting, as well as feeding and roosting during their migration fall and spring migration (Canadian Wildlife Service and USFWS 2007).

Although the species nests in Canada, the project area is within the primary migratory flyway of whooping cranes. Whooping cranes are omnivores and foods typically include agricultural grains, as well as insects, frogs, rodents, small birds, minnows, berries, and plant tubers; the migrating birds spend most of their time foraging in harvested grain fields (Canadian Wildlife Service and USFWS 2007). They generally roost in small palustrine (marshy) wetlands within 1 km of suitable feeding areas (Howe 1987, 1989).

Known suitable habitat (i.e., cultivated cropland) was observed within the project area. However construction activities would occur outside of the whooping crane migration period making their presence within or around the project area during construction unlikely. As a form of active mitigation all work would cease if a whooping crane is observed within a 1-mile radius of the project area. Therefore, due to the commencement of construction activities outside of the whooping crane migration period and the cessation of work if a whooping crane is observed within a 1-mile radius, this project may affect, but is not likely to adversely affect the whooping crane.

Interior Least Tern (*Sterna antillarum*)

Status: Endangered

Likelihood of impact: May Affect, but is Not Likely to Adversely Affect

The population of the interior least tern is listed as endangered by the USFWS (1985a). This bird is the smallest member of the gull and tern family. They are approximately 9 inches in length. Terns stay in close range of flowing water, where they feed by diving into standing or flowing water to catch small fish (USFWS 2010c).

The proposed project area would be located in upland areas that would not provide suitable nesting habitat for the interior least tern. Key habitat includes sparsely vegetated sandbars along rivers, sand and gravel pits, or lake and reservoir shorelines. Interior least tern nests are usually found along the shoreline and islands of Lake Sakakawea, 1.8 miles from the project area. Migrating interior least terns may pass through the project area; however, without suitable nesting habitat, no adverse impact is expected as a result of construction, production, or reclamation activities in upland areas.

Pallid Sturgeon (*Scaphirhynchus albus*)

Status: Endangered

Likelihood of impact: May Affect, but is Not Likely to Adversely Affect

The pallid sturgeon was listed as Endangered in 1990 in the United States due to the decline of this species from river channelization, impoundments, and dams on the Missouri River (USFWS 1990). Pallid sturgeons prefer turbid, main stem river channels. The pallid sturgeon population which is found near the project area occurs from the Missouri River below Fort Peck Dam to the headwaters of Lake Sakakawea (USFWS 2007).

Suitable habitat for pallid sturgeon does not occur in the project area, and Lake Sakakawea is a minimum of 1.8 miles away from the proposed well pad and access road. Activities associated with the construction, production, or reclamation of the proposed project area are not anticipated to adversely affect water quality or the pallid sturgeon.

THREATENED SPECIES

Piping Plover (*Charadrius melodus*) and its Designated Critical Habitat

Status: Threatened

Likelihood of impact: May Affect, but is Not Likely to Adversely Affect

The piping plover is a small shorebird which breeds only in three geographic regions of North America: the Atlantic Coast, the Northern Great Plains, and the Great Lakes (USFWS 2010d). The piping plover population inhabiting the Northern Great Plains was listed as threatened by the USFWS in 1985, (USFWS 1985b). Plovers in the Great Plains make their nests on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands, and on beaches, sand bars, and dredged material islands of major river systems (USFWS 2010d). Piping plovers nest on the ground, making shallow scrapes in the sand, which they line with small pebbles or rocks (USFWS 1988b, 2002). Anthropogenic alterations of the landscape along rivers and lakes where piping plover nest have increased the number and type of predators, subsequently decreasing nest success and chick survival (USFWS 2002, 2010d). Current conservation strategies include identification and preservation of known nesting sites, public education, and

limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 1988b, 2010d).

The entire shoreline of Lake Sakakawea has been designated critical habitat for piping plover (USFWS 2010d). These birds nest on sparsely vegetated shoreline beaches, peninsulas, and islands composed of sand, gravel, or shale. Designated critical habitat of the piping plover along Lake Sakakawea occurs more than 1.8 miles from the project area. Individual piping plovers may pass through the proposed project area during construction, drilling, production, or reclamation activities; however, no impacts are anticipated to the species or its habitat as a result of the project.

MIGRATORY BIRD TREATY ACT / THE BALD AND GOLDEN EAGLE PROTECTION ACT

Bald Eagle (*Haliaeetus leucocephalus*)

Status: Delisted in 2007; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

Likelihood of impact: No Impacts

The bald eagle may occur in the project area. Though delisted, the bald eagle is afforded some protection under the Migratory Bird Treaty Act (916 USC 703–711) and the Bald and Golden Eagle Protection Act (16 USC 668–668c). Suitable habitat does occur within 1 mile of the location. However, surveys for eagle nests were conducted and no eagle nests were found.

Golden Eagle (*Aquila chrysaetos*)

Status: Unlisted; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

Likelihood of impact: No Impacts

The golden eagle prefers habitat characterized by open prairie, plains, and forested areas, and may occur within the project area. Usually, golden eagles can be found in proximity to badland cliffs that provide nesting habitat. Suitable habitat does occur within 1 mile of the location. However, surveys for eagle nests were conducted and no eagle nests were found.

No impacts to listed species are anticipated because of the low likelihood of their occurrence in the proposed project area, confirmed by on-site assessments conducted by biologists from SWCA Environmental Consultants (SWCA). The primary impacts to wildlife species would be short-term and would come as a result of the construction of the well pad area including construction of the proposed access road, increased vehicular traffic density, and drilling activities. Ground clearing might impact habitat for unlisted species, including small birds, small mammals, and other wildlife species. Proposed projects may affect raptor and migratory bird species through direct mortality, habitat degradation, and/or displacement of individual birds. These impacts are regulated in part through the Migratory Bird Treaty Act of 1918 (916 USC 703–711). Fragmentation of native prairie habitat can detrimentally affect grouse species and other grassland bird species; however, due to the ratio of each project area to the total landscape area, the overall disturbance would be negligible. Potential impacts during any long-term commercial production could include the effects of occasional traffic and

continuing erosion or noxious weed infestations along the access road. Such long-term effects would be negligible with the implementation of BMPs.

Several precautions that may limit or reduce the possible impact to all wildlife species include:

- locating the well pad over an area with existing disturbance;
- netting the reserve pits between drilling and reclamation;
- removing any oil found in the pits;
- installing covers under drip buckets and spigots; and
- conducting interim reclamation of portions of the disturbed site not needed for production.

Reclamation would begin without delay if a well is determined to be unproductive, or upon completion of commercial production. Any wildlife species inhabiting the project area are likely to adapt to changing conditions, and continue to persist without adverse impact.

3.4 SOILS

The proposed project area would be located entirely on the Sentinel Buttes Formation. The Sentinel Buttes Formation consists of gray/brown silt, sand, clay, sandstone, and lignite as well as river, lake, and swamp sediment which can be as thick as 600 feet (Clayton 1980).

3.4.1 Natural Resources Conservation Service Soil Data

The Natural Resources Conservation Service (NRCS 2009) soil series present within the well pad and access road areas, and the respective acreages, are summarized in Table 5. The acreage shown in Table 5 is based on the spatial extent of soil series combinations derived from NRCS data (Figure 13); therefore, the acreage is approximate and used as a best estimate of soil series distribution at each of the proposed project areas.

Table 5. Percentage of the Project Area Composed of Specific Soil Types.

Feature	Soil Series	Acres	% of Location
Access Road	Dogtooth-Janesburg silt loams, 0 to 6 percent slopes	0.9	14.2
	Moreau silty clay, 0 to 6 percent slopes	1.8	28.6
	Zahl-Cabba-Arikara complex, 9 to 70 percent slopes	1.9	30.4
	Dogtooth-Janesburg-Cabba complex, 6 to 30 percent slopes	1.4	22.5
	Zahl-Williams loams, 9 to 15 percent slopes	0.3	4.7
Well Pad	Zahl-Williams loams, 9 to 15 percent slopes	4.2	100.0

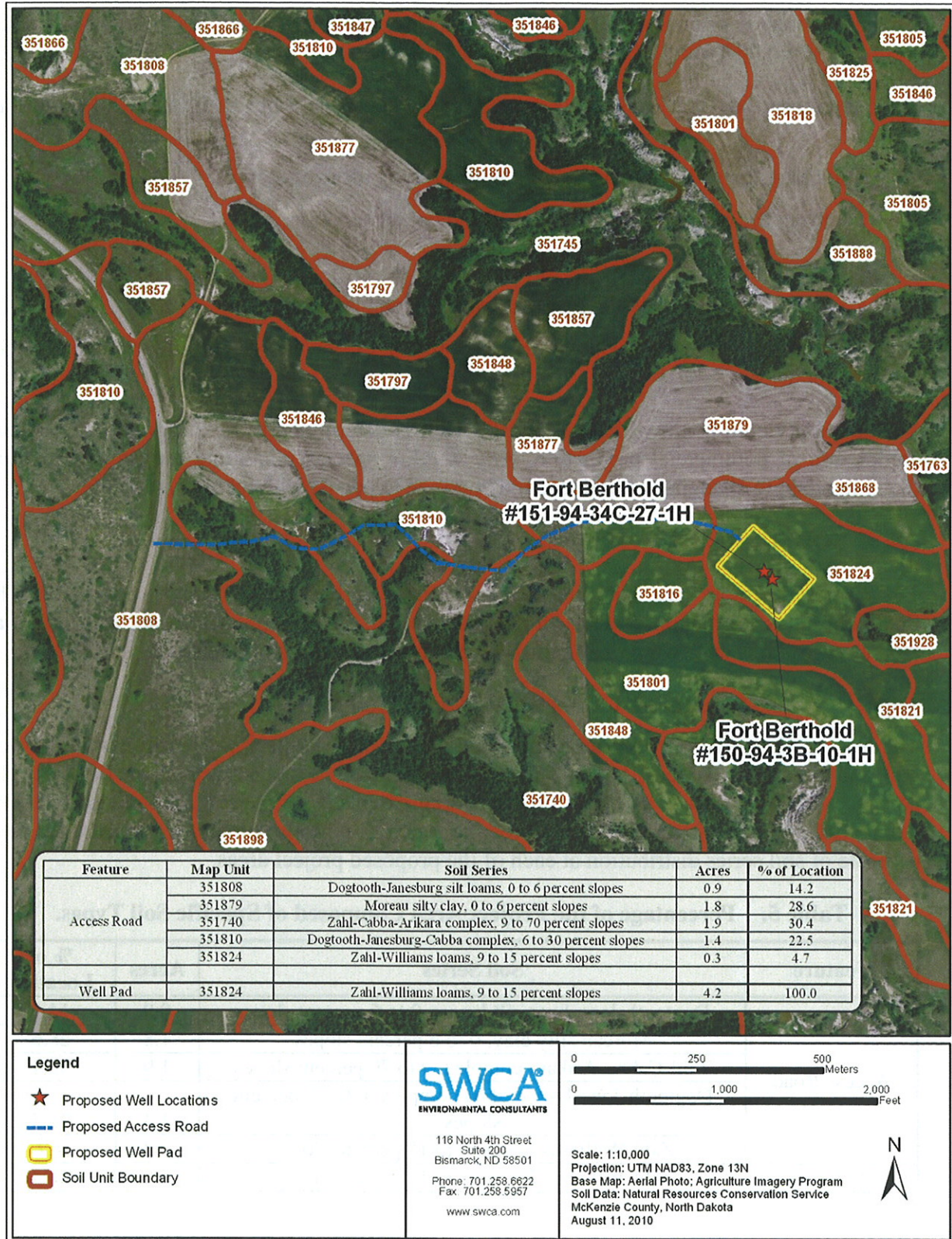


Figure 13. Approximate spatial extent of soil types in and around the dual well pad.

The following soil series descriptions represent individual soil series reported to exist within the proposed project area (NRCS 2009). Each individual soil series does not exist individually in the project areas but rather in combination with other soil types.

Arikara: The Arikara series consists of very deep, well drained soils found on wooded slopes. Permeability is moderate with slopes ranging from approximately 9% to 70%. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 15 inches and mean annual air temperature is approximately 40°F. This soil type is used most often for woodland grazing. Native vegetation species common to this soil type include bur oak (*Quercus macrocarpa*), green ash (*Fraxinus pennsylvanica*), quaking aspen (*Populus tremuloides*), paper birch (*Betula papyrifera*), and Rocky Mountain juniper (*Juniperus scopulorum*) (NRCS 2009).

Cabba: The Cabba series consists of shallow, well drained, moderately permeable soils found on hills, escarpments, and sedimentary plains. The soil slopes broadly range between 2% and 70%. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 16 inches and mean annual air temperature is approximately 43°F. The most common vegetation species found on this soil type are little bluestem (*Schizachyrium scoparium*), green needlegrass (*Nasella viridula*), and other various herbs, forbs, and shrub species (NRCS 2009).

Dogtooth: The Dogtooth series consists of moderately deep, well drained, very slowly permeable soils found in uplands where the predominant slope is between 0% and 25%. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 15 inches and mean annual air temperature is approximately 42°F. The most common vegetation species found on this soil type are range and pasture grasses including western wheatgrass (*Pascopyrum smithii*) and blue grama (*Bouteloua gracilis*) (NRCS 2009).

Janesburg: The Janesburg series consists of moderately deep, well drained soils formed in residuum weathered from alkaline, soft shale, siltstone, and mudstone. These soils have slow or very slow permeability. They are commonly found on upland plains and have slopes of 0% to 25%. Mean annual air temperature is about 42°F, and mean annual precipitation is about 15 inches. This soil type is most often used for range, pasture, and small grains. Native vegetation is western wheatgrass, blue grama, green needlegrass, sedges, and forbs (NRCS 2009).

Moreau: The Moreau series consists of moderately deep, well or moderately well drained, slowly permeable soils that formed in soft calcareous alkaline shales and are found on sedimentary upland plains with slopes at approximately 0% to 40%. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 15 inches and mean annual air temperature is approximately 42°F. This soil type is used for both cultivation and rangeland. Native vegetation species common to this soil type include western wheatgrass, blue grama, and green needlegrass, and a variety of forbs (NRCS 2009).

Williams: The Williams series consists of very deep, slowly permeable, well drained soils found on glacial till plains and moraines with slopes at approximately 0% to 35%. The mean

annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches and mean annual air temperature is approximately 40°F. This soil type is largely used for cultivation. Native vegetation species common to this soil type include western wheatgrass, needleandthread (*Hesperostipa comata*), blue grama, and green needlegrass (NRCS 2009).

Zahl: The Zahl series consists of very deep, slowly permeable, well drained soils found on glacial till plains, moraines, and valley side slopes at approximately 1% to 60%. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches and mean annual air temperature is approximately 40°F. This soil type is largely used for rangeland foraging. Native vegetation species common to this soil type include western wheatgrass, little bluestem, and needleandthread (NRCS 2009).

3.4.2 Field-derived Soil Data

Soil data derived from on-site excavated soil pits, including the matrix value, hue, chroma, and color name, are summarized in Table 6. Additionally, redoximorphic features (i.e., reduced/oxidized iron or manganese) deposits and soil texture were looked for at each location and noted where found. A Munsell soil color chart was used to determine the color of moist soil samples.

Soil erodibility (or K Factor) indicates the vulnerability of material less than 2 millimeters in size to sheet and rill erosion by water. Values can range from 0.02 (i.e., lowest erosion potential) to 0.69 (i.e., greatest erosion potential).

Table 6. Soil Data Obtained through the Excavation of Soil Pits in the Proposed Project Area.

Depth (inches)	Soil Matrix Color (color name)	Redoximorphic Feature Color	Texture	Slope (%)	K Factor
Access Road					
0-5	(100%) 10YR 3/1	N/A	Clay Loam	5-6	0.28
5-8	(90%) 25Y 4/2	N/A	Clay Loam		
5-8	(10%) 10YR 3/1	N/A	Clay Loam		
8-20	(95%) 2.5Y 4/2	N/A	Clay		
8-20	(5%) 10YR 3/1	N/A	Clay		
Well Pad (Disturbed)					
0-10	(100%) 10YR 2/1	N/A	Clay Loam	5	0.28

3.4.3 Conclusions Regarding Soil Erosion Potential

3.4.3.1 Fort Berthold #151-94-34C-27-1H and Fort Berthold #150-94-3B-10-1H (Dual Well Pad)

- The Fort Berthold #151-94-34C-27-1H and Fort Berthold #150-94-3B-10-1H proposed access road is dominated by the Zahl-Cabba-Arikara complex (30.4%) and proposed well pad is dominated by the Zahl-Williams loams (100%) (Table 5).

- The Zahl-Cabba-Arikara complex (access road) has a moderate potential for runoff with slopes ranging between 9% and 70% and the Zahl-Williams loams (well pad) has a low potential for runoff with slopes ranging between 9% and 15% (NRCS 2009).
- Reclamation of vegetative communities should be easily obtainable due to the affinity of native grassland species to this soil type (NRCS 2009).
- The well pad has a K Factor of 0.28. Using the Revised Universal Soil Loss Equation (RUSLE), there could be up to 25.5 tons/acre/year of soil loss from the site if it is not properly managed to prevent such loss. The site would be monitored during and after construction, and BMPs would be used to prevent erosion, minimize runoff and loss of sediment, and ensure soil stabilization.
- Most of the soils are known to support native grassland vegetation, which may substantially increase the probability for successful and permanent reclamation, provided care is taken in areas where the soils are less than ideal for vegetative growth (NRCS 2009).

3.4.3.2 General

The soil types are not expected to create unmanageable erosion issues or interfere with reclamation of the area. Proven BMPs are known to significantly reduce erosion of various types of soil, including those in the project area (BLM Instruction Memorandum 2004-124, www.blm.gov/bmp; BLM and USFS 2007; Grah 1997). Topsoil stripped from areas of new construction would be retained for use during reclamation. Any areas stripped of vegetation during construction would be reseeded once construction activities have ceased. The implementation of BMPs by the operator is projected to reduce and maintain negligible levels of erosion.

3.5 VEGETATION AND INVASIVE SPECIES

The proposed project area occurs in the Little Missouri Badlands level 4 ecoregion which contains a short-grass prairie ecosystem with forested areas found within draws on the north slopes of hills (Bryce et al. 1998). Native grasses include western wheatgrass, blue grama, little bluestem, and prairie sandreed (*Calamovilfa longifolia*). Common wetland vegetation includes various sedge species (*Carex* spp.), bulrush (*Scirpus* spp.), and cattails (*Typha* spp.). Common shrub, sapling, and tree species found in draws and on north slopes include green ash (*Fraxinus pennsylvanica*) and mountain juniper (*Juniperus scopulorum*). Green ash may also be found in riparian zones with eastern cottonwood trees (*Populus deltoides*).

3.5.1 Fort Berthold #151-94-34C-27-1H and Fort Berthold #150-94-3B-10-1H (Dual Well Pad)

Vegetation noted within the Fort Berthold #151-94-34C-27-1H and Fort Berthold #150-94-3B-10-1H project area includes silver sagebrush (*Artemisia cana*), fringed sage (*Artemisia frigida*), smooth brome (*Bromus inermis*), American elm (*Ulmus americana*), white sagebrush (*Artemisia ludoviciana*), western snowberry (*Symphoricarpos occidentalis*), blacksamson Echinacea (*Echinacea angustifolia*), downy hawthorn (*Crataegus mollis*), silver buffaloberry (*Shepherdia argentea*), crested wheatgrass (*Agropyron cristatum*), and little bluestem.

Noxious weeds have the potential to detrimentally affect public health, ecological stability, and agricultural practices. The North Dakota Century Code (Chapter 63-01.1) recognizes 12 species as noxious; seven of these recognized species are known to exist in McKenzie County. Table 7 indicates the total acreage occupied by each noxious species known to exist in McKenzie County. Additional information is available from the NRCS Plants Database for North Dakota at <http://www.plants.usda.gov>.

Table 7. Occupied Area for Recognized Noxious Weeds in McKenzie County, North Dakota.

Common Name	Scientific Name	McKenzie County (acres)
absinth wormwood	<i>Artemisia absinthium</i>	43
Canada thistle	<i>Cirsium arvense</i>	4,300
Dalmatian toadflax	<i>Linaria dalmatica</i>	--
diffuse knapweed	<i>Centaurea diffusa</i>	--
field bindweed	<i>Convolvulus arvensis</i>	--
leafy spurge	<i>Euphorbia esula</i>	1,300
musk thistle	<i>Carduus nutans</i>	2
purple loosestrife	<i>Lythrum salicaria</i>	--
Russian knapweed	<i>Acroptilon repens</i>	1
salt cedar	<i>Tamarix ramosissima</i>	1
spotted knapweed	<i>Centaurea stoebe</i>	1
yellow starthistle	<i>Centaurea solstitialis</i>	--

Source: North Dakota Department of Agriculture 2007

“Invasive” is a general term used to describe plant species that are not native to a given area, spread rapidly, and have adverse ecological and economic impacts. These species may exhibit high reproductive rates and are usually adapted to occupy a diverse range of habitats otherwise occupied by native species. These species may subsequently out-compete native plant species for resources, causing a reduction in native plant populations and an increase in noxious weed populations.

Evaluation of the existing vegetation during on-site assessments conducted in May 2010 indicated no invasive species were present within the project area. However, potential disturbance of approximately 11.8 acres and removal of existing vegetation may facilitate the spread of invasive species. The APD and this EA require the operator to control noxious weeds throughout the project area. Surface disturbance and vehicular traffic must not take place outside approved ROWs or the well pad. Areas that are stripped of topsoil must be re-seeded and reclaimed at the earliest opportunity. Additionally, certified weed-free straw and seed must be used for all construction, seeding, and reclamation efforts. Prompt and appropriate construction, operation, and reclamation are expected to maintain minimal levels of adverse impacts to vegetation and will reduce the potential establishment of invasive vegetation species.

3.6 CULTURAL RESOURCES

Historic properties, or cultural resources, on federal or tribal lands are protected by many laws, regulations and agreements. The *National Historic Preservation Act of 1966* (16 USC 470 *et seq.*) at Section 106 requires, for any federal, federally assisted or federally licensed undertaking, that the federal agency take into account the effect of that undertaking on any district, site, building, structure or object that is included in the National Register of Historic Places (National Register) before the expenditure of any federal funds or the issuance of any federal license. Cultural resources is a broad term encompassing sites, objects, or practices of archaeological, historical, cultural and religious significance. Eligibility criteria (36 CFR 60.6) include association with important events or people in our history, distinctive construction or artistic characteristics, and either a record of yielding or a potential to yield information important in prehistory or history. In practice, properties are generally not eligible for listing on the National Register if they lack diagnostic artifacts, subsurface remains or structural features, but those considered eligible are treated as though they were listed on the National Register, even when no formal nomination has been filed. This process of taking into account an undertaking's effect on historic properties is known as "Section 106 review," or more commonly as a cultural resource inventory.

The area of potential effect (APE) of any federal undertaking must also be evaluated for significance to Native Americans from a cultural and religious standpoint. Sites and practices may be eligible for protection under the *American Indian Religious Freedom Act of 1978* (42 USC 1996). Sacred sites may be identified by a tribe or an authoritative individual (Executive Order 13007). Special protections are afforded to human remains, funerary objects, and objects of cultural patrimony under the *Native American Graves Protection and Repatriation Act* (NAGPRA, 25 USC 3001 *et seq.*).

Whatever the nature of the cultural resource addressed by a particular statute or tradition, implementing procedures invariably include consultation requirements at various stages of a federal undertaking. The MHA Nation has designated a Tribal Historic Preservation Officer (THPO) by Tribal Council resolution, whose office and functions are certified by the National Park Service. The THPO operates with the same authority exercised in most of the rest of North Dakota by the State Historic Preservation Officer (SHPO). Thus, BIA consults and corresponds with the THPO regarding cultural resources on all projects proposed within the exterior boundaries of the Fort Berthold Reservation.

A cultural resource inventory of this dual well pad and access road was conducted by personnel of SWCA Environmental Consultants, using an intensive pedestrian methodology. Approximately 19.75 acres were inventoried on May 11, 2010 (Lechert 2010). No historic properties were located that appear to possess the quality of integrity and meet at least one of the criteria (36 CFR 60.6) for inclusion on the National Register. As the lead federal agency, and as provided for in 36 CFR 800.5, on the basis of the information provided, BIA reached a determination of **no historic properties affected** for this undertaking. This determination was communicated to the THPO on September 10, 2010 and the THPO concurred on September 15, 2010.

No cultural resources are known to be present in the APE. If cultural resources are discovered during construction or operation, the operator shall immediately stop work, secure the affected site, and notify the BIA and THPO. Unexpected or inadvertent discoveries of cultural resources or human remains trigger mandatory federal procedures that include work stoppage and BIA consultation with all appropriate parties. Following any such discovery, operations would not resume without written authorization from the BIA. Project personnel are prohibited from collecting any artifacts or disturbing cultural resources in the area under any circumstance. Individuals outside the ROW are trespassing. No laws, regulations, or other requirements have been waived; no compensatory mitigation measures are required. The presence of qualified cultural resource monitors during construction activities is encouraged.

3.7 PUBLIC HEALTH AND SAFETY

Health and safety concerns include sour gas that could be released as a result of drilling activities, hazards introduced by heavy truck traffic, and hazardous materials used or generated during construction, drilling, and/or production activities.

Hydrogen sulfide is extremely toxic in concentrations above 500 ppm, but it has not been found in measurable quantities in the Bakken Formation. Before reaching the Bakken, however, drilling would penetrate the Mission Canyon Formation, which is known to contain varying concentrations of hydrogen sulfide. Contingency plans submitted to the BLM comply fully with relevant portions of Onshore Oil and Gas Order No. 6 to minimize potential for gas leaks during drilling. Emergency response plans protect both the drilling crew and the general public within 1 mile of a well; precautions include automated sampling and monitoring by drilling personnel stationed at each well site.

Other potential adverse impacts from construction would be largely temporary. Noise, fugitive dust, and traffic hazards would be present for about 60 days during construction, drilling, and well completion as equipment and vehicles move on and off the site, and then diminish sharply during production operations. If a well proves productive, one small pumper truck would visit the well once a day to check the pump. Bakken wells typically produce both oil and water at a high rate initially. Gas would be flared initially and intermittently, while oil and produced water would be stored on the well pad in tanks and then hauled out by tankers until the well could be connected to gathering pipelines. Up to four 400-barrel oil tanks and one 400-barrel water tank would be located on the pad inside a berm of impervious compacted subsoil. The berm would be designed to hold 110% of the capacity of the largest tank.

Tanker trips would depend on production, but Petro-Hunt estimates approximately two trucks per day during the initial production period. Trucks for normal production operations would use the existing and proposed access roads. Produced water would be transported to an approved disposal site. All traffic would be confined to approved routes and conform to established load restrictions and speed limits for state and BIA roadways and haul permits would be acquired as appropriate.

The EPA specifies chemical reporting requirements under Title III of the Superfund Amendments and Reauthorization Act (SARA), as amended. No chemicals subject to reporting under SARA Title III (hazardous materials) in an amount greater than 10,000 pounds would be used, produced, stored, transported, or disposed of annually in association with the Proposed Action. Furthermore, no extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities would be used, produced, stored, transported, or disposed of in association with the Proposed Action. All operations, including flaring, would conform to instructions from BIA fire management staff.

A temporary, lined reserve pit would be constructed within the disturbed area of the well pad and constructed so as not to leak, break, or allow discharge and in a way that minimizes the accumulation of precipitation runoff into the pit.

Spills of oil, produced water, or other produced fluids would be cleaned up and disposed of in accordance with appropriate regulations. Sewage would be contained in a portable chemical toilet during drilling. All trash would be stored in a trash cage and hauled to an appropriate landfill during and after drilling and completion operations.

3.8 SOCIOECONOMICS

The scope of analysis for social and economic resources includes a discussion of current social and economic data relevant to the project area and surrounding communities of the Reservation and McKenzie, Dunn, McLean, and Mountrail counties, North Dakota. These counties were chosen for analysis because potential socioeconomic impacts would most likely be realized due to their proximity to the proposed well locations and overlap of the Reservation. These communities are collectively referred to as the Analysis Area.

This section discusses community characteristics such as population, housing, demographics, employment, and economic trends taking place in the Analysis Area. Also included are data relating to the State of North Dakota and the United States, which provide a comparative discussion when compared to the Analysis Area. Information in this section was obtained from various sources including, but not limited to, the U.S. Census Bureau, the U.S. Bureau of Economics, and the North Dakota State Government.

3.8.1 Employment

The economy in the state of North Dakota, including the Reservation and four counties in the Analysis Area, has historically depended on agricultural, including grazing and farming. However, energy development and extraction, power generation, and services relating to these activities have increased over the last several years. Consequently, service and trade sectors have also become increasingly important; many of the service sector jobs are directly and indirectly associated with oil and gas development. In 2007, total employment in the state of North Dakota was approximately 487,337 (U.S. Bureau of Economic Analysis 2009a). Of this, the largest employers include government and government enterprises employing 16.6% of the labor force (81,218 jobs); health care and social assistance at 11.7% of the labor force (56,990 jobs); and retail trade at 11.3% of the labor force (55,478 jobs) (U.S. Bureau of

Economic Analysis 2009a). Table 8 provides total employment opportunities for the Analysis Area between 2001 and 2007.

Table 8. Total Employment for the Analysis Area and State of North Dakota, 2001 and 2007.

Location	Total Employment (2001)	Total Employment (2007)	Percent Change (+)	Unemployment Rate (2007)
Dunn County	1,941	1,961	1.0	3.8%
McKenzie County	4,164	4,600	10.4	3.1%
McLean County	5,173	5,448	5.3	4.6%
Mountrail County	3,691	3,711	0.5	5.7%
On or Near Fort Berthold Indian Reservation	1,211	1,287*	6.2	71%
North Dakota	448,897	487,337	8.5	3.1%

U.S. Bureau of Economic Analysis 2009a.

* Bureau of Indian Affairs 2005. Represents 2005 data.

Although detailed employment information for the Reservation is not provided by the U.S. Bureau of Economics or the State of North Dakota, residents of the Reservation are employed in similar ventures as those outside the Reservation. Typical employment includes ranching, farming, tribal government, tribal enterprises, schools, federal agencies, and recently, employment related to conventional energy development. The MHA Nation's Four Bears Casino and Lodge, located 4 miles west of New Town, employs approximately 320 people, of which 90% are tribal members (Fort Berthold Housing Authority 2008).

The Fort Berthold Community College, which is tribally chartered to meet the higher education needs of the people of the MHA Nation, had 11 full-time members and 25 adjunct members in academic year 2006–2007. Approximately 73% of the full-time faculty members are of American Indian/Alaska Native descent, approximately 88% of which are enrolled members of the MHA Nation. Additionally, 65% of the part-time faculty members are of American Indian/Alaska Native descent and all (100%) are tribal members.

The BIA publishes biannual reports documenting the Indian service and labor market for the nation. According to the 2005 American Indian Population and Labor Force Report, of the 8,773 tribal members that were eligible for BIA-funded services, 4,381 constituted the total available workforce. Approximately 29%, or 1,287 members, were employed in 2005, indicating a 71% unemployment rate (as a percent of the labor force) for members living on or near the Reservation; 55% of the employed members were living below poverty guidelines. Compared to the 2001 report, 2005 statistics reflect a 6.2% increase in the number of tribal members living on or near the Reservation, but unemployment (as a percent of the labor force) has stayed steady at 71% and the percentage of employed people living below the poverty guidelines has increased to 55% (BIA 2005).

3.8.2 Income

Per capita income is often used as a measure of economic performance, but it should be used with changes in earnings for a realistic picture of economic health. Since total personal income includes income from 401(k) plans as well as other non-labor income sources like transfer payments, dividends, and rent, it is possible for per capita income to rise even if the average wage per job declines over time.

The North American Industry Classification System (NAICS) is the standard used by federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. According to NAICS standards, per capita personal income for Dunn County was \$20,634 in 2000 and \$26,440 in 2007, an increase of approximately 28.1%; per capita personal income for McKenzie County was \$21,637 in 2000 and \$32,927 in 2007, an increase of approximately 52.1%; per capita personal income for McLean County was \$23,001 in 2000 and \$38,108 in 2007, an increase of approximately 65.6%; and per capita personal income for Mountrail County was \$23,363 in 2000 and \$32,324 in 2007, an increase of approximately 38.3%. These figures compare with a State of North Dakota per capital personal income of \$25,105 in 2000 and \$36,082 in 2007, an increase of approximately 43.7% from 2000 (U.S. Bureau of Economic Analysis 2009b).

According to a 2008 report published by the Fort Berthold Housing Authority, the average per capita income for the Reservation was \$8,855 in 1999, compared to \$17,769 for the state and the U.S. average of \$21,587 at that time (Fort Berthold Housing Authority 2008).

With the exception of McLean County, counties that overlap the Reservation tend to have per capita incomes and median household incomes below North Dakota statewide averages (Table 9). Similarly, as presented in Table 9, unemployment rates in all counties, including the Reservation, were equal to or above the state average of 3.1%. Subsequently, Reservation residents and MHA Nation members tend to have per capita incomes and median household incomes below the averages of the encompassing counties, as well as statewide and higher unemployment. Per capita income for residents on or near the Reservation is approximately 28% lower than the statewide average. The median household income reported for the Reservation (i.e., \$26,274) is approximately 40% lower than the state median of \$43,936. According to the BIA, approximately 55% of tribal members living on or near the Reservation were employed, but living below federal poverty levels (BIA 2005).

Table 9. Income and Unemployment 2007

Unit of Analysis	Per Capita Income ¹	Median Household Income	Percent of All People in Poverty ²
Dunn County	\$26,440	\$37,632	13.5%
McKenzie County	\$32,927	\$41,333	13.8%
McLean County	\$38,108	\$44,421	10.4%
Mountrail County	\$32,324	\$35,981	15.9%
Fort Berthold Indian Reservation ³	\$10,291	\$26,274	N/A
North Dakota	\$36,082	\$43,936	11.8%

Source: ¹ U.S. Bureau of Economic Analysis 2009b

² United States Department of Agriculture (USDA) 2009

³ North Dakota State Data Center 2009.

N/A – Data not available.

3.8.3 Population

Historic and current population counts for the Analysis Area, compared to the state, are provided below in Table 10. The state population showed little change between the last two census counts (1990–2000), but there were notable changes at the local level. Populations in all four counties have steadily declined in the past. McLean and Dunn counties had a higher rate of population decline among the four counties at 10.5% and 7.8%, respectively. These declines can be attributed to more people moving to metropolitan areas, which are perceived as offering more opportunities for growth. However, population on or near the Reservation has increased approximately 13.3% since 2000. While Native Americans are the predominant group on the Reservation, they are considered the minority in all other areas of North Dakota.

As presented in Table 10, population growth on the Reservation (13.3%) exceeds the overall growth in the state of North Dakota (-0.1%) and four counties in the Analysis Area. This trend in population growth for the Reservation is expected to continue in the next few years (Fort Berthold Housing Authority 2008).

Table 10. Population and Demographics.

County or Reservation	Population in 2008	% of State Population	% Change Between 1990–2000	% Change Between 2000–2008	Predominant Group (%)	Predominant Minority (Percent of Total Minority Population)
Dunn	3,318	0.5	-10.1	-7.8	Caucasian (84.9%)	American Indian (15.1%)
McKenzie	5,674	0.8	-10.1	-1.1	Caucasian (76.3%)	American Indian (23.7%)
McLean	8,337	1.3	-11.0	-10.5	Caucasian (91.3%)	American Indian (8.7%)
Mountrail	6,511	1.0	-5.6	-1.8	Caucasian (62.8%)	American Indian (37.2%)
On or Near Fort Berthold Indian Reservation ¹	11,897	1.8	178.0 ²	13.3 ³	American Indian	Caucasian (~27%)
Statewide	641,481	100	0.005	-0.1	Caucasian	American Indian (8.6%)

Source: U.S. Census Bureau 2009a.

¹ Bureau of Indian Affairs 2005. Population shown reflects the Total enrollment in the Tribe in 2005. 2008 data unavailable. All information related to the Fort Berthold Reservation reflects 2005 data, including state population. 11,897 reflects tribal enrollment on or near the Reservation. According to the BIA, near the Reservation includes those areas or communities adjacent or contiguous to the Reservation.

² Bureau of Indian Affairs 2001. Reflects percent change between 1991 and 2001.

³ Reflects percent change between 2001 and 2005.

3.8.4 Housing

Workforce-related housing can be a key issue associated with development. Historical information on housing in the four counties in the Analysis Area was obtained from the U.S. Census Bureau, 2000 census. Because the status of the housing market and housing availability changes often, current housing situations can be difficult to characterize quantitatively. Therefore, this section discusses the historical housing market. Table 11 provides housing unit supply estimates in the Analysis Area, including the Reservation and four overlapping counties.

The Fort Berthold Housing Authority manages a majority of the housing units within the Reservation. Housing typically consists of mutual-help homes built through various government programs, low-rent housing units, and scattered-site homes. Housing for government employees is limited, with a few quarters in Mandaree and White Shield available to Indian Health Service employees in the Four Bears Community and to BIA employees. Private purchase and rental housing are available in New Town. New housing construction has recently increased within much of the Analysis Area, but availability remains low.

Availability and affordability of housing could impact oil and gas development and operations. The number of owner-occupied housing units (1,122) within the Reservation is approximately 58% lower than the average number of owner-occupied housing units found in the four overlapping counties (1,921).

Table 11. Housing Development Data for the Reservation and Encompassing Counties.

Region	Total Housing Units						
	Occupied	Owner Occupied	Renter Occupied	Vacant	Total	Total	% Change
	2000	2000	2000	2000	2000	2008	2000–2008
Dunn	1,378	1,102	276	587	1,965	1,968	0.1
McKenzie	2,151	1,589	562	568	2,719	2,781	2.2
McLean	3,815	3,135	680	1,449	5,264	5,420	2.9
Mountrail	2,560	1,859	701	878	3,438	3,528	2.6
Reservation	1,908	1,122	786	973	2,881	N/A	N/A
North Dakota	257,152	171,299	85,853	32,525	289,677	313,332	8.2

Source: U.S. Census Bureau n.d.

N/A = Data not available.

In addition to the relatively low percent change of the total housing units compared to the state average, these four counties are ranked extremely low for both the state and national housing starts and have minimal new housing building permits, as presented in Table 12.

Table 3. Housing Development Data for the Encompassing Counties 2000–2008.

Housing Development	North Dakota County			
	Dunn	McKenzie	McLean	Mountrail
New Private Housing Building Permits 2003–2008	14	14	182	110
Housing Starts-State Rank	51 / 53	15 / 53	21 / 53	17 / 53
Housing Starts-National Rank	3,112 / 3,141	2,498 / 3,141	2,691 / 3,141	2,559 / 3,141

Source: U.S. Census Bureau 2009b, 2009c

Impacts to socioeconomic resources of the Analysis Area would be minimal and therefore would not adversely impact the local area. Short-term impacts to socioeconomic resources would generally occur during the construction/drilling and completion phases of the proposed wells. Long-term effects would occur during the production phase, should the wells prove successful. Impacts would be significant if the affected communities and local government experienced an inability to cope with changes including substantial housing shortages, fiscal problems, or breakdown in social structures and quality of life.

As presented in Table 13, implementation of the proposed wells is anticipated to require between 14 and 28 workers per well in the short-term. If the wells prove successful, Petro-Hunt would install production facilities and begin long-term production. To ensure successful operations, production activities require between one and four full-time employees to staff operations. It is anticipated that a mix of local and Petro-Hunt employees would work in the Analysis Areas. Therefore, any increase in workers would constitute a minor increase in population in the Analysis Area required for short-term operations and would not create a noticeable increase in demand for services or infrastructure on the Reservation or the communities near the Analysis Area, including McKenzie and Dunn counties. Because the communities likely impacted by the proposed project have experienced a recent decline in population between 2000 and 2008 (as shown in Table 11), with the exception of the Reservation itself, and the historic housing vacancy rate (Table 11) indicates housing availability despite the growth of the population on the Reservation, these communities are able to absorb the projected slight increase in population related to this proposed project. As such, the proposed project would not have measurable impacts on housing availability or community infrastructure in the area. The proposed project also would not result in any identifiable impacts to social conditions and structures within the communities in the Analysis Area.

Table 4. Duration of Employment during Proposed Project Implementation.

Activity	Duration of Activity (average days per well)	Daily Personnel (average number per well)
Construction (access road and well pad)	8–10 days	3–5
Drilling	35–40 days	8–15
Completion/Installation of Facilities	Approx. 10 days	3–8
Production	Ongoing – life of well	1–4

Implementation of the proposed project would likely result in direct and indirect economic benefits associated with industrial and commercial activities in the area, including the Reservation, State of North Dakota, and potentially local communities near the Reservation. Direct impacts would include increased spending by contractors and workers for materials, supplies, food, and lodging in McKenzie and Dunn counties and the surrounding areas, which would be subject to sales and lodging taxes. Other state, local, and Reservation tax payments and fees would be incurred as a result of the implementation of the proposed project, with a small percentage of these revenues distributed back to the local economies. Wages due to employment would also impact per capita income for those that were previously unemployed or underemployed. Indirect benefits would include increased spending from increased oil and gas production, as well as a slight increase in generated taxes from the short-term operations. Mineral severance and royalty taxes, as well as other relevant county and Reservation taxes on production would also grow directly and indirectly as a result of increased industrial activity in the oil and gas industry.

3.9 ENVIRONMENTAL JUSTICE

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, signed in 1994 by President Clinton, requires agencies advance environmental justice (EJ) by pursuing fair treatment and meaningful involvement of minority and low-income populations. Fair treatment means such groups should not bear a disproportionately high share of negative environmental consequences from federal programs, policies, decisions, or operations. Meaningful involvement means federal officials actively promote opportunities for public participation, and federal decisions can be materially affected by participating groups and individuals.

The EPA headed the interagency workgroup established by the 1994 Executive Order and is responsible for related legal action. Working criteria for designation of targeted populations are provided in *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses* (EPA 1998). This guidance uses a statistical approach to consider various geographic areas and scales of analysis to define a particular population's status under the Executive Order.

EJ is an evolving concept with potential for disagreement over the scope of analysis and the implications for federal responsiveness. Nevertheless, due to the population numbers, tribal members on the Great Plains qualify for EJ consideration as both a minority and low-income population. Table 14 summarizes relevant data regarding minority and low-income populations for the Analysis Area.

Table 5. Population Breakdown by Region and Race, 2002–2008.

Race	Dunn		McKenzie		McLean		Mountrail		North Dakota	
	2002	2008	2002	2008	2002	2008	2002	2008	2002	2008
Caucasian	3,067	2,818	4,493	4,329	8,313	7,610	4,480	4,086	587,085	586,272
African American	1	2	4	30	1	9	8	27	4,931	6,956
American Indians and Alaska Natives	469	467	1,175	1,230	558	587	1,949	2,277	31,104	35,666
Asian / Pacific Islanders	4	3	4	10	17	19	17	20	4,679	5,095
Two or More Races	1	28	32	75	118	112	68	101	6,311	7,492
All Minorities	475	500	1,215	1,345	694	727	2,042	2,425	47,025	55,209

Source: Northwest Area Foundation 2009.

In 2008, North Dakota’s total minority population comprised approximately 55,209, or 8.6% of the state’s total population. This is an increase of approximately 17.4% over the 2002 minority population numbers, compared with the 1.2% overall increase for the state’s total population during the same time. Although 91.3% of the population in North Dakota is classified as Caucasian, this is a decrease of 1.3% from 2002. Conversely, as presented in Table 14, the minority population of the state has increased steadily since 2002. For example, the American Indian and Alaska Native population increased 0.6%, from 4.9% of the 2002 state population to 5.5% of the 2008 state population. Approximately 70% of Reservation residents are tribal members and 14% of the Dunn County population and 21.6% of the McKenzie County population comprises American Indians and Alaska Natives.

Poverty rate data for the counties in the Analysis Area are summarized in Table 15. The data show that poverty rates for Dunn County, Mountrail County, and the State of North Dakota increased from 2000 to 2007. Poverty rates have decreased for McKenzie and McLean counties.

Table 6. Poverty Rates for the Analysis Area.

Location	2000	2007
Dunn County	13.3%	13.5%
McKenzie County	15.7%	13.8%
McLean County	12.3%	10.4%
Mountrail County	15.7%	15.9%
Fort Berthold Reservation	N/A	N/A
North Dakota	10.4%	11.8%

Source: U.S. Census Bureau 2009d.

N/A = Data not available.

Generally, existing oil and gas leasing has already benefited the MHA Nation government and infrastructure from tribal leasing, fees, and taxes. Current oil and gas leasing on the Reservation has also already generated revenue to MHA Nation members who hold surface and/or mineral interests. However, owners of allotted surface within the Analysis Area may not necessarily hold mineral rights. In such cases, surface owners do not receive oil and gas lease or royalty income, and their only related income would be compensation for productive acreage lost to road and well pad construction. Those with mineral interests also may benefit from royalties on commercial production if the wells prove successful. Profitable production rates at proposed locations might lead to exploration and development of additional tracts owned by currently non-benefitting allottees. In addition to increased revenue for land and mineral holders, exploration and development would increase employment on the Reservation with oversight from the Tribal Employment Rights Office, which would help alleviate some of the poverty prevalent on or near the Reservation. Tribal members without either surface or mineral rights would not receive any direct benefits, except through potential employment, should they be hired. Indirect benefits of employment and general tribal gains would be the only potential offsets to negative impacts.

Additional potential impacts to tribes and tribal members include disturbance of cultural resources. There is potential for disproportionate impacts, especially if the impacted tribes and members do not reside within the Reservation and therefore do not share in direct or indirect benefits. This potential is reduced following the surveys of proposed well locations and access road routes and determination by the BIA that there would be no effect to historic properties. Furthermore, no resource is known to be present that qualifies as a TCP or for protection under the American Indian Religious Freedom Act. Potential for disproportionate impacts is further reduced by requirements for immediate work stoppage following an unexpected discovery of cultural resources of any type. Mandatory consultation would take place during any such work stoppage, affording an opportunity for all affected parties to assert their interests and contribute to an appropriate resolution, regardless of their home location or tribal affiliation.

The proposed project has not been found to pose a threat for significant impact to any other critical element, including air quality, public health and safety, water quality, wetlands, wildlife, soils, or vegetation within the human environment. Through the avoidance of such

impacts, no disproportionate impact is expected to low-income or minority populations. The Proposed Action offers many positive consequences for tribal members, while recognizing EJ concerns. Procedures summarized in this document and in the APD are binding and sufficient. No laws, regulations, or other requirements have been waived; no compensatory mitigation measures are required.

3.10 MITIGATION AND MONITORING

Many protective measures and procedures are described in this document and in the APD. No laws, regulations, or other requirements have been waived; no compensatory mitigation measures are required. Monitoring of cultural resource impacts by qualified personnel is recommended during all ground-disturbing activities. Each phase of construction and development through production will be monitored by the BLM, BIA, and representatives of the MHA Nation to ensure the protection of cultural, archaeological, and natural resources. In conjunction with 43 CFR 46.30, 46.145, 46.310, and 46.415, a report will be developed by the BLM and BIA that documents the results of monitoring in order to adapt the projects to eliminate any adverse impact on the environment.

Mitigation opportunities can be found in general and operator-committed BMPs and mitigation measures. BMPs are loosely defined as techniques used to lessen the visual and physical impacts of development. The BLM has created a catalog of BMPs that, when properly implemented, can assist industry in a project's design, scheduling, and construction techniques. Petro-Hunt would implement, to the extent possible, the use of BMPs in an effort to mitigate environmental concerns in the planning phase allowing for smoother analysis, and possibly faster project approval. Many of these are required by the BLM when drilling federal or tribal leaseholds and can be found in the surface use plan in the Application for Permits to Drill.

3.10.1 General BMPs

Although largely project-specific, there are a number of BMPs that can, and should, be considered on development projects in general. The following are examples of general BMPs.

- Planning roads and facility sites to minimize visual impacts.
- Using existing roads to the extent possible, upgrading as needed.
- Reducing the size of facility sites and types of roads to minimize surface disturbance.
- Minimizing topsoil removal.
- Stockpiling stripped topsoil and protecting it from erosion until reclamation activities commence. At that time, the soil would be redistributed and reseeded on the disturbed areas. The reclaimed areas would be protected and maintained until the sites are fully stabilized.
- Avoiding removal of, and damage to, trees, shrubs, and groundcover where possible. Trees near construction areas would be marked clearly to ensure that they are not removed.
- Mowing, instead of clearing, a facility or well site to accommodate vehicles or equipment.

- Maintaining buffer strips or using other sediment control measures to avoid sediment migration to stream channels as a result of construction activities.
- Planning for erosion control.
- Proper storage of chemicals (including secondary containment).
- Keeping sites clean, including containing trash in a portable trash cage. The trash cage would be emptied at a state-approved sanitary landfill.
- Conducting snow removal activities in a manner that does not adversely impact reclaimed areas and areas adjacent to reclaimed areas.
- Avoiding or minimizing topographic alterations, activities on steep slopes, and disturbances within stream channels and floodplains to the extent possible.
- Maintaining buffers around work areas where there is a risk of fire as a result of construction activities.
- Keeping fire extinguishers in all vehicles.
- Planning transportation to reduce vehicle density.
- Posting speed limits on roads.
- Avoiding traveling during wet conditions that could result in excessive rutting.
- Painting facilities a color that would blend with the environment.
- Practicing dust abatement on roads.
- Recontouring disturbed areas to approximate the original contours of the landscape.
- Developing a final reclamation plan that allows disturbed areas to be quickly absorbed into the natural landscape.

Petro-Hunt recognizes that there are several BMPs that can be used to mitigate environmental concerns specific to projects associated with below-ground linear alignments, such as those included in the proposed utility corridor. These include:

- following the contour (form and line) of the landscape;
- avoiding locating ROWs on steep slopes;
- sharing common ROWs;
- co-locating multiple lines in the same trench; and
- using natural (topography, vegetation) or artificial (berms) features to help screen facilities such as valves and metering stations.

Petro-Hunt would implement these and/or other BMPs to the extent that they are technically feasible and would add strategic and measurable protection to the project area.

3.10.2 Mitigation and Safety Measures Committed to by Petro-Hunt

3.10.2.1 Dust Control

During construction, a watering truck may be kept on site and the access roads would be watered as necessary, especially during periods of high winds and/or low precipitation.

3.10.2.2 Fire Control

Petro-Hunt would implement fire prevention and control measures including, but not limited to:

- requiring construction crews to carry fire extinguishers in their vehicles and/or equipment;
- training construction crews in the proper use of fire extinguishers; and
- contracting with the local fire district to provide fire protection.

3.10.2.3 Traffic

Construction personnel will stay primarily within the ROW or will follow designated access roads.

3.10.2.4 Wildlife

During an informal Section 7 consultation with the USFWS, the following mitigation measures were agreed upon to reduce the potential impact to protected species.

- Whooping Cranes: If a whooping crane is sighted within 1 mile of the proposed project area, work will be stopped and the USFWS will be notified. Work will start again after the whooping crane has left the area.
- Migratory Birds: If construction will occur during the breeding season (February 1 to July 15), Petro-Hunt will have a biologist survey the project area five days before construction begins or the grass will be maintained by mowing within the project location (access road and well pad) prior to the breeding season to deter migratory birds from nesting in the project area.

3.10.2.5 Cultural Resources

Petro-Hunt recognizes the need to protect cultural resources on the project locations and has committed to prohibiting all project workers from collecting artifacts or disturbing cultural resources in any area under any circumstances.

If cultural resources are discovered during construction or operation, work shall immediately be stopped, the affected site be secured, and BIA and THPO notified. In the event of a discovery, work shall not resume until written authorization to proceed has been received from the BIA.

3.10.2.6 Other Commitments

Petro-Hunt commits to the following:

- A minimum 12 millimeter thickness liner will be installed in the reserve pits.
- The reserve pits will be netted.
- Tanks will be diked with a four foot berm.
- Topsoil will be placed to divert flow away from well pad location to limit potential of surface contamination

- All disturbed areas after the initial construction is complete, that are not needed for operation/drilling of the well, will be re-vegetated.
- Erosion control devices that will be implemented as necessary to control surface water contamination from sediment transport.

3.11 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Removal and consumption of oil and/or gas from the Three Forks Formation would be an irreversible and irretrievable commitment of resources. Other potential resource commitments include land area devoted to the disposal of cutting, soil lost to erosion (i.e., wind and water), unintentionally destroyed or damage cultural resources, wildlife killed as a result of collision with vehicles (e.g., construction machinery and work trucks), and energy expended during construction and operation.

3.12 SHORT-TERM USE VERSUS LONG-TERM PRODUCTIVITY

Short-term development activities would not detract significantly from long-term productivity and use of the project area. The construction of the access road and well pad area would eliminate any forage or habitat use by wildlife and/or livestock. Any allottees to which compensation for land disturbance is owed will be properly compensated for the loss of land use. The initial disturbance area would decrease considerably once the wells were drilled and non-necessary areas had been reclaimed. Rapid reclamation of the project area would facilitate revived wildlife and livestock usage, stabilize soil, and reduce the potential for erosion and sedimentation.

3.13 CUMULATIVE IMPACTS

Environmental impacts may accumulate either over time or in combination with similar events in the area. Unrelated and dissimilar activities may also have negative impacts on critical elements, thereby contributing to the cumulative degradation of the environment. Past and current disturbances near the project area include farming, grazing, roads, and other oil and gas wells. Reasonably foreseeable future impacts must also be considered. Should development of these wells prove productive, it is likely that Petro-Hunt and possibly other operators would pursue additional development in the area. Current farming and ranching activities are expected to continue with little change because virtually all available acreage is already organized into range units to use surface resources for economic benefit. Undivided interests in the land surface, range permits, and agricultural leases are often held by different tribal members than those holding mineral rights. Over the past several years, exploration has accelerated over the Three Forks Formation. Most of this exploration has occurred outside the Reservation boundary on fee land, but for purposes of cumulative impact analyses, land ownership and the Reservation boundary are immaterial. Although it is currently the dominant activity in the area, oil and gas development is not expected to have more than a minor cumulative effect on land use patterns.

No active wells are within 1 mile of project location. There are 11, 151, and 659 oil and gas wells (combined active, confidential, and permitted) within 5, 10, and 20 miles, respectively, of the proposed project area (Table 16; Figure 14).

Table 16. Confidential, Active, and Permitted Wells within a 1-, 5-, 10-, and 20-mile Radius of the Project Area.

Type of Well	Dual Well Pad							
	1-mile Radius		5-mile Radius		10-mile Radius		20-mile Radius	
Reservation (on/off)	On	Off	On	Off	On	Off	On	Off
Confidential Wells	0	-	5	1	34	14	109	99
Active Wells	0	-	6	1	41	60	102	328
Permitted Wells	0	-	0	0	2	0	9	12

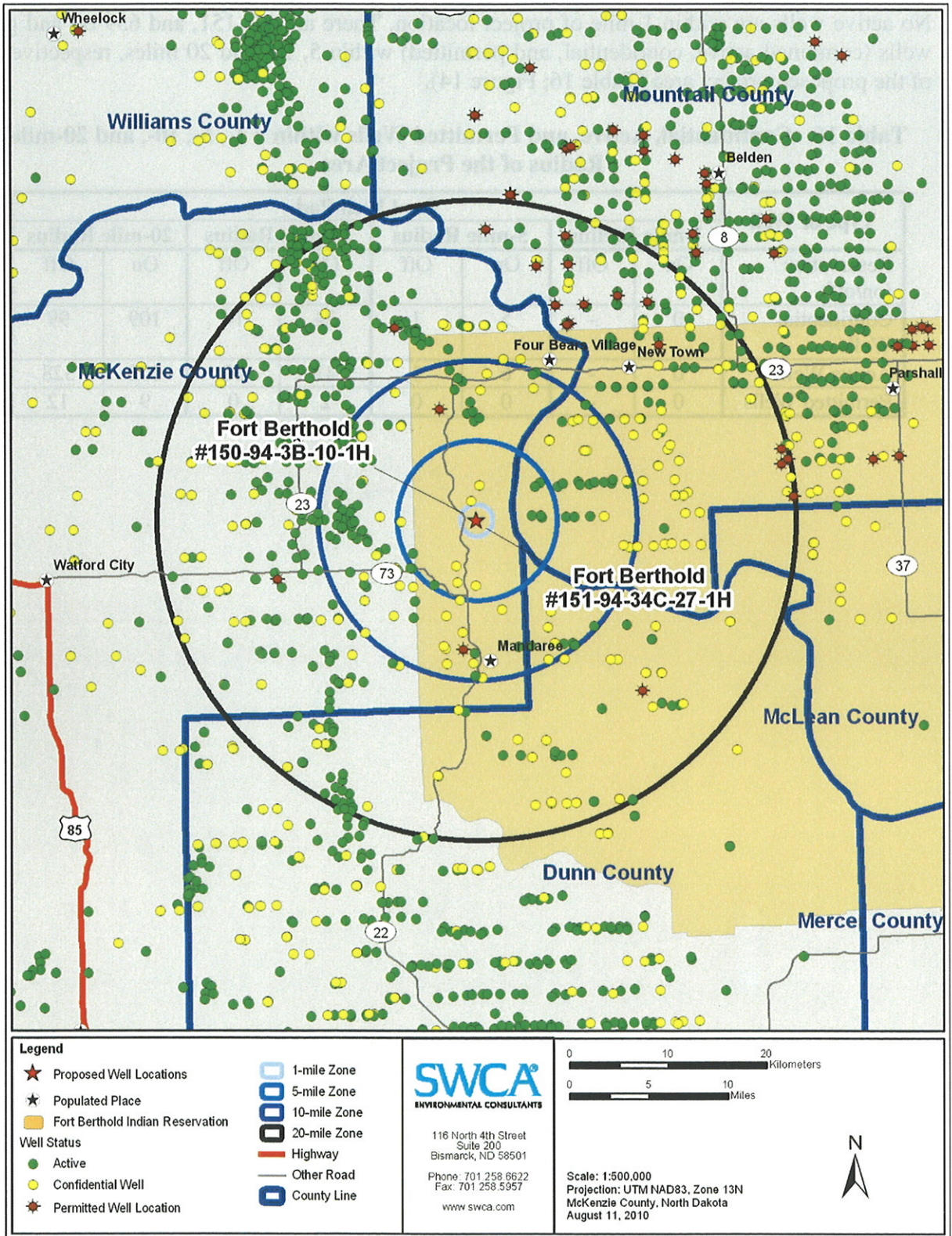


Figure 14. Active, confidential, and permitted wells within a 1-, 5-, 10-, and 20-mile radius of the proposed project location.

Within the Reservation and near the proposed project areas, development projects remain few and widely dispersed. None of the project areas proposed in this EA would share access roads with any other proposed wells, but this may change in the future. If successful commercial production is achieved, new exploratory wells may be proposed, though such developments are merely speculation until APDs are submitted to the BLM and BIA for approval. Petro-Hunt has suggested but not yet formally proposed that potentially twelve more wells may eventually be drilled in the same general area as the proposed project, using many of the same main access roads and minimizing the disturbance as much as possible.

Potential cumulative impacts of the proposal plus other foreseeable future oil and gas development on Fort Berthold could include habitat fragmentation from construction of other well pads and roads, with potential effects on migratory grassland birds. The project would generate new long-term disturbance of approximately 6 acres of grassland habitat during the construction of roads and well pads, out of a total 804,244 acres within a 20-mile radius of the project. Similar levels of disturbance have occurred at 659 existing wells within the 20-mile radius, as indicated above. This level of development is estimated to have disturbed approximately 6,590 acres (10 acres per well), or approximately 0.8% of the available surface area within the 20-mile radius. The relative incremental increase of the proposed new wells to the existing disturbance is estimated to be 0.1% of the foreseeable future cumulative surface disturbance.

It is anticipated that the pace and density of natural gas development in the Reservation and surrounding areas of the state will continue at the current rate over the next few years and contribute to cumulative air quality impacts. The Proposed Action would incrementally contribute to emissions occurring in the region. In general, however, the increase in emissions associated with the Proposed Action would occur during well drilling and construction. The incremental effects would be localized, temporary, and negligible in comparison with overall regional emissions.

No surface discharge of water would occur under the Proposed Action, nor would any surface water or groundwater be used during project development. The Proposed Action, when combined with other actions (cattle grazing, other oil and gas development, and agriculture) that are likely to occur in and near the project area in the future, would increase sedimentation and runoff rates. Sediment yield from active roadways could occur at higher rates than background rates and continue indefinitely. Thus, the Proposed Action could incrementally add to existing and future sources of water quality degradation in the Bear Den Bay Sub-Watershed, but increases in degradation would be reduced by Petro-Hunt's commitment to minimizing disturbance, using erosion control measures as necessary, and implementing BMPs designed to reduce impacts.

Unlike well pads, active roadways are not typically reclaimed, thus sediment yield from roads can continue indefinitely at rates two to three times the background rate. The Proposed Action would create additional lengths of unpaved roadway in the project area. Thus, the Proposed Action would incrementally add to existing and future impacts to soil resources in the general area. However, Petro-Hunt is committed to using BMPs to mitigate these effects. BMPs would include implementing erosion and sedimentation control measures such as installing

culverts with energy-dissipating devices at culvert outlets to avoid sedimentation in ditches, constructing water bars alongside slopes, and planting cover crops to stabilize soil following construction and before permanent seeding takes place.

Vegetation resources across the project area could be affected by various activities, including additional energy development and surface disturbance of quality native prairie areas that have been largely undisturbed by development activities, grazing, and agriculture. Indirect impacts to native vegetation may be possible due to soil loss, compaction, and increased encroachment of unmanaged invasive weed species. Continued oil and gas development within the Reservation could result in the loss and further fragmentation of native mixed-grass prairie habitat. Past, present, and reasonably foreseeable future activities in the general area have reduced and would likely continue to reduce the amount of available habitat for listed species.

Significant archaeological resources are irreplaceable and often unique; any destruction or damage of such resources can be expected to diminish the archaeological record as a whole. However, no such damage or destruction of significant archaeological resources is anticipated as a result of the Proposed Action because these resources would be avoided; therefore, there would be no cumulative impact to the archaeological record as a result of this project.

The Proposed Action would incrementally add to existing and future socioeconomic impacts in the general area. The Proposed Action includes two wells utilizing one dual pad, which would be an additional source of revenue for some residents of the Reservation. Increases in employment would be temporary during the construction, drilling, and completion phases of the proposed project. Therefore, little change in employment would be expected over the long term.

Current impacts from oil and gas-related activities are still fairly dispersed, and the required BMPs would limit potential impacts. No significant negative impacts are expected to affect any critical element of the human environment; impacts would generally be low and mostly temporary. Petro-Hunt has committed to implementing interim reclamation of the roads and well pads immediately following construction and completion. Implementation of both interim and permanent reclamation measures would decrease the magnitude of cumulative impacts.

4.0 CONSULTATION AND COORDINATION

The BIA must continue to make efforts to solicit the opinions and concerns of all stakeholders (Table 17). For the purpose of this EA, a stakeholder is considered any agency, municipality, or individual person that the proposed action may affect either directly or indirectly in the form of public health, environmental, or socioeconomic issues. A scoping letter declaring the location of the proposed project area and explaining the actions proposed at the site was sent in advance of this EA to allow stakeholders ample time to submit comments or requests for additional information. Additionally, a copy of this EA should be submitted to all federal agencies with interests either in, near, or potentially affected by the Proposed Action.

Table 17. Scoping Comments

Name	Organization	Comment	Response to Comment
Bagley, Lonny	Bureau of Land Management	No Comment	
Benson, Barry	MHA Nation	No Comment	
Bercier, Marilyn	Bureau of Indian Affairs	No Comment	
Berg, George	NoDak Electric Cooperative, Inc.	No Comment	
Boyd, Bill	Midcontinent Cable Company	No Comment	
Brady, Perry	THPO, Three Affiliated Tribes	No Comment	
Brugh, V. Judy	MHA Nation	No Comment	
Bryan, Kelly	Petro-Hunt Operating Company, Inc.	No Comment	
Cayko, Richard	McKenzie County	No Comment	
Chevance, Nick	National Park Service, Midwest Region	No Comment	
Christenson, Ray	Southwest Water Authority	No Comment	
Cimarosti, Dan	United States Army Corps of Engineers	No surface occupancy should be allowed within 1/2 mile of any known Threatened and endangered Species critical habitat. Also, a Section 10 Application was increase a permit is required.	See Construction Details section. No Section 10s will be required for this project.
U.S. Army Corps of Engineers, Omaha District	Garrison Project Office	No Comment	
Danks, Marvin	Fort Berthold Rural Water Director	No Comment	
Davis, Scott	Indian Affairs Commission	No Comment	
Desjarlais, Lyndon	Fort Berthold Agency	No Comment	
Dhieux, Joyce	Environmental Protection Agency	No Comment	
Director, Insurance & Hazard	Federal Emergency Management Agency	No Comment	
Dixon, Doug	Montana Dakota Utilities	No Comment	

*Environmental Assessment: Petro-Hunt, LLC
Fort Berthold #151-94-34C-27-1H and Fort Berthold #150-94-3B-10-1H*

Name	Organization	Comment	Response to Comment
Dressler, Patricia	Federal Aviation Administration	No objection as long as the FAA is notified of construction or alterations as required by Federal Aviation Regulations.	If required, the FAA will be notified.
Erickson, Carroll	Ward County Board of Commissioners	No Comment	
Ferris, Kade	Turtle Mountain Band of Chippewa	No Comment	
Fox, Fred	MHA Nation	No Comment	
Glatt, David	North Dakota Department of Health	Impacts will be minor and can be controlled by proper construction methods.	BMPs discussed in APD and will be covered in Conditions of Approval.
Hanson, Jesse	North Dakota Parks and Recreation	A Prairie Falcon was last observed in 1980 approximately 1 mile NW of the location	No prairie falcons were observed in the area.
Hauck, Reinhard	Dunn County	No Comment	
Hefferman, Dan	Environmental protection Agency	No Comment	
Hoffman, Warren	Killdeer, Weydahl Field	No Comment	
Hudson-Schenfisch, Julie	McLean County Board of Commissioners	No Comment	
Hynek, David	Chair, Mountrail Board of County Commissioners	No Comment	
Jarski, Tim	Reservation Telephone Coop.		
Johnson, Harley	New Town Municipal Airport	No Comment	
Kadrmaz, Ray	Dunn County	No Comment	
Kuehn, John	Parshall-Hankins Field Airport	No Comment	
Kyner, David	FEMA	FEMA's concern is if the property is located within a mapped Special Flood Hazard Area.	The project area is not located in a floodplain.
Land Department	Northern Border Pipeline Company	No Comment	
Latimer, Tom	Red Willow Great Plains, LLC	No Comment	
Laux, Eric	United States Army Corps of Engineers	No Comment	
Levings, Marcus	Chairman, MHA Nation	No Comment	

*Environmental Assessment: Petro-Hunt, LLC
Fort Berthold #151-94-34C-27-1H and Fort Berthold #150-94-3B-10-1H*

Name	Organization	Comment	Response to Comment
Lindemann, Larry Manager	Airport Manager, Barnes County Municipal Airport Xcel Energy	No Comment No Comment	
McKenna, Michael	North Dakota Game & Fish Department	Recommend construction be avoided were possible in native prairie, wooded draws, riparian areas, and wetlands. Botanical and raptor surveys suggested.	See Wildlife, Wetlands, and Vegetation sections in the EA. BMPs discussed in APD and will be covered in Conditions of Approval.
Melhouse, Ronald	United States Bureau of Reclamation	A map was provided to show where Rural Waterlines are located.	No waterlines will be affected for this project.
Missile Engineer, Chief	Minot Air Force Base	No Comment	
Murphy, Charles	Standing Rock Sioux Tribe Chairman	No Comment	
NAGPRA Office	MHA Nation	No Comment	
Nash, Mike	Bureau of Land Management	No Comment	
Natural Resources Department	MHA Nation	No Comment	
Nelson, Richard	U.S. Bureau of Reclamation	No Comment	
Nordquist, Don	Petro-Hunt, LLC	No Comment	
Obenauer, Steve	FAA	No Comment	
Olson, Frances	McKenzie County	No Comment	
Paaverud, Merl	State Historical Society	Request a copy of site forms and reports.	See Cultural Resources section.
Packineau, Mervin	MHA Nation	No Comment	
Paulson, Gerald	Western Area Power Administration	No Comment	
Pearson, Myra	Spirit Lake Sioux Tribe	No Comment	
Peterson, Walter	North Dakota Department of Transportation	No Comment	
Poitra, Fred	MHA Nation	No Comment	
Prchal, Doug	North Dakota Parks and Recreation Department	No Comment	

*Environmental Assessment: Petro-Hunt, LLC
Fort Berthold #151-94-34C-27-1H and Fort Berthold #150-94-3B-10-1H*

Name	Organization	Comment	Response to Comment
Representative, Mandaree Segment	MHA Nation	No Comment	
Rudolph, Reginald	McLean Electric Cooperative, Inc.	No Comment	
Schelkoph, David	West Plains Electric Cooperative, Inc.	No Comment	
Selvage, Michael	Chairman, Sisseton-Wahpeton Sioux Tribe	No Comment	
Shortbull, Marietta	Fort Berthold Agency	No Comment	
Smith, Heather	EOG Resources, Inc.	No Comment	
Sorensen, Charles	United State Army Corps of Engineers	No Comment	
Strahs, Arnold	Three Affiliated Tribes	No Comment	
Svoboda, Larry	Environmental Protection Agency	No Comment	
Sweeney, Paul	United States Department of Agriculture	Confirms receipt of letter requesting a determination of the project affecting farmland according to FPPA [Farmland Protection Policy Act]. Recommends impacts to wetlands be avoided.	FPPA does not apply to the project. See Wetlands section in EA.
Thompson, Brad	United State Army Corps of Engineers	If dredge or fill material is placed into waters of the US, a Section 404 permit is required.	No fill will be placed in waters of the U.S.
Thorson, Gary	McKenzie Electric Cooperative	No Comment	
Towner, Jeffrey	United States Fish and Wildlife Service	No Comment	
White Calfe, Frank	MHA Nation	No Comment	
Williams, Damon	MHA Nation	No Comment	
Wolf, Malcolm	MHA Nation	No Comment	

List of Preparers

An interdisciplinary team contributed to this document, following guidance in Part 1502.6 of CEQ regulations. This document was drafted by SWCA under the direction of the BIA. Information was compiled from various sources within SWCA.

Petro-Hunt, LLC

- Jeff Hunt, Regional Land Manager
- Don Nordquist, Senior Landman

SWCA Environmental Consultants

- Michael Andres, Geospatial Specialist
Created maps and provided spatially derived data calculations.
- Michael Cook, Ecologist
Conducted natural resource surveys for the well pad and the access road.
- Dr. Judith Cooper, Archeologist
Cultural resources - Principal Investigator.
- Stephanie Lechert, Archeologist
Conducted cultural resource surveys for well pad and access road. Prepared cultural resources report.
- Christopher McLaughlin, Biologist
Conducted natural resource surveys for the well pad and the access road.
- Dr. Claudia Oakes, NEPA Expert
Final review of EA.
- Sarah Ruffo, Biologist
Prepared scoping letter and distributed scoping package. Contributed to the preparation of the EA.
- Matthew Spann, Environmental Specialist
Completed water resources and soil erosion sections.
- Richard Wadleigh, NEPA Expert
EA Review.

5.0 REFERENCES

- Bryce, S., J.M. Omernik, D.E. Pater, M. Ulmer, J. Schaar, J. Freeouf, R. Johnson, P. Kuck, and S.H. Azevedo. 1998. Ecoregions of North Dakota and South Dakota. Jamestown, North Dakota: Northern Prairie Wildlife Research Center Online, available at <http://www.npwrc.usgs.gov/resource/habitat/ndsdeco/index.htm>. Accessed January 2010.
- Bureau of Indian Affairs (BIA). 2001. 2001 American Indian Population and Labor Force Report. Available online at <http://www.indianaffairs.gov/WhatWeDo/Knowledge/Reports/index.htm>. Accessed December 2009.
- . 2005. 2005 American Indian Population and Labor Force Report. Available online at <http://www.indianaffairs.gov/WhatWeDo/Knowledge/Reports/index.htm>. Accessed December 2009.
- Bureau of Land Management (BLM). 2009. Air Resource BMPs – Best Management Practices for Fluid Minerals. Available online at http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices/technical_information.html. Accessed August, 2009.
- Bureau of Land Management (BLM) and U.S. Forest Service (USFS). 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+3071/REV 07. Bureau of Land Management. Denver, Colorado.
- Canadian Wildlife Service and U.S. Fish and Wildlife Service. 2007. International recovery plan for the whooping crane. Ottawa: Recovery of Nationally Endangered Wildlife (RENEW), and U.S. Fish and Wildlife Service, Albuquerque, New Mexico.
- Center for Integrative Environmental Research at the University of Maryland. 2008. Economic Impacts of Climate Change on North Dakota. Available online at <http://www.cier.umd.edu/climateadaptation/North%20Dakota%20Economic%20Impacts%20of%20Climate%20Change%20Full%20Report.pdf>. Accessed November 16, 2009.
- Clayton, Lee. 1980. Geologic Map of North Dakota: U.S. Geological Survey, Scale 1:500K.
- Croft, M.G. 1985. Groundwater Resources of McKenzie County, North Dakota. Bulletin 80 – Part III. North Dakota Geological Survey.
- Fort Berthold Housing Authority. 2008. Mandan, Hidatsa, Arikara Website. Available online at http://www.mhanation.com/main/history_economic_social.html. Accessed November 2009.

- Grah, O.J. 1997. Soils, Water, and Vegetation Resources Technical Report. Report prepared for the Cave Gulch-Bullfrog-Waltman Natural Gas Development Project Environmental Impact Statement. Prepared for the Casper District Office, Bureau of Land Management and Gary Holsan Environmental Planning, Thayne, Wyoming, by ECOTONE Environmental Consulting, Inc. Logan, Utah.
- High Plains Regional Climate Center. 2008. Historical Climate Data Summaries. Available online at <http://www.hprcc.unl.edu/data/historicl>. Accessed May 2008.
- Howe, M.A. 1987. Habitat use by migrating whooping cranes in the Aransas-Wood Buffalo corridor. Pages 303–311, in J. C. Lewis and J. W. Ziewitz, eds. Proc. 1985 Crane Workshop. Platte River Whooping Crane Habitat Maintenance Trust and USFWS, Grand Island, Nebraska.
- . 1989. Migration of radio-marked whooping cranes from the Aransas-Wood Buffalo population: Patterns of habitat use, behavior, and survival. USFWS Technical Report.
- Klausing, Robert L. 1979. Groundwater Resources of Dunn County, North Dakota. Bulletin 68 – Part III. North Dakota Geological Survey.
- Lechert, Stephanie 2010. A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold 151-94-34C-27-1H / Fort Berthold 150-94-3B-10-1H Dual Well Pad and Access Road, Fort Berthold Indian Reservation, McKenzie County, North Dakota. SWCA Environmental Consultants for Petro-Hunt, LLC, Bismarck.
- Licht, D.S., and S.H. Fritts. 1994. Gray wolf (*Canis lupus*) occurrences in the Dakotas. *American Midland Naturalist* 132:74–81.
- Licht, D.S., and L.E. Huffman. 1996. Gray wolf status in North Dakota. *The Prairie Naturalist* 28(4):169–174.
- Natural Resources Conservation Service (NRCS). 2009. Web Soil Survey. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Soils data for portions of Sections 3 and 4, Township 151 North, Range 94 West were downloaded from the NRCS websoil survey site in July 2010. Available online at <http://websoilsurvey.nrcs.usda.gov> and <http://soildatamart.nrcs.usda>.
- North Dakota Department of Agriculture. 2007. 2007 Noxious Weed List Survey – Reported Acres. North Dakota Department of Agriculture. Bismarck, North Dakota. 2 pp. Available online at <http://agdepartment.com/Programs/Plant/NoxiousWeeds.html>. Accessed December 21, 2009.
- North Dakota State Data Center (NDSDC). 2009. Profile of General Demographic Characteristics: 2000. Fort Berthold Indian Reservation. Available online at <http://www.ndsu.nodak.edu/sdc/data/profiles/profilesDP1to4/reservations/fortberthold.pdf>. Accessed December 2009.

- North Dakota State Water Commission. 2009. North Dakota State Water Commission Mapservice. Available online at <http://mapservice.swc.state.nd.us/>. Accessed August 24, 2009.
- Northwest Area Foundation. 2009. Indicators Website. Available online at <http://www.indicators.nwaf.org/AdvancedDownload.aspx>. Accessed December 2009.
- Ruffo, Joshua. 2009. Photograph of drilling rig in North Dakota. Personal photograph by Joshua Ruffo.
- Sobotka, Brent. 2008. Photograph of well drilling operations in Wyoming. Personal photograph by Brent Sobotka.
- United States Bureau of Economic Analysis. 2009a. Regional Economic Accounts. Local Area Personal Income. Table CA25 – Total Employment by Industry. Available online at <http://www.bea.gov/>. Accessed December 2009.
- . 2009b. Regional Economic Accounts. Local Area Personal Income. Table CA1-3 – Personal Income, Population, Per Capita Personal Income. Available online at <http://www.bea.gov/>. Accessed December 2009.
- United States Census Bureau. 2009a. State and County Quick Facts. Available online at <http://quickfacts.census.gov/qfd/states/38000.html>. Accessed November 2009.
- . 2009b. Building Permits (County). Available online at <http://www.census.gov/const/www/permitsindex.html>. Accessed December 1, 2009.
- . 2009c. Profile of General Demographic Characteristics. Available online at http://factfinder.census.gov/servlet/QTTable?_bm=y&-geo_id=25000US1160&-qr_name=DEC_2000_SF1_U_DP1&-ds_name=DEC_2000_SF1_U&-_sse=on. Accessed December 1, 2009.
- . 2009d. Small Area Income and Poverty. Available online at <http://www.census.gov/did/www/saipe/county.html>. Accessed November 2009.
- . n.d. USA Counties. Available online at <http://censtats.census.gov/usa/usa.shtml>. Accessed December 2009.
- United States Department of Agriculture (USDA). 2009. Economic Research Service. County-Level Unemployment and Median Household Income for North Dakota. Available at <http://www.ers.usda.gov/Data/Unemployment/RDList2.asp?ST=ND>. Accessed December 1, 2009.
- United States Environmental Protection Agency (EPA). 1998. Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses. Office of Federal Activities, U.S. Environmental Protection Agency. Washington, D.C.

- . 2009. Query AQ Data Website. Available online at <http://www.epa.gov/aqspubl1/>. Accessed October 2009.
- U.S. Fish and Wildlife Service (USFWS). 1985a. Interior population of the least tern. Federal Register 50 FR 21784–21792. May 28, 1985.
- . 1985b. Endangered and Threatened Wildlife and Plants: Determination of Endangered and Threatened Status for the Piping Plover. Federal Register 50 (238):50726–50734.
- . 1988a. Black-footed Ferret Recovery Plan. U.S. Fish and Wildlife Service. Denver, Colorado. 154 pp.
- . 1988b. Great Lakes and Northern Great Plains Piping Plover Recovery Plan. U.S. Fish and Wildlife Service, Twin Cities, MN. 160 pp.
- . 1990. Endangered and threatened wildlife and plants; Determination of endangered status for the pallid sturgeon. Federal Register 55(173):36641–36647.
- . 2007. Pallid sturgeon (*Scaphirhynchus albus*) 5-year review summary and evaluation. U.S. Fish and Wildlife Service, Pallid Sturgeon Recovery Coordinator. Billings, Montana.
- . 2009. National Wetlands Inventory: Wetlands Online Mapper. Available online at <http://wetlandsfew.er.usgs.gov/wtlnds/launch.html>. Accessed January 4, 2010.
- . 2010a. Black-footed ferret. Available online at <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A004>. Accessed September 7, 2010.
- . 2010b. Gray wolf. Available online at <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A00D>. Accessed September 7, 2010.
- . 2010c. Least Tern (Interior population). Available online at <http://www.fws.gov/southwest/es/oklahoma/lestern.htm> Accessed September 7, 2010.
- . 2010d. Piping plover. Available online at <http://www.fws.gov/mountain-prairie/species/birds/pipingplover>. Accessed September 7, 2010.

6.0 ACRONYMS

°F	degrees Fahrenheit
APD	application for permit to drill
APE	area of potential effect
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
EA	environmental assessment
EIS	environmental impact statement
EJ	environmental justice
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FONSI	finding of no significant impact
GHG	greenhouse gas
HAP	hazardous air pollutant
HUC	hydrologic unit code
MD	measured depth
MHA Nation	Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nation
NAGPRA	Native American Graves Protection and Repatriation Act
NAICS	North American Industry Classification System
NDCC	North Dakota Century Code
NDDH	North Dakota Department of Health
NDIC	North Dakota Industrial Commission
NEPA	National Environmental Policy Act
NOS	Notice of Staking
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
ppm	parts per million
ROW	right-of-way
SH	State Highway
SHPO	State Historic Preservation Officer
SWCA	SWCA Environmental Consultants
TCP	traditional cultural property
THPO	Tribal Historic Preservation Officer
TVD	total vertical depth
USC	United States Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound

Environmental Assessment: Petro-Hunt, LLC
Fort Berthold #151-94-34C-27-1H and Fort Berthold #150-94-3B-10-1H



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Great Plains Regional Office
115 Fourth Avenue S.E.
Aberdeen, South Dakota 57401



SEP 10 2010

IN REPLY REFER TO:
DESCRM
MC-208

Perry 'No Tears' Brady, THPO
Mandan, Hidatsa and Arikara Nation
404 Frontage Road
New Town, North Dakota 58763

Dear Mr. Brady:

We have considered the potential effects on cultural resources of a dual oil well pad and access road in McKenzie County, North Dakota. Approximately 19.75 acres were intensively inventoried using a pedestrian methodology. Potential surface disturbances are not expected to exceed the area depicted in the enclosed report. No historic properties were located which appear to possess the quality of integrity and meet at least one of the criteria (36 CFR 60.4) for inclusion on the National Register of Historic Places. No properties were located that appear to qualify for protection under the American Indian Religious Freedom Act (42 USC 1996).

As the surface management agency, and as provided for in 36 CFR 800.5, we have therefore reached a determination of **no historic properties affected** for this undertaking. Catalogued as **BIA Case Number AAO-1744/FB/10**, the proposed undertaking, location, and project dimensions are described in the following report:

Lechert, Stephanie
(2010) A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold 151-94-34C-27-1H / Fort Berthold 150-94-3B-10-1H Well Pad and Access Road, Fort Berthold Indian Reservation, McKenzie County, North Dakota. SWCA Environmental Consultants for Petro-Hunt, LLC, Bismarck.

If your office concurs with this determination, consultation will be completed under the National Historic Preservation Act and its implementing regulations. The Standard Conditions of Compliance will be adhered to.

If you have any questions, please contact Dr. Carson N. Murdy, Regional Archaeologist, at (605) 226-7656.

Sincerely,

Regional Director

Enclosure

cc: Chairman, Three Affiliated Tribes
Superintendent, Fort Berthold Agency



TRIBAL HISTORIC PRESERVATION

Mandan Hidatsa Arikara
Perry 'No Tears' Brady, Director.
404 Frontage Road,
New Town, North Dakota 58763
Ph/701-862-2474 fax/701-862-2490
pbrady@mhanation.com

September 15, 2010

Bureau of Indian Affairs
Great Plains Regional Office
115 Fourth Avenue S.E.
Aberdeen, South Dakota 57401

RE: BIA Case Number AAO-1744/FB10

Mr. Murdy

As Director of the Tribal Historic Preservation office after review of the documentation provided by your Office, the Mandan Hidatsa Arikara Nations Tribal Historic Preservation Office determines there will be 'No Adverse Affect/No Historic Properties Affected' in regard to any pre and post-historic relics, artifacts or sacred and cultural resources in the proposed Project area and that *this office concurs*.

Lechert, Stephanie
(2010) A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold 151-94-34C-27-1H/Fort Berthold 150-94-3B-10-1H Well Pad and Access Road, Forth Berthold Indian Reservation, McKenzie County, North Dakota. SWCA Environmental Consultants for Petro-Hunt, LLC, Bismarck.

We respectfully request to be notified should any cultural/tribal issue or others arise as the project progresses.

Sincerely,

A handwritten signature in black ink, appearing to read 'Perry Brady', written in a cursive style.

Perry 'No Tears' Brady
THPO Director of the
Mandan Hidatsa Arikara Nations.

Fw Initial Comments on Several SWCA Scoping Letters
From: Heidi_Riddle@fws.gov
Sent: Thursday, September 23, 2010 9:21 AM
To: Sarah Ruffo
Cc: Jeffrey_Towner@fws.gov
Subject: Fw: Initial Comments on Several SWCA Scoping Letters
Sarah, please see our response below.

Heidi
Riddle/R6/FWS/DOI
To
09/22/2010 12:07 <jeffrey_towner@fws.gov>
PM cc
Subject

Fw: Initial Comments on Several
SWCA Scoping Letters

Dear Ms. Ruffo:

In a June 2010 letter to the Service, you requested concurrence for whooping cranes on the following proposed project on Fort Berthold Reservation:

Petro-Hunt dual pad (Fort Berthold 151-94-34C-27-1H & 150-94-3B-10-1H) in the NW¼ NW¼, Section 3, Township (T) 150 North (N), Range (R) 94 West (W), McKenzie County, North Dakota.

In an August 27, 2010 email regarding this proposal, the Service did not concur with your "may affect, not likely to adversely affect" determination for whooping cranes based on the lack of information provided to support such finding. Your August 14, 2010 email stated that Petro-Hunt has committed to stop all work if a whooping crane is sighted within 1 mile of the proposed project area, and notify the USFWS. In coordination with the Service, work may begin again after the whooping crane has left the area.

Based on this commitment by Petro-Hunt, the Service concurs with your "may affect, not likely to adversely affect" determination for whooping cranes.

Regarding migratory birds, the breeding season is considered from February 1 - July 15 (your email below states February 15 - July 15). Please ensure that this change is made in the Final EA document. With the commitments made by Petro-Hunt as stated in your September 14, 2010 email below, the Service finds this proposal to be in compliance with MBTA and BGEPA.

~~~~~  
Page 1

Fw Initial Comments on Several SWCA Scoping Letters

Heidi Riddle  
Fish and Wildlife Biologist  
U.S. Fish and Wildlife Service  
North Dakota Ecological Services Field Office  
3425 Miriam Avenue  
Bismarck ND 58501  
Ph: 701.250.4481, or 701.355.8503  
Fax: 701.355.8513  
Email: heidi\_kuska@fws.gov

"A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise."

Aldo Leopold

----- Forwarded by Heidi Riddle/R6/FWS/DOI on 09/17/2010 11:50 AM -----

"Sarah Ruffo"  
<sruffo@swca.com>  
To

09/14/2010 11:59 <Jeffrey\_Towner@fws.gov>,  
AM <Heidi\_Kuska@fws.gov>

cc

"Joshua Ruffo" <jruffo@swca.com>,  
<marilyn.bercier@bia.gov>

Subject

RE: Initial Comments on Several

SWCA Scoping Letters

Jeff/ Heidi,

In response to your email regarding the Petro-Hunt dual pad (Fort Berthold 151-94-34C-27-1H & 150-94-3B-10-1H) in the NW¼ NW¼, Section 3, Township (T) 150 North (N), Range (R) 94 West (W), McKenzie County, North Dakota, below are Petro-Hunt's commitments regarding threatened and endangered species.

In the previous email from Jeff Towner dated August 27, 2010, the service concurred with SWCA's determinations for:

Black Footed Ferret: No Effect

Gray Wolf: No Effect

Piping Plover: May affect but not likely to adversely affect Interior Least Tern:

May affect but not likely to adversely affect Pallid Sturgeon: May affect but not likely to adversely affect

Regarding whooping cranes: Petro-Hunt has agreed that if a whooping crane is sighted within 1 mile of the proposed project area, work will be stopped and the USFWS will be notified. Work will start again after the whooping crane has left the area.

Regarding migratory birds: If construction will occur during the breeding season (February 15 to July 15), Petro-Hunt will have a biologist survey the project area five days before construction begins or the grass will be maintained by mowing within the project location (access road and well pad) prior to the breeding season to deter migratory birds from nesting in the project area.

Regarding Bald and Golden Eagles: Suitable habitat does occur within 1 mile of the Page 2

Fw Initial Comments on Several SWCA Scoping Letters

location. However, surveys for eagle nests were conducted and no eagle nests were found.

Thank you and please let me know if there is any other information you need to concur with this project.

Sarah Ruffo

Environmental Specialist/ Wildlife Biologist

116 North 4th Street Suite 200

Bismarck, North Dakota 58501

OFFICE: 701.258.6622

FAX: 701.258.5957

CELL: 814.591.0750

sruffo@swca.com

www.swca.com

-----Original Message-----

From: Jeffrey\_Towner@fws.gov [mailto:Jeffrey\_Towner@fws.gov]

Sent: Friday, August 27, 2010 1:28 PM

To: Joey Sheeley; Mike Cook; Chad Baker; Joshua Ruffo

Cc: Heidi\_Kuska@fws.gov; marilyn.bercier@bia.gov; Mark.Herman@bia.gov;

jeffrey.desjarlais@bia.gov

Subject: Initial Comments on Several SWCA Scoping Letters

SWCA Consultants:

We will have letters out next week on the following project reviews, but since Heidi is out today, I wanted to get these comments to you now so that you can start addressing the outstanding concerns. If you have questions, please call Heidi Kuska

of my staff at ext. 503.

Dear Mr. Cook, Ms. Ruffo, Ms. Sheeley, Mr. Baker:

This is in response to your June 29, June 30, July 1, and July 28, 2010 scoping letters for proposed exploratory oil and gas wells proposed to be drilled and completed by Petro-Hunt, LLC (Petro-Hunt), Enerplus Resources (USA) Corporation (Enerplus), EOG Resources, Inc. (EOG) on the Fort Berthold Reservation, Dunn and McKenzie Counties, North Dakota. The trust resource issues associated with these proposals are similar, so in the interest of efficiency we are responding with a single response.

Specific locations for the proposed Petro-Hunt dual pads are:

Fort Berthold 148-94-29B-32-1H: T148N, R94W, Section 20, Dunn County

Fort Berthold 148-94-19C-18-1H and Fort Berthold 148-94-30A-31-1H:

T148N, R94W, Section 19, Dunn County

Specific location for the proposed Petro-Hunt dual pad is:

Fort Berthold 150-94-3B-10-1H and Fort Berthold 151-94-34C-27-1H:

T150N, R94W, Section 3, McKenzie County

Specific locations for the proposed Enerplus wells are:

#3: T148N, R94W, Section 23

#4: T148N, R94W, Section 12

#8: T148N, R94W, Section 11

#9: T148N, R94W, Section 11

#10: T149N, R93W, Section 2

#11: T148N, R94W, Section 10

#14: T148N, R94W, Section 2

Page 3

Fw Initial Comments on Several SWCA Scoping Letters

Specific locations for the proposed EOG wells are:

Horse Camp #02-11H: T149N, R93W, Section 11, Dunn County

Horse Camp #03-16H: T149N, R93W, Section 16, Dunn County

Bear Den #03-30H: T150N, R94W, Section 30, McKenzie County

Clarks Creek #02-17H: T151N, R94W, Section 17, McKenzie County

We offer the following comments under the authority of and in accordance with the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) (MBTA), the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.) (NEPA), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250) (BGEPA), Executive Order 13186 "Responsibilities of Federal Agencies to Protect Migratory Birds", and the Endangered Species Act (16 U.S.C. 1531 et seq.) (ESA).

General Comments

Unfortunately, there are a number of basic misstatements and lack of key information in your letter(s) that precludes the Service from certifying compliance with some or all of the above laws. Over the past several months, you have received similar recommendations from our office for a number of proposed projects on Fort Berthold. Your letters state that "The primary impacts to wildlife species will come as a result of the construction of the dual-well pads and access roads, increased vehicular traffic density, drilling activities, and potential commercial production."

However, there are no specific locations or acreages of impacts to wildlife habitat provided, and no provisions included for avoidance of take of migratory birds or bald or golden eagles, as required by federal law. You list several precautions that may limit or reduce the possible impact to all wildlife species, but you do not state whether these precautions will be taken. These measures, including netting reserve pits, removing any oil found in the pit, and installing covers under drip buckets and spigots should be expressly committed to in order to receive certification from the Service of compliance with the MBTA.

The letters state that "fragmentation of native prairie habitat can detrimentally affect grouse" . (in some cases, the letters state migratory birds and other wildlife species are affected); "however, due to the ratio of each project area to the total landscape area, the overall disturbance would be negligible". Although grouse are managed by the State Game and Fish Department, suffice to say that grouse have been shown to respond negatively to certain kinds of development. Migratory grassland birds are almost certainly impacted by this type of development. Over the last 25 years, grassland birds have experienced steeper, more consistent, and more widespread population declines than any other avian guild in North America. One of the common statements in the letters is: "Any wildlife species inhabiting the project area are likely to adapt to changing conditions, and continue to persist without adverse impact." No information is presented to support this statement, and a basic knowledge of wildlife biology belies it. The Service indicated during the mock exercise sponsored by the BIA at Fort Berthold on June 23 of this year that broad, unsupported statements like this will not be accepted by the Service as credible statements of anticipated impacts to wildlife or lack thereof. The map(s) provided are inadequate to sufficiently locate proposed project sites or for the Service to conduct any substantive review regarding proximity to native habitats.

#### Threatened and Endangered Species

In an e-mail dated October 13, 2009, the Bureau of Indian Affairs (BIA) designated SWCA Environmental Consultants (SWCA) to represent the BIA for informal Section 7 consultation under the ESA. Therefore, the U.S. Fish and Wildlife Service (Service) Page 4

#### Fw Initial Comments on Several SWCA Scoping Letters

is responding to you as the designated non-Federal representative for the purposes of ESA, and under our other authorities as the entity preparing the NEPA document for adoption by the BIA.

The Service acknowledges your no effect determinations for black-footed ferret and gray wolf for all projects.

The letter(s) state "No impacts to listed species are anticipated because of the low likelihood of their occurrence in the proposed project area", but little justification is provided as the basis for the statement, and then is contradicted in several cases for the project-specific determinations with determinations of "may affect, is not likely to adversely affect. For Petro-Hunt Fort Berthold 150-94-3B-10-1H and Fort Berthold 151-94-34C-27-1H, the Service concurs with your "may affect, is not likely to adversely affect" determination for piping plovers, interior least terns and pallid sturgeon. This concurrence is predicated on Petro-Hunt's proposed placement of the wells approximately 1.8 miles from Lake Sakakawea. For Enerplus #3, #4, #8, #9, #11 and #14, the Service concurs with your "may affect, is not likely to adversely affect" determination for piping plovers, interior least terns and pallid sturgeon.

This concurrence is predicated on Enerplus's proposed placement of the wells approximately 9.0, 7.5, 9.0, 8.5, 9.5, and 8.0 miles from Lake Sakakawea, respectively. For EOG Horse Camp #02-11H, Horse Camp #03-16H, Bear Den #03-30H, Clarks Creek #02-17H, the Service concurs with your "may affect, is not likely to adversely affect" determination for piping plovers, interior least terns and pallid sturgeon. This concurrence is predicated on EOG's proposed placement of the wells approximately 2.0, 3.0, 3.0, and 3.0 miles from Lake Sakakawea, respectively. For Enerplus #10, the Service does not concur with your "may affect, is not likely to adversely affect" determination for piping plover, interior least tern, and pallid sturgeon. There is not sufficient information provided regarding the proximity of drainageways, nor are there protective measures included in the proposal to prevent or minimize contaminated materials from reaching Lake Sakakawea and designated critical habitat for the piping plover.

For Petro-Hunt Fort Berthold 150-94-3B-10-1H and Fort Berthold 151-94-34C-27-1H , Enerplus #3, #4, #8, #9, #10, #11 and #14, EOG Horse Camp #02-11H, Horse Camp #03-16H, Bear Den #03-30H, Clarks Creek #02-17H, there is not sufficient information provided to concur with your "may affect, not likely to adversely affect" determination for the whooping crane. The letters state that there is a lack of suitable foraging and nesting habitat in the proposed project area. All whooping cranes in the Aransas-Wood Buffalo population nest in Wood Buffalo National Park in northern Canada. It is unclear on what information you base your statement that there is a lack of suitable foraging habitat in the proposed project area. During migration, whooping cranes forage mostly in native prairie and cropland; there appears to be an abundance of both in the project areas. Migrating whooping cranes must roost each night in wetlands or open water with water no deeper than 24". According to the National Wetland Inventory (NWI) map, there appear to be a number of suitable stopover wetlands in the vicinity of the proposed project area. For the Service's concurrence, we recommend including a commitment for the companies to cease construction if a whooping crane is sighted within one-mile of the project area. In coordination with the Service, work may resume after the bird(s) leaves the area.

Critical habitat has been designated for piping plovers along the shoreline of Lake Sakakawea on Fort Berthold; however, there is no impacts analysis for critical habitat. Section 7 of the ESA instructs Federal agencies to insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat. You should include an effects determination and request for concurrence, if applicable, for designated piping plover critical habitat.

A request for concurrence for mountain plovers is not necessary, as this species is

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not known to occur in North Dakota.

The effects analyses for some of these projects are lacking key information that if included, could allow the Service to concur. We recommend that the analyses provide species occurrence and habitat information, potential effects that the proposed action may have on the species and on designated critical habitat, and any minimization measures the company has committed to implementing. The effects determination for each species should be supported by this information.

Migratory Birds and Bald and Golden Eagle Protection Act

The Migratory Bird Treaty Act prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the Act has no provision for allowing unauthorized take, the Service realizes that some birds may be killed by oil and gas development even if all reasonable measures to protect them are used. The Service's Office of Law Enforcement carries out its mission to protect migratory birds through investigations and enforcement, as well as by fostering relationships with individuals, companies, and industries that have taken effective steps to minimize their impacts on migratory birds, and by encouraging others to enact such programs. It is not possible to absolve individuals, companies, or agencies from liability even if they implement avian mortality avoidance or similar conservation measures.

However, the Office of Law Enforcement focuses its resources on investigating and prosecuting individuals and companies that take migratory birds without regard for their actions or without following an agreement such as this to avoid take.

Your letters state that "proposed projects may affect raptor and migratory bird species through direct mortality, habitat degradation, and/or displacement of individual birds. These impacts are regulated in part through the Migratory Bird

Treaty Act." Direct mortality of migratory birds is not "regulated in part" by the MBTA; such mortalities are prohibited by, and are violations of the MBTA. In order to avoid the potential for a referral of a violation case for prosecution, parties must coordinate their activities that may result in take of migratory birds in advance with the Service, and receive written agreement that their protective measures are sufficient to minimize any take. (See preceding standard paragraph.) Your letters do not contain sufficient measures to demonstrate avoidance of take of migratory birds. Again, we have provided guidance in this regard in a number of previous letters to your firm. For proposals including a measure to mow migratory bird nesting habitat, the commitment should include more specific timeframes for mowing (and/or clearing/grubbing) outside of the February 1 - July 15 nesting season, as well as a commitment to maintain nesting habitat in a degraded state to deter birds for as long as necessary, until construction is underway.

You stated that "Although delisted in 2007, the bald eagle remains a species of special concern to the BIA and the Department of the Interior, and is effectively treated the same as a listed species." Bald and golden eagles are not treated the same as listed species, but receive protection under the BGEPA and MBTA. The avoidance of take for bald and golden eagles must be demonstrated, including any measures needed to avoid disturbing a nesting pair.

Some of the referenced letters state that the project area does not contain suitable nesting habitat for golden eagles. This statement is inaccurate; golden eagles inhabit a wide variety of habitat types, including open grassland areas. They are known to nest on cliffs, in trees, manmade structures, and on the ground (Kochert et al. 2002). There are numerous records of golden eagle nests on the Fort Berthold reservation and the Service has made recommendations to avoid potential violations of the BGEPA; however, there is no information in the documents as to the location(s) of the closest known eagle nests, nor are any measures or potential impacts discussed. Additionally, the MBTA and BGEPA differ from the ESA in that they do not have a provision for effects determinations.

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We recommend that a revised document provide a discussion of any eagle nest surveys that were completed within 0.5 mile of the proposed project areas, any known eagle nests within 0.5 mile of the proposed project area, and a commitment to maintain a minimum 0.5 mile buffer from any active eagle nests, as specified by the Service in previous scoping response letters.

The Service believes that the lack of information and lack of stated measures to avoid take of migratory birds and bald and golden eagles does not demonstrate compliance with the MBTA and the BGEPA.

All parties involved in the documentation and review of anticipated effects to trust wildlife resources on Fort Berthold have an interest in making those reviews as efficient as possible. Scoping letters sent to the Service should contain accurate statements and information, as well as commitments to minimum measures for the protection of trust resources, which will allow for the efficient and timely review and concurrence by the Service.

Thank you for the opportunity to comment on these scoping letters. We look forward to receiving the additional information needed to allow us to complete our reviews of the proposed projects. If you have any questions, please contact me or Heidi Kuska of my staff at (701) 250-4481 or at the letterhead address.

Sincerely,

Jeffrey K. Towner, Field Supervisor  
Ecological Services  
U.S. Fish & Wildlife Service  
3425 Miriam Avenue



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"We do not inherit the earth from our ancestors, we borrow it from our children."

--Native American Proverb

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# **Notice of Availability and Appeal Rights**

PetroHunt: Fort Berthold #151-94-34C-27-1H  
Fort Berthold #150-94-3B-10-1H

**THE BUREAU OF INDIAN AFFAIRS (BIA) IS PLANNING ON DRILLING TWO HORIZONTAL OIL/GAS WELLS ON FORT BERTHOLD #151-94-34C-27-1H AND FORT BERTHOLD #150-94-3B-10-1H BY *PETRO-HUNT LLC* ON THE FORT BERTHOLD RESERVATION. CONSTRUCTION IS SCHEDULED TO BEGIN IN THE FALL OF 2010.**

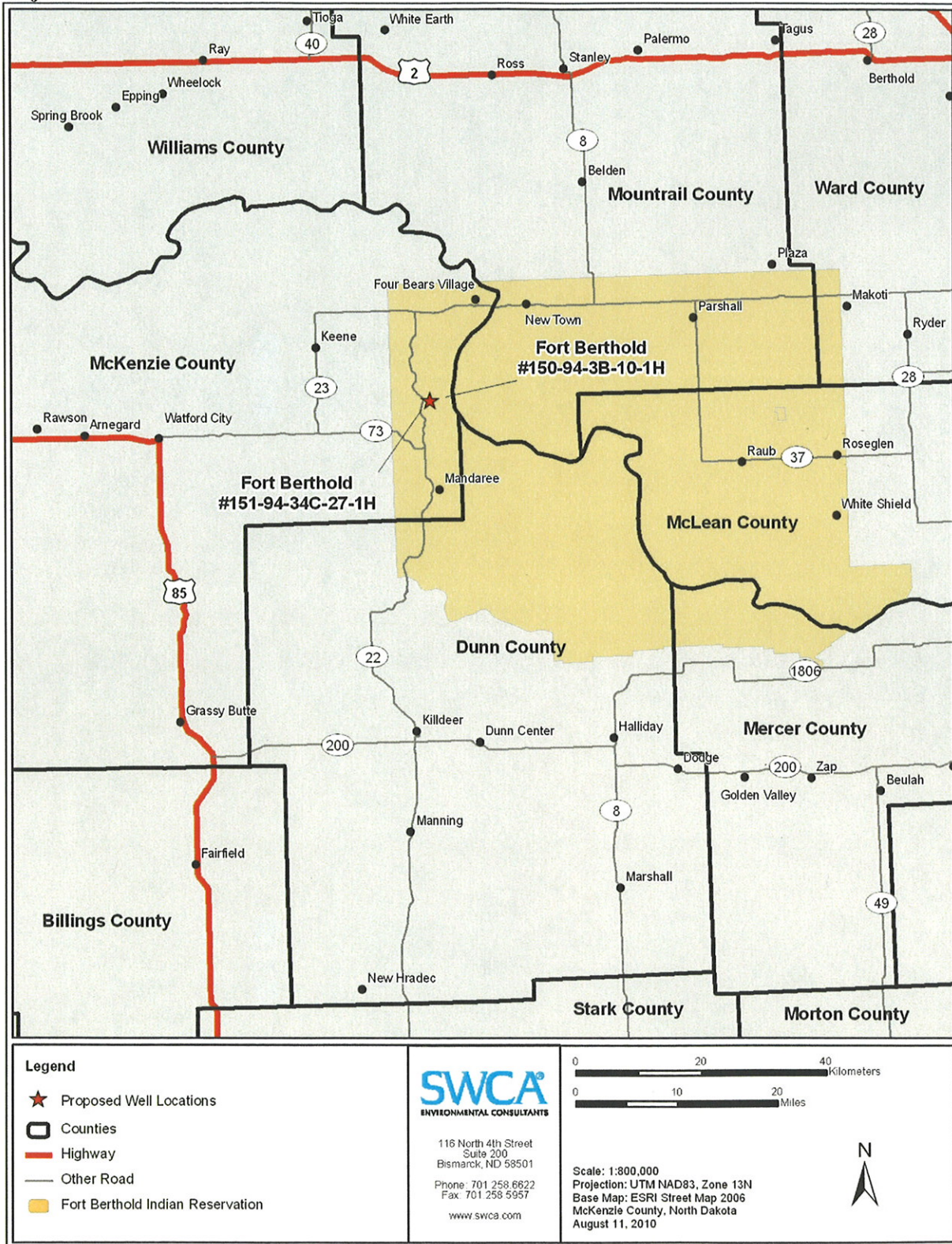
**AN ENVIRONMENTAL ASSESSMENT (EA) DETERMINED THAT PROPOSED ACTIVITIES WILL NOT CAUSE SIGNIFICANT IMPACTS TO THE HUMAN ENVIRONMENT. AN ENVIRONMENTAL IMPACT STATEMENT IS NOT REQUIRED. CONTACT HOWARD BEMER, SUPERINTENDENT AT 701-627-4707 FOR MORE INFORMATION AND/OR COPIES OF THE EA AND THE FINDING OF NO SIGNIFICANT IMPACT (FONSI).**

**THE FONSI IS ONLY A FINDING ON ENVIRONMENTAL IMPACTS – IT IS NOT A DECISION TO PROCEED WITH AN ACTION AND *CANNOT* BE APPEALED. BIA’S DECISION TO PROCEED WITH ADMINISTRATIVE ACTIONS *CAN* BE APPEALED UNTIL NOVEMBER 1, 2010, BY CONTACTING:**

**UNITED STATES DEPARTMENT OF THE INTERIOR  
OFFICE OF HEARINGS AND APPEALS  
INTERIOR BOARD OF INDIAN APPEALS  
801 N. QUINCY STREET, SUITE 300, ARLINGTON, VA 22203.**

**PROCEDURAL DETAILS ARE AVAILABLE FROM THE BIA FORT BERTHOLD AGENCY AT 701-627-4707.**

**Project locations.**



**Figure 1, Project Overview Map**