United States Department of the Interior

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

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IN REPLY REFER TO:
DESCRM
MC-208

MAR 15 2010

MEMORANDUM

TO: Superintendent, Fort Berthold Agency

FROM: ACTING Regional Director, Great Plains Region

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 the proposed exploratory drilling of three wells by Questar on MHA-1-29-30H-150-90, MHA-1-32-31H-150-90, and MHA-1-30H-150-90 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)
Tracy Opp, Questar (with attachment)
Roy Swalling, Bureau of Land Management (with attachment)
Jonathon Shelman, Corps of Engineers (with attachment)

Finding of No Significant Impact

Questar Exploration and Production Company

Environmental Assessment for
Drilling of MHA-1-29-30H-150-90, MHA-1-32-31H-150-90, and MHA-1-30H-150-90
Exploratory Oil and Gas Wells

Fort Berthold Indian Reservation
McLean County, North Dakota

The U.S. Bureau of Indian Affairs (BIA) has received a proposal to drill up to three exploratory oil and gas wells in the following locations:

- MHA#1-29-30H-150-90 located in T150N, R90W, Section 32
- MHA#1-32-31H-150-90 located in T150N, R90W, Section 32
- MHA#1-30H-150-90 located in T150N, R90W, Section 30

Associated federal actions by BIA include determinations of effect regarding environmental resources and positive recommendations 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 following Environmental Assessment (EA), as required by the National Environmental Policy Act. Based on the EA, I have determined that the proposed project will not significantly affect the quality of the human or natural 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 solicited for the preceding NEPA document was sufficient to ascertain potential environmental concerns associated with the currently proposed project.
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 actions 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

3/15/10
Date

Environmental Assessment

United States Bureau of Indian Affairs

Great Plains Regional Office
Aberdeen, South Dakota

Questar Exploration and Production Company

Drilling of MHA-1-29-30H-150-90, MHA-1-32-31H-150-90, and MHA-1-30H-150-90
Exploratory Oil and Gas Wells

Fort Berthold Indian Reservation

March 2010

For information contact:
Bureau of Indian Affairs, Great Plains Regional Office
Division of Environment, Safety and Cultural Resources
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Aberdeen, South Dakota 57401
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Chapter 1 Purpose and Need for Action

1.1 Introduction

This EA (Environmental Assessment) was prepared in accordance with NEPA (the National Environmental Policy Act) of 1969, as amended, and the regulations of the CEQ (Council on Environmental Quality), 40 CFR parts 1500 through 1508. An EA is an informational document intended for use by both decision-makers and the public. It discloses relevant environmental information concerning the proposed action and the no-action alternative.

1.2 Description of the Proposed Action

The Fort Berthold Reservation encompasses 988,000 acres, 457,837 of which are in tribal and individual Indian ownership by the Three Affiliated Tribes (Mandan, Hidatsa, and Arikara) and its members. The reservation is located in west central North Dakota and is split into three areas by Lake Sakakawea, which traverses the center of the reservation. It occupies sections of six counties: Dunn, McKenzie, McLean, Mercer, Mountrail, and Ward.

The proposed action includes approval by the BIA and BLM for Questar Exploration and Production Company (Questar) to drill and complete up to three exploratory oil and gas wells on the Fort Berthold Reservation in McLean County, North Dakota. These well sites are proposed to be positioned in the following locations:

- MHA#1-30H-150-90 located in T150N, R90W, Section 30
- MHA#1-29-30H-150-90 located in T150N, R90W, Section 32
- MHA#1-32-31H-150-90 located in T150N, R90W, Section 32

Please refer to Figure 1-1, Project Location Map. Each well site would include a drilling unit in which the minerals to be developed by each well are located. Completion activities include acquisition of rights-of-way, infrastructure for the proposed wells, and roadway improvements.

1.3 Need for the Proposed Action

The Tribes own their mineral resources, which are held in trust by the United States government through the BIA. The BIA's approval to drill the three exploratory wells would provide important benefits to the Three Affiliated Tribes, including revenue that could contribute to the Tribal budgets, satisfy Tribal obligations, and fund land purchase programs to stabilize its land base. It would also provide individual members of the Tribes with needed employment and income.

Furthermore, the proposed action gives the United States an opportunity to reduce its dependence on foreign oil and gas by exploring for domestic sources of oil and gas.

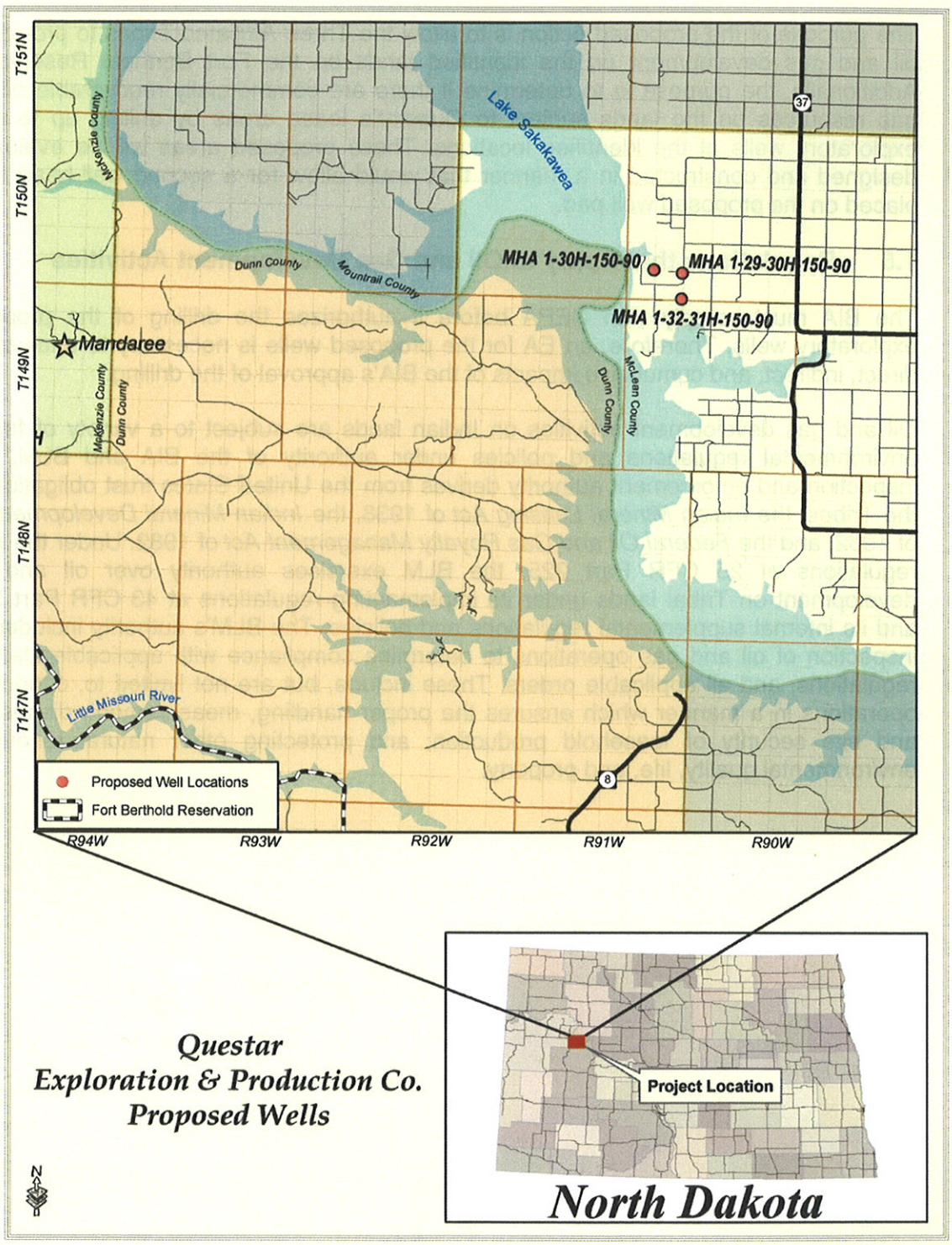


Figure 1-1, Project Location Map

1.4 Purpose of the Proposed Action

The purpose of the proposed action is to allow the Three Affiliated Tribes to provide for oil and gas development on the identified lands on the Fort Berthold Reservation. Additionally, the purpose is to determine if there are commercially recoverable oil and gas resources on the lands subject to Questar's lease areas by drilling up to three exploratory wells at the identified locations. These proposed areas will be evaluated, designed and constructed in a manner that would allow for a second well-head to be placed on the proposed well pad.

1.5 Regulations that Apply to Oil and Gas Development Activities

The BIA must comply with NEPA before it authorizes the drilling of the proposed exploratory wells. Therefore, an EA for the proposed wells is necessary to analyze the direct, indirect, and cumulative impacts of the BIA's approval of the drilling.

Oil and gas development activities on Indian lands are subject to a variety of federal environmental regulations and policies under authority of the BIA and BLM. This inspection and enforcement authority derives from the United States trust obligations to the Tribes, the *Indian Mineral Leasing Act* of 1938, the *Indian Mineral Development Act* of 1982, and the *Federal Oil and Gas Royalty Management Act* of 1982. Under the BIA's regulations at 25 CFR Part 225, the BLM exercises authority over oil and gas development on Tribal lands under its implementing regulations at 43 CFR Part 3160 and its internal supplemental regulations and policies. The BLM's authority includes the inspection of oil and gas operations to determine compliance with applicable statutes, regulations, and all applicable orders. These include, but are not limited to, conducting operations in a manner which ensures the proper handling, measurement, disposition, and site security of leasehold production; and protecting other natural resources, environmental quality, life, and property.

Chapter 2 Alternatives

2.1 Introduction

This chapter provides information on the development and evaluation of project alternatives. The development of alternatives is directly related to the purpose and need for the project. Two alternatives are being considered for this project: a no action alternative and a proposed action alternative.

2.2 Alternative A: No Action

Under the no action alternative (Alternative A), the BIA and BLM would not authorize the development of the three proposed exploratory wells. There would be no environmental impacts associated with Alternative A. However, the Three Affiliated Tribes would not receive potential royalties on production, or other economic benefits from oil and gas development on the Reservation, and the potential for commercially recoverable deposits of oil and gas would not be evaluated.

2.3 Alternative B: Proposed Action

The proposed action (Alternative B) includes authorization by the BIA and BLM to drill up to three exploratory wells and complete the associated right-of-way acquisitions, roadway improvements, and infrastructure for the wells. These proposed well pads would be evaluated, designed and constructed in a manner that would allow placement of a second wellhead on the proposed well pad sites.

Each exploratory well would consist of a well pad, access road, associated infrastructure, and a spacing unit. The well pad is where the actual surface disturbance caused by drilling activities would occur. The spacing unit is the location of the minerals that are to be developed. The location of the proposed well sites, access roads, and proposed horizontal drilling techniques were chosen to minimize surface disturbance.

Each well location could require new right-of-way for access and may require additional right-of-way for supporting electrical lines and natural gas and/or oil transmission pipelines. Rights-of-way would be located to avoid sensitive surface resources and any cultural resources identified in site surveys. Access roads would be improved as necessary to eliminate overly steep grades, maintain current drainage patterns, and provide all-weather driving surfaces.

An on-site assessment of the well pad and access road was conducted on October 25, 2009 by representatives from the BIA (Environmental Protection Specialist), Three Affiliated Tribes Tribal Historic Preservation Office, Questar, and Kadrmas, Lee & Jackson. The purpose of this visit was to evaluate the suitability of the well pads and access roads for construction with respect to topography, drainage, erosion control, Stock piling, and other surface issues. Cultural, biological, and botanical resources surveys were also conducted following the on-site evaluation. The well pads and access road locations were finalized in consideration of these issues. During the site visit, BIA gathered information needed to develop site-specific mitigation measures to be incorporated into the final APD.

During the surveys of the proposed locations, a detailed analysis of biological, botanical, soil and water resources was conducted. Site specific information was recorded and photographs were taken during the investigations. The study area included a 200-foot corridor along the surveyed access roads and a 10-acre pad around the center stake of the surveyed pad location.

2.3.1 MHA#1-29-30H-150-90

The MHA#1-29-30H-150-90 well would be located in the NE¼NE¼ of Section 32, T150 N, R 90 W to access potential oil and gas resources within the 640 acre spacing unit consisting of the southern half of Sections 29 and 30, T150 N, R90W. ***Please refer to Figure 2-1, MHA#1-29-30H-150-90 Well Overview.***

Figure 2-1, MHA#1-29-30H-150-90 Well Overview

The MHA#1-29-30H-150-90 well would be accessed from County Road #4 that runs north and south along the east line of Section 32, T150N, R90W, to the well location. Approximately 45 feet of new road construction would link the well pad to a graveled County #4. Additional improvements to the MHA#1-29-30H-150-90 well access road would include placement of culverts and cattle guards as needed. Minor spot grading may be needed to flatten existing landscape grades along the proposed access road alignment.

2.3.2 MHA#1-32-31H-150-90

The MHA-1-32-31H-150-90 well would be located in the SE¼SE¼ of Section 32, Township 150 North, Range 90 West to access potential oil and gas resources within the 640 acre spacing unit consisting of the southern half of Sections 32 and 31, Township 150 North, Range 90 West. ***Please refer to Figure 2-2, MHA#1-32-31H-150-90 Well Overview.***

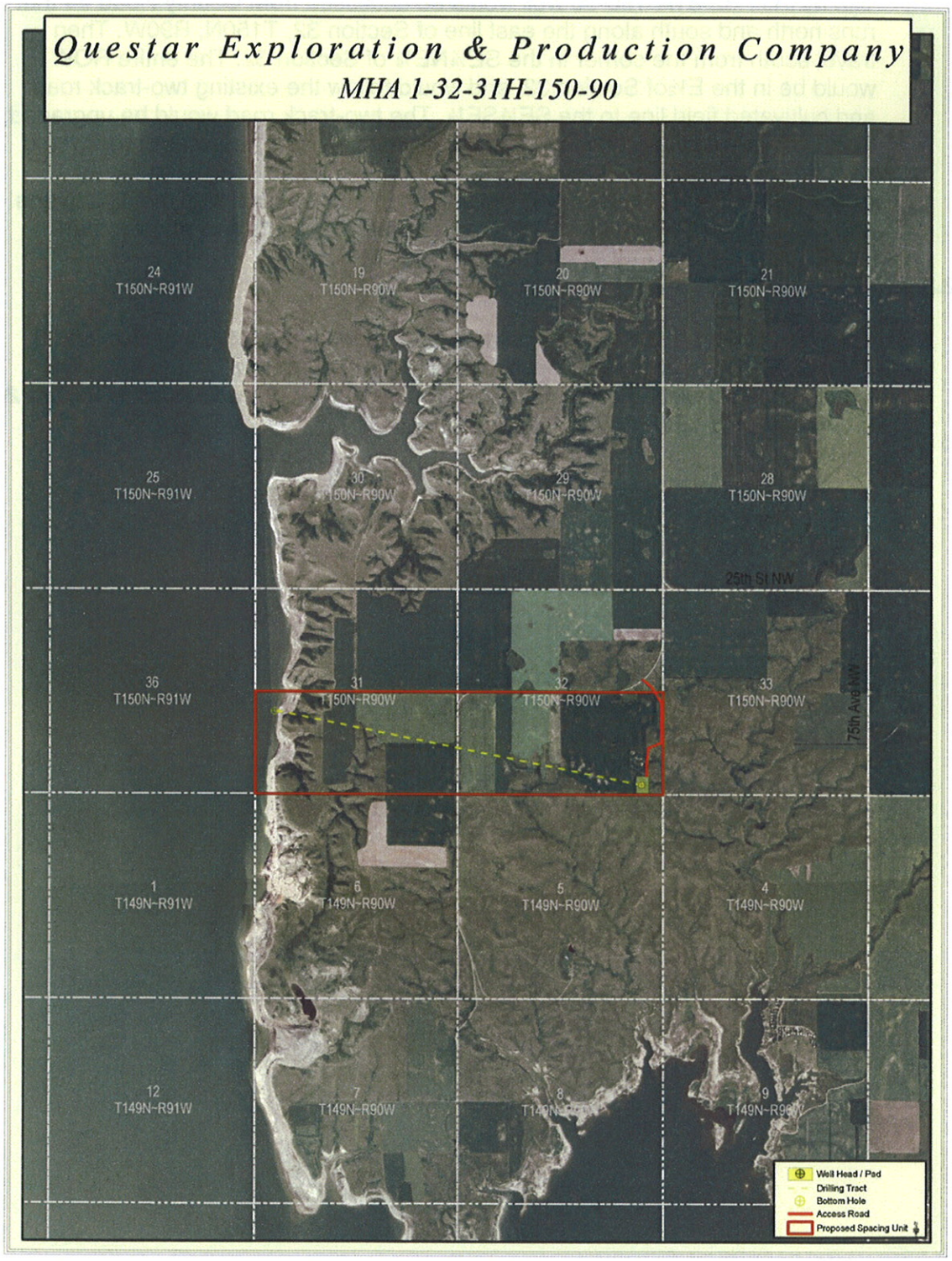


Figure 2-2, MHA#1-32-31H-150-90 Well Overview

The MHA#1-32-31H-150-90 well would be accessed from County Road #4 that runs north and south along the east line of Section 32, T150N, R90W. Then travel south from the corner in the SE¼NE¼ of Section 32. The entire ROW would be in the E½of Section 32, and would follow the existing two-track road and cultivated field line to the SE¼SE¼. The two-track road would be upgraded, along with new construction along the cultivated fields. The access road would be approximately 2,848 feet. Minor spot grading may be needed to flatten existing landscape grades along the proposed access road alignment. Culverts and cattle guards would be installed as needed along this new access road.

2.3.3 MHA#1-30H-150-90

The MHA#1-30H-150-90 well would be located in the SE¼SE¼ of Section 30, T150 N, R90W to access potential oil and gas resources within the 640 acre spacing unit consisting of Section 30, T150 N, R90 W. ***Please refer to Figure 2-3, MHA#1-30H-150-90 Well Overview.***

Figure 2-3, MHA#1-30H-150-90 Well Overview.

The MHA#1-30H-150-90 well would be accessed from County road #4 running east and west through the center of the Section 32, T150N, R90W, and then travel north. ROW would be in the W1/2 of Section 32 and SW1/4 of Section 29, T150, R90W. Approximately 2,640 feet of two-track road would be upgraded. In addition, approximately 151 feet of new construction would connect the existing two-track to the well pad. Minor spot grading may be needed to flatten existing landscape grades along the proposed access road alignment. Culverts and cattle guards would be installed as needed along the access road.

2.3.4 Activities that Apply to Development of All Wells

The following includes a discussion of items that would be consistent for construction of all proposed well locations:

2.3.4.1 Field Camps

Self-contained trailers may temporarily house key personnel on-site during drilling operations. No long-term residential camps are proposed. Sewage would be collected in standard closed system portable chemical toilets or service trailers on-site and then transported off-site to a state-approved wastewater treatment facility. Other solid waste would be collected in enclosed containers and disposed of at a state-approved facility.

2.3.4.2 Access Roads

Existing roadways would be used to the extent possible to access the proposed wells; however, the improvement of existing roadways and construction of new access roads extending from existing two-track section line roads into pastureland or cultivated fields would also be required. The running surface of access roads would be surfaced with scoria or crushed rock from a previously approved location, and erosion control measures would be installed as necessary. A maximum right-of-way width of 66 feet would be disturbed, consisting of a 14-foot wide roadway with the remainder of the disturbed area due to borrow ditches and construction slopes. The outslope portions of constructed access roads would be re-seeded upon completion of construction to reduce access road related disturbance. Access road construction shall follow road design standards outlined in the BLM's Gold Book.

2.3.4.3 Well Pads

The proposed well pads would consist of a leveled area surfaced with several inches of gravel or crushed scoria. The pads would be used for the drilling rig and related equipment, as well as an excavated, lined pit to store drilling fluids, drilled cuttings, and fluids processed during drilling. The level well pad areas required for drilling and completing operations (including reserve pits for dried cuttings) would each be approximately 345 X 510 feet (approximately 4.04 acres). Cut and fill slopes on the edge of the well pad would be determined on a well-by-well basis. By evaluating, designing and constructing well pads to these specifications, a second wellhead can be added to the proposed pad locations.

Well pad areas would be cleared of vegetation, stripped of topsoil, and graded to specifications in the APD submitted to the BLM. Topsoil would be stockpiled and stabilized until disturbed areas are reclaimed and re-vegetated. Excavated subsoil would be used in pad construction, with each finished well pad graded to ensure water drains away from the drill site. Erosion control at the site would be maintained through the use of BMPs (best management practices), which may include, but are not limited to, water bars, bar ditches, bio-logs, silt fences, and re-vegetation of disturbed areas. The pad would be fenced and cattle guards placed at access points. Drip buckets and barrels would be covered to limit access by birds and other small mammals. These precautions would be undertaken, along with the noise associated with this activity, to deter the wildlife from entering the proposed sites.

2.3.4.4 Drilling

Following the access road construction and well pad preparation, a drilling rig would be rigged up at each well site. The time for rigging up, drilling the well, and rigging down the well is anticipated to be about 60 days. During this phase, vehicles and equipment would access the site several times a day.

Initial drilling would be vertical to a depth of approximately 8,385 feet, at which depth it would angle to become horizontal at 9,657 feet. Drilling would then be followed by lateral reaches into the Middle Bakken Dolomite Member target. This horizontal drilling technique would minimize surface disturbance.

For the first 2,500 feet drilled at each well, a fresh water 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.

About 8 gallons of water would be used per foot of hole drilled, for a total of about 40,000 gallons (20,000 gallons in the hole and 20,000 gallons as working volume at the surface). After setting and cementing the surface casing, an oil or brine-based mud system for a producing location with a single pumping unit would be used to drill the remainder of the hole.

Drilling fluids would be separated from cuttings and contained in steel tanks placed on liners until they were ready for re-use. Any free fluids remaining in reserve pits would be removed and disposed of in accordance with NDIC (North Dakota Industrial Commission) rules and regulations. Cuttings generated from drilling would be deposited in reserve pits on well pads. The pits would be lined to prevent seepage and contamination of underlying soil. Prior to their use, the entire location would be fenced in order to prevent wildlife and livestock from accessing the pit. Reserve pit cuttings would be solidified into an inert, solid mass by chemical means. The treated material would be buried in reserve pits in accordance with NDIC rules and regulations.

2.3.4.5 Casing and Cementing

Casing and cementing methods would be used to isolate all near-surface aquifers and hydrocarbon zones encountered during drilling.

2.3.4.6 Completion and Evaluation

Once each well is drilled and cased, approximately 30 additional days would be required to complete and evaluate it. Completion and evaluation activities include cleaning out the well bore, pressure testing the casing, perforating and fracturing to stimulate the horizontal portion of the hole, and running production tubing for potential future commercial production. Fluids utilized in the completion process would be captured in either reserve pits or tanks and would be disposed of in accordance with NDIC and BLM rules and regulations. Once the well is completed, site activity and vehicle access would be reduced. If the well is determined to be successful, tank trucks (and, if appropriate, natural gas and/or oil gathering lines) would transport the product to market.

2.3.4.7 Commercial Production

If commercially recoverable oil and gas resources are found at any of the proposed sites, the site(s) would become established as a production site(s).

Each site would be reduced to less than two acres in size and refitted as an oil and gas production facility. Additional production equipment, including a well head pumping unit, vertical heater/treater, storage tanks (typically four 400 barrel steel tanks), and a flare/production pit would be installed. The storage tanks and heater/treater would be surrounded by a berm that would guard against possible spills.

The berm would be sized to hold 100% of the capacity of the largest storage tank plus one full day's production. All permanent above ground production facilities would be painted to blend into the surrounding landscape, as determined by the BIA, based on standard colors recommended by the BLM.

In the event that an oil gathering pipeline does not exist, oil would be collected in the storage tanks and periodically trucked to an existing oil terminal to be sold. Produced water would also be captured in storage tanks and periodically trucked to an approved disposal site. The frequency of trucking activities for both oil resources and produced water would be dependent upon volumes and rates of production.

Large volumes of gas are not expected to be generated from these well sites. Small volumes of gas would be flared on-site in accordance with BIA's Notice to Lessees 4A and NDIC regulations, which prohibit gas flaring for more than the initial year of operation. The installation of gas-gathering or transport equipment is not included as part of the proposed project. Installation of systems to gather and market gas produced from these wells would require additional analysis under NEPA and BIA approval.

When any of the proposed wells cease to flow naturally, a pump jack would be installed. After production ceases, the well would be plugged and abandoned, and the land would be fully reclaimed in accordance with BIA and BLM requirements.

Questar would mitigate the effects of these three exploratory wells by incorporating applicable conditions, mitigation measures, and BMPs from the BLM's regulations, BLM's Gold Book (4th Edition, 2006), and applicable BLM Onshore Oil and Gas Orders, including Numbers 1, 2, and 7.

2.3.4.8 Reclamation

The reserve pit and dried cuttings would be treated, solidified, backfilled, and buried upon well completion. Other interim reclamation measures to be implemented upon well completion include reduction of cut and fill slopes, redistribution of stockpiled topsoil, and reseeding of disturbed areas.

If commercial production equipment is installed, the well pads would be reduced in size to approximately 200 x 300 feet (1.4 acres) for a producing location with a single pumping unit, with the remainder of the original well pad reclaimed. Reclamation activities would include leveling, re-contouring, treating, backfill, and re-seeding. Erosion control measures would be installed as appropriate. Stockpiled topsoil would be redistributed and reseeded as recommended by the BIA.

If no commercial production developed from one or any of the proposed wells, or upon final abandonment of commercial operations, all disturbed areas would be promptly reclaimed. As part of the final reclamation process, all well facilities would be removed, well bores would be plugged with cement, and dry hole markers would be set in accordance with NDIC and BLM requirements. Both access roads and well pad areas would be re-contoured to match topography of the original landscape. An exception to these reclamation measures may occur if the BIA approves assignment of an access road either to the BIA roads inventory or to concurring surface allottees.

2.3.5 Potential for Future Development

Development beyond the three wells discussed is not included with this proposal. Further development would be subject to applicable regulations, including 43 CFR Part 3160, and the BLM's Onshore Oil and Gas Order No. 1 – Approval of Operations on Onshore Federal and Indian Oil and Gas Leases, and would be subject to review under NEPA, as appropriate. These proposed locations would be evaluated and constructed to possibly accommodate a second well-head on the same proposed pad site, using the proposed access roads.

Chapter 3 Description of the Affected Environment and Impacts

3.1 Introduction

This chapter describes the existing conditions within the study area. The existing conditions, or affected environment, are the baseline conditions that may be affected by the proposed action. This chapter also summarizes the positive and negative direct environmental impacts of the project alternatives, as well as cumulative impacts. Indirect impacts are discussed in impact categories where relevant. Information regarding the existing environment, potential effects to the environment resulting from the proposed alternative, and avoidance, minimization, and/or mitigation measures for adverse impacts is included.

3.2 Geologic Setting and Land Use

The proposed wells and access roads are situated geologically within the Williston basin, where the shallow structure consists of sandstones, silts and shales dating to the Tertiary Period (65 million to 2 million years ago), including the Sentinel Butte and Golden Valley Formations. The underlying Bakken Pool is a well-known source of hydrocarbons; its middle member is targeted by the proposed projects. Although earlier oil/gas exploration activity within the Reservation was limited and commercially unproductive, recent advances in drilling technologies, including horizontal drilling techniques, now make accessing oil in the Bakken Pool feasible.

According to Western Regional Climate Center data collected at the Dunn Center weather station from 1971-2000, temperatures in excess of 80 degrees Fahrenheit are common in summer months. The area receives approximately 14.0 inches of rain annually, predominantly during spring and summer. Winters in this region are cold, with temperatures often falling near zero degrees Fahrenheit. Snow generally remains on the ground from November to March, and about 38 inches of snow are received annually.

The topography within the project areas is primarily identified as part of the Missouri Coteau eco-region, which consists of glaciated uplands, river breaks, valley wall side and footslopes, coulees, alluvial terraces and floodplains. The floodplains are primarily located in the bottomlands of the Missouri River.

The western and southern portions of the Fort Berthold Reservation consist of prairie grasslands and buttes. The northern and eastern areas of the Reservation provide fertile farmland. The proposed project areas are located within a predominately rural area. Land within the proposed project areas is predominantly cultivated (52%), grasslands (38%), water (9%), and shrubland (1%). ***Please refer to Figure 3-1, Land Use.*** Additional surrounding land uses include agricultural and water.

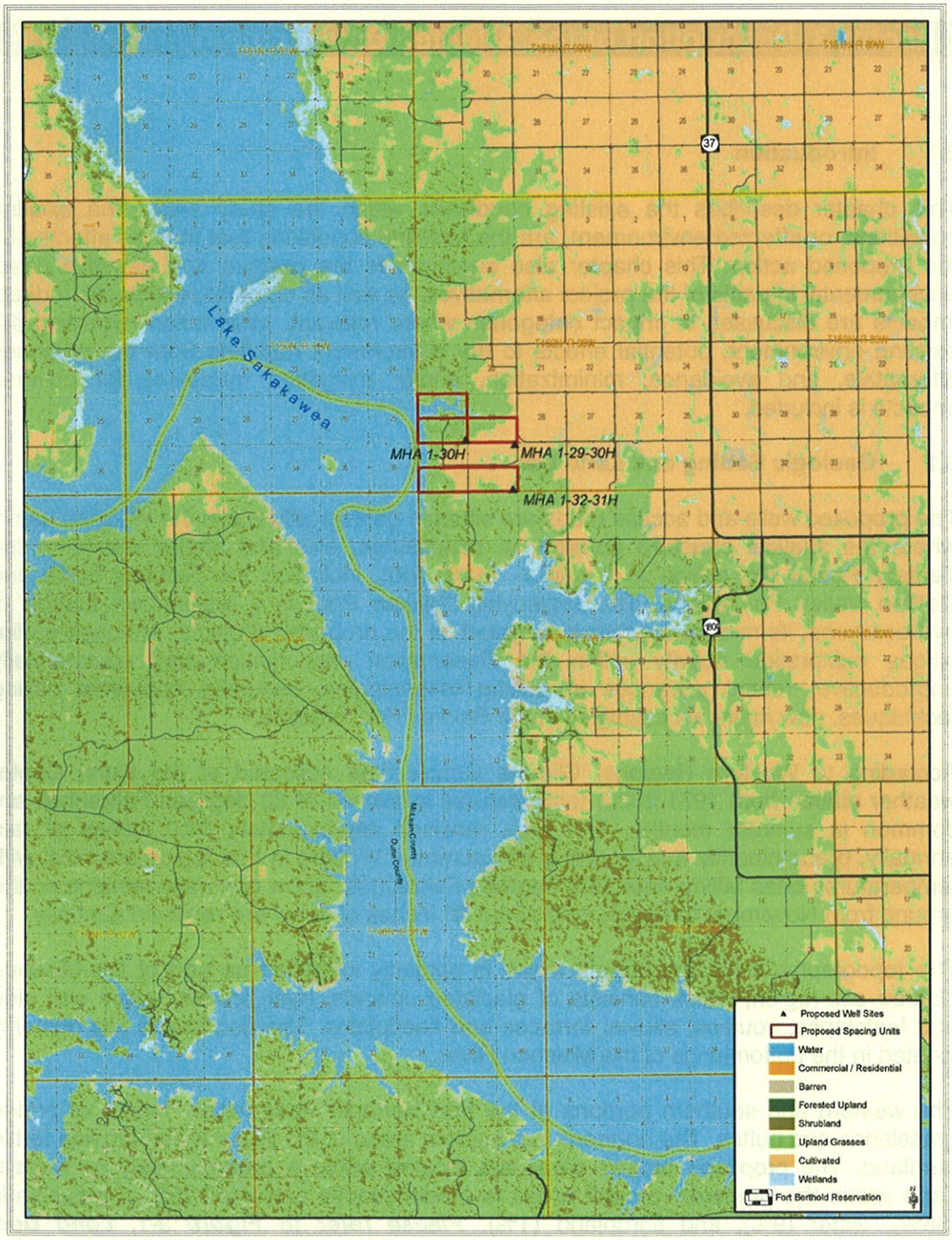


Figure 3-1, Land Use

3.2.1 Geologic Setting and Land Use Impacts/Mitigation

Alternative A (No Action) – Alternative A would not impact land use.

Alternative B (Proposed Action) – Alternative B would result in the conversion of approximately 20.99 acres of land from present use to part of an exploratory oil and gas network. ***Please refer to Table 3.1, Summary of Land Use Conversion.***

Table 3.1 Summary of Land Use Conversion

Well Site	Well Pad Acres	Access Road Acres	Total Acres
MHA#1-29-30H-150-90	4.04	0.07	4.11
MHA#1-32-31H150-90	4.04	4.36	8.40
MHA#1-30H-150-90	4.04	4.44	8.48
		Total	**20.99**

Mineral resources would be impacted through the development of oil and gas resources at the proposed well sites, as is the nature of the purpose of this project. Impacts to the geologic setting and paleontological resources are not anticipated.

3.3 Soils

The NRCS (Natural Resource Conservation Service) Soil Survey of McLean County dates from 1979, with updated information available online through the NRCS Web Soil Survey. There are eight soil types identified within the project impact areas. Characteristics of these soils are identified in ***Table 3.2, Soils.***

Table 3.2 Soils

Map Unit Symbol	Soil Name	Percent Slope	Composition (in upper 60 inches)			Erosion Factor1		Hydrologic Soil Group2
			% sand	% silt	% clay	T	Kf	
MdB	Mandan silt loam	3 to 6	21	66	13	5	0.32	B
Ro	Roseglen silt loam	0 to 3	26	52	22	5	0.28	B
WbD	Wabek	6 to 15	85	8	7	2	0.28	A
Wtb	Wilton-Temvik silt loams	3 to 6	20	53	27	5	0.28	B
WoA	Williams-Bowbells loams	0 to 3	35	35	30	5	0.28	B
WoC	Williams-Bowbells loams	6 to 9	35	35	30	5	0.28	B
ZcE	Zahl-Cabba	15 to 35	35	34	31	5	0.28	B
ZmE	Zahl-Max	9 to 35	35	34	31	5	0.28	B

1 Erosion Factors indicate susceptibility of a soil to sheet and rill erosion by water. Kf indicates the erodibility of material less than two millimeters in size. Values of K range from 0.02 to 0.69. Higher values indicate greater susceptibility. T Factors estimate maximum average annual rates of erosion by wind and water that would not affect crop productivity. Tons/acre/year range from 1 for shallow soils to 5 for very deep soils. Soils with higher T values can tolerate higher rates of erosion without loss of productivity.

2 Hydrologic Soil Groups (A, B, C, and D) are based on estimates of runoff potential according to the rate of water infiltration under the following conditions: soils are not protected by vegetation, soils are thoroughly wet, and soils receive precipitation from long-duration storms. The rate of infiltration decreases from Group A (high infiltration, low runoff) to D (low infiltration, high runoff).

All listed soils have low susceptibility to sheet and rill erosion and the majority can tolerate high levels or erosion without loss of productivity. These soils have slow to rapid runoff potential. Depth to the water table is recorded at greater than six feet for these soil types. Some of the soils listed within the project impact areas are slightly susceptible to erosion, but not to flooding or ponding.

3.3.1 Soil Impacts/Mitigation

Alternative A (No Action) – Alternative A would not impact soils.

Alternative B (Proposed Action) – Construction activities associated with the proposed well sites and associated access roads would result in soil disturbances, though impacts to soils associated with the proposed action are not anticipated to be significant. Stockpile quantities for each location were calculated using assumed 6-inches of existing topsoil. The following identifies topsoil requirements for each site:

- MHA#1-29-30H-150-90 – A minimum of 3,310 cubic yards of topsoil and 4,615 cubic yards of material for future site reclamation would be stockpiled on site.
- MHA#1-32-31H-150-90 – A minimum of 3,330 cubic yards of topsoil and 4,615 cubic yards of material for future site reclamation would be stockpiled on site.
- MHA#1-30H-150-90 – A minimum of 3,375 cubic yards of topsoil and 3,410 cubic yards of material for future site reclamation would be stockpiled on site.

Based on review of the NRCS soil profiles, sufficient quantity of topsoil for construction and reclamation activities exists at each well site. Topsoil and embankment stockpiles are proposed to be located on the northwest corner of the MHA#1-29-30H-150-90 pad, the southwest corner of the MHA#1-32-31H-150-90 pad, and on the southwest corner of the MHA#1-30H-150-90 pad. The stockpiles have been positioned to assist in diverting runoff away from the disturbed area, thus minimizing erosion.

Soil impacts would be localized, and BMPs would be implemented to minimize these impacts. Surface disturbance caused by well development, road improvements, and facilities construction would result in the removal of vegetation from the soil surface. This can damage soil crusts and destabilize the soil. As a result, the soil surface could become more prone to accelerated erosion by wind and water. BMPs used to reduce these impacts would include the use of erosion and sediment control measures during and after construction, segregating topsoil from subsurface material for future reclamation, reseeding of disturbed areas, the use of construction equipment appropriately sized to the scope and scale of the project, ensuring the road gradient fits closely with the natural terrain, and maintaining proper drainage. According to discussions at the field on-site assessment and standard industry practices, BMPs identified in the BLM Gold Book shall be utilized to further minimize site erosion.

Another soil resources issue is soil compaction, which can occur by use of heavy equipment. When soil is compacted, it decreases permeability and increases surface runoff. This is especially evident in silt and clay soils. In addition, soils may be impacted by mixing of soil horizons. Soil compaction and mixing of soil horizons would be minimized by the previously discussed topsoil segregation.

Contamination of soils from various chemicals and other pollutants used during oil development activities is not anticipated. In the rare event that such contamination may occur, the event shall be reported to the BLM and the BIA, and the procedures of the surface management agency shall be followed to contain spills and leaks.

3.4 Water Resources

The Federal Water Pollution Control Act of 1972, as amended by the Clean Water Act of 1977, provides the authority to the EPA (Environmental Protection Agency) and USACE (United States Army Corps of Engineers) to establish water quality standards, control discharges into surface and ground waters, develop waste treatment management plans and practices, and issue permits for discharges (Section 402) and for dredged or fill material (Section 404). Within the Fort Berthold Reservation, the Missouri River and Lake Sakakawea are both considered navigable waters and are therefore subject to Section 10 of the Rivers and Harbors Act of 1899.

3.5 Surface Water

The project areas are situated in the Great Plains region of North Dakota that borders the Badlands to the west. This is an arid area with few isolated surface water basins. The majority of the surface waters in the region are associated with the Missouri River, Lake Sakakawea, and tributaries to these water bodies. Surface water generally flows overland until draining into these systems.

All of the proposed well sites are located in the Lake Sakakawea basin, meaning surface waters within this basin drain to Lake Sakakawea. The MHA#1-30H-150-90 well is located in the Lucky Mound Creek Bay Sub-Watershed. The MHA#1-29-30H-150-90 and MHA#1-32-31H-150-90 wells are located in the Lower Deepwater Creek Sub-Watershed. ***Please refer to Figure 3-2, Surface Water Resources.*** Runoff throughout the study area is by sheet flow until collected by ephemeral and perennial streams draining to Lake Sakakawea. Surface runoff for each well site would typically travel to Lake Sakakawea via drainage patterns as follows:

- *MHA#1-29-30H-150-90* – This is a relatively flat area with normal drainage to the southwest, draining from the pad overland in a southerly then easterly direction about 1.1 miles into an unnamed coulee that drains to the south 1.6 miles into the beginning of Deepwater Creek Bay of Lake Sakakawea, for a total traveled distance of 2.7 miles.

- *MHA#1-32-31H-150-90* – This pad drains easterly into an unnamed coulee that travels 1.7 miles to a beginning of Deepwater Creek Bay of Lake Sakakawea.

- *MHA#1-30H-150-90* – The northeast two-thirds of the pad drains in a north-northeast direction into an unnamed drainage that flows northerly 0.6 miles into Lucky Mound Creek Bay of Lake Sakakawea. The remaining southwest one-third of the pad drains north-northwest into an unnamed channel that also travels 0.5 miles to Lucky Mound Creek Bay of Lake Sakakawea.

3.5.1 Surface Water Impacts/Mitigation

Alternative A (No Action) – Alternative A would not impact surface water.

Alternative B (Proposed Action) – No significant impacts to surface water are expected to result from Alternative B. The proposed projects have been sited to avoid direct impacts to surface waters and to minimize the disruption of drainage patterns across the landscape. Construction site plans should contain measures to divert surface runoff around the well pad and a catch trench on the side of the well pad closet to Corps of Engineers (COE) property to prevent run-off from the pad from entering tributaries of the Little Missouri River or Lake Sakakawea. Roadway engineering and the implementation of BMPs to control erosion would minimize runoff of sediment downhill or downstream. Alternative B is not anticipated to result in measurable increases in runoff or impacts to surface waters.

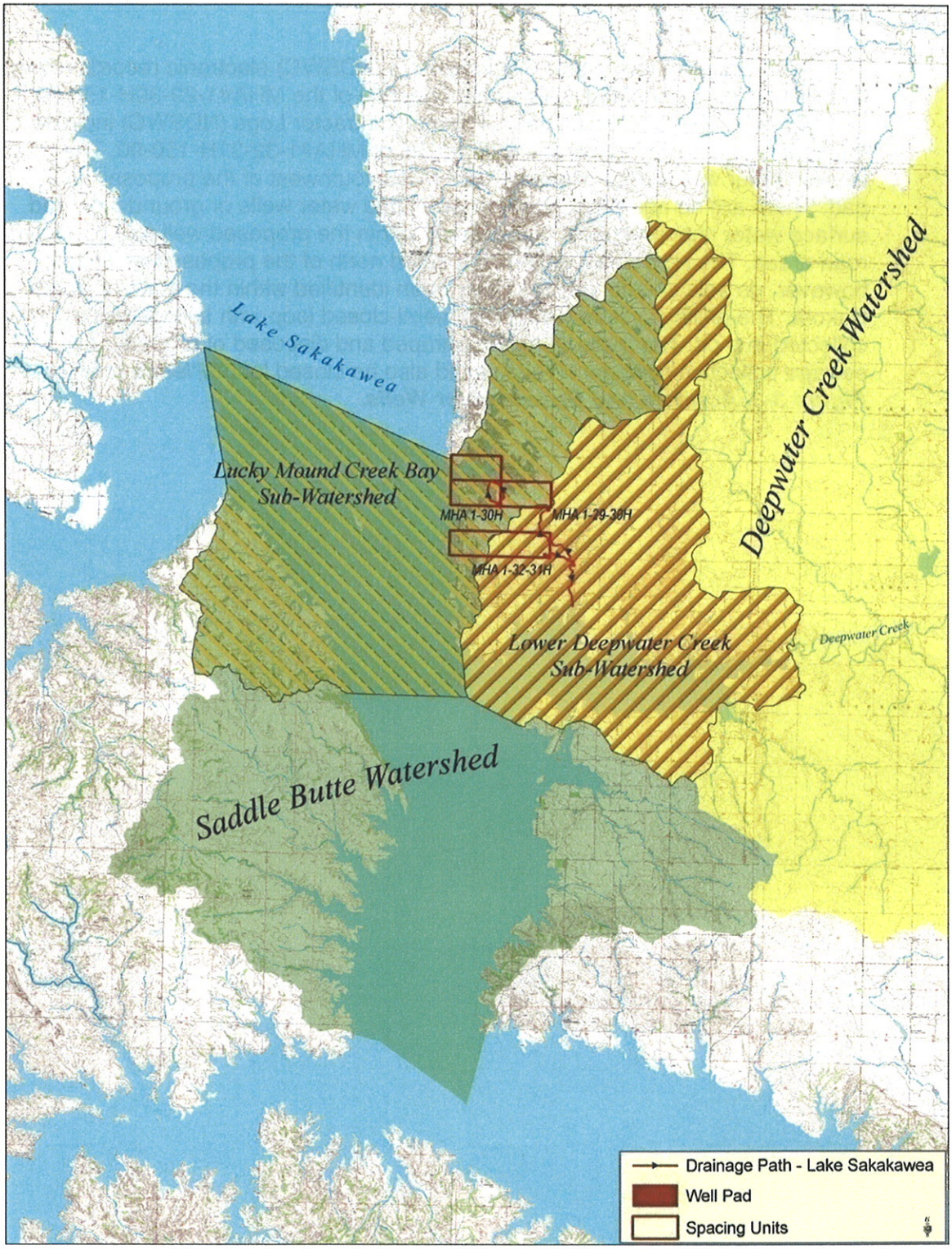


Figure 3-2, Surface Water Resources

3.6 Ground Water

The North Dakota State Water Commission's (NDSWC) electronic records reveal that there are no permitted wells within one-mile of the MHA#1-29-30H-150-90, and MHA#1-30H-150-90 well pads. Private Contractor Logs (NDSWC) indicate that four wells are within the one-mile radius of MHA#1-32-31H-150-90. The closest water well is approximately 0.67 miles southwest of the proposed well pad. There are no additional active or permitted water wells or groundwater-fed surface water impoundments immediately within the proposed well pad or access road areas. The New Town aquifer is located north of the proposed well sites; however, no sole source aquifers have been identified within the state of North Dakota. The drilling system would be a semi-closed loop with tailings being collected in a pit. The fluids would be pumped and disposed of properly. All sewage collection systems on-site would also be closed loop. ***Please refer to Figure 3-3, Aquifers and Groundwater Wells.***

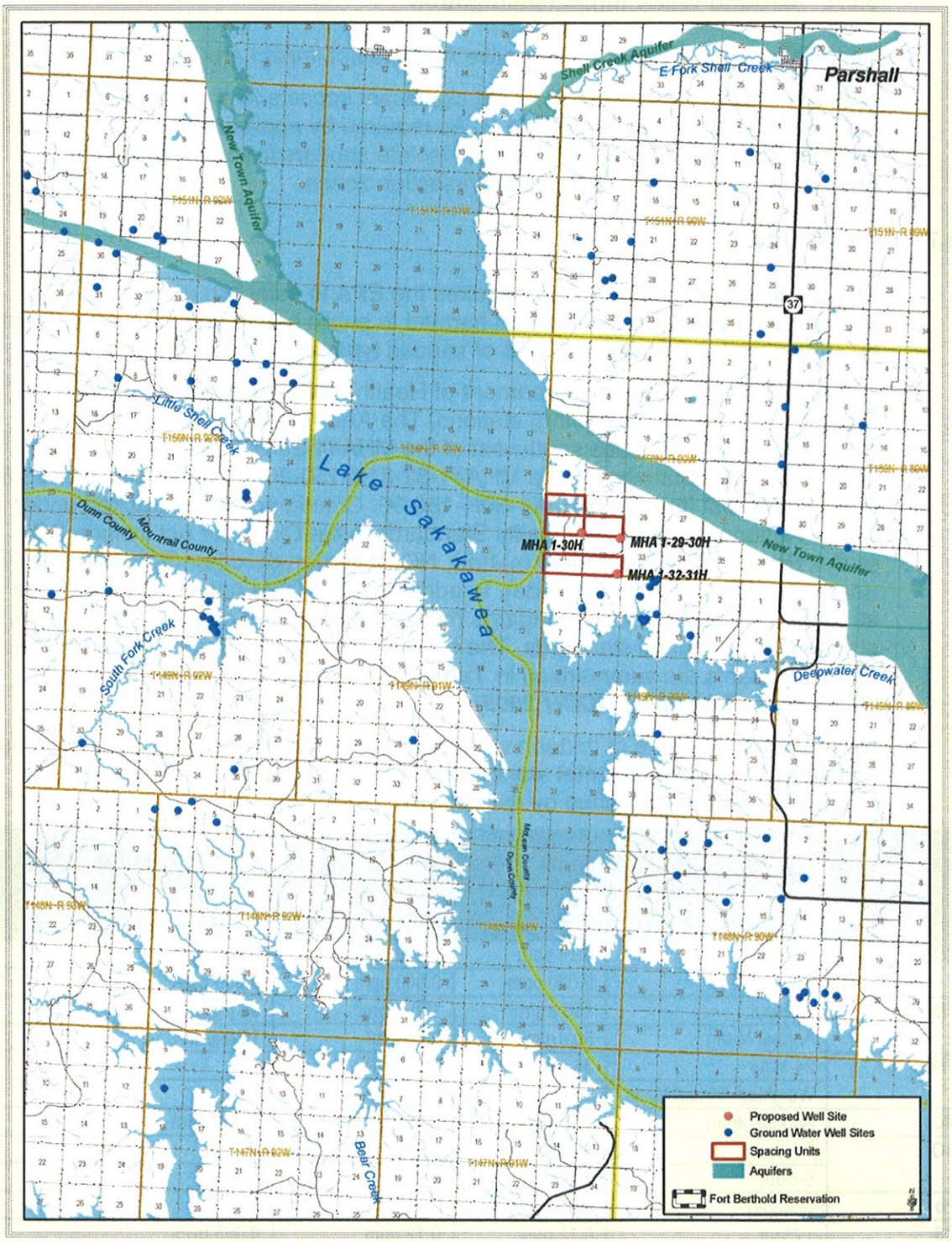


Figure 3-3, Aquifers and Groundwater Wells

3.6.1 Ground Water Impacts/Mitigation

Alternative A (No Action) – Alternative A would not impact groundwater.

Alternative B (Proposed Action) – No significant impacts to groundwater are expected to result from Alternative B. As required by applicable law, all proposed wells would be cemented and cased to isolate aquifers from potentially productive hydrocarbon and disposal/injection zones.

3.7 Air Quality

The Clean Air Act, as amended, requires the EPA to establish air quality standards for pollutants considered harmful to public health and the environment by setting limits on emission levels of various types of air pollutants.

The NDDH (North Dakota Department of Health) operates a network of AAQM (Ambient Air Quality Monitoring) stations. The AAQM station in Dunn Center, North Dakota is 34.7 miles southwest of the MHA#1-29-30H-150-90 proposed site, 33.6 miles southwest of the MHA#1-32-31H-150-90 proposed site, and 33.8 miles southwest from the MHA#1-30H-150-90. Criteria pollutants tracked under EPA's National Ambient Air Quality Standards in the Clean Air Act include SO_2 (sulfur dioxide), PM (particulate matter), NO_2 (nitrogen dioxide), O_3 (ozone), Pb (lead), and CO (carbon monoxide). In addition, the NDDH has established state air quality standards. State standards must be as stringent as (but may be more stringent than) federal standards. The federal and state air quality standards for these pollutants are summarized in ***Table 3.3, Federal and State Air Quality Standards (EPA 2006, NDDH 2009).***

North Dakota was one of thirteen states in 2008 that met standards for all criteria pollutants. The state also met standards for fine particulates and the eight-hour ozone standards established by the EPA (NDDH 2009).

Table 3.3 Federal and State Air Quality Standards and AAQM Station Data

Pollutant	Averaging Period	EPA Air Quality Standard	NDDH Air Quality Standard	Dunn Center Air Quality Data
SO_2	24-Hour	0.14 ppm	0.099 ppm	**0.003 ppm**
	Annual Mean	0.030 ppm	0.000 ppm	**0.000 ppm**
PM_{10}	24-Hour	150 µg/m³	150 µg/m³	**53 µg/m³**
	Annual Mean	50 µg/m³	53 µg/m³	**15 µg/m³**
$PM_{2.5}$	24-Hour	35 µg/m³	35 µg/m³	--
	Weighted Annual Mean	15 µg/m³	15 µg/m³	--
NO_2	Annual Mean	0.053 ppm	0.053 ppm	**0.002 ppm**
CO	1-Hour	35 ppm	35 ppm	--
	8-Hour	9 ppm	9 ppm	--
Pb	3-Month	1.5 µg/m³	1.5 µg/m³	--
O3	1-Hour	0.12 ppm	0.12 ppm	**0.065 ppm**
	8-Hour	**0.08 ppm**	**0.08 ppm**	**0.060 ppm**

In addition, the Fort Berthold Reservation complies with the North Dakota National Ambient Air Quality Standards and visibility protection. The Clean Air Act affords additional air quality protection near Class I areas. Class I areas include national parks greater than 6,000 acres in size, national monuments, national seashores, and federally designated wilderness areas larger than 5,000 acres designated prior to 1977. There are no Federal Class I areas within the project area. The Theodore Roosevelt National Park is the nearest Class I area, located approximately 49.3 miles west of the MHA#1-29-30H-150-90 well, 49.1 miles west of the MHA#1-32-31H150-90 well, and 48.0 miles west of the MHA#1-30H-150-90 well.

3.7.1 Air Quality Impacts/Mitigation

Alternative A (No Action) – Alternative A would not impact air quality.

Alternative B (Proposed Action) – The Fort Berthold Reservation complies with North Dakota National Ambient Air Quality Standards and visibility protection. Alternative B would not include any major sources of air pollutants. Construction activities would temporarily generate minor amounts of dust and gaseous emissions of PM, SO2, NO2, CO, and volatile organic compounds, as well as temporary emissions associated with gas flaring and truck traffic to and from the sites until the wells are connected to the proposed gathering system. Emissions would be limited to the immediate project areas and are not anticipated to cause or contribute to a violation of National Ambient Air Quality Standards. No detectable or long-term impacts to air quality or visibility are expected within the airsheds of the Fort Berthold Reservation, State, or Theodore Roosevelt National Park. No mitigation or monitoring measures are recommended.

3.8 Threatened and Endangered Species

In accordance with Section 7 of the Endangered Species Act of 1973, 50 CFR Part 402 as amended, each federal agency is required to ensure the following two criteria. First, any action funded or carried out by such agency must not be likely to jeopardize the continued existence of any federally-listed endangered or threatened species or species proposed to be listed. Second, no such action can result in the destruction or adverse modification of habitat of such species that is determined to be critical by the Secretary. An endangered species is in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future. A candidate species is one which may warrant listing as an endangered or threatened species, but the data are inconclusive. While candidate species are not legally protected under the Endangered Species Act, it is within the spirit of the Endangered Species Act to consider these species as having significant value and worth protecting.

The proposed project area was evaluated to determine the potential for occurrences of federally-listed threatened, endangered, and candidate species. The USFWS (United States Fish and Wildlife Service) has identified the interior least tern, whooping crane, pallid sturgeon, and gray wolf as endangered species that may be found within McLean County.

The piping plover is listed as a threatened species for McLean County. In addition, McLean County contains designated critical habitat for the piping plover adjacent to Lake Sakakawea. The Dakota Skipper, a candidate species, is also listed for McLean County. Habitat requirements and other information regarding listed species for McLean County are as follows:

3.8.1 Endangered Species

Gray Wolf (Canis lupus)

- The gray wolf is the largest wild canine species in North America. In North America, the gray wolf is found throughout northern Canada, Alaska, and the forested areas of Northern Michigan, Minnesota, and Wisconsin. They have been re-introduced to Yellowstone National Park in Wyoming. While the gray wolf is not common in North Dakota, occasionally individual wolves do pass through the state. Historically, its preferred habitat includes biomes such as boreal forest, temperate deciduous forest, and temperate grassland. Gray wolves live in packs of up to 21 members, although some individuals would roam alone. The proposed project areas are located far from other known wolf populations and do not contain preferred habitat for suitable prey to sustain a population.

Interior Least Tern (Sterna antillarum)

- The interior least tern nests along inland rivers. It is found in isolated areas along the Missouri, Mississippi, Ohio, Red, and Rio Grande Rivers. In North Dakota, it has been sighted along the Missouri River during the summer nesting season. The interior least tern nests in sandbars or barren beaches, preferably in the middle of a river for increased safety while nesting. These birds nest close together, using safety in numbers to scare away predators.

- There is no existing or potential habitat within the project areas. The Missouri River (Lake Sakakawea) is about 1.1 miles to the northwest of the MHA#1-29-30H-150-90 well pad, 1.82 miles to the northwest of the MHA#1-32-31H-150-90 well pad, and 0.58 miles northwest of the MHA#1-30H-150-90 well pad. Migrating or foraging terns may travel unimpeded through the project area year-around. No wetland areas would be impacted as a result of the proposed project.

Pallid Sturgeon *(Scaphirhynchus albus)*

- The pallid sturgeon is known to exist in the Yellowstone, Missouri, middle and lower Mississippi, and Atchafalaya Rivers, and seasonally in some tributaries. In North Dakota, the pallid sturgeon is found principally in the Missouri River and upstream of Lake Sakakawea in the Yellowstone River. Dating to prehistoric times, the pallid sturgeon has become well adapted to living close to the bottom of silty river systems.

- According to the USFWS, its preferred habitat includes a diversity of water depths and velocities formed by braided river channels, sand bars, sand flats, and gravel bars. Weighing up to 80 pounds, pallid sturgeons are long lived, with individuals possibly reaching 50 years of age.

- The Missouri River (Lake Sakakawea) is about 1.1 miles to the west of the MHA#1-29-30H-150-90 well pad, 1.82 miles to the west of the MHA#1-32-31H-150-90 well pad, and 0.58 miles west of the MHA#1-30H-150-90 well pad. The Yellowstone River is about 54.8 miles to the west of the well pad locations. The proposed project is not expected to affect the water quality or quantity in the Missouri River.

Whooping Crane (Grus americana)

- The whooping crane is the tallest bird in North America. In the United States, this species ranges through the Midwest and Rocky Mountain regions from North Dakota south to Texas and east into Colorado. Whooping cranes migrate through North Dakota along a band running from the south central to the northwest parts of the state. They use shallow, seasonally and semi-permanently flooded palustrine (marshy) wetlands for roosting and various cropland and emergent wetlands for feeding. During migration, whooping cranes are often recorded in riverine habitats, including the Missouri River. Currently there are three wild populations of whooping cranes, yielding a total species population of about 365. Of these groups, only one is self-sustaining. The lack of food sources and roosting/foraging habitat makes stopovers by migrating cranes unlikely in the proposed project area.

- The proposed project is located in the Central Flyway where 75% of confirmed whooping crane sightings have occurred. There is some potential stopover habitat (cultivated fields) within the project areas. Lake Sakakawea and the Missouri River are located outside the project areas by at least one-half mile.

3.8.2 Threatened Species

Piping Plover *(Charadrius melodus)*

- The piping plover is a small migratory shorebird. Historically, piping plovers could be found throughout the Atlantic Coast, Northern Great Plains, and the Great Lakes. Drastically reduced, sparse populations presently occur throughout this historic range. In North Dakota, breeding and nesting sites can be found along the Missouri River. Preferred habitat for the piping plover includes riverine sandbars, gravel beaches, alkali areas of wetlands, and flat, sandy beaches with little vegetation.

- The USFWS has identified critical habitat for the piping plover on the Missouri River system. Critical habitat includes reservoir reaches composed of sparsely vegetated shoreline beaches, peninsulas, islands composed of sand, gravel, or shale, and their interface with water bodies. Minor impacts may occur with foraging or traveling birds during construction or drilling activities.

3.8.3 Candidate Species

Dakota Skipper ***(Hesperia dacotae)***

- The Dakota skipper is a small butterfly with a one-inch wing span. These butterflies historically ranged from southern Saskatchewan, across the Dakotas and Minnesota, to Iowa and Illinois. The preferred habitat for the Dakota skipper consists of flat, moist bluestem prairies and upland prairies with an abundance of wildflowers.

- The proposed project areas do consist of upland prairies; however, the sites lack an abundance of wildflowers such as pale purple and blanketflower for the Dakota skipper. Additionally, the project areas have been grazed and disturbed by human activity and, therefore, it is unlikely that the sites contain the high quality prairie necessary for Dakota skipper.

3.8.4 Threatened and Endangered Species Impacts/Mitigation

Alternative A (No Action) – Alternative A would not impact threatened or endangered species or designated critical habitat.
Alternative B (Proposed Action) – Alternative B (Proposed Action) – Lake Sakakawea and associated Missouri River habitat is located more than one-half mile northwest of the proposed well pads at the nearest point. There is no existing or potential habitat for the listed species within the project areas, and none of these species were observed during field surveys performed by Kadrmas, Lee & Jackson in October 2009. Due to a lack of potential habitat and species observances within the project areas, the proposed project may affect, but is unlikely to adversely affect, any of the listed species. The proposed project is not likely to jeopardize the continued existence of these species and is not likely to destroy or adversely modify critical habitat.

3.9 Wetlands, Wildlife and Vegetation

Biological and botanical surveys at each site were conducted by Kadrmas, Lee & Jackson on October 26, 2009. Data gathered from these surveys, as well as through coordination with the USFWS, North Dakota Parks and Recreation Department, and North Dakota Game and Fish Department, are summarized below. The Three Affiliated Tribes Game and Fish Department was also contacted as part of project scoping.

3.9.1 Wetlands

Wetlands are defined in both the 1997 Executive Order 11990, Protection of Wetlands, and in Section 404 of the Clean Water Act of 1986, as those areas that are inundated by surface or groundwater with a frequency to support and under normal circumstances do or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Three parameters that define a wetland, as outlined in the Federal Manual for Delineating Jurisdictional Wetlands (US Army Corps of Engineers, 1987) are hydric soils, hydrophytic vegetation, and hydrology. Wetlands are an important natural resource serving many functions, such as providing habitat for wildlife, storing floodwaters, recharging groundwater, and improving water quality through purification.
No wetlands or riparian areas were identified within any of the proposed well pad or access road areas during the field surveys.

3.9.2 Wetland Impacts/Mitigation

Alternative A (No Action) – Alternative A would not impact wetlands.

Alternative B (Proposed Action) – Due to the absence of wetlands within the proposed project areas, Alternative B would not impact wetlands.

3.10 Wildlife

During the field surveys, big and small game species, raptors, non-game species, and potential wildlife habitats were identified. The project areas all contain suitable habitat for whitetail deer, sharptail grouse, ringneck pheasant, mourning dove, red-tailed hawk, song birds, coyote, red fox, North American badger, and white-tailed jackrabbit. Species observed at the project areas include:

- MHA#1-29-30H-150-90 – Song sparrow
- MHA#1-32-31H-150-90 – Leopard frog, Song sparrow
- MHA#1-30H-150-90 – Song sparrow

Protection is provided for the bald and golden eagle, as well as other migratory birds, through the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The Bald and Golden Eagle Protection Act of 1940, 16 U.S.C. 668–668d, as amended, was written with the intent to protect and preserve bald and golden eagles, both of which are treated as species of concern within the Department of the Interior. In addition, the Migratory Bird Treaty Act (916 U.S.C. 703–711) regulates impacts to these species such as direct mortality, habitat degradation, and/or displacement of individual birds.

The bald eagle (Haliaeetus leucocephalus) is not common in North Dakota, but is sighted along the Missouri River during spring and fall migration periods and periodically in other places in the state such as the Devils Lake and Red River areas. There are approximately 15 breeding pairs of bald eagles in North Dakota, most of which nest along the Missouri River. Its preferred habitat includes open areas, forests, rivers, and large lakes. Bald eagles tend to use the same nest year after year, building atop the previous year's nest.

The golden eagle (Aquila chrysaetos) can be spotted in North Dakota throughout the badlands and along the upper reaches of the Missouri River in the western part of the state. It may be seen throughout the State during the winter. Golden eagle pairs maintain territories that can be as large as 60 square miles and nest in high places including cliffs, trees, and human-made structures. They perch on ledges and rocky outcrops and use soaring to search for prey. Golden eagle preferred habitat includes open shrubland, grasslands and riparian habitats.

3.10.1 Wildlife Impacts/Mitigation

Alternative A (No Action) – Alternative A would not impact wildlife.

Alternative B (Proposed Action) – Ground clearing activities associated with the proposed project may impact individuals or suitable habitat for the wildlife species discussed above. While wildlife may use the project areas for breeding and feeding, wildlife are generally expected to adapt to changing conditions and continue to thrive. Similarly, avian species that may frequent the project areas are transitory in nature and are also generally expected to adapt to changing conditions and continue to thrive. The proposed project may affect individual wildlife species, but is not likely to adversely affect populations to result in a trend towards listing of the species. No grouse leks were observed in project areas, timing restrictions for construction are not required.

During drilling activities, the noise, motion and lights associated with having a drilling rig on site should be sufficient to deter any wildlife from entering the area. Reserve pits cannot be netted during the drilling portion as they would easily be torn up during normal drilling operations, and the reserve pit would not be functional if netted. Immediately after the drilling rig leaves the location, reserve pits are netted with State and Federal approved nets. These would remain in place until closure of the reserve pits.

3.11 Vegetation

Botanical resources were evaluated using visual inspection, GPS data collection, and mapping of dominant plant communities. The project areas were also investigated for the presence of invasive plant species.

The proposed MHA#1-29-30H-150-90 well pad would occur on cultivated agricultural land. The site's access road of approximately 45 feet of new construction would connect the pad to County Road #4.

The vegetation in the ditch area was crested wheatgrass, smooth brome grass and Kentucky bluegrass. Please refer to Figures 3-4, MHA#1-29-30H-150-90 Well Site Vegetation and 3-5, MHA#1-29-30H-150-90 Access Road Vegetation; Figure 3-6, MHA#1-29-30H-150-90 Well Site Mapped Vegetation Communities.

Figure 3-4, MHA#1-29-30H-150-90 Well Site Vegetation

Figure 3-5, MHA#1-29-30H-150-90 Access Road Vegetation

Figure 3-6, MHA#1-29-30H-150-90 Well Site Mapped Vegetation Communities

The proposed MHA-1-32-31H-150-90 well site would be located on cultivated land. The proposed access road follows an existing two-track trail through an upland prairie area. New construction along the edge of the cultivated field would be necessary to connect the two-track trail to the well pad. The total length of the access road would be approximately 2,848 feet. The vegetation covering the two-track was predominantly smooth brome grass, crested wheatgrass and Kentucky bluegrass. **Please refer to Figure 3-7, MHA#1-32-31H-150-90 Well Site Vegetation; Figure 3-8, MHA#1-32-31H-150-90 Access Road Vegetation; Figure 3-9, MHA#1-32-31H-150-90 Well Site Mapped Vegetation Communities.**

Figure 3-7, MHA#1-32-31H-150-90 Well Site Vegetation

Figure 3-8, MHA#1-32-31H-150-90 Access Road Vegetation

Figure 3-9, MHA#1-32-31H-150-90 Well Site Mapped Vegetation Communities

The proposed MHA-1-30H-150-90 access road is proposed along a section line between two cultivated fields. The well pad is located in a grazed pasture that is dominated by green needle grass, Kentucky bluegrass and smooth brome grass. The proposed access road follows an existing two-track for approximately 2,791 feet. New construction of 151 feet would be needed to connect the two-track road to the well pad. **Please refer to Figure 3-10, MHA#1-30H-150-90 Well Site Vegetation; Figure 3-11, MHA#1-30H-150-90 Access Road Vegetation; Figure 3-12, MHA#1-30H-150-90 Well Site Mapped Vegetation Communities.**

3-10, MHA#1-30H-150-90 Well Site Vegetation

3-11, MHA#1-30H-150-90 Access Road Vegetation

Figure 3-12, MHA#1-30H-150-90 Well Site Mapped Vegetation Communities

Vegetation composition along the proposed access roads and the three well pads was a fairly homogenous blend of upland species. Grasses and forbs observed in the unfarmed project areas were common among the three proposed locations. Crested wheatgrass (*Agropyron cristatum*), silver sagebrush (*Artemisia cana*), smooth brome grass (*Bromis enermis*), prairie junegrass (*Koeleria macrantha*), Kentucky bluegrass (*Poa pratensis*), green foxtail (*Setaria spp.*), green needle grass (*Stipa viridula*), and Western snowberry (*Symphoricarpos occidentalis*) were the dominant species. Observed woody vegetation included green ash (*Fraxinus pennsylvanica*), chokecherry (*Prunus virginiana*), and silver buffalo berry (*Shepheardia argentea*).

In addition, the project areas were surveyed for the presence of noxious weeds. Of the 12 species declared noxious under the North Dakota Century Code (Chapter 63-01.0), seven are known to occur in McLean County. ***Please refer to Table 3.4, Noxious Weed Species.*** In addition, counties and cities have the option to add species to the list to be enforced only in their jurisdiction; however, McLean County has listed no additional species.

Table 3.4 Noxious Weed Species

Common Name	Scientific Name	McLean County Acres	Observed in the Field
Absinth wormwood	*Artemesia abinthium* L.	1,500	No
Canada thistle	*Cirsium arvense* (L.) Scop	4,800	Yes
Dalmation toadflax	*Linaria genistifolia* ssp. *dalmatica*	--	No
Diffuse knapweed	*Centaurea diffusa* Lam	--	No
Field bindweed	*Convolvulus arvensis* L.	1,100	No
Leafy spurge	*Euphorbia esula* L.	1,300	No
Musk thistle	*Carduus nutans* L.	200	No
Purple loosestrife	*Lythrum salicaria*	--	No
Russian knapweed	*Acroptilon repens* (L.) DC.	9	No
Saltcedar (tamarisk)	*Tamarix ramosissima*	21	No
Spotted knapweed	*Centaurea maculosa* Lam.	6	No
Yellow starthistle	*Centaurea solstitalis* L.	1	No

Small quantities of Canada thistle were observed within the access road corridor and the proposed well pad portion of MHA#1-32-31H-150-90. Each of the noxious weed sightings consisted of either a single plant or a few plants growing close together as a single grouping. None of the other listed noxious weeds were identified during the field surveys.

3.11.1 Vegetation Impacts/Mitigation

Alternative A (No Action) – Alternative A would not impact vegetation.

Alternative B (Proposed Action) – Ground clearing activities associated with construction of the proposed wells and access roads would result in vegetation disturbance. However, the areas of proposed surface disturbances are minimal in the context of the setting, and these impacts would be further minimized in accordance with the Gold Book and other requirements.

Following construction, disturbed vegetation would be reseeded in-kind, and a noxious weed management plan would be implemented to prevent the spread of noxious weeds and non-native species. Fill material from private sources would be certified as being free of all noxious weeds.

3.12 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.

Cultural resource inventories of these well pads and access roads were conducted by personnel of Kadrmas, Lee & Jackson, Inc., using a pedestrian methodology. For the MHA 1-29-30H-150-90 project approximately 10 acres were intensively inventoried (Leuchtmann 2009c), for the MHA 1-32-31H-150-90 project approximately 19.6 acres were inventoried (Leuchtmann 2009a), and for the MHA 1-30H-150-90 project

approximately 19 acres were inventoried (Leuchtmann 2009b). These three surveys were done on October 23, 2009. No historic properties were located within any of these project areas 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 these undertakings. This determination was communicated to the THPO on February 5, 2010 (see Appendix A); however, no response was received from the THPO within the allotted 30-day comment period.

3.12.1 Cultural Resources Impacts/Mitigation

Alternative A (No Action) – Alternative A would not impact cultural resources.

Alternative B (Proposed Action) – Proposed well sites and access roads have been positioned to avoid impacts to cultural resources. As such, cultural resources impacts are not anticipated. If cultural resources are discovered during construction or operation, work shall immediately be stopped, the affected site 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. All project workers are prohibited from collecting artifacts or disturbing cultural resources in any area under any circumstances.

3.13 Socioeconomic Conditions

Socioeconomic conditions depend on the character, habits, and economic conditions of people living within the proposed project area. The proposed action's effects on businesses, employment, transportation, utilities, etc., are factors that affect the social climate of a community. Other factors that distinguish the social habits of one particular area from another include the geography, geology, and climate of the area.

The Fort Berthold Reservation and McLean County have lower than statewide averages of per capita income and median household income. In addition, the Fort Berthold Reservation has higher rates of unemployment and individuals living below poverty level than the State. McLean County's unemployment rate and the individuals living below poverty level are higher than the statewide average. ***Please refer to Table 3.6 Employment and Income.***

Table 3.6 Employment and Income[3]

Location	Per Capita Income	Median Household Income	Unemployment Rate	Individuals Living Below Poverty Level
McLean County	$16,220	$32,337	3.2%	13.5%
Fort Berthold Reservation	$10,291	$26,274	11.1%	28.1%

[3]Source: US Bureau of the Census, Census 2000.

Statewide	**$17,769**	**$34,604**	**3.0%**	**11.9%**

Population decline in rural areas of North Dakota has been a growing trend as individuals move toward metropolitan areas of the state, such as Bismarck and Fargo. While McLean County's population has been slowly declining, the Fort Berthold Reservation has witnessed a steady increase in population. American Indians are the majority population on the Fort Berthold Reservation but are the minority population in McLean County and the State of North Dakota. ***Please refer to Table 3.7 Demographic Trends.***

Table 3.7 Demographic Trends[4]

Location	Population in 2000	% of State Population	% Change 2000 to 2008	Predominant Race	Predominant Minority
McLean County	9,311	1.0%	-11%	White	American Indian (5.9%)
Fort Berthold Reservation	5,915	0.6%	+9.8%	American Indian5	White (26.9%)
Statewide	**642,200**	**--**	**+0.5%**	**White**	**American Indian (5.6%)**

3.13.1 Socioeconomic Impacts/Mitigation

Alternative A (No Action) Alternative A would not impact the socioeconomic conditions in the project areas. However, Alternative A would not permit the development of oil and gas resources, which could have positive effects on employment and income through the creation of jobs and payment of leases, easement, and/or royalties to Tribal members.

Alternative B (Proposed Action) – Alternative B is not anticipated to substantially impact the socioeconomic conditions in the project areas, but it does have the potential to yield beneficial impacts on Tribal employment and income. The Three Affiliated Tribes and allotted owners of mineral interests may receive income from oil and gas development on the Fort Berthold Reservation in the form of royalties, if drilling and production are successful, as well as from TERO (Tribal Employee Rights Office) taxes on construction of drilling facilities. Moreover, qualified individual tribal members may find employment through oil and gas development and increase their individual income. Employment opportunities related to oil and gas development may lessen the unemployment rate and increase income levels on the Fort Berthold Reservation. Additionally, the proposed action may result in indirect economic benefits to tribal business

4 Source: US Bureau of the Census, Census 2000.

5 According to the Fort Berthold Library, there are 9,500 enrolled members of the Three Affiliated Tribes.

owners resulting from construction workers expending money on food, lodging, and other necessities.

3.14 Environmental Justice

Per Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, measures must be taken to avoid disproportionately high adverse impacts on minority or low-income communities.

With 28% of its population living below the poverty line and the majority of its population of American Indian ancestry, the Fort Berthold Reservation contains both minority and low-income communities.

3.14.1 Environmental Justice Impacts/Mitigation

Alternative A (No Action) – Alternative A would not result in environmental justice impacts.

Alternative B (Proposed Action) – Alternative B is not anticipated to result in disproportionately adverse impacts to members of the Three Affiliated Tribes. The proposed action would not require the relocation of homes or businesses, and no community disruptions are expected. Oil and gas leasing and exploration provide income to Tribal members who hold mineral interests, some of whom may benefit further from royalties on commercial production.

3.15 Infrastructure and Utilities

The Fort Berthold Reservation's infrastructure consists of roads, bridges, utilities, and facilities for water, wastewater, and solid waste.

Known utilities and infrastructure within the vicinity of the proposed projects include both paved and gravel roadways, as well as existing and proposed rural water pipelines. Construction activities would be coordinated with Fort Berthold Rural Water District as to set backs required and location of proposed and existing rural water lines in these areas.

3.15.1 Infrastructure and Utility Impacts/Mitigation

Alternative A (No Action) – Alternative A would not impact infrastructure or utilities.

Alternative B (Proposed Action) – Alternative B would require improvements to existing roadways, as well as construction of new roadway segments. Questar would follow McLean County and North Dakota Department of Transportation rules and regulations regarding rig moves and oversize/overweight loads on state and county roads used as haul roads. All contractors are required to permit their oversize/overweight loads through these entities. Questar's contractors would be required to adhere to all local, county, and state regulations and ordinances regarding rig moves, oversize/overweight loads, and frost restrictions.

Pre-construction meetings would include McLean County and BIA road officials to review conditions of the existing roads, and to coordinate construction. A final review of road conditions following construction would be conducted by the same entities.

Each well site may also require the installation of supporting electrical lines. In addition, if commercially recoverable oil and gas are discovered at any of the well sites, a natural gas gathering system may need to be installed. Other utility modifications would be identified during design and coordinated with the appropriate utility company.

Drilling operations at the proposed well sites may generate produced water. In accordance with the BLM Gold Book and BLM Onshore Oil and Gas Order Number 7, produced water would be disposed of via subsurface injection, surface discharge, lined reserve pits, or other appropriate methods that would prevent spills or seepage. Produced water may be trucked to nearby oil fields where injection wells are available. Disposal areas would be properly fenced to prevent human or animal access. Depending on the produced water handling method, an Underground Injection Control Permit or a NPDES Permit for disposal and/or discharge may be needed. Depending on produced water quality and quantity, a comprehensive water management plan may be implemented to reduce impacts to water resources.

3.16 Public Health and Safety

Health and safety concerns include hydrogen sulfide (H_2S) gas[6], hazardous materials used or generated during well installation or production, and traffic hazards associated with heavy drill rigs and tankers.

3.16.1 Public Health and Safety Impacts/Mitigation

Alternative A (No Action) – Alternative A would not impact public health and safety.

Alternative B (Proposed Action) – Project design and operational precautions would minimize the likelihood of impacts from H_2S gases, hazardous materials, and traffic, as described below.

H_2S Gases. It is unlikely that the proposed action would result in release of H_2S at dangerous concentrations; however, Questar would submit H_2S Contingency Plans to the BLM as part of the APD. These plans establish safety measures to be implemented throughout the drilling process to prevent accidental release of H_2S into the atmosphere. The Contingency Plans are designed to protect persons living and/or working within 3,000 feet of each well location and include emergency response procedures and safety precautions to minimize the potential for an H_2S gas leak during drilling activities. Satellite imagery revealed no residences within 3,000 feet of the proposed Questar sites.

6 H2S is extremely toxic in concentrations above 500 parts per million. H2S has not been found in measurable quantities in the Bakken Pool. However, before reaching the Bakken, drilling would penetrate the Mission Canyon Formation, which is known to contain varying concentrations of H2S.

Hazardous Materials. The EPA specifies chemical reporting requirements under the Superfund Amendments and Reauthorization Act of 1986, as amended. No materials used or generated by this project for production, use, storage, transport, or disposal are on either the Superfund list or on the EPA's list of extremely hazardous substances in 40 CFR 355.

Traffic. Safety hazards posed from increased traffic during the drilling phase are anticipated to be short-term and minimal. It is anticipated that approximately 30 to 40 trips, over the course of several days, would be required to transport the drilling rig and associated equipment to each proposed well site. If commercial operations are established following drilling activities, the pump would be checked daily and oil and water hauling activities would commence. Oil would be hauled using a semi tanker trailer, typically capable of hauling 140 barrels of oil per load. Traffic to and from the well site would depend upon the productivity of the well. A 1,000 barrel per day well would require approximately seven tanker visits per day, while a 300 barrel per day well would require approximately two visits per day**7**. Produced water would also be hauled from the site using a tanker, which would typically haul 110 barrels of water per load. The number of visits would be dependent upon daily water production**8**. Established load restrictions for state and BIA roadways would be followed and haul permits would be acquired as appropriate. A review of the existing conditions in the vicinity of the construction areas would be conducted by Questar, BIA and McLean County Road Department prior to, and after the required work is completed. Coordination would start during the pre-construction phase of the projects.

3.17 Cumulative Impacts

Cumulative impacts result from the incremental consequences of an action "when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). Effects of an action may be minor when evaluated in an individual context, but these effects can add to other disturbances and collectively may lead to a measureable environmental change. By evaluating the impacts of the proposed action with the effects of other actions, such as extension of rural water distribution systems or oil/gas gathering systems, the relative contribution of the proposed action to a projected cumulative impact can be estimated.

3.17.1 Past, Present, and Reasonably Foreseeable Actions

At the time this EA was written, there were approximately 248 active and/or proposed oil and gas wells within 20 miles on the Fort Berthold Reservation. ***Please refer to Figure 3-13, Existing and Proposed Oil and Gas Wells.***

7 A typical Bakken oil well initially produces at a high rate and then declines rapidly over the next several months to a more moderate rate. In the vicinity of the proposed project areas, initial rates of 500 to 1,000 BOPD (barrels of oil per day) could be expected, dropping to 200 to 400 BOPD after several months.

8 A typical Bakken oil well initially produces water at 200 bbls per day and then declines rapidly over the next several months to a more moderate rate. In the vicinity of the proposed project areas, initial rated of 200 BWPD (barrels of water per day) could be expected, dropping to 30 to 70 BWPD after several months.

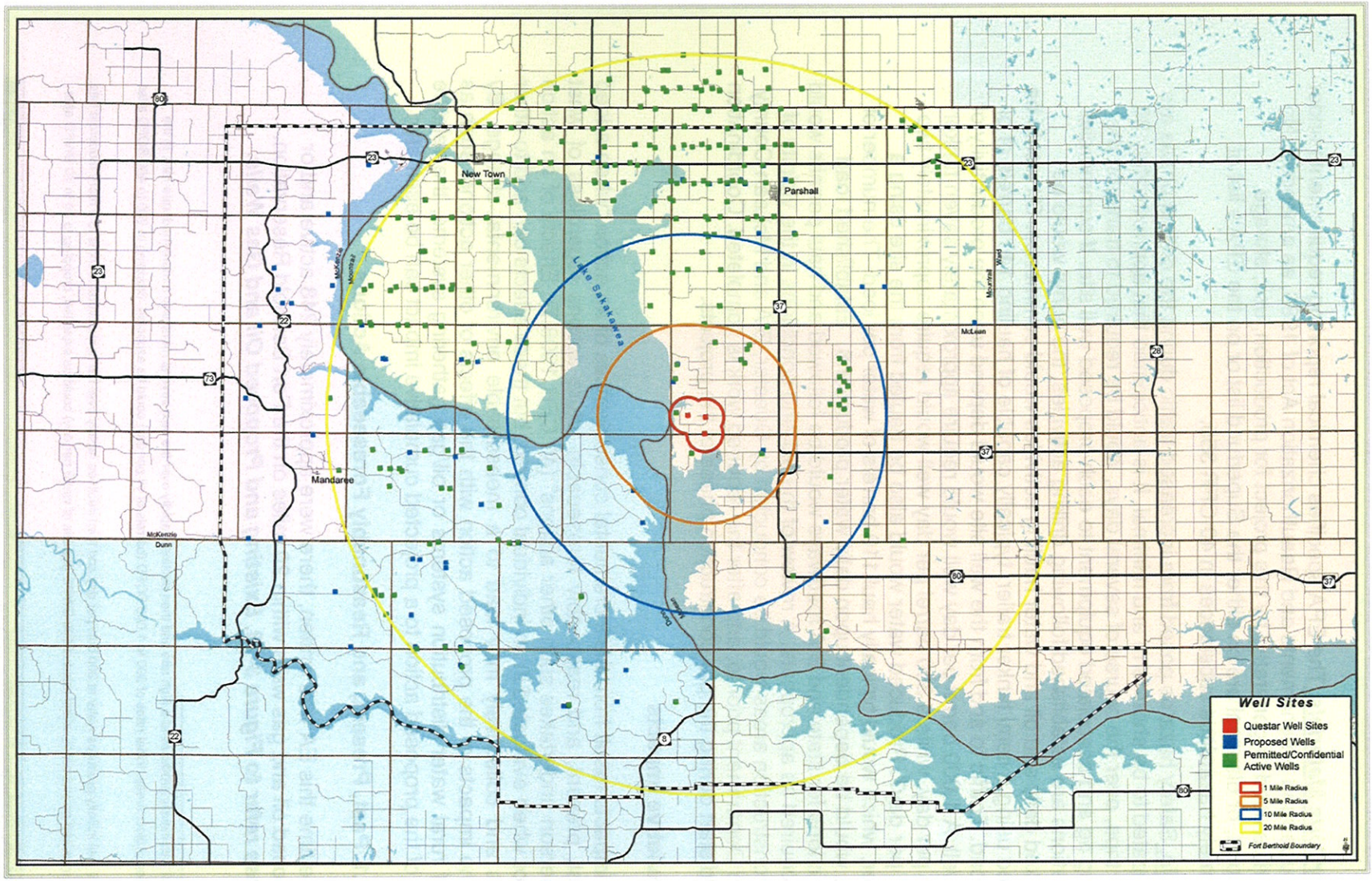


Figure 3-13, Existing and Proposed Oil and Gas Wells.

One active or proposed oil and gas well exists within 1.0 mile of the MHA#1-30H-150-90 well pad. Please refer to Table 3.8, Summary of Active and Proposed Wells.

Table 3.8 Summary of Active and Proposed Wells	
Distance from Sites	Number of Active or Proposed Wells
1 mile radius	1
5 mile radius	10
10 mile radius	35
20 mile radius	248

Current impacts from oil and gas development are still fairly dispersed, and BMPs would be implemented to minimize impacts of the proposed projects. The three proposed well sites would share access from County Road #4 with existing Questar and other companies' well sites. Commercial success at any new well might result in additional nearby oil/gas exploration proposals, but such developments remain speculative until APDs have been submitted to the BLM or BIA. These proposed sites would be evaluated, designed and constructed to possibly place a second well-head on the proposed well pad sites. If commercially recoverable oil and gas are discovered at any of the well sites, a natural gas and/or oil gathering system may need to be installed. Currently natural gas and/or oil gathering systems are proposed on the Fort Berthold Reservation but that information remains proprietary.

3.17.2 Cumulative Impact Assessment

The proposed project is not anticipated to directly impact other oil and gas projects. The following discussion addresses potential cumulative environmental impacts associated with the proposed project and other past, present, and reasonably foreseeable actions.

Geological Setting and Land Use — The proposed project, when added to past, present, or future oil and gas activity, would result in a cumulative impact to land use through the conversion of existing uses, such as grazing or native prairie, into well pads and access roads. However, well pads and access roads are generally selected to avoid sensitive land uses and to maintain the minimum impact footprint possible. In addition, the BIA views these developments to be temporary in nature as impacted areas would be restored to original conditions upon completion of oil and gas activity. When added to existing and proposed water distribution lines and/or natural gas gathering systems, no cumulative impacts are anticipated as these lines have, or would, result in a temporary disturbance and would not permanently convert existing land uses. Therefore, cumulative land use impacts are not expected to result in a significant cumulative impact.

Air Quality — Air emissions related to construction and operation of past, present, or reasonably foreseeable oil and gas wells when added to emissions resulting from the proposed project are anticipated to have a negligible cumulative impact. McLean County is currently well below the Ambient Air Quality Standards and it is anticipated that mobile air source emissions from truck traffic for the proposed project and other projects, as well as air emissions related to gas flaring, would be minor; therefore, the contribution of the proposed project to air emissions is not expected to be significant.

Wetlands, Wildlife, and Vegetation — The proposed project, when added to previously constructed and reasonably foreseeable oil and gas wells, may result in a cumulative impact associated with habitat fragmentation due to access road construction. However, the practice of utilizing existing roadways to the greatest extent practicable, as well as sharing access roads with future developments would minimize the potential impacts. The proposed exploratory wells have also been sited to avoid sensitive areas such as surface water, wetlands, or riparian areas. In addition, the use of BMPs and continued reclamation are anticipated to minimize and mitigate disturbed habitat. Therefore, it is not anticipated that the proposed project, when added to past, present, and reasonably foreseeable oil and gas activity, would result in a significant cumulative impact.

Infrastructure and Utilities — The contribution of the proposed project and other projects to stress on local roadways used for hauling materials may result in a cumulative impact to local roadways. However, abiding by permitting requirements and roadway restrictions with the jurisdictional entities are anticipated to offset any cumulative impact that may result from the proposed project and other past, present, or future projects.

The proposed action has been planned to avoid impacts to resources such as wetlands, flood plains, surface water, cultural resources, and threatened and endangered species. The proposed well pads and access roads would be evaluated, designed and constructed in a manner to allow for a second well head to be placed on the proposed pad sites. By placing the second well head on the proposed pad at a later date would not increase the disturbances or impacts at the proposed sites. No significant cumulative impacts are reasonably foreseen from existing, proposed, or future activities.

The proposed project, when added to existing and reasonably foreseeable oil and gas wells and associated infrastructure, may cumulatively contribute to habitat fragmentation. However, the practice of utilizing existing roadways to the greatest extent practicable, as well as sharing access roads would minimize these potential impacts.

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

3.18 Irreversible and Irretrievable Commitment of Resources

Removal and consumption of oil or gas from the Bakken Pool would be an irreversible and irretrievable commitment of resources. Other potential resource commitments include acreage devoted to disposal of cuttings, soil lost through wind and water erosion, cultural resources inadvertently destroyed, wildlife killed during earth-moving operations or in collisions with vehicles, and energy expended during construction and operation. None of these impacts are expected to be significant.

3.19 Short-term Use of the Environment Versus Long-term Productivity

Short-term activities would not significantly detract from long-term productivity of the project area. The area dedicated to the access road and well pad would be unavailable for livestock grazing, wildlife habitat, or other uses. However, allottees with surface rights would be compensated for loss of productive acreage and project footprints would shrink considerably once the wells were drilled and non-working areas reclaimed and reseeded. Successful and ongoing reclamation of the landscape would reestablish the land's use for wildlife and livestock grazing, stabilize the soil, and reduce the potential for erosion and sedimentation. The primary long-term resource loss would be the extraction of oil and gas resources from the Bakken Pool, which is the purpose of this project.

3.20 Permits

Questar would be required to acquire the following permits prior to construction:

- Application for Permit to Drill – Bureau of Land Management
- Application for Permit to Drill – NDIC (North Dakota Industrial Commission)
- Section 10 Permit- United States Army Corps of Engineers

3.21 Environmental Commitments/Mitigation

The following commitments have been made by Questar Exploration and Production Company:

- Topsoil would be segregated and stored on-site to be used in the reclamation process.
- BMPs would be implemented to minimize wind and water erosion of soil resources. Soil stockpiles would be positioned to help divert runoff around the well pad.
- Well sites and access roads would avoid surface waters.
- A catch trench would be established along the edge of the pad closest to the COE boundary for catching, holding and preventing any run-off from the pad from entering tributaries of the Little Missouri River or Lake Sakakawea. Fluids that accumulate in the trench would be disposed of properly.

- The drilling operation would consist of a semi-closed system with drilling tailings being collected in a reserve pit. Fluids would be drawn off and disposed of properly.

- The reserve pit would be located away from areas of shallow ground water and have a synthetic liner to prevent potential leaks. Containers and pits on the proposed pads would be covered with mesh netting to minimize impacts to birds and small game animals. All spills or leaks of chemicals and other pollutants would be reported to the BLM and BIA. The procedures of the surface management agency shall be followed to contain leaks or spills.

- Sewage collection systems from on-site living quarters would be closed systems allowing for no open or exposed tanks and catch basins.

- All proposed wells would be cemented and cased to isolate aquifers from potentially productive hydrocarbon and disposal/injection zones.
- Wetlands and riparian areas would be avoided.

- Disturbed vegetation would be re-seeded in kind upon completion of the project. Additionally, a noxious weed management plan would be implemented.

- Well sites and access roads would avoid impacts to cultural resources. If cultural resources are discovered during construction or operation, work shall immediately be stopped, the affected site 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.

- All project workers are prohibited from collecting artifacts or disturbing cultural resources in any area under any circumstances.

- Questar would ensure all contractors working for the company would be aware of local, county, and state regulations and ordinances regarding rig moves, oversize/overweight loads, and frost law restrictions.

- Project construction would be coordinated with Mr. Marvin Danks, the Fort Berthold Rural Water Director.

- Utility modifications would be identified during design and coordinated with the appropriate utility company.

- The pad and disposal areas would be properly fenced to prevent human or animal access.

- H_2S Contingency Plans for each well site would be submitted to the BLM as part of the APD.

- Established load restrictions for state and BIA roadways would be followed and haul permits would be acquired as appropriate.
- Suitable mufflers would be put on all internal combustion engines and certain compressor components to mitigate noise levels.

- Well sites and associated facilities would be painted in colors, as determined by the appropriate agency representatives, to allow them to better blend in with the natural background color of the surrounding landscape.

- Fill material coming from a private source would be certified as being free of noxious weeds, to prevent spreading these plant species onto COE lands.

Chapter 4 Preparers and Agency Coordination

4.1 Introduction

This chapter identifies the names and qualifications of the principal people contributing information to this EA. In accordance with Part 1502.6 of the CEQ (Council on Environmental Quality) regulations for implementing the National Environmental Policy Act, the efforts of an interdisciplinary team comprising technicians and experts in various fields were required to accomplish this study.

This chapter also provides information about consultation and coordination efforts with agencies and interested parties, which has been ongoing throughout the development of this EA.

4.2 Preparers

Kadrmas, Lee & Jackson, Inc. prepared this EA under a contractual agreement between Questar Exploration and Production Company and Kadrmas, Lee & Jackson, Inc. A list of individuals with the primary responsibility for conducting this study, preparing the documentation, and providing technical reviews is contained in ***Table 4.1, Preparers.***

Table 4.1 Preparers

Affiliation	Name	Title	Project Role
Bureau of Indian Affairs	Marilyn Bercier	Regional Environmental Scientist	Review of Draft EA and recommendation to Regional Director regarding FONSI or EIS
	Mark Herman	Environmental Engineer	
Questar Exploration and Production Company	Debbie Stanberry	Supervisor Regulatory Affairs	Project development, document review
	Tracy Opp	Permit Agent-Contract	
Kadrmas, Lee & Jackson	Charlotte Brett	Environmental Planner	Document review
	Rick Leach	Surveyor	Site plats
	Brian O'Donnchadha	Principal Investigator	Cultural resources surveys
	Jerry Reinisch	Environmental Planner/Biologist	Project coordination, field resources Surveys, impact assessment, Principal author
	Skip Skattum	GIS Analyst	Impact assessment, exhibit creation

4.3 Agency Coordination

To initiate early communication and coordination, an early notification package to tribal, federal, state, and local agencies and other interested parties was distributed on January 5, 2010. This scoping package included a brief description of the proposed project, as well as a location map. Pursuant to Section 102(2) (D) (IV) of the National Environmental Policy Act of 1969, a solicitation of views was requested to ensure that social, economic, and environmental effects were considered in the development of this project.

At the conclusion of the 30-day comment period, which ended on February 4, 2010, ten responses were received. These comments provide valuable insight into the evaluation of potential environmental impacts. The comments were referenced and incorporated where appropriate within the environmental impact categories addressed in this document. ***Appendix A contains Scoping Materials.***

4.4 Public Involvement

Provided the BIA does not anticipate any significant impacts associated with this project, a FONSI (Finding of No Significant Impact) will be issued. The FONSI is followed by a 30-day public appeal period. BIA will advertise the FONSI and public appeal period by posting notices in public locations throughout the Reservation. No construction activities may commence until the 30-day public appeal period has expired.

Appendix A

Scoping Materials

January 4, 2010

[Click **here** and type recipient's address]

Re: [Click here and type Subject]

Dear Interested Party:

On behalf of Questar Exploration and Production Company, Kadrmas, Lee & Jackson, Inc. are preparing an EA (Environmental Assessment) under NEPA (the National Environmental Policy Act) for the BIA (Bureau of Indian Affairs) and BLM (Bureau of Land Management). The proposed action includes approval by the BIA and BLM of the development of three well pads and access roads in McLean County on the Fort Berthold Reservation.

The proposed action would advance the exploration and production of oil from the Bakken Pool. ***Please refer to the enclosed project location map***. The proposed wells are: MHA-1-29-30H-150-90, MHA-1-32-31H-150-90, and MHA-1-30H-150-90. Construction of the proposed well pads and access roads is proposed to begin as early as spring 2010.

To ensure that social, economic, and environmental effects are analyzed accurately, we solicit your views and comments on the proposed action. We are interested in existing or proposed developments you may have that should be considered in connection with the proposed project. We also ask your assistance in identifying any property or resources that you own, manage, oversee, or otherwise value that might be adversely impacted.

Please provide your comments by **February 3, 2010**. We request your comments by that date to ensure that we will have ample time to review them and incorporate them into the EA.

If you would like further information regarding this project, please contact Tracy Opp, Questar Exploration and Production Company, at (303) 916-8042 or me at (701) 355-8705. Thank you for your cooperation.

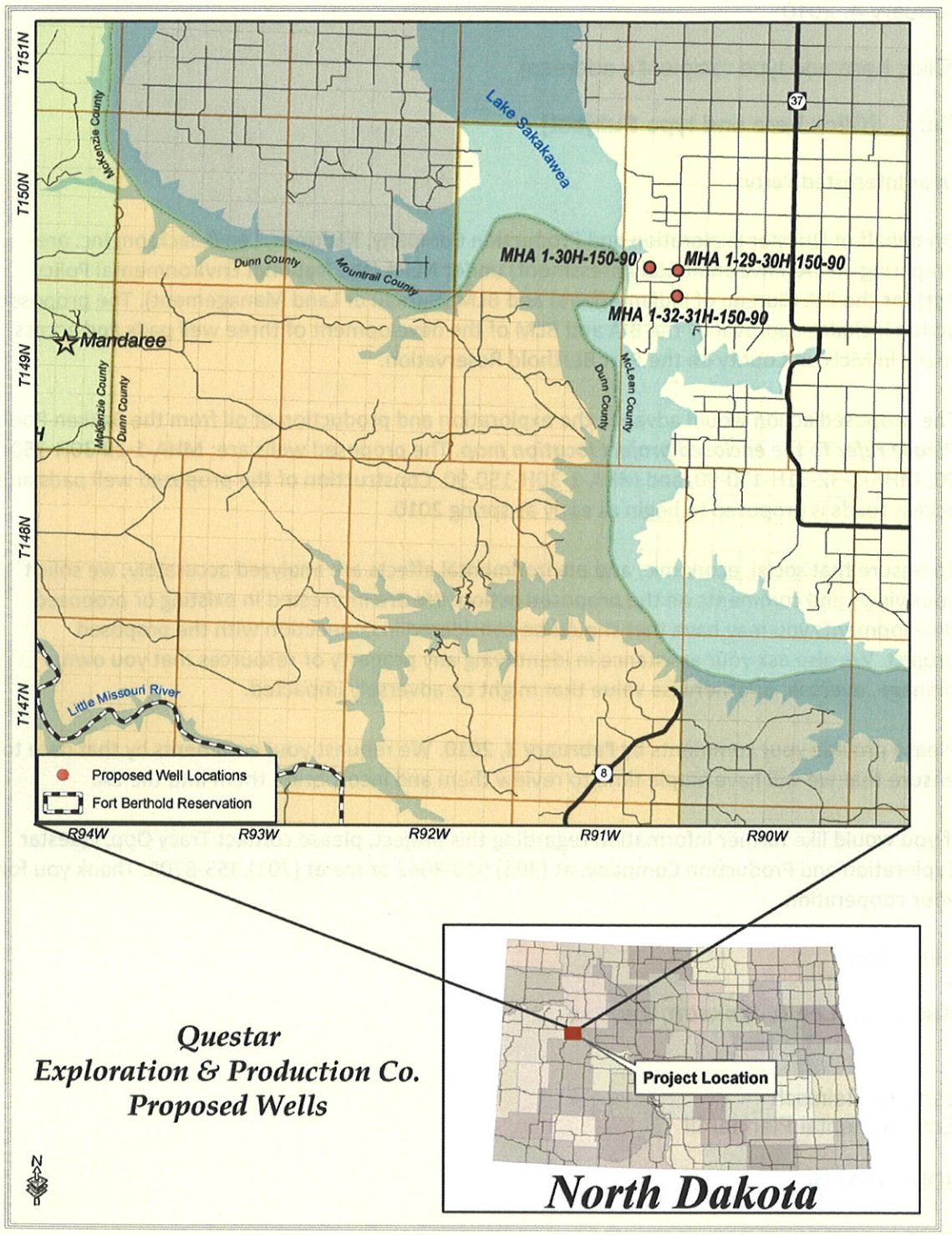
Sincerely,

Kadrmas, Lee & Jackson, Inc.

Jerry D. Reinisch
Environmental Planner III

JDR/1709119

Enclosure Project Location Map


T151N
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R93W
R92W
R91W
R90W
Lake Sakakawea
MHA 1-30H-150-90
MHA 1-29-30H-150-90
MHA 1-32-31H-150-90
Mandaree
McKenzie County
Dunn County
Mountrail County
McLean County
Little Missouri River
37
8
Proposed Well Locations
Fort Berthold Reservation
Questar
Exploration & Production Co.
Proposed Wells
Project Location
North Dakota
N

SOV MASTER LIST

Save as new file for each project and edit accordingly with project specific contacts

CTitle	First	Last	Title	Department	Agency	Address	City	State	Zip
Sr		or Morlan	Chief Missile Engineer	5 CES/CEOE	Minot Air Force Base	320 Peacekeeper Place	Minot AFB	ND	58705
Mr	Mike	Black	Acting Regional Director		Bureau of Indian Affairs	115 4th Ave. SE	Aberdeen	SD	57401
Mr.	Richard	Nelson	Chief, Resource Management	Dakotas Area Office	Bureau of Reclamation	PO Box 1017	Bismarck	ND	58502-1017
Mr	Steve	Obenauer	Manager	Bismarck Airports District Office	Federal Aviation Administration	2301 University Drive, Bldg 23B	Bismarck	ND	58504
Mr.	Dan	Cimarusti	Manager	ND Regulatory Office	US Army Corps of Engineers	1513 S. 12th St.	Bismarck	ND	58504
Mr	Charles	Sorensen	Natural Resource Specialist	Riverdale Field Office	US Army Corps of Engineers	PO Box 527	Riverdale	ND	58565
Mr.	John	Garner	Acting State Conservationist		US Department of Agriculture	PO Box 1458	Bismarck	ND	58502-1458
Mr.	Gerald	Poulson	Director, Transmission Lines& Substations	ND Maintenance Office	US Department of Energy Western Area Power Admin.	PO Box 1173	Bismarck	ND	58502-1173
Mr	Larry	Svoboda	Director	NEPA Program, Region 8	US Environment Protection Agency	1595 Wynkoop Street	Denver	CO	80202-1129
Mr.	Richard	Clark	Wetlands Coordinator	Region 8, EPR-EP	US Environment Protection Agency	1595 Wynkoop Street	Denver	CO	80202-1129
Mr	Jeffrey	Towner	Field Supervisor	ND Field Office	US Fish & Wildlife Service	3425 Miriam Ave	Bismarck	ND	58501
Ms.	Cheryl	Kulas	Executive Director		Indian Affairs Commission	600 E. Blvd. Ave. 1st Floor, Judicial Wing, Rm 117	Bismarck	ND	58505-0380
Mr.	Greg	Wiche	Director	Water Resources Division	US Geological Survey	821 E. Interstate Ave.	Bismarck	ND	58501
Mr.	L. David	Glatt	Chief	Environmental Health Section Govt Svcs Center	ND Department of Health	918 E. Divide Ave., 4th floor	Bismarck	ND	58501-1947
Mr.	Mike	McKenna	Chief	Conservation & Communication Division	ND Game & Fish Department	100 Bismarck Expressway	Bismarck	ND	58501-5095
Mr.	Doug	Prchal	Director		ND Parks & Recreation Dept.	1600 E. Century Ave., Suite 3	Bismarck	ND	58503-0649
Mr.	Dale	Frink	State Engineer		ND State Water Commission	900 E. Blvd. Ave.	Bismarck	ND	58505-0850
Mr.	Bill	Boyd	Construction Manager		Nationwide Cable Company	719 Memorial Hwy	Bismarck	ND	58501
Mr.	Doug	Dixon	General Manager	Bottineau Region	Montana Dakota Utilities	PO Box 1406	Williston	ND	58802-1406
Mr.	George	Berg	Manager		Nodak Electric Coop., Inc	Box 13000	Grand Forks	ND	58208-3000
Mr	Ken	Miller	Land Department		Northern Border Pipeline Company	13710 FNB Parkway	Omaha	NE	68154-5200
Mr	Ray	Christenson	Manager/CEO		Southwest Water Authority	4665 2nd St. W.	Dickinson	ND	58601
Mr	David C.	Sorenson	CEO		West Plains Electric Coop., Inc.	PO Box 1028	Dickinson	ND	58602-1028
Sr		or Master	Manager		Xcel Energy	PO Box 2747	Fargo	ND	58108-2747
Sr		or Master	Manager		Mountrail-Williams Electric Cooperative	336 Main St	New Town	ND	58763
Mr	Jon	Redding	District Engineer	Minot District	ND Department of Transportation	1305 Highway 2 Bypass East	Minot	ND	58701-7522
Mr	Wal	Peterson	District Engineer	Williston District	ND Department of Transportation	909 Dakota Parkway West		ND	58802-0299
Mr.	Lonny	Bagley	Field Office Manager	North Dakota Field Office	Bureau of Land Management	99 23rd Ave W, Suite A	Dickinson	ND	58601
Mr.	Mike	Nash	Assistant Field Office Manager	Division on Mineral Resources	Bureau of Land Management	99 23rd Ave W, Suite A	Dickinson	ND	58601
Mr.	Michael	Selvage	Tribal Chairman		Sisseton-Wahpeton Sioux Tribe	PO Box 509	Sisseton	SD	57262-0367
Ms.	Myra	Pearson	Tribal Chairman	Ft. Totten Tribal Business Office	Spirit Lake Sioux Tribe	PO Box 359	Ft. Totten	ND	58335
Mr.	Charles	Murphy	Tribal Chairman		Standing Rock Sioux Tribe	PO Box D	Fort Yates	ND	58538
Mr.	Perry	Brady	Tribal Historic Preservation Officer		Three Affiliated Tribes	HC3 Box 2	New Town	ND	58763
Mr.	Marcus	Levings	Tribal Chairman		Three Affiliated Tribes	HC3 Box 2	New Town	ND	58763
Mr.	David	Brien	Tribal Chairman		Turtle Mountain Chippewa	PO Box 900	Belcourt	ND	58316-0900
Mr	Damon	Williams	Tribal Attorney		Three Affiliated Tribes	404 Frontage Road	New Town	ND	58763
Mr.	Fred	Fox	Director	Energy Department	Three Affiliated Tribes	404 Frontage Road	New Town	ND	58763
Ms	V. Judy	Brugh	Representative	Four Bears Segment	Three Affiliated Tribes	404 Frontage Road	New Town	ND	58763
Mr	Arnold	Strahn	Representative	Mandaree Segment	Three Affiliated Tribes	PO Box 665	Mandaree	ND	58757
Mr.	Scott	Eagle	Representative	Shell Creek Segment	Three Affiliated Tribes	404 Frontage Road	New Town	ND	58763
Mr.	Marvin	Packineau	Representative	Parshall/Lucky Mound Segment	Three Affiliated Tribes	PO Box 490	Parshall	ND	58770
Mr	Frank	Whitecalf	Representative	White Shield Segment	Three Affiliated Tribes	404 Frontage Road	New Town	ND	58763
Mr	Barry	Benson	Representative	Twin Buttes Segment	Three Affiliated Tribes	70879 E Ave NW	Halliday	ND	58636
Mr	Fred	Pedro		Game and Fish Department	Three Affiliated Tribes	404 Frontage Road	New Town	ND	58763
Ms	Annette	Youngbird		Natural Resources Department	Three Affiliated Tribes	404 Frontage Road	New Town	ND	58763
Mr	Roger	Hovda	Operations Manager		Reservation Telephone Cooperative	PO Box 68	Parshall	ND	58770-0068
Mr	Tracy	Cox	Permit Agent-Contractor		Questar Exploration and Production Company	1050 17th Street, Suite500	Denver	CO	80265
Mr.	Rennard	Hauck	Auditor		Dunn County	PO Box 195 205 Owens Street	Manning	ND	58642-0195
Mr.	Cliff	Fenebee	Chair	County Commission	Dunn County	3449 2nd Street Southwest	Halliday	ND	58636-9790

United States Department of the Interior

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

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
DESCRM
MC-208

FEB 05 2010

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 six oil well pads and access roads in Dunn and McLean Counties, North Dakota. Approximately 121 acres were intensively inventoried using a pedestrian methodology. Potential surface disturbances are not expected to exceed the areas depicted in the enclosed reports. One cemetery(?), 32ML1153, was located which may 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, as site 32ML1153 is outside the project area and will be avoided. Catalogued as **BIA Case Number AAO-1710/FB/10**, the proposed undertakings, locations, and project dimensions are described in the following reports:

Leuchtmann, Amy
(2009) MHA 1-32-31H-150-90 Well Pad and Access Road: A Class III Cultural Resource Inventory, McLean County, North Dakota. KLJ Cultural Resources for Questar Exploration and Production Company, Denver.

(2009) MHA 1-30H-150-90 Well Pad and Access Road: A Class III Cultural Resource Inventory, McLean County, North Dakota. KLJ Cultural Resources for Questar Exploration and Production Company, Denver.

(2009) MHA 1-29-30H-150-90 Well Pad and Access Road: A Class III Cultural Resource Inventory, McLean County, North Dakota. KLJ Cultural Resources for Questar Exploration and Production Company, Denver.

(2010) MHA 2-06-31H-150-91 Well Pad Expansion: A Class III Cultural Resource Inventory, Dunn County, North Dakota. KLJ Cultural Resources for Questar Exploration and Production Company, Denver. Ms. on file **(AAO-1710/FB/10)**

Ó Donnchadha, Brian
(2009) MHA 1-23-24H-149-91Well Pad and Access Road: A Class III Cultural Resource Inventory, Dunn County, North Dakota. KLJ Cultural Resources for Questar Exploration and Production Company, Denver.

Ó Donnchadha, Brian, and Amy Leuchtmann
(2010) MHA 1-19H-150-90 Well Pad Expansion: A Class III Cultural Resource Inventory, Dunn County, North Dakota. KLJ Cultural Resources for Questar Exploration and Production Company, Denver.

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,

ACTING Regional Director

Enclosures

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

Appendix B

Agency Scoping Responses

Questar Exploration and Production Company
MHA#1-29-30H-150-90, MHA#1-32-31H-150-90 and MHA#1-30H-150-90
Fort Berthold Reservation
List of Agency Scoping Responses

Federal

- US Department of Agriculture-Natural Resources Conservation Service
- US Department of Defense-Army Corps of Engineers, North Dakota Regulatory Office
- US Department of Defense-Army Corps of Engineers, Riverdale, North Dakota
- US Department of the Interior-Bureau of Reclamation
- US Department of Transportation-Federal Aviation Administration

State

- North Dakota Department of Health
- North Dakota Game and Fish Department
- North Dakota Parks and Recreation Department
- North Dakota State Water Commission

County

- McLean County Superintendent of Highways

Chapter 5 References and Acronyms

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- "County Occurrence of Endangered, Threatened, and Candidate Species and Designated Critical Habitat in North Dakota." U.S. Fish & Wildlife Service. 15 May 2009. U.S. Department of Interior, U.S. Fish & Wildlife Service, Mountain-Prairie Region, North Dakota Field Office. 16 May 2009. <http://www.fws.gov/northdakotafieldoffice/county_list.htm >.

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Notice of Availability and Appeal Rights

Questar: MHA-1-29-30H-150-90, MHA-1-32-31H-150-90, and MHA-1-30H-150-90

The Bureau of Indian Affairs (BIA) is planning to issue administrative approvals for the drilling of three wells and related infrastructure on MHA-1-29-30H-150-90, MHA-1-32-31H-150-90, and MHA-1-30H-150-90 as shown on the attached map. Construction by Questar is expected to begin in the Spring 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 April 15, 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.