



United States Department of the Interior

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




IN REPLY REFER TO:
DESCRM
MC-208

MAR 04 2010

MEMORANDUM

TO: Superintendent, Fort Berthold Agency

FROM: 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 two proposed exploratory drilling well by Marathon Oil Company named *Galen Fox-USA#24-7H* and *Elk-USA#11-17H* 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, Tribal Historic Preservation Officer (with attachment)
Roy Swalling, Bureau of Land Management (with attachment)
Jonathon Shelman, Corps of Engineers (with attachment)

Finding of No Significant Impact

Marathon Oil Company (Marathon)

Environmental Assessment for Drilling of Galen Fox – USA #24-7H and Elk – USA #11-17H Exploratory Oil and Gas Wells

Fort Berthold Indian Reservation McKenzie County, North Dakota

The U.S. Department of the Interior Bureau of Indian Affairs (BIA) has received a proposal to drill two exploratory oil and gas wells as follows:

- Galen Fox – USA #24-7H located in T150N, R92W, 5th P.M., Section 7
- Elk – USA #11-17H located in T150N, R92W, 5th P.M., Section 17

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 action 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 action and the No Action alternatives.
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 action is 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 project will improve the socio-economic condition of the affected Indian community.



Regional Director

3/4/10

Date

ENVIRONMENTAL ASSESSMENT

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

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



Marathon Oil Company

**Drilling of Galen Fox – USA #24-7H and Elk – USA #11-17H
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
115 4th Avenue SE
Aberdeen, South Dakota 57401
605-226-7656

Notice of Availability and Appeal Rights

Marathon: Galen Fox – USA #24-7H
Elk – USA #11-17H

The Bureau of Indian Affairs (BIA) is planning to issue administrative approvals related to installation of two oil/gas wells and related infrastructure as shown on the attached map. Construction by Marathon Oil and Gas is expected to begin in the spring of 2010.

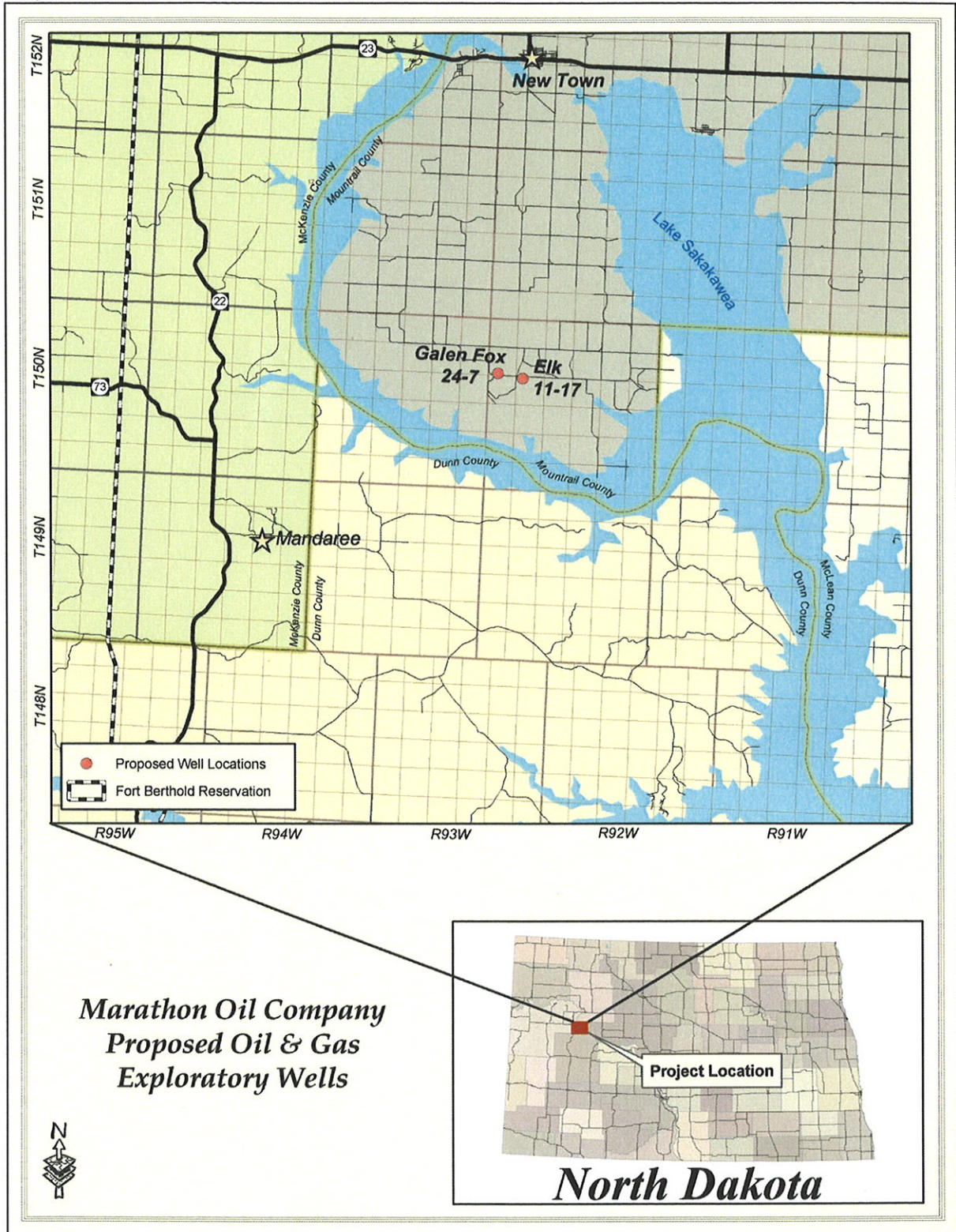
An environmental assessment (EA) determined that proposed activities will not cause significant impacts to the human environment. An environmental impact statement is not required. Contact Howard Bemer, Superintendent at 701-627-4707 for more information and/or copies of the EA and the Finding of No 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 4, 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 location.



**Marathon Oil Company
Proposed Oil & Gas
Exploratory Wells**

North Dakota

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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 (Bureau of Indian Affairs) and BLM (Bureau of Land Management) for Marathon Oil Company (Marathon) to drill and complete two exploratory oil and gas wells on the Fort Berthold Reservation. These well sites are proposed to be positioned in the following locations:

- Galen Fox – USA #24-7H located in T150N, R92W, 5th P.M., Section 7
- Elk – USA #11-17H located in T150N, R92W, 5th P.M., Section 17

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 two 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.

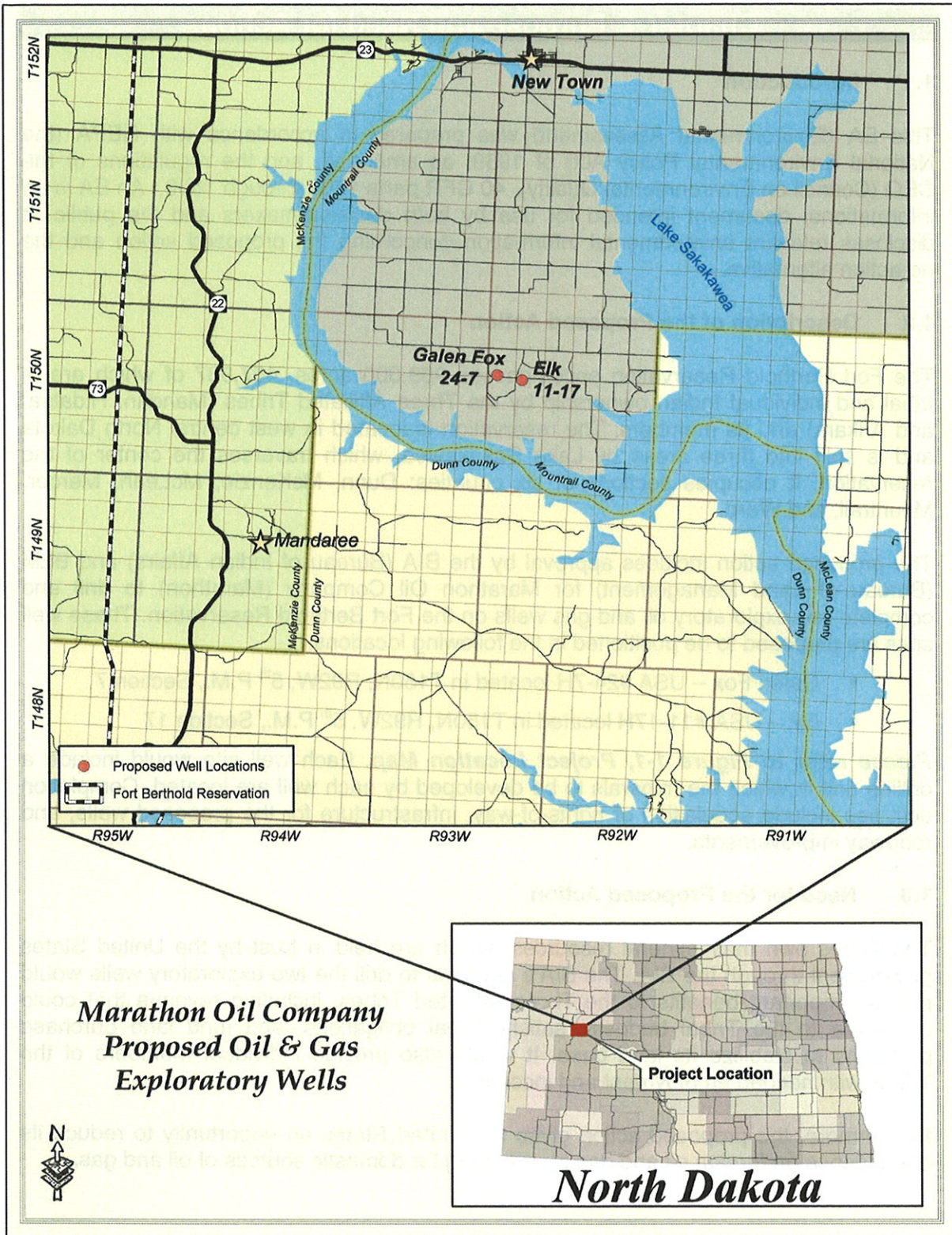


Figure 1-1, Project Location Map

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 Marathon's lease areas by drilling two exploratory wells at the identified locations.

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 two 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 two exploratory wells and complete the associated right-of-way acquisitions, roadway improvements, and infrastructure for the wells.

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 horizontal drilling techniques were chosen to minimize surface disturbance.

Each well location could require new right-of-way for access points, supporting electrical lines, and pipelines associated with oil and gas production. 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.

On-site assessments of the well pads and access roads were conducted on January 7, 2009 with representatives from the BIA (Environmental Protection Specialist and Realty Specialist), Three Affiliated Tribes Tribal Historic Preservation Office, Three Affiliated Tribes Game and Fish Department, BLM, Marathon, and Kadmas, 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, stockpiling, drainage, erosion control, and other surface issues.

A follow-up on-site visit to both locations was conducted on April 8, 2009 with the BIA Environmental Protection Specialist, Marathon, and BIA. The follow-up visit was performed as seasonal weather conditions during the initial on-site were not favorable to adequately assess vegetation and soil characteristics. Biological, botanical, soil, and water resources were assessed, and the well pad 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.

A follow-up survey to each site was conducted by Kadrmas, Lee, & Jackson on June 3, 2009 to gather more detailed site-specific data and photos than were collected at the April 2009 on-site with regards to biological, botanical, soil, and water resources. Kadrmas, Lee & Jackson conducted an additional site visits on June 25, 2009 (Elk site) and July 1, 2009 (Galen Fox site) to evaluate a larger study area than the previous visits to comply with BIA-issued study area recommendations. A study area of 10 acres centered on the well pad center point and a 200-foot wide access road corridor were evaluated during the June/July visits.

2.3.1 Galen Fox Well

The Galen Fox well would be located in the SE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 7, Township 150 North, Range 92 West, 5th P.M. to access potential oil and gas resources within the spacing unit consisting of Sections 6 and 7, Township 150 North, Range 92 West, 5th P.M. **Please refer to Figure 2-1, Galen Fox Well Overview.**



Figure 2-1, Galen Fox Well Overview

The Galen Fox well would be accessed from the south. A new access road approximately 319 feet long would be constructed to connect the Galen Fox well pad to 28th Street NW. 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.

2.3.2 Elk Well

The Elk well would be located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 17, Township 150 North, Range 92 West, 5th P.M. to access potential oil and gas resources within the spacing unit consisting of Sections 17 and 20, Township 150 North, Range 92 West, 5th P.M. **Please refer to Figure 2-2, Elk Well Overview.**

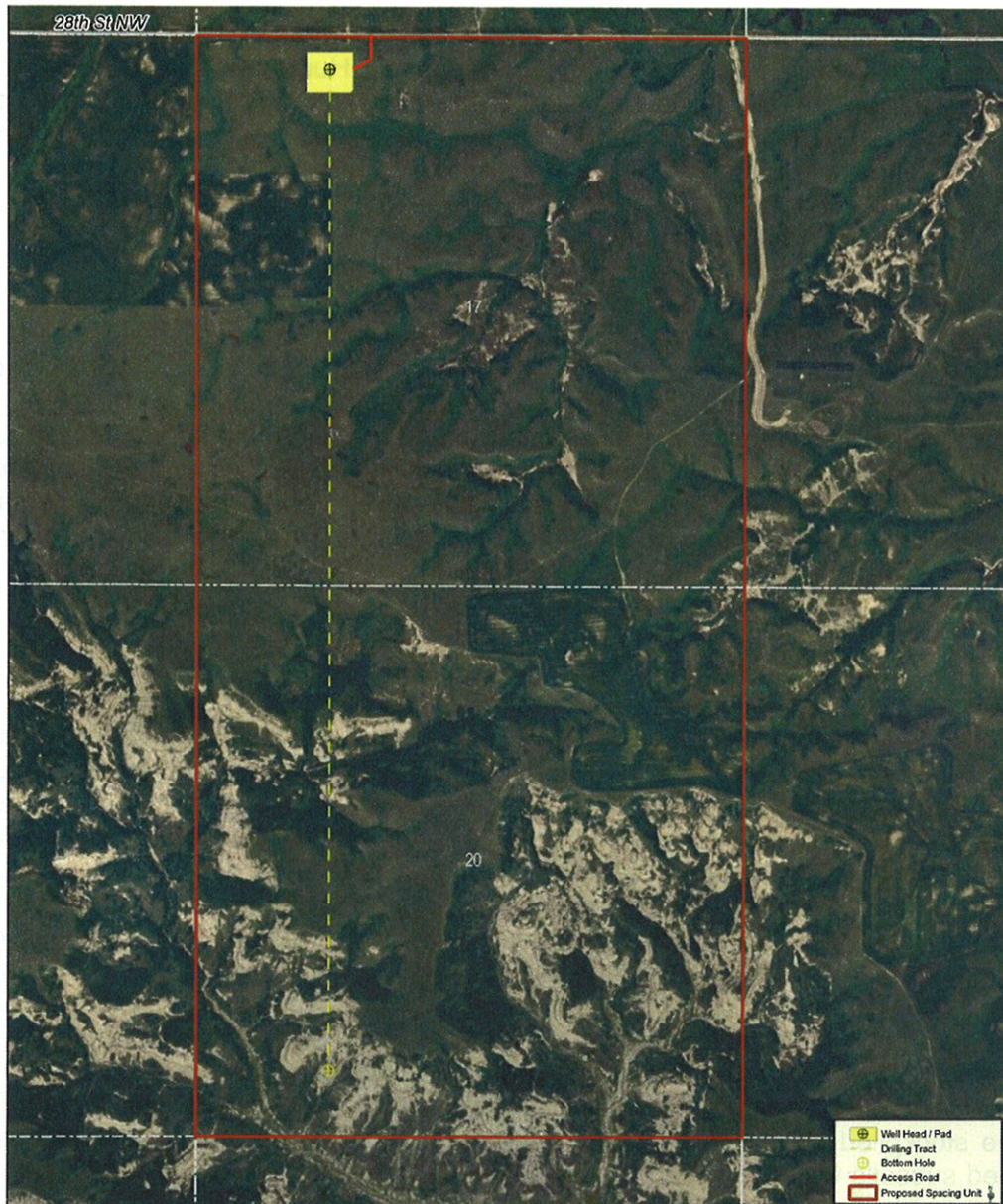


Figure 2-2, Elk Well Overview

The Elk well would be accessed from the north. A new access road approximately 431 feet long would be constructed to connect the Elk well pad to 28th Street NW. Minor spot grading may be needed to flatten existing landscape grades along the proposed access road alignment. Culverts and cattle guard would be installed as needed along this new access road.

2.3.3 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:

2.3.3.1 Field Camps

Self-contained trailers may temporarily house key personnel on-site during drilling operations. No long-term residential camps are proposed. Human waste would be collected in standard 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.

2.3.3.2 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 would also be required. The running surface of access roads would be surfaced with crushed gravel or scoria from a previously approved location, and erosion control measures would be installed as necessary. A maximum right-of-way width of 50 feet would be disturbed, consisting of a 20-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.

2.3.3.3 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 drill cuttings. The drill cuttings pit would be reclaimed to BLM and North Dakota Industrial Commission (NDIC) standards immediately upon finishing completion operations. The level well pad, plus cut and fill slope areas, required for drilling and completing operations (including reserve pit for drill cuttings) would each be approximately 400x450 feet (approximately 5 acres). Cut and fill slopes on the edge of the well pad would be 2:1 where less than 8 feet and 3:1 where 8 feet or greater.

Well pad areas would be cleared of vegetation, stripped of topsoil, and graded to specifications in the APDs (Applications for Permit to Drill) submitted to the BLM and would comply with the standards and guidelines prescribed in the BLM's "Gold Book." Topsoil would be stockpiled and stabilized until disturbed areas are reclaimed and re-vegetated. Excavated subsoils 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.

2.3.3.4 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 10,200 feet, at which it would angle to become horizontal at 11,200 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 2,200 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-based mud system consisting of about 80% diesel fuel and 20% saltwater would be used to drill the remainder of the vertical hole and curve. Once seven-inch production casing is set and cemented through the curve (into the lateral), a saltwater based drilling mud would be utilized for the horizontal portion of the wellbore.

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 BLM and NDIC 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 pits would be fenced on the three non-working sides. The access side would be fenced and netted immediately following drilling and completions operations in order to prevent wildlife and livestock from accessing the pit. In accordance with NDIC and BLM regulations and guidelines, drill cuttings would be solidified into an inert, solid mass by chemical means.

2.3.3.5 Casing and Cementing

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

2.3.3.6 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 well, 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 BLM and NDIC 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 gathering lines) would transport the product to market.

2.3.3.7 Commercial Production

If commercially recoverable oil and gas resources are found at either of the proposed sites, the site(s) would become established as production facilities. Production equipment, including a well pumping unit, vertical heater/treater, storage tanks (typically four 400 barrel steel oil tanks and one 400 barrel fiberglass saltwater tank) and a flare pit with associated piping would be installed. The storage tanks and heater/treater would be surrounded by an impermeable berm that would act as secondary containment to 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.

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. It is expected that oil would be trucked via existing oil field and county roads to Highway 23 near New Town and then west approximately 20 miles off of the Fort Berthold Reservation to a regional oil terminal. All haul routes used would be either private roads or roads that are approved for this type of transportation use by the local governing tribal, township, county, and/or state entities. All associated applicable permits would be obtained and restrictions complied with. Should regional oil, gas, and/or saltwater pipelines be installed, every attempt to tie production facilities at these sites to these pipelines would be made, thereby minimizing truck traffic. Any future oil, gas, or saltwater transportation pipelines would be constructed within the existing right-of-way or additional NEPA analysis and approval from the BIA would be undertaken.

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.

Marathon would mitigate the effects of these two 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.

2.3.3.8 Reclamation

The drill cuttings would be dried during drilling operations and placed into a reserve pit. Additional treatment of the cuttings, including solidification, would be completed, and then the pit would be backfilled and buried as soon as possible upon well completion. Other interim reclamation measures to be implemented upon well completion include reduction of cut and fill slopes where necessary, redistribution of stockpiled topsoil, and re-seeding of the disturbed areas. If commercial production equipment is installed, the well site would be reduced in size to accommodate the production facilities, while leaving adequate room to conduct normal well maintenance and potential recompletion operations, with the remainder of the 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.

2.3.4 Potential for Future Development

Development beyond the Galen Fox – USA #24-7H and Elk – USA #11-17H discussed in this EA 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, as would be subject to review under NEPA, as appropriate.

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 stratigraphy consists of sandstones, silts and shales dating to the Tertiary Period (65 to 2 million years ago), including the Sentinel Butte and Golden Valley Formations. The underlying Bakken Formation is a well-known source of hydrocarbons; 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 Formation feasible.

According to Great Plains Regional Climate Center data collected at the Keene weather station from 1971–2000, temperatures in excess of 80 degrees Fahrenheit are common in summer months. The area receives approximately 16.0 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 32.4 inches of snow are received annually.

The topography within the project areas is primarily identified as part of the Missouri Coteau ecoregion, 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 nearly all grasslands. ***Please refer to Figure 3-1, Land Use.*** Additional surrounding land uses include agriculture, shrubland, 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 10.31 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.*

Well Site	Well Pad Acres	Access Road Acres	Total Acres
Galen Fox	5.12	0.30	5.32
Elk	4.59	0.40	4.99
Total			10.31

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

3.3 Soils

The NRCS (Natural Resources Conservation Service) Soil Survey of Mountrail County dates from 1991, with updated information available online through the NRCS Web Soil Survey. There are three soil types identified within the project impact areas. Location and characteristics of these soils are identified in *Table 3.2, Soils.*

Map Unit Symbol	Soil Name	Percent Slope	Composition (in upper 60 inches)			Erosion Factor ¹		Hydrologic Soil Group ²
			% sand	% silt	% clay	T	Kf	B
24C	Williams-Zahl loams	6 to 9	35	35	30	5	.28	B
24E	Zahl-Williams loams	9 to 25	35	34	31	5	.28	B
80E	Vebar-Flasher-Zahl complex	6 to 25	75	15	10	5	.20	B

All listed soils have low susceptibility to sheet and rill erosion and can tolerate high levels of erosion without loss of productivity. Each of these soils has low runoff potential. Depth to the water table is recorded at greater than six feet for each of these soil types. None of the soils listed within the project impacts areas are susceptible to flooding or ponding.

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 will 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).

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 an assumed six inches of existing topsoil. The following identifies topsoil requirements for each site:

- *Galen Fox* – A minimum of 4,060 cubic yards of topsoil would be stockpiled on site.
- *Elk* – A minimum of 3,680 cubic yards of topsoil would be stockpiled on site.

Based on field investigations, topsoil exists in excess of 18 inches at each of the well sites, yielding sufficient quantity of topsoil for construction and reclamation activities. Topsoil and embankment stockpiles are proposed to be located on the north side of both the Galen Fox and Elk pads. 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 immediately reported to the BLM, the NDIC, and, where appropriate, the North Dakota Department of Health. 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 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.

3.4.1 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.

Both of the proposed well sites are located in the Lake Sakakawea basin, meaning surface waters within this basin drain to Lake Sakakawea. The Galen Fox and Elk wells are located in the Independence Point Watershed and the Little Shell Creek Sub-Watershed. **Please refer to Figure 3-2, Surface Water Resources.** Runoff throughout the study area is by sheetflow 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:

- *Galen Fox* – Runoff from the well pad would flow 0.3 miles east to Little Shell Creek. From there, it would travel 5.0 miles east to Lake Sakakawea for a total traveled distance of 5.3 miles.
- *Elk* – Runoff traveling north and west from the well pad would converge to flow 0.2 miles northwest to Little Shell Creek. From there, it would travel 3.5 miles east to Lake Sakakawea for a total traveled distance of 3.7 miles. Runoff traveling south and east from the well pad would converge to flow 0.8 miles east to Little Shell Creek. From there, it would travel 2.5 miles to Lake Sakakawea for a total traveled distance of 3.3 miles.

3.4.1.1 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. 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.

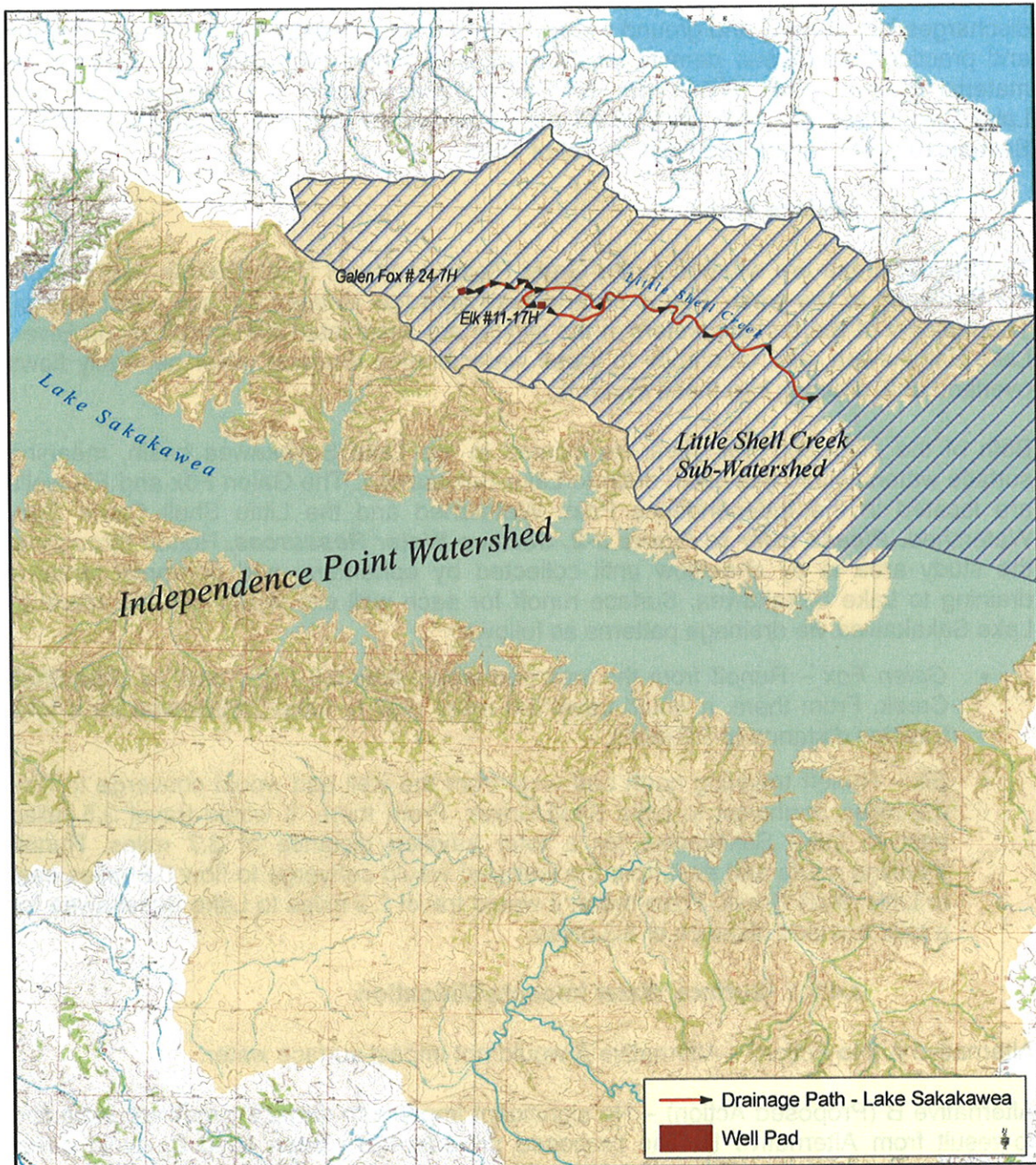


Figure 3-2, Surface Water Resources

3.4.2 Ground Water

The North Dakota State Water Commission's electronic records reveal that there is one permitted well within one mile of the Galen Fox well pad and one permitted well within one mile of the Elk well pad. There are no additional active or permitted water wells or ground water-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. **Please refer to Figure 3-3, Aquifers and Ground Water Wells.**

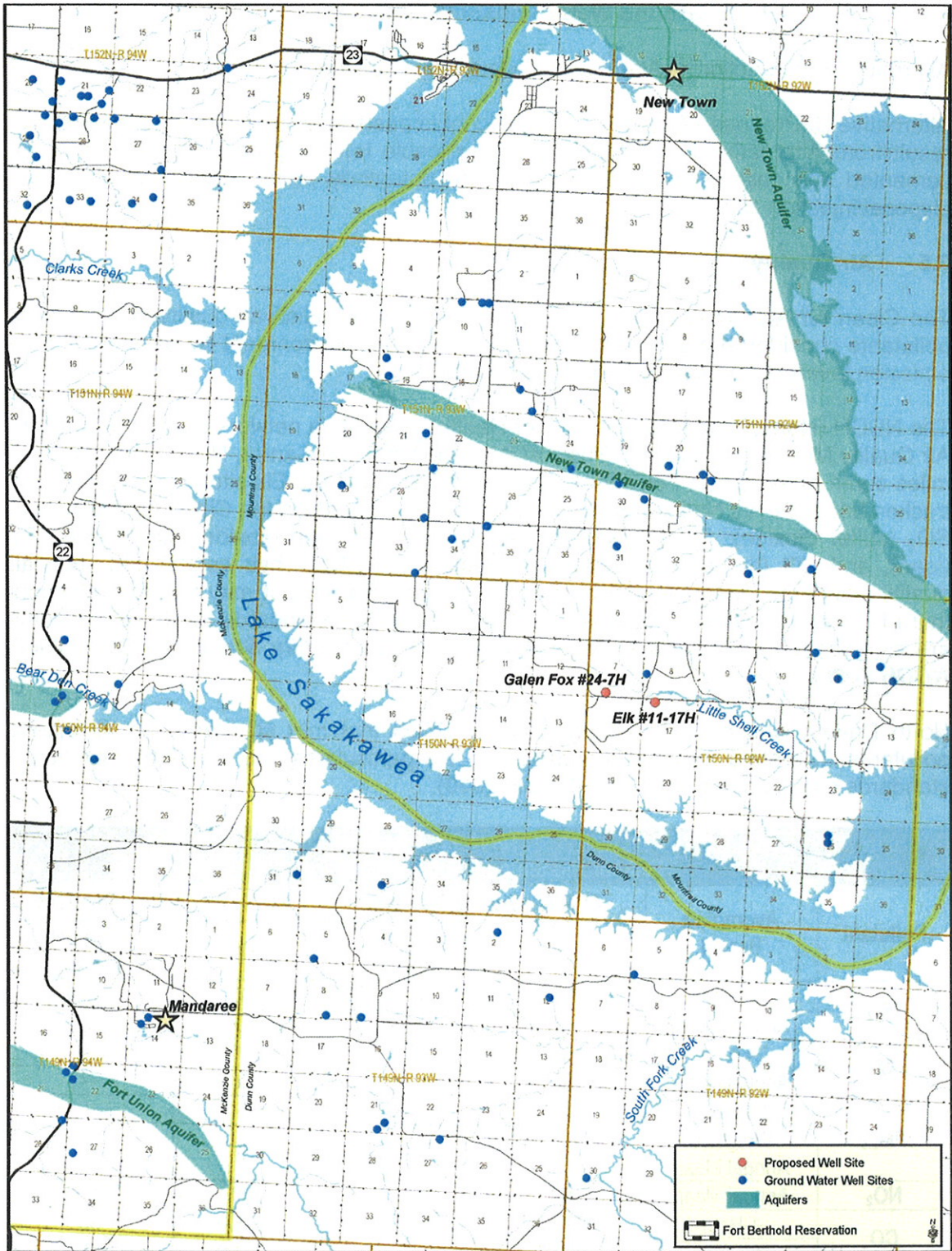


Figure 3-3, Aquifers and Ground Water Wells

3.4.2.1 Ground Water Impacts/Mitigation

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

Alternative B (Proposed Action) – No significant impacts to ground water 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.

3.5 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 32.5 miles south of the Galen Fox site and 32.6 miles south of the Elk site. Criteria pollutants tracked under EPA's National Ambient Air Quality Standards in the Clean Air Act include SO₂ (sulfur dioxide), PM (particulate matter), NO₂ (nitrogen dioxide), O₃ (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).

Pollutant	Averaging Period	EPA Air Quality Standard		NDDH Air Quality Standard	
		µg/m ³	parts per million	µg/m ³	parts per million
SO ₂	24-Hour	365	0.14	260	0.099
	Annual Mean	80	0.030	60	0.023
PM ₁₀	24-Hour	150	--	150	--
	Annual Mean	50	--	50	--
PM _{2.5}	24-Hour	35	--	35	--
	Weighted Annual Mean	15	--	15	--
NO ₂	Annual Mean	100	0.053	100	0.053
CO	1-Hour	40,000	35	40,000	35
	8-Hour	10,000	9	10,000	9
Pb	3-Month	1.5	--	1.5	--
O ₃	1-Hour	240	0.12	235	0.12
	8-Hour	--	0.08	--	0.08

In addition, the Fort Berthold Reservation complies with the federal and state 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 areas. The Theodore Roosevelt National Park is the nearest Class I area, located approximately 37.3 miles west of the Galen Fox well and 38.1 miles west of the Elk well.

3.5.1 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 federal and state air quality and visibility standards. 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. 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.

3.6 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 action 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 Mountrail County. The piping plover is listed as a threatened species for Mountrail County. In addition, Mountrail County contains designated critical habitat for the piping plover adjacent to Lake Sakakawea. The Dakota skipper, a candidate species, is also listed for Mountrail County.

Lake Sakakawea and associated Missouri River habitat is located approximately 1.5 miles away from the project areas at the nearest point. There is no existing or potential

habitat for the listed species within or near the project areas, and none of these species were observed during field surveys performed by Kadrmias, Lee & Jackson in April, June, and July 2009. Habitat requirements and other information regarding listed species for Mountrail County are as follows:

Interior Least Tern (*Sterna antillarum*)

The interior least tern nests along inland rivers rather than along the coast. The interior least tern is found in isolated areas along the Missouri, Mississippi, Ohio, Red, and Rio Grande Rivers. In North Dakota, it is 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 or near the project areas. Lake Sakakawea and the Little Missouri River are located outside of the project area, approximately 1.5 miles away at the nearest point.

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 flocks, only one is self-sustaining.

The proposed projects are located in the Central Flyway where 75 percent of confirmed whooping crane sightings have occurred. However, there is no existing or potential stopover habitat within or near the project areas. Lake Sakakawea and the Little Missouri River are located outside of the project areas, approximately 1.5 miles away at the nearest point.

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.

There is no existing or potential habitat within or near the project areas. Habitat where the pallid sturgeon may occur, such as Lake Sakakawea, is located approximately 1.5 miles away at the nearest point.

Gray Wolf (*Canis lupus*)

The gray wolf is the largest wild canine species in North America. It is found throughout northern Canada, Alaska, and the forested areas of Northern Michigan, Minnesota, and Wisconsin and has 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 will roam alone. The project areas are located far from other known wolf populations and do not contain preferred habitat for suitable prey to sustain a population.

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.

There is no existing or potential habitat within or near the project areas. Critical habitat for the piping plover along Lake Sakakawea is located approximately 1.5 miles away at the nearest point.

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 well pad sites consist of actively grazed upland prairie. Due to the current grazing activity, it is unlikely that either well pads or access roads contain the high quality prairie necessary for the Dakota skipper.

3.6.1 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) – Due to a lack of potential habitat and species observances within the project areas, the proposed projects may affect, but are unlikely to adversely affect, any of the listed species. The proposed projects are not likely to jeopardize the continued existence of these species and are not likely to destroy or adversely modify critical habitat.

3.7 Wetlands, Wildlife and Vegetation

Biological and botanical surveys at each site were conducted by Kadrmas, Lee & Jackson on April 8 and June 3, 2009. An additional visit to the Elk site took place on June 25, 2009, with an additional visit to the Galen Fox site on July 1, 2009. The additional site visits were completed to account for a larger study area. The final study area surveyed consisted of a 10-acre area centered on the center point of the well pad and a 200-foot wide access road corridor. 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.

3.7.1 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 ground water 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 ground water, and improving water quality through purification.

No wetlands or riparian areas were identified within either of the proposed well pad or access road areas during the field surveys.

3.7.1.1 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.

3.7.2 Wildlife

During the field surveys, big and small game species, raptors, non-game species, as well as their potential habitats, were identified. The project areas both contain suitable habitat for mule deer (*Odocoileus hemionus*), plains sharptail grouse (*Tympanuchus phasianellus*), ring-necked pheasant (*Phasianus colchicas*), mourning dove (*Zenaida macroura*), red tail hawk (*Buteo jamaicensis*), song birds, coyote (*Canis latrans*), red fox (*Vulpes vulpes*), American badger (*Taxidea taxus*), and white-tailed jackrabbit (*Lepus townsendii*). Species observed at the project areas include:

- *Galen Fox* – rough-legged hawk (*Buteo lagopus*) and thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*). **Please refer to Figure 3-4, Thirteen-lined Ground Squirrel Nest.**
- *Elk* – mourning dove, turkey vulture (*Cathartes aura*), active coyote den, red-winged blackbird (*Agelaius phoeniceus*), bank swallow (*Riparia riparia*), and European cabbage butterfly (*Pieris rapae*). **Please refer to Figure 3-5, Coyote Den and Figure 3-6, Turkey Vultures.**



Figure 3-4, Thirteen-lined Ground Squirrel Nest



Figure 3-5, Coyote Den



Figure 3-6, Turkey Vultures

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. 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 prairie, plains, and forested areas.

3.7.2.1 Wildlife Impacts/Mitigation

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

Alternative B (Proposed Action) – Ground clearing activities associated with the proposed projects 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. In addition, 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. Therefore, the proposed projects may affect individuals within these wildlife species, but are not likely to adversely affect any populations or result in a trend towards listing of any of the species identified. As no grouse leks were observed in project areas, timing restrictions for construction are not required.

During drilling activities, the noise, movements, and lights associated with having a drilling rig on-site should be sufficient to deter wildlife from entering the area. In addition, the reserve pits would only be used for solid material storage. The absence of exposed liquids in the pits would minimize their attractiveness to wildlife. Immediately after the drilling rig leaves the location, reserve pits would be netted with State and Federal approved nets. These would remain in place until the closure of the reserve pits.

3.7.3 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. Both project areas were located on upland sites dominated by mixed-grass prairie. The mixed-grass prairie at both sites consisted mainly of red threeawn (*Aristida purpurea*), sideoats grama (*Bouteloua curtipendula*), blue grama (*Bouteloua gracilis*), Junegrass (*Koeleria macrantha*), Western wheatgrass (*Pascopyrum smithii*), Kentucky bluegrass (*Poa pratensis*), and green needlegrass (*Stipa viridula*). Dominant forbs found on both sites included sageworts (*Artemisia sp.*), purple coneflower (*Echinacea angustifolia*), white prairie aster (*Symphotrichum falcatum*), and Western snowberry (*Symphoricarpos occidentalis*). Wooded draws were not present at either site.

At the Galen Fox site, two main upland plant communities were identified. The most dominant plant community was mixed-grass prairie with forbs. In addition, portions of the

Galen Fox project area were dominated by Western snowberry intermixed with the mixed-grass/forb prairie community. **Please refer to Figure 3-7, Mixed-Grass Prairie and Forbs Galen Fox Site and Figure 3-8, Galen Fox Site Mapped Vegetation Communities.**



Figure 3-7, Mixed-Grass Prairie and Forbs Galen Fox Site



Figure 3-8, Galen Fox Site Mapped Vegetation Communities

At the Elk site, four main upland plant communities were identified. The most dominant plant community was mixed-grass prairie with forbs. In addition, portions of the Elk project area were dominated by Western snowberry, little bluestem, or white prairie aster intermixed with the mixed-grass/forb prairie community. ***Please refer to Figure 3-9, Mixed-Grass Prairie and Forbs Elk Site; Figure 3-10, Western Snowberry Example; Figure 3-11, Little Bluestem Example; Figure 3-12, White Prairie Aster Example; and Figure 3-13, Elk Site Mapped Vegetation Communities.***



Figure 3-9, Mixed-Grass Prairie and Forbs Elk Site



Figure 3-10, Western Snowberry Example



Figure 3-11, Little Bluestem Example



Figure 3-12, White Prairie Aster Example

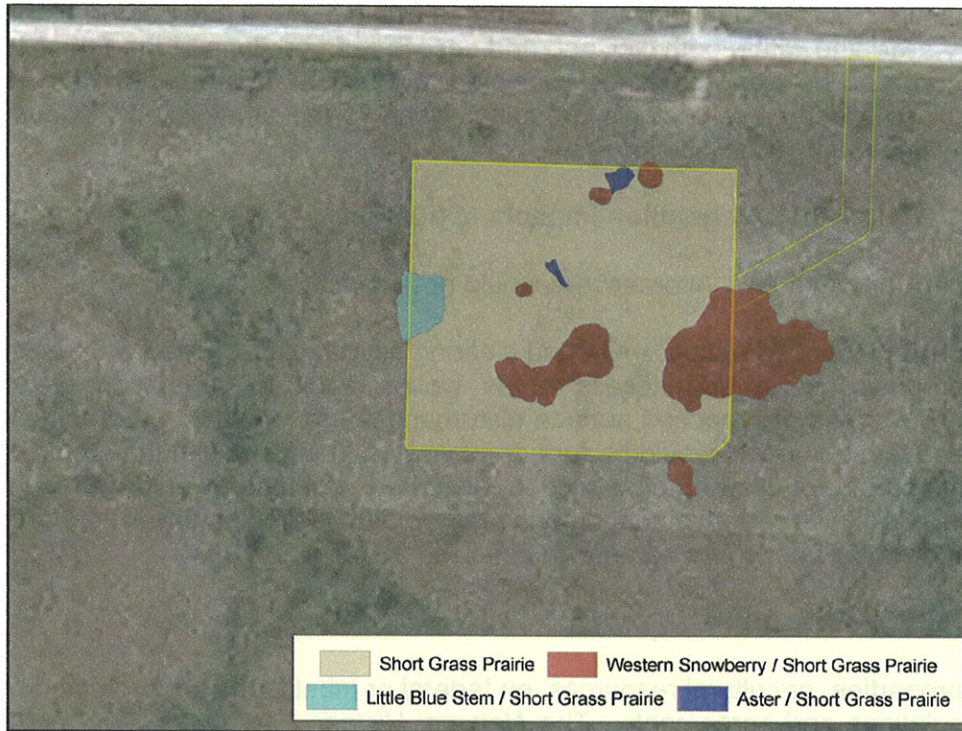


Figure 3-13, Elk Site Mapped Vegetation Communities

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 Mountrail 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. Mountrail County has added common tansy, yellow toadflax, and houndstongue to its control list.

Common Name	Scientific Name	Mountrail County Acres	Observed in the Field?
Absinth wormwood	<i>Artemesia abinthium</i> L.	1,200	No
Canada thistle	<i>Cirsium arvense</i> (L.) Scop	20,100	Yes
Dalmation toadflax	<i>Linaria genistifolia</i> ssp. <i>dalmatica</i>	--	No
Diffuse knapweed	<i>Centaurea diffusa</i> Lam	--	No
Field bindweed	<i>Convolvulus arvensis</i> L.	900	No
Leafy spurge	<i>Euphorbia esula</i> L.	12,300	No
Musk thistle	<i>Carduus nutans</i> L.	2	No
Purple loosestrife	<i>Lythrum salicaria</i>	--	No
Russian knapweed	<i>Acroptilon repens</i> (L.) DC.	--	No
Saltcedar (tamarisk)	<i>Tamarix ramosissima</i>	1,100	No
Spotted knapweed	<i>Centaurea maculosa</i> Lam.	300	No
Yellow starthistle	<i>Centaurea solstitialis</i> L.	--	No

Small quantities of Canada thistle were observed within the well pad portion of the Galen Fox study area and within both well pad and access road portions of the Elk study area. 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.

3.7.3.1 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 accord 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.

3.8 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 Kadmas, Lee & Jackson, Inc. (formerly Earthworks), using a pedestrian methodology. For the Galen Fox USA 24-7H project approximately 10.2 acres were intensively inventoried (Herson 2008) and for the Elk USA 11-17H project approximately 12 acres were inventoried (Morrison 2009), both on November 17, 2008. No historic properties were located within either 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 determinations of **no historic properties affected** for these undertakings. This determination was communicated to the THPO for the Galen Fox USA 24-7H project on January 9, 2008 (*sic.*, should read 2009) and for the Elk USA 11-17H project on January 16, 2008 (*sic.*, should read 2009); however, no response was received from the THPO within the allotted 30-day comment period for either of these project areas (see Chapter 4).

3.8.1 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 using setbacks to avoid impacts to cultural resources. As such, cultural resources impacts are not anticipated. A determination of effect is pending from BIA. 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.

3.9 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 Mountrail County have lower than statewide averages of per capita income and median household income. In addition, they have higher rates of unemployment and individuals living below poverty level than the state. ***Please refer to Table 3.5, Employment and Income.***

Table 3.5 Employment and Income ³				
Location	Per Capita Income	Median Household Income	Unemployment Rate	Individuals Living Below Poverty Level
Mountrail County	\$13,422	\$27,098	5.9%	19.3%
Fort Berthold Reservation	\$10,291	\$26,274	11.1%	28.1%
Statewide	\$17,769	\$34,604	4.6%	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 Mountrail 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 Mountrail County and the state of North Dakota. *Please refer to Table 3.6, Demographic Trends.*

Table 3.6 Demographic Trends ⁴					
Location	Population in 2000	% of State Population	% Change 1990-2000	Predominant Race	Predominant Minority
Mountrail County	6,631	1.03%	-5.6%	White	American Indian (30%)
Fort Berthold Reservation	5,915	0.92%	+9.8%	American Indian ⁵	White (26.9%)
Statewide	642,200	--	+0.5%	White	American Indian (5%)

3.9.1 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, of which the positive effects on employment and income through the creation of jobs and payment of leases, easement, and/or royalties to Tribal members would not be realized.

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

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

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

⁵ According to the North Dakota Tourism Division, there are 10,400 enrolled members of the Three Affiliated Tribes.

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

3.10 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.

3.10.1 Environmental Justice Impacts/Mitigation

Alternative A (No Action) – Alternative A would not result in disproportionately adverse impacts to members of the Three Affiliated Tribes.

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.

3.11 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.

3.11.1 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. Correspondence received

from the Mountrail County Commission indicated concern for how oil traffic could adversely affect the pavement condition of roadways in the area. All haul routes used would either be private roads or are roads that are approved for this type of transportation use by the local governing tribal, township, county, and/or state entities. Marathon will follow Mountrail County, BIA, 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 roads through these entities. Marathon's contractors will be required to adhere to all local, county, tribal, and state regulations regarding rig moves, oversize/overweight loads, and frost restrictions.

Construction of the proposed well sites may encroach upon existing water distribution lines. Prior to construction, coordination would occur with the Fort Berthold Water Authority Director to ensure minimization of potential impacts to existing water distribution pipelines.

Each well site may also require the installation of supporting electrical lines. In addition, if commercially recoverable oil and gas are discovered at the well sites, a natural gas gathering system may need to be installed. It is expected that electric lines and other pipelines would be constructed within the existing right-of-way, or additional NEPA analysis and BIA approval will be completed prior to construction of these utilities. Other utility modifications would be identified during design and coordinated with the appropriate utility company.

Drilling operations at the proposed well site 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, or other appropriate methods that would prevent spills or seepage. Produced water may be trucked to nearby oil fields where injection wells are available.

3.12 Public Health and Safety

Health and safety concerns include hydrogen sulfide (H₂S) gas⁶, hazardous materials used or generated during well installation or production, and traffic hazards associated with heavy drill rigs and tankers.

3.12.1 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 H₂S gases, hazardous materials, and traffic, as described below.

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

H₂S Gases. It is unlikely that the proposed action would result in release of H₂S at dangerous concentrations; however, Marathon will submit H₂S Contingency Plans to the BLM as part of the site APDs. These plans establish safety measures to be implemented throughout the drilling process to prevent accidental release of H₂S 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 H₂S gas leak during drilling activities. Satellite imagery revealed three residences within 3,000 feet of the proposed Elk site, the closest of which is approximately 750 feet east of the proposed well. No residences were identified within 3,000 feet of the proposed Galen Fox site.

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 these projects 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 day⁷. 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 production⁸. Established load restrictions for state and BIA roadways would be followed and haul permits would be acquired as appropriate.

3.13 Cumulative Considerations

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, the relative contribution of the proposed action to a projected cumulative impact can be estimated.

3.13.1 Past, Present, and Reasonably Foreseeable Actions

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 BWP (barrels of water per day) could be expected, dropping to 30 to 70 BWP after several months.

According to the NDIC, at the time this EA was written, there were approximately 214 active and/or proposed oil and gas wells within the Fort Berthold Reservation. **Please refer to Figure 3-14, Existing and Proposed Oil and Gas Wells.** The nearest known proposed oil and gas wells are approximately one mile from the Galen Fox and Elk project areas. **Please refer to Table 3.7, Summary of Active and Proposed Wells.**

Table 3.7 Summary of Active and Proposed Wells	
Distance from Sites	Number of Active or Proposed Wells
1 mile radius	1
5 mile radius	20
10 mile radius	77
20 mile radius	432

BMPs would be implemented to minimize impacts of the proposed projects. At this time, the Galen Fox and Elk sites would not share access roads with any other oil and gas installations. 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. If commercially recoverable oil and gas are discovered at the well site(s), a natural gas gathering system may need to be installed. Currently natural gas gathering systems are proposed on the Fort Berthold Reservation but that information remains proprietary.

3.13.2 Cumulative Impact Assessment

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

Geological Setting and Land Use — The proposed projects, 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 a well pad and access road. However, the well pads and access roads have generally been 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 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 projects are anticipated to be a negligible cumulative impact. Mountrail County is currently well below the Ambient Air Quality Standards, and it is anticipated that mobile air source toxics from truck traffic for the proposed projects and other projects, as well as air emissions related to gas flaring, would be minor; therefore, the contribution of the proposed projects to air emissions is not expected to be significant.

Wetlands, Wildlife, and Vegetation — The proposed projects, 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, and 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 projects, 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 projects 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. In addition, the Bureau of Reclamation is in the process of expanding its water distribution system on the Fort Berthold Reservation and has identified existing and proposed water distribution lines in the vicinity of the Galen Fox and Elk wells. As these lines have, or would, result in a temporary disturbance, it is not anticipated that a significant cumulative impact would occur.

The proposed action has been planned to avoid impacts to resources such as wetlands, floodplains, surface water, cultural resources, and threatened and endangered species. Unavoidable impacts to these or other resources would be minimized and/or mitigated in accordance with applicable regulations. No significant cumulative impacts are reasonably foreseen from existing or proposed activities.

3.14 Irreversible and Irrecoverable Commitment of Resources

Removal and consumption of oil or gas from the Bakken Formation 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.

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

Short-term activities would not significantly detract from long-term productivity of the project areas. The areas 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 Formation, which is the purpose of this project.

3.16 Permits

Marathon will be required to acquire the following permits prior to construction:

- *Application for Permit to Drill* – Bureau of Land Management
- *Application for Permit to Drill* – North Dakota Industrial Commission

3.17 Environmental Commitments/Mitigation

The following commitments have been made by Marathon Oil Company:

- Topsoil will be segregated and stored on-site to be used in the reclamation process.
- BMPs will be implemented to minimize wind and water erosion of soil resources. Soil stockpiles will be positioned to help divert runoff around the well pad.
- Well sites and access roads will avoid surface waters.
- The drill cuttings pits will be located on the cut side of the locations and away from areas of shallow ground water and have an impermeable synthetic liner to prevent potential leaks. All spills or leaks of chemicals and other pollutants will be reported to the BLM, the NDIC, and, where appropriate, the NDDH. The procedures of the surface management agency shall be followed to contain leaks or spills.
- All proposed wells will be cemented and cased to isolate aquifers from potentially productive hydrocarbon and disposal/injection zones.
- Wetlands and riparian areas will be avoided.
- Disturbed vegetation will be re-seeded in kind upon completion of the projects. Additionally, a noxious weed management plan will be implemented.
- Well sites and access roads will 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.
- Access roads will be located at least fifty feet away from identified cultural resources. The boundaries of these fifty-foot "exclusion zones" would be pin-flagged as an extra measure to ensure that inadvertent impacts to cultural resources are avoided.
- All project workers are prohibited from collecting artifacts or disturbing cultural resources in any area under any circumstances.
- Marathon will ensure all contractors working for the company will adhere to all local, county, tribal, and state regulations and ordinances regarding rig moves, oversize/overweight loads, and frost law restrictions.
- Prior to construction, Marathon will coordinate with the Fort Berthold Water Authority Director to ensure minimization of impacts to existing water distribution pipelines.
- Utility modifications will be identified during design and coordinated with the appropriate utility company.
- H₂S Contingency Plans for each well site will be submitted to the BLM as part of the APDs.
- Established load restrictions for state and BIA roadways will be followed and haul permits would be acquired as appropriate.

- Suitable mufflers will be put on all internal combustion engines and certain compressor components to mitigate noise levels.
- Well sites and associated facilities will be painted in colors to allow them to better blend in with the natural background color of the surrounding landscape.

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

Kadrmass, Lee & Jackson, Inc. prepared this EA under a contractual agreement between Marathon Oil Company and Kadrmass, 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	
Marathon Oil Company	Luke Franklin	Senior HES Professional	Project development, alternatives, document review
	Darrell Nodland	Coordinator	Project development, alternatives, document review
Kadrmass, Lee & Jackson, Inc.	Shanna Braun	Environmental Planner	Client and agency coordination, field resources surveys, impact assessment, principal author
	Charlotte Brett	Environmental Planner	Senior review
	Rick Leach	Surveyor	Site plats
	Brian O'Donnchadha	Archaeologist	Cultural resources surveys
	Jerry Reinisch	Environmental Planner	Field resources surveys
	Skip Skattum	GIS Analyst	Impact assessment, exhibit creation
Earthworks	Grady Wolf	Environmental Planner	Field resources surveys
	Chandler Herson	Archaeologist	Cultural resources reporting
	John Morrison	Archaeologist	Cultural resources surveys

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 October

12, 2009. This scoping package included a brief description of the proposed projects, 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 these projects.

At the conclusion of the 30-day comment period, nine 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 approves this document, 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.



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

JAN 09 2008

Perry 'No Tears' Brady, THPO
Mandan, Hidatsa and Arikara Nation
PO Box 429
Parshall, North Dakota 58770

Dear Mr. Brady:

We have considered the potential effects on cultural resources of an oil well pads and access roads in Mountrail County, North Dakota. Approximately 65 acres were intensively inventoried using a pedestrian methodology. Potential surface disturbances are not expected to exceed the areas depicted in the enclosed reports. No historic properties were located that appear to possess the quality of integrity and meet at least one of the criteria (36 CFR 60.4) for inclusion on the National Register of Historic Places. No properties were located that appear to qualify for protection under the American Indian Religious Freedom Act (16 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 these undertakings. Catalogued as **BIA Case Number AAO-1601/FB/09**, the proposed undertakings, locations, and project dimensions are described in the following reports:

- Herson, Chandler S.
(2008) Galen Fox USA 24-7H Well Pad and Access Road: A Class III Cultural Resource Inventory in Mountrail County, North Dakota. Earthworks, Inc. for Marathon Oil Company, Dickinson, North Dakota.
- Ó Donnchadha, Brian
(2008) Fisher USA 21-5H Well Pad and Access Road: A Class III Cultural Resource Inventory in Mountrail County, North Dakota. Earthworks, Inc. for Marathon Oil Company, Dickinson, North Dakota.

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, Archeologist, at (605) 226-7656.

Sincerely,
(sgd) Michael S. Black

Regional Director

Enclosures

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

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United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Great Plains Regional Office
115 Fourth Avenue S.E.
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MC-208

JAN 16 2008

Perry 'No Tears' Brady, THPO
Mandan, Hidatsa and Arikara Nation
PO Box 429
Parshall, North Dakota 58770

Dear Mr. Brady:

We have considered the potential effects on cultural resources of an oil well pad and access road in Mountrail County, North Dakota. Approximately 12 acres were intensively inventoried using a pedestrian methodology. Potential surface disturbances are not expected to exceed the area depicted in the enclosed report. One archeological site, 32MN782, was located that 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 (16 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 32MN782 will be avoided. Catalogued as **BIA Case Number AAO-1601/FB/09**, the proposed undertaking, location, and project dimensions are described in the following report:

Morrison, John G.
(2009) Elk USA 11-17H Well Pad and Access Road: A Class III Cultural Resource Inventory, Mountrail County, North Dakota. Earthworks for Marathon Oil, Dickinson, ND.

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, Archeologist, at (605) 226-7656.

Sincerely,
(sgd) Michael S. Black
Regional Director

Enclosures

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

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Chapter 5 References

5.1 References

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Appendix A

Agency Scoping Materials

October 12, 2009

<<NAME>>
<<ADDRESS>>
<<CITY>><<STATE>><<ZIP>>

**Re: Up to Three Proposed Oil and Gas Exploratory Wells
Fort Berthold Reservation
Mountrail County, North Dakota**

Dear <<NAME>>,

On behalf of Marathon Oil Company, Kadrmas, Lee & Jackson, Inc. is 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 drilling and completion of up to three exploratory oil and gas wells on the Fort Berthold Reservation. These well sites are proposed to be positioned in the following locations:

- Elk – USA #11-17H located in T150N, R92W, Section 17
- Everett Fisher – USA #41-6H located in T150N, R93W, Section 6
- Galen Fox – USA#24-7H located in T150N, R92W, Section 7

Please refer to the enclosed project location map.

The well sites have been positioned to utilize existing roadways for access to the extent possible. The drilling of these well sites is proposed to begin as early as January 2010.


To ensure that social, economic, and environmental effects are considered in the development of this project, we are soliciting your views and comments on the proposed development of this project, pursuant to Section 102(2) (D) (IV) of the National Environmental Policy Act of 1969, as amended. We are particularly interested in any property that your department may own, or have an interest in, located within the project area. We would also appreciate being made aware of any proposed development your department may be contemplating in the area of the proposed project. Any information that might help us in our study would be appreciated.

It is requested that any comments or information be forwarded to our office on or before **November 13, 2009**. We request your comments by that date to ensure that we will have ample time to review them and incorporate them into the necessary environmental documentation.

If you would like further information regarding this project, please contact Darrell Nodland, Marathon Coordinator, at (701) 456-7546 or myself at (218) 790-4476. Thank you for your cooperation.

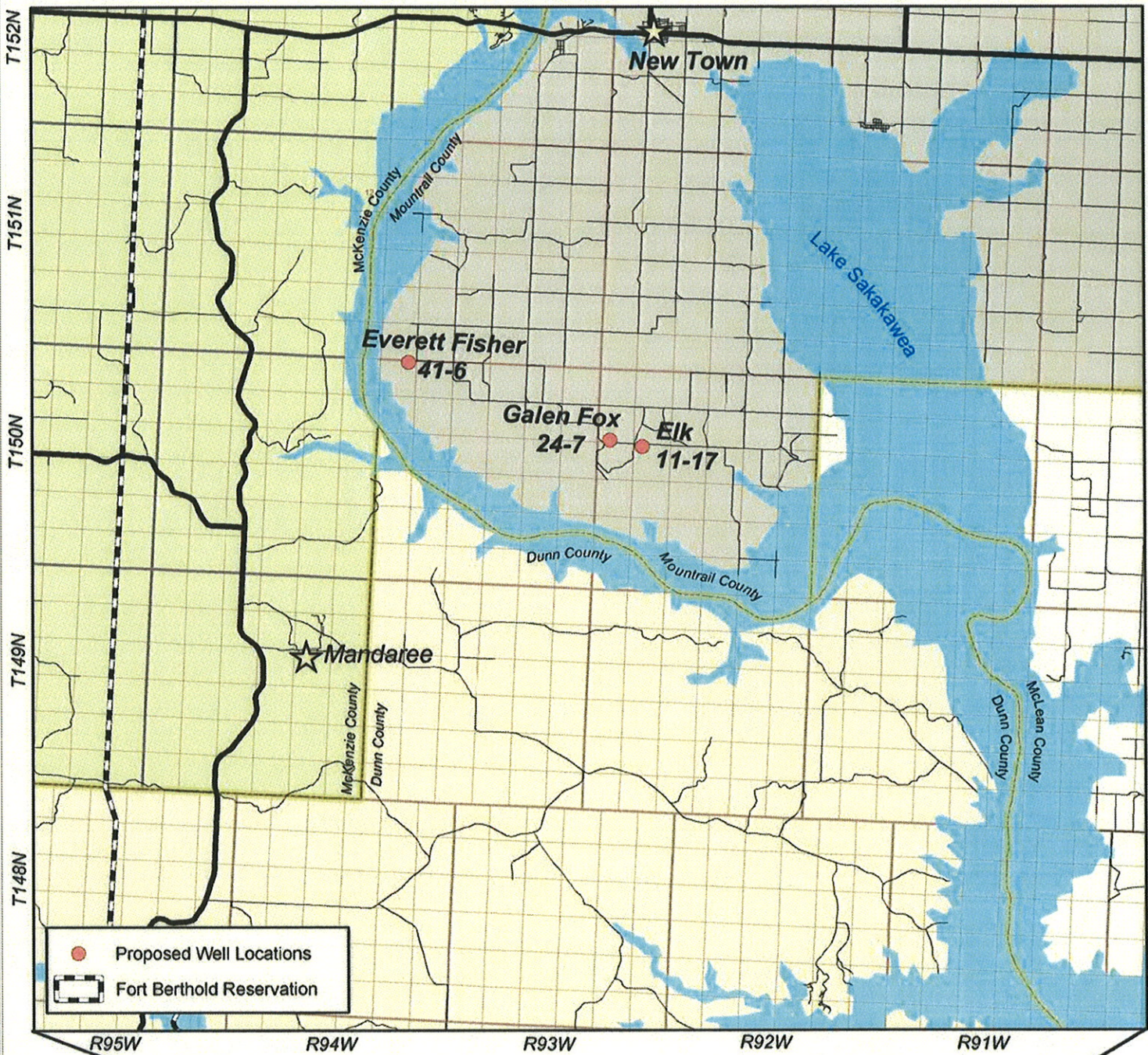
Sincerely,

Kadmas, Lee & Jackson, Inc.

A handwritten signature in blue ink, appearing to read 'Shanna Braun', is positioned above the typed name.

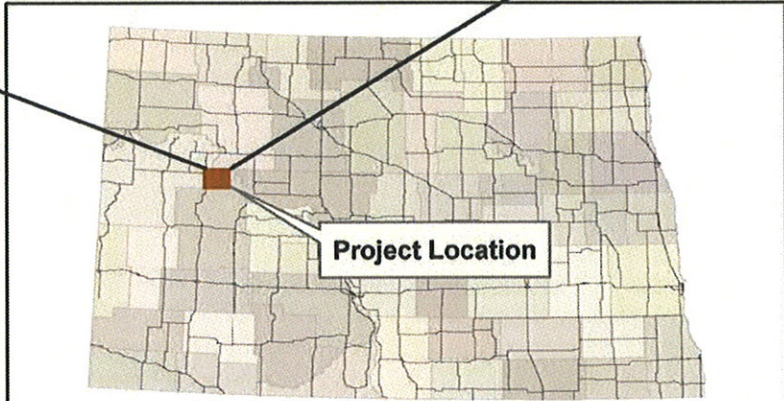
Shanna Braun
Environmental Planner

Enclosure (Map)



- Proposed Well Locations
- ▭ Fort Berthold Reservation

**Marathon Oil Company
Proposed Oil & Gas
Exploratory Wells**



North Dakota



SOV MASTER LIST

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

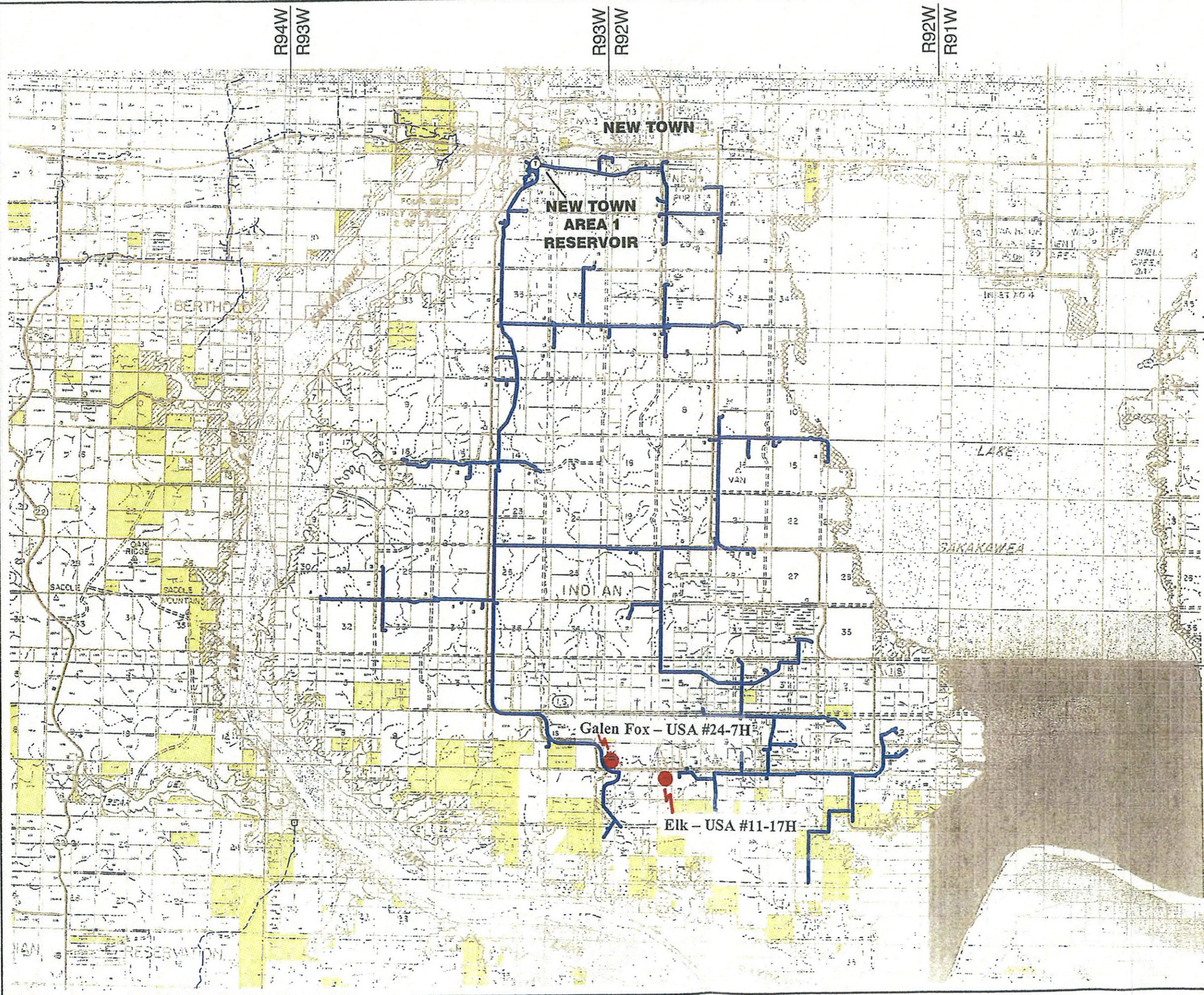
Sr	C Title	First	Last	Title	Department	Agency	Address	City	State	Zip
Mr.	Chief Missile Engineer	Mike	Black	Acting Regional Director	5-CES/CEDE	Minot Air Force Base	320 Peacekeeper Place	Minot	ND	58705
Mr.	Chief, Resource Management	Richard	Nelson	Manager	Dakotas Area Office	Bureau of Indian Affairs	115 4th Ave. SE	Aberdeen	SD	57401
Mr.	Manager	Steve	Obenauer	Manager	Bismarck Airports District Office	Bureau of Reclamation	PO Box 1017	Bismarck	ND	58502-1017
Mr.	Natural Resource Specialist	Dan	Cimarosi	Field Supervisor	ND Regulatory Office	Federal Aviation Administration	2301 University Drive, Bldg 238	Bismarck	ND	58504
Ms.	Resource Section	Charles	Sorensen	Executive Director	Omaha District	US Army Corps of Engineers	1513 S. 12th St.	Bismarck	ND	58504
Mr.	Acting State Conservator	Candace	Gorton	Director	ND Maintenance Office	US Army Corps of Engineers	PO Box 527	Riverdale	ND	58555
Mr.	Director	John	Glover	Chief	Conservation & Communication Division	US Department of Agriculture	108 S. 15th St.	Omaha	NE	68102-1618
Mr.	Director	Gerald	Paulson	Chief	Water Resources Division	US Department of Energy	PO Box 1458	Bismarck	ND	58502-1458
Mr.	Director	Larry	Svoboda	Chief	Environmental Health Section	Western Area Power Admin.	PO Box 1173	Bismarck	ND	58502-1173
Mr.	State Engineer	Richard	Clark	Manager	Gold Seal Center	US Environment Protection Agency	1595 Wynkoop Street	Denver	CO	80202-1129
Mr.	Construction Manager	Jeffrey	Towner	Manager	Conservation & Communication Division	US Environment Protection Agency	1595 Wynkoop Street	Denver	CO	80202-1129
Ms.	General Manager	Cheryl	Kules	Manager	Badlands Region	Indian Affairs Commission	3425 Milham Ave.	Bismarck	ND	58501
Mr.	Manager/CEO	Greg	Wiche	Manager	Land Department	Indian Affairs Commission	600 E. Blvd. Ave.	Bismarck	ND	58505-0300
Mr.	Manager	L. David	Glatt	Manager	Land Department	Indian Affairs Commission	1st Floor, Judicial Wing, Rm 117	Bismarck	ND	58501
Mr.	State Engineer	Mike	McKenna	Manager	Land Department	Indian Affairs Commission	821 E. Interstate Ave.	Bismarck	ND	58501-1947
Mr.	Construction Manager	Doug	Prohal	Manager	Land Department	Indian Affairs Commission	918 E. Divide Ave., 4th floor	Bismarck	ND	58501-1947
Mr.	General Manager	Dale	Fink	Manager	Land Department	Indian Affairs Commission	100 Bismarck Expressway	Bismarck	ND	58501-5095
Mr.	General Manager	Bill	Boyd	Manager	Land Department	Indian Affairs Commission	1600 E. Century Ave., Suite 3	Bismarck	ND	58503-0649
Mr.	Manager	Doug	Dixon	Manager	Land Department	Indian Affairs Commission	900 E. Blvd. Ave.	Bismarck	ND	58505-0850
Mr.	Manager	George	Berg	Manager	Land Department	Indian Affairs Commission	719 Memorial Hwy	Bismarck	ND	58501
Mr.	Manager/CEO	Iken	Miller	Manager	Land Department	Indian Affairs Commission	PO Box 1406	Williston	ND	58802-1406
Mr.	CEO	Ray	Christenson	Manager	Land Department	Indian Affairs Commission	Box 13000	Grand Forks	ND	58208-3000
Mr.	Manager	David C.	Schellkopf	Manager	Land Department	Indian Affairs Commission	13710 FNB Parkway	Omaha	NE	68154-5200
Mr.	Manager	Jim	Redding	Manager	Land Department	Indian Affairs Commission	4665 2nd St. W.	Dickinson	ND	58601
Mr.	District Engineer	Walt	Peterson	Manager	Land Department	Indian Affairs Commission	PO Box 1038	Dickinson	ND	58602-1038
Mr.	Field Office Manager	Lonny	Bagley	Manager	Land Department	Indian Affairs Commission	PO Box 2747	Fargo	ND	58108-2747
Mr.	Assistant Field Office Manager	Mike	Nash	Manager	Land Department	Indian Affairs Commission	355 Main St.	New Town	ND	58763
Mr.	Tribal Chairman	Michael	Savaga	Manager	Land Department	Indian Affairs Commission	1305 Highway 2 Bypass East	Minot	ND	58701-1922
Mr.	Tribal Chairman	Myra	Pearson	Manager	Land Department	Indian Affairs Commission	605 Dakota Parkway West	Williston	ND	58802-0698
Mr.	Tribal Chairman	Perry	Brady	Manager	Land Department	Indian Affairs Commission	99 23rd Ave W, Suite A	Dickinson	ND	58601
Mr.	Tribal Chairman	Marcus	Levings	Manager	Land Department	Indian Affairs Commission	99 23rd Ave W, Suite A	Dickinson	ND	58601
Mr.	Tribal Chairman	David	Brien	Manager	Land Department	Indian Affairs Commission	PO Box 509	Sisseton	SD	57262-0267
Mr.	Tribal Chairman	Damon	Williams	Manager	Land Department	Indian Affairs Commission	PO Box 359	Ft. Totten	ND	58525
Mr.	Tribal Chairman	Fred	Fox	Manager	Land Department	Indian Affairs Commission	PO Box D	Fort Yates	ND	58538
Ms.	Representative	V. Judy	Bruhn	Manager	Land Department	Indian Affairs Commission	HC3 Box 2	New Town	ND	58763
Mr.	Representative	Arnold	Straus	Manager	Land Department	Indian Affairs Commission	HC3 Box 2	New Town	ND	58763
Mr.	Representative	Scott	Eagle	Manager	Land Department	Indian Affairs Commission	PO Box 900	Belcourt	ND	58316-0900
Mr.	Representative	Mervin	Packineau	Manager	Land Department	Indian Affairs Commission	404 Frontage Road	New Town	ND	58763
Mr.	Representative	Frank	Whitecalf	Manager	Land Department	Indian Affairs Commission	404 Frontage Road	New Town	ND	58763
Mr.	Representative	Barry	Benson	Manager	Land Department	Indian Affairs Commission	PO Box 665	Mandaree	ND	58757
Mr.	Representative	Fred	Poltra	Manager	Land Department	Indian Affairs Commission	404 Frontage Road	New Town	ND	58763
Mr.	Representative	Todd	Hall	Manager	Land Department	Indian Affairs Commission	404 Frontage Road	New Town	ND	58763
Mr.	Operations Manager	Roger	Hovda	Manager	Land Department	Indian Affairs Commission	PO Box 468	Parshall	ND	58770
Mr.	Senior HES Professional	Luke	Franklin	Manager	Land Department	Indian Affairs Commission	404 Frontage Road	New Town	ND	58763
Mr.	Coordinator	Darrell	Nodland	Manager	Land Department	Indian Affairs Commission	70879 E. Ave NW	Haliiday	ND	58636
Ms.	Auditor	Joan	Hellekim	Manager	Land Department	Indian Affairs Commission	404 Frontage Road	New Town	ND	58763
					Reservation Telephone Cooperative		PO Box 68	Parshall	ND	58770-0068
					Marathon Oil Company		3172 Highway 22 N	Dickinson	ND	58601
					Marathon Oil Company		3172 Highway 22 N	Dickinson	ND	58601
					Mountain County		PO Box 69	Stanley	ND	58784-0069

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
Mr.	David J.	Hynek	Chair	County Commission	Mountair County	PO Box 69	Stanley	ND	58784-0069

Last edit: Mar 03, 2009 by: DDM0439 Drawing name: C:\2009\12483 Three Affiliated Tribes\water\12483.000 Map DMS\12483 three line map.dwg Layout name: 004 New Town Overall Plotted by: bhd01053 Plotted on: Mar 11, 2009 - 2:16pm



**NEW TOWN
 AREA 1
 PROJECTED
 2009
 CONSTRUCTION
 SEASON**



- LEGEND**
- EXISTING PIPELINE
 - PROPOSED PIPELINE
 - ① TANK SITE

T152N
T151N

T151N
T150N

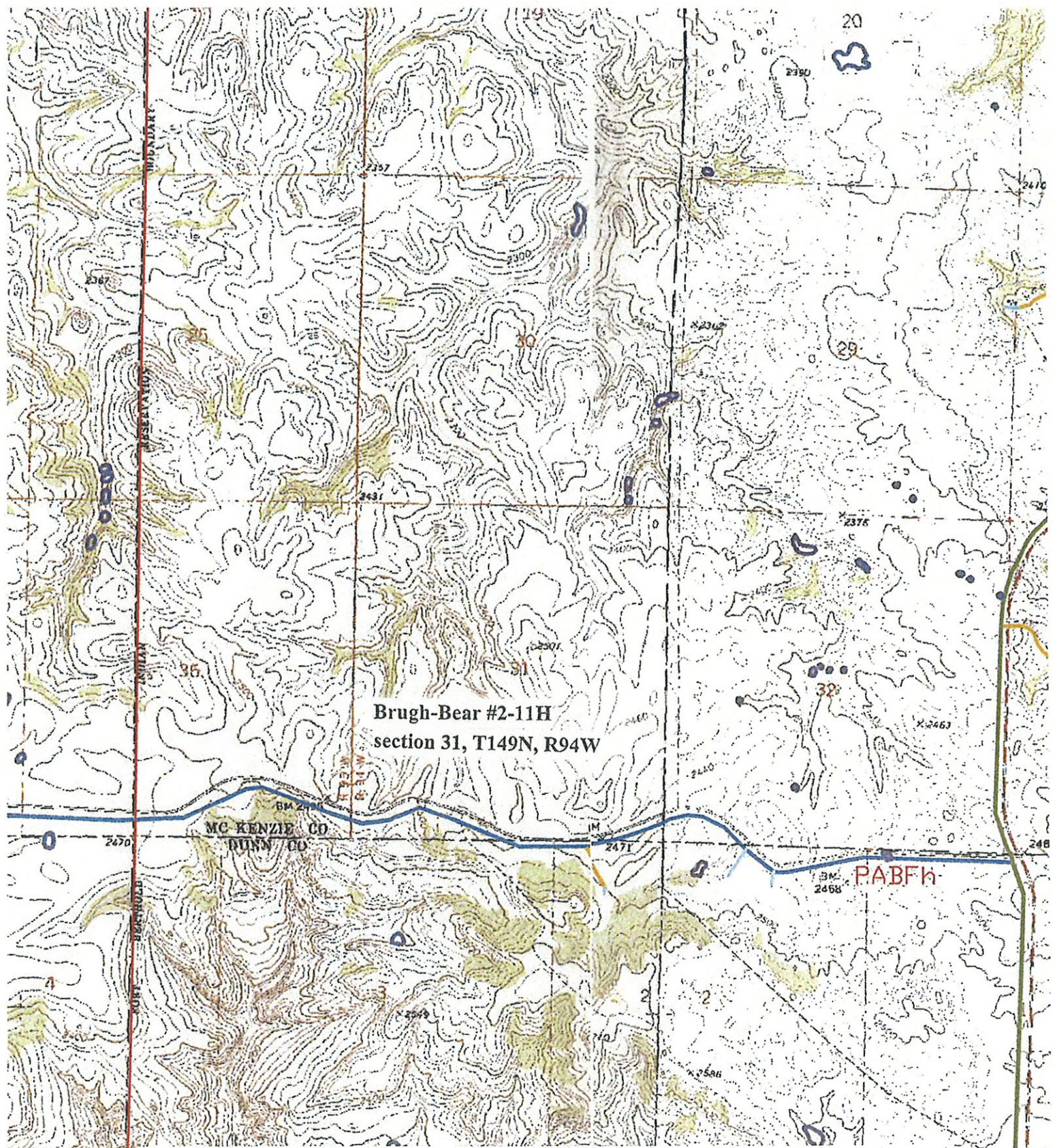
BARTLETT & WEST

THREE AFFILIATED TRIBES
 NEW TOWN AREA 1

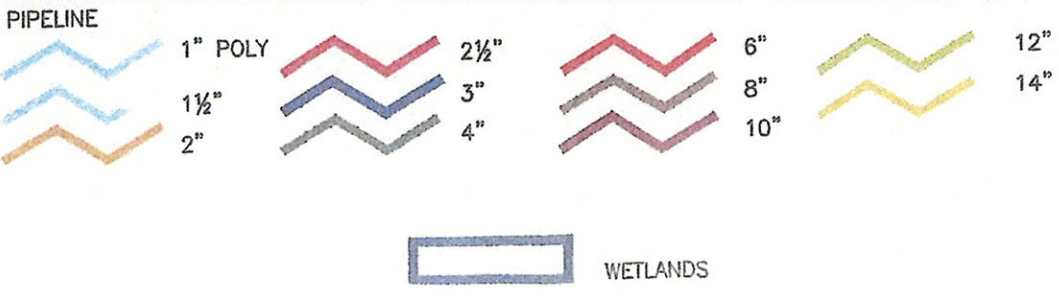


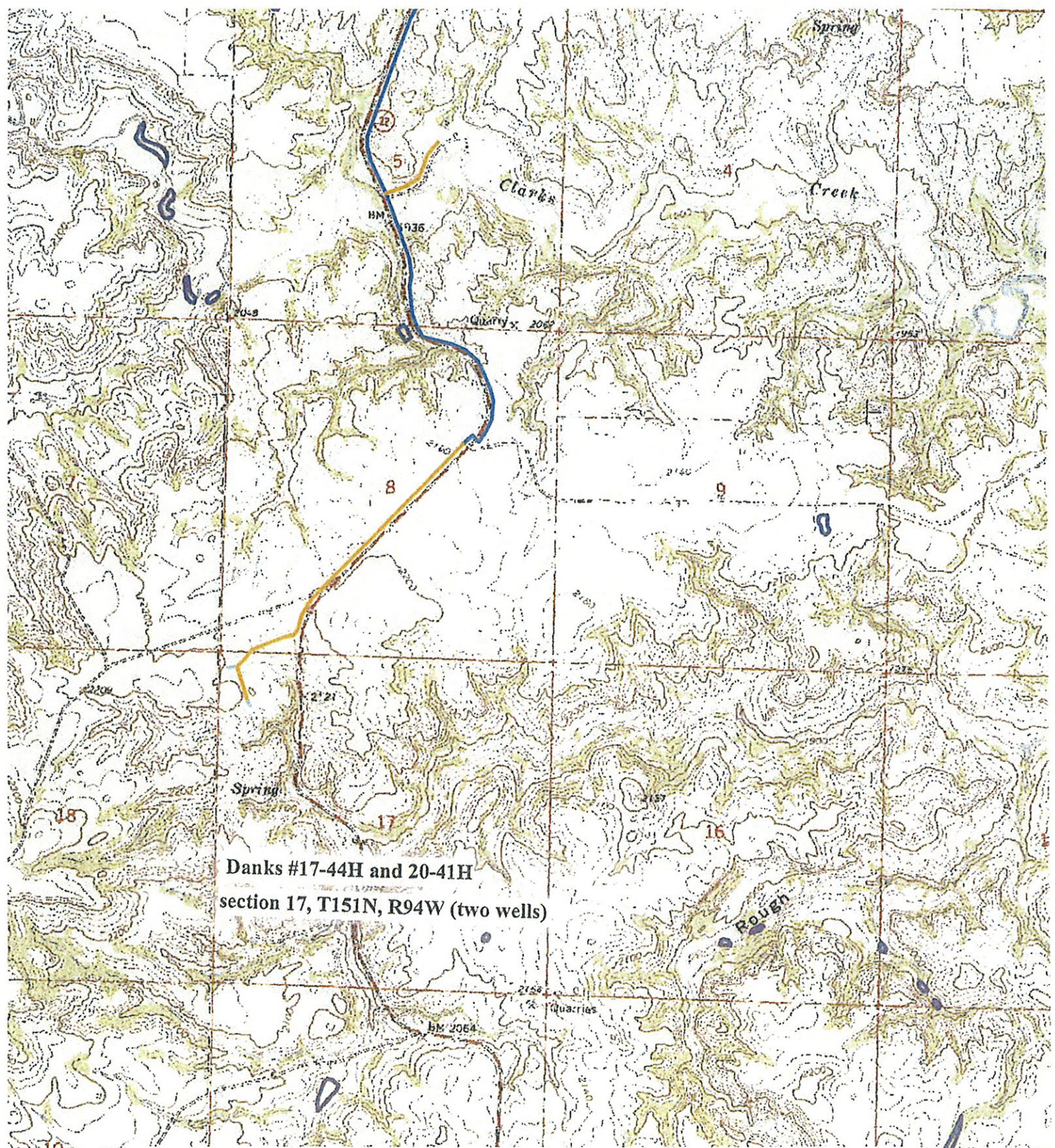
INDEX & LEGEND

DESIGNED BY:	RAK, BJZ
DRAWN BY:	DDM
APPROVED BY:	KWR
DESIGN PROJ. NO.:	12483.061
CONSTR. PROJ. NO.:	2009-1
SCALE:	AS NOTED
DATE:	2/09
DRAWING NO.:	G04
SHEET NO.:	3 of 29














Brugh-Bear #2-11H
section 31, T149N, R94W





Danks #17-44H and 20-41H
 section 17, T151N, R94W (two wells)

PIPELINE			
	1" POLY		2 1/2"
	1 1/2"		3"
	2"		4"
			6"
			8"
			10"
			12"
			14"

 WETLANDS



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
3425 Miriam Avenue
Bismarck, North Dakota 58501



Ms. Shanna Braun
Environmental Planner
Kadrmas, Lee & Jackson, Inc.
1505 S. 30th Ave
P.O. Box 96
Moorhead, MN 56561-0096

DEC 17 2009

Re: Three Exploratory Oil and Gas Wells
On The Fort Berthold Reservation

Dear Ms. Braun:

This is in response to your October 12, 2009, letter regarding proposed exploratory oil and gas wells on the Fort Berthold Reservation. Marathon Oil Company has proposed three exploratory oil and gas wells on the Fort Berthold Reservation, Mountrail County, North Dakota.

Specific locations are:

Elk-USA#11-17H: T. 150N, R. 92W, Section 17
Everett Fisher – USA #41-6H: T. 150N, R. 93W, Section 6
Galen Fox – USA # 24-7H: T. 150N, R. 92W, Section 7

We offer the following comments under the authority of and in accordance with the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) (MBTA), the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.) (NEPA), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250) (BGEPA), Executive Order 13186 "Responsibilities of Federal Agencies to Protect Migratory Birds", the Endangered Species Act (16 U.S.C. 1531 et seq.) (ESA) and the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57).

In an e-mail dated October 13, 2009, the Bureau of Indian Affairs (BIA) designated Kadrmas, Lee & Jackson to represent the BIA for informal Section 7 consultation under the ESA. Therefore, the U.S. Fish and Wildlife Service (Service) is responding to you as the designated non-Federal representative.

Threatened and Endangered Species

A list of federally endangered and threatened species that may be present within the proposed project's area of influence is enclosed. This list fulfills requirements of the

Service under Section 7 of the ESA. This list remains valid for 90 days. The BIA or designated non-Federal agent should make a determination of the proposed projects' effects on listed species, including whether there is anticipated destruction or adverse modification of designated critical habitat. This determination may be included in the Environmental Assessment (EA). It should state whether or not the BIA plans to incorporate the Service's recommendations to avoid and minimize any adverse effects. If the BIA does not plan to take the recommended measures, the document should explain why not.

There is designated critical habitat for the piping plover in Mountrail County. We recommend that a buffer of at least 1/2 mile be maintained from piping plover critical habitat. Critical habitat can be viewed on the Service website (http://www.fws.gov/northdakotafieldoffice/endspecies/species/piping_plover.htm). GIS layers of critical habitat can be obtained by contacting our office at the letterhead address.

The Aransas Wood Buffalo Population (AWBP) of endangered whooping cranes is the only self-sustaining migratory population of whooping cranes remaining in the wild. These birds breed in the wetlands of Wood Buffalo National Park in Alberta and the Northwest Territories of northern Canada, and overwinter on the Texas coast. Whooping cranes in the AWBP annually migrate through North Dakota during their spring and fall migrations. They make numerous stops along their migration route to feed and roost before moving on.

Whooping cranes in the AWBP annually migrate through North Dakota during their spring and fall migrations. The proposed project lies within a 90-mile corridor that includes approximately 75 percent of all reported whooping crane sightings in the State (enclosure 1).

Whooping cranes are unlikely to spend more than a few days in any one spot during migration. The Service suggests that the EA include a requirement that if a whooping crane is sighted within 1 mile of a well site or associated facilities while it is under construction, that all work cease within 1 mile of that part of the project and the Service be contacted immediately. In coordination with the Service, work may resume after the bird(s) leave the area.

Potential habitat for the Dakota skipper exists on the Fort Berthold Reservation in Dunn and McKenzie Counties. In 1995, the Dakota skipper was determined to be a candidate species under the ESA. No legal requirement exists to protect candidate species; however, it is within the spirit of the ESA to consider these species as having significant value and worth protecting.

The Dakota skipper is a small-to-medium sized hesperiine butterfly associated with high quality prairie ranging from wet-mesic tallgrass prairie to dry-mesic mixed grass prairie. The first type of habitat is relatively flat and moist native bluestem prairie. Three species of wildflowers are usually present; wood lily (*Lilium philadelphicum*), harebell (*Campanula rotundifolia*), and smooth camas (*Zygadenus elegans*). The second habitat

type is upland (dry) prairie that is often on ridges and hillsides. Bluestem grasses and needlegrasses dominate these habitats. On this habitat type, three wildflowers are typically present in high-quality sites that are suitable for Dakota skipper: pale purple (*Echinacea pallida*) and upright (*E. angustifolia*) coneflowers and blanketflower (*Gaillardia sp.*). Because of the difficulty of surveying for Dakota skippers and a short survey window, we recommend that the project avoid any impacts to potential Dakota skipper habitat. If Dakota skipper habitat is present near the proposed project, and you intend to take precautions to avoid impacts to skipper habitat, please notify the Service for further direction.

Migratory Birds

The MBTA has no provisions for incidental take. Regardless, it is understood that some birds may be killed even if all reasonable conservation measures are implemented. The Service's Office of Law Enforcement carries out its mission to protect migratory birds through investigations and enforcement, and through fostering relationships with individuals and industries seeking to eliminate their impacts to migratory birds. While it is not possible under the MBTA and BGEPA to absolve individuals or companies from liability by following these guidelines, enforcement will be focused on those individuals or companies that take migratory birds with disregard for the law, and where no legitimate conservation measures have been applied. Please inform us as to whether you intend to follow the following recommendations to minimize impacts to migratory birds, including bald and golden eagles.

Schedule construction for late summer or fall/early winter so as not to disrupt migratory birds or other wildlife during the breeding season (February 1 to July 15). If work is proposed to take place during the breeding season or at any other time which may result in the take of migratory birds, their eggs, or active nests, the Service recommends that the project proponent arrange to have a qualified biologist conduct a field survey of the affected habitats to determine the presence of nesting migratory birds. If nesting migratory birds, their eggs, or active nests are found, we request you contact this office, suspend construction, or take other measures such as maintaining adequate buffers to protect the birds until the young have fledged. The Service further recommends that field surveys for nesting birds, along with information regarding the qualifications of the biologist(s) performing the surveys and any avoidance measures implemented at the project site, be thoroughly documented and that such documentation be shared with the Service and maintained on file by the project proponent.

The Service estimates that 500,000 to 1 million birds are killed nationwide every year from exposed oil at oil drilling and/or production sites. The unauthorized take of migratory birds at oil production facilities can be prevented with a minimum of expense and effort. Wildlife mortalities in North Dakota are most often observed in association with drilling reserve pits, flare pits, and/or drip buckets and barrels. The Service strongly recommends that the pads be constructed as closed-loop systems, without a reserve pit. Regardless of whether the pads are built with reserve pits, we recommend that the BIA include the following measures in the EA so as to ensure compliance with the MBTA.

- **Keep Oil Off Open Pits or Ponds.** Immediate clean up of oil in open pits is critical to prevent wildlife mortalities.
- **Place Covers on Drip Buckets/Barrels Located Under Valves and Spigots.** Bird entrapments are common within the small (55 gallon or less) barrels placed under valves and spigots to collect dripped oil. Placing a wire mesh or grate over the top of these barrels is a very practical way of preventing access for wildlife.
- **Use Effective and Proven Exclusionary Devices.** Netting is the most effective method of keeping birds from entering open pits (reserve and flare pits). Flagging, reflectors, and strobe lights are not effective. Published scientific studies, as well as field inspections by Service personnel, have documented bird mortalities at oil pits with flagging, reflectors, and strobe lights (e.g. Esmoil 1995). The effectiveness of netting pits to exclude birds and other wildlife depends on its installation. Effective installation requires a design allowing for snow-loading and one that also prevents ground entry by small mammals and birds. A maximum mesh size of 1.5 inches will allow for snow-loading and will exclude most birds. Nets or wire mesh over flare pits can be implemented if the flare tube is high enough to keep flame away from the net. Some examples of both effective and ineffective netting techniques can be found on the Service's website at <http://www.fws.gov/mountain%2Dprairie/contaminants/contaminants1c.html>.

Bald and/or golden eagles may use the project area where the proposed wells will be located. Golden eagles inhabit a wide variety of habitat types, including open grassland areas. They are known to nest on cliffs, in trees, manmade structures, and on the ground (Kochert et al. 2002). There are numerous records of golden eagle nests on the Fort Berthold reservation (Pers. Comm. Anne Marguerite Coyle, Dickinson State University). While the bald eagle tends to be more closely associated with forested areas near water (Buehler 2000), they have been found nesting in single trees several miles from the nearest water body. Therefore, there may also be potential habitat for the bald eagle at the proposed project sites. Especially early in the nesting season, eagles can be very sensitive to disturbance near the nest site and may abandon their nest as a result of low disturbance levels, even from foot traffic. A buffer of at least 1/2 mile should be maintained for golden and bald eagle nests. A permit is required for any take of bald or golden eagles or their nests. Permits to take golden eagles or their nests are available only for legitimate emergencies and as part of a program to protect golden eagles.

The Service recommends that aerial raptor surveys be conducted prior to any on-the-ground activities. The Service recommends that an aerial nest survey (preferably by helicopter) be conducted within 1.0 mile of any proposed ground disturbances to identify active and inactive nest sites near the proposed well pad and associated facilities, including proposed new roads. Aerial surveys should be conducted between March 1 and May 15, before leaf-out so that nests are visible.

Aerial surveys should include the following:

1. Due to the ability to hover and facilitate observations of the ground, helicopters are preferred over fixed-wing aircraft, although small aircraft may also be used for the raptor surveys. Whenever possible, two observers should be used to conduct the surveys. Even experienced observers only find approximately 50 percent of nests on a flight (Pers. Comm. Anne Marguerite Coyle, Dickinson State University), so we recommend that two flights be performed prior to any on-the-ground work, including other biological surveys or other work.
2. Observations of raptors and nest sites should be recorded using GPS. The date, location, nest condition, activity status, raptor species, and habitat should be recorded for each sighting.
3. We request that you share the qualifications of the biologist(s) conducting the survey, method of survey, and results of the survey with the Service.

High Value Habitat Avoidance

To minimize disturbance to fish and wildlife habitat in the project area, the Service provides the following recommendations:

- Make no stream channel alterations or changes in drainage patterns.
- Install and maintain appropriate erosion control measures to reduce sediment transport to adjacent wetlands and stream channels.
- Reseed disturbed areas with a mixture of native grass and forb species immediately after construction to reduce erosion.

Cumulative Effects Analysis

A large number of wells and appurtenant facilities are being constructed in the western portion of North Dakota. The Service is concerned that the wells and especially the associated roads are being put in piecemeal, without an overarching plan to ensure that the facilities are being constructed to access all new pads most efficiently, while disturbing the least amount of habitat. While we understand that there is still some level of uncertainty regarding the extent of the oil formations, there has been enough drilling in this area that the Service believes that the uncertainty is relatively small and decreasing. It would be appropriate for the EA to include some cumulative effects analysis of the existing and proposed pads, roads, electrical transmission lines, and preferably pipelines to transport the products.

Habitat Fragmentation

Prairie habitat is increasingly being lost or fragmented because of the large number of wells and associated roads that are being constructed in areas of the state that were formerly relatively undeveloped. Only about 30 percent of native prairie in North Dakota remains from pre-settlement times (Strong et al. 2005), with nearly all native tallgrass prairie converted nationwide (Ricketts et al. 1999). Oil pads, associated roadways and vehicle traffic can cause fragmentation of the landscape, disrupting wildlife patterns and making it more likely that non-native plant species may invade an area. The Service recommends placing as few well pads as possible on the landscape and locating pads so as to avoid or minimize the construction of new roads. Many prairie species require large, contiguous blocks of grasslands for their biological needs and may either avoid patchy habitat or experience reduced reproductive success.

- The Service recommends that impacts to native prairie be avoided or minimized. If native prairie cannot be avoided, the Service recommends outlining stringent reclamation requirements, including a bond sufficient to cover the cost of reclamation, as described in the “Post-production Phase – Reclamation” section below.
- The Service recommends that oil wells use existing roads and trails to the greatest extent possible, minimizing all new road construction.
- If a new road is necessary, the Service recommends avoiding native prairie to the greatest extent possible.
- If new roads are constructed, the Service recommends that the disturbed areas along the road be reseeded immediately with a native prairie mix to reduce erosion and prevent invasion by non-native species. Disturbed areas should be monitored regularly throughout the life of the project, and treated with herbicide as necessary to ensure that exotic species are not infesting disturbed areas.
- If multiple companies are developing well pads in the same general area, roads should be shared to the greatest extent possible to minimize disturbance.
- Install and maintain appropriate erosion control measures to reduce sedimentation and water quality degradation of wetlands and streams near the project area.

The Service recommends that the BIA incorporate the relevant requirements described in the Dakota Prairie Grasslands Land and Resource Management Plan (USDA 2001). This document includes a number of requirements to avoid sensitive resources. In particular, the Service suggests that the BIA incorporate the relevant portions of Appendix D, Oil and Gas Stipulations.

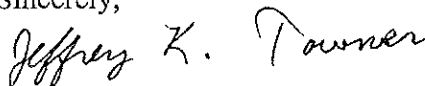
Post-production Phase – Reclamation

Each project should include a plan to restore the landscape following project completion, including a bond sufficient to reclaim the area in full. Within 1 year of a well's closure, the well pads, roads, and associated facilities should be completely removed from the landscape, the land recontoured back to its original profile, and the area reseeded with a native prairie mix. Since native prairie species take some time to establish, and intensive management may be required for several years to ensure that weeds do not infest the area, the Service recommends that the BIA follow the timeline requirements set out in the 2003 *North Dakota Public Service Commission, Standards for evaluation of revegetation success and recommended procedures for pre-and postmining vegetation assessments* (available on-line at <http://www.psc.state.nd.us/jurisdiction/reclamation/files/revegdocusjuly2003final.pdf>). This document requires that reclaimed areas be managed for a minimum of 10 years, starting in the year when first seeded. Starting in the 6th year, for at least 2 consecutive years, or three out of the last five, including the last year, the reclaimed area must meet the approved standard as described in the document.

For prairie areas, the Service recommends planting a diverse mixture of native cool and warm season grasses and forbs. While the North Dakota Public Service Commission document requires only five native grass species, recent research has suggested that a more diverse mix, including numerous forb species, is not only ecologically beneficial, but is also more weed resistant, allowing for less intensive management and chemical use. In essence, the more species included in a mixture, the higher the probability of providing competition to resist invasion by non-native plants. The seed source should be as local as possible, preferably collected from the nearby native prairie.

Thank you for the opportunity to comment on this project. If you require further information or the project plans change, please contact me or Carol Aron of my staff at (701) 250-4481 or at the letterhead address.

Sincerely,



Jeffrey K. Towner
Field Supervisor
North Dakota Field Office

Enclosures

cc: Bureau of Indian Affairs, Aberdeen, SD
(Attn: Marilyn Bercier)
Bureau of Land Management, Dickinson, ND
ND Game and Fish Department, Bismarck, ND

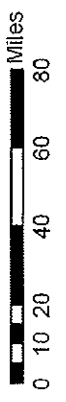
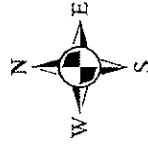
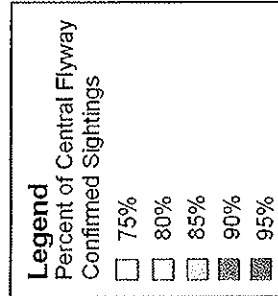
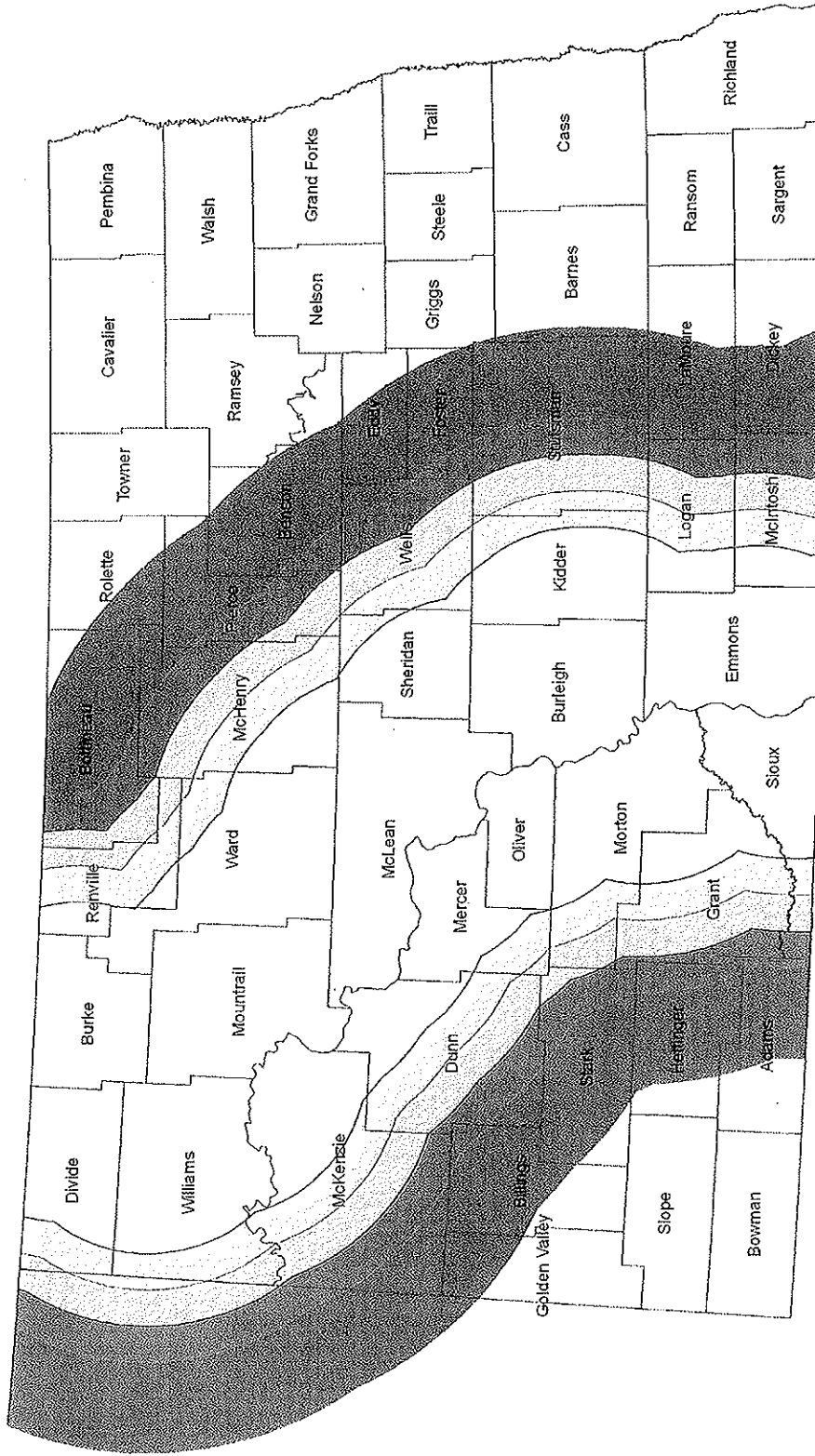
Literature Cited:

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- Kochert, M.N., K. Steenhof, C.L. McIntyre and E.H. Craig. 2002. Golden Eagle (*Aquila chrysaetos*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology. Accessed October 13, 2009. Available online at: <http://bna.birds.cornell.edu/bna/species/684>.
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- Strong, L.L, T.H. Sklebar, and K.E. Kermes. 2005. *The North Dakota Gap Analysis Project -- Final Report*. U.S. Geological Survey. 451 pages. Available online at http://www.npwrc.usgs.gov/projects/ndgap/NDGAP_FinalReport_complete.pdf.
- USDA. 2001. *Land and resource management plan for the Dakota Prairie Grasslands Northern Region*. Accessed October 13, 2009. Available at http://www.fs.fed.us/ngp/plan/feis_plan_dakota_prairie.htm.



U.S. Fish and Wildlife Service

**North Dakota and Montana Whooping Crane Migration Corridor
Central Flyway of the United States**



Produced for Ecological Services
Grand Island, NE
Current to: 2007

FEDERAL THREATENED, ENDANGERED, AND CANDIDATE SPECIES
AND DESIGNATED CRITICAL HABITAT FOUND IN
MOUNTRAIL COUNTY, NORTH DAKOTA

ENDANGERED SPECIES

Birds

Interior least tern (*Sterna antillarum*): Nests along midstream sandbars of the Missouri and Yellowstone Rivers.

Whooping crane (*Grus Americana*): Migrates through North Dakota counties during spring and fall. Prefers to roost on wetlands and stockdams with good visibility. Current flock size of the Aransas - Wood Buffalo migratory population is estimated to be 266 birds.

Fish

Pallid sturgeon (*Scaphirhynchus albus*): Known only from the Missouri and Yellowstone Rivers. No reproduction has been documented in 15 years.

Mammals

Gray wolf (*Canis lupus*): Occasional visitor in North Dakota. Most frequently observed in the Turtle Mountains area.

THREATENED SPECIES

Birds

Piping plover (*Charadrius melodus*): Nests on midstream sandbars of the Missouri and Yellowstone Rivers and along shorelines of saline wetlands. More nest in North Dakota than any other state.

CANDIDATE SPECIES

Invertebrates

Dakota skipper (Hesperia dacotae): Found in native prairie containing a high diversity of wildflowers and grasses. Habitat includes two prairie types: 1) low (wet) prairie dominated by bluestem grasses, wood lily, harebell, and smooth camas; 2) upland (dry) prairie on ridges and hillsides dominated by bluestem grasses, needlegrass, pale purple and upright coneflowers and blanketflower.

DESIGNATED CRITICAL HABITAT

Birds

Piping Plover - Lake Sakakawea and Oahe - Critical habitat includes sparsely vegetated shoreline beaches, peninsulas, islands composed of sand, gravel, or shale, and their interface with the water bodies.



"VARIETY IN HUNTING AND FISHING"

NORTH DAKOTA GAME AND FISH DEPARTMENT

100 NORTH BISMARCK EXPRESSWAY BISMARCK, NORTH DAKOTA 58501-5095 PHONE 701-328-6300 FAX 701-328-6352

October 27, 2009

Shanna Braun
Environmental Planner
Kadmas, Lee & Jackson, Inc.
PO Box 96
Moorhead, MN 56561-0096

Dear Ms. Braun:

RE: Elk – USA #11-17H in Section 17, T150N, R92W
Everett Fisher – USA #41-6H in Section 6, T150N, R93W
Galen Fox – USA #24-7H in Section 7, T150N, R92W
Danks – USA #11-3H in Section 3, T151N, R94W
Crow Flies High – USA #31-4H in Section 4, T151N, R94W
TAT – USA #24-22H in Section 22, T151N, R94W
Deane – USA #34-23H in Section 23, T151N, R94W

Marathon Oil Company has proposed up to seven exploratory oil and gas wells on the Fort Berthold Reservation in Mountrail County. The well sites have been positioned to utilize existing roadways for access to the extent possible.

Our primary concern with oil and gas development is the fragmentation and loss of wildlife habitat associated with construction of the well pads and access roads. We recommend that construction be avoided to the extent possible within native prairie, wooded draws, riparian corridors, and wetland areas.

We also suggest that botanical surveys be completed during the appropriate season and aerial surveys be conducted for raptor nests before construction begins.

Sincerely,

A handwritten signature in cursive script that reads "Steve Ryba".

(for) Michael G. McKenna
Chief
Conservation & Communication Division

js



John Hoeven, Governor
Douglass A. Prchal, Director

1600 East Century Avenue, Suite 3
Bismarck, ND 58503-0649
Phone 701-328-5357
Fax 701-328-5363
E-mail parkrec@nd.gov
www.parkrec.nd.gov

October 26, 2009

Shanna Braun
Kadrmas, Lee & Jackson
PO Box 96
Moorhead, MN 56561-0096

Re: Up to Three Proposed Oil and Gas Exploratory Wells

Dear Ms. Braun:

The North Dakota Parks and Recreation Department (NDPRD) has reviewed the above referenced project proposal to drill up to three oil and gas wells located in Sections 7 and 17, T150N, R92W; and Section 6, T150N, R93W, Mountrail County.

Our agency scope of authority and expertise covers recreation and biological resources (in particular rare species and ecological communities). The project as defined does not affect state park lands that we manage or Land and Water Conservation Fund recreation projects that we coordinate.

The North Dakota Natural Heritage biological conservation database has been reviewed to determine if any current or historical plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, we do have records for the occurrence of *Stipa comata* – *Bouteloua gracilis*/*Carex filifolia* prairie (needle-and-thread mixed grass prairie) and *Pascopyrum smithii* – *Nasella* (*Stipa*) *viridula* prairie (needlegrass-wheatgrass prairie) in sections adjacent to the project area indicating that the habitat in the project area may be suited for these communities or other rare, threatened, sensitive or endangered species. Please see the attached spreadsheet and map for more information on these occurrences.

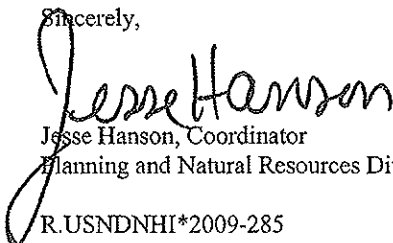
Because this information is not based on a comprehensive inventory, there may be species of concern or otherwise significant ecological communities in the area that are not represented in the database. The lack of data for any project area cannot be construed to mean that no significant features are present. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources.

Regarding any reclamation efforts, we recommend that any impacted areas be revegetated with species native to the project area.

It is our policy to charge out-of-state requests for data services including data retrieval, data analysis, manual and computer searches, packaging and collection of data. An invoice for services provided has been enclosed.

Thank you for the opportunity to comment on this project. Please contact Kathy Duttenehner (701-328-5370 or kgduttenehner@nd.gov) of our staff if additional information is needed.

Sincerely,


Jesse Hanson, Coordinator
Planning and Natural Resources Division
R.USNDNHI*2009-285

.....
Play in our backyard!

ND Parks and Recreation Department

ND Natural Heritage Inventory
 1600 East Century Ave., Suite 3
 Bismarck, ND 58503-0649
 (701) 328-5370 FAX: (701) 328-5363

INVOICE NO: 0101
 DATE: 10/26/2009

To: Shanna Braun
 Kadrmas, Lee & Jackson
 PO Box 96
 Moorhead, MN 58561-0096

CONTACT	REFERENCE NO.	DATE SHIPPED	SHIPPED VIA	F.O.B. POINT	TERMS
K.Duttenhefner	R.USNDNHI*2009 -285	10/28/2009			

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
1	Computer data search, data retrieval, spreadsheet and map creation.	\$ 60.00	\$ 60.00
SUBTOTAL			\$ 60.00
SALES TAX			
SHIPPING & HANDLING			
TOTAL DUE			\$ 60.00

Make all checks payable to: ND Parks and Recreation Department
 If you have any questions concerning this invoice, call: Kathy Duttenhefner, (701) 328-5370

THANK YOU FOR YOUR INTEREST IN RARE SPECIES CONSERVATION.

Entry Event	Fund	Dept.	Project	Activity
463021	398	1508	OR15082	15082

North Dakota Natural Heritage Inventory
 Rare Animal and Plant Species and Significant Ecological Communities

State Scientific Name	State Common Name	State Rank	Global Rank	Federal Status	Township Range Section	County	Last Observation	Estimated Representation Accuracy	Precision
<i>Stipa comata</i> - <i>bouteloua gracilis</i> / <i>carex filifolia</i> prairie	Needle-and-thread Mixed Grass Prairie	S2	GNR		150N093W - 12; 150N092W - 06; 151N092W - 31; 150N093W - 11; 150N092W - 05; 150N093W - 13; 150N092W - 08; 151N093W - 36; 150N093W - 01; 150N092W - 07; 150N093W - 02; 150N093W - 14; 150N092W - 18	Mountrail	1967		M
<i>Pascopyrum smithii</i> - <i>nasella (stipa) viridula</i> prairie	Needlegrass-wheatgrass Prairie	S2	GNR		150N092W - 18; 150N092W - 07; 150N092W - 16; 150N093W - 13; 150N093W - 12; 150N093W - 24; 150N092W - 20; 150N092W - 19; 150N092W - 17; 150N092W - 08	Mountrail	1967		M

North Dakota Natural Heritage Inventory Biological and Conservation Data Disclaimer

The quantity and quality of data collected by the North Dakota Natural Heritage Inventory are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in North Dakota have never been thoroughly surveyed, and new species are still being discovered. For these reasons, the Natural Heritage Inventory cannot provide a definite statement on the presence, absence, or condition of biological elements in any part of North Dakota. Natural Heritage data summarize the existing information known at the time of the request. Our data are continually upgraded and information is continually being added to the database. This data should never be regarded as final statements on the elements or areas that are being considered, nor should they be substituted for on-site surveys.

Estimated Representation Accuracy

Value that indicates the approximate percentage of the Element Occurrence Representation (EO Rep) that was observed by the species or community (versus buffer area added for locational uncertainty). Use of estimated representation accuracy provides a common index for the consistent comparison of EO reps, thus helping to ensure that aggregated data are correctly analyzed and interpreted.

Very high (>95%)

High (>80%, <= 95%)

Medium (>20%, <= 80%)

Low (>0%, <= 20%)

Unknown

(null) - Not assessed

Precision

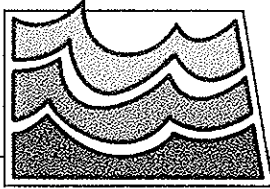
A single-letter code for the precision used to map the Element Occurrence (EO) on a U.S. Geological Survey (USGS) 7.5' (or 15') topographic quadrangle map, based on the previous Heritage methodology in which EOs were located on paper maps using dots.

S - Seconds: accuracy of locality mappable within a three-second radius; 100 meters from the centerpoint

M - Minute: accuracy of locality mappable within a one-minute radius; 2 km from the centerpoint

G - General: accuracy of locality mappable to map or place name precision only; 8 km from centerpoint

U - Unmappable



North Dakota State Water Commission

900 EAST BOULEVARD AVENUE, DEPT 770 • BISMARCK, NORTH DAKOTA 58505-0850
701-328-2750 • TDD 701-328-2750 • FAX 701-328-3696 • INTERNET: <http://swc.nd.gov>

November 24, 2009

Shanna Braun
Kadrmass, Lee & Jackson
PO Box 96
Moorhead, MN 56561-0096

Dear Ms. Braun:

This is in response to your request for review of environmental impacts associated with up to Three Proposed Oil and Gas Exploratory Wells, Fort Berthold Reservation, Mountrail County, ND.

The proposed project have been reviewed by State Water Commission staff and the following comments are provided:

- The property is not located in an identified floodplain and it is believed the project will not affect an identified floodplain.
- All waste material associated with the project must be disposed of properly and not placed in identified floodway areas.
- No sole-source aquifers have been designated in ND.

There are no other concerns associated with this project that affect State Water Commission or State Engineer regulatory responsibilities.

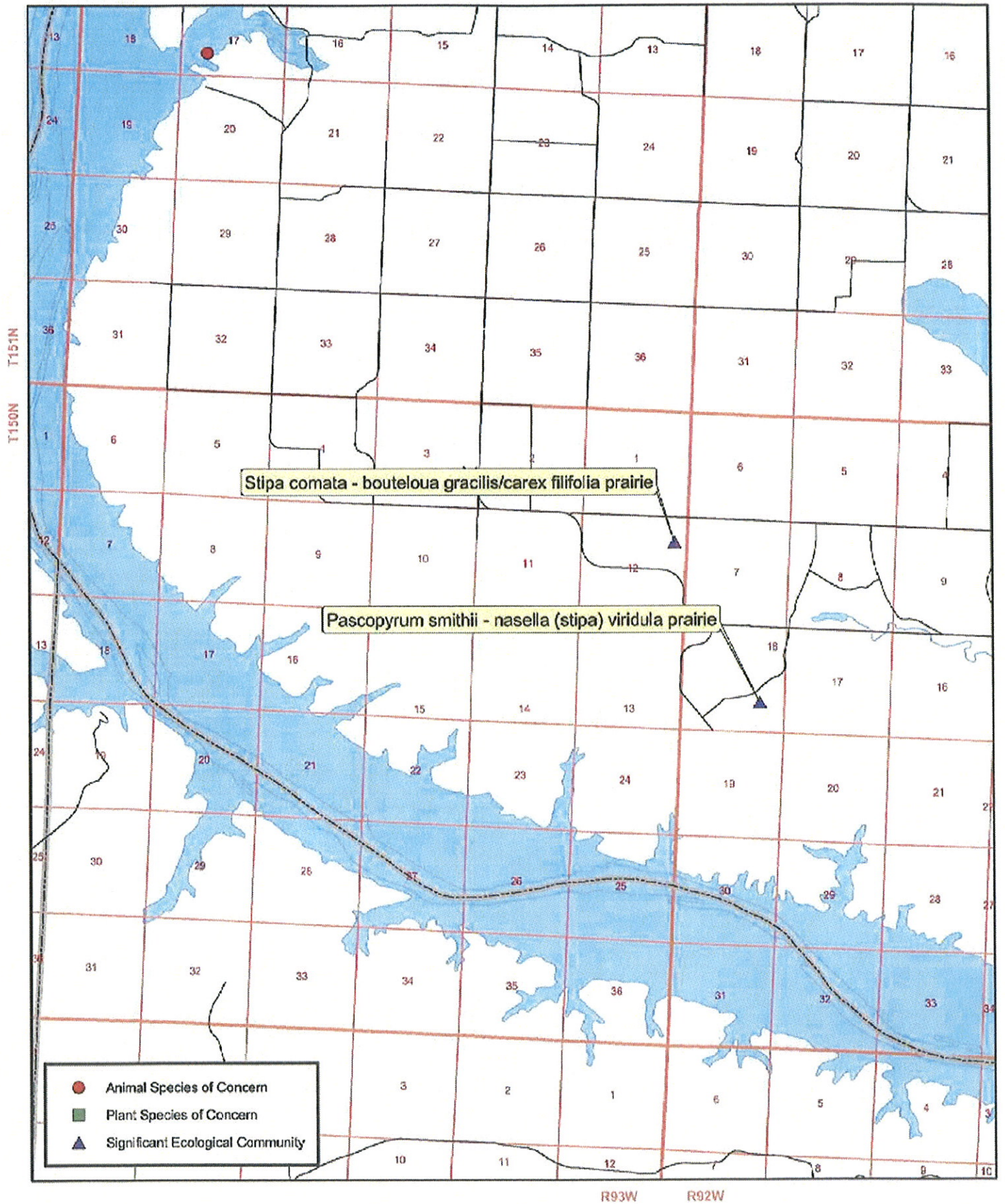
Thank you for the opportunity to provide review comments. If you have any questions, please call me at 328-4969.

Sincerely,

Larry Knudtson
Research Analyst

LJK:ds/1570

North Dakota Natural Heritage Inventory Species of Concern and Significant Ecological Communities



GREG BOSCHEE
Commissioner 1st District
(701) 862-3670

ARLO BORUD
Commissioner 2nd District
(701) 628-3287

DAVID J. HYNEK
Commissioner 3rd District
(701) 755-3372

Mountrail County Commissioners

Mountrail County Courthouse
101 North Main Street - Box 69
Stanley, North Dakota 58784-0069
Tel. (701) 628-2145 Fax (701) 628-2276

October 27, 2009

Shanna Braun
Kadrmas, Lee & Jackson Inc
PO Box 96
Moorhead, MN 56561-0096

**RE: OIL & GAS EXPLORATORY WELLS
FORT BERTHOLD RESERVATION, MOUNTRAIL COUNTY, ND
ELK - USA #11-17H; FISHER - USA #41-6H; FOX - USA #24-7H**

Dear Ms. Braun:

We are writing to make comment on the above proposed oil and gas exploratory wells to be located in Unorganized Township 150-92 and 150-93 on the Fort Berthold Indian Reservation in Mountrail County. We have very strong concerns and are certain that the road referred to as the New Town Loop Road will not stand up to heavy oil traffic. We are requesting all paved roads that will be utilized by the oil industry to these sites be inspected prior to drilling. By doing so, Mountrail County would be able to determine damages to assess to oil related companies using the pavement to travel to these proposed sites.

Please keep us informed of project development.

Sincerely,


David J. Hynek, Chairman


Arlo Borud


Greg Boschee

BOARD OF MOUNTRAIL COUNTY COMMISSIONERS