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 2 1 2010

MEMORANDUM

TO: Superintendent, Fort Berthold Agency

FROM: ACTING Regional Director, Great Plains Region

SUBJECT: Environmental Assessment and Finding of No Significant Impact

In compliance with the regulations of the National Environmental Policy Act (NEPA) of 1969, as amended, for three proposed exploratory drilling wells by Zenergy Operating Company, LLC on *Dakota-3 Adam Good Bear #15-22H, Dakota-3 Mandan #13-14H, Dakota-3 Skunk Creek #1-12H* 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 requires that there be a public notice of availability of the FONSI (1506.6(b)). Please post the attached notice of availability at the agency and tribal buildings for 30 days.

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

Attachment

cc: Marcus Levings, Chairman, Three Affiliated Tribes (with attachment)
Perry "No Tears" Brady, THPO (with attachment)
Roy Swalling, BLM, Dickenson, ND (with attachment)
John Shelman, US Army Corps of Engineers

Finding of No Significant Impact
Zenergy Operating Company , LLC

Three Bakken Exploratory Oil Wells:
D-3 Adam Good Bear #15-22H
D-3 Mandan #13-14H
D-3 Skunk Creek #1-12H
Fort Berthold Indian Reservation
Dunn &Mountrail County, North Dakota

The U.S. Bureau of Indian Affairs (BIA) has received a proposal for three oil/gas wells, access roads and related infrastructure on the Fort Berthold Indian Reservation to be located in Section 15, T150N, R92W, Section 13, T150N, R92W and Section 1, T148N, R93W. Associated federal actions by BIA include determinations of effect regarding cultural resources, approvals of leases, rights-of-way and easements, and a positive recommendation to the Bureau of Land Management regarding the Applications for Permit to Drill.

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

This determination is based on the following factors:

1. Agency and public involvement was solicited and environmental issues related to the proposal were identified.

2. Protective and prudent measures were designed to minimize impacts to air, water, soil, vegetation, wetlands, wildlife, public safety, water resources, and cultural resources. The remaining potential for impacts was disclosed for both the proposed action and the No Action alternative.

3. Guidance from the U.S. Fish and Wildlife Service has been fully considered regarding wildlife impacts, particularly in regard to threatened or endangered species.

4. The proposed actions are designed to avoid adverse effects to historic, archaeological, cultural and traditional properties, sites and practices. Compliance with the procedures of the National Historic Preservation Act is complete.

5. Environmental justice was fully considered.

6. Cumulative effects to the environment are either mitigated or minimal.

7. No regulatory requirements have been waived or require compensatory mitigation measures.

8. The proposed projects will improve the socio-economic condition of the affected Indian community.

Regional Director

1/21/10
Date

Environmental Assessment

D-3 Adam Good Bear #15-22H
D-3 Mandan #13-14H
D-3 Skunk Creek #1-12H

Prepared for:

ZENERGY
Exploring for Tomorrow's Energy Today

Zenergy Operating Company, LLC

January 2010

McCain and Associates, Inc.
2718 Gateway Avenue
Suite 101
Bismarck, ND 58501

Environmental Assessment

D-3 Adam Good Bear #15-22H
D-3 Mandan #13-14H
D-3 Skunk Creek #1-12H

Zenergy Operating Company, LLC

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APPENDICES

1.0 Purpose and Need for the Proposed Action

Zenergy Operating Company, LLC (Zenergy) is proposing to drill three horizontal oil/gas wells on the Fort Berthold Indian Reservation to evaluate and potentially develop the commercial potential of natural resources. The U.S. Bureau of Indian Affairs (BIA) is the surface management agency for potentially affected tribal lands and individual allotments. The BIA also holds title to subsurface mineral rights. Developments are proposed on lands held in trust by the United States in Dunn and Mountrail Counties, North Dakota (Figure 1). The proposed well sites are:

- D-3 Adam Good Bear #15-22H
- D-3 Mandan #13-14H
- D-3 Skunk Creek #1-12H

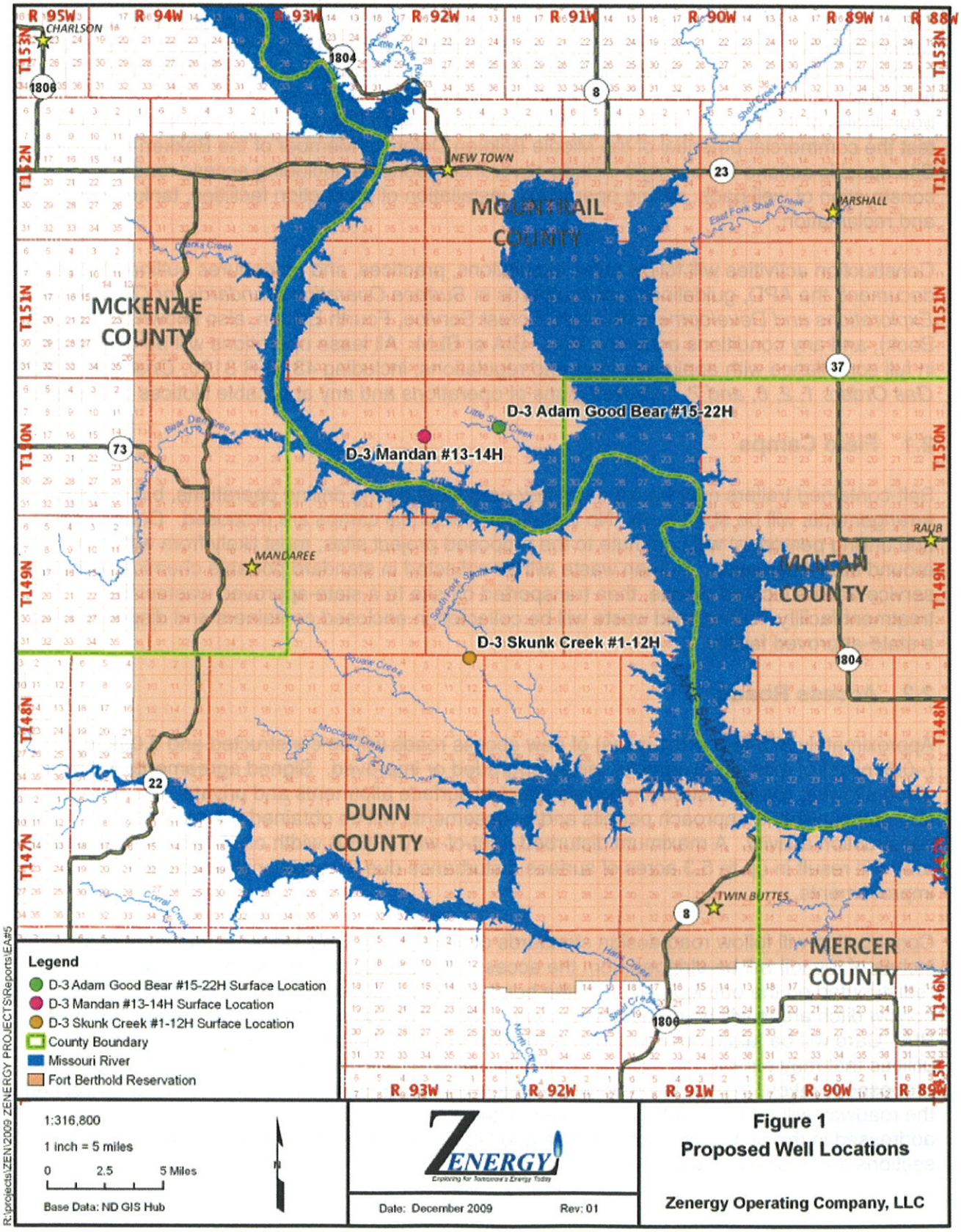
The economic development of available resources and associated BIA actions are consistent with BIA's general mission. Leasing and development of mineral resources offers substantial economic benefits to both the Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nations and to individual tribal members. Oil and gas exploration and development activities are conducted under authority of the Indian Mineral Leasing Act of 1938 (25 USC 396a, *et seq.*), the Indian Mineral Development Act of 1982 (25 USC 2101, *et seq.*), the Federal Onshore Oil and Gas Royalty Management Act of 1982 (30 USC 1701, *et seq.*), and the Energy Policy Act of 2005 (42 USC 15801, *et seq.*). BIA actions in connection with the proposed project are largely administrative and include approval of leases, easements and rights-of-way, determinations regarding cultural resource effects and recommendations to the Bureau of Land Management (BLM) regarding approval of Applications for Permit to Drill (APDs).

These proposed federal actions require compliance with the *National Environmental Policy Act* of 1969 (NEPA) and regulations of the Council on Environmental Quality (CEQ, 40 CFR 1500-1508). Analysis of the proposal's potential to affect the human environment is expected to both improve and explain federal decision-making. An APD submitted by Zenergy included in Section 6 of this document, describes developmental, operation, and reclamation procedures and practices that contribute to the technical basis of this Environmental Assessment (EA). The procedures and practices described in the application are critical elements in both the project proposal and the BIA's decision regarding environmental impacts. This EA will result in either a Finding of No Significant Impact (FONSI) or a decision to prepare an Environmental Impact Statement (EIS).

There are several components to each of the proposed actions. Both new and improved roads are needed to access proposed well sites. Well pads will be constructed to accommodate drilling operations. Pits for drilled cuttings will be constructed, used, and reclaimed. Drilling and completion information can result in long-term commercial production at some or both of the sites, in which case supporting facilities will be installed. The working portions of well pads and the access road will remain in place during commercial production. All project components will eventually be abandoned and reclaimed, as specified in this document and the APD and according to any other federal conditions, unless formally transferred with federal approval to either the BIA or the landowner. The proposed wells are exploratory, in that results can also support developmental decisions on other leases in the surrounding area, but this EA addresses only the installation and possible long-term operation of the listed wells and directly associated infrastructure and facilities. Additional NEPA analysis, decisions, and federal actions will be required prior to any other developments.

Any authorized project will comply with all applicable federal, state, and tribal laws, rules, policies, regulations, and agreements. No construction, drilling, or other ground-disturbing operations will begin until all necessary leases, easements, surveys, clearances, consultations, permissions, determinations, and permits are in place.

Figure 1. Proposed Well Locations



2.0 Proposed Action and Alternatives

The **No Action Alternative** must be considered within an EA. If this alternative is selected, BIA will not approve leases, rights-of-way, or other administrative proposals for one or more of the proposed projects. This document analyzes the potential impacts of specific proposed projects, two exploratory oil/gas wells on mixed surface ownership and mineral estate within the boundaries of the Fort Berthold Indian Reservation in North Dakota. The proposed wells will test the commercial potential of the Middle Bakken Dolomite Member of the Bakken Formation. Site-specific actions will or might include several components, including access roads, construction of well pads, drilling operations, installation of production facilities, tanker traffic, and reclamation.

Construction activities will follow lease stipulations, practices, and procedures outlined in this document, the APD, guidelines and standards in *Surface Operating Standards for Oil and Gas Explorations and Development* (BLM/US Forest Service, Fourth Edition, also known as the Gold Book), and any conditions added by either BIA or BLM. All lease operations will be conducted in full compliance with applicable laws and regulations, including 43 CFR 3100, *Onshore Oil and Gas Orders 1, 2, 6, and 7,* approved plans of operations and any applicable Notices to Lessees.

2.1 Field Camps

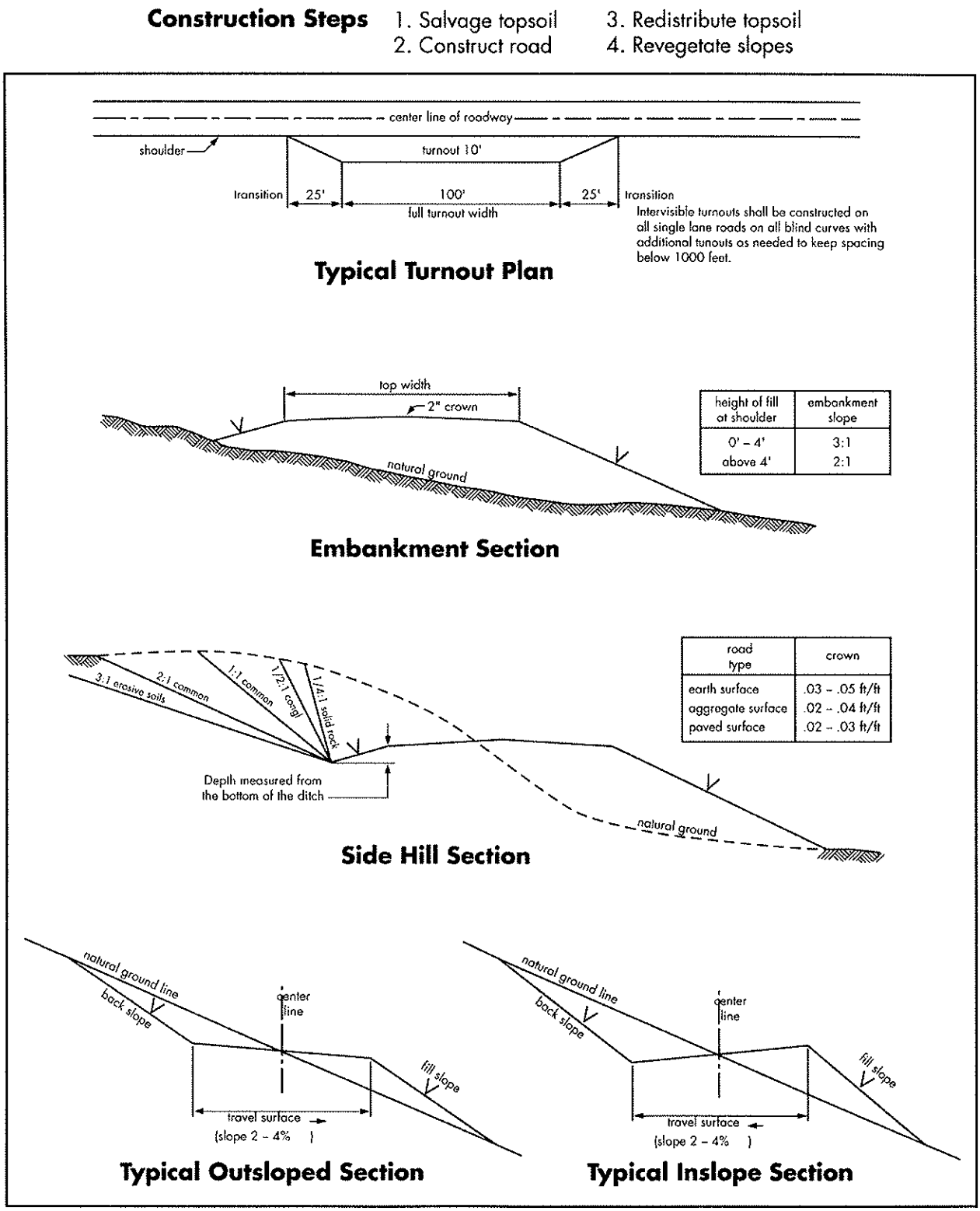
Self-contained trailers may house a few key personnel during drilling operations, but any such arrangements will be short-term. No long-term residential camps are proposed. Construction and drilling personnel will commute to the proposed project sites, most likely from within or around the Reservation. Human waste will be collected in standard portable chemical toilets or service trailers located on-site, then transported off-site to a state-approved wastewater treatment facility. Other solid waste will be collected in enclosed containers and disposed of at a state-approved facility.

2.2 Access Roads

Approximately 375 feet (<0.1 miles) of new access roads will be constructed and 3,092 feet (~0.6 miles) of existing two-tracks will be upgraded or improved. Signed agreements will be in place allowing road construction across affected surface allotments and private land surfaces, and any applicable approach permits and/or easements will be obtained prior to any construction activity. A maximum disturbed right-of-way (ROW) width of 66 feet for each access road will result in up to 5.3 acres of surface disturbance due to road construction or improvements.

Construction will follow road design standards outlined in the Gold Book. A minimum of six inches of topsoil will be stripped from the access road corridors, with the stockpiled topsoil redistributed on the outslope areas of the borrow ditches following road construction. These borrow ditch areas will be reseeded as soon as practical with a seed mixture determined by the BIA. Care will be taken during road construction to avoid disturbing or disrupting any buried utilities that may exist along existing roads. If commercial production is established from a proposed location, the access road will be graveled with a minimum of four inches of gravel and the roadway will remain in place for the life of the well(s). Details of road construction are addressed in the Multi-Point Surface Use and Operations Plan in the APD. Typical cross-sections are shown in Figure 2.

Figure 2. Typical roadway cross section (Gold Book)



2.3 Well Pads

The proposed well pad(s) will consist mainly of an area leveled for the drilling rig and related equipment, and a pit excavated for drilling fluids, drilled cuttings, and fluids produced during drilling activities. Well pad areas will be cleared of vegetation, stripped of topsoil, and graded to the specifications in the approved APD. Topsoil will be stockpiled and stabilized until disturbed areas are reclaimed and re-vegetated. Excavated subsoils will be used in well pad construction, with the finished well pads graded to ensure positive water drainage away from the drill site. Erosion control will be maintained through prompt re-vegetation and by constructing all necessary surface water drainage control, including berms, diversion ditches, and waterbars.

The level area of the well pads used for drilling and completion operations (including a reserve pit for drilled cuttings) typically is 430 feet long by 330 feet wide (3.3 acres per well pad). Cut and fill slopes and stockpiled topsoil and reserve pit backfill on the edge of pads will disturb another 0.9 acres for an average of 4.2 acres of surface disturbance for each well pad or approximately 12.6 total acres. Details of pad construction and reclamation are diagrammed in the APD for each site.

2.4 Drilling

After securing mineral leases, Zenergy submitted APDs to the BLM for the proposed wells. The BLM North Dakota Field Office forwarded the APDs to the BIA's Fort Berthold Agency in New Town, North Dakota, for review and concurrence. BLM will not approve an APD until BIA completes its NEPA process and recommends APD approval. No construction or drilling will begin until an approved permit has been obtained from the BLM.

Rig transport and on-site assembly will take about seven days. A rotary drill rig will require approximately 35 days to reach target depths. A typical drilling rig is shown in Figure 3. For approximately the upper 2,500 feet of the drilled hole, a fresh-water based mud system with non-hazardous additives such as bentonite will be used to minimize contaminant concerns. Water will be obtained from a commercial source for this drilling state, using nearly 8.4 gallons of water per foot of hole drilled.

Following the setting and cementing of the near-surface casing, an oil-based mud system will be used to drill to the production casing point for the proposed wells. The oil-based mud system consists of a diesel fuel (80-85%) and water (15-20%) mixture. The oil-based drilling fluids reduce the potential for hole sloughing while drilling through shale formations. Approximately 4,725 gallons of water and 18,900 gallons of diesel fuel per well will be used during the vertical drilling for each well. The lateral reach each well hole will be drilled using on average approximately 33,600 gallons of fresh water.

Cuttings generated from drilling will be deposited in the reserve pit on each individual well pad. Reserve pits will be lined with an impervious (plastic/vinyl) liner to prevent drilling fluid seepage and contamination of the underlying soil. Liners will be installed over sufficient bedding (either straw or dirt) to cover any rocks, will overlap the pit walls, extend under the mud tanks, and will be covered with dirt and/or rocks to hold it in place. Prior to use, the entire location will be fenced completely with a cattle guard at the access road location, in order to protect both wildlife and livestock. Fencing will be installed in accordance with Gold Book guidelines and maintained until the reserve pits are backfilled.

Figure 3. Typical drill rig (McCain and Associates, Inc.)

2.5 Casing and Cementing

Surface casing will be set to approximately 2,500 feet and cemented back to the surface during drilling, isolating all near-surface aquifers in the project area. The Fox Hills Formation will be encountered at approximately 1,700 feet and the Pierre Formation at about 1,800 feet. A production casing cemented from approximately 11,256 feet up to about 4,000 feet will isolate potential hydrocarbon zones in the Dakota Formation that occur below 4,500 feet. The production horizontal section will be uncased. Casing and cementing operations will be conducted in full compliance with *Onshore Oil and Gas Orders 2* (Title 43 CFR 3160).

2.6 Completion and Evaluation

A work-over unit will be moved onto the well site following the completion of the drilling rig. Approximately 30 days are usually needed to clean out the well bore, pressure test the casing, perforate and fracture the horizontal portion of the hole, and run production tubing for commercial production. A mixture of sand and a carrier (water and/or nitrogen) may be pumped into the well bore under extreme pressure to fracture the target formation. The sand particles will stabilize the fractures, increase the capture zone and maximize the field drainage. The fracture fluids will be recovered by flowing the well back to the surface. Pits or tanks will be used to collect fluids for disposal. Disposal will be conducted in accordance to NDIC rules and regulations.

2.7 Commercial Production

If drilling, testing, and production support commercial production from any of the proposed locations, additional equipment will be installed including a pumping unit at the well head, a vertical heater/treater, storage tanks (usually four 400-barrel steel tanks), and a flare/production

pit. An impervious dike (that can contain 100% capacity of the largest holding tank and a single day's production) will be placed around the production tanks and heater/treater. Load out lines will be located inside the diked area. A screened drip barrel will be installed under the outlet. A metal access staircase will provide access to the inside of the dike area, protect the dike, and may provide support to tanker truck hoses. The BIA will choose an inconspicuous paint color for all permanent aboveground production facilities from colors recommended either by the BLM or by the Rocky Mountain Five-State Interagency committee. A typical producing unit is shown in Figure 4 and more detail is included in the APD.

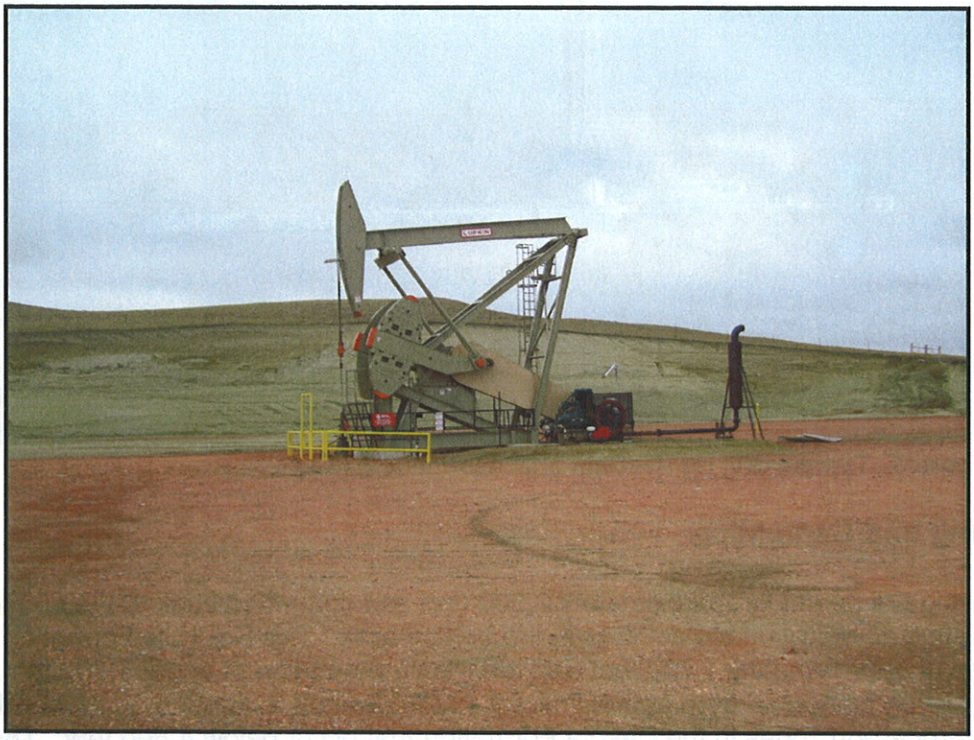


Figure 4. Typical producing unit (McCain and Associates, Inc.)

Oil will be collected in tanks installed in on location and periodically trucked to an existing oil terminal for sales. Produced water will be collected and contained in tanks and will be removed for periodic disposal at an approved disposal site. Production volumes of oil and water will dictate trucking frequency.

The duration of production operations cannot be reliably predicted, but some oil wells have pumped for more than 100 years. Initial estimation of daily production will be approximately 500 barrels of oil and 100 barrels of water. The production is anticipated to decrease after three months to approximately 200 barrels of oil and 50 barrels of water per day. The produced water is primarily comprised of fracture fluids and should decrease over time.

Ancillary developments, such as right-of-way for oil and water pipelines and a powerline may be applied for in the future by the well site operator. This EA does not address any impacts that will be caused by these ancillary developments.

Large volumes of natural gas are not expected from these locations. Small volumes will be flared in accordance with Notice to Lessees (NTL) 4A and adopted NDIC regulations, which prohibit unrestricted flaring for more than the initial year of operation (NDCC 28-08-06.4).

Results could also encourage additional exploration. Should future oil/gas exploration activities be proposed wholly or partly on trust land, those proposals and associated federal actions would require additional site-specific NEPA analysis and BIA consideration prior to implementation.

2.8 Construction Details at Individual Sites

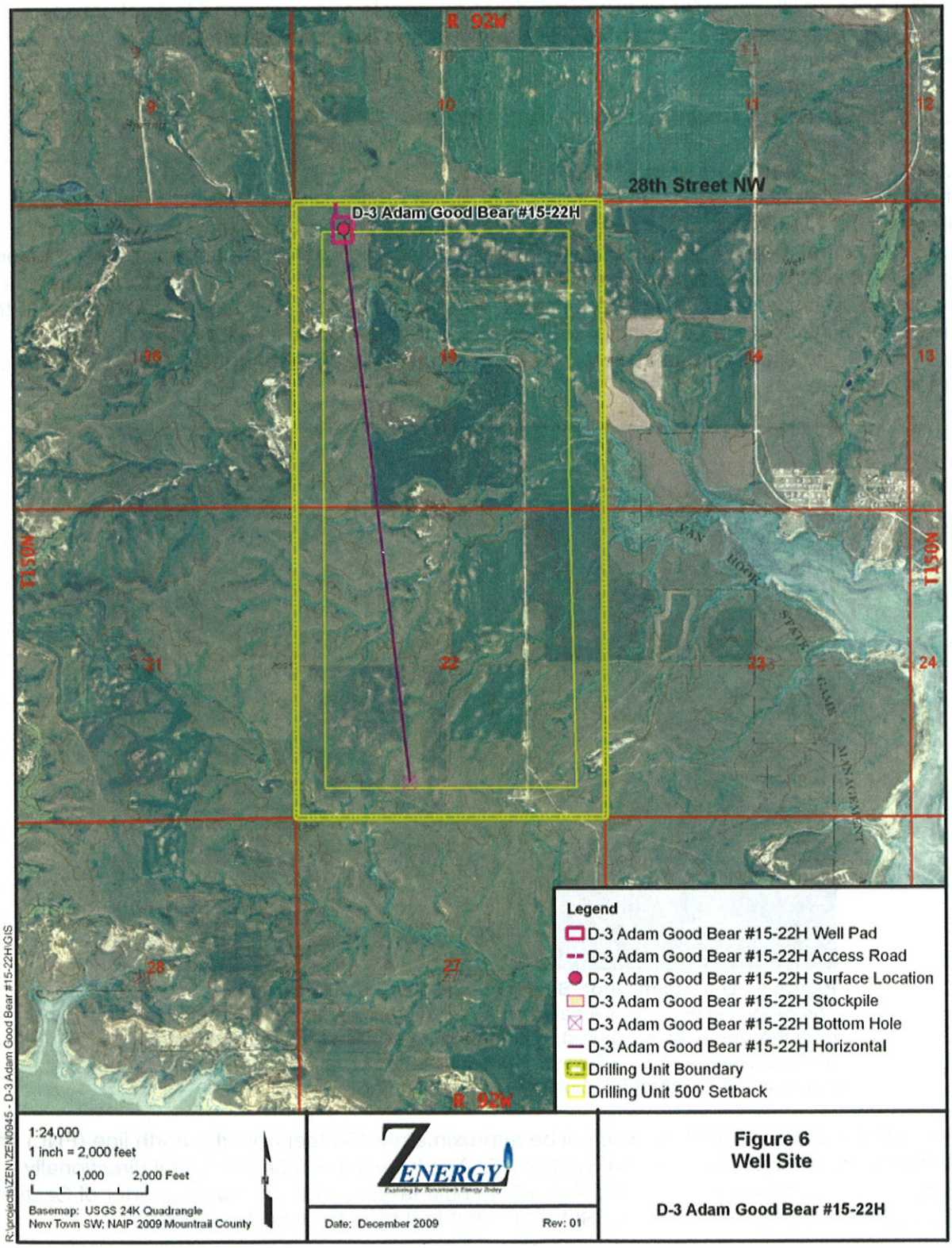
2.8.1 D-3 Adam Good Bear #15-22H

The proposed well site is located on a parcel of native prairie, on a southwest sloping (6-8%) hillside in the NW¼NW¼ of Section 15, T150N, R92W (Figure 5 and Figure 6), on the south side of Mountrail County 28th Street NW. The proposed pad size will be approximately 330 feet by 430 feet in size or 4.2 acres. Two soil stockpiles will be placed on the south and east sides of the pad. Surface water drainage from the 28th Street ditch will be diverted around the pad to the west without infringing upon an adjacent livestock corral and barn, located approximately 300 feet west of pad site. The pad edge will be approximately 1,300 feet northeast of the Little Shell Creek drainage.

Figure 5. D-3 Adam Good Bear #15-22H General Appearance
The proposed well site is located on a native grassland area with drainage from the site to the southwest. Photograph was taken from the proposed northeast pad facing southwest. The banks of the Little Shell Creek are visible in the background above the well center flag.

The surface location of the borehole will be approximately 450 feet from the north line (FNL) and 850 feet from the west line (FWL) of section 15. The borehole will be horizontal directionally drilled in a south-easterly direction to the bottom hole target in the southwest quarter of Section 22, at 550 feet from the south line (FSL) and 1,980 feet from the west line (FWL).

Figure 6. D-3 Adam Good Bear #15-22H Location



The access road will be constructed from 28th St NW and will connect directly to the pad site. The newly constructed road surface will be approximately 238 feet long with a maximum disturbance width of 66 feet or 0.4 acres. The pad site and access route will result in approximately 4.6 total acres of new disturbance in this location.

2.8.2 D-3 Mandan #13-14H

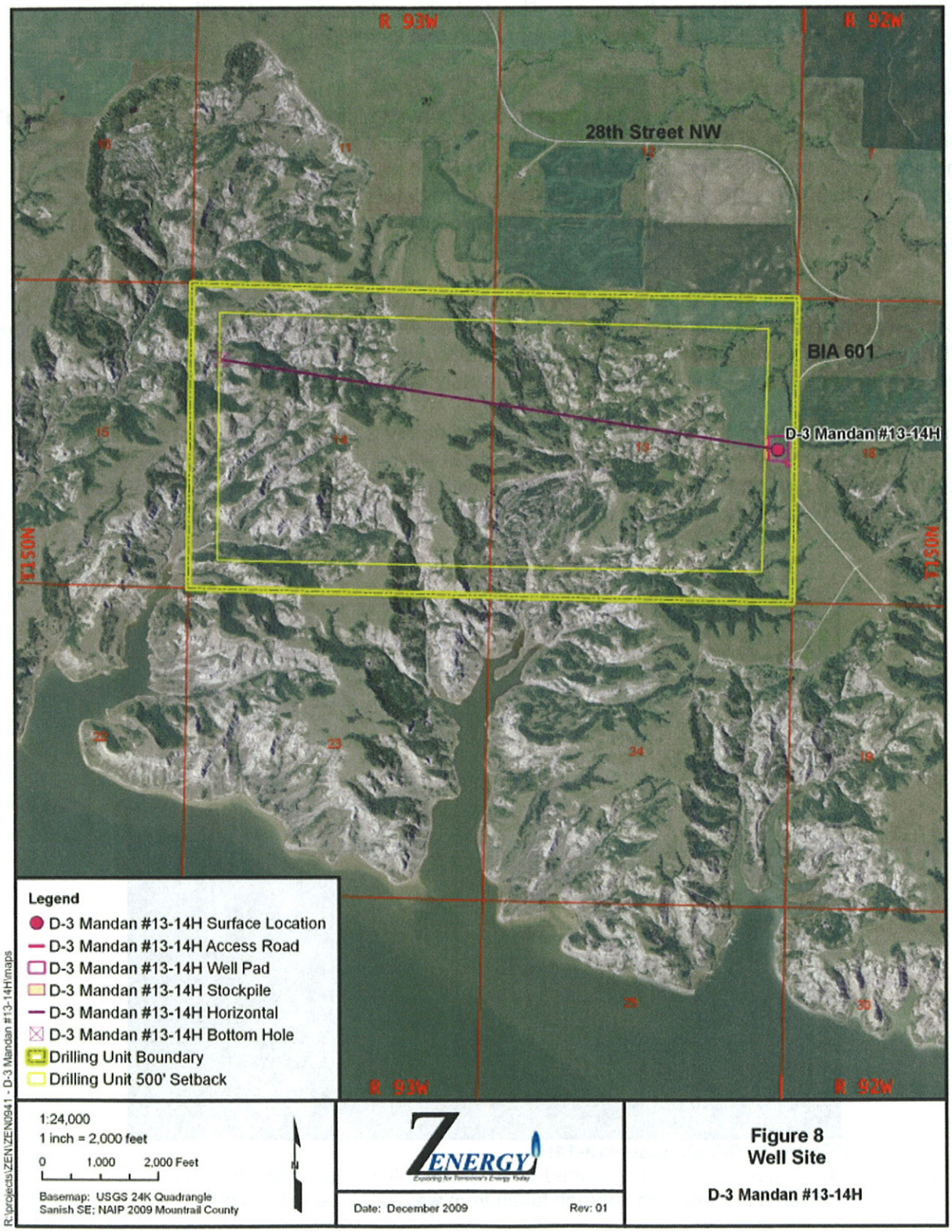
The D-3 Mandan #13-14H well site is located on a convex hilltop on the ¼ section line between two fields in the E ½ of Section 13, T150N, R92W (Figure 7 and Figure 8). One-half of the pad and access road are located on native prairie and the other half are located on a cultivated agricultural field. The proposed well site will be approximately 330 feet by 430 feet in size and disturb approximately 4.2 acres total. Soil stockpiles will be placed on the west side of the pad site.

The access road will start at roadway BIA 601 and will extend approximately 137 feet northwesterly to the southeast corner of the proposed well site. The running surface of the road will have a right-of-way maximum disturbance width of 66 feet or approximately 0.2 acres. The pad site and access route will result in approximately 4.4 total acres of new disturbance.

The surface location of the borehole will be approximately 2,643 feet from the north line (FNL) and 300 feet from the east line (FEL). The borehole will be horizontal directionally drilled in a northwesterly direction to the bottom hole target within NWNW of Section 14, at 550 feet from the west line (FWL) and 1,320 feet from the north line (FNL).

Figure 7. D-3 Mandan #13-14H
The proposed well site is located on a convex hilltop of native prairie and cultivated cropland. Photograph taken from well center facing south.

Figure 8. D-3 Mandan #13-14H Location



2.8.3 D-3 Skunk Creek #1-12H

The D-3 Skunk Creek #1-12H well site is located on a north sloping (5-8%) bench in the NE ¼ NW ¼ of Section 1, T148N, R93W (Figure 9 and Figure 10). The proposed pad site is native grassland located immediately above a treed drainage. The proposed well pad will be approximately 330 feet by 430 feet in size and disturb approximately 4.2 acres total. Soil stockpiles will be placed on the west side of the pad site.

Figure 9. D-3 Skunk Creek #1-12H pad site
The proposed well site is located on a north sloping bench above a treed drainage. Photograph taken from well center facing northeast.

The access road begins in Section 33, T148N, R93W, at an existing oil field road servicing a Kodiak Oil and Gas well site and follows an existing two-track road approximately 3,092 feet to the southwest (Figure 11). The proposed access road crosses native prairie and a drainage that is kept wet by a natural spring (Figure 12). The running surface of the road will have a right-of-way maximum disturbance width of 66 feet or approximately 4.7 acres. The pad site and access route will result in approximately 9.0 total acres of new disturbance.

The surface location of the borehole will be approximately 678 feet from the north line (FNL) and 1,805 feet from the west line (FWL). The borehole will be horizontal directionally drilled in a southeasterly direction to the bottom hole target within the SE ¼ SE ¼ of Section 12, at 550 feet from the south line (FSL) and 550 feet from the east line (FEL).

Figure 10. D-3 Skunk Creek #1-12H Location

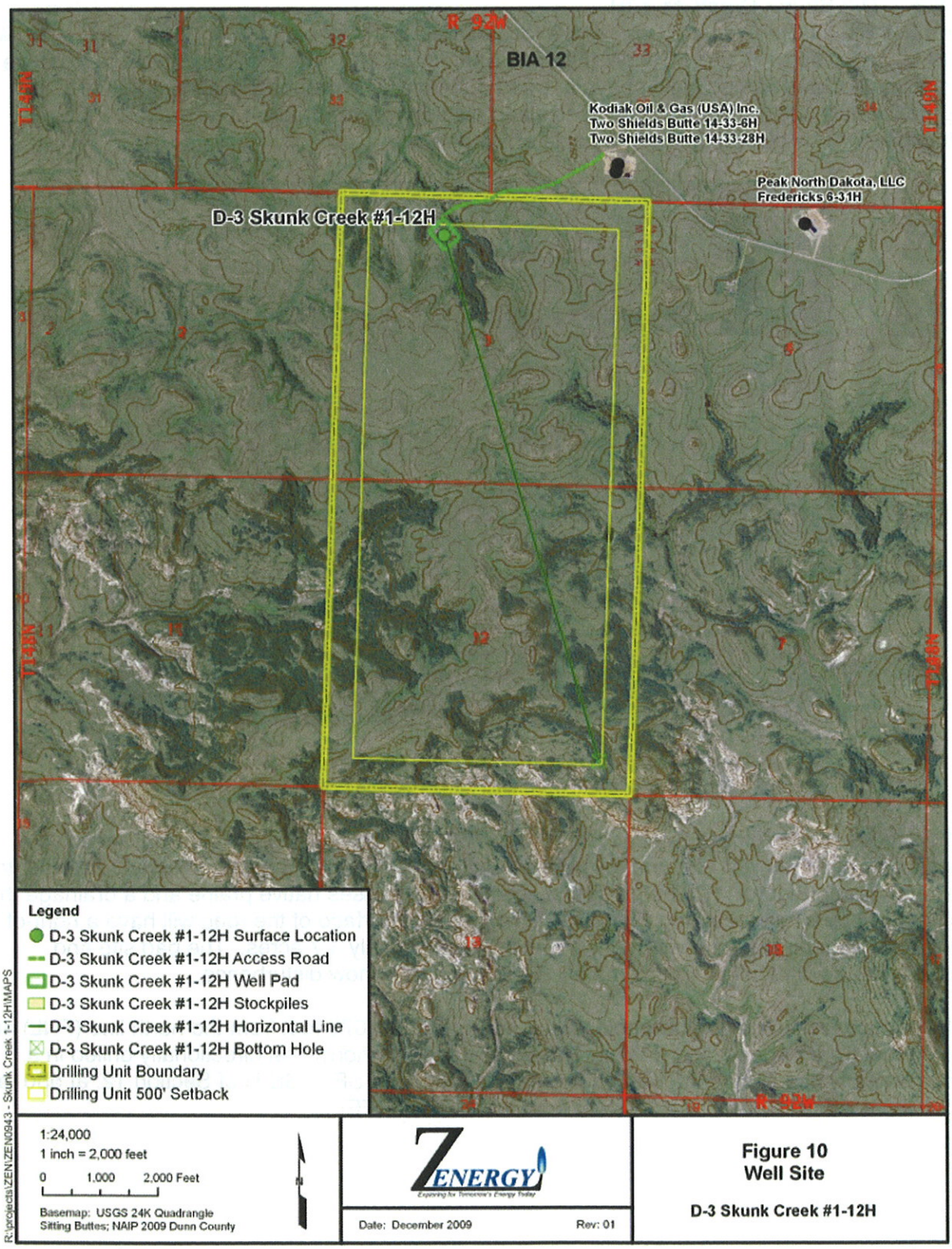


Figure 11. D-3 Skunk Creek #1-12H access road
The proposed access road starts at an existing oil field road and follows a two-track trail over native prairie pasture. Pasture was heavily disturbed due wet conditions and cattle activity. Photograph taken on two-track facing northeast towards Kodiak wells (drill rig in background).

Figure 12. D-3 Skunk Creek #1-12H drainage crossing
The proposed access road crosses a drainage that is wet due to a natural spring. Wetland sedge species are present. Photograph taken at proposed road crossing.

2.9 Reclamation

The reserve pit and drill cuttings will be treated, solidified, backfilled, and buried as soon as possible after well completion. Controlled mixing of cuttings with non-toxic reagents causes an irreversible reaction that quickly results in an inert, solid material. Any oily residue is dispersed and captured, preventing coalescence and release to the environment at significant rates in the future. The alkaline nature of the stabilized material also chemically stabilizes various metals that may be present, primarily by transforming them into less soluble compounds. Treated material will then be buried in the reserve pit, overlain by at least four feet of overburden as required by adopted NDIC regulations.

If commercial production equipment is installed, the well pad will be reduced in size to, <1 acre, reclaiming the rest of the original pad. The working area of each well pad and the running surface of access roads will be surfaced with scoria or crushed rock obtained from a previously approved location. The outslope portions of roads will be covered with stockpiled topsoil and re-seeded with a seed mixture determined by the BIA, reducing the residual access-related disturbance to about 28' wide. Other interim reclamation measures to be accomplished within the first year include reduction of the cut and fill slopes, redistribution of stockpiled topsoil, installation of erosion control measures, and reseeding as recommended by the BIA.

Final reclamation will occur either in the very short term if the proposed well is commercially unproductive, or later upon final abandonment of commercial operations. All disturbed areas will be reclaimed, reflecting the BIA view of oil and gas exploration and production as temporary intrusions on the landscape. All facilities will be removed, well bores will be plugged with cement and dry hole markers will be set. Access roads and work areas will be leveled or backfilled as necessity, scarified, re-contoured and re-seeded. Exceptions to these reclamation measures might occur if the BIA approves assignment of an access road either to the BIA roads inventory or to concurring surface allottees. Please refer to the Surface Use Plan within the attached APD in Section 6 for further detail regarding both interim and final reclamation measures. Figure 13 and Figure 14 show a typical reclamation from the Gold Book.

2.10 Preferred Alternative

The preferred alternative is to complete all administrative actions and approvals necessary to authorize and/or facilitate oil and gas developments at the proposed well locations.

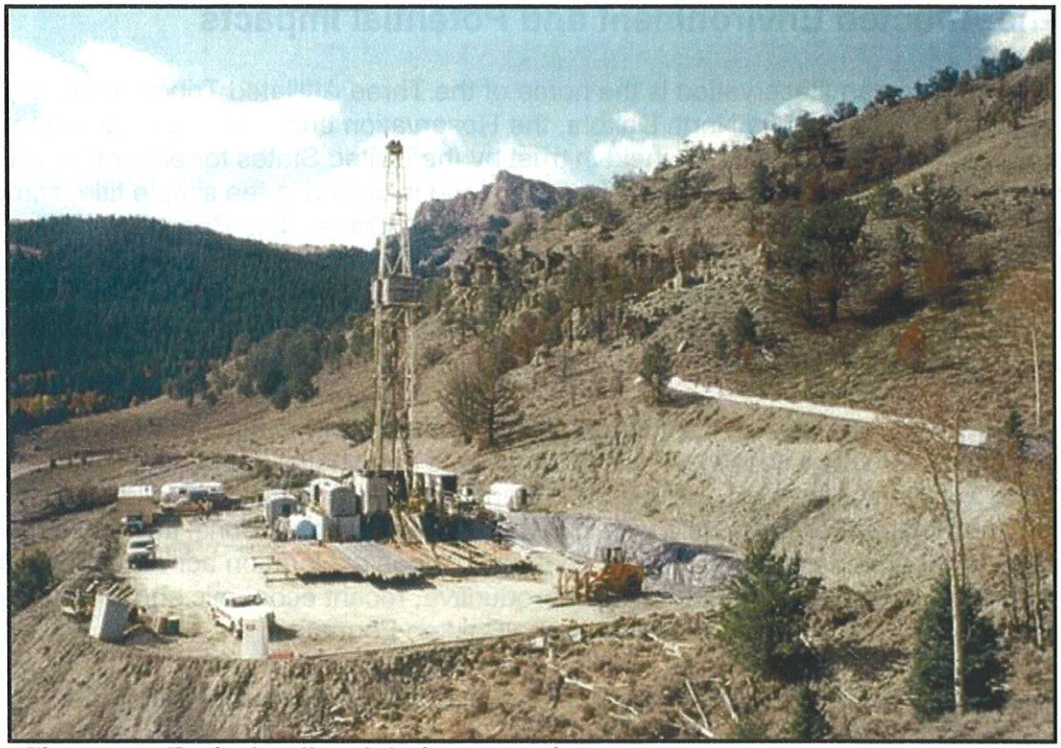


Figure 13. Typical well pad during operation.
The well pad and access road are constructed to the minimum size necessary to safely conduct drilling and completion operations.

Figure 14. Well pad after reclamation.
The well pad and access road have been re-contoured back to the original contour, the topsoil re-spread, and the site revegetated.

3.0 The Affected Environment and Potential Impacts

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

The proposed well(s) and access road(s) are situated geologically within the Williston Basin, where the shallow structure consists of sandstones, silts and shales dating to the Tertiary Period (65 to 2 million years ago), including the Sentinel Butte and Golden Valley Formations. The underlying Bakken Formation is a well-known source of hydrocarbons; its middle member is targeted by the proposed project(s). Although earlier oil/gas exploration activities within the Reservation were limited and commercially unproductive, recent economic and technological advancement have created feasible access to the Bakken Formation.

The Reservation is within the northern Great Plains ecoregion, which consists of four physiographic units:

- Missouri Coteau Slope north of Lake Sakakawea;
- Missouri River Trench (not flooded);
- Little Missouri River Badlands; and
- Missouri Plateau south and west of Lake Sakakawea

Much of the Reservation is located on the Missouri Coteau Slope and is comprised of a glaciated gently rolling landscape. Elevations of the Reservation range from 1,838 feet at Lake Sakakawea to over 2,600 feet on Phaelan's Butte near Mandaree. Annual precipitation on the plateau averages between 15 to 17 inches. Mean temperatures fluctuate between -3° and 21°F in January and between 55° to 83° in July, with 95 to 130 frost-free days each year (Bryce et al. 1998; High Plains Regional Climate Center 2008).

The proposed well site(s) and spacing units are in a rural area consisting primarily of grassland, shrubland, and cropland that is currently farmed, idle or used to graze livestock. The landscape has been previously disturbed by dirt trails and gravel and paved roadways.

The broad definition of human and natural environment under NEPA leads to the consideration of the following elements:

- Air quality;
- Public health and safety;
- Water resources;
- Wetland/riparian habitat;
- Threatened and endangered species;
- Soils;
- Vegetation and invasive species;
- Cultural resources;

- Socioeconomic conditions; and
- Environmental justice.

Potential impacts to these elements are analyzed for both the No Action Alternative and the Preferred Alternative. Impacts may be beneficial or detrimental, direct or indirect, and short-term or long-term. The EA also analyzes the potential for cumulative impacts and ultimately makes a determination as to the significance of any impacts. In the absence of significant negative consequences, it should be noted that a significant benefit from the project does *not* in itself require preparation of an EIS. After consideration of the no-action alternative, existing conditions and potential impacts from proposed projects are described below.

3.1 The No Action Alternative

Under the No Action Alternative, the proposed projects will not be constructed, drilled, installed, or operated. Existing conditions will not be impacted for the following critical elements:

- Air quality;
- Public health and safety;
- Water resources;
- Wetland/riparian habitat;
- Threatened and endangered species;
- Soils;
- Vegetation and invasive species;
- Cultural resources;
- Socioeconomic conditions; and
- Environmental justice.

There will be no project-related ground disturbance, use of hazardous materials, or trucking of product to collection areas. Surface disturbance, deposition of potentially harmful biological material, trucking, and other traffic will not change from present levels. Under the No Action Alternative, the MHA Nation, tribal members, and allottees will not have the opportunity to realize potential financial gains resulting from the discovery of resources at these well locations.

3.2 Air Quality

The North Dakota Department of Health (NDDH) network of Ambient Air Quality Monitoring (AAQM) stations includes Watford City in McKenzie County, Dunn Center in Dunn County, and Beulah in Mercer County. These stations are located west, south, and southeast of proposed well sites. Criteria pollutants tracked under National Ambient Air Quality Standards (NAAQS) of the *Clean Air Act* include sulfur dioxide (SO_2), particulate matter (PM_{10}), nitrogen dioxide (NO_2), and ozone (O_3). Two other criteria pollutants – lead (Pb) and carbon monoxide (CO) – are not monitored by any of three stations. Table 1 summarizes federal air quality standards and available air quality data from the three-country study area.

Table 1. Summary of federal air quality standards and available air quality data from Dunn, McKenzie, and Mercer Counties, ND.

Pollutant	Averaging Period	NAAQS ($\mu g/m^3$)	NAAQS (ppm)	County		
				Dunn	McKenzie	Mercer
SO_2	24-Hour	365	0.14	0.004 ppm	0.004 ppm	0.011 ppm
	Annual Mean	80	0.3	0.001 ppm	0.001 ppm	0.002 ppm
PM_{10}	24-Hour	150	--	50 ($\mu g/m^3$)	35 ($\mu g/m^3$)	35 ($\mu g/m^3$)
	Annual Mean	50	--	--	--	--
$PM_{2.5}$	24-Hour	35	--	--	--	--
	Weighted Annual Mean	15	--	--	--	--
NO_2	Annual Mean	100	0.053	0.002 ppm	0.001 ppm	0.003 ppm
CO	1-Hour	40,000	35	--	--	--
	8-Hour	10,000	9	--	--	--
Pb	3-Month	1.5	--	--	--	--
O_3	1-Hour	240	0.12	0.071 ppm	0.072 ppm	0.076 ppm
	8-Hour	--	0.08	0.061 ppm	0.066 ppm	0.067 ppm

North Dakota was one of nine states in 2006 that met standards for all criteria pollutants. The state also met standards for fine particulates and the eight-hour ozone standards established by the U.S. Environmental Protection Agency (EPA) (NDDH 2007). The three counties addressed in Table 2 are also in full attainment and usually far below established limits (American Lung Association 2006). The Clean Air Act mandates prevention of significant deterioration in designated attainment areas. Class I areas are of national significance and include national parks greater than 6,000 acres in size, national monuments, national seashores, and federal wilderness areas larger than 5,000 acres and designated prior to 1977. There is a Class I air shed at nearby Theodore Roosevelt National Park (TRNP), which covers approximately 110 square miles in three units within the Little Missouri National Grassland between Medora and Watford City, located 30-40 miles west of the proposed projects. The reservation can be considered a Class II attainment air shed, which affords it a lower level of protection from significant deterioration.

The proposed project is similar to other nearby approved previously installed projects. Construction, drilling, and tanker traffic will generate temporary, intermittent, and nearly undetectable gaseous emissions of particulates, SO_2, NO_2, CO_2, and volatile organic compounds. Road dust will be controlled as necessary and other best management practices implemented as necessary to limit emissions to the immediate project areas (BLM 2005). No detectable or long-term impacts to air quality or visibility are expected within the air sheds of the Reservation, state, or TRNP. No laws, regulations or other requirements have been waived; no monitoring or compensatory measures are required.

3.3 Public Health and Safety

Health and safety concerns include naturally occurring toxic gases, hazardous materials used or generated during installation or production, and hazards posed by heavy truck traffic associated with drilling, completion, and production activities.

Hydrogen sulfide gas (H_2S) is extremely toxic in concentrations above 500 parts per million (ppm), but it has not been found in measurable quantities in the Bakken Formation. Before reaching the Bakken, however, drilling will penetrate the Mission Canyon Formation, which is known to contain varying concentrations of H_2S. Release of H_2S at dangerous concentrations is very unlikely. Contingency plans submitted to BLM comply fully with relevant portions of *Onshore Oil and Gas Order 6* to minimize potential for gas leaks during drilling. Emergency response plans protect both the drilling crew and the general public within one mile of a well; precautions include automated sampling and alarm systems operating continuously at multiple locations on the well pad.

Satellite imagery was used to identify nearby homes within one and five miles of the proposed well site(s) (Table 2).

Table 2. Distance and location of residences from the proposed well site(s).

Well Name	Nearest residence	# Residences w/in 1 mi	# Residences w/in 5 mi
D-3 Adam Good Bear #15-22H	880' West	3	32*
D-3 Mandan #13-14H	3,330' Southeast	2	28**
D-3 Skunk Creek #1-12H	5,100' East	1	20***
* does not include 77 seasonal residences near Pouch Point Recreation area.			
**does not include 66 seasonal residences near Pouch Point Recreation area.			
*** does not include 33 seasonal residences near Skunk Bay Recreation area.			

In addition to the permanent residences, two recreation areas, Pouch Point and Skunk Bay, are within 5 miles of the proposed wells. Pouch Point Recreation Area has approximately 77 seasonal residences and is located in Sections 14 and 23 of T150N, R92W. Skunk Bay Recreation Area has approximately 33 seasonal residences and is located in Section 10 T149N, R92W. These are not included in the table above as noted.

Negative impacts from construction will be largely temporary. Noise, fugitive dust, and traffic hazards will be prevalent during the construction, drilling, and well completion (approximately 60 days) and then diminish quickly during commercial operation. Approximately 50 trips during several days will be needed to transport the drilling rig and associated equipment to each site. The same amount of traffic will be required to dismantle and transport the drilling rig following the completion of the drilling operations.

One pick-up will travel to each well pad daily if the wells prove productive. Natural gas will initially be flared during production and the produced oil and water will be trucked away from the well site. Tanker truck activity depends directly on production of the well. Initially a successful Bakken well usually produces high rates of both oil and water. Upwards of 500 barrels of oil and 100 barrels of water per day might be expected during the initial months of production. Daily production typically decreases by 50% or more after the initial months. An oil tanker usually hauls 140 barrels and a water tanker holds 110 barrels per load. Four oil tankers and one water tanker may visit each well site per day during the initial months of production. This number will decline dramatically as production declines. Established load restrictions for state and BIA roadways will be followed and appropriate haul permits will be acquired. All traffic must be confined to approved routes and conform to load and speed limits.

The EPA specifies chemical reporting under Title III of the *Superfund Amendments and Reauthorization Act* (SARA) of 1986, as amended. No materials used or generated by this project for production, use, storage, transport, or disposal are on either the SARA list or on EPA's list of extremely hazardous substances in 40 CFR 355. Project design and operational precautions mitigate against impacts from toxic gases, hazardous materials, and traffic. All operations, including flaring, will conform to instructions from BIA fire management staff. Impacts from the proposed projects are considered minimal, unlikely or insignificant. No laws regulations, or requirements have been waived; no compensatory mitigation measures are required.

3.4 Water Resources

3.4.1 Surface Water

The proposed sites are located on a glaciated upland in the Missouri River Regional Water Basin (Figure 15). Surface water runoff generally starts as sheet-flow until collected by ephemeral drainages leading to Lake Sakakawea. The ephemeral drainages, in turn, combine to form intermittent and/or perennial streams that flow into Lake Sakakawea.
Lake Sakakawea is part of the Missouri River sub-regional watershed and is the receiving water for runoff from the land area surrounding the well sites.

3.4.1.1 D-3 Adam Good Bear #15-22H

The D-3 Adam Good Bear #15-22H well site is located within the Garrison Dam Sub-Basin, the Independence Point Watershed and Little Shell Creek Sub-Watershed. Surface water runoff at the D-3 Adam Good Bear #15-22H well site will flow 450 feet to the southwest before reaching Little Shell Creek. Little Shell Creek then meanders approximately 1.7 miles to the south and east before reaching the shores of Lake Sakakawea. The area is relatively flat and not conducive to rapid drainage directly into Little Shell Creek.

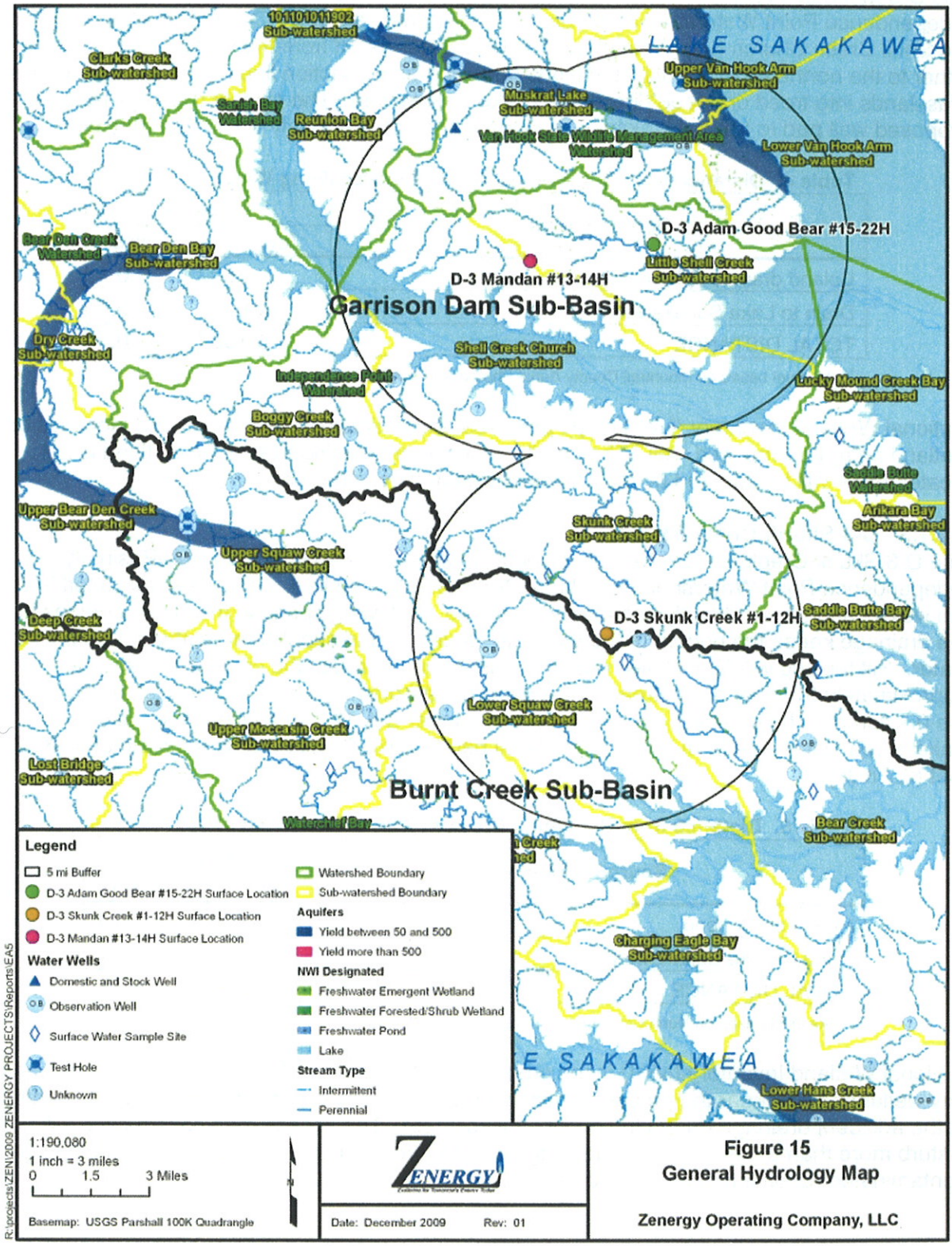
Table 3. Distance from D-3 Adam Good Bear #15-22H to Receiving Water

Source - Point	Distance	
	feet	miles
Upland drainage to Little Shell Creek	~450	<0.1
Little Shell Creek to Lake Sakakawea[1]	~9,000	1.7
TOTAL DISTANCE	~9,450	1.8

[1]Lake level based on Mountrail County Aerial Photograph (NAIP 2009)

National Wetland Inventory (NWI) maps prepared and maintained by the USFWS do not identify any wetlands on or near the proposed well. The on-site assessment confirmed that wetlands are not located on or will be affected by the proposed well site construction.

Figure 15. General Hydrology Map



3.4.1.2 D-3 Mandan #13-14H

The D-3 Mandan #13-14H well site is located within the Garrison Dam Sub-Basin, the Independence Point Watershed and drain into wither the Little Shell Creek Sub-Watershed or the Shell Creek Church Sub-Watershed. Surface water runoff from the well location will flow either to the northeast over cultivated lands and ditch along section line or to the south across grasslands into treed drainage directly into Lake Sakakawea. The closest drainage from the proposed well pad to Lake Sakakawea is to the south approximately 5,150 feet (0.9 mile).

Table 4. Distance from D-3 Mandan #13-14H to Receiving Water

Source - Point	Distance	
	feet	miles
Upland drain to ephemeral drain	~350	<0.1
Drain to Lake Sakakawea[1]	~4,800	0.9
TOTAL DISTANCE	~5,150	0.9

[1]Lake level based on Mountrail County Aerial Photograph (NAIP 2009)

National Wetland Inventory (NWI) maps prepared and maintained by the USFWS identifies one wetland near the proposed well. The on-site assessment confirmed that the wetland is not located on or will be affected by the proposed well pad construction.

3.4.1.3 D-3 Skunk Creek #1-12H

The D-3 Skunk Creek #1-12H well site is located within the Garrison Dam Sub-Basin, the Independence Point Watershed and Skunk Creek Sub-Watershed. Surface water runoff from the well location flows directly into a treed drainage. A flowing spring in the upper portions of the drainage keeps the bottom of the drainage saturated and supplies a nearby stock dam with water. Silt fencing will be installed during construction to protect the cattle water source approximately 500 feet downstream. The access road drainage crossing will disturb less than the 0.1 acres. The drainage eventually crosses under BIA 12 and continues to Lake Sakakawea. Drainage from the proposed well pad to Lake Sakakawea is approximately 35,700 feet (0.7 mile).

Table 5. Distance from D-3 Skunk Creek #1-12H to Receiving Water

Source - Point	Distance	
	feet	miles
Pad to stock pond	~500	0.1
Pond to Lake Sakakawea[1]	~35,700	6.75
TOTAL DISTANCE	~36,200	6.85

[1]Lake level based on Dunn County Aerial Photograph (NAIP 2009)

National Wetland Inventory (NWI) maps prepared and maintained by the USFWS do not identify any wetlands on or near the proposed well; however, wetland vegetative species were identified in the adjacent drainage during the on-site assessment. The access road construction will not disturb more than 0.1 acres at the crossing site. All efforts will be made to reduce siltation and contaminated runoff into the stock pond.

3.4.2 Groundwater

3.4.2.1 Dunn County

Ground water in Dunn County is obtainable from aquifers in the pre-glacial rocks and from aquifers in the glacial drift. Aquifers in the pre-glacial rocks have a greater areal distribution than those in the glacial drift, but those in the drift provide higher yields to individual wells. Sandstone aquifers in the pre-glacial rocks occur in the Fox Hills and Hell Creek Formations of Cretaceous age and in the undifferentiated Cannonball - Ludlow, Tongue River, and Sentinel Butte Formations of Tertiary age. Potential yields to wells tapping these aquifers range from one to as much as 200 gallons per minute (0.06 to 13 liters per second).

The Fox Hills Formation, which is marine in origin, underlies all of Dunn County. The depth to the top of the formation ranges from 1,330 feet (405 m) in the valley of the Little Missouri River in the northwestern part of the county to about 1,960 feet (597 m) in Section 14:T146N-R96W, also in the northwestern part of the county. The formation ranges in thickness from about 80 to 300 feet (24 to 90 m) and is composed of inter-bedded sandstone, shale, and siltstone. It is underlain by the Pierre Formation and overlain by the Hell Creek Formation.

The Hell Creek Formation, which is continental in origin, underlies the study area at depths ranging from about 1,150 feet (350 m) in the southeastern part of the area to about 1,730 feet (527 m) in the northwestern part. The formation ranges in thickness from about 150 to 300 feet (46 to 90 m) and is composed of inter-bedded siltstone, shale or claystone, poorly consolidated sandstone, and a few thin lignite beds.

The Cannonball Formation, which is marine in origin, and the Ludlow Formation, which is continental in origin, is interfingered throughout Dunn County. The undifferentiated Cannonball-Ludlow Formations underlie the county at depths ranging from about 570 feet (174 m) in the southeastern corner of the county to about 1,130 feet (344 m) in the northwestern quarter of the county. The formations, which range in thickness from 495 to 660 feet (151 t o 200 m), consist of inter-bedded siltstone, poorly consolidated sandstone, shale or clay, and lignite.

The Tongue River Formation, which is continental in origin, underlies all of Dunn County. The depth to the top of the formation ranges from about 230 feet (70 m) in the valley of the Little Missouri River in the northwestern corner of the county to about 750 feet (229 m) in Section 14: T146N-R96W. The formation ranges in thickness from about 290 to 490 feet (88 to 150 m), and consists of inter-bedded siltstone, claystone or shale, poorly consolidated sandstone, lignite, and occasional limestone lenses or concretions. The top of the formation generally consists of lignite or carbonaceous shale. The basal part of the formation generally consists of extensive, poorly consolidated sandstone.

The Sentinel Butte Formation, which is continental in origin, occurs throughout Dunn County, except where glacial melt-water channels have been eroded below the base of the formation. It is exposed except where overlain by outliers of the Golden Valley Formation, isolated deposits of till, and (or) glaciofluvial and alluvial deposits.

3.4.2.2 Mountrail County

The principal uses of ground water in Mountrail County are for domestic and livestock supplies, public supplies, industrial supplies, and irrigation. Most farm units in the area have at least one well for their domestic and livestock uses, but no records are available to accurately determine the quantity of water used. Practically all of the water used for industrial purposes in Mountrail

County either is used in connection with the production of petroleum or is obtained from public supplies and no records are kept. The largest use of ground water in the county is for pressure maintenance during well drilling.

Ground water in Mountrail County is obtained from aquifers in the glacial drift of Quaternary age, the Sentinel Butte and Tongue River Formations in the Fort Union Group of Tertiary age, and the Fox Hills Formation, Hell Creek Formation, and the Dakota Group of Cretaceous age. The Dakota Group, Fox Hills Formation, Hell Creek Formation, Fort Union Group, and the glacial drift contain the only aquifers that are presently of economic importance.

The upper part of the Fox Hills Formation and the lower part of the Hell Creek Formation contain about 100 feet of sandstone in an interbedded sandstone, siltstone, and shale zone. The sandstone beds in the zone apparently are hydrologically connected and herein are referred to as the Fox Hills-Hell Creek aquifer.

The top of the Fox Hills-Hell Creek aquifer generally ranges from 1,550 to 2,100 feet below land surface (altitude about 300 feet above msl) in the south-central and southwestern parts of Mountrail County. The top of the aquifer is about 1,450 to 2,100 feet below land surface (altitude about 550 feet above msl) in the southeastern part of the county.

The Fort Union Group generally underlies the glacial drift at depths of less than 100 feet throughout much of the Coteau Slope and the Drift Prairie, except in the larger ancient buried valleys. Depths to the Fort Union are commonly more than 100 feet in the Coteau du Missouri area, but many exceptions do exist. The group is subdivided into four formations in some Tongue River and Sentinel Butte Formations

The Tongue River and Sentinel Butte Formations either crop out or immediately underlie the glacial drift in the report area. These units are distinguishable only on the surface in Mountrail County. Individual sand beds in the Tongue River-Sentinel Butte Formations vary greatly in thickness. Most sand beds are less than 10 feet thick, but thicknesses exceeding 100 feet, do occur.

3.4.3 Water Wells and Water Use Permits

There are no domestic or stock water supply wells within five miles of the proposed well sites (Figure 15). There have been six water test wells drilled within five miles of the proposed locations. These include three test holes and three observation wells installed (Table 6). There are also six wells with unknown status or type drilled in the Sentinel Butte-Tongue River aquifer within five miles of the locations.

One active water permit is located within five miles of the D-3 Adam Good Bear #15-22H and the D-3 Mandan #13-14H project areas. It is located in the SW¼ Section 34, T151N, R92W. The permit was issued on October 27, 1970, to J. & S. Pennington. This is a perfected permit for flood irrigation from surface water. It is located 2.1 and 4.0 miles from the proposed wells.

Table 6. Water wells within 5 miles of proposed well sites.

LOCATION	Distance To Nearest Proposed Well (miles)	Permit Type	Aquifer	Well Depth (feet)	Date
SW NW 6 T148N R92W	0.9	Unknown	Sentinel Butte - Tongue River	---	1/1/1971
SE NW 6 T148N R92W	1.0	Unknown	Sentinel Butte - Tongue River	---	1/1/1966
SE SW 22 T148N R93W	2.6	Unknown	Sentinel Butte of Fort Union	----	-----
NE SW 4 T148N R93W	3.1	Observation	Sentinel Butte - Tongue River	340	10/1/1973
SW NE 2 T149N R93W	4.1	Unknown	Sentinel Butte - Tongue River		1/1/1962
SE NE 30 T151N R92W	4.2	Observation	Undefined	240	6/4/1992
SW SE 24 T151N R93W	4.6	Observation	Undefined	260	6/3/1992
NW NW 17 T148N R93W	4.6	Unknown	Sentinel Butte - Tongue River		
NE SW 33 T150N R93W	4.7	Unknown	Sentinel Butte - Tongue River		1/1/1960

[1] ND State Water Commission 2009

Water quality will be protected by drilling with fresh water to a point below the base of the Fox Hills Formation, implementing proper hazardous materials management, and using appropriate casing and cementing. Drilling will proceed in compliance with *Onshore Oil and Gas Order* 2, *Drilling Operations* (43 CFR 3160). If cement circulation is lost, a cement bound log will be required by BLM to ascertain is remedial cementing is required to provide an adequate seal between casing and strata. Surface casing will be cemented in place to a depth of about 2,500 feet, isolating aquifers in the Fox Hills Formation and extending a minimum of 50 feet into the underlying Pierre shale. Intermediate casing will extend from the surface and be cemented as needed to isolate potentially productive water and hydrocarbon-bearing zones.

Seepage and infiltration of hazardous materials from the reserve pits are considered unlikely due to mandatory construction and linear specifications, including a minimum of two feet of freeboard at all times. There will be no other pits or lagoons. Impacts to shallow aquifers from surface activities and spills will be avoided or managed by implementation of a Spill Prevention, Control, and Countermeasure (SPCC) Plan.

Produced water will be captured in tanks on-site and periodically trucked to an approved disposal site. The BLM is also tasked with on-site monitoring of construction and production activities as well as resolution of any dispute that may arise as a result of any of the aforementioned actions. Evidence of groundwater contamination related to the project will result in a stop work order until all appropriate measures were identified and implemented. These and other construction and reclamation techniques included in the APD will minimize potential for impacts to both surface water and groundwater. No significant impacts to surface water or groundwater are expected because of the proposed action. No applicable laws or regulations will be waived; no compensatory mitigation measures are required to protect surface water or groundwater.

3.5 Wetlands, Habitat, and Wildlife

3.5.1 Wetlands

National Wetland Inventory (NWI) maps maintained by the United States Fish and Wildlife Service (USFWS) identify jurisdictional wetlands. No wetlands were previously recorded near the proposed projects. On-site assessment conducted with representatives from BIA and BLM identified riparian or wetland habitats were found on route to the D-3 Skunk Creek #1-12H well site. The wetland crossing was delineated and was found that the drainage crossing will disturb less than 0.1 acres. Culverts and silt fencing will be installed during construction to protect the cattle water source approximately 500 feet downstream. There are no wetlands located on the other proposed routes or site locations.

3.5.2 Habitat

The North Dakota Parks and Recreation Department houses the North Dakota Natural Heritage biological conservation database. A review was done to determine if any current or historic plant or animal species of concern or other significant ecological communities are know to occur within an approximate one-mile radius of the project area (Figure 19). Based upon the review, records indicate that habitat may exist for *Stipa comata-Boutelona 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 D-3 Mandan #13-14H project area. A portion of the pad site and access road are located in a native prairie pasture. Blue gramma, threadleaf sedge, prairie junegrass are the major native grass species found across the area. Buck brush with an understory of Kentucky bluegrass is also scattered across the site. Crested wheatgrass (*Agropyron cristatum*) has heavily invaded the native uncultivated area. The proposed project is not located upon a significant ecological community and will have no affect on these recorded significant ecological communities in the area.

3.5.3 Species of Concern

Assessments for Federally listed threatened and endangered species were conducted by evaluating historic and present occurrences, and by determining if potential habitat exists within the project area. Determinations were made concerning direct and cumulative effects of the proposed activities on each species and their habitat. Currently, seven species and one Designated Critical Habitat are listed in Mountrail or Dunn County, North Dakota (Table 7).

Table 7. County status of Endangered, Threatened, and Candidate species and Designated Critical Habitat

Species	Status	County Mountrail	County Dunn
Interior Least Tern	Endangered	X	X
Whooping Crane	Endangered	X	X
Black-footed Ferret	Endangered		X
Pallid Sturgeon	Endangered	X	X
Gray Wolf	Endangered	X	X
Piping Plover	Threatened	X	X
W Prairie Fringed Orchid	Threatened		
Dakota Skipper	Candidate	X	X
Designated Critical Habitat - Piping Plover		X	X

[1] USFWS (updated May 15, 2009)

3.5.4 Species Assessments

Assessments for Federally listed threatened, endangered species were conducted by evaluating historic and present occurrences and by determining if potential habitat exists within the project area. A determination was made concerning direct and cumulative effects of the proposed activities on each species. Determinations made for federally listed species are:

- No effect
- Is not likely to adversely affect
- Is likely to adversely affect
- Is likely to jeopardize a proposed species or adversely modify critical habitat
- Is not likely to jeopardize a proposed species or adversely modify critical habitat

3.5.4.1 Gray Wolf

Gray wolves, an Endangered Species in North Dakota, were historically found throughout much of North America including the Upper Great Plains. Human activities have restricted their present range to the northern forests of Minnesota, Wisconsin, and Michigan and the Northern Rocky Mountains of Idaho, Montana, and Wyoming. They now only occur as occasional visitors in North Dakota. The most suitable habitat for the gray wolf is found around the Turtle Mountains region where documented and unconfirmed reports of gray wolves in North Dakota have occurred (Grondahl and Martin, no date). The proposed projects will have ***no effect*** on this species at this time.

3.5.4.2 Interior Least Tern

The interior least tern nests on midstream sandbars along the Yellowstone and Missouri River systems. Interior least terns construct bowl-shaped depression nests on sparsely vegetated sandbars and sandy beaches. Their nesting period occurs between mid-May through mid-August. The proposed projects will not disrupt the Missouri River habitat. The proposed locations are set back (more than ½ mile) from the Missouri River system and will have ***no effect*** on this species at this time.

3.5.4.3 Pallid Sturgeon

Pallid sturgeons are found within the Mississippi, Missouri, and Yellowstone River systems. Pallid sturgeon populations in North Dakota have decreased since the 1960's (Grondahl and Martin no date). The proposed projects will not disrupt the Missouri River habitat. The proposed projects will have ***no effect*** on this species at this time.

3.5.4.4 Whooping Crane

The primary nesting area for the whooping crane is in Canada's Wood Buffalo National Park. Arkansas National Wildlife Refuge in Texas is the primary wintering area for whooping cranes. In the spring and fall, the cranes migrate primarily along the Central Flyway. During the migration, cranes make numerous stops, roosting in large shallow marshes, and feeding and loafing in harvested grain fields. The primary threats to whooping cranes are power lines, illegal hunting, and habitat loss (Texas Park and Wildlife 2008).

The proposed well sites are located within the Central Flyway. Approximately 75% of the whooping state sightings in North Dakota occur within a 90-mile corridor that includes the proposed well locations. Because collisions with power lines are the primary cause for fledgling mortality, any proposed power lines should be buried. If underground lines are not an option, power lines should be well-marked following specifications made by federal agencies. Following these guidelines, it is reasonable to expect that the proposed activities are ***not likely to adversely affect*** whooping cranes.

The proposed well sites have been placed in locations that will have the least impact on whooping cranes; that is near roads, power lines, and building sites. Activities may cause any migratory cranes to divert from the area but is not likely to result in any fatalities. Any sightings should be immediately reported to the USFWS, NDGFD, and/or the BIA.

3.5.4.5 Piping Plover

Piping plovers are found along the Missouri and Yellowstone River systems and on large alkaline wetlands. Nesting sites have been documented on the shorelines of Lake Sakakawea. In addition, critical habitat has been designated along Lake Sakakawea. The proposed well locations are not within line-of-sight of Missouri River habitat.

The project will not disrupt the Missouri River habitat or any designated Critical Habitat. The proposed projects will have ***no effect*** on this species at this time and ***no effect*** on critical habitat.

3.5.4.6 Dakota Skipper

Dakota skippers are currently listed as a candidate species in North Dakota and have been documented in Mountrail County. Larvae of the Dakota skipper feed on grasses, favoring little bluestem. Adults emerge in mid-June, feeding on the nectar of flowering native forbs. Harebell (*Campanula rotundifolia*), wood lily (*Lilium philadelphicum*), and purple coneflower (*Echinacea angustifolia*) are common components of their diet (Canadian Wildlife Service, 2004). Dakota skippers are most likely to be found along river valleys or in mesic segments of mixed grass prairie.

All three of the proposed projects may disturb potential suitable habitat of the Dakota skipper. Only the D-3 Adam Good Bear #15-22H presented good residual cover at the time of the site visit, however. The proposed projects ***may impact*** individuals but is not likely to adversely affect the population or species.

3.5.5 Wildlife (General)

Table 8 identifies other wildlife that may be generally expected around the proposed sites. Some of these were confirmed by direct observation or by various signs. Direct wildlife observations can be affected by time of day, time of year, etc.

Table 8. Wildlife (General)

Location	Observed	Suitable Habitat
D-3 Adam Good Bear #15-22H	Western meadowlark, Jack rabbit	Mule deer, pronghorn antelope, small mammals, sharp-tailed grouse, and a variety of grassland and song nesting birds
D-3 Mandan #13-14H	None	Mule deer, pronghorn antelope, small mammals, sharp-tailed grouse, and a variety of grassland and song nesting birds
D-3 Skunk Creek #1-12H	None	White-tail and mule deer, small mammals, sharp-tailed grouse, and a variety of grassland and song nesting birds

Potential impacts to wildlife include construction of well pads, upgrading of existing two-track trails, construction of new roads, and potential future commercial operations. Minimal to no impacts on listed species are expected due to the sparseness of even anecdotal evidence that they may occur within the project area. On-site assessments confirmed that no threatened or

endangered species will be impacted by proposed roads or wells. Ground clearing may impact habitat for unlisted species, including small birds, ground dwelling mammals, and other wildlife species. Proposed projects may affect raptor and migratory bird species through direct mortality, habitat degradation, and/or displacement of individual birds. These impacts are regulated in part through the *Migratory Bird Treaty Act* (916 USC 703-711). Fragmentation of native prairie habitat is a specific concern for grouse species, but the limited disturbance from exploration remains small in the landscape context.

Precautions benefitting all wildlife include:

- Locations overlying existing disturbances;
- Netting of the reserve pit in the interval between drilling and reclamation of the pit;
- Prompt removal of oil from open pits or ponds;
- Installation of covers on drip buckets under valves or spigots; and
- Prompt initial reclamation.

Final and complete reclamation will proceed immediately if the well is unproductive, or promptly after a commercial well is decommissioned. Wildlife inhabiting project areas are generally expected to adapt to changing conditions and continue to thrive.

3.6 Soils

The Natural Resource Conservation Services (NRCS) soils data was reviewed prior to the on-site assessment and verified during the field visit. Generally, the wells addressed in this report are located on fine-grained soils with low to moderate erosion potential. The sites are suitable for construction and surface soils will allow for successful reclamation. Sites should be monitored for erosion and best management practices implemented to control erosion as necessary.

3.6.1 D-3 Adam Good Bear #15-22H

The eastern half of the D-3 Adam Good Bear #15-22H pad site is located on an approximately 6-8% sloping hillside with drainage to the SW. The western side of pad has overland drainage from the east slope and the county road ditch. The pad site and proposed access road areas are comprised of Zahl-Max and Williams-Zahl loams, according to the NRCS Mapping Units (MUs) assigned to the area (Table 9). The on site assessment in the western drainage area found black silty/clay loam topsoil with some sand present at depths of 0-12" deep. Soils turn to brown, sandy lean clay at depths greater than 12". On the hillside scattered cobbles are present on surface with 0-6" of sandy clay with some gravel. Soils turn brown with more gravel at 6+" and calcium carbonate is present at depths greater than 12".

Table 9. D-3 Adam Good Bear #15-22H Soils

Soil Name	Pad Acres	Road Acres	Total Acres
Zahl-Max	3.9	0.3	4.2
Williams-Zahl	0.2	0.1	0.3

3.6.2 D-3 Mandan #13-14H

The D-3 Mandan #13-14H well site is located on a hillcrest between a native prairie pasture and a cultivated field with side-slopes of approximately 3-5%. Approximately one-half of the well site

and proposed access road areas are comprised of Williams-Zahl loams with the other half of the pad Zahl-Williams loams (Table 10). Topsoil across the proposed site is silty clay loam generally 6" deep. Soils turn to lean clay loams at depths greater than 6".

Table 10. D-3 Mandan #13-14H Soils

Soil Name	Pad Acres	Road Acres	Total Acres
Williams-Zahl	2.4	0.2	2.6
Zahl-Williams	1.8	0	1.8

3.6.3 D-3 Skunk Creek #1-12H

The D-3 Skunk Creek #1-12H well site and access road is located in native prairie pasture with a slope ranging approximately 2-9%. The well site and proposed access road areas are comprised mostly of Dortooth-Cabba complex soils and Coghagen-Vebar loams (Table 11). Topsoil across the proposed site is shallow with only 2-3" of a dark silty clay layer. Soils turn to lean clay at depths greater than 4".

Table 11. D-3 Skunk Creek #1-12H Soils

Soil Name	Pad Acres	Road Acres	Total Acres
Dogtooth-Cabba	4.1	1.0	5.1
Cohagen-Vebar	0	3.3	3.3
Vebar-Parshall	0	0.4	0.4
Arikara loam	0.2	0	0.2

3.7 Vegetation and Noxious Weeds

The Missouri Plateau Ecoregion (Missouri Slope) is a western mixed-grass and short-grass prairie (Bryce et al. 1998). The U.S. Department of Agriculture soil surveys for Dunn and Mountrail Counties describe vegetation within proposed project areas as mostly cultivated farmlands, native grasses, and wetland plants. Common grain and seed crops include wheat, oats, flax, canola, and barley. Native grasses include big bluestem, little bluestem, blue grama, side-oats grama, green needlegrass, and western wheatgrass. Typical wetland plants are smartweed, sedge species, bulrush, bluejoint, and cattail. Woody draws, coulees, and drainages may host communities of chokecherry, buffalo berry, western snowberry and gooseberry.

3.7.1 D-3 Adam Good Bear #15-22H

The D-3 Adam Good Bear #15-22H on-site assessment was conducted October 6, 2009. Native grassland habitat exists at the proposed site. The area is currently used as a horse pasture and at the time of on-site investigation, residual cover was moderate to high. Western wheatgrass (*Agropyron smithii*), needle-and-thread (*Stipa comata*) and Buck brush (*Symphoricarpos occidentalis*) with an understory of Kentucky bluegrass (*Poa pratensis*) dominated the lower portions of the proposed site. Blue gramma (*Bouteloua gracilis)* and threadleaf sedge (*Carex filifolia*) are the dominant grass species found on the higher hillside. Scattered forb species across the site included fringed sagebrush (*Artemisia frigida*), purple prairie clover (*Dalea purpureum*), purple coneflower (*Echinacea angustifolia*), ground plum (*Astragalus crassicarpus*), silver leaf scurfpea (*Psoralea argophylla*), green milkweed (*Asclepias viridiflora*) skeleton weed

(*Lygodesmia juncea*), and an occasional bull thistle (*Cirsium vulgare*). Smooth brome *(Bromus inermis*) and buck brush are found in the roadside ditch.

3.7.2 D-3 Mandan #13-14H

The D-3 Mandan #13-14H on-site assessment was conducted October 30, 2009. The proposed site sits on a convex hilltop straddling a native prairie pasture and a cultivated agricultural field. The short access road connects to the southeast corner of the proposed pad from BIA 601 across native pasture. Blue gramma, threadleaf sedge and prairie junegrass (*Koeleria pyramidata)* are the major native grass species found across the area. Buck brush with an understory of Kentucky bluegrass is also scattered across the site. Crested wheatgrass (*Agropyron cristatum*) has heavily invaded the native, uncultivated area and is found in the fence line and along the cultivated field perimeter. Weed species including Russian thistle (*Salsola kali*), kochia (*Kochia scoparia*) and yellow sweetclover (*Melilotus officinalis*) are also found along the field edge. The pasture was heavily grazed at the time of the on-site assessment.

3.7.3 D-3 Skunk Creek #1-12H

The D-3 Skunk Creek #1-12H on-site assessment was conducted October 30, 2009. The proposed site is located on a native prairie pasture and at the toe of a slope between a treed drainage and a buffalo berry patch on a side hill. Blue gramma, green needlegrass (*Stipa viridula*) and little bluestem (*Andropogon scoparius*) are the major native grass species found along the route and at the pad. Buck brush with an understory of Kentucky bluegrass is also scattered in lower areas along the route and across the site. Forbs found in the area included purple coneflower, fringed sagebrush, pasque flower (*Anemone patens*) and Missouri goldenrod (*Solidago missouriensis*). The access route crosses a treed drainage that is wet due to a spring seep. The drainage contains green ash (*Fraxinus pennsylvanica*), Burr oak (*Quercus macrocarpa*), and Buffalo berry (*Shepherdia argentea*) along with a wetland sedge (*Carex* spp.) present along the saturated bottom. The pasture was heavily grazed and some surface areas were heavily disturbed by cattle at the time of the on-site assessment.

3.7.4 Noxious Weeds

The North Dakota Agriculture Commission (ND Department of Agriculture 2002) identifies twelve noxious weed plant species in the state (Table 12). Seven of the twelve noxious weed species have been reported in at least one of the two counties. These include absinth wormwood, Canada thistle, field bindweed, leafy spurge, musk thistle, saltcedar, and spotted knapweed (ND Department of Agriculture 2007). None of these species was observed during the onsite visits.

Table 12. Noxious weeds known to occur in Dunn and Mountrail Counties

Common Name	Scientific Name	5 year (2003-2007) Average Reported Acres of Noxious Weeds[1]	
		Dunn County	Mountrail County
Absinth wormwood	*Artemisia absinthium*	38,600	1,085
Canada thistle	*Cirsium arvense*	32,800	21,232
Dalmatian toadflax	*Linaria genistifolia*	1	NR
Diffuse knapweed	*Centaurea diffusa*	NR	NR
Field bindweed	*Convolvulus arvensis*	33,000	1,429
Leafy spurge	*Euphorbia esula*	10,500	21,928
Musk thistle	*Carduus nutans*	2	2
Purple loosestrife	*Lythrum salicaria*	NR	NR
Russian knapweed	*Acroptilon repens*	NR	NR
Saltcedar	*Tamarix spp.*	NR	721
Spotted knapweed	*Centaurea maculosa*	0	164
Yellow starthistle	*Centaurea solstitialis*	NR	NR

[1] North Dakota Department of Agriculture 2003-2007
[2] Not Reported

Potential disturbance of +/-17.9 acres and removal of existing soils and vegetation present opportunities for invasive species, however, and threatens to reduce the quality or quantity of forage or crop production. The APD and this EA require the operator to control noxious weeds throughout project areas. Vehicles that have been driven in areas with invasive species must be cleaned with high-pressure sprayers before entering the project area.

Surface disturbance and vehicular traffic must not take place outside approved rights-of-way or the well pad. Areas stripped of topsoil must be re-seeded and reclaimed at the earliest opportunity. Certified weed-free straw and seed must be used for all construction, seeding, and reclamation efforts. Prompt and appropriate construction, operation, and reclamation are expected to reduce vegetative impacts to minimal levels, effectively negating the potential to establish or spread invasive species.

3.8 Cultural Resources

Cultural resources is a broad term encompassing sites, objects, or practices of archaeological, historical, cultural and religious significance. 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. 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). As a result, BIA consults and corresponds with the THPO on all projects proposed within the exterior boundaries of the Fort Berthold Reservation. The MHA Nation has also designated responsible parties for consultations and actions under NAGPRA and cultural resources generally.

Cultural resource inventories of these well pads and access roads were conducted by personnel of Beaver Creek Archaeology, Inc., using a pedestrian methodology. For the D-3 Adam Good Bear #15-22H (formerly D-3 Adam Good Bear #4-15H) project approximately 10.3 acres were intensively inventoried on September 25, 2009 (Pollman and Burns 2009); for the D-3 Mandan #13-14H project approximately 10 acres were inventoried (Roehrdanz and Burns 2009a); and for the D-3 Skunk Creek #1-12H project approximately 18.8 acres were inventoried (Roehrdanz and Burns 2009b). These latter two surveys were done on October 30, 2009. No historic properties were located within any of these project areas that appear to possess the quality of integrity and meet at least one of the criteria (36 CFR 60.6) for inclusion on the National Register. As the lead federal agency, and as provided for in 36 CFR 800.5, on the basis of the information provided, BIA reached determinations of **no historic properties affected** for these undertakings. This determination was communicated to the THPO for the D-3 Adam Good Bear #4-15H project on October 7, 2009, and for the D-3 Mandan #13-14H and D-3 Skunk Creek #1-12H projects on December 1, 2009 (see Part 4). However, no response was received from the THPO within the allotted 30-day comment period for any of these consultation efforts.

3.9 Socio-economics

Socioeconomic conditions include population, demographics, income, employment, and housing. These conditions can be analyzed and compared at various scales. This analysis focuses on the reservation, the four counties that overlap the majority of the Reservation and the state of North Dakota. The state population showed little change between the last two censuses (1990-2000), but there were notable changes locally, as shown in Table 13. Populations in Dunn, McKenzie, McLean, and Mountrail counties declined 5 to 11%, while population on the Fort Berthold Reservation increased by almost 10%. These trends are expected to continue (Rathge et al. 2002). While American Indians are the predominant group on the reservation, they are a minority everywhere else in the state. More than two-thirds (3,986) of the Reservation population are tribal members.

Table 13. Population and Demographics.

County or Reservation	Population in 2000	% of State Population	% Change 1990-2000	Predominant Group	Predominant Minority
Dunn County	3,600	0.56	- 10.1	White	American Indian (12%)
McKenzie County	5,737	0.89	- 10.1	White	American Indian (21%)
McLean County	9,311	1.45	- 11.0	White	American Indian (6%)
Mountrail County	6,631	1.03	- 5.6	White	American Indian (30%)
Fort Berthold Reservation	5,915,	0.92	+ 9.8	American Indian	White (27%)
Statewide	642,200	100	+0.005	White	American Indian (5%)

Source: U.S. Census Bureau 2007.

In addition to the ranching and farming that are employment mainstays in western North Dakota, employment on the Reservation largely consists of ranching, farming, tribal government, tribal enterprises, schools, and federal agencies. The MHA Nation's Four Bears Casino and Lodge, near New Town, employs over 320 people, 90% of which are tribal members (Three Affiliated Tribes 2008).

As shown in Table 14 counties overlapping the Reservation tend to have per capita incomes, median household incomes, and employment rates that are lower than North Dakota statewide averages. Reservation residents have lower average incomes and higher unemployment rates compared to the encompassing counties. MHA Nation members are in turn disadvantaged relative to overall Reservation incomes and unemployment rates that average in non-Indian data. The most recent census found that per capita income for residents of the Reservation is $10,291 (less that 1/3 the state average). Overcrowded housing skews the median reservation household income upward to $26,274 (about 1/3 the state average). A BIA report in 2003 found that 33% of employed MHA Nation members were living below federal poverty levels. The unemployment rate of tribal members is 22% compared to 11.1% for the reservation as a whole and 4.6% statewide.

Table 14. Income and Unemployment.

Unit of Analysis	Per Capita Income	Median Household Income	Unemployment Rate (2007)	Employed but Below Poverty Level	Percent of All People in Poverty
MHA Nation	--	--	22%	33%	Unknown
Fort Berthold Reservation	$10,291	$26,274	11.1%	--	Unknown
Mountrail County	$29,071	$34,541	5.8%	--	15.4%
Dunn County	$27,528	$35,107	3.4%	--	13%
McKenzie County	$27,477,	$35,348	3.1%	--	15.8%
McLean County	$32,387	$37,652	4.7%	--	12.8%
North Dakota	$31,871	$40,818	3.2%		11.2%

Source: U.S. Department of Agriculture Economic Research Data 2008 and BIA 2003.

Availability and affordability of housing can affect oil and gas development and operations. Housing information from the year 2000 is summarized in Table 15. The tribal Housing Authority manages a majority of the housing units within the reservation. Housing typically consists of homes built through various government programs, low-rent housing units, and scattered-site homes. Private purchase and rental housing are available in New Town. New housing construction has recently increased within much of the analysis area, but availability remains low.

The proposed projects are not expected to have measurable impacts on population trends, local unemployment rates or housing starts. Relatively high-paying construction jobs will result from exploration and development of oil and gas reserves on the reservation, but most of these opportunities are expected to be short-term. The proposed action will require temporary employees during the well construction cycle and one to two full-time employees from the long-term production cycle. Short-term construction employment will provide some economic benefit. Long-term commercial operations will provide significant royalty income and indirect economic benefits.

Table 15. Housing

Housing Development	Fort Berthold Reservation	Dunn County	McKenzie County	McLean County	Mountrail County
Existing Housing					
Owner-Occupied Units	1,122	1,570	2,009	4,332	2,495
Renter Occupied Units	786	395	710	932	941
Total	1,908	1,965	2,719	5,264	3,436
New Private Housing Building Permits 2000-2005	--	18	4	135	113
Housing Development Statistics					
State rank in housing starts	--	51 of 53	15 of 53	21 of 53	17 of 53
National rank in housing starts	--	3112 / 3141	2498 / 3141	2691 / 3141	2559 / 3141

Source: U.S. Census Bureau 2007 and 2008

3.10 Environmental Justice

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

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

Environmental Justice is an evolving concept with potential for disagreement over the scope of analysis and the implications for federal responsiveness. It is nevertheless clear that tribal members on the Great Plains qualify for EJ consideration as both a minority and low-income population. The population of the Dakotas is predominantly Caucasian. While some 70% of Reservation residents are tribal members, Indians comprise only 5% of North Dakota residents. Even in a state with relatively low per capita and household income, Indian individuals and households are distinctly disadvantaged.

There are, however, some unusual EJ considerations when proposed federal actions are meant to benefit tribal members. Determination of fair treatment necessarily considers the distribution of both benefits and negative impacts, due to variation in the interests of various tribal groups and individuals. There is also potential for major differences in impacts to resident tribal members and those enrolled or living elsewhere. A general benefit to the MHA Nation government and infrastructure has already resulted from tribal leasing, fees, and taxes. Oil and gas leasing has also already brought much-needed income to MHA Nation members who hold mineral interests, some of whom might eventually benefit further from royalties on commercial production. Profitable production rates at proposed locations might lead to exploration and development on additional tracts owned by currently non-benefitting allottees. The absence of lease and royalty income does not preclude other benefits. Exploration and development will provide many relatively high-paying jobs, with oversight from the Tribal Employment Rights Office.

The owners of allotted surface within the project areas may not hold mineral rights. In such case, surface owners do not receive oil and gas lease or royalty income and their only income will be compensatory for productive acreage lost due to road and well pad construction. Tribal members without either surface or mineral rights will not receive any direct benefits whatsoever. Indirect benefits of employment and general tribal gains will be the only potential offsets to negative impacts.

Potential impacts to tribes and tribal members include disturbance of cultural resources. There is potential for disproportionate impacts, especially if the impacted tribes and members do not reside within the Reservation and therefore do not share in direct or indirect benefits. This potential is significantly reduced following the surveys of proposed well locations and access road routes and determination by the BIA that there will be no effect to historic properties. Research and survey has found nothing to be present on the site that qualifies as a traditional cultural property (TCP) or that requires protection under the *American Indian Religious Freedom Act.* Potential for disproportionate impacts is further mitigated by requirements for immediate work stoppage following an unexpected discovery of cultural resources of any type. Mandatory consultations will take place during any such work stoppage, affording an opportunity for all affected parties to assert their interests and contribute to an appropriate resolution, regardless of their home location or tribal affiliation.

The proposed project has not been found to pose significant impacts to any other critical element – air, public health and safety, water, wetlands, wildlife, vegetation, or soils – within the

human environment. The proposed action offers many positive consequences for tribal members, while recognizing Environmental Justice concerns. Procedures summarized in this document and in the APD are binding and sufficient. No laws, regulations, or other requirements have been waived; no compensatory mitigations measures are required.

3.11 Mitigation and Monitoring

Many protective measures and procedures are described in this document and in the APD. No laws, regulations, or other requirements have been waived; no compensatory mitigation measures are required.

3.12 Irreversible and Irretrievable Commitment of Resources

Removal and consumption of oil and/or gas from the Bakken Formation will 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 earthmoving or in collisions with vehicles, and energy expended during construction and operation.

3.13 Short-Term Use versus Long-Term Productivity

Short-term activities will not detract significantly from long-term productivity of the project areas. The small areas dedicated to the access roads and well pads will be unavailable for livestock grazing, wildlife habitat, and other uses. Allottees with surface rights will be compensated for loss of productive acreage and project footprints will shrink considerably once wells are drilled and non-working areas are reclaimed and reseeded. Successful and ongoing reclamation of the landscape will quickly support wildlife and livestock grazing, stabilize the soil, and reduce the potential for erosion and sedimentation. The major long-term resource loss corresponds with the project purpose: extraction of hydrocarbons from the Bakken Formation.

3.14 Cumulative Impacts

The landscape and vegetation of the Great Plains have undergone continual transformations due to the influences of nature and human actions. Cumulative effects have occurred as a loss and alteration of habitats caused by cultivation, range management practices, fire suppression, exotic species introductions, resource development, and other practices. Environmental impacts may accumulate either over time or in combination with similar activities in the area. Unrelated activities may also have negative impacts on critical elements, thereby contributing to cumulative degradation of the environment. Past and current disturbances near the proposed project include farming, grazing, roads, and other oil/gas wells. Current land uses are expected to continue with little change, since undivided interests in the land surface are often held by different tribal members than those holding mineral rights. Virtually all-available acreage is already organized into agricultural leases or range units to utilize surface resources for economic benefit; oil and gas development is not expected to have more than a minor effect on surface use patterns.

There will be minimal ground disturbing activities to lands that have not been previously cultivated or otherwise physically manipulated. Only one site will disturb native prairie rangelands. There are no wetlands, floodplains, or major drainage facilities that will be significantly negatively affected by the proposed well sites. Current land uses are expected to

continue with little change other than the acreage required for development will not be cultivated. Increased truck traffic on adjacent roadways can be expected and has a documented negative, but manageable, impact on road conditions.

The major activity with potential to impact critical elements of the human environment is oil field development. Over the past several years, exploration has accelerated over the Bakken Formation. Most of this exploration has taken place outside the reservation boundary on fee land, but for purposes of cumulative impact analyses, land ownership and the reservation boundary are immaterial. Perimeters of 1, 5, 10, and 20 miles around the proposed well sites were therefore evaluated to determine the level of oil and gas activity in the surrounding area, as shown in Table 16 and Figure 16. There are two active wells within a mile of the D-3 Skunk Creek #1-12H and a proposed well near the D-3 Mandan #13-14H. Within five miles of the sites, 12 wells are active with at least 16 proposed known or confidential sites in the area. The immediate area around these sites is largely undeveloped. Within ten miles, there are 34 active wells. Within 20 miles, there are 346 active oil and gas wells, the vast majority are surrounding the reservation. The Fort Berthold Reservation now has 100 active oil and gas wells with another 173 proposed, permitted or in the process of being drilled.

Table 16. Oil and Gas Well Status in Area

Distance from Well Sites	Active Wells	Confidential or Proposed Wells	Permitted to Drill	Currently Drilling[1]	**Totals**
0-1 miles	2	1	0	0	**3**
1-5 miles	10	15	0	4	**29**
5-10 miles	22	46	5	7	**80**
10-20 miles	312	135	36	14	**497**
Cumulative Total (20-mile radius)	**346**	**197**	**41**	**26**	**609**
Fort Berthold Reservation	**100**	**134**	**24**	**15**	**273**

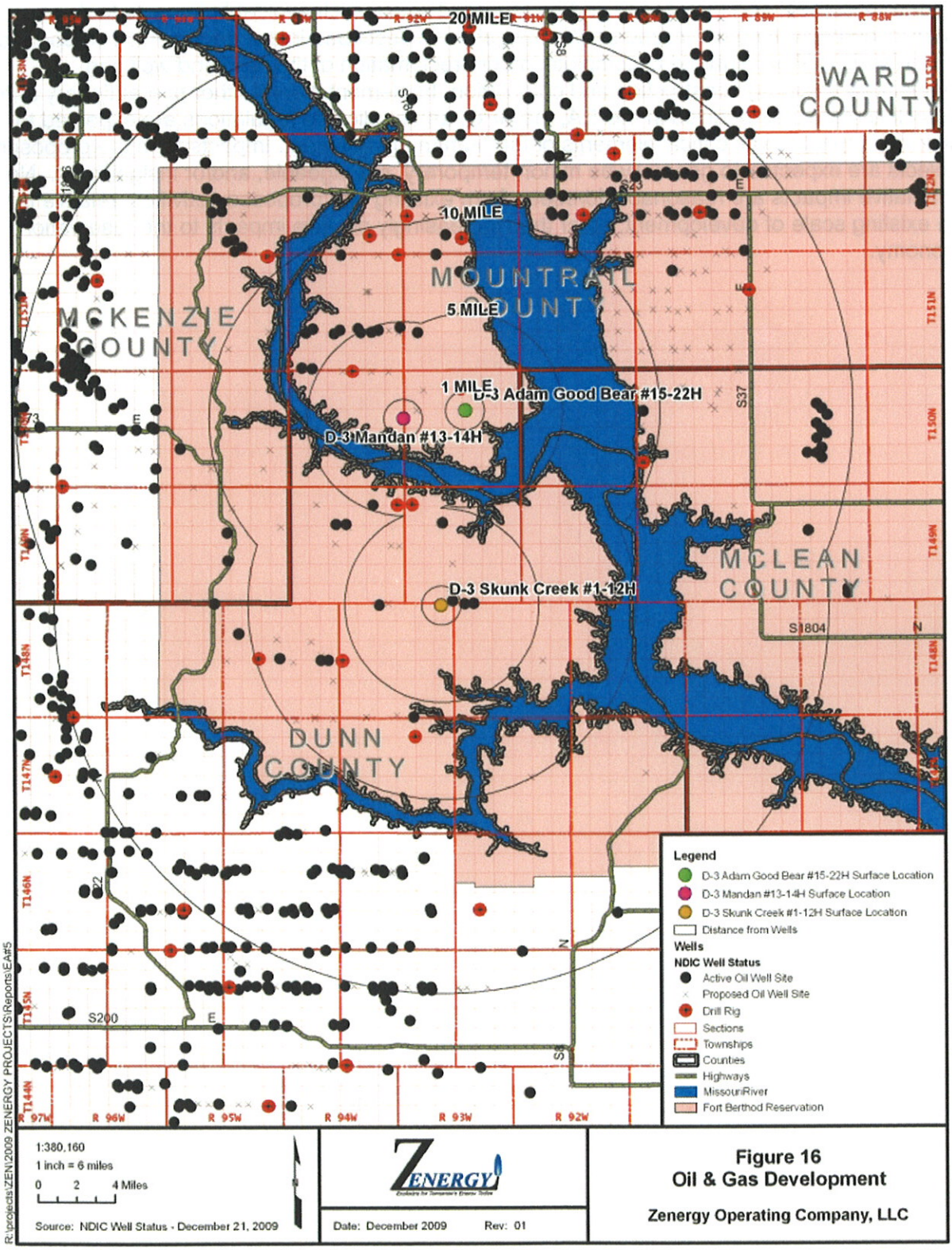
*NDIC OG well status – December 21, 2009

Currently there are relatively few constructed well pads within the reservation and near the proposed site but development is increasing quickly. One of the projects proposed in this EA will share portion of a road with an established installation and collateral use will occur with other proposed well sites whenever possible. Commercial success at any new well might result in additional oil/gas exploration proposals, but such developments are speculative at this time. Zenergy has more wells proposed, in the planning process or in the application process and may eventually be drilled in the same general area. Such developments will rely wherever possible on shared roads, centralized and downsized facilities, and other opportunities to reduce surface disturbance and impacts to the human environment.

Approved oil/gas leases may lead to additional exploration and development, but additional analysis and BIA approval are required before the surface is disturbed at any other location. Potential impacts from possible future development cannot be meaningfully analyzed at this time. Not only is the level of development highly sensitive to volatile commodities prices, but additional development may increase interest in pipelines, thereby *reducing* impacts to certain critical elements of the human environment, such as public safety and air quality.

Proposed actions have been planned to avoid impacts to wetlands, floodplains, surface water, cultural resources, and threatened and endangered species. Unavoidable impacts to these or other resources will be minimized and/or mitigated as described in this document. The operator of any facility will be required to complete interim reclamation of the road and well pad immediately following construction and completion. Implementation of other precautionary and protective measures detailed in this EA, the APD, and applicable regulations are expected to minimize impacts to all critical elements of the human environment. Impacts from the proposed projects are expected to generally be minor, temporary, manageable, and/or insignificant. No cumulative impacts are reasonably foreseen from existing and proposed activities, relative to the existing scale of development, other than increasingly positive impacts to the reservation economy.

Figure 16. Gas and Oil Development



4.0 Consultation and Coordination

The project scoping letters were sent to direct mail recipients at the respective agencies listed in Table 17. Comments received for each proposed well site are included in Appendices A through C.

Table 17. Scoping letter recipients

Agency	Proposed Well	Comments
US Fish and Wildlife Service	D-3 Adam Good Bear 15-22H	Received – Appendix A
	D-3 Mandan 13-14H	No Response
	D-3 Skunk Creek 1-12H	No Response
ND Game and Fish Department	D-3 Adam Good Bear 15-22H	Received – Appendix A
	D-3 Mandan 13-14H	Received – Appendix A
	D-3 Skunk Creek 1-12H	Received – Appendix A
Bureau of Land Management	D-3 Adam Good Bear 15-22H	No Response
	D-3 Mandan 13-14H	No Response
	D-3 Skunk Creek 1-12H	No Response
ND Parks and Recreation Department	D-3 Adam Good Bear 15-22H	Received – Appendix A
	D-3 Mandan 13-14H	Received – Appendix A
	D-3 Skunk Creek 1-12H	Received – Appendix A

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

OCT 07 2009

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

Dear Mr. Brady:

We have considered the potential effects on cultural resources of five oil well pads and access roads in Mountrail County, North Dakota. Approximately 103.7 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-1678/FB/09,** the proposed undertakings, locations, and project dimensions are described in the following reports:

Pollman, Jennifer, and Wade Burns
(2009) Dakota-3 Adam Good Bear #4-15H Well Pad and Access Road: A Class III Cultural Resource Inventory, Mountrail County, North Dakota. Beaver Creek Archaeology for Zenergy Operating Company, LLC, Tulsa, OK.
(2009) Dakota-3 Bad Brave #4-2H Well Pad and Access Road: A Class III Cultural Resource Inventory, Mountrail County, North Dakota. Beaver Creek Archaeology for Zenergy Operating Company, LLC, Tulsa, OK.
(2009) Dakota-3 Hidatsa #15-14H & #23-26H Duel (*sic.*) Well Pad and Access Road: A Class III Cultural Resource Inventory, Mountrail County, North Dakota. Beaver Creek Archaeology for Zenergy Operating Company, LLC, Tulsa, OK.
(2009) Dakota-3 Mable Evans #16-10H Well Pad and Access Road: A Class III Cultural Resource Inventory, Mountrail County, North Dakota. Beaver Creek Archaeology for Zenergy Operating Company, LLC, Tulsa, OK.
(2009) Dakota-3 Mary R. Smith #4-5H Well Pad and Access Road: A Class III Cultural Resource Inventory, Mountrail County, North Dakota. Beaver Creek Archaeology for Zenergy Operating Company, LLC, Tulsa, OK.

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

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

Sincerely,

ACTING Regional Director

Enclosures

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

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

DEC 0 1 2009

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

Dear Mr. Brady:

We have considered the potential effects on cultural resources of two oil well pads and access roads in Mountrail County, North Dakota. Approximately 20 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 (42 USC 1996).

As the surface management agency, and as provided for in 36 CFR 800.5, we have therefore reached a determination of **no historic properties affected** for these undertakings. Catalogued as **BIA Case Number AAO-1729/FB/10,** the proposed undertakings, locations, and project dimensions are described in the following reports:

Roehrdanz, Jennifer, and Wade Burns
(2009) Dakota-3 Elk #4-16H Well Pad and Access Road: A Class III Cultural Resource Inventory, Mountrail County, North Dakota. Beaver Creek Archaeology for Zenergy Operating Company, LLC, Tulsa, OK.

(2009) Dakota-3 Mandan #13-14H Well Pad and Access Road: A Class III Cultural Resource Inventory, Mountrail County, North Dakota. Beaver Creek Archaeology for Zenergy Operating Company, LLC, Tulsa, OK.

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

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

Sincerely,

Regional Director

Enclosures

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

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

DEC 0 1 2009

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

Dear Mr. Brady:

We have considered the potential effects on cultural resources of three oil well pads and access roads in Dunn and Mountrail Counties, North Dakota. Approximately 39 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 (42 USC 1996).

As the surface management agency, and as provided for in 36 CFR 800.5, we have therefore reached a determination of **no historic properties affected** for these undertakings. Catalogued as **BIA Case Number AAO-1678/FB/09,** the proposed undertakings, locations, and project dimensions are described in the following reports:

Roehrdanz, Jennifer, and Wade Burns
(2009) Dakota-3 George Evans #16-11H Well Pad and Access Road: A Class III Cultural Resource Inventory, Mountrail County, North Dakota. Beaver Creek Archaeology for Zenergy Operating Company, LLC, Tulsa, OK.
(2009) Dakota-3 Mary R. Smith #5-8H Well Pad: A Class III Cultural Resource Inventory, Mountrail County, North Dakota. Beaver Creek Archaeology for Zenergy Operating Company, LLC, Tulsa, OK.
(2009) Dakota-3 Skunk Creek #1-12H Well Pad and Access Road: A Class III Cultural Resource Inventory, Dunn County, North Dakota. Beaver Creek Archaeology for Zenergy Operating Company, LLC, Tulsa, OK.

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

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

Sincerely,

Regional Director

Enclosures

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

5.0 List of Preparers

An interdisciplinary team contributed to this document, following guidance in Part 1502.6 of CEQ regulations. Portions of the documents were drafted by McCain and Associates, Inc, under contract to Zenergy and under the direction of BIA. Federal officials, oil and gas representatives, and consultants included the following:

Bureau of Indian Affairs
Marilyn Bercier
Mark Herman
Carson Murdy

Zenergy Operating Company, LLC
Kelley Bryan, Landman and Project Manager

McCain and Associates, Inc.
Todd Hartleben, Principal Engineer
Ryan Krapp, Wildlife Biologist/GIS Specialist

6.0 Applications for Permit to Drill

7.0 References and Acronyms

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Acronyms

AAQM	Ambient Air Quality Monitoring (site)
AIRFA	American Indian Religious Freedom Act
APD	Application for Permit to Drill
APE	Area of Potential Affect
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FONSI	Finding of No Significant Impact
GPRO	Great Plains Regional Office
MHA Nation	Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nation
NAGPRA	Native American Graves Protection and Repatriation Act
NDCC	North Dakota Century Code
NDDH	North Dakota Department of Health
NDIC	North Dakota Industrial Commission
NDNH	North Dakota Natural Heritage
NDSWC	North Dakota State Water Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPAL	Northern Plains Agro-ecosystems Laboratory
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTL	Notice to Lessees
SHPO	State Historic Preservation Officer
TCP	Traditional Cultural Property
TERO	Tribal Employment Rights Office
THPO	Tribal Historic Preservation Officer
TVD	Total Vertical Depth

USC	United States Code
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Appendix A

Agency Comments Received

"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

Ryan J. Krapp
Ecologist/GIS Specialist
McCain and Associates, Inc.
2718 Gateway Ave, Suite 101
Bismarck, ND 58503

Dear Mr. Krapp:

RE: Zenergy Inc.
Proposed Oil Well Locations

Zenergy is proposing two wells sites on the Fort Berthold Reservation in Section 15, T150N, R92W, and Section 23, T150N, R93W in Mountrail County, North Dakota.

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,

Steve Dyke

(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

November 12, 2009

Ryan J. Krapp
McCain and Associates, Inc.
2718 Gateway Ave., Suite 101
Bismarck, ND 58503

Re: Zenergy Inc. Proposed Oil Well Location Project
Fort Berthold Reservation
Dakota-3 Adam Good Bear #4-15H

Dear Mr. Krapp:

The North Dakota Parks and Recreation Department has reviewed the above referenced project proposal submitted by Zenergy Inc. to construct an oil well located in Section 15, T150N, R92W, 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 historic 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, there are no known occurrences within or adjacent to the project area.

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.

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

Sincerely,

for Kathy Duttenhefner

Jesse Hanson, Coordinator
Planning and Natural Resources Division

R.USNDNHI*319

Play in our backyard!

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
3425 Miriam Avenue
Bismarck, North Dakota 58501

DEC 17 2009

Mr. Ryan J. Krapp
Ecologist/GIS Specialist
McCain and Associates
2718 Gateway Avenue, Suite 101
Bismarck, North Dakota 58503

Re: One exploratory oil and gas well on the Fort Berthold Reservation

Dear Mr. Krapp: Adam Good Bear 4-15H

This is in response to your October 8, 2009, letter regarding proposed exploratory oil and gas wells on the Fort Berthold Reservation. Zenergy Inc. has proposed an exploratory oil and gas well on the Fort Berthold Reservation, Mountrail County, North Dakota.

Specific location is:
T. 150 N., R. 92 W., Section 15

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 McCain and Associates, Inc. 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 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 one-half 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).

Whooping cranes are unlikely to spend more than a few days in any one spot during migration. The Service suggests that the Environmental Assessment (EA) include a requirement that if a whooping crane is sighted within one mile of a well site or associated facilities while it is under construction, that all work cease within one 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 one year of a well's closure, the well pads, roads, and associated facilities should be completely removed from the landscape, the land re-contoured 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/revegdocjuly2003final.pdf). This document requires that reclaimed areas be managed for a minimum of ten years, starting in the year when first seeded. Starting in the sixth year, for at least two 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

Jeffrey K. Towner
Field Supervisor
North Dakota Field Office

Enclosures

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

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FEDERAL THREATENED, ENDANGERED, AND CANDIDATE SPECIES
AND DESIGNATED CRITICAL HABITAT FOUND IN
MOUNTRAIL COUNTY, NORTH DAKOTA
December 2009

ENDANGERED SPECIES

Birds

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

Whooping crane (Grus Americana): Migrates through west and central counties during spring and fall. Prefers to roost on wetlands and stockdams with good visibility. Young adult summered in North Dakota in 1989, 1990, and 1993. Total population 140-150 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

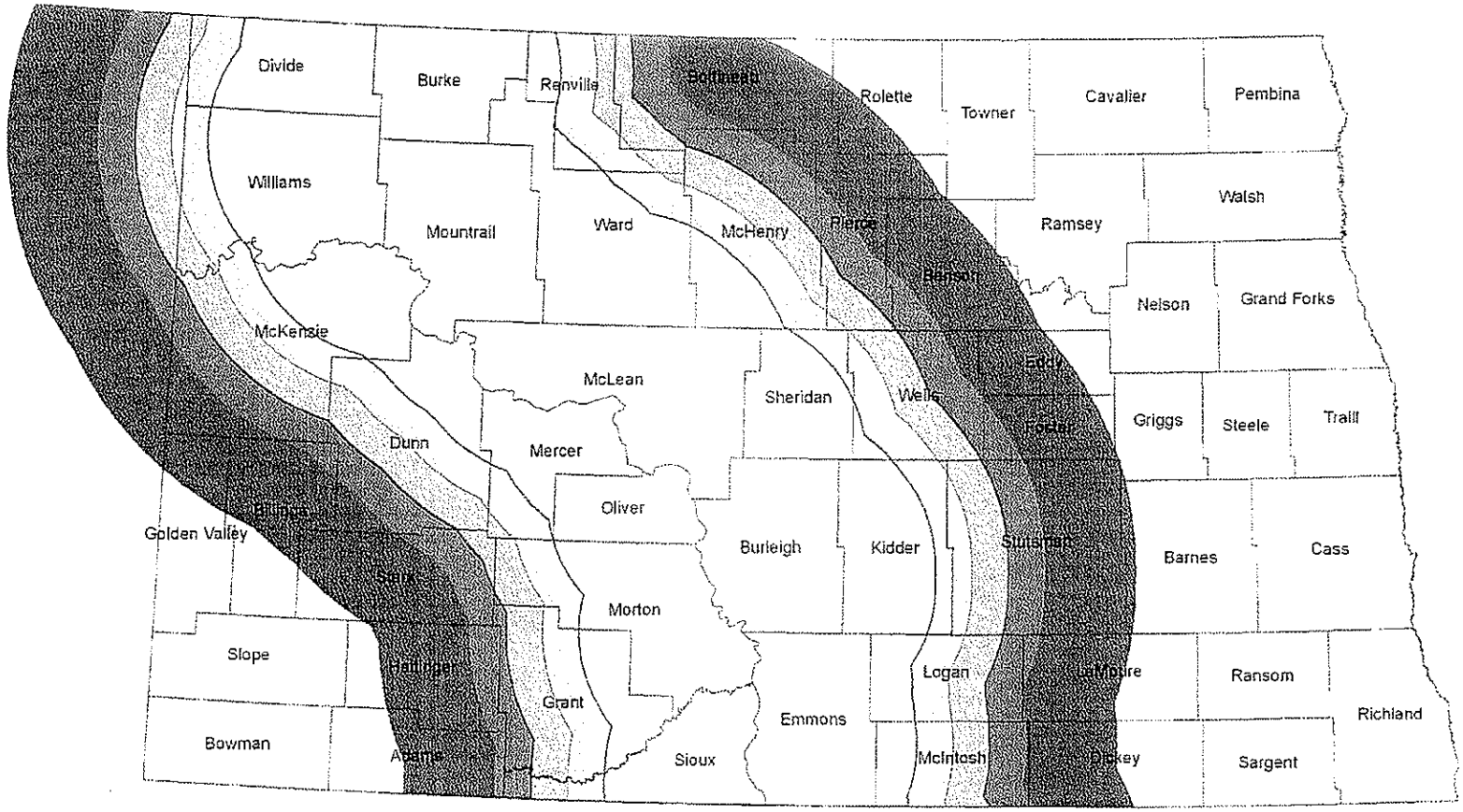
Invertebrates

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.

U.S. Fish and Wildlife Service

North Dakota and Montana Whooping Crane Migration Corridor

Central Flyway of the United States



Legend
Percent of Central Flyway Confirmed Sightings

- 75%
- 80%
- 85%
- 90%
- 95%

Miles
0 10 20 40 60 80

N
W E
S

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

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

November 19, 2009

Ryan J. Krapp
McCain and Associates, Inc.
2718 Gateway Ave, Suite 101
Bismarck, ND 58503

Re: Zenergy Inc. Proposed Oil Well Location
D-3 Mandan #13-14H

Dear Mr. Krapp:

The North Dakota Parks and Recreation Department has reviewed the above referenced project proposal to develop a well on the Fort Berthold Reservation located in Section 13, 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 historic 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 have records indicating that habitat may exist for *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. Please see the attached spreadsheet and map for more specific information.

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.

The Department recommends that the project be accomplished with minimal impacts and that all efforts be made to ensure that critical habitats not be disturbed in the project area to help secure rare species conservation in North Dakota. Regarding any reclamation efforts, we recommend that any impacted areas be revegetated with species native to the project area.

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

Sincerely,

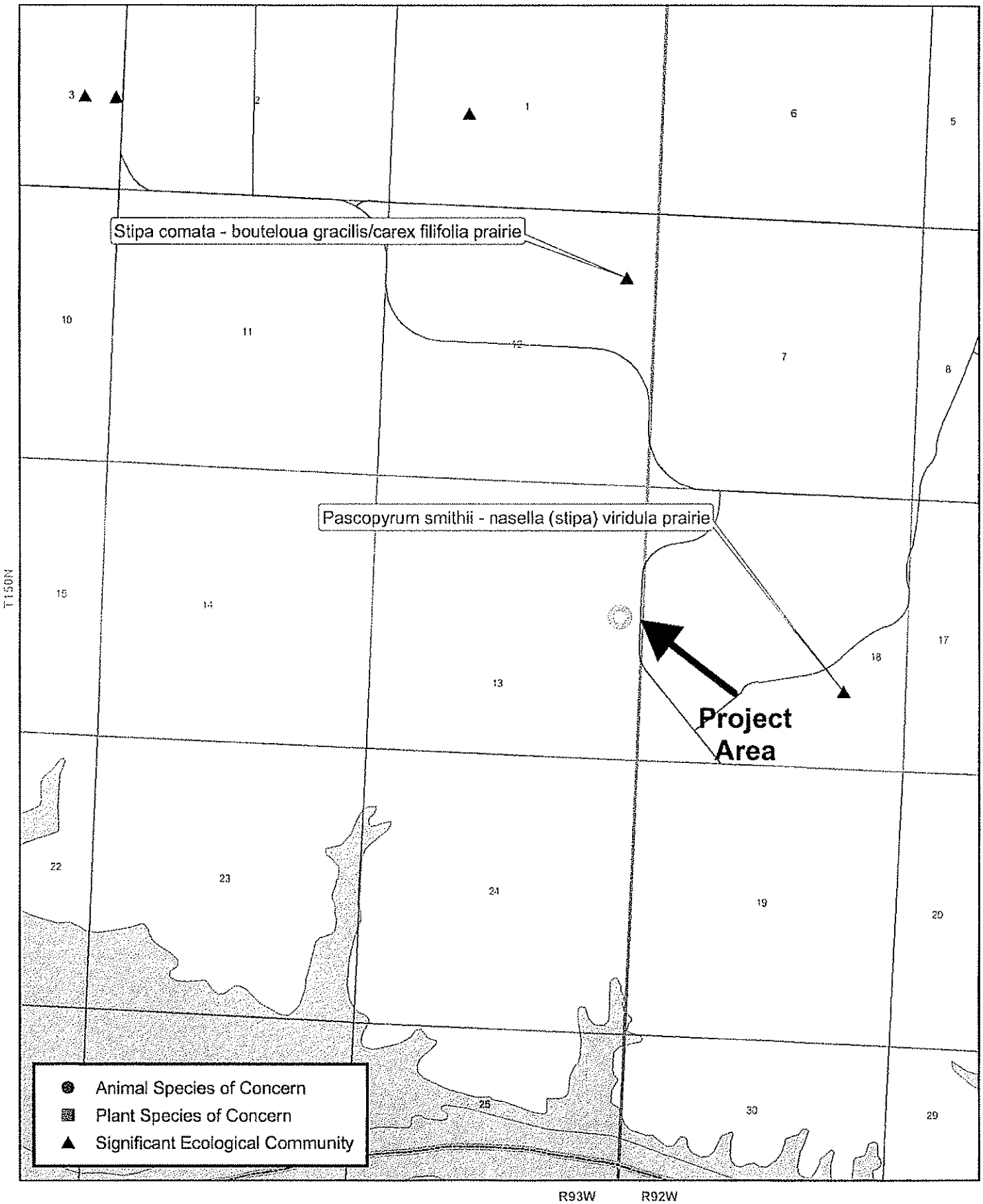
Jesse Hanson

Jesse Hanson, Coordinator
Planning and Natural Resources Division

R.USNDNHI*2009-350

Play in our backyard!

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



North Dakota Parks & Recreation Department
North Dakota Natural Heritage Inventory
November 2009

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
Pascopyrum smithii - naseila (stipa) viridula 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
Stipa comata - bouteloua gracilis/carex filifolia 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

"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

December 11, 2009

Ryan J. Krapp
Ecologist/GIS Specialist
McCain and Associates, Inc.
2718 Gateway Ave, Suite 101
Bismarck, ND 58503

Dear Mr. Krapp:

RE: Zenergy Inc.
Proposed Oil Well Locations

Zenergy, Inc. is proposing three wells sites on the Fort Berthold Reservation in Sections 1 & 16, T150N, R92W, and Section 13, T150N, R93W in Mountrail County, North Dakota.

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,

Steve Ryhe

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

js

John Hoeven, Governor
Douglass A. Prchal, Director

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Bismarck, ND 58503-0649
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www.parkrec.nd.gov

December 21, 2009

Ryan J. Krapp
McCain and Associates, Inc.
2718 Gateway Ave., Suite 101
Bismarck, ND 58503

Re: Zenergy Inc. Oil Well Location Proposal
D-3 Skunk Creek #1-12H

Dear Mr. Krapp:

The North Dakota Parks and Recreation Department has reviewed the above referenced project proposal to drill an oil well located in Section 1, T148N, R93W, Dunn 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 historic 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, there are no known occurrences within or adjacent to the project area.

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.

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

Sincerely,

Jesse Hanson, Coordinator
Planning and Natural Resources Division

R.USNDNHI*373

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"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

December 11, 2009

Ryan J. Krapp
Ecologist/GIS Specialist
McCain and Associates, Inc.
2718 Gateway Ave, Suite 101
Bismarck, ND 58503

Dear Mr. Krapp:

RE: Zenergy Inc.
Proposed Oil Well Locations

Zenergy, Inc. is proposing three wells sites on the Fort Berthold Reservation in Sections 1 & 16, T150N, R92W, and Section 13, T150N, R93W in Mountrail County, North Dakota.

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,

Steve Dyke

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

js

Notice of Availability and Appeal Rights

Zenergy:
D-3 Adam Good Bear #15-22H
D-3 Mandan #13-14H
D-3 Skunk Creek #1-12H

The Bureau of Indian Affairs (BIA) is planning to issue administrative approvals related to installation of three oil/gas wells as shown on the attached map. Construction by Zenergy 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 February 22, 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.