



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Great Plains Regional Office MC-208
115 Fourth Avenue S.E. , Suite 400
Aberdeen, South Dakota 57401




IN REPLY REFER TO:
DESCRM
MC-208

MAY 17 2011

MEMORANDUM

TO: Superintendent, Fort Berthold Agency

FROM: Regional Director, Great Plains Region 

SUBJECT: Environmental Assessment and Finding of No Significant Impact

In compliance with the regulations of the National Environmental Policy Act (NEPA) of 1969, as amended, for ten proposed oil and gas wells atop a single pad by Spotted Hawk Development on the Fort Berthold Reservation, an Environmental Assessment (EA) has been completed and a Finding of No Significant Impact (FONSI) has been issued.

All the necessary requirements of the National Environmental Policy Act have been completed. Attached for your files is a copy of the EA, FONSI and Notice of Availability. The Council on Environmental Quality (CEQ) regulations require that there be a public notice of availability of the (40 C.F.R. Part 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: Tex Hall, Chairman, Three Affiliated Tribes (with attachment)
Elgin Crows Breast, THPO (with attachment)
Derek Enderud, BLM, Dickinson, ND (with attachment)
John Shelman, US Army Corps of Engineers
Jeffrey Hunt, Virtual One Stop Shop

Finding of No Significant Impact

Spotted Hawk Development (SHD)

Environmental Assessment for Up to 10 Wells from One Pad:

Mattie Grace Well Pad

Fort Berthold Indian Reservation McLean County, North Dakota

The U.S. Bureau of Indian Affairs (BIA) has received a proposal to drill up to 10 exploratory oil/gas wells from one pad site, access roads and related infrastructure on the Fort Berthold Indian Reservation located in Section 18, Township 150 North, Range 91 West, in McLean County, North Dakota. Associated federal actions by BIA include determinations of effect regarding cultural resources, approvals of leases, rights-of-way and easements, and a positive recommendation to the Bureau of Land Management regarding the Applications for Permit to Drill.

Potential of the proposed actions to impact the human environment is analyzed in the attached addendum to an existing Environmental Assessment (EA), as required by the National Environmental Policy Act. Based on the recently completed addendum to the EA, I have determined that the proposed project 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. This guidance includes the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) (MBTA), the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.) (NEPA), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250) (BGEPA), Executive Order 13186 "Responsibilities of Federal Agencies to Protect Migratory Birds", and the Endangered Species Act (16 U.S.C. 1531 et seq.) (ESA).
4. The proposed actions are designed to avoid adverse effects to historic, archeological, cultural and traditional properties, sites and practices. The Tribal Historic Preservation Officer has concurred with BIA's determination that no historic properties will be affected.
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

5/17/11
Date

ENVIRONMENTAL ASSESSMENT

United States Bureau of Indian Affairs

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



SHD Oil and Gas, LLC

Mattie Grace Pad

Fort Berthold Indian Reservation

May 2011

For information contact:
Bureau of Indian Affairs, Great Plains Regional Office
Division of Environment, Safety and Cultural Resources
115 4th Avenue SE
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Environmental Assessment

Mattie Grace Pad SHD Oil and Gas, LLC

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1.0 Purpose and Need for the Proposed Action

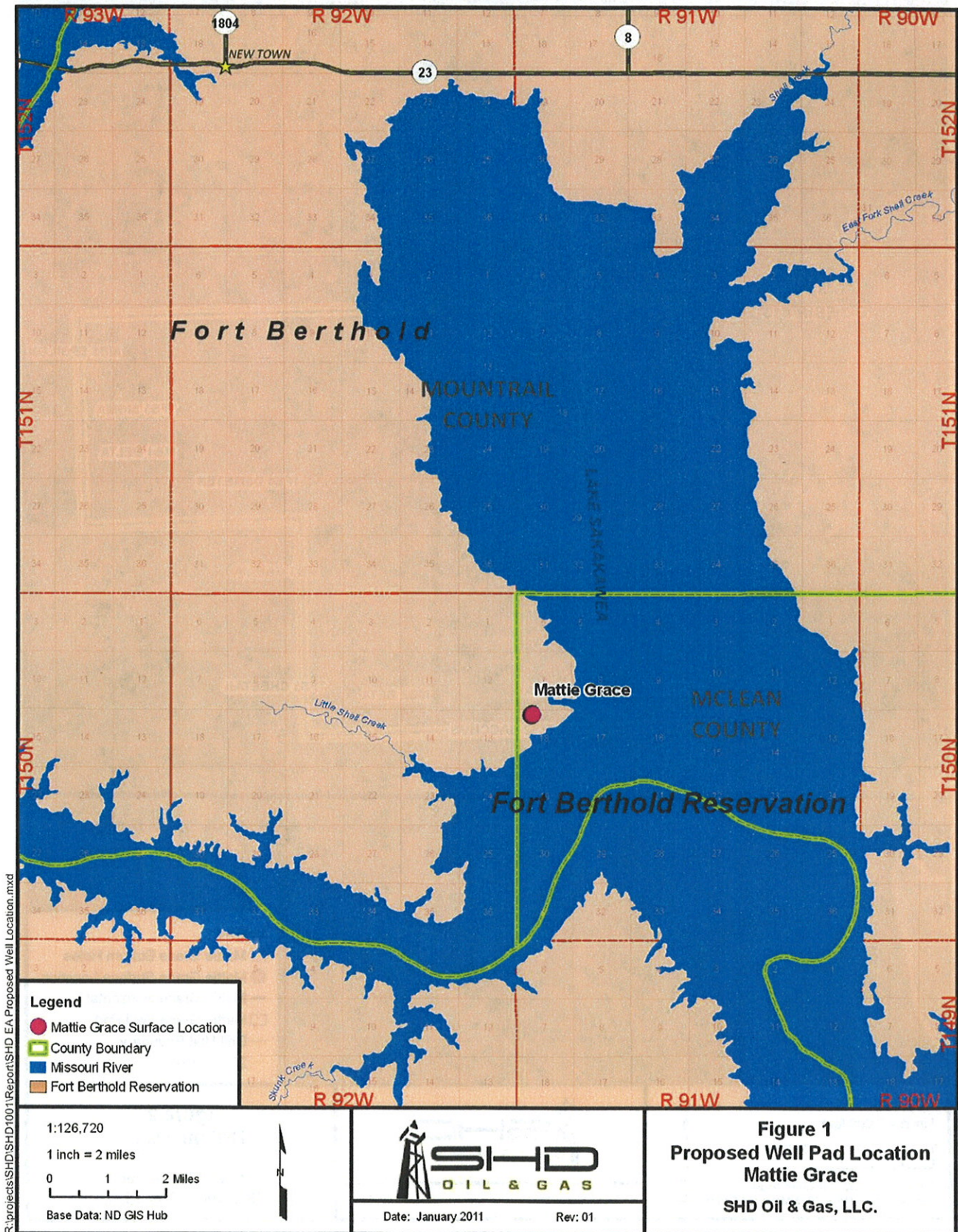
SHD Oil and Gas, LLC (SHD) is proposing to drill ten horizontal oil/gas wells from one pad site on the Fort Berthold Indian Reservation to evaluate and potentially develop the commercial potential of natural resources. The U.S. Bureau of Indian Affairs (BIA) is the surface management agency for potentially 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 McLean County, North Dakota (Figure 1). Multiple well bores will be drilled from pad site and is depicted in Figure 2.

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 SHD included in Section 7 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).

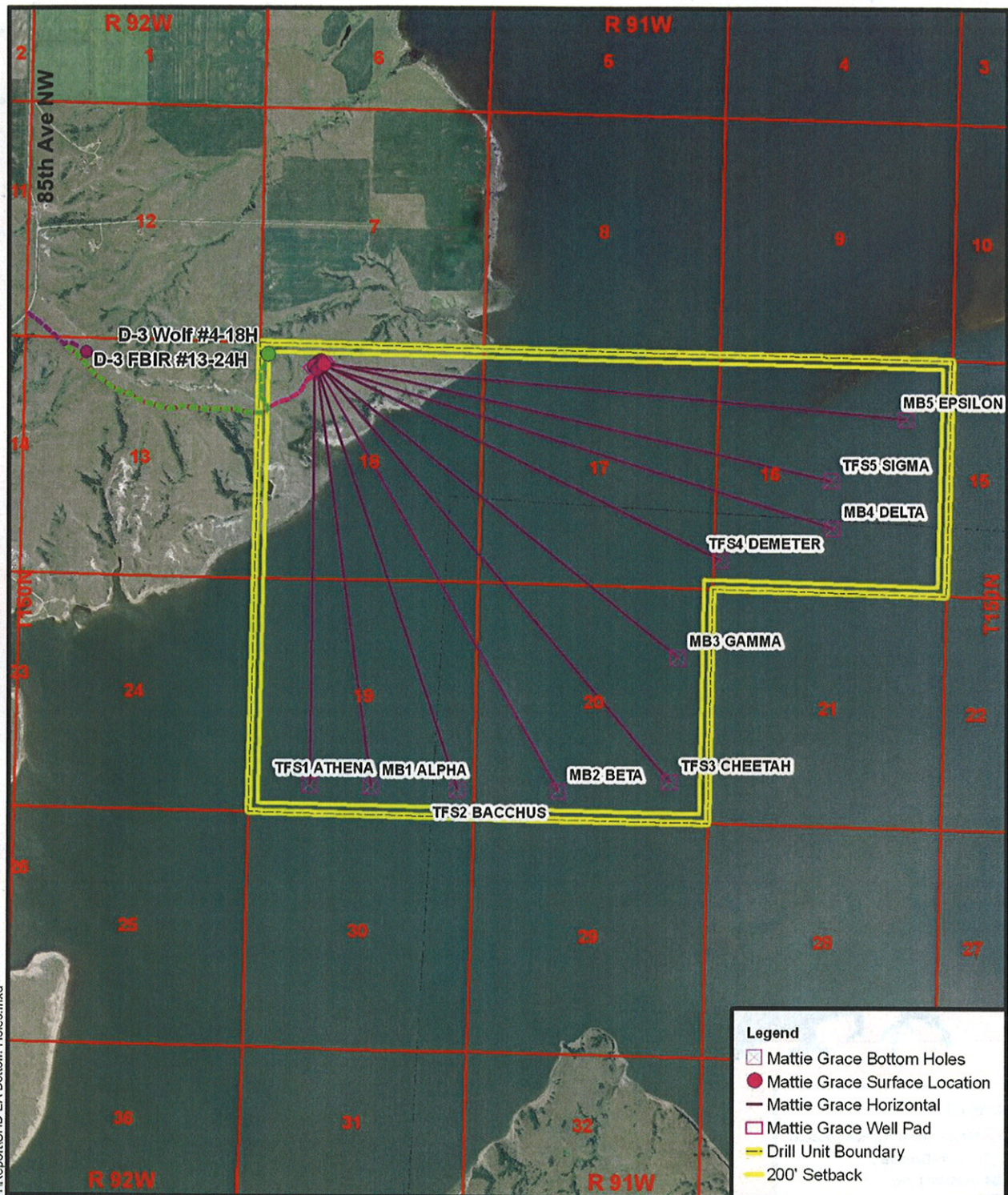
There are several components to the proposed action. Current oil and gas well access roads will be utilized and extended to access proposed well site. The well pad will be constructed to accommodate multi-well drilling operations. Semi-closed loop drilling system pits for dry cuttings will be constructed, used, and reclaimed. Drilling and completion information can result in long-term commercial production at the site, in which case supporting facilities will be installed. The working portions of well pad 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 well site and directly associated infrastructure and facility. 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 Pad Location



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Figure 2. Proposed Drilling Plan



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1:36,000
 1 inch = 3,000 feet
 0 1,500 3,000 Feet

Basemap: USGS 24K Quadrangle
 New Town SW; NAIP 2009 Mountrail County

Date: March 2011 Rev: 01

Figure 2
Drilling Plan

Mattie Grace Pad
SHD Oil & Gas, LLC.

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, three exploratory oil/gas wells on mixed surface ownership and mineral estate within the boundaries of the Fort Berthold Indian Reservation in McLean County, North Dakota. The proposed wells will test the commercial potential of the Middle Bakken Dolomite Member of the Bakken Formation and the Three Forks 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.

The specific well pad locations were determined at a pre-on-site inspections by the proponent, the BIA Environmental Specialist, the civil surveyor, archeologists, the Tribal Historic Preservation Office (THPO) monitor and the environmental consultant. Those in attendance included: BIA Environmental Specialist, Jeff Desjarlais; Dean Graves (Uintah Surveyors); SWCA Archeologists; Tribal Historic Preservation Office (THPO) monitors; and Todd Hartleben and Heather Shaw (McCain).

Resource surveys were conducted on October 18, 2011, at the time of pre-on-site inspections, to determine potential affects to cultural and natural (i.e., biological and physical) resources. The location was inspected in consideration of topography, location of topsoil/subsoil stockpiles, natural drainage and erosion control, flora, fauna, habitat, historical and cultural resources, and other surface issues. The final location was determined in consideration of the previously identified issues. Avoidance measures and other protective measures were incorporated into the final project design to minimize impacts to evaluated resources, as appropriate (see Section 3). During the inspections, the BIA gathered information needed to develop site-specific mitigation measures that will be incorporated in the Permit to Construct.

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

The route to the Mattie Grace starts at the Zenergy D-3 FBIR #13-24H and follows east along the previously evaluated route to the D-3 Zenergy Wolf #18-17H well site (McCain, 2009). Just after crossing into Section 18 the new access road will divert from two-track trail and continue north east approximately 1,300 feet. 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 may result in up to 2.0 acres of new surface disturbance.

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, 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 3.

2.3 Well Pad

The proposed well pad will consist mainly of an area leveled used for drilling and completion operations (including a cuttings pit for drilled dry cuttings) and will be approximately 600 feet long by 400 feet wide (5.5 acres). Cut and fill slopes and stockpiled topsoil and cuttings pit backfill on the edge of pads will disturb additional acreage for a total of 12.0 acres (fenced). Details of pad construction and reclamation are diagrammed in the APD for site. The well pad area 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 pad graded to ensure positive water drainage around the multi-well 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.

Interim site reclamation plans after well drilling completions will reduce the pad graveled surface size to less than half of the original built and those reclaimed areas reseeded according to BIA recommendations.

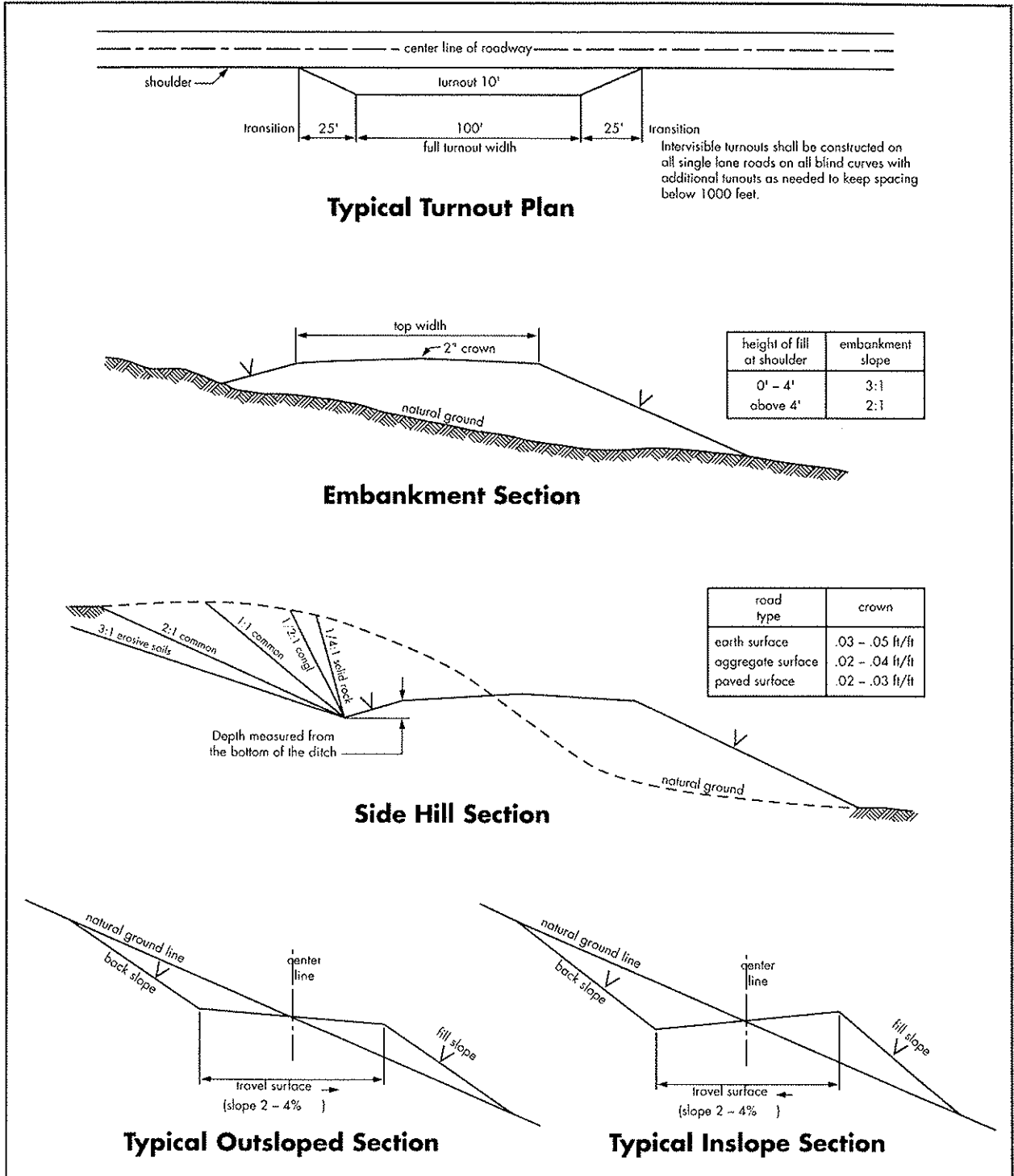
2.4 Drilling

SHD will submit APDs to the BLM for the proposed wells. The BLM North Dakota Field Office will forward 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 4. 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.

Figure 3. Typical roadway cross section (Gold Book)

- Construction Steps**
1. Salvage topsoil
 2. Construct road
 3. Redistribute topsoil
 4. Revegetate slopes



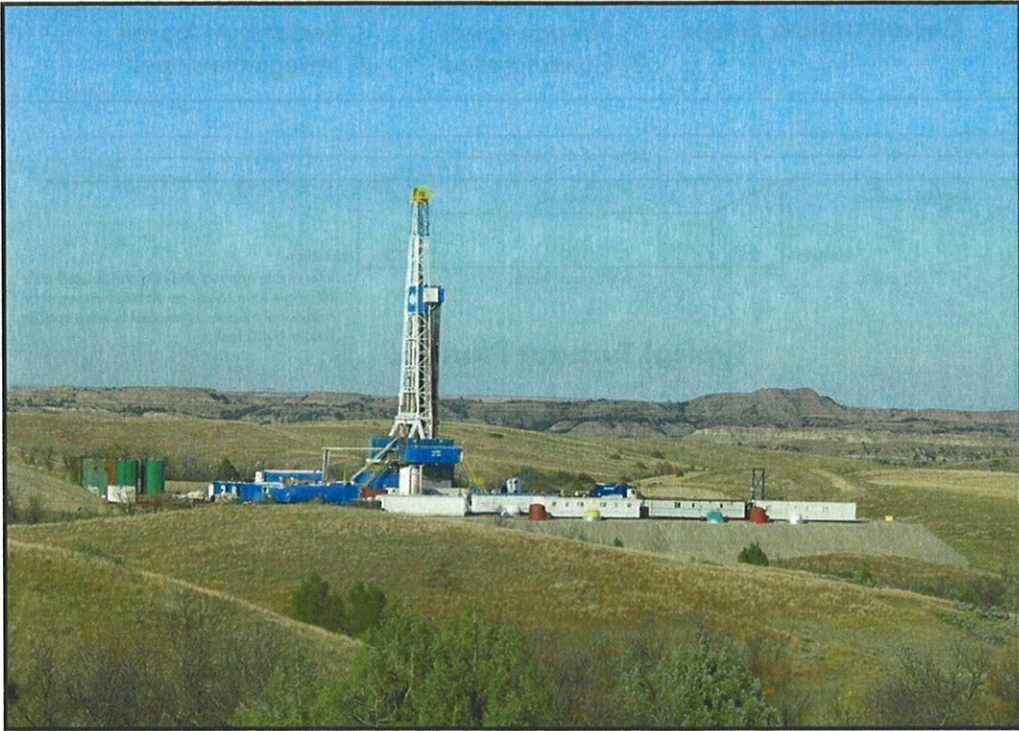


Figure 4. Typical drill rig (McCain and Associates, Inc.)

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 of each well hole will be drilled using on average approximately 33,600 gallons of fresh water.

SHD will use a semi-closed loop drilling system to drill this location. Dry cuttings generated from drilling will be deposited in a cuttings pit on the well pad. Cuttings pit 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 through the life of the well.

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. 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 5 and more detail is included in the APD.

Oil will be either collected in tanks installed in on location and trucked to an existing oil terminal or connected to a proposed oil and gas gathering system. 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.

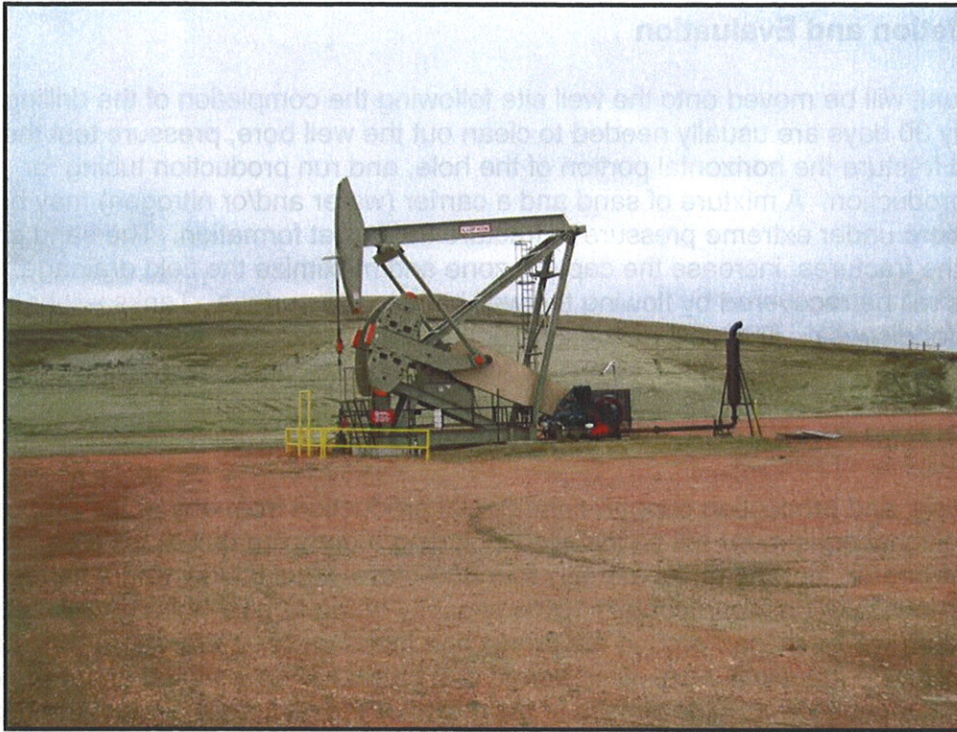


Figure 5. Typical producing unit (McCain and Associates, Inc.)

2.8 Construction Details

2.8.1 Mattie Grace

The proposed Mattie Grace multi-well site is located on a plateau of native grassland surrounded by steep treed drainages leading to Lake Sakakawea the NE $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 18, T150N, R91W (Figure 6). The site is located approximately one mile east of McLean County Road 85th Ave NW.

The pad site is proposed to be built to accommodate up to ten boreholes (Table 1). The boreholes will be drilled vertical then horizontal directionally drilled in an east-southeasterly directions to the bottom hole targets under Lake Sakakawea.

Table 1. Summary of Surface and Bottom Hole Locations

Bore Name*	Surface Location	Bottom Hole
TFS1 ATHENA	528' FNL, 1272'FWL	600' FSL, 1400' FWL
TFS2 BACHHUS	495' FNL, 1310' FWL	600' FSL, 350' FEL
TFS3 CHEETAH	452' FNL, 1347' FWL	875' FSL, 875' FEL
TFS4 DEMETER	429' FNL, 1385' FWL	600' FSL, 175' FWL
TFS5 SIGMA	396' FNL, 1422' FWL	2450' FSL, 2640' FEL
MB1 ALPHA	603' FNL, 1338' FWL	600' FSL, 2275' FEL
MB2 BETA	570' FNL, 1376' FWL	600' FSL, 1925' FWL
MB3 GAMMA	537' FNL, 1413' FWL	1575' FNL, 700' FEL
MB4 DELTA	504' FNL, 1451' FWL	1400' FSL, 2600' FEL
MB5 EPSILON	471' FNL, 1488' FWL	1400' FNL, 1050' FEL

*TF refers to the Three Forks formation, MB refers to the Middle Bakken formation.

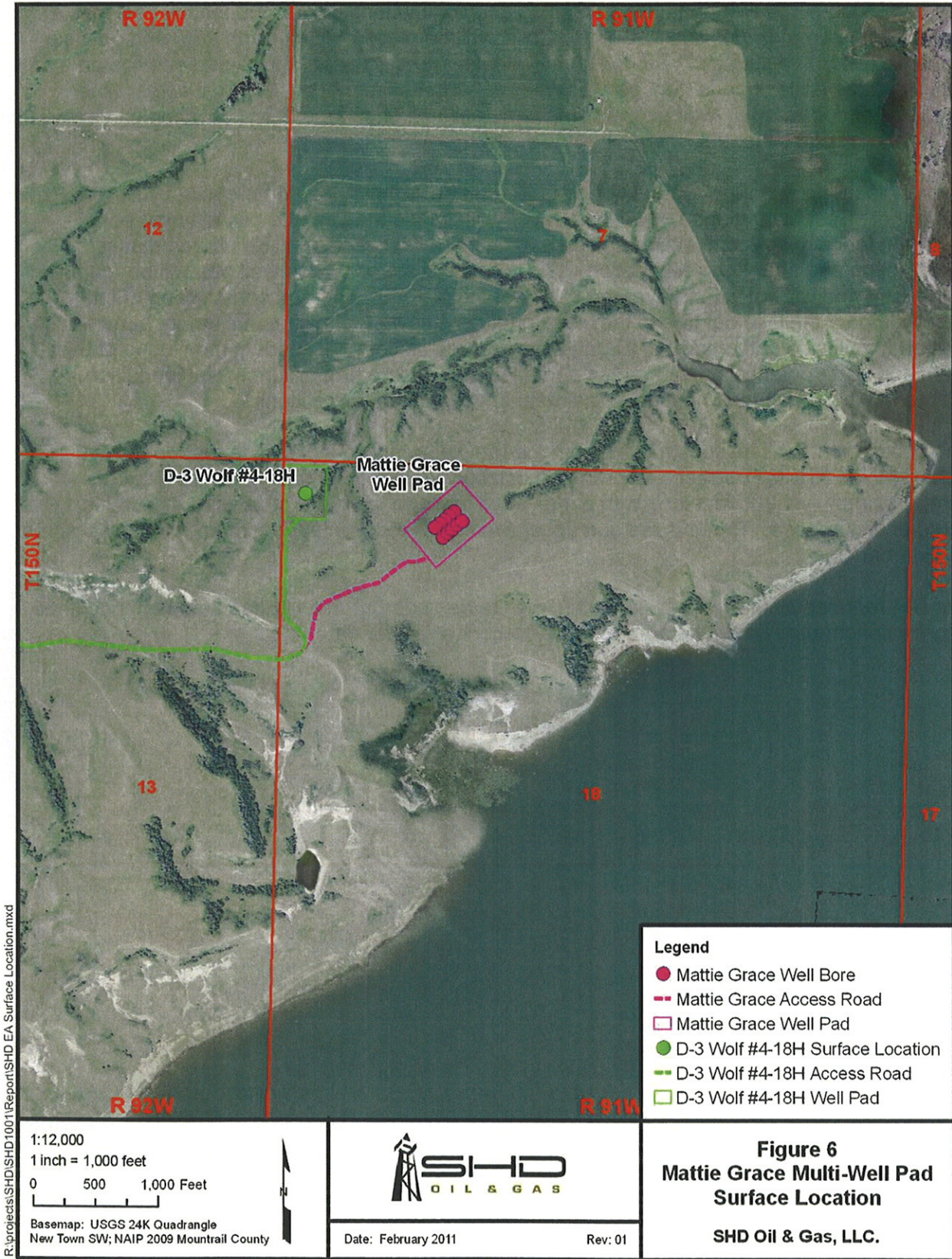
The level area of the well pad used for drilling and completions will be 400 feet by 600 feet in size, or approximately 5.5 acres. Soil stockpiles will be placed on the north (top) and east side of the pad site. The surfaced pad, cut and fill slopes and stockpiled topsoil and cuttings pit backfill on the edge of pads (fenced area) may encompass a total of 12.0 total acres. The development of this multi-well pad will be a large savings of surface area use when compared to ten individual pad sites.

A semi-closed-loop drilling system will be utilized as recommended at the onsite by BIA personnel. Best Management Practices (BMP's) including the use of a containment berm, sediment fencing, soil compaction and reseeding of native species will be utilized during construction and after final reclamation. The corners of the proposed well pad will be rounded as needed and will not extend over the edges of the plateau. The pad construction will not directly impact the lake but due to the close proximity, a two foot high containment berm will be built on the fill side of the pad. SHD and BIA resource officers will conduct monitoring of this berm and other potential erosion areas periodically to ensure proper functioning condition. Maintenance will occur as needed to maintain environmental protections.

The access route will be constructed, from the previously approved access road to the D-3 Zenergy Wolf #18-17H well site following an established two-track trail. The access route will be approximately 1,300 feet long with a maximum disturbance width of 66 feet resulting in 1.9 acres of disturbance. The pad site and access route will result in approximately 14.1 total acres of disturbance.

The BIA requires all utilities and gathering lines to be underground. Utilities and gathering lines may be constructed within the access route corridor at a later date.

Figure 6. Mattie Grace Surface Location



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Figure 7. Mattie Grace General Landscape Appearance

The proposed pad site is located on a nearly level native grassland plateau. Rolling topography surrounds the site and drains to the northeast and southeast.



Figure 8. Mattie Grace Proposed Access Route

The proposed access road as it crosses into SE $\frac{1}{4}$ of Section 8.

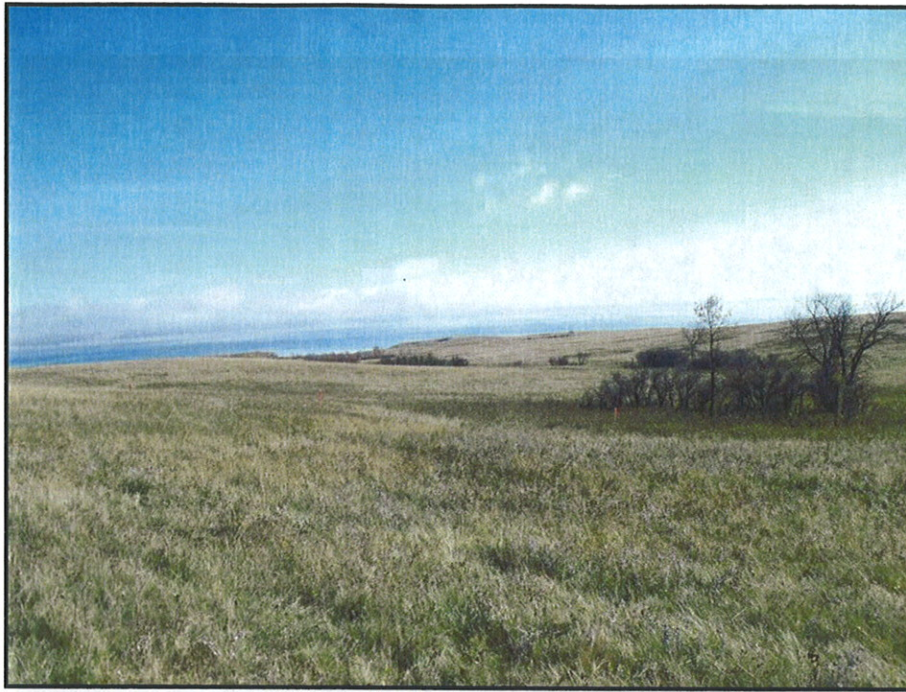


Figure 9. Mattie Grace Well Pad Location.
The proposed pad location facing southeast.

2.9 Reclamation

A semi-closed loop system will be utilized to drill the Mattie Grace wells. The cuttings pit and dry 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 cuttings pit, overlain by at least four feet of overburden as required by adopted NDIC regulations.

If commercial production equipment is installed, the surfaced well pad will be reduced to approximately half the original size, reclaiming the rest of the 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 approximately 33' 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 reseeded 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 necessary, 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 7 for further detail regarding both interim and final reclamation measures. Figure 10 and Figure 11 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 10. 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 11. Well pad after reclamation.

The well pad and access road have been recontoured back to the original contour, the topsoil respread, 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 and access road is 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 proposed project will also target the Three Forks/Sanish formation which extends from western North Dakota into eastern Montana and southern Saskatchewan. The structure of the Three Forks formation consists of Sanish sand dating to the Devonian Period (417 to 354 million years ago) and lies directly beneath the upper part of the Bakken Shale formation. It is known to occur in Mountrail, McKenzie, and Dunn Counties in North Dakota.

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 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 (SO₂), particulate matter (PM₁₀), nitrogen dioxide (NO₂), and ozone (O₃). Two other criteria pollutants – lead (Pb) and carbon monoxide (CO) – are not monitored by any of three stations. Table 2 summarizes federal air quality standards and available air quality data from the three-country study area.

Table 2. Summary of Federal Air Quality Standards and Available Air Quality Data

Pollutant	Averaging Period	NAAQS ($\mu\text{g}/\text{m}^3$)	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 ($\mu\text{g}/\text{m}^3$)	35 ($\mu\text{g}/\text{m}^3$)	35 ($\mu\text{g}/\text{m}^3$)
	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 and previously installed projects. Construction, drilling, and tanker traffic will generate temporary, intermittent, and nearly undetectable gaseous emissions of particulates, SO₂, NO₂, CO₂, 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 (H₂S) is extremely toxic in concentrations above 500 parts per million (ppm), but it has not been found in measurable quantities in the Bakken or Three Forks Formations. Before reaching the Bakken, however, drilling will penetrate the Mission Canyon Formation, which is known to contain varying concentrations of H₂S. Release of H₂S 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.

Aerial imagery was used to identify nearby homes within one and five miles of the proposed well site (Table 3).

Table 3. Distance and Location of Residences

Well Name	Nearest residence	# Residences within 1 mile	# Residences within 5 miles*
Mattie Grace Multi-Pad	3,469' North	0	26

* does not include 77 seasonal residences near Pouch Point Recreation area.

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 the 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 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 site is located on a glaciated upland in the Missouri River Regional Water Basin (Figure 12). 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 Mattie Grace Site

The Mattie Grace well site is located within the Garrison Dam Sub-Basin, the Van Hook State Wildlife Management Area Watershed and Lower Van-Hook Arm Sub-Watershed. Surface water runoff from the well location will flow southeast. Drainage from the proposed well pad to Lake Sakakawea is approximately 1,350 feet.

Table 4. Distance from Mattie Grace to receiving water

Source - Point	Distance	
	feet	miles
Pad to Lake Sakakawea	1,346	<0.1

NWI maps or GIS data do not indicate wetlands near the well site. The use of BMP's to control soil erosion will be employed, including the construction of a berm on the pad to contain contaminated fluids from transferring off pad.

3.4.2 Groundwater

3.4.2.1 McLean County

The preglacial rocks in McLean County contain thick sequences of water-bearing rocks, but only those at relatively shallow depths are of economic importance as aquifers. These aquifers occur in the Fox Hills and Hell Creek Formations of Cretaceous age and the Fort Union Group of Paleocene age.

The Fox Hills Formation underlies the entire county. It consists of interbedded sandstone, shale, and siltstone and ranges in thickness from 233 to about 450 feet. The depth to the top of the formation ranges from about 540 feet in the eastern part of the county to about 1,200 feet in the western part.

The Hell Creek Formation, which conformably overlies the Fox Hills Formation, consists of interbedded silty shale and sandstone. In the eastern part of the county, the Hell Creek Formation was reached at a depth of 317 feet where it has a total thickness of 223 feet. The depth and thickness of the formation in the western part of the county is unknown.

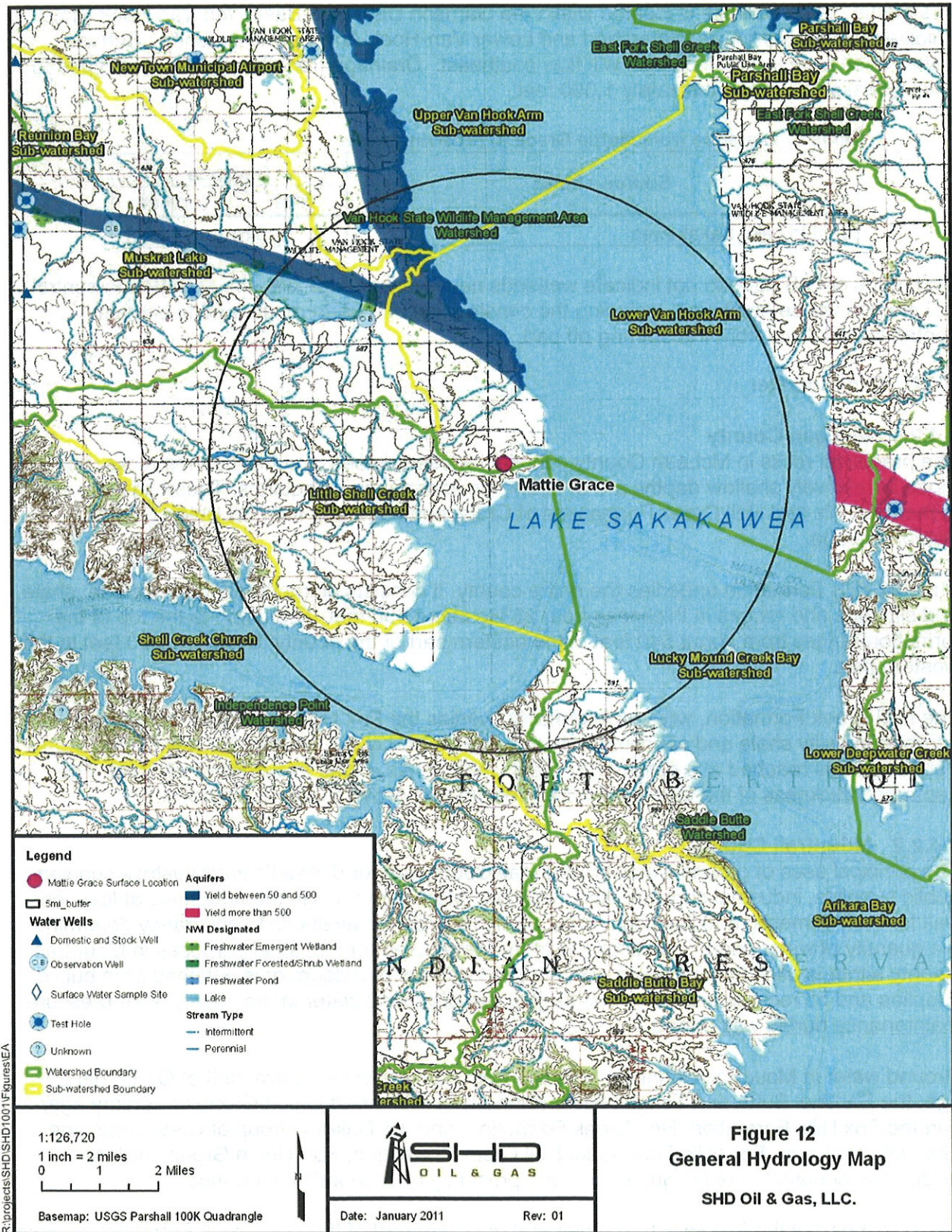
3.4.2.2 Mountrail County

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.

Figure 12. General Hydrology Map



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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 site and only one observation well (Figure 12). It is located 2.7 miles from the Mattie Grace wells in section 34 of T151N, R92W and is drilled into the White Shield Aquifer (Table 5). There has been one water test well drilled within five miles of the proposed location.

One active water permit is located within five miles of the project area. 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 the surface water of Muskrat Lake.

Table 5. Water Wells Within 5 miles

LOCATION	Distance To Nearest Proposed Well (miles)	Permit Type	Aquifer	Well Depth (feet)	Date
34 T151N R92W	2.7	Observation Well	White Shield	138	8/6/1966

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 if 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 cuttings 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. BIA and BLM will monitor all operations and review site records at their discretion. 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 Wildlife and Habitat

3.5.1 Species of Concern

Assessments for Federally listed threatened and endangered species and candidate species were conducted by evaluating historic and present occurrences by determining if potential habitat exists within the project area. Scoping letters and consultation with the US Fish and Wildlife Service, ND Game and Fish Department, and the North Dakota Natural Heritage Inventory were made and comments received are presented in Appendix B. Determinations were made concerning direct and cumulative effects of the proposed activities on each species and their habitat. Currently, six species and one Designated Critical Habitat is listed as potential in McLean and Mountrail County, North Dakota (Table 6).

Table 6. County List of Threatened, Endangered, and Candidate species and Designated Critical Habitat

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

¹ USFWS (updated May, 2010)

3.5.2 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
- May affect, but is not likely to adversely affect
- May affect, and 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

3.5.2.1 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 project **may affect, but is not likely to adversely affect** this species.

3.5.2.2 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-April through early-September.

The proposed site is located approximately 0.3 miles from the shoreline. No individuals were observed in the area of the proposed Mattie Grace site during the visit on October 18, 2010. Also high water levels currently afford little nesting habitat available along the lake shore. If birds or nests are discovered, construction will be stopped and the BIA and USFWS will be consulted for additional information on how to proceed. Mitigation measures recommended will be taken to avoid any disturbance of raptor or migratory bird nesting sites. The proposed project **may affect, but is not likely to adversely affect** this species.

3.5.2.3 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 Mattie Grace site is within a half mile of the Missouri River. The proposed project **may affect, but is not likely to adversely affect** this species.

3.5.2.4 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 project is 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 gathering system route and electrical line (Appendix B, USFWS). Because collisions with power lines are the primary cause for fledgling mortality, it is BIA directive that any utility lines be constructed underground.

Construction activities may cause migratory cranes to divert from the area but is not likely to result in any fatalities. Construction will be stopped if whooping cranes are sighted within one mile of the construction activities and not resume until the birds have left the area. Any sightings will be immediately reported to the US Fish and Wildlife Service (USFWS), North Dakota Game and Fish Department (NDGFD), and/or the BIA. Following these guidelines, it is reasonable to expect that the proposed activities **may affect, but is not likely to adversely affect** whooping cranes.

3.5.2.5 Piping Plover and Critical Habitat

Piping plovers are found along the Missouri and Yellowstone River systems on gravel shorelines and sandbars and also 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. NDPRD records indicate piping plover sightings and critical

habitat within 2-miles of the project site. The NDPRD has one record of a piping plover (*Charadrius melodus*) observed in Section 8, T150N R92W in 1988.

No individuals were observed in the project area during the onsite visit on October 18, 2010 and is approximately 0.3 miles from shoreline habitat. If birds or nests are discovered all construction will be stopped and the BIA and USFWS will be consulted for additional information on how to proceed. Mitigation measures recommended will be taken to avoid any disturbance of migratory bird nesting sites. The proposed project **may affect, but is not likely to adversely affect** this species.

3.5.2.6 Sprague's Pipit

The Sprague's pipit is a ground nester that breeds and winters on open grasslands. It feeds mostly on insects, spiders, and some seeds. The Sprague's pipit is closely tied with native prairie habitat and breeds in the north-central United States in Minnesota, Montana, North Dakota and South Dakota as well as south-central Canada. During the breeding season, Sprague's pipits prefer large patches of native grassland with a minimum size requirement thought to be approximately 145 ha (358.3 ac). The species prefers to breed in well-drained, open grasslands and avoids grasslands with excessive shrubs. Preferred grass height is estimated to be between 10 and 30 cm. They may avoid roads, trails, and habitat edges.

Portions of the proposed well location are located on and across native prairie pasture. The Mattie Grace access road follows an existing two-track trail and the pad is located on a level plateau adjacent to steep clay ridges and treed drainages (habitat edges).

The area of proposed disturbance will be constructed during the nesting season (February 1 - July 15) ground surveys for Sprague's pipits and their nests will be conducted five days prior to construction. If birds or nests are discovered the USFWS will be contacted for additional information on how to proceed. Mitigation measures recommended will be taken to avoid any disturbance of raptor or migratory bird nesting sites. Based upon these factors the proposed project **may affect, is not likely to adversely affect** this species.

3.5.2.7 Dakota Skipper

Dakota skippers are 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; and 2) upland (dry) prairie on ridges and hillsides dominated by bluestem grasses, needlegrass, pale purple coneflower and upright coneflowers and blanket flower. Dakota skipper populations have declined historically due to widespread conversion of native prairie.

The area surrounding the Mattie Grace access route and pad site contains some potential habitat and good residual vegetative cover. The surface disturbance area, due to construction of the road right-of-way and pad site, does contain little bluestem but only in sparse patches. Relatively small amounts of habitat critical to the life stages of the Dakota skipper may be altered by the proposed development. The proposed project **may affect, is not likely to adversely affect** this species.

3.5.3 Wildlife (General)

Proposed oil and gas development in the area 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) and the Bald and Golden Eagle Protection Act (BGEPA).

A ground survey for cliff, tree, and ground raptor nests was conducted within ½-mile of the proposed projects during the on-site review. No raptors or nests were observed during the on-

site review. The proposed sites were also traversed to identify the presence of migratory bird species as well as nests located within the development area. No nests were found. If portions of the projects are to be constructed during the spring nesting season (February 1 - July 15) ground and/or aerial surveys for migratory birds (including raptors) and nests will again be conducted within 5 days of construction.

If a migratory bird nest is located, the location will be recorded, monitored and documentation will be maintained. The USFWS will be consulted to determine mitigation measures to avoid disturbance of the nest. Measures may include applying an appropriate avoidance buffer to the nest or delaying construction in that area until the nest is fledged.

Table 7 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 are affected by time of day, time of year, etc.

Table 7. Wildlife (General)

Location	Observed	Suitable Habitat
Mattie Grace	Sharp-tailed grouse, Red-Tailed Hawk	Mule deer, pronghorn antelope, small mammals, sharp-tailed grouse, and a variety of grassland and song nesting birds

Potential impacts to wildlife include construction of well pad, upgrading of existing two-track trail, 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 might 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. Fragmentation of native prairie habitat is a specific concern for grouse species.

Precautions benefitting all wildlife include:

- Dramatically reducing surface use by drilling multiple wells from one site;
- Netting of the cuttings pit in the interval between drilling and reclamation of the pit;
- 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 following paragraph discusses soils found at the well site. The Natural Resource Conservation Services (NRCS) soils data was reviewed prior to the on-site assessment and verified during the field visit. Generally, the soils found across site are fine-grained with low to moderate erosion potential. The site is suitable for construction. Site will be monitored for erosion and best management practices implemented to control erosion as necessary.

The Mattie Grace proposed access road and well pad has Max-Zahl loams assigned with 9-15% slopes according to the NRCS Mapping Units (MUs).

Table 8. Mattie Grace Soils

Soil Name	Pad Acres	Road Acres	Total Acres
Max-Zahl loams	12.1	1.97	13.97

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 McLean 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, buffaloberry, western snowberry and gooseberry.

The Mattie Grace proposed site is located in a mostly native species dominated grassland at the time of the on-site assessment. The majority of the pad site will be constructed on a native prairie pasture. The dominant native species found across the site included western wheatgrass, needle-and-thread, blue grama, with buck brush patches and an understory of Kentucky bluegrass (*Poa pratensis*). Grazing pressure in the area was low and residual cover was high. The occasional purple coneflower, fringed sagebrush, and green milkweed (*Asclepias viridiflora*) are found across site. Little bluestem was found on slopes of drainages and drainage vegetation included green ash and cottonwood.

3.7.1 Noxious Weeds

The North Dakota Agriculture Commission (ND Department of Agriculture 2002) identifies twelve noxious weed plant species in the state (Table 9). Although none were found along route during the site visit.

Potential disturbance of 14.1 acres and removal of existing soils and vegetation present opportunities for invasive species 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.

Table 9. Noxious weeds Reported in McLean and Mountrail County

Common Name	Scientific Name	5 year (2003-2007) Average Reported Acres of Noxious Weeds ¹	
		McLean County	Mountrail County
Absinth wormwood	<i>Artemisia absinthium</i>	1,825	1,085
Canada thistle	<i>Cirsium arvense</i>	7,102	21,232
Dalmatian toadflax	<i>Linaria genistifolia</i>	NR	NR
Diffuse knapweed	<i>Centaurea diffusa</i>	NR	NR
Field bindweed	<i>Convolvulus arvensis</i>	1,756	1,429
Leafy spurge	<i>Euphorbia esula</i>	1,598	21,928
Musk thistle	<i>Carduus nutans</i>	193	2
Purple loosestrife	<i>Lythrum salicaria</i>	NR	NR
Russian knapweed	<i>Acroptilon repens</i>	5	NR
Saltcedar	<i>Tamarix spp.</i>	38	721
Spotted knapweed	<i>Centaurea maculosa</i>	3	164
Yellow starthistle	<i>Centaurea solstitialis</i>	5	NR

¹ North Dakota Department of Agriculture 2003-2007

3.8 Cultural Resources

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

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

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

corresponds with the THPO regarding cultural resources on all projects proposed within the exterior boundaries of the Fort Berthold Reservation.

A cultural resource inventory of this well pad and access road was conducted by personnel of SWCA Environmental Consultants, using an intensive pedestrian methodology. Approximately 19.8 acres were inventoried between October 18-26, 2010 (Lechert and Herson 2011). Three archaeological sites were located that may possess the quality of integrity and meet at least one of the criteria (36 CFR 60.6) for inclusion on the National Register. As the lead federal agency, and as provided for in 36 CFR 800.5, on the basis of the information provided, BIA reached a determination of **no historic properties affected** for this undertaking, provided that the archaeological sites are fenced off and avoided. This determination was communicated to the THPO on April 6, 2011, and the THPO concurred on April 20, 2011 and can be found in Appendix B.

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 10. 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.

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).

Table 10. 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.

As shown in Table 11 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 than 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.

Availability and affordability of housing can affect oil and gas development and operations. Housing information from the year 2000 is summarized in Table 12. 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.

Table 11. 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.

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 12. 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, moreover, 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 and Three Forks Formations 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 and Three Forks Formations .

3.14 Cumulative Impacts

Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time. It is the combination of these effects, and any resulting environmental degradation, that is the focus of the cumulative impact analysis. While impacts can be differentiated as direct, indirect, and cumulative, the concept of cumulative impacts takes into account all disturbances since cumulative impacts result in the compounding of the effects of all actions over time. Thus the cumulative impacts of an action can be viewed as the total effects on a resource, ecosystem, or human community of that action and all other activities affecting that resource no matter what entity (federal, non-federal, or private) is taking the actions.

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 development. Virtually all-available acreage is already organized into agricultural leases or range units to utilize surface resources for economic benefit.

The proposed project would be one of many proposed developments in the area. As such, it would contribute only a portion of the cumulative impacts. In some instances, the cumulative impact on the environment of the proposed project and oil/gas development activities would be the sum of the individual impacts from each project in the region. There are other impacts, however, that cumulatively may be greater than the sum of the individual projects. The proposed multi-well site (10 wells) will be the smallest surface footprint for the amount of mineral acres to be developed and the location of these acres underneath Lake Sakakawea. If each of these wells were to be developed individually the surface disturbance would be approximately five times the surface disturbance not including miles of additional roads.

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 and Three Forks Formations . Most of this exploration has taken place outside the reservation boundary, 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 evaluated to determine the level of oil and gas activity in the surrounding area, as shown in Table 13 and in Figure 13. There are 7 active well within five miles of the site considered in this document with at least 7 NDIC reported confidential sites in the area. The immediate area is currently under development. Within ten miles, there are currently 67 active wells with 70 proposed. Within 20 miles, there is approximately 467 total oil and gas wells in various stages of development or production.

Table 13. Oil and Gas Well Status in Area

Distance from Well Sites	Active Wells	Proposed (Confidential) Wells	Permitted to Drill	Currently Drilling ¹	Totals
0-1 miles	0	0	0	0	0
1-5 miles	7	9	0	1	17
5-10 miles	60	61	8	6	135
10-20 miles	296	125	30	16	467
Cumulative Total (20-mile radius)	363	195	38	23	619
Fort Berthold Reservation	232	138	17	18	405

¹NDIC OG well status – December 27, 2010

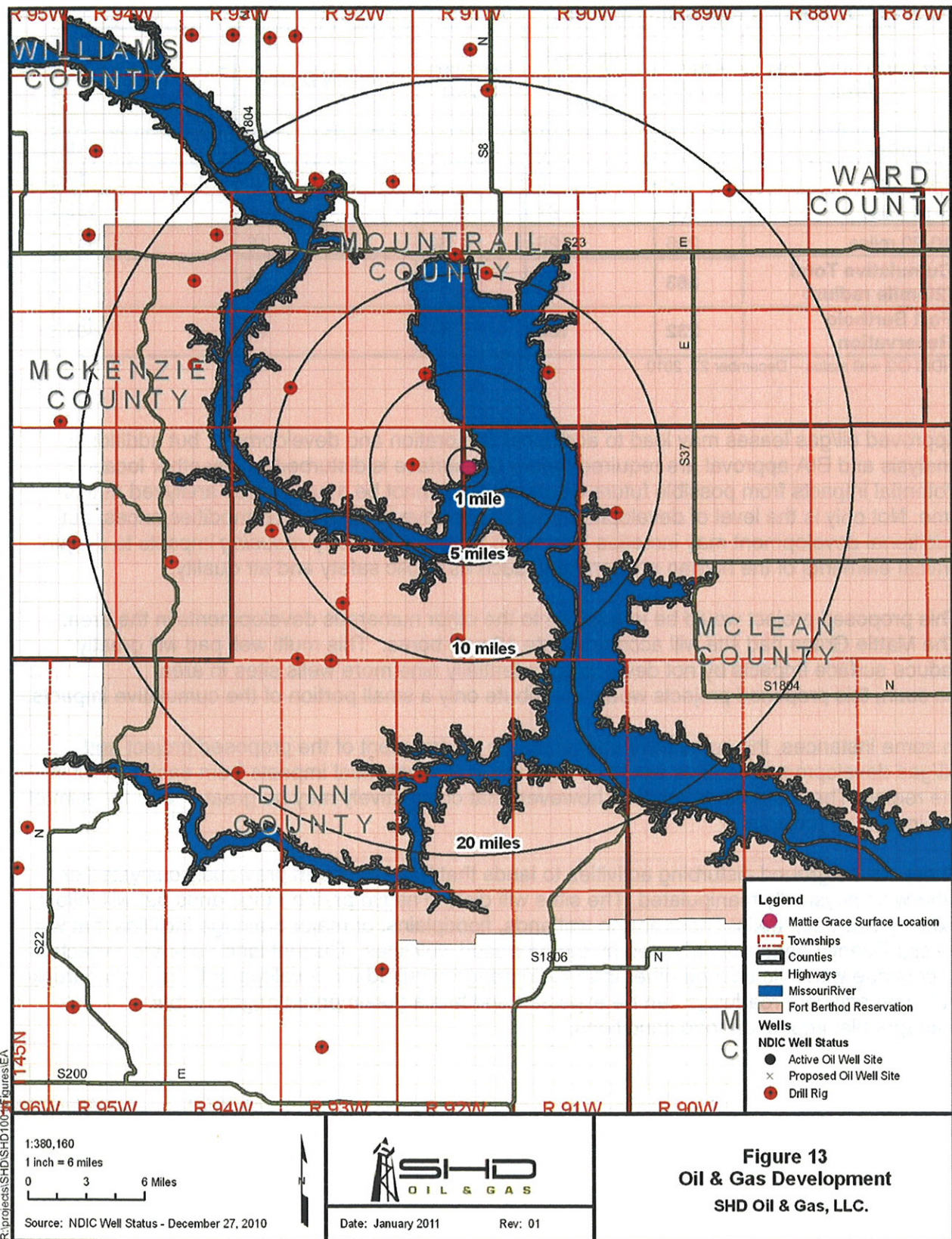
Approved oil/gas leases may lead to additional exploration and development, but additional analysis and BIA approval are required before the surface is disturbed at any other location. Potential impacts from possible future development cannot be meaningfully analyzed at this time. Not only is the level 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.

This proposed project would be in addition to the other numerous developments in the area. The Mattie Grace pad site will accommodate 10 well bores. This multi well pad will greatly reduce surface impacts by not developing potentially nine more wells sites in area. As such, this proposed projects would contribute only a small portion of the cumulative impacts.

In some instances, the cumulative impact on the environment of the proposed project and oil/gas development activities would be the sum of the individual impacts from each project in the region. There are other impacts, however, that cumulatively may be greater than the sum of the individual projects.

There will be ground disturbing activities to lands that have not been previously cultivated or otherwise physically manipulated. The sites will disturb native prairie rangelands but will follow existing two-track trails. 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. Increased truck traffic on adjacent roadways can be expected and has a documented negative, but manageable, impact on road conditions.

Figure 13. Gas and Oil Development



The proposed actions have been planned to avoid impacts to wetlands, floodplains, surface water, cultural resources, and threatened and endangered species. Unavoidable affects 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 reclamation following construction and completion. Implementation of other precautionary and protective measures detailed in this EA 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.

3.15 Commitments/Mitigation

Resource surveys were conducted at the time of pre-on-site inspections to determine potential affects to cultural and natural (i.e., biological and physical) resources. The location was inspected in consideration of topography, location of topsoil/subsoil stockpiles, natural drainage and erosion control, flora, fauna, habitat, historical and cultural resources, and other surface issues. The final location was determined in consideration of the previously identified issues.

Avoidance measures and other protective measures were incorporated into the final project design to minimize impacts to evaluated resources, as appropriate. During the inspections, the BIA gathered information needed to develop site-specific mitigation measures that will be incorporated in the Permit to Construct.

A semi-closed loop drilling system will be utilized at the site. A containment berms (2-foot) will be built on top of the pad to contain surface water from transferring off of the pads during drilling operations. The corners of the proposed well pads will be rounded as needed. Best Management Practices (BMP's) including the use of sediment fencing, soil compaction and reseeding of native species will be utilized during construction and after final reclamation.

A ground survey for cliff, tree, and ground raptor nests was conducted within ½-mile of the proposed project corridors during the on-site review. No raptors or nests were observed during the on-site reviews. The project area is approximately 0.3 miles from piping plovers and least terns habitats and water levels currently afford little nesting habitat. If portions of the projects are to be constructed during the spring nesting season (February 1 - July 15) ground and/or aerial surveys for migratory birds (including raptors) and nests will again be conducted within 5 days of construction. If birds or nests are discovered, all construction will be stopped and the BIA and USFWS will be consulted for additional information on how to proceed. Mitigation measures recommended will be taken to avoid any disturbance of raptor or migratory bird nesting sites. Construction will be stopped if whooping cranes are sighted within one mile of the construction activities and not resume until the birds have left the area. Any sightings will be immediately reported to the US Fish and Wildlife Service, North Dakota Game and Fish Department, and the BIA.

Precautions taken benefitting all wildlife include; dramatically reducing surface use by drilling multiple wells from one site; netting of the cuttings pit in the interval between drilling and reclamation of the pit; installation of covers on drip buckets under valves or spigots; and prompt initial pad reclamation.

Utilities (electric) and gas, water, and oil gathering lines may be constructed and if constructed they will be installed underground within the evaluated corridor. If underground utilities are not able to remain within this corridor an additional evaluation will be conducted and an addendum to this EA will be prepared.

4.0 Consultation and Coordination

Project scoping letters, T&E species determination request and maps were mailed on October 28, 2010. Direct mail recipients and a record comments received are listed in Table 14. An example scoping letter and response letters are found in Appendices A and B. Species effect determination concurrence was received from USFWS on December 22, 2010 and is found in Appendix B.

Table 14. Scoping Record

<u>Agency Scoping</u>	<u>Comments</u>
US Fish and Wildlife Service	Concurrence with mitigation efforts and T&E Species determinations
North Dakota Game and Fish Department	Comments received and incorporated
Bureau of Land Management	No Response
US Army Corps of Engineers	No Response
ND Natural Heritage Inventory (ND Parks and Rec)	Comments received and incorporated

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 SHD and under the direction of BIA. Federal officials, oil and gas representatives, and consultants included the following:

Bureau of Indian Affairs

Jeff Desjarlais, Environmental Protection Specialist

SHD Oil & Gas

Randy Neset, Production Superintendent/ Petroleum Engineer

McCain and Associates, Inc.

Todd Hartleben, Principal Engineer

Heather Shaw, Biologist

Ryan Krapp, Biologist

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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
NDGFD	North Dakota Game and Fish Department
NDIC	North Dakota Industrial Commission
NDNHI	North Dakota Natural Heritage Inventory
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
USACE	United States Army Corps of Engineers
USC	United States Code
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Appendix A

Scoping and Concurrence Request

October 29, 2010

Mr. Jeffrey Towner, Field Supervisor
US Fish and Wildlife Service
3425 Miriam Avenue
Bismarck, ND 58501

**Re: Mattie Grace Multi-Well Site
SHD Oil & Gas**

Dear Mr. Towner:

On behalf of Spotted Hawk Development (SHD), McCain and Associates, Inc. is submitting information concerning development of the proposed Mattie Grace Well Site (Site). The Site is located on the Fort Berthold Reservation in Section 18, T150N, R91W of McLean County (Figure 1).

The proposed access road begins in Section 13, T150N, R92W of Mountrail County. The majority of the access road has been reviewed previously as this is the access proposed for the Zenergy Operating Company D-3 Wolf #4-18H well site and access route. Therefore, only the well site and portion of the access road in McLean County are addressed in this scoping letter.

An on-site biological assessment of the Site was conducted on October 18, 2010, with the Bureau of Indian Affairs (BIA). At the initial on-site visit the proposed well site and access road were "soft" staked and the location was reviewed in consideration of topography, natural drainage and erosion control, vegetation, T&E species, migratory birds, wildlife and habitats, historical and cultural resources and other surface impacts. Site-specific mitigation measures were discussed and incorporated into the final project design to minimize impacts to evaluated resources.

Project Description

The proposed site is located in a native prairie pasture adjacent to wooded drainages. The site is located approximately 2,640 feet of Lake Sakakawea; however, it is not within a direct line of sight due to varying topography. The level area of the well pad used for drilling and completion operations is 400 feet long by 700 feet wide. The surface area of the pad, including cut and fill slopes, stockpiled topsoil, and containment berm(s) will disturb approximately 9 acres. Up to ten wells may ultimately be drilled from this location, significantly reducing the surface disturbance required if each well site were to be developed separately (45 acres).

The proposed access road follows an established two-track trail the majority of its length. The proposed access road has a maximum right-of-way width of 66 feet, road surface disturbance and approximate access road length is 6,257 feet (9.4 acres).

Vegetation condition at time of the survey was moderate to tall and vegetative height ranged from 3 cm to 30 cm. Residual cover is approximately 70%. Species found in the grazed native pasture are predominately needle-and-thread (*Stipa comata*), blue grama (*Bouteloua gracilis*), green needlegrass (*Stipa viridula*) with Kentucky bluegrass (*Poa pratensis*) interspersed. Buck

brush (*Symphoricarpos occidentalis*) and Little bluestem (*Andropogon scoparius*) are prominent on side slopes flanking the site and along the access route. Patches of Snowberry were also predominant along adjacent side slopes. Wooded drainages included Green ash (*Fraxinus pennsylvanica*), Chokecherry (*Prunus virginiana*), Buffalo berry (*Shepherdia argentea*), Eastern cottonwood (*Populus deltoids*) and sparse Eastern red cedar (*Juniperus virginiana*). Forbs in the pasture are prominent and include Canada goldenrod (*Solidago canadensis*), fringed sagebrush (*Artemisia frigid*), green milkweed (*Asclepias viridiflora*), purple coneflower (*Echinacea angustifolia*), purple prairie clover (*Dalea purpurea*) and Canadian milkvetch (*Astragalus Canadensis*).

A semi-closed loop drilling system, which includes a dry cuttings pit, will be utilized. Best Management Practices (BMP's) including the use of a containment berm(s), sediment fencing, soil compaction and reseeding of native species will be utilized during construction and after final reclamation. The BIA requires all electrical utilities to be underground. A natural gas and oil gathering line may be installed adjacent to the access road at a future date.

Migratory Birds and Raptors

Proposed oil and gas development in the area 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) and the Bald and Golden Eagle Protection Act (BGEPA).

A ground survey for cliff, tree, and ground raptor nests was conducted within 2,640 foot line-of-sight of the proposed project. No nests were observed during the on-site review. The project area was also surveyed for migratory and upland bird species. At the time of the survey sharp-tailed grouse (*Tympanuchus phasianellus*) and grasshopper sparrows (*Ammodramus savannarum*) were observed near the site as well as a Red-tailed hawk (*Buteo jamaicensis*).

If the site will be constructed during the nesting season (February 15 - July 15) aerial or ground surveys for migratory birds (including raptors) and nests will again be conducted five days prior to construction. If migratory birds or nests are discovered, the USFWS will be contacted for additional information on how to proceed. Mitigation measures recommended will be taken to avoid any disturbance of raptor or migratory bird nesting sites.

High Value Habitat Avoidance

The proposed pad site is located at the top of a native prairie pasture. The shoreline of Lake Sakakawea is approximately 2,640 feet from the pad site. The location of the Site was selected because it is accessible due to the topography of the area, will have the highest success for reclamation, and will still allow development of the mineral rights of the area.

The ND Parks and Recreation Department (NDPRD) houses the North Dakota Natural Heritage biological conservation database. A review by the NDPRD will be done 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 upon the field visit, no significant ecological communities were observed at the site. If the NDPRD review identifies avoidance areas, they will be addressed with the BIA and mitigation included in the final EA.

Disturbed areas and spoil piles will be reseeded with a native seed mix as specified by the BIA. The BIA will monitor the seeding success and weed species control over life of project.

Cumulative Impacts

The proposed site and access route will result in approximately 18.5 acres of surface disturbance (cumulative well pad and access road). If the proposed well sites were to be developed individually, approximately 49.5 acres of surface disturbance would occur.

Potential impacts to wildlife include displacement due to construction activities and loss of ground and nesting cover in native areas. Road and pad construction may temporarily impact habitats of unlisted species, including migratory birds, small and large mammals, and other wildlife species.

Fragmentation of native prairie habitat is a specific concern for grouse species and the Sprague's pipit. Sharp-tailed grouse were observed at the October 18 site visit. Due to the time of the site visit, lek grounds were not observed. If construction is delayed until spring a pre-construction survey will be performed to ensure a lek is not located in the area.

Biological Species Assessment

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. A determination was made concerning direct and cumulative effects of the proposed activities on each species. Threatened and endangered species with documented occurrences in McLean County are listed in Table 1.

Table 1. McLean County Threatened, Endangered and Candidate Species List

Species	Status
Interior Least Tern	Endangered
Whooping Crane	Endangered
Pallid Sturgeon	Endangered
Gray Wolf	Endangered
Piping Plover	Threatened
Sprague's Pipit	Candidate
Dakota Skipper	Candidate

¹ USFWS (updated September, 2010)

Determinations made for federally listed species are:

- No effect
- May affect, is not likely to adversely affect
- May affect, is likely to adversely affect

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). Due to the transient nature and no recent recorded sightings in the area the proposed project **may affect, is not likely to adversely affect** this species.

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.

No individuals were observed in the area during the onsite visit on October 18, 2010. The proposed well site is located approximately 2,640 feet of the Missouri River system. Lake Sakakawea water levels at the time of the survey afforded little nesting habitat available along the lake shore; however, if lake levels recede exposing sandy beaches and sandbars, further habitat opportunities may arise. The proposed project **may affect, is not likely to adversely affect** this species.

Pallid Sturgeon

Pallid sturgeon are found in the Mississippi, Missouri, and Yellowstone River systems and are adapted for living close to the bottom of large, shallow rivers with sand and gravel bars. Pallid sturgeon populations in North Dakota have decreased since the 1960's (Grondahl and Martin no date). The proposed well site is located approximately 2,640 feet from the Missouri River system. BMP's will be implemented, including a containment berm surrounding the proposed well pad site, as such the project **may affect, is not likely to adversely affect** this species.

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 Parks and Wildlife 2008).

The proposed well site is located within the Central Flyway. Approximately 75% of the whooping crane sightings in North Dakota occur within a 90-mile corridor that includes the proposed well location. Because collisions with power lines are the primary cause for fledgling mortality, it is BIA directive that any utility lines be constructed underground. Land use in the area is native prairie pasture and agricultural fields. The pad and access road are placed in a location that will have little potential of impacting whooping crane stop-over habitat. No individual whooping cranes were observed in the area during the on-site visits.

Construction activities may cause migratory cranes to divert from the area but are not likely to result in fatalities. If a crane is sighted within one mile of the project area, construction activities will cease and will be immediately reported to the US Fish and Wildlife Service (USFWS), North Dakota Game and Fish Department (NDGFD), and the BIA. In coordination with the USFWS and the BIA construction will resume once the bird(s) have left the area. Following these guidelines, it is reasonable to expect that the proposed activities **may affect, is not likely to adversely affect** whooping cranes.

Piping Plover and Critical Habitat

Piping plovers are found along the Missouri and Yellowstone River systems on gravel shorelines and sandbars and also 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 NDPRD records will indicate any piping plover

sightings or critical habitat within 2-miles of the project site. The proposed well site is located approximately 2,640 feet of the Missouri River system. No piping plovers were observed in or around the project area during the on-site review and the proposed site will not be within line-of-sight of the Missouri River. The proposed project **may affect, is not likely to adversely affect** this species.

Sprague's Pipit

The Sprague's pipit is a ground nesting bird that breeds and winters on open grasslands. It feeds mostly on insects and spiders and some seeds. The Sprague's pipit is closely tied with native prairie habitat and breeds in the north-central United States in Minnesota, Montana, North Dakota and South Dakota as well as south-central Canada. During the breeding season, Sprague's pipits prefer large patches of native grassland with a minimum size requirement thought to be approximately 145 ha (358.3 ac). The species prefers to breed in well-drained, open grasslands and avoids grasslands with excessive shrubs. Preferred grass height is estimated to be between 10 and 30 cm. They may avoid roads, trails, and habitat edges.

The vegetative height at time of survey was approximately 30 cm in most areas and numerous chokecherry, buffalo berry and buck brush patches are located across the area. The area of proposed disturbance will be mowed in the fall to reduce cover and spring nesting potential of migratory birds.

If the site will be constructed during the nesting season (February 1 - July 15) ground surveys for migratory birds and their nests will be conducted five days prior to construction. If birds or nests are discovered the USFWS will be contacted for additional information on how to proceed. Mitigation measures recommended will be taken to avoid any disturbance of migratory bird nesting sites. Based upon these factors the proposed project **may affect, is not likely to adversely affect** this species.

Dakota Skipper

Dakota skippers are 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; and 2) upland (dry) prairie on ridges and hillsides dominated by bluestem grasses, needlegrass, pale purple coneflower and upright cone-flowers and blanket flower. Dakota skipper populations have declined historically due to widespread conversion of native prairie.

Relatively small amounts of life stages of the Dakota skipper may be altered by the proposed development. The proposed project **may affect, is not likely to adversely affect** this species.

Conclusion

The BIA has required the following site-specific construction procedures be implemented to help reduce impacts to wildlife and habitat:

- Use of a semi-closed-loop drilling system
- Netting of open cutting pit
- A spring survey for migratory nesting birds 5 days prior to construction
- Mowing grassy areas to reduce spring nesting potential
- Interim and final reclamation including:
 - Use of BMPs (soil compaction, berms, silt fences, wattles, fabric etc.) to reduce erosion

- Monitoring and maintenance of potential erosion areas.
- Seeding of native species.
- Indefinite monitoring of seeding success and weed species control.

Based on a review of a list of federally listed or proposed endangered or threatened species under U.S. Fish and Wildlife Service jurisdiction, in addition to occasional transient individuals, we have determined that these actions **may affect, is not likely to adversely affect** listed threatened, endangered or candidate species and habitats.

We request your concurrence on potential impacts to federally listed species in accordance with the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C.1531 et seq.). Please call me at 701-255-1475 if you have any questions or need additional information.

Sincerely,

Heather L. Shaw
Biologist

Attachment

R:\projects\SHD\SHD1001\correspondence\letters\USFWS Request 102810

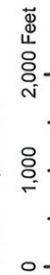


Legend

- Mattie Grace Surface Location
- - - Mattie Grace Access Road
- Mattie Grace Well Pad

1:24,000

1 inch = 2,000 feet



Basemap: USGS 24K Quadrangle
New Town SW; NAIP 2009 Mountain County and
McLean County



McCain
and Associates, Inc.

Date: October 2010

Rev: 01

Figure 1
Well Site
Mattie Grace Multi-Pad
SHD Oil & Gas

Appendix B

Scoping Responses and Concurrence



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
3425 Miriam Avenue
Bismarck, North Dakota 58501



DEC 22 2010

Ms. Heather Shaw
McCain and Associates, Inc.
2718 Gateway Avenue, Suite 101
Bismarck, North Dakota 58503

Re: Spotted Hawk Scoping for Proposed
Well on Fort Berthold Reservation,
Mattie Grace, McLean County

Dear Ms. Shaw:

This is in response to your October 29, 2010, scoping letter and subsequent December 6, 2010, email correspondence, regarding an exploratory oil and gas well proposed to be drilled and completed by Spotted Hawk Development on the Fort Berthold Reservation, McLean County, North Dakota.

Specific location for the proposed pad is:

Mattie Grace: T. 150 N., R. 92 W., Section 18, McLean County

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

Threatened and Endangered Species

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 for the purposes of ESA, and under our other authorities as the entity preparing the NEPA document for adoption by the BIA.

The Service concurs with your "may affect, is not likely to adversely affect" determination for piping plover, interior least tern, pallid sturgeon, and designated critical

habitat for piping plover. The placement of the pad is within approximately 0.30 mile of Lake Sakakawea; therefore, this concurrence is predicated on Spotted Hawk's commitment to place the pad over 300 feet from any wooded draws and minor tributaries.

The Service concurs with your "may affect, is not likely to adversely affect" determination for whooping cranes. This concurrence is predicated on Spotted Hawk's commitment to stop work on the proposed site if a whooping crane is sighted within one mile of the proposed project area and immediately contacting the Service.

The Service concurs with your "may affect, not likely to adversely affect" determination for the gray wolf.

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.

In 2010, the Sprague's pipit was added to the candidate species list. Migratory bird species such as the Sprague's pipit that are candidates are still protected under the MBTA. Sprague's pipits require large patches of grassland habitat for breeding, with preferred grass height between 4 and 12 inches. The species prefers to breed in well-drained, open grasslands and avoids grasslands with excessive shrubs. They can be found in lightly to heavily grazed areas. They avoid intrusive human features on the landscape, so the impact of a development can be much larger than the actual footprint of the feature. If Sprague's pipit habitat is present within or adjacent to the proposed project area, the Service requests that you document any steps taken to avoid and minimize disturbance of this habitat.

The Dakota skipper and Sprague's pipit are candidate species for listing under the ESA; therefore, an effects determination is not necessary for these species. 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. Although not required, Federal action agencies, such as the BIA, have the option of requesting a conference on any proposed action that may affect candidate species such as the Dakota skipper and Sprague's pipit.

Migratory Birds

The letter states that Spotted Hawk will implement the following measures to avoid/minimize take of migratory birds:

- Construction will be completed outside of the migratory bird nesting season (Feb. 1-July 15);
- If construction needs to take place within the nesting season, pre-construction surveys for migratory birds and their nests will be conducted within five days prior to the initiation of construction activities. If birds or nests are discovered, the Service will be contacted for additional information on how to proceed.

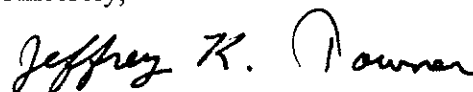
Bald and Golden Eagles

The letter states that a 0.5 mile line-of-sight ground survey for cliff, tree, and ground raptor nests was conducted and no nests were discovered. According to the eagle nest database, there are no documented eagle nests within 0.5 mile of the proposed project.

The Service believes that Spotted Hawk's commitment to implement the aforementioned measures does demonstrate compliance with the MBTA and the BGEPA.

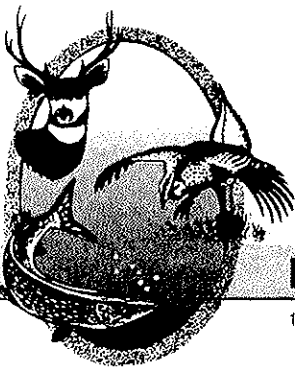
Thank you for the opportunity to comment on this project proposal. If you require further information or the project plans change, please contact me or Heidi Riddle of my staff at (701) 250-4481 or at the letterhead address.

Sincerely,



Jeffrey K. Towner
Field Supervisor
North Dakota Field Office

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



"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

November 16, 2010

Heather L. Shaw
Biologist
McCain and Associates, Inc.
2718 Gateway Ave, Suite 101
Bismarck, ND 58503

Dear Ms. Shaw:

RE: Mattie Grace Multi-Well Site

Spotted Hawk Development is proposing up to ten oil and gas wells located on one well pad on the Fort Berthold Reservation in McLean 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,

A handwritten signature in cursive script, appearing to read "Paul Schadewald".

Paul Schadewald
Chief
Conservation & Communication Division

js



John Hoeven, Governor
Mark A. Zimmerman, 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, 2010

Heather L. Shaw
McCain and Associates, Inc.
2718 Gateway Ave., Suite 101
Bismarck, ND 58503

Re: Spotted Hawk Development Mattie Grace Multi-Well Site Project Proposal

Dear Ms. Shaw:

The North Dakota Parks and Recreation Department (NDPRD) has reviewed the above referenced project proposal submitted by Spotted Hawk Development to develop an oil and gas well and access road located in Sections 13 and 18, T150N, R91W, McLean County.

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

The North Dakota Natural Heritage biological conservation database has been reviewed to determine if any current or historical plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, we do have records for the occurrence of *Charadrius melodus* (piping plover) in sections adjacent to the project area indicating that the habitat in the project area may be suited for this specie or other rare, threatened, sensitive or endangered species. Please see the attached spreadsheet and map for more information on these occurrences. We defer further comments regarding animal species to the North Dakota Game and Fish Department and the United States Fish and Wildlife Service.

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 Duttonhefner (701-328-5370 or kduttonhefner@nd.gov) of our staff if additional information is needed.

Sincerely,

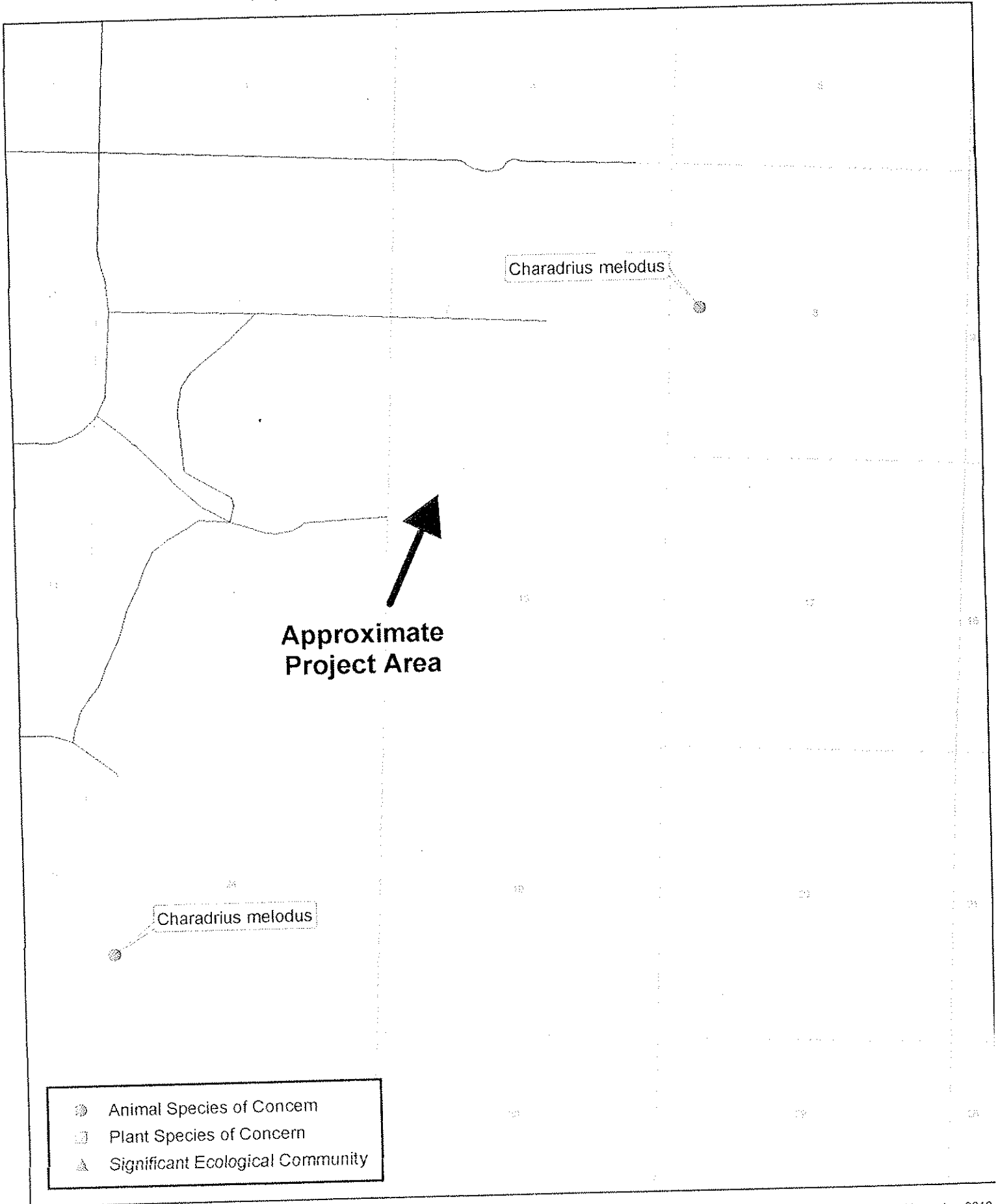
A handwritten signature in black ink that reads "Jesse Hanson". The signature is written in a cursive style with a large initial "J".

Jesse Hanson, Manager
Planning and Natural Resources Division

R.USNDNHI*2010-260
CD/1104/DL1118

.....
Play in our backyard!

North Dakota Parks and Recreation Department North Dakota Natural Heritage Inventory



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
Charadrius melodus	Piping Plover	S1S2	G3	LE, LT	150N091W - 08	McLean	1988		S
Charadrius melodus	Piping Plover	S1S2	G3	LE, LT	150N092W - 24	Mountrail	1988		S

North Dakota Natural Heritage Inventory Biological and Conservation Data Disclaimer

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

Estimated Representation Accuracy

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

Very high (>95%)

High (>80%, <= 95%)

Medium (>20%, <= 80%)

Low (>0%, <= 20%)

Unknown

(null) - Not assessed

Precision

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

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

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

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

U - Unmappable



TRIBAL HISTORIC PRESERVATION

Mandan Hidatsa Arikara

Elgin Crows Breast, Director.

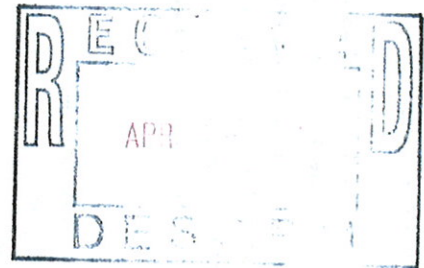
404 Frontage Road,

New Town, North Dakota 58763

Ph/701-862-2474 fax/701-862-2490

redhawk@mhanation.com

Dr. Carson N. Murdy
Great Plains Regional Office
115 Fourth Avenue S.E.
Aberdeen, South Dakota 57401



RE: Lechert, Stephanie, and Chandler Herson
(2011) A Class I and Class III Cultural Resource Inventory of the SHD Mattie Grace
Mega Well Pad and Access Road, Fort Berthold Indian Reservation McLean County,
North Dakota. SWCA Environmental Consultants for SHD, LLC, McLean, VA

Dear Dr. Carson N. Murdy,

After review of the documentation provided by your office, the Mandan Hidatsa, Arikara Nations Tribal Historic Preservation Office concurs with the determination of "No Adverse Affect/No Historic Properties Affected" to any pre and post-historic relics, artifacts or sacred and cultural resources in the proposed Project area.

We respectfully request to be notified should any NAGPRA issues arise as the Project progresses.

Sincerely,

Pete Coffey
Chief compliance Officer
Tribal Historic Preservation Office
Mandan, Hidatsa Arikara Nation.



United States Department of the Interior

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



IN REPLY REFER TO:
DESCRM
MC-208

APR 06 2011

Elgin Crows Breast, THPO
Mandan, Hidatsa and Arikara Nation
404 Frontage Road
New Town, North Dakota 58763

Dear Mr. Crows Breast:

We have considered the potential effects on cultural resources of a multi-well drilling pad in McLean County, North Dakota. Approximately 19.8 acres were intensively inventoried using a pedestrian methodology. Potential surface disturbances are not expected to exceed the area depicted in the enclosed report. Three archaeological sites (32ML1226, 32ML1227, 32ML1228) were located which may possess the quality of integrity and meet at least one of the criteria (36 CFR 60.4) for inclusion on the National Register of Historic Places. No properties were located that appear to qualify for protection under the American Indian Religious Freedom Act (42 USC 1996).

As the surface management agency, and as provided for in 36 CFR 800.5, we have therefore reached a determination of **no historic properties affected** for this undertaking, provided that the potentially eligible sites are fenced off and a qualified archaeologist is present during all construction activities. Catalogued as **BIA Case Number AAO-1914/FB/11**, the proposed undertaking, location, and project dimensions are described in the following report:

Lechert, Stephanie, and Chandler Herson

(2011) A Class I and Class III Cultural Resource Inventory of the SHD Mattie Grace Mega Well Pad and Access Road, Fort Berthold Indian Reservation, McLean County, North Dakota. SWCA Environmental Consultants for SHD, LLC, McLean, VA.

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

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

Sincerely,

ACTING

Regional Director

Enclosure

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

Notice of Availability and Appeal Rights

Spotted Hawk: Mattie Grace Well Pad

The Bureau of Indian Affairs (BIA) is planning to issue administrative approvals related to the installation of the Mattie Grace oil and gas well pad as shown on the attached map. Construction by Spotted Hawk is expected to begin in 2011.

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 June 16, 2011 by contacting:

**United States Department of the Interior
Office of Hearings and Appeals
Interior Board of Indian Appeals
801 N. Quincy Street, Suite 300, Arlington, Va 22203.**

Procedural details are available from the BIA Fort Berthold Agency at 701-627-4707.

Project locations

