



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

MAY 06 2010

MEMORANDUM

TO: Superintendent, Fort Berthold Agency

FROM: ^{ACTING} Regional Director, Great Plains Region

SUBJECT: Environmental Assessment and Finding of No Significant Impact

In compliance with the regulations of the National Environmental Policy Act (NEPA) of 1969, as amended, for one proposed exploratory oil/gas well pad by XTO Energy, named Baker/Walker 34X-25 on the Fort Berthold Reservation, an Environmental Assessment (EA) has been completed and a Finding of No Significant Impact (FONSI) has been issued.

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

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

Attachment

cc: Marcus Levings, Chairman, Three Affiliated Tribes (with attachment)
Perry "No Tears" Brady, Tribal Historic Preservation Officer (with attachment)
Roy Swalling, Bureau of Land Management (with attachment)
Jonathon Shelman, Corps of Engineers (with attachment)
Dawn Charging, One Stop Shop, Fort Berthold Agency

Environmental Assessment

United States Bureau of Indian Affairs

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



XTO Energy, Inc.

Baker/Walker 34X-25 Exploratory Well Site

Fort Berthold Indian Reservation

May 2010

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

Finding of No Significant Impact

Baker/Walker 34X-25 Exploratory Well Site

Fort Berthold Indian Reservation, Dunn County, North Dakota

The U.S. Bureau of Indian Affairs (BIA) received a proposal for one oil/gas well pad, an access road, and related infrastructure on the Fort Berthold Indian Reservation to be located in the SW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 25 and the NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 36 in Township 149N and Range 92W within Dunn 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 Application for Permit to Drill.

Potential of the Proposed Action to impact the human environment was analyzed in the attached Environmental Assessment (EA), as required by the National Environmental Policy Act. Based on the recently completed EA, I have determined 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.
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 project will improve the socio-economic condition of the affected Indian community.


Regional Director

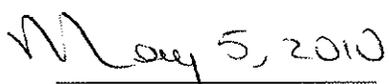

Date

Table of Contents

Finding of No Significant Impact i

Acronyms and Abbreviations v

1.0 Purpose and Need for the Proposed Action..... 1

2.0 Proposed Action and Alternatives..... 4

 2.1 Field Camp 4

 2.2 Access Road 4

 2.3 Well Pad..... 5

 2.4 Drilling 6

 2.5 Casing and Cementing 8

 2.6 Completion and Evaluation..... 8

 2.7 Commercial Production 8

 2.8 Reclamation..... 9

 2.9 Preferred Alternative..... 10

3.0 The Affected Environment and Potential Impacts 11

 3.1 The No Action Alternative..... 11

 3.2 Air Quality..... 12

 3.3 Public Health and Safety 13

 3.4 Water Resources 15

 3.4.1 Existing Conditions..... 15

 3.4.2 Water Resources Impacts 20

 3.4.3 Water Resources Mitigation 20

 3.5 Wetland and Riparian Habitats..... 20

 3.6 Threatened and Endangered Species 21

 3.6.1 Existing Conditions..... 21

 3.6.2 Threatened and Endangered Species Impacts 23

 3.6.3 Threatened and Endangered Species Mitigation..... 23

 3.7 General Wildlife and Fisheries 23

 3.7.1 Wildlife Habitat 23

 3.7.2 Wildlife and Fish Species 26

 3.7.3 Wildlife and Fish Projected Impacts 28

 3.7.4 Wildlife Mitigation 28

 3.8 Soils..... 29

 3.8.1 Soil Mapping..... 29

 3.8.2 Soil Impacts..... 33

 3.8.3 Soil Mitigation..... 34

 3.9 Vegetation and Invasive Species 34

 3.9.1 Ecological Sites 34

 3.9.2 Invasive Species 40

 3.9.3 Noxious Weeds..... 40

 3.9.4 Vegetation Impacts 40

 3.9.5 Vegetative Mitigation 41

 3.10 Cultural Resources 42

 3.11 Socio-Economics 43

Table of Contents (continued)

3.12 Environmental Justice 45
 3.13 Mitigation and Monitoring 46
 3.14 Cumulative Impacts..... 48
 3.15 Irreversible and Irretrievable Commitment of Resources..... 50
 3.16 Short-Term Use of the Environment Versus Long-Term Productivity 50

4.0 Bibliography 51

5.0 List of Preparers 55

6.0 Consultation and Coordination 56

APPENDICES

Appendix A *Baker 34X-25 - Application for Permit to Drill (APD)*
Baker 34X-25 - Multi-point Surface Use & Operations Plan
Walker 34X-25 - Application for Permit to Drill (APD)
Walker 34X-25 - Multi-point Surface Use & Operations Plan

Appendix B *Ecological Site Photographs*
Ecological Site Summary Table

Appendix C *Ecological Site Plant Worksheets*
Characteristics of Native Seed Mix

Appendix D *Soil Data Summary*

Appendix E *Cultural Resources Correspondence*

Appendix F *Agency Correspondence*

TABLES

Table 3.2 *Comparison of North Dakota state ambient air quality standards at four monitoring stations.*

Table 3.4a *Information for 14 documented springs located within a 5-mile radius of the proposed Baker/Walker 34X-25 project area.*

Table 3.4b *Characteristics of pre-glacial aquifers occurring in Dunn County, North Dakota.*

Table 3.4c *Information on locations of 13 known water wells that occur within a 5-mile radius of the proposed Baker/Walker 34X-25 project area.*

Table 3.7a *Summary of wildlife habitat types and projected impacts for the proposed Baker/Walker 34X-25 project area.*

Table 3.7b *Wildlife species observed during the September 2008 and 2009 site visits at the Baker/Walker 34X-25 project area.*

Table 3.7c *Species of Conservation Priority that potentially could occur in the proposed Baker/Walker 34X-25 project area.*

Table 3.8a *Soils at the proposed Baker/Walker 34X-25 project site.*

Table 3.8b *Approximate area of soil map units found at the proposed Baker/Walker 34X-25 site.*

Table of Contents (continued)

| | |
|-------------|--|
| Table 3.8c | <i>Soil attributes for the proposed Baker/Walker 34X-25 site.</i> |
| Table 3.8d | <i>Unified Classification of subsoil materials at the proposed Baker/Walker 34X-25 project area.</i> |
| Table 3.9a | <i>Summary of vegetation sample sites at the proposed Baker/Walker 34X-25 project area.</i> |
| Table 3.9b | <i>Plant species observed in each Ecological Site at the proposed Baker/Walker 34X-25 project area.</i> |
| Table 3.9c | <i>North Dakota Noxious weeds present in Dunn County and in vicinity of the project area.</i> |
| Table 3.9d | <i>Native grass seed mix recommended for reclamation of the proposed Baker/Walker 34X-25 project site.</i> |
| Table 3.11a | <i>Employment and income data.</i> |
| Table 3.11b | <i>North Dakota population trends at the Reservation, County, and State levels.</i> |
| Table 3.14 | <i>Number of oil wells and their proximity to the proposed Baker/Walker 34X-25 project site.</i> |
| Table 6.0 | <i>Direct mail recipients of scoping letter sent on February 19, 2010.</i> |
| Table B1 | <i>Summary of ecological sample sites at the proposed Baker/Walker 34X-25 project area.</i> |
| Table C1 | <i>Native seed mix proposed for use in reclamation of the proposed project site.</i> |
| Table D1 | <i>A summary of soil attributes for ecological sites at the proposed Baker/Walker 34X-25 project site.</i> |

FIGURES

| | |
|-------------|--|
| Figure 1a | <i>Project location - FBIR Baker/Walker 34X-25.</i> |
| Figure 1b | <i>Project vicinity - FBIR Baker/Walker 34X-25.</i> |
| Figure 2.2 | <i>Photograph of access road for the proposed Baker/Walker 34X-25 site.</i> |
| Figure 2.3 | <i>Photograph of proposed Baker/Walker 34X-25 well pad.</i> |
| Figure 2.4 | <i>Photograph of a typical drilling rig and well pad.</i> |
| Figure 2.8a | <i>Photograph of a well pad and access road.</i> |
| Figure 2.8b | <i>Photograph of a reclaimed well pad and access road.</i> |
| Figure 3.3 | <i>Homes within five miles - FBIR Baker/Walker 34X-25.</i> |
| Figure 3.4a | <i>Local and major drainages - FBIR Baker/Walker 34X-25.</i> |
| Figure 3.4b | <i>Watersheds, water wells, and springs - FBIR Baker/Walker 34X-25.</i> |
| Figure 3.7a | <i>Habitat types found in the project area.</i> |
| Figure 3.7b | <i>Wildlife habitat - FBIR Baker/Walker 34X-25.</i> |
| Figure 3.8 | <i>Soil and vegetation sample locations - FBIR Baker/Walker 34X-25.</i> |
| Figure 3.14 | <i>Oil wells within 1, 5, 10, & 20 miles of well pad - FBIR Baker/Walker 34X-25.</i> |
| Figure D1 | <i>Definitions of the Unified Soil Classification System.</i> |

ACRONYMS AND ABBREVIATIONS

| | |
|-----------------------|--|
| AAQM | Ambient Air Quality Monitoring |
| AIRFA | American Indian Religious Freedom Act |
| APD | Application for Permit to Drill |
| APE | Area of Potential Effect |
| BIA | U.S. Bureau of Indian Affairs |
| BLM | U.S. Bureau of Land Management |
| BMP | Best management practices |
| °C | Celsius degrees |
| CEQ | Council of Environmental Quality |
| CFR | Code of Federal Regulations |
| CO | Carbon Monoxide |
| E | East (Easting) |
| EA | Environmental Assessment |
| e.g. | For example |
| EIS | Environmental Impact Statement |
| EJ | Environmental Justice |
| EPA | U.S. Environmental Protection Agency |
| ESA | Endangered Species Act |
| °F | Fahrenheit degrees |
| FBIR | Fort Berthold Indian Reservation |
| FONSI | Finding of No Significant Impact |
| GAL/MIN | Gallons per minute |
| GPS | Global Positioning System |
| H₂S | Hydrogen Sulfide |
| HPRCC | High Plains Regional Climate Center |
| HUC | Hydrologic Unit Code |
| in | Inches |
| i.e. | that is or such as |
| MHA Nation | Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nation |
| MTNHP | Montana Natural Heritage Program |
| N | North (Northing) |
| NAAQS | National Ambient Air Quality Standards |
| NAGPRA | Native American Graves Protection and Repatriation Act |
| ND | North Dakota |
| NDDA | North Dakota Department of Agriculture |
| NDDH | North Dakota Department of Health |
| NDGFD | North Dakota Game and Fish Department |
| NDIC | North Dakota Industrial Commission |
| NDPR | North Dakota Parks and Recreation |
| NE | Northeast |
| NEPA | National Environmental Policy Act |
| NHPA | National Historic Preservation Act |
| NO₂ | Nitrogen Dioxide |
| NO_x | Nitrogen Oxide |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| NRO | Natural Resource Options, Inc. |
| NTL | Notice to Lessees |
| NWR | National Wildlife Refuge |
| O₃ | Ozone |
| Pb | Lead |
| PBS&J | Post, Buckley, Schuh, and Jernigan |
| PM | Particulate Matter |

ACRONYMS AND ABBREVIATIONS

| | |
|-------------------------|---|
| PPB | Parts Per Billion |
| PPM | Parts Per Million |
| R | Range |
| Reservation | Fort Berthold Indian Reservation |
| ROW | Right-of-way |
| S | South |
| SAAQS | State Ambient Air Quality Standards |
| SARA | Superfund Amendments and Reauthorization Act |
| SHPO | State Historic Preservation Office |
| SMU | Soil Map Unit |
| SO₂ | Sulfur Dioxide |
| SYN | Synonym |
| T | Township |
| TCP | Traditional and Cultural Property |
| TE | Threatened and Endangered Species |
| THPO | Tribal Historic Preservation Officer |
| µg/m³ | Micrograms per cubic meter |
| µmhos/cm | Microsiemens per centimeter |
| US | United States |
| USA | United States of America |
| USC | United States Code |
| USDA | U.S. Department of Agriculture |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| UTM | Universal Transverse Mercator coordinate system |
| VOC | Volatile Organic Compound |
| W | West |
| XTO | XTO Energy, Inc. |

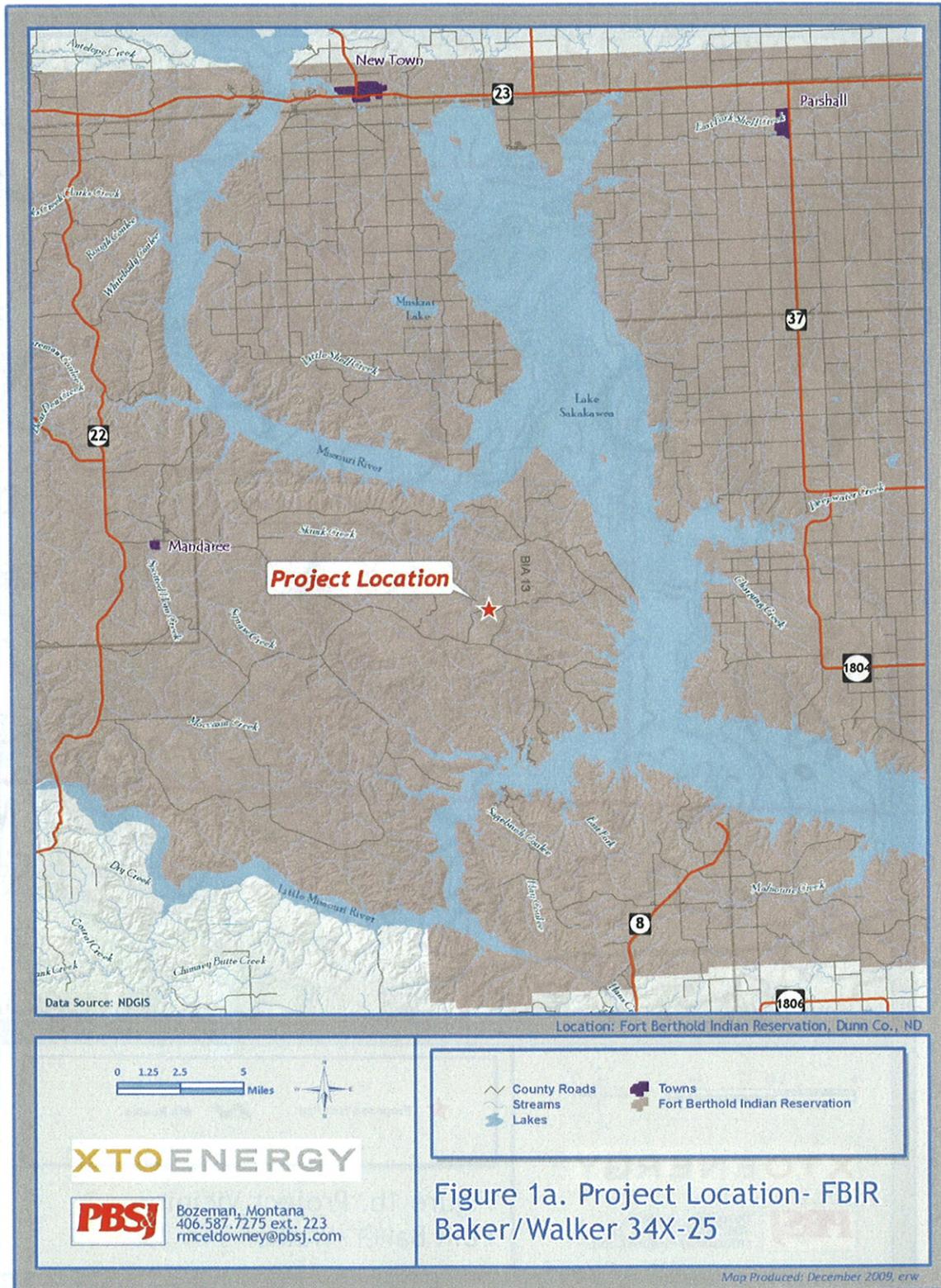
1.0 Purpose and Need for the Proposed Action

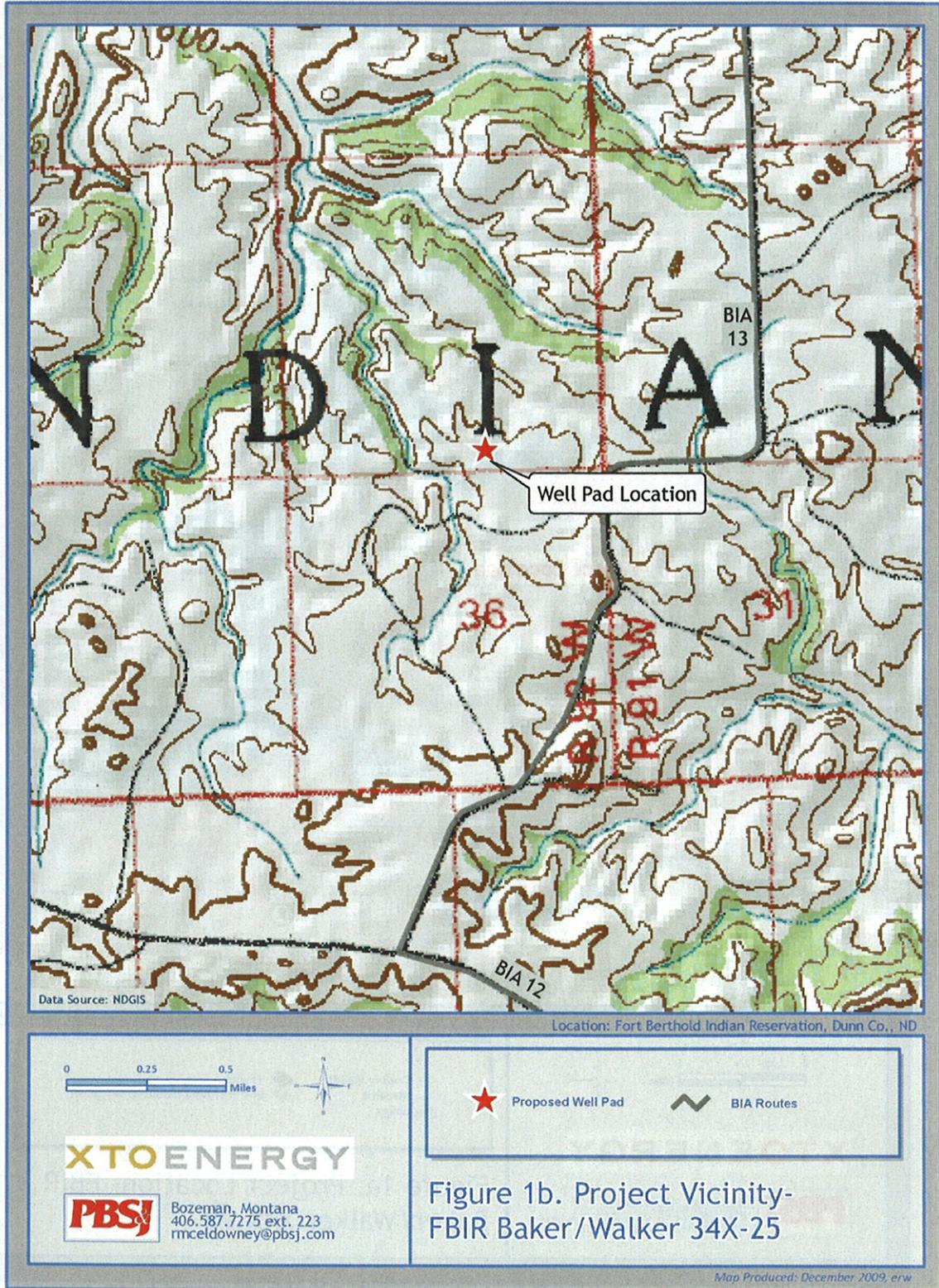
XTO Energy, Inc. (XTO) is proposing to drill up to ten (10) oil wells at one well pad location on the Fort Berthold Indian Reservation (Reservation) to evaluate and potentially develop the commercial potential of mineral resources (Figures 1a and 1b). The proposed well pad location is on land held in trust by the United States in Dunn County, North Dakota. The U.S. Bureau of Indian Affairs (BIA) is the surface management agency for potentially affected tribal lands and individual allotments.

The proposed project is intended to explore the commercial potential on the Reservation of the Bakken oil pool, as defined by the North Dakota Industrial Commission, Oil & Gas Division, (hereafter simply referred to as the “Bakken”). Because leasing and development of mineral resources offer substantial benefits to both the Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nation (MHA Nation) and to individual tribal members, economic development of available resources is consistent with BIA’s general mission. The proposed activities are consistent with efforts to self-governance and economic stability pursuant to the Indian Reorganization Act (Wheeler-Howard Act of 1934, as amended). Oil and gas exploration and development activities are conducted under the authority of the Indian Mineral Leasing Act of 1938 (25 United States Code [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 (Public Law 109-58, 119 Statute 594). BIA actions in connection with the proposed project are largely administrative and include 1) approval of leases, easements and rights-of-way; 2) determinations regarding cultural resource effects; and 3) a recommendation to the Bureau of Land Management (BLM) regarding approval of the Application for Permit to Drill (APD).

These proposed federal actions require compliance with the National Environmental Policy Act of 1969 (NEPA) (42 USC 4321, *et seq.*) and regulations of the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1500–1508). Additionally, the proposed project would be subject to agency review in accordance with Executive Order 13212 – *Actions to Expedite Energy-Related Projects*. Analysis of the proposed project’s potential to impact the human environment is expected to both substantiate and explain federal decision-making. The APDs submitted to the BLM by XTO are included with this document; they describe developmental, operational, 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). The format and content of this EA complies with the guidance as per coordination with the BIA Great Plains Regional Office, Aberdeen, South Dakota.

There are several components to the Proposed Action. Both a new and an improved road are needed to access the proposed well pad. The well pad would be constructed to accommodate drilling operations. A closed-loop system would be used for wells drilled on staggered time intervals; for wells drilled simultaneously a pit for drilling cuttings would be constructed, used, and reclaimed. Drilling and production information could result in long-term commercial production at the site, in which case supporting facilities would be installed. The working portion of the well pad and the access road would remain in place during commercial production. All project components would eventually be abandoned and reclaimed, as specified in this document and the APDs and according to any conditions imposed by the BIA or BLM, unless formally transferred with federal approval to either the BIA or the landowner. The proposed ten wells (10) are exploratory, in that results could also support developmental decisions on other leases in the surrounding area, but this EA addresses only the installation and possible long-term operation of ten wells and directly associated infrastructure and facilities. Additional NEPA analysis, decisions, and federal actions may be required prior to any other development.





Any authorized project would 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.

2.0 Proposed Action and Alternatives

The **No Action Alternative** must be considered within an EA. If this alternative is selected, the BIA would not approve leases, rights-of-way or other administrative proposals for the proposed project. Applications for Permit to Drill for the listed well location would not be approved. Current land use practices would continue at the No Action site. Development under other oil and gas leases would remain a possibility. The No Action is the only available or reasonable alternative to the specific proposal considered in this document.

This document analyzes the impacts of the Proposed Action Alternative – exploratory oil wells on allotted surface and mineral estate within the boundaries of the Fort Berthold Indian Reservation (FBIR) in Dunn County, North Dakota. The proposed ten wells would test the commercial potential of the Bakken. Site-specific actions would or might include several components, including construction of an access road, construction of a well pad, drilling operations, production facilities, tanker traffic, implementation of Best Management Practices (BMPs), and reclamation.

All construction activities would follow lease stipulations, practices, and procedures outlined in the APD and in guidelines and standards from the book, *Surface Operating Standards for Oil and Gas Exploration and Development* (also known as the Gold Book; USDI-USDA 2007), conditions described in this EA, and any conditions added by either BIA or BLM. All lease operations would 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. **No pipeline or other gas collection and transport system is included in the Proposed Action.** If pipelines or other collection facilities are deemed necessary then additional NEPA documentation may be required. The remainder of this chapter details activities associated with the Proposed Action.

2.1 Field Camp

Self-contained trailers may house a few key personnel during drilling operations, but any such arrangements would be very short-term. No longer-term residential camps are proposed. Construction and drilling personnel would commute to the project site, most likely from Dickinson and/or New Town, North Dakota. Human waste would 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 would be collected in enclosed containers and disposed of at a state-approved facility.

2.2 Access Road

Building of the access road would require about 1,283 feet of new road construction and about 2,010 feet of improvements to an existing graveled driveway. Signed agreements are in place allowing road construction in affected surface allotments. A maximum disturbed right-of-way (ROW) width of 66 feet would result in about 4.99 acres of surface disturbance.

Construction would follow road design standards outlined in the Gold Book (USDI-USDA 2007). A minimum of six inches of topsoil would be stripped from the access road corridor, with the stockpiled topsoil re-distributed on the outslope areas of borrow ditches following road construction. These borrow ditch areas would be reseeded as soon as is practical with a native seed mixture determined by the BIA. If commercial production is established from the proposed location, the access road would be graveled with a minimum of

four (4) inches of gravel and the roadway would remain in place for the life of the well. The existing location for the proposed access road is shown in Figure 2.2. Details of road construction are addressed in the Multi-Point Surface Use and Operations Plan in the APD (Appendix A).



Figure 2.2: View is north at the new portion of the access road proposed for the FBIR Baker/Walker 34X-25 well pad site. Source: PBS&J, September 15, 2009.

2.3 Well Pad

The proposed well pad would consist mainly of an area leveled for the drilling rig and related equipment. If a closed-loop system was not used for drilling, then the well pad would also accommodate a pit excavated for drilling fluids, drilled cuttings, and fluids produced during drilling. The well pad area would be cleared of vegetation, stripped of topsoil, and graded to specifications in the APD (Appendix A). Topsoil would be stockpiled and stabilized until disturbed areas were reclaimed and re-vegetated. Excavated subsoils would be used in pad construction, with the finished well pad graded to ensure positive water drainage away from the drill site. Erosion control would be maintained through prompt re-vegetation and by constructing all necessary surface water drainage control, including berms, diversion ditches, and waterbars.

The level area of well pads required for drilling and completion operations (including reserve pits for drilled cuttings) would be approximately 400 feet x 550 feet (5.05 acres). Cut and fill slopes on the edge of pads would result in approximately 1.01 acres of additional surface disturbance, resulting in a total surface disturbance of the well pad of approximately 6.06 acres. Existing conditions of the proposed well pad site are shown in Figure 2.3. Details of pad construction and reclamation are diagrammed in the APD (Appendix A).



Figure 2.3: View is north towards the center of the proposed FBIR Baker/Walker 34X-25 well pad.
Source: PBS&J, September 15, 2009.

2.4 Drilling

After securing leases for mineral estates, XTO submitted APDs to BLM in April 2010, proposing to drill from allotted surfaces in the listed locations. The BLM North Dakota Field Office forwarded copies of the APD to 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 drilling will begin until a permit has been obtained from the BLM.

Initial drilling would be vertical to an approximate depth ranging from 9,500 to 10,500 feet at the kickoff point where the drill bit will begin to be angled for horizontal drilling. Drilling would become roughly horizontal at an approximate depth of 10,000 to 11,500 feet below the land surface, followed by lateral reaches in the Bakken. Completed wellbores will range in length from 20,000 to 25,000 feet. The minimum setback of 500 feet from section borders would be maintained or achieved through directional drilling.

Rig transport and on-site assembly would take about five to 12 days for the initial well. Drilling operations would require approximately 15 to 40 days to reach the target depth, using a rotary drilling rig rated for drilling operations to a vertical depth of approximately 14,000 to 20,000 feet. A typical drill rig is shown in Fig.2.4. For the first 1,500 to 2,500 feet drilled, a fresh-water based mud system with non-hazardous additives such as bentonite would be used to minimize contaminant concerns. Water will be obtained from a commercial source for this drilling stage, using about 50,000 to 90,000 gallons of water. This water is collected and reused as much as possible

Oil-based drilling fluids can reduce the potential for hole sloughing while drilling through water-sensitive formations (e.g., shales). After setting and cementing the near-surface casing, an oil-based mud system (approximately 80% diesel fuel and 20% salt water) would be used to drill the vertical and drill curve portions of the hole (9,000 to 10,000 feet long). About 10,000 to 18,000 gallons of salt water and 40,000 to 72,000 gallons of diesel fuel would be used to complete drilling to final vertical depth. These fluids are



Figure 2.4: A typical drilling rig and well pad. Source: BIA.

captured and reused at other wells as much as possible. The horizontal portion of the hole would be drilled using a salt water based mud. Roughly 50,000 to 90,000 gallons of salt water would be needed per hole. This water is also reused as much as possible. Whether a closed-loop system or a reserve pit is used, toxic fluids would be contained in steel tanks placed on plastic/vinyl liners or within the confines of the plastic/vinyl-lined reserve pit, then collected during drilling to separate the cuttings from fluids. Fluids would be recycled back into the steel tanks for re-use. Upon completion of drilling operations at each well, oil-based fluids would again be collected to the extent possible to be recycled and used elsewhere. If a reserve pit is used, any free fluids remaining in reserve pits would be removed and disposed of in accordance with North Dakota Industrial Commission (NDIC) rules and regulations.

For wells not drilled using a closed-loop system, the cuttings generated from drilling would then be deposited in a reserve pit on the well pad. Reserve pits would be lined with an impervious (plastic/vinyl) liner to prevent drilling fluid seepage and contamination of the underlying soil. Liners would be installed with sufficient bedding (either straw or dirt) to cover any rocks, would overlap the pit walls, extend under the mud tanks, and would be covered with dirt and/or rocks to hold it in place. Pits would be fenced on all four sides in order to protect personnel as well as wildlife and livestock from accidentally falling into the pit. In addition, the entire well pad would be fenced. Fencing would be installed in accordance with guidelines from the Gold Book (USDI-USDA 2007) and maintained until reserve pits, if used, are backfilled or the site is abandoned.

XTO intends to use a material that would render cuttings into an inert, solid mass. Controlled mixing of cuttings with a non-toxic reagent causes an irreversible reaction that quickly results in a solid granular material. Oily substances present are dispersed throughout the material and locked in place, 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 would then be buried in reserve pits, overlain by at least four feet of overburden as required by NDIC regulations.

2.5 Casing and Cementing

Surface casing would be set at an approximate depth of 1,500 to 2,500 feet and cemented back to the surface, isolating all near-surface freshwater aquifers in the project area. Additional casing will be used after drilling into the target formation at a total measured depth ranging between 10,000 to 13,000 feet. Portions of the well from the target formation through the kickoff point up into the vertical section of the wellbore are planned to be cemented to isolate various formation as well as enhance wellbore integrity. The lateral portion of the hole will be lined with a liner, part of which contains pre-drilled holes.

2.6 Completion and Evaluation

After a well is drilled and cased, a completion (work-over) unit would be moved onto the site. For wells of the depth proposed, about thirty 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. If the target formation is to be fractured to stimulate production, the typical procedure is to pump downhole a mixture of sand and a transport medium (e.g., water, nitrogen) under extreme pressure. The resulting fractures are propped open with sand, increasing the capture zone of the well and maximizing efficient drainage of the field. After fracturing, the well is typically flowed back to the surface to recover fracture fluids and remove excess sand. Fluids used in the completion procedure would be captured either in reserve pits or in tanks for disposal in strict accordance with NDIC rules and regulations.

2.7 Commercial Production

If drilling, testing, and production support commercial production from the proposed location, additional equipment would be installed, including a pumping unit at the well head, a vertical heater/treater, tanks (usually four 400 barrel steel tanks), and a flare/production pit. An impervious dike would be constructed from compacted subsoil surrounding the production tanks and heater/treater, and sized to hold 100% of the capacity of the largest tank plus one full day's production. Load out lines would be located inside the diked area, with a heavy screen-covered drip barrel installed under the outlet. A metal access staircase would protect the dike and support flexible hoses used by tanker trucks. A typical drill rig and well pad are shown in Figure 2.4 and more detail is included in the APD (Appendix A). The BIA will choose a color for all permanent above-ground production facilities from standard environmental colors recommended by BLM or the Rocky Mountain Five-State Interagency Committee.

Oil would be collected in tanks and periodically trucked to an existing oil terminal for sales. Any produced water would be captured in tanks and periodically trucked to an approved disposal site. The frequency of trucking activities for both product and water would depend upon volumes and rates of production. The duration of production operations cannot be reliably predicted, but some oil wells have pumped for over one hundred years.

Large volumes of gas are not expected from this location. Small volumes would be flared in accordance with Notice to Lessees (NTL) 4A and NDIC regulations, which prohibit flaring for more than the initial year of operation (NDIC 38-08-06.4). **No installations of gas-gathering or transport equipment are included in the current proposal.** Any proposal for gathering and marketing gas from this well may require additional analysis under NEPA and consideration of impacts by the BIA.

Drilling and testing results would also help determine if additional exploration activities are warranted in the overall area. Should future oil/gas exploration activities be proposed by XTO on the FBIR then that proposal and associated federal actions would require additional NEPA analysis and BIA consideration prior to implementation.

2.8 Reclamation

A closed-loop system would be used for wells drilled on staggered time intervals; however, a reserve pit would be used for wells drilled simultaneously. If used, the reserve pit and drilled cuttings would be treated, solidified, backfilled, and buried as soon as possible after well completion. Other interim reclamation measures to be accomplished within the first year include reduction of the cut and fill slopes, redistribution of stockpiled topsoil, and reseeded of disturbed areas. Figures 2.8a and 2.8b shows how a well pad and access road can be reclaimed. If commercial production equipment is installed, the pad will be reduced in size to about 350 feet x 550 feet, with the rest of the original pad reclaimed. Reclamation would include leveling, re-contouring, treating, backfilling, and re-seeding. Erosion control measures would be installed. Stockpiled topsoil would be redistributed and reseeded as recommended by the BIA. The working part of well pad and the running surface of the access road would be surfaced with scoria or crushed rock from a previously approved location and erosion control measures would be installed as necessary. The outslope portions of the road would be covered with stockpiled topsoil and re-seeded with a seed mixture determined by the BIA, reducing the residual access-related disturbance to about 28 feet wide and about 2.12 acres in size.

If there is no commercial production from the proposed ten wells, or upon final abandonment of commercial operations, all disturbed areas would be promptly reclaimed. All facilities would be removed, well bores would be plugged with cement, and dry hole markers would be set. The access road and work areas would be scarified, re-contoured and reseeded. An exception to these reclamation measures might occur if the BIA approves assignment of an access road either to the BIA roads inventory or to concurring surface allottees.

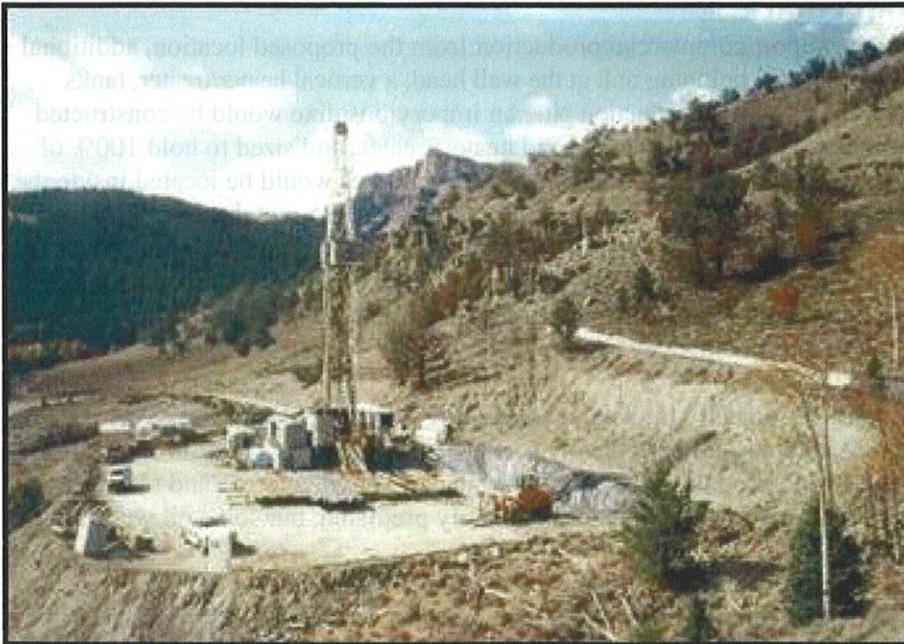


Figure 2.8a: Construction of the well pad and access road are minimized to the size necessary to perform drilling and complete operations in a safe manner. Source: USDI-USDA 2007.



Figure 2.8b: The well pad and access road have been reclaimed by returning the land to its original contours, re-spreading the topsoil, and revegetating the site. Source: USDI-USDA 2007.

2.9 Preferred Alternative

The Preferred Alternative is to complete all of the administrative actions and approvals necessary to authorize or facilitate the proposed oil development. The FBIR Baker/Walker site is a dual pad that would service a maximum of 10 horizontal wells. For Baker, six wells would be given the name of FBIR Baker 34X-25A, 34X-25B, 34X-25C, 34X-25D, 34X-25E, and 34X-25F. For Walker, four wells would be given the name of FBIR Walker 34X-25A, 34X-25B, 34X-25C, and 34X-25D. If the initial two wells are successful, the intent would be to drill the additional eight wells from the same pad over a period of several years.

The proposed ten wells on the Baker/Walker well pad would be located in the southeast portion of Section 25, T149N, R92W to access two spacing units; one 640 acre unit consisting of the east half of Section 4, T148N, R92W and the west half of Section 36, T149N-92W, and one 1,280 acre unit consisting of Section 24 and 25, T149N, R92W. Access from BIA Road 13 would require re-grading of 2,010 feet of existing road and construction of approximately 1,283 feet of new road. Photographs of the proposed well location and road alignment are shown in Figures 2.2 and 2.3. Initial drilling would be vertical to an approximate depth of 10,000 to 11,000 feet. Directional drilling will maintain or achieve a minimum 550 feet setback from section lines. The completed drill strings will total about 20,000 to 25,000 feet at a depth of about 10,000 to 11,000 feet, including a 10,000 to 15,000 feet lateral reach in the Bakken.

The drilling target for the Walker 34X-25 is 550 feet FSL and 2,090 feet FEL in the SW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 4, T148N, R92W, approximately 2,900 feet west and 10,000 feet south of the surface hole location.

The drilling target for the Baker 34X-25 is 550 feet FNL and 2,637 feet FWL in the center of the N $\frac{1}{2}$ N $\frac{1}{2}$ of Section 24, T149N, R92W, approximately 793 feet west and 9,749 feet north of the surface hole location.

The bottom hole targets of the other eight additional wells that may be drilled from this well pad will be different from the first two wells. The bottom hole targets will be determined such that optimum reservoir development occurs within each unit and all applicable footage setbacks are respected.

3.0 The Affected Environment and Potential Impacts

The Fort Berthold Indian Reservation is the home of the Three Affiliated Tribes of the Mandan, Hidatsa and Arikara Nation (MHA Nation). Located in west-central North Dakota, the Reservation encompasses more than a 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 1953 much of the land was inundated and the rest divided into three sections by Lake Sakakawea, an impoundment of the Missouri River upstream of the Garrison Dam near Riverdale, North Dakota.

The proposed well pad and access road are situated geologically within the Williston Basin, where the shallow structure consists of sandstones, silts and shales dating to the Tertiary Period (65-2 million years ago), including the Sentinel Butte and Golden Valley Formations. The underlying Bakken is a well-known source of hydrocarbons and will be targeted by the proposed projects. Earlier oil/gas exploration activity within the Reservation and near the project area was limited and commercially unproductive.

Much of the Reservation's land surface is included in the Northern Great Plains Level III ecoregion (Bryce et al. 1996). This unglaciated area extends south and west of the Missouri River and varies from undulating plains to the highly dissected, erosional landscape of the Little Missouri Badlands. Within this ecoregion mean annual precipitation ranges between 13 and 17 inches and mean temperatures fluctuate between -3° and 21° F in January and between 60° and 91° F in July, with 80 to 140 frost-free days each year (Bryce et al. 1996). Lands within the proposed spacing unit occurs at an elevation of approximately 2,190 feet above mean sea level and is primarily grass- and shrub- lands dissected by woody riparian areas that are currently used to graze livestock. Other than barbwire fences, a driveway, and a residence, there is little evidence that the landscape in the project vicinity has been previously disturbed.

The broad definition of the human 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, wildlife and fisheries, soils, vegetation and invasive species, cultural resources, socio-economic conditions, and environmental justice. Potential impacts to these elements are analyzed for both the No Action and Proposed Action alternatives. Impacts may be beneficial or harmful, direct or indirect, and short- 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 Environmental Impact Statement.

3.1 The No Action Alternative

Under the No Action alternative, the proposed project would not be constructed, drilled, installed, or operated. Existing conditions would not be impacted for the following critical elements: air quality, public health and safety, water resources, wetland and riparian habitat, threatened and endangered species, wildlife and fisheries, soils, vegetation and invasive species, and cultural resources. There would be no project-related ground disturbance, use of hazardous materials, or trucking of product to collection areas. Surface disturbance, deposition of potentially harmful biologic material, and trucking and other traffic would not change from current levels. Economic benefits to both tribe and many tribal members would remain at the currently depressed levels if exploration and commercial development of available resources are abandoned.

Loss of employment and royalty income would adversely impact tribal and individual economies and planning on a large scale.

3.2 Air Quality

This section describes the existing conditions, the potential impacts from the Proposed Action, and the suggested mitigation measures for air quality resources in the project area.

The North Dakota Department of Health (NDDH) operates a network of ambient air quality monitoring stations. The closest stations that bracket the project area and monitor a full suite of air quality constituents are Dunn Center to the south, TRNP-NU to the west, Lostwood NWR to the north, and Beulah North to the southeast (NDDH 2009). Wind directions are predominantly from the northwest or southeast at Dunn Center and TRNHP-NU, from the south-southwest or northwest at Lostwood, and from northwest, southwest, or southeast at Beulah North (NDDH 2009). The Dunn Center monitoring station is the closest to the Baker project, and is located roughly 25.6 miles south-southwest of the project area.

Criteria pollutants tracked under the National Ambient Air Quality Standards (NAAQS) of the Clean Air Act and the State Ambient Air Quality Standards of North Dakota (SAAQS) include sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃), inhalable particulate matter (PM₁₀), and continuous fine inhalable particulate matter (PM_{fine}). Lead (Pb) and carbon monoxide (CO) are not monitored by any nearby monitoring stations. The SAAQS are generally equivalent to, or more stringent than, the NAAQS for most pollutants. The existing air quality at the four monitoring stations did not exceed SAAQS air quality standards in 2008 (Table 3.2). In fact, in 2008 North Dakota was one of thirteen states 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 2009).

Table 3.2: Comparison of North Dakota state ambient air quality standards at four monitoring stations.¹

| Pollutant (unit ²) | Averaging Period | SAAQS Standard | Monitoring Station | | | |
|--|-------------------------------------|-------------------|--------------------|---------|-----------------|-----------------|
| | | | Dunn Center | TRNP-NU | Lostwood NWR | Beulah North |
| SO ₂ (ppb) | 1-Hour | 273 | 20.9 | 19.2 | 72.7 | 66 |
| | 24-Hour | 99 | 4.0 | 5.0 | 13.0 | 9 |
| | Annual Arithmetic Mean | 23 | 0.4 | 0.5 | 1.1 | 1.6 |
| NO ₂ (ppb) | Annual Arithmetic Mean | 53 | 1.8 | 1.1 | 1.5 | 2.7 |
| O ₃ (ppb) | One exceedance per year (1-Hour) | 120 | 69 | 68 | 64 | 68 |
| PM _{fine} (µg/m ³) | 24-Hour | 35 (NAAQS) | 35.7 | 22.2 | 24.5 | 35.7 |
| | Annual Mean | 15 (NAAQS) | 3.7 | 3.3 | 3.6 | 3.8 |
| PM ₁₀ (µg/m ³) | 24-Hour | 150 | 94 | 108 | 32 | 58 |
| | Annual Mean | 50 | 14.2 | 10.2 | 9.8 | 15.7 |
| CO (ppm) | 1-Hour | 9 | -- | -- | -- | -- |
| | 8-Hour | 35 | -- | -- | -- | -- |
| Pb (µg/m ³) | 3-Month | 1.5 | -- | -- | -- | -- |

¹ Source: NDDH (2009).

² ppb = Parts per billion; ppm = parts per million; µg/m³ = micrograms per cubic meter

The Clean Air Act mandates prevention of significant deterioration in designated attainment areas. Class I areas are of special national significance and include national parks greater than 6,000 acres in size,

national monuments, national seashores, and federally designated wilderness areas larger than 5,000 acres and designated prior to 1977. Both visibility impairment and increases in pollutant concentrations are capped. There is a Class I airshed at Theodore Roosevelt National Park, which covers approximately 110 square miles of land in three units within the Little Missouri National Grassland between Medora and Watford City. This Class I airshed is located approximately 40 miles west of the project area. The project area can be considered a Class II attainment airshed, which affords it a lower level of protection from significant deterioration than a Class I airshed.

The U.S. Environmental Protection Agency Region-VIII (EPA) has Title V permitting responsibilities on the Reservation. Construction would generate temporary and nearly undetectable gaseous emissions of PM₁₀ and SO₂. Construction would generate levels of NO_x, CO, and volatile organic compounds (VOCs) that range from nearly undetectable to significant depending upon how much is vented or combusted. Impacts to air quality in the “near field” are not anticipated. No detectable or long-term impacts on air quality or visibility are expected within the airsheds of the reservation, park, or state. The Title V permitting process is on-going. XTO Energy would take all necessary steps to reduce and/or control air emissions and would obtain all permits required by state or federal agencies.

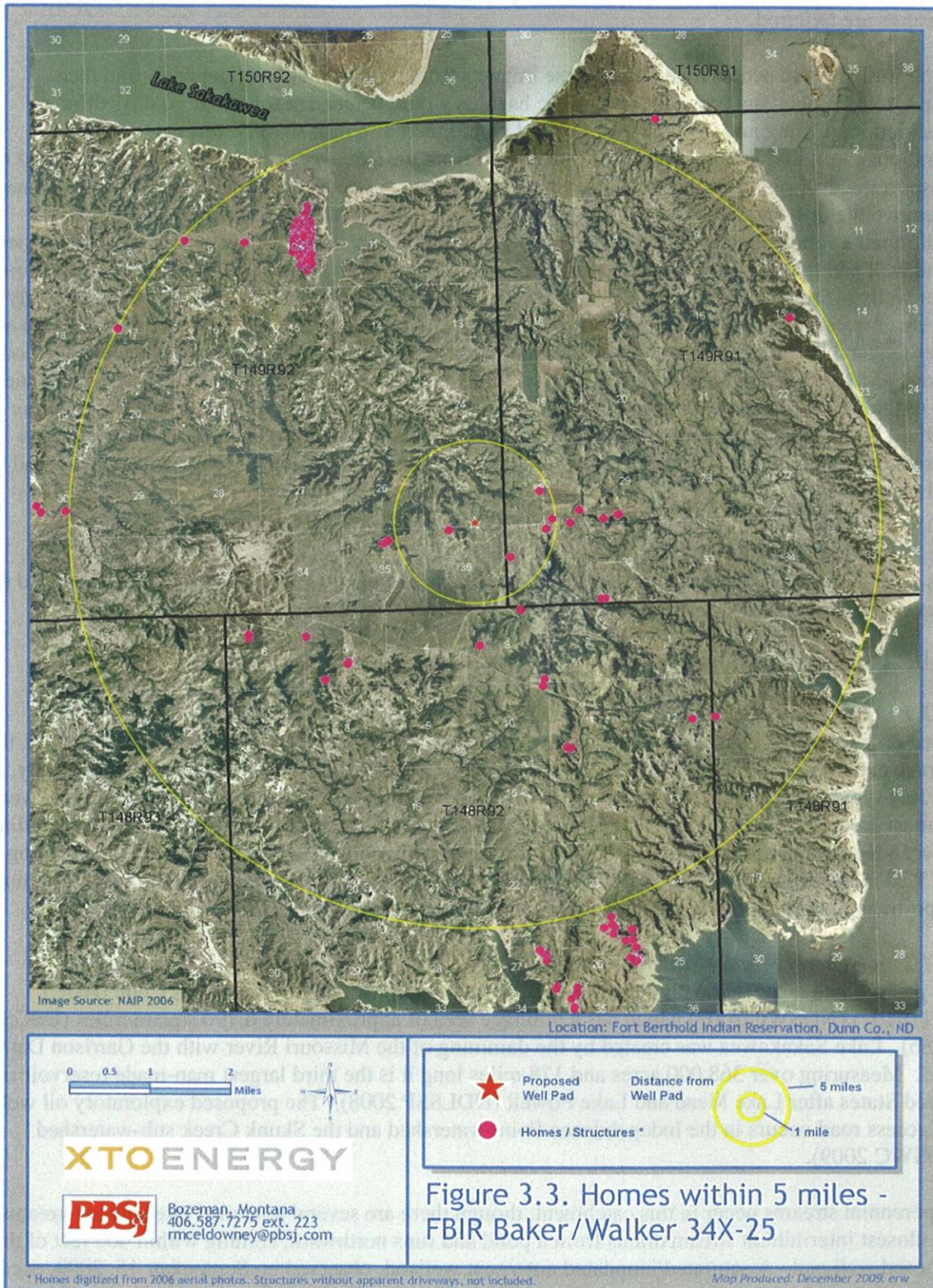
3.3 Public Health and Safety

This section describes the existing conditions, the potential impacts from the Proposed Action, and the suggested mitigation measures for public health and safety concerns in the project area.

Health and safety concerns include naturally-occurring toxic gases, hazardous materials used or generated during installation or production, and traffic hazards from heavy drill rigs and tankers. Hydrogen sulfide (H₂S) is a naturally occurring gas that at low concentrations has a ‘rotten egg odor’. For this reason it is often referred to as ‘sour gas’. It is extremely toxic in concentrations above 500 parts per million (ppm); it has not been found in measurable quantities in the Bakken. Before reaching the Bakken, drilling would penetrate the Mission Canyon Formation, which is known to contain varying concentrations of hydrogen sulfide (H₂S). Release of H₂S at dangerous concentrations is considered very unlikely, but H₂S Contingency Plans submitted to the BLM establish precautions and emergency response plans for both the drilling crew and the general public. These plans comply fully with relevant portions of *Onshore Oil and Gas Order 6*. Precautions include automated sampling and alarm systems operating continuously at multiple locations on the well pad. No direct impacts from H₂S are anticipated.

Interpretation of 2006 aerial photography revealed four residences and the Independence Church within 1.0 mile of the proposed well location and 131 residences within a five mile radius (Figure 3.3). The closest home is located approximately 1,525 feet west-southwest of the proposed well pad. Two additional residences are located near one another and are roughly 0.6 miles southeast of the proposed well pad. Since the prevailing wind directions are from the west, northwest, or southeast, according to 2008 data from the Ambient Air Quality Monitoring (AAQM) site in Dunn Center (NDDH 2009), these two residences will, periodically, be downwind of the well pad.

The EPA specifies chemical reporting requirements under Title III of the *Superfund Amendments and Reauthorization Act* (SARA) of 1986, as amended. No materials used or generated by this project for the 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, flaring, hazardous materials and traffic. All operations, including flaring, would conform to instructions from BIA fire management staff. Impacts are considered minimal, unlikely, and



insignificant. No laws, regulations or other requirements have been waived; no compensatory mitigation measures are required.

At the well site and access road any adverse impacts from traffic would be temporary and then intermittent. Noise, fugitive dust, and traffic hazards would be present for about 60 days during construction, drilling and well completion, and would then diminish sharply during commercial operations. Initially, approximately 50 trips to and from the site over several days can be expected to transport the drill rig and associated equipment to the site. A similar number of trips will also be needed to remove the drill rig and other temporary facilities once the drill rig is removed from the site. Additionally, relatively more activity can be expected at the site during each successive drilling operation at the well pad than during on-going production. Actual potential production is unknown at this time, but other wells in the area have initially produced 500 to 1,000 barrels of oil per day, as well as roughly 200 barrels of water per day. Assuming that an oil tanker can typically haul 140 barrels of oil per load and a water tanker 110 barrels of water per load, production service may initially require three to seven oil tankers and two to three water tankers per day. Over time, as production decreases this may decline to two to three oil tankers and one water tanker per day. Dust would be suppressed as necessary or as required by the BIA to reduce impacts, both during construction and production. Contingent upon consent of the landowner, XTO Energy would propose to put in a perimeter fence with gate around the well pad location.

3.4 Water Resources

This section describes the existing conditions, the potential impacts from the Proposed Action, and the suggested mitigation measures for water resources in the project area.

3.4.1 Existing Conditions

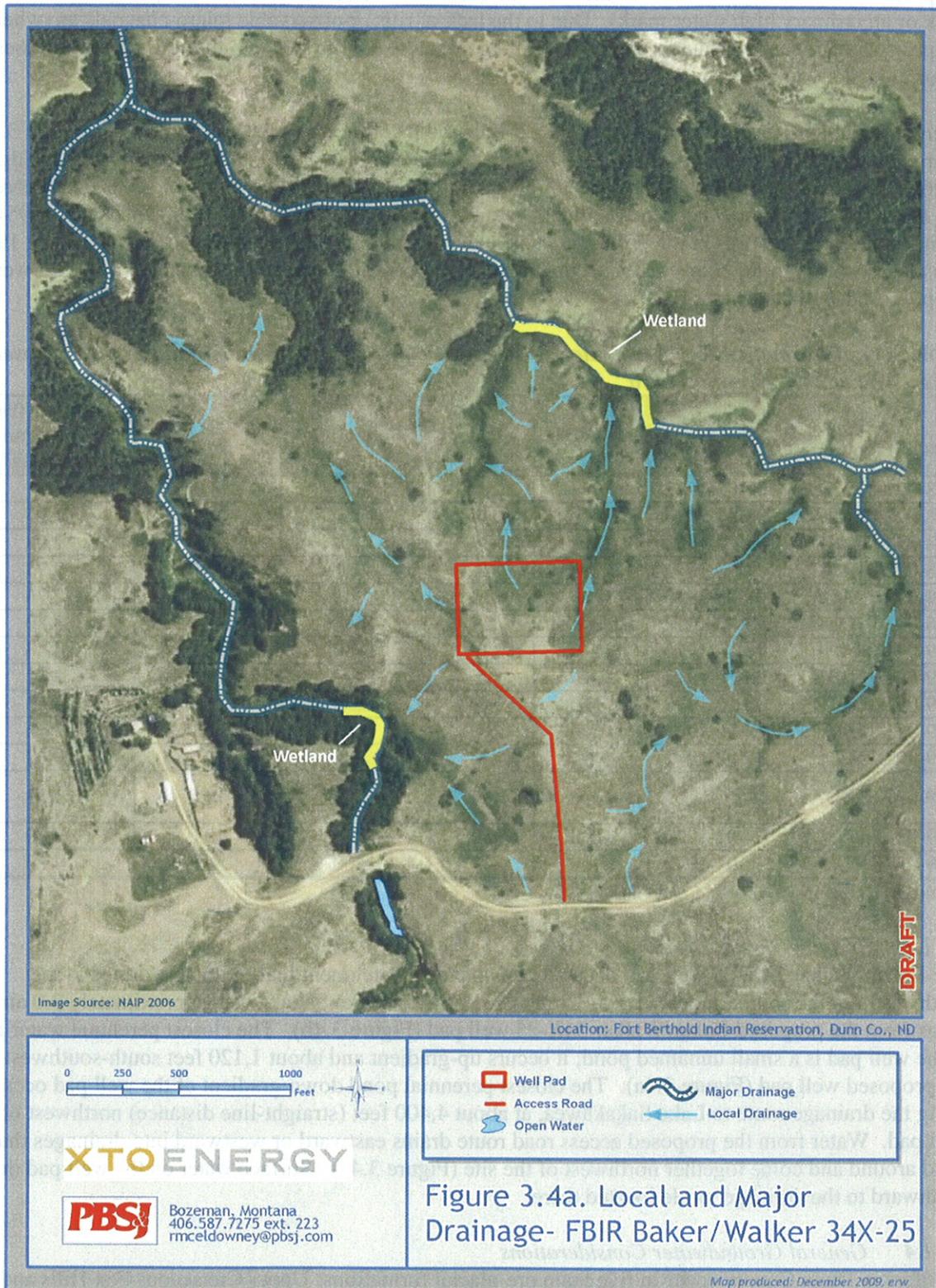
3.4.1.1 Precipitation

Based on 57 years of data at the closest active weather station (Keene 3 S, ND) to the project area, the average annual precipitation in the area is 15.60 inches (in) (HPRCC 2009a). Precipitation in May, June and July typically accounts for roughly 50% of the annual precipitation, with the month of June averaging the most precipitation (3.31 in). Annual snowfall averages 34.60 in, with the majority of snow falling between November and March. December and January typically have the most snowfall, averaging 6.20 and 7.20 in, respectively (HPRCC 2009a). During the 2009 growing season (May through September), evapo-transpiration typically ranged between 0.10 and 0.42 in per day (HPRCC 2009b).

3.4.1.2 General Surface Water Considerations

The project area is located within the Lake Sakakawea sub-basin (Hydrologic Unit Code [HUC] #10110101) (NDSWC 2009) which has a drainage area of approximately 6,790 square miles (USGS 2008b). Lake Sakakawea was created by the damming of the Missouri River with the Garrison Dam in 1953. Measuring over 368,000 acres and 178 miles long it is the third largest man-made reservoir in the United States after Lake Mead and Lake Powell (NDLSSP 2008). The proposed exploratory oil well pad and access road occurs in the Independence Point watershed and the Skunk Creek sub-watershed (NDSWC 2009).

No perennial streams occur in this catchment, though there are several unnamed intermittent streams. The closest intermittent stream drains from a pond and runs northward, coming within 400 feet of the proposed well pad. A saturated/inundated emergent wetland, observed on September 15, 2009, occurs in this segment of the intermittent stream (Figure 3.4a). A second emergent wetland area was observed approximately 800 feet north in the bottom of the drainage; it was not saturated or inundated during the site visit. Vegetated swales dominated by snowberry (*Symphoricarpos* spp.) and mesic grasses occur in



the project area, but none of these swales showed evidence of channelized flow (i.e., a defined bed and bank or an ordinary high water mark). Due to the lack of rills or observable micro-channels anywhere in the project area, it appears that precipitation falling on the site infiltrates into the soils. If runoff does occur, it is likely to be as sheet-flow.

There are four springs documented within a 2.5-mile radius of the project area (Table 3.4a; Figure 3.4b). There are an additional 10 springs present within a 5-mile radius (Table 3.4a; Figure 3.4b) (Klausing 1976, Wald and Cates 1995). At the time of their sampling, all of these springs were considered perennial and are derived from the Paleocene Sentinel Butte Formation (Klausing 1976, Wald and Cates 1995). Spring water temperatures in the project area have historically ranged from 46° to 52° F (Klausing 1976). The closest spring to the project area occurs near the Walker residence, approximately 1,940 feet west of the proposed well pad center.

Table 3.4a: Information for 14 documented springs located within a 5-mile radius of the proposed Baker/Walker 34X-25 project area.¹

| Well Identification | Date of Sample | Lithology | Flow Rate (gal/min) | Specific Conductance (µmhos/cm) | Temperature (C°) | Distance from Well Pad Center (mile) |
|---------------------|---------------------------|-----------|---------------------|---------------------------------|------------------|--------------------------------------|
| 148-091-07BAA | 08-03-1972 | -- | 3 | 1800 | 8.0 | 3.81 |
| 148-092-03ABA | 08-03-1972 | -- | 6 | 1350 | 9.5 | 1.25 |
| 148-092-04CBD | 08-08-1950 | Coal | 36 | 447 | 8.0 | 2.08 |
| 148-092-11AAC | 08-03-1972 | Coal | 8 | 461 | 10.0 | 2.75 |
| 148-092-11ACA | 08-08-1950 | Coal | 2.9 | 550 | 9.5 | 2.76 |
| 148-093-01DDC | 08-02-1972 | Sandstone | 24 | 497 | 8.0 | 3.80 |
| 149-091-08AAA | 08-16-1972 | -- | 6 | 1880 | 9.5 | 4.48 |
| 149-091-16BBB | 08-16-1972 | Coal | 5 | 1800 | 11.0 | 3.72 |
| 149-091-16BCB | 08-16-1972 | Coal | 6 | 1250 | 11.5 | 3.53 |
| 149-091-16BCC | 08-16-1972 | Coal | 4 | 1400 | 9.5 | 3.46 |
| 149-092-25CDC | 08-02-1972 | -- | 8 | 700 | -- | 0.37 |
| 149-092-35BDA | 11-08-1950; 08-02-1972 | Coal | 80 | 825; 725 | 10.0 | 1.33 |
| 149-92-27BBB | 08-02-1972 | Coal | 50 | 553 | 10.0 | 2.70 |
| 149-92-32CCD | 08-04-1972 | -- | -- | 1500 | 9.5 | 4.53 |

¹Source: Klausing 1976; Wald and Cates 1995.

3.4.1.3 Existing On-site Drainage

The Baker/Walker 34X-25 well pad occurs in an unnamed catchment that ultimately drains to the northwest into the southernmost arm of Skunk Creek Bay of Lake Sakakawea, approximately 3.0 air-miles from the proposed Baker/Walker 34X-25 well pad (Figure 3.4b). The closest perennial water body to the well pad is a small unnamed pond; it occurs up-gradient and about 1,120 feet south-southwest from the proposed well pad (Figure 3.4a). The closest perennial pond down-gradient of the well pad occurs along the drainage route to Lake Sakakawea, at about 4,400 feet (straight-line distance) northwest of the well pad. Water from the proposed access road route drains eastward or westward into drainages that wind around and come together northwest of the site (Figure 3.4a). Surface water on the well pad drains northward to the drainage swale located there.

3.4.1.4 General Groundwater Considerations

Aquifers in Dunn County occur in five main pre-glacial formations: Upper Cretaceous Fox Hills and Hell Creek formations and the Tertiary Cannonball-Ludlow, Tongue River, and Sentinel Butte formations



Figure 3.4b Watersheds, Water Wells & Springs- FBIR Baker/Walker 34X-25

Map Produced: December 2009. erw

(Table 3.4b). Aquifers in the Fox Hills and Hell Creek formations occur at the deepest depths, while aquifers in the Tongue River and Sentinel Butte formations occur at shallower depths. Glacial drift aquifers also occur in Dunn County and overly the Sentinel Butte aquifer. While smaller glacial drift aquifers may occur in the project vicinity, the only large, mapped aquifer in the area is roughly 11.6 miles west of the project area (NDSWC 2009). The Goodman Creek aquifer is located approximately 13 miles south of the project area (Klausing 1979).

Table 3.4b: Characteristics of pre-glacial aquifers occurring in Dunn County, North Dakota.¹

| Formation Name | Lithology | Maximum Thickness (feet) | Depth to Top of Formation (feet) | Water Yield (gal/min) |
|------------------------------------|--|--------------------------|----------------------------------|--|
| Sentinel Butte | Clay, claystone, shale, sandstone, siltstone, and lignite. | 670 | 0 - 700 | 5 - 100 (sandstone) 1 - 200 (lignite) |
| Tongue River | Clay, claystone, shale, sandstone, siltstone, and lignite. | 490 | 230 - 750 | <100 |
| Undifferentiated Cannonball-Ludlow | <i>Cannonball</i> : marine sandstone, clay, shale, and siltstone. <i>Ludlow</i> : continental siltstone, sandstone, shale, clay, and lignite. | 660 | 570 - 1,130 | <50 |
| Hell Creek | Siltstone, sandstone, shale, claystone, and lignite. | 300 | 1,150 - 1,730 | 5 - 100 |
| Fox Hills | Sandstone, shale, and siltstone. | 300 | 1,330 - 1,960 | <200 - 400 |

¹ Source: Klausing (1979).

There are 13 documented wells occurring within a 5- mile radius of the Baker/Walker 34X-25 well site (Figure 3.4b; Table 3.4c). The closest documented well is located approximately 6,370 feet southeast of the Baker well pad.

Table 3.4c: Information on locations of 13 known water wells that occur within a 5-mile radius of the proposed Baker/Walker 34X-25 project area.¹

| Well Identification | Distance from Center of Proposed Well Pad (miles) | Distance from Center of Proposed Well Pad (feet) |
|---------------------|---|--|
| 148-092-03ABA | 1.21 | 6,371 |
| 149-091-33BCC | 2.48 | 13,069 |
| 149-092-22CDC | 2.54 | 13,405 |
| 148-092-06AAD | 2.54 | 13,423 |
| 148-092-11CCB | 2.91 | 15,348 |
| 148-092-06BAD | 2.96 | 15,641 |
| 148-092-06BDB | 3.12 | 16,461 |
| 148-092-06BCA | 3.23 | 17,029 |
| 149-092-10DCBB | 3.79 | 20,030 |
| 149-092-10DABC | 3.84 | 20,279 |
| 149-092-29DCC | 4.10 | 21,649 |
| 149-092-10ACAA | 4.13 | 21,792 |
| 148-092-23CCA | 4.91 | 25,931 |

¹ Sources: Klausing (1976); Wald and Cates (1995).

3.4.2 Water Resources Impacts

Construction and reclamation techniques included in the APD would minimize potential for negative impacts to both groundwater and surface water (Appendix A).

The proposed project site has been placed to avoid direct and indirect negative impacts to surface water and to minimize the disruption of area drainages. There would be no potential negative impacts to surface water because of the long distance that a contaminant would traverse before entering into a body of water. In addition, there would be on-site containment measures and spill prevention/clean-up protocols in effect that would prevent the dispersal of a contaminant. Similarly, potential negative impacts to the water quality of Lake Sakakawea are extremely unlikely. Roadway engineering and erosion control measures would mitigate migration of sediment downhill or downstream. No measurable increase in runoff or impacts to surface waters is expected.

The water quality of local aquifers would be protected by cementing the casing across aquifer zones. If a reserve pit is used, it would be lined with an impermeable barrier. For these reasons the dewatering or contamination of local springs or groundwater resources would be unlikely.

No significant impacts to surface water or groundwater are expected as a result of the proposed action.

3.4.3 Water Resources Mitigation

The well bore would be drilled with fresh water to a point below the base of the Fox Hills formation prior to setting casing to prevent contamination of the formation. Surface casing would be cemented in place to a depth of about 1,500 - 2,500 feet, thereby, isolating aquifers in the Fox Hills Formation and extending a minimum of 50 feet into the underlying Greenhorn formation. Intermediate casing would extend from the surface and be cemented between about 4,000 - 13,000 feet in depth to isolate potentially productive water and hydrocarbon bearing zones. Any produced water would be captured in tanks on site and periodically trucked to an approved disposal site. The frequency of trucking of either oil or water would depend on production rates. The BIA and BLM will monitor all operations and record keeping at their discretion. Evidence of groundwater contamination related to the project would result in a stop work order until all appropriate measures were identified and implemented.

No applicable laws or regulations would be waived; no compensatory mitigation measures are required to protect surface water or groundwater.

3.5 Wetland and Riparian Habitats

This section describes the existing conditions, the potential impacts from the Proposed Action, and the suggested mitigation measures for wetland and riparian habitat resources in the project area.

National Wetland Inventory maps that are maintained by the U.S. Fish and Wildlife Service (USFWS) did not identify any jurisdictional wetlands within the project area (USFWS 2009a). Physical inventories on September 15, 2009 confirmed that there are no riparian or wetland habitats within the proposed well pad and access road project boundaries. No riparian or wetland habitats would be negatively impacted by the proposed Baker/Walker 34X-25 well pad or its access road. Emergent (i.e., herbaceous) wetlands do occur in the drainages west and north of the project area. Wetlands identified during the 2009 site visit are depicted on Figure 3.4a. It is assumed that additional wetlands occur in these drainages downstream of these locations.

3.6 Threatened and Endangered Species

3.6.1 Existing Conditions

Threatened and endangered (TE) plant and animal species are designated by the USFWS under the guidance of the *Endangered Species Act*. Based on the USFWS (2009b) list of *Threatened, Endangered, Proposed, and Candidate Species for North Dakota Counties*, range/habitat descriptions found in technical literature, North Dakota Natural Heritage Program database searches for Dunn County, and an interview with the Fort Berthold Fish & Game Director, the following seven species were considered with respect to this project:

- black-footed ferret
- gray wolf
- Interior Least Tern
- Whooping Crane
- pallid sturgeon
- Piping Plover
- Dakota skipper

The North Dakota Natural Heritage Program biological conservation database had no known historical or current occurrences of plant or animal species of concern within the project area (NDPR 2009). Based on this information, available reports, conversations with local biologists, and the absence of critical, essential, or designated habitat, the likelihood of listed species to occur in the project area range from unknown to unlikely to none.

Black-footed ferret (*Mustela nigripes*). Status: endangered. Likelihood of occurrence: **none**.

Black-footed ferrets primarily feed on prairie dogs (*Cynomys* spp.) and use prairie dog burrows for shelter (MTNHP 2008). Inventories within the project area conducted on September 9-11, 2008 and September 15, 2009 identified no prairie dog colonies. Black-footed ferrets have not been documented on the Fort Berthold Indian Reservation (Poitra 2010; NDPR 2009). Impacts to black-footed ferrets are not expected, given the lack of occurrence, food source, and habitat.

Gray wolf (*Canis lupus*). Status: endangered. Likelihood of occurrence: **unlikely**.

The project area does not contain preferred gray wolf habitat or a suitable prey base to sustain a permanent pack. Reported occurrences of gray wolves on the Reservation are infrequent; about 1-2 sightings occur each year near the Little Missouri River, which is west of the FBIR (Poitra 2010). No established packs have been documented or are suspected to occur on the FBIR (Poitra 2010; NDPR 2009). It is highly unlikely that wolves would colonize the project area, given its poor wolf habitat, unreliable food supplies, and the long distance from known populations in Minnesota, Canada, Montana, and Wyoming. No impacts are expected.

Interior Least Tern (*Sterna antillarum*). Status: endangered. Likelihood of occurrence: **none**.

The Interior Least Tern is known to nest along midstream sandbars of the Missouri and Yellowstone Rivers (USFWS 2009d). Lake Sakakawea is not considered a major nesting area for the Least Tern; however, the nesting that does occur on Lake Sakakawea is generally at Douglas Creek Bay, Elbowwoods Bay, Deepwater Bay, Van Hook Arm, Hofflund Bay, and Tobacco Garden Bay (USACE 2007). Deepwater Bay, located at least nine air-miles from the project area, is the closest known Least Tern nesting area (USACE 2007; USACE 2009). Within the project area there is no suitable nesting or foraging habitat (Poitra 2010). No impacts are expected.

Whooping Crane (*Grus americana*). Status: endangered. Likelihood of occurrence: **unlikely**.

Whooping Cranes breed in Alberta and Northwest Territories, Canada, and overwinter on the Texas coast (USFWS 2009d). They annually migrate through North Dakota during the spring and fall, making numerous stops to feed and roost before resuming migration. Young adults have been documented to summer in North Dakota during 1989, 1990, and 1993 (USFWS 2009d). Whooping Cranes prefer to roost and feed along wetlands and stockdams that have good visibility (USFWS 2009d). The proposed project lies within the 90-mile corridor that accounts for approximately 75% of all North Dakota sightings (USFWS 2009d). From the 1960's to 2008 there have been approximately 31 documented observations in Dunn County (USFWS 2009e). The closest documented sighting occurred in 1981 in McClean County, approximately 9.5 air-miles northeast of the proposed project site (USFWS 2009e). Whooping Cranes are infrequently reported on the FBIR (Poitra 2010). Within the project area, there are no croplands, emergent wetlands, or shallow, seasonally or semi-permanently flooded palustrine wetlands that may draw their presence. No occurrences of Whooping Cranes have been documented near the project area (Poitra 2010; NDPR 2009). The lack of food sources and roosting/foraging habitat and close proximity to BIA 12 makes stopovers by migrating cranes unlikely. Impacts are not expected.

Pallid sturgeon (*Scaphirhynchus albus*). Status: endangered. Likelihood of occurrence: **none**.

The project area is at least three air-miles from the Missouri River (Lake Sakakawea) and sturgeon habitat. Fishery habitat in vicinity of the project area is absent. Direct and indirect project-related activities are not expected to negative impacts water quality or quantity within the Lake. No impacts are expected.

Piping Plover (*Charadrius melodus*). Status: threatened. Likelihood of occurrence: **unlikely**.

Piping Plovers nest on midstream sandbars of the Missouri and Yellowstone Rivers and along shorelines of saline wetlands (USFWS 2009c). Piping Plover critical habitat for the Northern Great Plains population was designated in September 2002 by the USFWS (67 FR 57638; USACE 2007). Designated areas of critical habitat include prairie alkali wetlands and adjacent shoreline; river channels; sandbars; islands; reservoirs; inland lakes; and sparsely vegetated shorelines, peninsulas, and islands associated with reservoirs and inland lakes. Piping Plover critical habitat supports all life history requirements including courtship, nesting, foraging, sheltering, brood-rearing, and dispersal habitat. The project area is about 2.6 air-miles west of the Missouri River (Lake Sakakawea) which is designated as critical habitat for the Piping Plover (USFWS 2008). Major nesting areas within Lake Sakakawea include Douglas Creek Bay, Arikara Bay, Deepwater Bay, Van Hook Arm, Van Hook islands, Hofflund Bay, Little Egypt, Red Mike Bay, Renner Bay, and the northeast part of Mallard Island through DeTrobriand Bay (USACE 2007). The project area is at least five air-miles southwest of the closest historic (2001) Piping Plover nest location in Ruona Bay along Lake Sakakawea (USACE 2009). There are no suitable nesting/foraging habitats located within the project area (Poitra 2010). No impacts are expected.

Dakota Skipper (*Hesperia dacotae*). Status: candidate for listing. Likelihood of occurrence: **unknown**.

The Dakota skipper is a small butterfly that once occurred throughout the north-central USA and south-central Canada (USFWS 2009d). Known occurrences of Dakota skippers now reside in western Minnesota, northeastern South Dakota, north-central North Dakota, and southeastern North Dakota. The Dakota skipper lives in high quality native prairies that contain a high diversity of wildflowers and grasses (USFWS 2009c). Exotic grasses and shrubs do not provide habitat for this insect (USFWS 2009c). Adult Dakota skippers live for three weeks in June and obtain nectar (which is critical to their reproduction) from wood lilies (*Lilium* spp.), harebells (*Campanula* spp.), smooth camas (*Camassia* spp.), coneflowers (*Echinacea* spp.), and blanketflowers (*Gaillardia* spp.). Larval Dakota skippers feed on grasses in the fall and over-winter in shelters at or just below ground level at the bases of native bunchgrasses. It is possible that some portions of the project area may provide

potential habitat; however, no Dakota skipper caterpillars were observed during the fall site visit. Potential impacts to the Dakota skipper that may be caused by the proposed project are unknown.

Physical inventories were conducted on September 15, 2009. No occurrence of candidate and listed TE plants or animals and denning, roosting, or nesting sites were found during the site visit. Based on the above information and the proposed mitigation measures below, it has been determined that the project will have **no effect** on the black-footed ferret, gray wolf, Interior Least Tern, Piping Plover, Whooping Crane, and Pallid Sturgeon. Because potentially suitable habitat for the candidate species, Dakota skipper, exists, the proposed project **may affect, but is not likely to adversely affect** this species.

3.6.2 Threatened and Endangered Species Impacts

Impacts to potential habitat for the Dakota skipper can be minimized by reducing the area of ground disturbance, spot-treating noxious weeds with herbicides (as opposed to broadcast spraying), and controlling exotic grasses and woody plants (USFWS 2009c and 2009d). The proposed project would minimize disturbance to potential habitat by placing multiple wells at a single well pad location, using the existing road network as much as possible, and proposes to spot treat noxious weeds as needed.

3.6.3 Threatened and Endangered Species Mitigation

To further reduce the potential for negative impacts to a threatened or endangered species and its habitat the following mitigation is proposed for the Baker/Walker 34X-25 well pad and access road.

- Any sighting of a protected species within one-mile of the project area would be immediately reported to the USFWS, NDGFD, the Tribe, and the BIA.
- Biological monitors would be available between February 1st and July 15th to survey the project site for threatened or endangered species, and for avian nesting activity.
- Biological monitors would be available during pre-construction, construction, and post-construction periods to minimize the potential for negative impacts to protected species.
- To maintain some habitat integrity, disturbed ground would be reclaimed using native plants from approved plant lists as identified by the Tribe and BIA. As required by the NDIC, reclamation costs are guaranteed through the issuance of a bond.

3.7 General Wildlife and Fisheries

This section describes the existing conditions, the potential impacts from the Proposed Action, and the suggested mitigation measures for wildlife and fishery resources in the project area.

3.7.1 Wildlife Habitat

Habitats that occur in the project area include grasslands, snowberry (*Symphoricarpos*) patches/swales, and shrubby thickets (Figure 3.7a). Wildlife species found in the project area use these three habitat types to varying degrees based on their life histories and specific species requirements. Within the Baker/Walker 34X-25 project area grasslands comprise 6.71 acres (59%), snowberry patches/ swales comprise 4.28 acres (38%), and shrubby thickets comprise 0.32 acre (3%) (Table 3.7a).



Figure 3.7a: Habitat types found in the project area: grassland (foreground), shrubby thicket (photo left), snowberry patch (photo right), and riparian area (background).

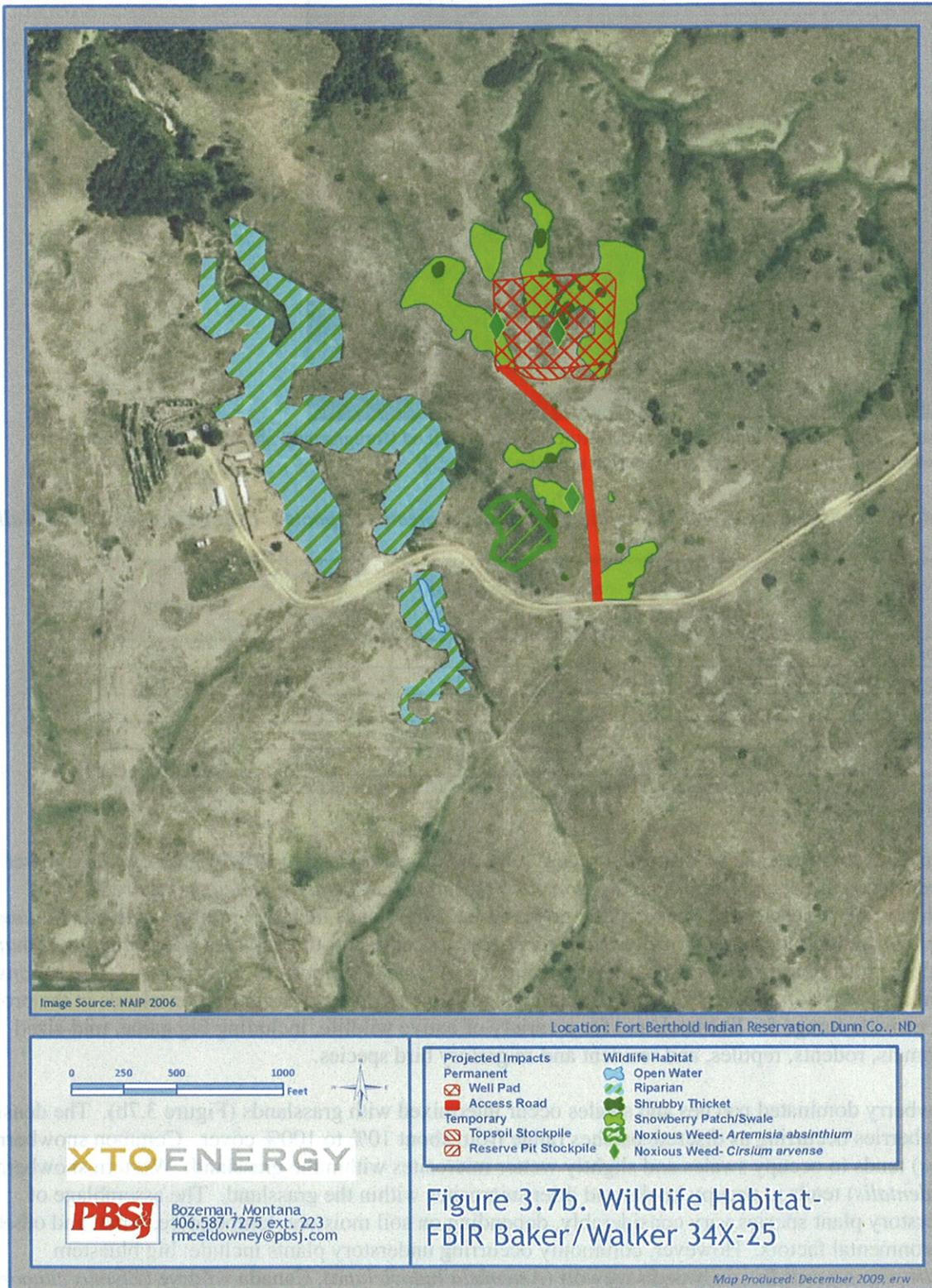
Table 3.7a: Summary of wildlife habitat types and projected impacts for the proposed Baker/Walker 34X-25 project area.

| Habitat Type | Project Area* (acre) | Permanent Impact (acre) | Temporary Impact (acre) | Total Impact (acre) |
|-----------------------|-------------------------|----------------------------|-------------------------------|---------------------------|
| Grassland | 6.71 | 4.52 | 0.41 | 4.93 |
| Snowberry patch/swale | 4.28 | 2.53 | 0.09 | 2.62 |
| Shrubby thicket | 0.32 | 0.24 | 0.01 | 0.25 |
| Riparian | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 11.31 | 7.29 | 0.51 | 7.80 |

*Project area is defined as 100 feet on either side of the new access road (200 feet total width) and a 10-acre circle around the proposed well pad.

Grasslands dominate the well site and access road and are comprised mostly of grasses with a lower percentage of forbs and shrubs (see Section 3.9 Vegetation and Invasive Species) (Figure 3.7b). Dominant plant species that make up the project area’s grasslands include: prairie sandreed (*Calamovilfa longifolia*), little bluestem (*Schizachyrium scoparium*), needle-and-thread grass (*Hesperostipa comata*), Sandberg bluegrass (*Poa secunda*), candle anemone (*Anemone cylindrica*), prairie rose (*Rosa arkansana*), green sagewort (*Artemisia dracuncululus*), and fringed sage (*Artemisia frigida*). Grasslands in the project area provide forage for livestock and for a variety of native wildlife, including big game, mid-sized mammals, rodents, reptiles, and resident and migratory bird species.

Snowberry dominated patches and swales occur intermixed with grasslands (Figure 3.7b). The density of snowberries occurring as discrete patches range from about 10% to 100% cover. Common snowberry (*S. albus*) tends to occupy swales and slightly wetter microsites within the grassland. Western snowberry (*S. occidentalis*) tends to occupy knolls and drier microsites within the grassland. The assemblage of understory plant species vary considerably, depending on soil moisture, temperature, wind, and other environmental factors. However, commonly occurring understory plants include: big bluestem (*Andropogon gerardii*), cudweed sagewort (*Artemisia ludoviciana*), Canada wildrye (*Elymus canadensis*), Kentucky bluegrass (*Poa pratensis*), and sideoats grama (*Bouteloua curtipendula*). Snowberry shrubs provide important cover and forage for small mammals, Sharp-tailed Grouse (*Tympanuchus phasianellus*), and Wild Turkey (*Meleagris gallopavo*) (USDA-FEIS 2009a). These shrubs provide fair browse for mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), and pronghorn



(*Antilocapra americana*) (USDA-FEIS 2009a). Snowberry is also used for nesting habitat by songbirds and their flowers provide nectar for hummingbirds (NPIN 2009).

The shrubby thicket habitat type is typically occupied by silver buffaloberry (*Shepherdia argentea*) but can also be dominated by northern hawthorn (*Crataegus rotundifolia*), chokecherry (*Prunus virginiana*), and/or serviceberry (*Amelanchier alnifolia*). The understory plants are similar to those found in the adjacent grasslands or snowberry patches. Shrubby thickets are used by a wide variety of wildlife for thermal and hiding cover, foraging, nesting, and perching. In terms of cover, silver buffaloberry is considered to provide good to fair cover for mule deer, white-tailed deer, pronghorn, upland game birds, and passerine birds (USDA-FEIS 2009b). In North Dakota silver buffaloberry is considered to have fair to good nutritional value for mule deer, pronghorn, upland game birds, and small non-game birds; it is considered of poor nutritional value for white-tailed deer (USDA-FEIS 2009b).

A riparian area is the transitional ground between terrestrial land and a river or lake. Riparian areas provide important cover, forage, and travel corridors for most wildlife species. No riparian areas occur in the project area, though a well developed riparian area occurs approximately 400 feet west of the proposed well pad (Figures 3.7a and 3.7b).

3.7.2 Wildlife and Fish Species

Wildlife species and their sign were searched for during the site visits of September 9-11, 2008 and September 15, 2009 (Table 3.7b). Tracks, scat, burrows, and skeletons were considered signs of that particular species presence.

Table 3.7b: Wildlife species observed during the September 2008 and 2009 site visits at the proposed Baker/Walker 34X-25 project area.

| |
|---|
| Birds |
| American Kestrel (<i>Falco sparverius</i>) |
| Mourning Dove (<i>Zenaida macroura</i>) |
| Sharp-tailed Grouse (<i>Tympanuchus phasianellus</i>) |
| Song Sparrow (<i>Melospiza melodia</i>) |
| Spotted Towhee (<i>Pipilo maculatus</i>) |
| Turkey Vulture (<i>Cathartes aura</i>) |
| Reptile |
| Prairie rattlesnake (<i>Crotalus viridis viridis</i>) |
| Mammals |
| Northern pocket gopher (<i>Thomomys talpoides</i>) |
| Pronghorn (<i>Antilocapra americana</i>) |
| White-tailed deer (<i>Odocoileus virginianus</i>) |

In addition to the bird species observed, the project area is expected to provide breeding and foraging habitats for many neotropical migrants, foraging habitat for migrant and resident raptors such as Golden Eagle (*Aquila chrysaetos*), Northern Harrier (*Circus cyaneus*), Red-Tailed Hawk (*Buteo jamaicensis*), Rough-legged Hawk (*Buteo lagopus*), and Swainson’s Hawk (*Buteo swainsoni*).

Bald and Golden Eagles use a variety of habitat types and may occasionally occur in the vicinity of the Baker/Walker 34X-25 site. There are numerous records of Golden Eagle nests on the Fort Berthold Reservation (USFWS 2009d; Poitra 2010). At the time of this writing, no nests are known to occur within a half-mile of the proposed project site (Poitra 2010, NDPR 2009).

In addition to the mammal species observed, the project area is expected to be used, at least occasionally, by bobcat (*Lynx rufus*), coyote (*Canis latrans*), mountain lion (*Puma concolor*), mule deer (*Odocoileus hemionus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), long-tailed weasel (*Mustela frenata*), meadow vole (*Microtus pennsylvanicus*), prairie vole (*Microtus ochrogaster*), and deer mouse (*Peromyscus maniculatus*).

Based on known distributions and preferred habitat types, there are 24 animal species identified by the North Dakota Game and Fish Department as species of conservation priority that could potentially occur in the project area (Table 3.7c). None of these species were observed during the fall site visits.

Table 3.7c: Species of conservation priority that potentially could occur in the proposed Baker/Walker 34X-25 project area.

| Common Name | Scientific Name | Conservation Priority ¹ |
|-------------------------------|----------------------------------|------------------------------------|
| BIRDS | | |
| Baird's Sparrow | <i>Ammodramus bairdii</i> | I |
| Black-billed Cuckoo | <i>Coccyzus erythrophthalmus</i> | I |
| Chestnut-collared Longspur | <i>Calcarius ornatus</i> | I |
| Dickcissel | <i>Spiza americana</i> | I |
| Ferruginous Hawk | <i>Buteo regalis</i> | I |
| Grasshopper Sparrow | <i>Ammodramus savannarum</i> | I |
| Lark Bunting | <i>Calamospiza melanocorys</i> | I |
| Long-billed Curlew | <i>Numenius americanus</i> | I |
| Marbled Godwit | <i>Limosa fedoa</i> | I |
| Sprague's Pipit | <i>Anthus spragueii</i> | I |
| Swainson's Hawk | <i>Buteo swainsoni</i> | I |
| Upland Sandpiper | <i>Bartramia longicauda</i> | I |
| Bobolink | <i>Dolichonyx oryzivorus</i> | II |
| Burrowing Owl | <i>Athene cunicularia</i> | II |
| Golden Eagle | <i>Aquila chrysaetos</i> | II |
| Loggerhead Shrike | <i>Lanius ludovicianus</i> | II |
| Northern Harrier | <i>Circus cyaneus</i> | II |
| Prairie Falcon | <i>Falco mexicanus</i> | II |
| Sharp-tailed Grouse | <i>Tympanuchus phasianellus</i> | II |
| Short-eared Owl | <i>Asio flammeus</i> | II |
| AMPHIBIAN and REPTILES | | |
| Plains spadefoot | <i>Spea bombifrons</i> | I |
| Smooth green snake | <i>Liochlorophis vernalis</i> | I |
| Western hognose snake | <i>Heterodon nasicus</i> | I |
| MAMMAL | | |
| Swift fox | <i>Vulpes velox</i> | II |

¹Source: Hagen et al. (2005)

Level I= species that are in decline and presently receive little or no monetary support or conservation efforts.

Level II= species that have a moderate level of conservation priority or have a high level of conservation priority with substantial funding that is available to them from other wildlife programs.

Level III = species that have a moderate level of conservation priority and are believed to be peripheral or non-breeding in North Dakota.

No fish species occur in the project area. The closest fish habitat is Lake Sakakawea, which is at least three air-miles northwest of the project area. The closest perennial waterbody that could potentially support a fish population is a pond located on the south side of the existing driveway; the pond is approximately 1,100 feet west and up-gradient of the proposed access road and driveway intersection. It

is unknown if fish occur in this pond. If present then they are likely stocked as there is not a perennial surface water connection between the pond and Lake Sakakawea.

3.7.3 Wildlife and Fish Projected Impacts

An estimated 4.5 acres of grassland, 2.5 acres of snowberry patch/swale, and 0.2 acre of shrubby thicket habitats would be permanently impacted due to construction of the new access road and well pad at the Baker/Walker 34X-25 site (Table 3.7a). An additional 0.41 acre of grassland, 0.09 acre of snowberry patch/swale, and 0.01 acre of shrubby thicket habitats would be temporarily impacted from the stockpiling of topsoil and soil from the reserve pit (Table 3.7a). Up to an additional 3.05 acres of disturbed grassland habitat may also be impacted along the existing driveway.

Construction of the project would result in direct wildlife mortality to those species with limited mobility and/or those that could conceivably be occupying their burrows or nests at the time of construction (e.g., mice, voles, young birds/eggs, and pocket gophers). More mobile species, such as adult deer, coyotes, and most adult birds, would be able to avoid direct mortality by moving into adjacent habitat. Generally, these direct impacts to wildlife habitat and wildlife populations in the project area are considered minor due to the abundance of similar habitats in the vicinity. The survival of displaced species residing exclusively within the construction area (e.g., species with very limited home ranges, such as mice and voles), however, would depend on the carrying capacity of adjacent undeveloped habitat.

During the early nesting season, eagles can be sensitive to human disturbance, which could potentially result in nest abandonment. Other migratory birds are afforded protection under the Migratory Bird Treaty Act (MBTA), and are also susceptible to nest abandonment during nesting.

According to the USFWS (2009d) wildlife mortality at oil facilities in North Dakota is most often associated with drilling reserve pits, flare pits, and/or drip buckets and barrels. For this reason a closed – loop system is recommended by the USFWS (2009d). If used, open pits that may contain oil would be cleaned up immediately to prevent accidental wildlife mortality in the immediate project area.

Habitat fragmentation can be either a direct or an indirect impact that is commonly associated with oil and gas projects and can be defined as the separation of previously contiguous blocks of habitat into one or more disconnected pieces. Habitat fragmentation can occur in the physical sense of dividing up the landscape by a road or a development, and/or through an increase in the level of activity which prevent or at least hinder wildlife movement. Either form of habitat fragmentation can result in impediments to wildlife dispersal and corresponding genetic exchange among populations. The existing county road, agricultural practices, and light residential development all contribute to habitat fragmentation in the project vicinity. However, substantial impediment to wildlife movement is not yet apparent. The Baker/Walker 34X-25 well pad and access road would contribute to temporary habitat fragmentation during the drilling process. If the wells are developed into commercially viable wells then the project would add to more permanent, though minor, habitat fragmentation by increasing the level of activity in the area.

Other forms (i.e., increased noise or odor) of indirect impacts may affect local distributions of wildlife around proposed well pads and access roads. These types of impacts may affect the local distribution of particular animal species by displacing them into adjacent habitats; however, they are not expected to negatively affect the local populations.

3.7.4 Wildlife Mitigation

Potential impacts to wildlife species and their habitats have been avoided and minimized through consultation with the BIA. This has resulted in locating the proposed well pad and access road outside of any riparian area, in using a relatively diffuse drilling density (up to 1,280 acres per drill site) in the area, using existing

roads where possible, and by using directional drilling. Directional drilling has allowed the consolidation of well pads and access roads, thereby, reducing habitat fragmentation in the area. Reclamation of habitat over the life of the project will further reduce long-term impacts to wildlife and their habitat. Additional mitigation measures are listed below.

- XTO intends to follow, to the greatest extent practicable, recommendations and guidance provided by the USFWS to minimize adverse impacts to migratory birds (USFWS 2009d).
- If initial site construction occurs within the nesting season then the project site would be surveyed by a qualified biologist to determine if and where active nests occur in relation to proposed construction activities. If active nests are found, construction would be suspended or buffers established to ensure no adverse impacts occur until nesting has been completed.
- If an active Bald Eagle or Golden Eagle nest is observed within one-half mile of the project area then a no disturbance buffer of one-half mile radius would be placed around the nest, and the USFWS would be notified.
- A closed-loop system (i.e., pitless) may be used by XTO for wells drilled at staggered time intervals; for wells drilled simultaneously a pit for drilling cuttings would be constructed, used, and reclaimed.
- The entire well pad will be fenced to prevent livestock and wildlife access to the site.
- Reserve pits, if used, would be fenced on all four sides to protect wildlife, livestock, and personnel from accidentally falling into the pit if the entire site has not been protected within a fence.
- As recommended by the USFWS, drip buckets and barrels located under valves and spigots would be covered with wire mesh to prevent wildlife from entering and becoming entrapped.

3.8 Soils

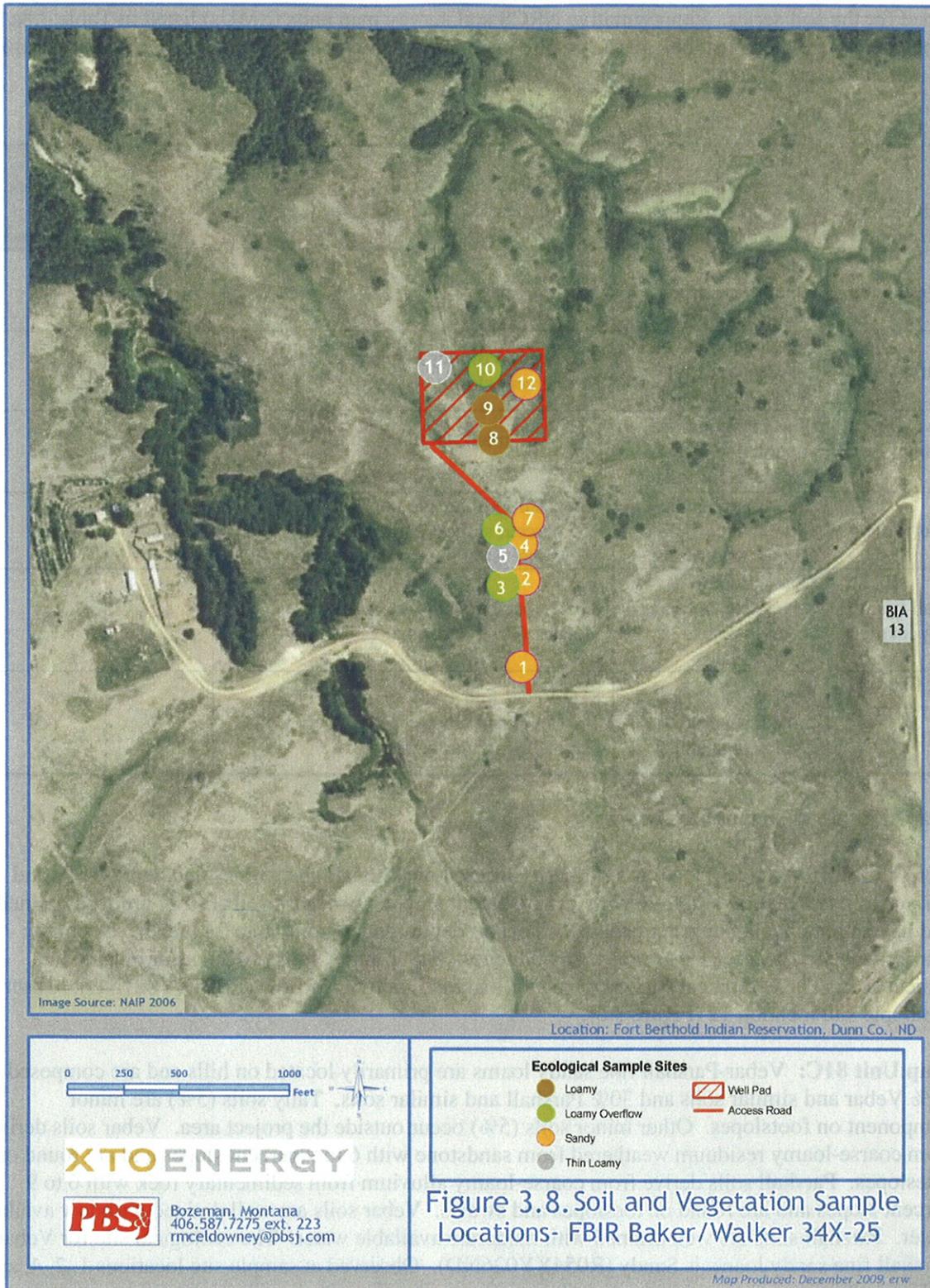
This section describes the existing conditions, the potential impacts from the Proposed Action, and the suggested mitigation measures for soil resources in the project area.

The proposed development is situated near the center of the Williston Basin. The Sentinel Butte Formation is found at the surface to depths of 300 to 500 feet and consists of poorly lithified sandstone, siltstone and mudstone. Remnant thin to moderately thick glacial till deposits cap the Sentinel Butte Formation as evidenced by scattered glacial erratics (stones and boulders). Land surface morphology is characterized by glaciated hills with complex slopes. Erosional processes reveal a dendritic drainage pattern. Area soils that developed in alluvium from glacial till have fine-textured (loamy) properties, whereas soils developed in residuum/alluvium from calcareous sandstone have coarse-textured (sandy) properties.

3.8.1 Soil Mapping

A total of 12 sites were sampled during an on-site soil inventory conducted during September 15-16, 2009 (Figure 3.8). Reference soil maps and soil data tables for the project area were obtained prior to conducting field work (Natural Resources Conservation Service (NRCS) 2009). Detailed soil pedon descriptions consistent with changes in landscape position and ecological sites were taken along the proposed access road and at the well pad location (Figure 3.8; Table D1 in Appendix D). Photographs of each soil pit were taken (Appendix B).

Soils are described and classified from the surface to about 60 inches deep or to the limiting layer. Upon deep excavation, areas of moderately deep (20 in to 40 in) soils derived from soft sandstone bedrock may be encountered. Sub-stratum (greater than 80 in) characteristics may yield materials alien to the soil series described in this EA. However, it is not expected that the Baker/Walker 34x-25 access road



location and well pad site would yield materials having substratum textures other than those already described for the soil series. Representative NRCS soil survey map units (SMUs) listed in Table 3.8a and described below are those that best fit the on-site inventory and do not necessarily match SMUs for this area found in the Dunn County soil survey.

Table 3.8a: Soils at the proposed Baker/Walker 34X-25 project site.

| Soil Series Component | Textural Family and Taxonomic Class | Representative NRCS Soil Map Unit (assigned) | Percent Slope | Presence in Access Road | Presence in Well Pad |
|---|---|---|---------------|-------------------------|----------------------|
| Arnegard loam | Fine-loamy, mixed, superactive, frigid Pachic Haplustolls | 4B Arnegard loam, 2 to 6 percent slopes | 5 | No | Yes |
| Williams loam | Fine loamy, mixed, superactive, frigid Typic Argiustolls | 93D Zahl-Williams loams, 9 to 15 percent slopes | 2-10 | No | Yes |
| Zahl loam | Fine-loamy, mixed, superactive, frigid Typic Calcustolls | 93C Williams-Zahl loams, 6 to 9 percent slopes | 6 | Yes | Yes |
| Bowbells loam | Fine-loamy, mixed superactive, frigid Pachic Argiustolls | 93D Zahl-Williams loams, 9 to 15 percent slopes; Bowbells is an inclusion in this unit. | 8-11 | Yes | No |
| Parshall fine sandy loam | Coarse-loamy, mixed, superactive, frigid Pachic Haplustolls | 81C Vebar-Parshall fine sandy loams, 6 to 9 percent slopes | 2-6 | Yes | No |
| Vebar fine sandy loam (deep) see Tally series | Coarse-loamy, mixed, superactive, Typic Haplustolls | 81D Vebar fine sandy loams, 9 to 15 percent slopes; Tally is an inclusion in this unit. | 11 | No | Yes |

Soil map units are as summarized below:

- Map Unit 4B:** Arnegard loam is a primarily located on alluvial fans, swales and depressions and derive from fine-loamy alluvium with 2 to 6 percent slopes. Arnegard soils (90%) are well drained and have a high available water capacity. Topsoil depth ranges from 16 to 24 inches. Depth to restrictive layer (bedrock) is greater than 60 inches. Other minor soils (10%) occur outside the project area. The ecological site for Arnegard loam is Loamy Overflow (R054XY021ND). Observed at sample site location 12 (Figure 3.8).
- Map Unit 81C:** Vebar-Parshall fine sandy loams are primarily located on hills and are composed of 60% Vebar and similar soils and 30% Parshall and similar soils. Tally soils (5%) are minor component on footslopes. Other minor soils (5%) occur outside the project area. Vebar soils derive from coarse-loamy residuum weathered from sandstone with 6 to 9 percent slopes and are found on sideslopes. Parshall soils derive from coarse-loamy alluvium from sedimentary rock with 6 to 9 percent slopes and are found on toeslopes and swales. Vebar soils are well drained with low available water. Parshall soils are well drained with moderate available water. The ecological site for Vebar-Parshall fine sandy loams is Sandy (R054XY026ND). Observed at sample site locations 1, 2, 4, and 7 (Figure 3.8).
- Map Unit 81D:** Vebar fine sandy loams are primarily located on hills and are composed of 80% Vebar and similar soils. Tally soils (5%) and Arnegard soils (5%) are a minor component on

toeslopes and in swales and drainageways, respectively. Other minor soils (10%) occur outside the project area. Vebar soils are moderately deep (40 to 60”), derive from coarse-loamy residuum weathered from sandstone and are found on sideslopes with 9 to 15 percent slopes. Vebar soils are well drained with very low to low available water. Depth to paralithic bedrock is typically between 32 to 60 inches. The ecological site for Vebar fine sandy loam and Tally sandy loam is Sandy (R054XY026ND). Observed at sample site location 12 (Figure 3.8).

- Map Unit 93C:** Williams-Zahl loams are primarily located on glaciated hills and are composed of 50% Williams and similar soils and 30% Zahl and similar soils. Williams soils are found on toeslopes and backslopes with slopes of 6 to 9 percent and derive from fine-loamy glacial till. Zahl soils are found on shoulders and summits and derive from fine-loamy glacial till. Other minor soils (15%) occur outside the project area. Williams soils are well drained and exhibit a high available water capacity. Depth to restrictive features (bedrock) is greater than 60 inches. The ecological site for Williams loam is Loamy (R054XY031ND). Zahl soils are well drained and have a calcium carbonate maximum of 20%. Permeability is moderately slow to slow. The ecological site for Zahl is Thin Loamy (R054XY038ND). Observed at sample site location 8 (Figure 3.8).
- Map Unit 93D:** Zahl-Williams loams are primarily located on glaciated hills and are composed of 40% Zahl and similar soils and 40% Williams and similar soils. Bowbells loam is a minor component (10%) and is found in depressions and swales. Other minor soils (10%) occur outside the project area. Zahl soils derive from fine-loamy till and are found on ridges and summits with 9 to 15 percent slopes. Williams soils derive from fine-loamy till and are found on sideslopes and summits with 9 to 15 percent slopes. Zahl and Williams soils are well drained and have high available water capacity. Depth to restrictive features (bedrock) is greater than 80 inches. The ecological site for Zahl loam is Thin Loamy (R054XY038D). The ecological site for Williams loam is Loamy (R054XY031ND) and the ecological site for Bowbells is Loamy Overflow (R054XY023ND). Observed at sample site locations 3, 5, 6, 9, 10, and 11 (Figure 3.8).

The access road area consists of intricately mixed areas of sandy residuum/alluvium derived from sandstone bedrock and loamy alluvium glacial till. Slopes range from 2 to 11 percent (Table 3.8a). About 80 percent of the access road area occurs in SMU 81C (Table 3.8b). These sandy map units have low runoff potential, moderate sheet and rill erosion by water, and moderate hazard of wind erosion (Table 3.8c). About 20 percent of the access road area occurs in SMUs 93C and 93D (Table 3.8b). These loamy map units have moderate runoff potential, low to moderate hazard of sheet and rill erosion by water and low hazard of wind erosion (Table 3.8c).

Table 3.8b: Approximate area of soil map units found at the proposed Baker/Walker 34X-25 site.

| Soil Map Unit | New Access Road ¹ | | Well Pad Acreage | Total Acreage | Percent of Total Acreage |
|------------------------------|------------------------------|-------------|------------------|---------------|--------------------------|
| | Length (feet) | Area (acre) | | | |
| 4B, Arnegard, 2 to 6% | 0 | 0.0 | 0.5 | 0.5 | 4.6 |
| 93C, Williams-Zahl, 6 to 9% | 250 | 1.0 | 2.5 | 3.5 | 32.4 |
| 93D, Zahl-Williams, 9 to 15% | 50 | 0.2 | 1.0 | 1.2 | 11.1 |
| 81C, Vebar-Parshall, 6 to 9% | 1,000 | 4.6 | 0.0 | 4.6 | 42.6 |
| 81D, Vebar, 9 to 15% | 0 | 0.0 | 1.0 | 1.0 | 9.3 |
| Total | 1,300 | 5.8 | 5.0 | 10.8 | 100.0 |

¹ Based on a 200 feet wide corridor width.

Table 3.8c: Soil attributes for the proposed Baker/Walker 34X-25 site.¹

| Soil Series | Soil Map Unit(s) | Presence in Access Road | Presence in Well Pad | Surface Layer Composition | | | Erosion Factor ² | | Hydrologic Soil Group ⁵ |
|-------------|------------------|-------------------------|----------------------|---------------------------|--------|--------|-----------------------------|----------------|------------------------------------|
| | | | | % Sand | % Silt | % Clay | Kf ³ | T ⁴ | |
| Arnegard | 4B,81D | No | Yes | 41.1 | 36.9 | 22.0 | 0.24 | 5 | B |
| Vebar | 81D | No | Yes | 69.6 | 16.4 | 14.0 | 0.20 | 3 | B |
| Parshall | 81C | Yes | No | 69.6 | 16.4 | 14.0 | 0.20 | 5 | B |
| Tally | 81D | No | Yes | 69.6 | 16.4 | 14.0 | 0.20 | 5 | B |
| Zahl | 93D | Yes | Yes | 41.1 | 36.9 | 22.0 | 0.28 | 5 | B |
| Williams | 93C/D | No | Yes | 41.1 | 36.9 | 22.0 | 0.28 | 5 | B |
| Bowbells | 93D | Yes | No | 41.1 | 36.9 | 22.0 | 0.24 | 5 | B |

¹Source: <http://soildatamart.nrcs.usda.gov/> (NRCS 2009).

²Erosion Factors indicate susceptibility of a soil to sheet and rill erosion by water.

³Kf indicates the erodibility of material less than two millimeters in size. Values of K range from 0.02 to 0.69. Higher values indicate greater susceptibility.

⁴T estimates maximum average annual rates of erosion by wind and water that will not affect crop productivity. Tons/acre/year range from 1 for shallow soils to 5 for very deep soils. Higher T soils can tolerate higher rates of erosion without loss of productivity.

⁵Hydrologic Soil Groups are based on estimates of runoff potential under the following conditions: thoroughly wet soils unprotected by vegetation receive precipitation from long-duration storms. The rate of infiltration decreases from Group A (high infiltration, low runoff) to D (low infiltration, high runoff).

The well pad area consists of intricately mixed areas of loamy alluvium from glacial till and sandy residuum/alluvium derived from soft calcareous sandstone bedrock. Slopes range from 2 to 11 percent (Table 3.8a). About 80 percent of the well pad area occurs on SMUs 4B, 93C, and 93D (Table 3.8b). These loamy map units have moderate runoff potential, low to moderate hazard of sheet and rill erosion by water and a low hazard of wind erosion (Table 3.8c). About 20 percent of the well pad area occurs in SMU 81D, which is on the east side of the pad (Table 3.8b). This sandy map unit has low runoff potential, moderate sheet and rill erosion by water and moderate hazard of wind erosion (Table 3.8c).

Sampled soils are deep to very deep (40 in to greater than 60 in) and are well suited for construction and restoration. Depth of topsoil varies considerably, from about 7 to 16 in on summits and backslopes and from 16 to 24 inches on toeslopes, swales, and in small drainageways. When exposed, sandy surface and subsurface materials in map units 81C and 81D are vulnerable to erosion from wind and water. Erosion control measures would be needed along deep cuts and fills to prevent deposition into swales and drainage ways.

Map units 93C and 93D have high subsurface calcium carbonate equivalents with soil reaction (pH) ranging from 7.8 to 8.8 (up to 20 percent calcium carbonate by volume). These materials may adversely affect successful re-vegetation of disturbed areas if left at the surface. Random electrical conductivity (EC) tests revealed very low to low soluble salt content (0 to less than 2 mmhos/cm) and pose no appreciable risk to re-vegetation. These materials pose a moderate risk of corrosion to untreated steel.

Reference engineering materials for the Unified Classification System are provided in Table 3.8d.

3.8.2 Soil Impacts

An estimated 6.06 acres would be permanently impacted by the well pad and approximately 1.94 acres of soil would be permanently impacted by the proposed new access road. Up to an additional 3.05 acres may also be disturbed along the existing driveway, though much of this area has already been disturbed by previous construction of the existing driveway. The total maximum disturbance to soils is estimated at 10.86 acres. Once the soil layer is disturbed, many soil functions are nearly impossible to regain. The greatest concerns with regard to soils are the loss of topsoil and the possibility of soil erosion during construction.

Table 3.8d: Unified Classification of subsoil materials at the proposed Baker/Walker 34X-25 project area.

| SOIL SERIES | RANGE OF DEPTH (inches) | UNIFIED CLASSIFICATION SYSTEM ¹ |
|-------------|-------------------------|--|
| Arnegard | 36 to 60 | CL, SC |
| Williams | 36 to 60 | CL |
| Zahl | 20 to 60 | CL |
| Bowbells | 36 to 60 | CL |
| Parshall | 48 to 60 | CL,CL-ML,SC,SC-SM,SM |
| Vebar | 32 to 60 | Soft sandstone bedrock-rippable |
| Tally | 32 to 60 | CL,CL-ML,SC,SC-SM,SM |

¹ See Figure D2 in Appendix D for definitions of the Unified Classification System.

3.8.3 Soil Mitigation

Approximately six to twelve inches of topsoil would be stripped from areas of new construction and stockpiled for use during reclamation. Areas stripped of vegetation during initial construction would be reseeded once construction is completed. Proper implementation of proven best management practices for stabilization and reclamation would reduce soil erosion to negligible levels. Best management practices, applicable to the proposed Baker/Walker 34X-25 project, would be used and include, but are not limited to:

- Limit ground disturbance to the area that is necessary for the project.
- Minimize the area from which topsoil would be removed.
- Reduce the time that topsoil is stockpiled in order to retain viable soil nutrients.
- Minimize the time that barren areas are exposed (in order to reduce soil erosion and colonization by weeds.)
- Employ dust control measures as needed.
- Apply soil stabilizers or soil binders as needed.

3.9 Vegetation and Invasive Species

This section describes the existing conditions, the potential impacts from the Proposed Action, and the suggested mitigation measures for vegetation and invasive species in the project area.

A field inventory of vegetative species was conducted on the proposed Baker/Walker 34X-25 well site location on September 15, 2009.

3.9.1 Ecological Sites

Twelve ecological site inventories were conducted on the proposed Baker/Walker 34X-25 well site location (Figure 3.8). An ecological site is the product of all the environmental factors responsible for its development, and has a set of defining characteristics (NRCS 2003). Ecological sites have characteristic soils that have developed over time through the soil development process. The factors which affect soil development are parent material, climate, living organisms, topography or landscape position, and time. An ecological site has a characteristic hydrology, particularly infiltration and runoff, which has developed over time. The hydrologic development is influenced by the development of the soil and plant community and vice versa. Ecological sites evolve into characteristic plant communities. The plant community on an ecological site is typified by an association of plant species that differs from that of other ecological sites in the kind and/or proportion of species, or in primary production (NRCS 1997).

A total of four types of ecological sites were identified within the project area: Loamy, Loamy Overflow, Sandy, and Thin Loamy (Table 3.9a). The most common ecological site type was Sandy (5 locations), followed by Loamy Overflow (3 locations), Thin Loamy (2 locations), and then Loamy (2 locations).

More commonly encountered plant species found at these sample locations were green needlegrass (*Nassella viridula*), Sandberg bluegrass (*Poa secunda*), little bluestem (*Schizachyrium scoparium*), prairie junegrass (*Koeleria cristata*), smooth brome (*Bromus inermis*), common snowberry (*Symphoricarpos albus*), and cudweed sagewort (*Artemisia ludoviciana*). A comprehensive plant list for the project area was compiled (Table 3.9b). No State sensitive plant species were found during the September 15, 2009 site visit (Table 3.9b).

The following paragraphs briefly describe the four types of ecological sites found in the project area. Photographs of each ecological site are in Appendix B while worksheets are in Appendix C. More detailed information is also available from the NRCS (2004).

Loamy Ecological Site

The Loamy ecological site is found on gently undulating to rolling sedimentary uplands, such as alluvial fans, alluvial flats, and on hillsides (NRCS 2004). These sites are well drained; in fact, water is the limiting factor to vegetative production. The historic climax plant community (HCPC) for this ecological site type is the western wheatgrass/green needlegrass community type. The potential vegetative composition for this community type is estimated at roughly 85% grasses/grass-like, 10% forbs, and 5% shrubs. Dependent on site specific conditions, annual vegetative productivity can be expected to range from 1,400 lbs/acre to 3,400 lbs/acre, with the majority (79%) of plant growth occurring in May, June, and July (NRCS 2004). When compared to the HCPC, the loamy ecological sites found in the project area are in fair to good ecological condition. Previous livestock grazing and wildlife use has caused some departure from the HCPC. However, the departure poses no concern for oil and gas drilling activities or concern for the immediate area.

Loamy Overflow Ecological Site

The Loamy Overflow ecological site frequently occurs on flooded intermittent streams and their floodplains, including swales (NRCS 2004). These sites are moderately well to well drained and frequently experience brief periods of inundation, though water is still a limiting factor to vegetative production. The HCPC for this ecological site is the big bluestem/green needlegrass/switchgrass community type. The potential vegetative composition for this community type is estimated at roughly 83% grasses/grass-like, 10% forbs, 5% shrubs, and 2% trees. Dependent on site specific conditions, annual vegetative productivity can be expected to range between 2,400 lbs/acre and 4,000 lbs/acre, with the majority (83%) of plant growth occurring in May, June, and July (NRCS 2004). When compared to the HCPC, the loamy overflow ecological sites found in the project area are in good ecological condition.

Sandy Ecological Site

The sandy ecological site is found on gently undulating to rolling sedimentary uplands, such as alluvial fans, alluvial flats, and on hillsides (NRCS 2004). These sites are moderately well to well drained; vegetative production is limited by water availability. The HCPC for the sandy ecological site is the prairie sandreed/bluestem community type. The potential vegetative composition for the sandy ecological site is estimated at roughly 85% grasses/grass-like, 10% forbs, and 5% shrubs. Roughly 83% of the annual plant growth occurs in May, June, and July. Total annual vegetative productivity will vary based on site-specific conditions, but can be expected to range from 1,500 lbs/acre to 3,300 lbs/acre (NRCS 2004). When compared to the HCPC, the sandy ecological sites found in the project area are in fair ecological condition, primarily because of livestock grazing and wildlife use.

Table 3.9a: Summary of vegetation sample sites at the proposed Baker/Walker 34X-25 project area.

| Sample Site ID | Ecological Soil Type (reference ID) | Location | Approx. Elevation (feet) | Aspect | Percent Slope | Dominant Plant Species ¹ Photo Numbers in App. A ² |
|---|-------------------------------------|-------------|--------------------------|--------|---------------|--|
| Site #1 | Sandy (R054XY026ND) | Access Road | 2,209 | N | 2 | Sandberg bluegrass, little bluestem, and green needlegrass. Photos 1-3 , page B-1. |
| Site #2 | Sandy (R054XY026ND) | Access Road | 2,200 | N | 3 | Sandberg bluegrass and green needlegrass. Photos 4-6 , page B-1. |
| Site #3 | Loamy Overflow (R054XY023ND) | Access Road | 2,198 | W | 11 | Sandberg bluegrass, green needlegrass, silver buffaloberry, and common snowberry. Photos 7-9 , page B-2. |
| Site #4 | Sandy (R054XY026ND) | Access Road | 2,196 | NE | 2 | Sandberg bluegrass, green needlegrass, little bluestem, and prairie junegrass. Photos 10-12 , page B-2. |
| Site #5 | Thin Loamy (R054XY021ND) | Access Road | 2,201 | NW | 3 | little bluestem, green needlegrass, prairie junegrass, and stiff goldenrod. Photos 13-15 , page B-3. |
| Site #6 | Loamy Overflow (R054XY023ND) | Access Road | 2,190 | W | 8 | Sandberg bluegrass, green needlegrass, and common snowberry. Photos 16-18 , page B-3. |
| Site #7 | Sandy (R054XY026ND) | Access Road | 2,199 | SW | 6 | Sandberg bluegrass, green needlegrass, little bluestem, and cudweed sagewort. Photos 19-21 , page B-4. |
| Site #8 | Loamy (R054XY031ND) | Pad Site | 2,202 | SW | 2 | prairie junegrass and fringed sagewort. Photos 22-24 , page B-4. |
| Site #9 | Loamy (R054XY031ND) | Pad Site | 2,194 | N | 10 | Sandberg bluegrass, smooth brome, cudweed sagewort, and green sagewort. Photos 25-27 , page B-5. |
| Site #10 | Loamy Overflow (R054XY023ND) | Pad Site | 2,177 | N | 5 | green needlegrass, smooth brome, cudweed sagewort, and common snowberry. Photos 28-30 , page B-5. |
| Site #11 | Thin Loamy (R054XY021ND) | Pad Site | 2,188 | NE | 6 | green needlegrass, prairie junegrass, fringed sagewort, and prairie rose. Photos 31-33 , page B-6. |
| Site #12 | Sandy (R054XY026ND) | Pad Site | 2,183 | NE | 11 | green needlegrass, smooth brome, and common snowberry. Photos 34-36 , page B-6. |
| East, North, West, and South Perimeters | | | | | | Photos 37-44 , pages B-7 to B-8. |

¹See Appendix C for more detailed information on species encountered at each site and for scientific names.

²Photographs at each Ecological Site can be found on pages B-1 through B-8 in Appendix B.

Table 3.9b: Plant species observed in each Ecological Site at the proposed Baker/Walker 34X-25 project area.¹

| SCIENTIFIC NAME | COMMON NAME | SITE | PERIMETER | | | | | |
|---|-------------------------|------|------|------|------|------|------|------|------|------|------|------|-----------|-------|------|-------|------|---|
| | | #1 | #2 | #3 | #4 | #5 | #6 | #7 | #8 | #9 | #10 | #11 | #12 | North | East | South | West | |
| GRASSES & GRASS-LIKES | | | | | | | | | | | | | | | | | | |
| <i>Andropogon gerardii</i> | big bluestem | | | X | X | | X | | | | | | | | | | X | |
| <i>Aristida longiseta</i> | red three-awn grass | X | | X | X | X | X | | | | X | | | | | | X | X |
| <i>Bouteloua curtipendula</i> | side-outs grama | | X | X | | X | | | | | | | | | | | X | |
| <i>Bouteloua gracilis</i> | blue grama | X | X | X | X | X | X | X | X | | | | X | | | | X | X |
| <i>Calamovilfa longifolia</i> | prairie sandreed | X | | X | X | X | X | X | X | | | | | | | | X | X |
| <i>Carex filifolia</i> | thread-leaf sedge | X | X | | X | X | X | | | | | | X | | | | X | X |
| <i>Carex inops</i> | sun sedge | X | | | | | | | | | | | | | | | | |
| <i>Carex pennsylvanica</i> | Penn sedge | | | X | | | | | | | | | | | | | | |
| <i>Elymus caninus</i> | bearded wheatgrass | X | X | X | X | X | X | | | | X | | | | | | X | X |
| <i>Elymus lanceolatus</i> | thickspike wheatgrass | X | | | | | | | | | | | | | | | | |
| <i>Hesperostipa comata</i> [syn. <i>Stipa comata</i>] | needle-and-thread grass | X | X | X | X | X | X | | | | X | | | | | | X | X |
| <i>Hesperostipa spartea</i> | porcupine grass | | | X | | | | | | | | | | | | | | |
| <i>Koeleria cristata</i> | prairie junegrass | X | X | | X | X | X | | | | X | | | | | | X | X |
| <i>Nassella viridula</i> | green needlegrass | X | X | X | X | X | X | | | | X | | | | | | X | X |
| <i>Pascopyrum smithii</i> [syn. <i>Agropyron smithii</i>] | western wheatgrass | X | X | X | X | X | X | | | | X | | | | | | X | X |
| <i>Poa secunda</i> | Sandberg bluegrass | X | X | X | X | X | X | | | | X | | | | | | X | X |
| <i>Schizachyrium scoparium</i> [syn. <i>Andropogon scoparius</i>] | little bluestem | X | X | X | X | X | X | | | | X | | | | | | X | X |
| <i>Sporobolus heterolepis</i> | prairie dropseed | | X | X | X | X | X | | | | X | | | | | | X | X |
| FORBS | | | | | | | | | | | | | | | | | | |
| <i>Achillea millefolium</i> | common yarrow | X | X | X | X | X | X | | | | | | | | | | | X |
| <i>Allium ascalonicum</i> | wild onion | X | | X | X | | X | | | | X | | | | | | | X |
| <i>Anemone canadensis</i> | meadow anemone | | | X | | | | | | | | | | | | | | |
| <i>Antennaria rosea</i> | rose pussytoes | X | X | X | X | X | X | | | | X | | | | | | | X |
| <i>Arabis</i> spp. | rockcress | | | | | X | | | | | | | | | | | | |
| <i>Artemisia absinthium</i> | absinth wormwood | | | | | | | | | | | | | | | | | |
| <i>Artemisia dracunculoides</i> | green sagewort | X | X | X | X | X | X | | | | X | | | | | | X | X |
| <i>Artemisia ludoviciana</i> | cutweed sagewort | X | | X | X | X | X | | | | X | | | | | | X | X |

¹ Presence is indicated by an "X". **Bolded species** are noxious in North Dakota.

Table 3.9b (continued): Plant species observed in each Ecological Site at the proposed Baker/Walker 34X-25 project area.¹

| SCIENTIFIC NAME | COMMON NAME | SITE #1 | SITE #2 | SITE #3 | SITE #4 | SITE #5 | SITE #6 | SITE #7 | SITE #8 | SITE #9 | SITE #10 | SITE #11 | SITE #12 | PERIMETER | | |
|--|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|-----------|---|---|
| | | North | East | South | West | | | | | | | | | | | |
| FORBS (continued) | | | | | | | | | | | | | | | | |
| <i>Astragalus crassicaarpus</i> | groundplum milkvetch | | | | | | | X | | | | | | | | X |
| <i>Astragalus</i> spp. | milkvetch | X | | | X | | | | | | | | | | | |
| <i>Balsamorhiza sagittata</i> | arrowleaf balsamroot | X | | | | X | | | | X | | | | | | |
| <i>Cirsium undulatum</i> | wavy-leaved thistle | | | | | X | | X | | | | | | | | |
| <i>Dalea purpurea</i> | purple prairie clover | X | | X | X | X | X | X | | | X | | | | X | X |
| <i>Echinacea angustifolia</i> | black samson | X | | X | X | X | X | X | | | X | | X | | X | X |
| <i>Erodium cicutarium</i> | redstem filaree | | | | | X | | | | | | | | | | |
| <i>Galium boreale</i> | northern bedstraw | | | X | | | | | | | | | | | | |
| <i>Geranium richardsonii</i> | Richardson's geranium | | | X | | | | | | | | | | | | |
| <i>Geum triflorum</i> | prairie smoke | X | X | X | X | X | X | X | | | | X | | | X | X |
| <i>Glycyrrhiza lepidota</i> | American licorice | | | X | | | X | | | | | | | | | |
| <i>Heterotheca villosa</i> [syn. <i>Chrysopsis villosus</i>] | hairy golden-aster | X | X | X | X | X | X | X | | | | X | | | X | X |
| <i>Liatris punctata</i> | dotted gay-feather | X | | X | X | X | | X | | | X | | X | | X | X |
| <i>Lomatium</i> spp. | biscuit-root | | | | | | | | | | | | X | | | |
| <i>Lygodesmia juncea</i> | rush skeletonweed | X | | | | | | | | | | | | | | |
| <i>Oligoneuron rigidum</i> [syn. <i>Solidago rigida</i>] | stiff goldenrod | X | X | X | X | X | X | X | | | X | | X | | X | X |
| <i>Penstemon</i> spp. | penstemon | X | X | X | X | X | X | X | | | X | | X | | X | X |
| <i>Plantago patagonica</i> | woolly indianwheat | | | | X | | | | | | | | | | | X |
| <i>Psoralea argophylla</i> | silverleaf scurfpea | X | X | X | X | X | X | X | | | X | | X | | X | X |
| <i>Ratibida columnifera</i> | prairie coneflower | | X | X | | X | X | X | | | X | | X | | X | X |
| <i>Rudbeckia hirta</i> | black-eyed Susan | | | | | X | | | | | | | | | | X |
| <i>Solidago missouriensis</i> | Missouri goldenrod | X | X | X | X | X | X | X | | | X | | X | | X | X |
| <i>Sphaeralcea coccinea</i> | scarlet globemallow | X | | X | | | | X | | | | | | | | X |
| <i>Symphoricarum ericoides</i> | heath aster | X | | | | | | | | | | | | | | |
| <i>Symphoricarum falcatum</i> [syn. <i>Aster falcatus</i>] | white prairie aster | X | X | X | X | X | X | X | | | X | | X | | X | X |
| <i>Vicia americana</i> | American vetch | | | | X | | | | | | X | | | | | X |

¹ Presence is indicated by an "X". **Bolded** species are noxious in North Dakota.

Table 3.9b (continued): Plant species observed in each Ecological Site at the proposed Baker/Walker 34X-25 project area.¹

| SCIENTIFIC NAME | COMMON NAME | SITE #1 | SITE #2 | SITE #3 | SITE #4 | SITE #5 | SITE #6 | SITE #7 | SITE #8 | SITE #9 | SITE #10 | SITE #11 | SITE #12 | PERIMETER | | | |
|--|--|---------|---------|----------|---------|---------|---------|---------|---------|----------|----------|----------|----------|-----------|---|---|----------|
| | | North | South | West | | | | | | | | | | | | | |
| INVASIVE FORBS & GRASSES | | | | | | | | | | | | | | | | | |
| <i>Agropyron cristatum</i> | crested wheatgrass | | X | X | X | | | | X | X | | | | | | | X |
| <i>Artemisia absinthium</i> ² | absinth wormwood ² | | | | | | X | | | | X | | X | | | | |
| <i>Bromus inermis</i> | smooth brome | X | | X | X | | X | | X | X | X | | X | | | X | X |
| <i>Canalina crantz</i> | false flax | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| <i>Cirsium arvense</i> | Canada thistle | | | X | | | | | | X | | | | | | | X |
| <i>Cirsium flodmanii</i> | Flodman's thistle | | | X | | X | X | | | | | | | | | X | |
| <i>Descurainia sophia</i> | flixweed | | | X | | | | | | | | | | | | | |
| <i>Poa pratensis</i> | Kentucky bluegrass | | X | X | | X | X | | | X | X | | | | X | X | X |
| <i>Taraxacum officinale</i> | common dandelion | X | X | X | X | X | | X | X | X | X | | | | X | X | X |
| <i>Tragopogon dubois</i> | western salsify | X | X | X | X | X | X | X | X | X | X | | | | X | X | X |
| SHRUBS & TREES | | | | | | | | | | | | | | | | | |
| <i>Amelanchier alnifolia</i> | serviceberry | | | X | | | | | | | | | | | | | |
| <i>Artemisia frigida</i> | fringed sagebrush; fringed sagewort | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| <i>Crataegus</i> spp. | hawthorn | | | X | | | | | | | | | | | | | |
| <i>Fraxinus pennsylvanica</i> | green ash | | | X | | | | | | | | | | | | | |
| <i>Juniperus horizontalis</i> | creeping juniper | | | X | | | | | | | | | | | | | |
| <i>Prunus virginiana</i> | chokecherry | | | X | | | | | | | | | | | | | |
| <i>Ribes aureum</i> | golden currant | | | X | | | | | | | | | | | | | |
| <i>Ribes</i> spp. | gooseberry | | | | | | | | | | | | | | | X | |
| <i>Rosa arkansana</i> | prairie rose | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| <i>Rosa woodsii</i> | Woods rose | | | X | | | | | | | | | | | | X | |
| <i>Shepherdia argentea</i> | silver buffaloberry | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| <i>Symphoricarpos albus</i> | western snowberry | X | | | X | | | | | | | | | | | | |
| <i>Symphoricarpos occidentalis</i> | common snowberry | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| <i>Toxicodendron rydbergii</i> [syn. <i>Rhus radicans</i>] | poison ivy | | | X | | | | | | | | | | | | X | X |

¹ Presence is indicated by an "X". **Bolded species** are noxious in North Dakota.

² Absinth wormwood was found just west of the project area (see Figure 3.8).

Thin Loamy Ecological Site

Thin Loamy ecological sites occur on moderately steep to steep sedimentary sites, such as hills, knolls, and ridges (NRCS 2004). These sites are well drained, and water is a limiting factor to vegetative production. The HCPC for the thin loamy ecological site is needlegrass/bluestem/western wheatgrass. The potential vegetative composition for the sandy ecological site is estimated at 85% grasses/grass-like, 10% forbs, and 5% shrubs. However, compared to those ecological site types, annual vegetative production is somewhat reduced, ranging from 1,000 lbs/acre to 2,400 lbs/acre. The majority (81%) of vegetative production occurs in May, June, and July (NRCS 2004). When compared to the HCPC, the thin loamy ecological sites found in the project area are in fair to good ecological condition. Although the plant community reflects departure from HCPC no negative impacts are expected on the surrounding wildlife and plant communities.

3.9.2 Invasive Species

As defined by Executive Order 13112, an "invasive species" is that which is 1) a non-native (or alien) to the ecosystem under consideration and 2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health (North Dakota Department of Agriculture [NDDA] 2009). Within the proposed Baker/Walker 34X-25 project area, eight exotic, invasive species were observed: common dandelion, crested wheatgrass, false flax, Kentucky bluegrass, smooth brome, flixweed, Canada thistle, and western salsify. One species that is native to the area, but considered invasive in nature at the project site is: Flodman's thistle.

3.9.3 Noxious Weeds

The State of North Dakota defines a "Noxious weed" as any plant propagated by either seed or vegetative parts which is determined by the commissioner (after consulting with the North Dakota State University Extension Service) or a county weed board (after consulting with the county extension agent) to be injurious to public health, crops, livestock, land, or other property (ND Century Code 63-01.1-02) (NDDA 2009). Noxious weeds can spread easily to the detriment of public health, indigenous plant communities, crops, livestock and recreational areas and the management of natural or agricultural systems. In North Dakota, twelve species have been declared noxious under the North Dakota Century Code (Chapter 63-01.1) (Table 3.9c). However, only five are known to occur in Dunn County (Table 3.9c). Within the project boundaries, one noxious weed was found. Canada thistle (*Cirsium arvense*) was found in ecological sites #2 (on access road), #9 (in well pad), and along the west perimeter of the well pad (Figure 3.7b). It was observed in small scattered patches within these areas. Another noxious weed, Absinth wormwood (*Artemisia biennis*), was found west (and outside) of the road corridor (Figure 3.7b). It occurred as a dense population within an old paddock.

3.9.4 Vegetation Impacts

Construction of the access road would primarily impact the Sandy ecological site, and to lesser degrees the Loamy Overflow and Thin Loamy ecological site types. Construction of the well pad would impact all four ecological site types found in the project area. The total disturbance area of about 8.0 acres from new construction could be expected to reduce available forage to livestock and wildlife in the area from between 13,000 lbs to 24,750 lbs per year (NRCS 2004). Actual forage reductions would depend on the timing and amount of precipitation the site receives each year.

Soil compaction by heavy equipment may hinder vegetation growth and revegetation efforts because it reduces the ability of water to percolate through the soil and reduces air spaces for water to occupy (Goodwin and Sheley 2003). Broadcast seeding on top of compacted soil could cause more seeds to blow away, be eaten by predators, or eroded away by precipitation (Goodwin and Sheley 2003).

Table 3.9c: North Dakota Noxious weeds present in Dunn County and in vicinity of the project area.

| Scientific Name | Common Name | Present in Dunn County? | Present in vicinity of project site? |
|-------------------------------|--------------------|-------------------------|--------------------------------------|
| <i>Artemisia absinthium</i> | absinth wormwood | Yes | Yes |
| <i>Carduus nutans</i> | musk thistle | No | No |
| <i>Centaurea diffusa</i> | diffuse knapweed | No | No |
| <i>Centaurea maculosa</i> | spotted knapweed | No | No |
| <i>Centaurea repens</i> | Russian knapweed | No | No |
| <i>Centaurea solstitialis</i> | yellow starthistle | No | No |
| <i>Cirsium arvense</i> | Canada thistle | Yes | Yes |
| <i>Convolvulus arvensis</i> | field bindweed | Yes | No |
| <i>Euphorbia esula</i> | leafy spurge | Yes | No |
| <i>Linaria dalmatica</i> | Dalmation toadflax | Yes | No |
| <i>Lythrum salicaria</i> | purple loosestrife | No | No |
| <i>Tamarix</i> spp. [complex] | saltcedar | Yes | No |

Within the proposed well pad and access road sites, one noxious weed is present, and one is found in the project vicinity. The potential disturbance of approximately 8.0 acres and an additional disturbance of roughly 3.05 acres along the existing driveway could provide an opportunity for Canada thistle and absinth wormwood to spread and for other invasive and noxious weeds to colonize. Invasive and noxious weeds often outcompete native plants because they grow in the absence of population controls; their population growth reduces the quality and quantity of forage and crop production; reduces bio-diversity; and often does not provide habitat for native fauna (NDDA 2009). Prompt and appropriate construction, operation, and reclamation efforts would be expected to reduce or prevent the establishment and spread of noxious weeds and to promote the growth of native and desirable plant species.

3.9.5 Vegetative Mitigation

The following mitigation measure would be implemented to avoid, minimize and mitigate for impacts to vegetative resources in the project area.

- To maintain plant biodiversity, ground disturbance would be minimized to the extent that is necessary for the project. Equipment would work within the confines of the approved rights-of-way and well pad area boundary.
- Topsoil that is removed would be stock-piled, and used in reclamation efforts.
- Severely compacted soil should be scarified or plowed to roughen the soil and increase germination rates (Goodwin and Sheley 2003). Soil should be scarified by raking soil with a ripper shank that is pulled behind a tractor, grader, or bulldozer.
- Areas stripped of topsoil would be re-seeded with desirable plant species and be reclaimed at the earliest practical opportunity.
- Certified weed-free straw and seed would be used for all construction, seeding, and reclamation efforts.
- The APDs would require the operator to control all noxious weeds through the project area (Appendix A). To reduce the spread of noxious weeds in the project area (particularly Canada thistle and absinth wormwood) control efforts should be implemented for a growing season prior to ground-disturbing activities and after ground-disturbing activities occur (see Figure 3.7b for locations of infestations). Control measures could include using herbicides, hand-pulling, applying bio-control, seeding, and/or planting of desirable vegetation. Herbicides would be applied at the appropriate time(s) of year, in the appropriate weather condition, with the appropriate chemical, and at the appropriate rate.

North Dakota Parks and Recreation recommends that impacted areas be revegetated with species native to the project area (NDPR 2009) (Appendix F). Further, the USFWS recommends that a diverse mixture of native cool and warm season grasses and forbs be planted (USFWS 2009d). Seed mixes containing a diversity of plant habits and species have a greater chance of resisting invasion by non-native plants and eventually become more ecologically beneficial (USFWS 2009d). The appropriate seed mix should be designed to meet the objective of the revegetation effort. The objective for the proposed project would be to restore the plant community to its prior condition with minimal erosion and weed invasion. This would be accomplished by using a quick establishing cover crop of oats or barley at a rate of 10 lbs/acre combined with a native seed mixture at a rate of 5.4 lbs (pure live seed)/acre. The recommended seed mix developed by Darryl Turcotte of the BIA is comprised of native grasses to the area (Table 3.9d). More details on the species in this seed mix are included in Appendix C. A native forb component is generally encouraged but can be difficult to achieve for various reasons, including commercial availability, difficulty in germination, etc. Dependent on commercial availability, potential native forbs for inclusion in the seed mix include black samson (*Echinacea angustifolia*), purple prairie clover (*Dalea purpurea*), dotted gayfeather (*Liatris punctata*), and candle anemone (*Anemone cylindrica*). If forbs are included in the seed mix they should be in addition to the seeding rate of 5.4 pls/acre specified in Table 3.9d.

Table 3.9d. Native grass seed mix recommended for reclamation of the proposed Baker/Walker 34X-25 project site.

| Plant Species | Pounds ¹ /acre | Composition |
|--------------------|---------------------------|-------------|
| Western wheatgrass | 2.4pls | 30% |
| Green needlegrass | 1.2pls | 20% |
| Blue grama | 0.2pls | 10% |
| Sideoats grama | 0.6pls | 10% |
| Little bluestem | 0.4pls | 10% |
| Slender wheatgrass | 0.5pls | 10% |
| Prairie junegrass | 0.1pls | 10% |
| Total | 5.4pls | 100% |

¹ pounds of pure live seed.

3.10 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 Kadrmas, Lee & Jackson, Inc., using a pedestrian methodology. Approximately 21.2 acres were intensively inventoried on September 1, 2009 (Rabe 2009). No historic properties were located that appear to possess the quality of integrity and meet at least one of the criteria (36 CFR 60.6) for inclusion on the National Register. No properties were located that appear to qualify for protection under the American Indian Religious Freedom Act (42 USC 1996). As the lead federal agency, and as provided for in 36 CFR 800.5, on the basis of the information provided, BIA reached a determination of **no historic properties affected** for this undertaking. This determination was communicated to the THPO on October 14, 2009 (see Appendix E); however, no response was received from the THPO within the allotted 30-day comment period.

3.11 Socio-Economics

This section describes the existing conditions, the potential impacts from the Proposed Action, and the suggested mitigation measures for socio-economics in the project area.

Socio-economic conditions can be analyzed and compared at various scales. All counties overlapping the Fort Berthold reservation have per capita incomes, median household incomes and employment rates that are lower than North Dakota statewide averages (Table 3.11a). Conversely, the population of the reservation has lower average incomes and higher unemployment rates than the encompassing counties. In addition, when the unemployment rate of MHA Nation members is compared to the reservation or the surrounding counties, it is dramatically higher (Table 3.11a).

Table 3.11a: Employment and income data.

| Unit of Analysis | 1999 Per Capita Income | 2004 Median Household Income | 2000 Unemployment Rate | 2004 Persons Below Poverty Level |
|--|------------------------|------------------------------|------------------------|----------------------------------|
| MHA Nation members ¹ | No Data | No Data | 71 % (in 2005) | 55 % (in 2005) |
| Fort Berthold Reservation ² | \$10,291 (in 2000) | \$26,274 (in 2000) | 11.1 % | 11.3 % (in 2000) |
| Dunn County ² | \$14,624 | \$34,299 | 6.4 % | 11.5 % |
| McKenzie County ² | \$14,732 | \$33,711 | 6.6% | 13.7% |
| McLean County ² | \$16,220 | \$39,218 | 5.6 % | 11.3 % |
| Mountrail County ² | \$13,422 | \$34,503 | 5.9 % | 14.2 % |

| Unit of Analysis | 1999 Per Capita Income | 2004 Median Household Income | 2000 Unemployment Rate | 2004 Persons Below Poverty Level |
|---------------------------------|------------------------|------------------------------|------------------------|----------------------------------|
| North Dakota State ² | \$17,769 | \$34,233 | 4.6% | 10.8 % |

¹ Source: BIA (2005).

² Source: USCB (2000).

The most recent census (held in 2000) and subsequent mathematical projections indicates that per capita income for residents of the Fort Berthold reservation is \$10,291 or about 58% of the North Dakota median household income of \$17,769. Similarly, the median household income on the Fort Berthold reservation was \$26,274 in 2000, or about 76% of the North Dakota median household income. In 2005 the unemployment rate for tribal members was approximately 71% (BIA 2005), compared to 11.1% for the reservation and 4.6% statewide.

Population trends and demographics are shown in Table 3.11b. The number of people in North Dakota decreased slightly during the last eight years. The four counties surrounding the project area exhibited greater estimated decreases in population than exhibited at the state level in 2008. Between the 1990 and 2000 censuses the population on the Fort Berthold Reservation increased by almost 10 percent (Table 3.11b). American Indians are the dominant group on the reservation and the dominant minority in Dunn, McKenzie, McLean, and Mountrail Counties, and at the State level.

Table 3.11b: North Dakota population trends at the Reservation, County, and State levels.

| Reservation, County, & State | Estimated 2008 Population | % of 2008 State Population | % Change, April 2000 – July 2008 | Predominant Ethnic Group (2008) | Predominant Minority (2008) |
|--|---------------------------|----------------------------|----------------------------------|---------------------------------|-----------------------------|
| Fort Berthold Reservation ¹ | 5,915 (in 2000) | 0.92 (in 2000) | + 9.8 (1990 to 2000) | American Indian (in 2000) | White (26.9%) (in 2000) |
| Dunn ² | 3,318 | 0.52 | - 7.8 | White | American Indian (14.1%) |
| McKenzie ² | 5,674 | 0.88 | - 1.1 | White | American Indian (22%) |
| McLean ² | 8,337 | 1.29 | - 10.5 | White | American Indian (7.0%) |
| Mountrail ² | 6,511 | 1.01 | -1.8 | White | American Indian (34.9%) |
| Statewide ² | 641,481 | 100 | -0.1 | White | American Indian (5.5%) |

¹ Source: USCB (2000).

² Source: USCB (2008).

The proposed project would not be expected to have measurable impacts on demographic distributions. The proposed project would likely have significant and widespread beneficial economic impacts by slightly easing unemployment and increasing income through short-term construction employment and long-term commercial development. Consequently no mitigation measures are proposed for socio-economic resources in the area.

3.12 Environmental Justice

This section describes the existing conditions, the potential impacts from the Proposed Action, and the suggested mitigation measures for environmental justice in the project area.

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, 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 environmental consequences from federal programs, policies, decisions or operations. Meaningful involvement means federal officials actively promote opportunities for public participation and federal decisions can be materially affected by participating groups and individuals.

The 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 special EJ consideration as both a minority and a low-income population. The population of North Dakota is predominantly Caucasian. Tribal members comprise almost six percent of North Dakota residents and about 14% of the population of Dunn County (**Table 3.11b**). 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 addresses the existence and 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 tribal 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, necessarily preclude other benefits. Exploration and development would provide many relatively high-paying jobs, with oversight from the Tribal Employment Rights Office (TERO).

The owners of allotted surface within project areas may not hold mineral rights. In such cases, surface owners do not receive oil/gas lease or royalty income, and their only income would be compensatory for productive acreage lost to road and well pad construction. Tribal members without either surface or mineral rights within the project area would not receive any direct benefits whatsoever. Indirect benefits of employment and general tribal gains would be the only offset to any 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 survey of the proposed well pad and access road route and determination by the BIA that there will be no effect to historic properties or TCPs. Nothing is known to be present that qualifies as a traditional or cultural property or that requires protection under the American Indian Religious Freedom Act (AIRFA). The 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, soils, or vegetation – within the human environment. Avoiding or minimizing such impacts also makes unlikely disproportionate impacts to low-income or minority populations. 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 mitigation measures are required.

3.13 Mitigation and Monitoring

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

- Monitoring of any identified cultural resource impacts by qualified personnel is recommended during all ground-disturbing activities.
- Project personnel are prohibited from collecting any artifacts or disturbing cultural resources in the area under any circumstances.

- All construction activities would follow lease stipulations, practices, and procedures outlined in the APD and in the guidelines and standards in the book, *Surface Operating Standards for Oil and Gas Exploration and Development* (USDI-USDA 2007).
- Fresh water would be used to drill the well bore to a depth of 1,500 - 2,500 feet.
- Surface casing would be cemented in place to a depth of about 1,500 - 2,500 feet.
- Water produced from the drilling would be captured into tanks and periodically hauled to an approved disposal site.
- Evidence of groundwater contamination related to the project would result in a stop work order until all appropriate measures were identified and implemented.
- Dust control measures would be employed, as necessary or as required by the BIA during construction and production, to suppress road dust.
- XTO Energy would take the necessary steps to reduce and control air emissions and would obtain all necessary permits required by the State or Federal Agencies.
- If initial site construction occurs within the February 1st-July 15th nesting season then the project area would be surveyed by a qualified biologist to determine if active nests were present, and if present, construction would be suspended or buffers established to ensure no adverse impacts to nesting migratory birds.
- Drip buckets and barrels placed under valves and spigots would be covered with wire mesh to prevent wildlife species from entering and becoming entrapped.
- If used, open pits that may contain oil would be cleaned up immediately to prevent wildlife mortality.
- The well pad would be fenced to prevent access to the pad by livestock and wildlife.
- If an active Bald Eagle or Golden Eagle nest is observed within one-half mile of the project area then a no disturbance buffer of one-half mile radius would be placed around the nest, and the USFWS would be notified. A biological monitor will be available to monitor such activity.
- Any sighting of a protected species within one-mile of the project area would be immediately reported to the USFWS, NDGFD, the Tribe, and the BIA.
- Ground disturbance would be minimized to that which is necessary to implement the project.
- Ground disturbing activities and vehicular traffic would only occur within the approved rights-of-way and well pad area boundary.
- Noxious weeds (particularly Canada thistle and absinth wormwood) should be controlled prior to and after ground-disturbing activities.
- If used, appropriate herbicides would be applied during the proper time(s) of the year, during the proper weather conditions, and at the appropriate rate.
- A set of revegetation guidelines would be developed by XTO prior to implementing ground-disturbing activities.
- An approved weed-free seed mix would be used, such as the seed mix and cover crop identified in *Section 3.9.5* and Appendix C.
- To maintain some habitat integrity, disturbed ground would be reclaimed using native plants from approved plant lists as identified by the Tribe and BIA. As required by the NDIC, costs would be covered by issuance of a bond.
- Topsoil removal would be limited to areas necessary to implement the project. Topsoil that is removed would be stockpiled and used to reclaim disturbed ground in the project area. The time that topsoil is stockpiled would be minimized, as is practical, in order to retain its viable soil nutrient value.
- The time at which barren areas are exposed would be minimized, as is practical, in order to reduce soil erosion and decrease the chance that weeds colonize.
- BMPs would be applied to reduce soil erosion. Sediment controls would be emplaced around swales, topsoil stockpiles, and staging areas, to prevent or reduce soil erosion, especially

during precipitous events. Erosion control measures would be needed along deep cuts and fills to prevent deposition into swales and drainages.

- Soil stabilizers or soil binders could be applied, as needed.

3.14 Cumulative Impacts

Environmental impacts may accumulate slowly over time or hasten when 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. Reasonably foreseeable future impacts must also be considered.

Earlier oil and gas exploration did not result in commercial production; wells drilled in Sections 15 and 25, T147N, R91W, in the 1980's are listed by the NDIC as dry holes (NDIC 2008). Current land uses are expected to continue with little change since virtually all available acreage is already organized into range units to use surface resources for economic benefit. Undivided interests in the land surface, range permits, and agricultural leases are often held by different tribal members than those holding the mineral rights; oil and gas development is not expected to have more than a minor effect on land use patterns.

Prairie habitat is increasingly being lost or fragmented in North Dakota. Structures (e.g., well pads, buildings, and houses), roadways, and vehicular traffic can fragment the landscape, alter movement patterns by wildlife species, and increase the ability for invasive/noxious plants to colonize. Many prairie species require large, contiguous blocks of grasslands for their biological needs and may avoid fragmented habitat or experience reduced reproduction. To prevent or slow down habitat fragmentation XTO has proposed to put multiple wells (up to ten) at one well pad location that is accessed by one road. XTO has also positioned this proposed well pad such that it would use an existing road entrance off of BIA 12. These actions would reduce the number of well pad footprints and access roads required for the project; thereby, maintaining existing habitat and reducing fragmentation. To further reduce fragmentation, disturbed ground would be reclaimed with native prairie plants.

XTO has proposed that additional gas/oil well pad locations could eventually be drilled on other sections within the FBIR. Associated surface disturbance would be relatively minimal and other impacts, such as air quality, would mostly be temporary. Impacts to air quality by emissions from individual well pads have not been an issue in the 'far-field' as indicated, in part, by SO₂, NO₂, O₃, PM_x, CO, and Pb levels occurring within State and Federal standards (see *Section 3.2-Air Quality*). However, cumulative impacts to air quality in the 'near-field' of a Class II airshed has not been addressed by the EPA and remains unknown. As of January 2010 a total of 206 active wells occur within a 20-mile radius of the proposed project site (NDIC 2009) (Figure 3.14; Table 3.14). As of November 2009 a total of 90 active, 120 confidential, and two drilling exploratory wells had been proposed or approved within the FBIR (BIA 2009) (Table 3.14; Figure 3.14).

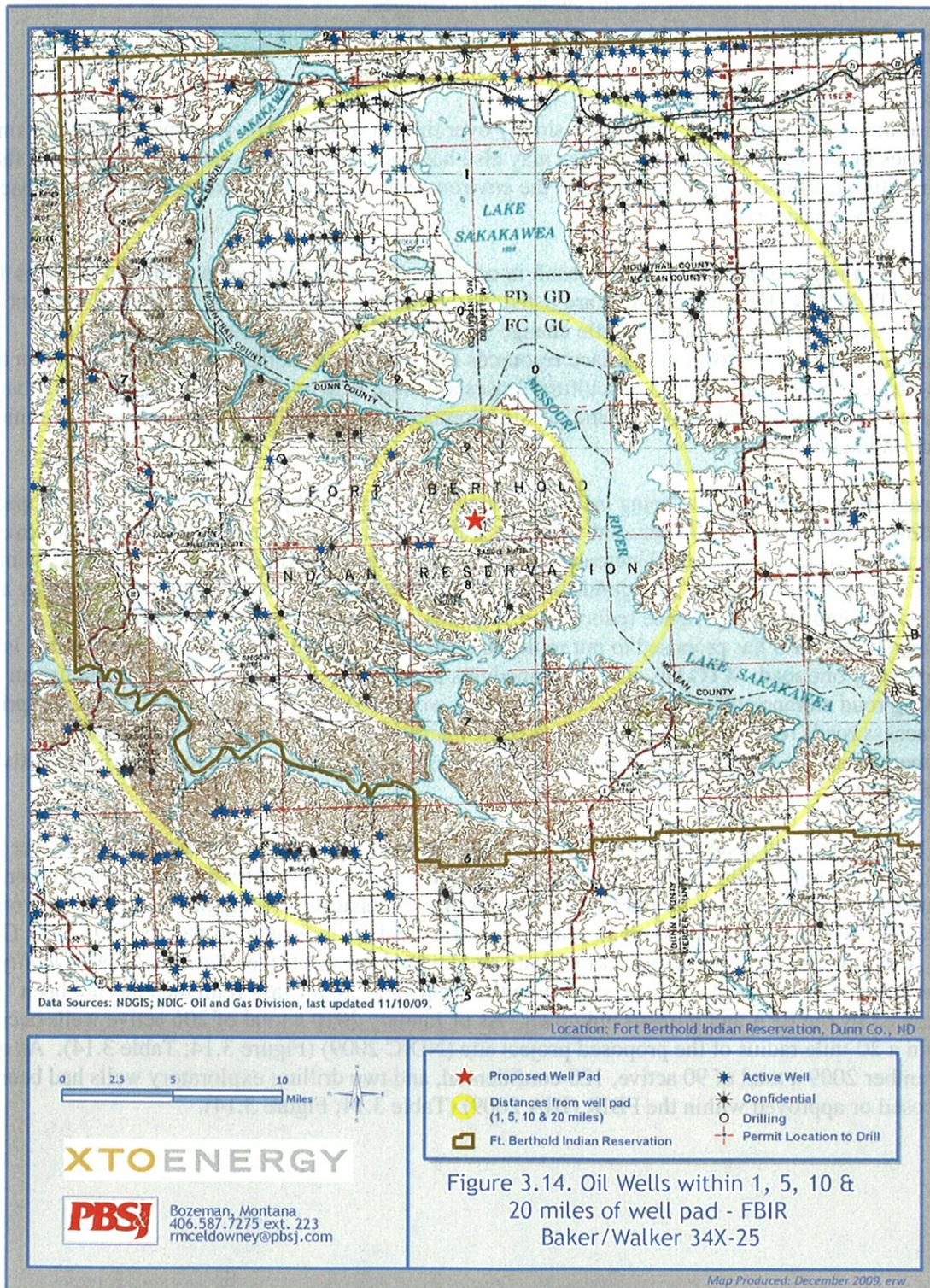


Table 3.14: Number of oil wells and their proximity to the proposed Baker/Walker 34X-25 project site.¹

| Distance (mile) | Number of Oil Wells near the Baker/Walker Site | | | | |
|-----------------|--|--------------|----------|--------------------------|-------|
| | Active | Confidential | Drilling | Permit Location to Drill | Total |
| 0 to 1 | 0 | 0 | 0 | 0 | 0 |
| 1 to 5 | 4 | 3 | 0 | 0 | 7 |
| 5 to 10 | 8 | 14 | 1 | 0 | 23 |
| 10 to 20 | 79 | 112 | 2 | 13 | 206 |
| Fort Berthold | 90 | 120 | 2 | 17 | 229 |

¹Source: NDIC 2009

The proposed project would not share roads with any of the other listed installation. Commercial success at any new well might result in additional oil/gas exploration proposals, but such developments are completely speculative at this time, as no other APDs have been submitted to the BLM or BIA. Approved oil/gas leases carry an implied right to conduct exploration and development activity, but additional cumulative impact analysis and BIA approvals are required before the surface is disturbed at any other location. No cumulative impacts are reasonably foreseen from existing and proposed activities, other than increasingly positive impacts to the reservation economy.

3.15 Irreversible and Irretrievable Commitment of Resources

Removal and consumption of oil or gas from the Bakken would be an irreversible and irretrievable commitment of resources. Other potential resource commitments include acreage devoted to disposal of cuttings, soil lost through wind and water erosion, cultural resources inadvertently destroyed, wildlife killed during earth-moving or in collisions with vehicles, and energy expended during construction and operation.

3.16 Short-Term Use of the Environment Versus Long-Term Productivity

Short-term activities would not detract significantly from long-term productivity of the project area. The small area dedicated to the access road and well pad would be unavailable for livestock grazing, wildlife habitat and other uses. Allottees with surface rights would be compensated for loss of productive acreage and project footprints would shrink considerably once wells were drilled and non-working areas were reclaimed and reseeded. Successful and ongoing reclamation of the landscape would soon support wildlife and livestock grazing and stabilize the soil to reduce erosion and sedimentation. The major long-term resource that would be lost corresponds with the project's purpose of extracting hydrocarbons from the Bakken.

4.0 Bibliography

- Bryce, S., J. Omernik, D. Pater, M. Ulmer, J. Schaar, J. Freeouf, R. Johnson, P. Kuck, and S. Azevedo. 1996. Ecoregions of North Dakota and South Dakota. <http://www.epa.gov/wed/pages/ecoregions/ndsd_eco.ht>. Site accessed November 2009.
- Bureau of Indian Affairs (BIA). 2005. American Indian Population and labor Force Report. Office of Indian Affairs. <<http://www.doi.gov/bia/labor.html>>. Site accessed September 2008.
- Goodwin, K. and R. Sheley. 2003. *Revegetation Guidelines for Western Montana: Considering Invasive Weeds*. February. Prepared for Missoula County Weed District, Montana. Land Resources and Environmental Sciences, Montana State University, Bozeman, Montana.
- Hagen, S., P. Isakson, and S. Dyke. 2005. North Dakota Comprehensive Wildlife Conservation Strategy. North Dakota Game and Fish Department. Bismarck, North Dakota. 454 pp. <<http://www.gf.nd.gov/conservation/cwcs.html>>. Site accessed November 2009.
- High Plains Regional Climate Center (HPRCC). 2009a. Monthly climate summary for Station Keene 3S, North Dakota (#324571). Period of Record from 8/2/1950 to 4/30/2009. <http://www.hprcc.unl.edu/data/historical/index.php?state=nd&action=select_state&submit=Select+State>. Site accessed November 2009.
- High Plains Regional Climate Center (HPRCC). 2009b. Evapotranspiration data for Plaza, North Dakota Automated Weather Data Network Site #a327059. <http://www.hprcc.unl.edu/stations/index.php?action=metadata&network_station_id=a327059>. Site accessed November 2009.
- Klausing, R.L. 1976. Ground-water Basic Data for Dunn County, North Dakota. County Ground-Water Studies 25 - Part II. Bulletin 68 - Part II. Prepared by the U.S Geological Survey in cooperation with the North Dakota Geological Survey, North Dakota State Water Commission, and Dunn County Water Management District. Bismarck, North Dakota. 501 pp. & plates. <<http://www.swc.state.nd.us/4dlink9/4dcgi/GetContentRecord/PB-258>>. Site accessed September 2008.
- Klausing, R.L. 1979. Ground-water Resources of Dunn County, North Dakota. County Ground-Water Studies 25 - Part III. Bulletin 68 - Part III. Prepared by the U.S Geological Survey in cooperation with the North Dakota Geological Survey, North Dakota State Water Commission, and Dunn County Water Management District. Bismarck, North Dakota. 48 pp & plates. <<http://www.swc.state.nd.us/4dlink9/4dcgi/GetContentRecord/PB-258>>. Site accessed September 2008.
- Luttschwager, K. 2008. Wildlife Resource Management Supervisor, North Dakota Game & Fish, Williston, North Dakota. Phone conversation with Andrea Pipp, PBS&J, on September 25th.
- Montana Natural Heritage Program (MTNHP). 2008. Information on black-footed ferrets. Montana Animal Field Guide. <http://fieldguide.mt.gov/detail_AMAJF02040.aspx>. Site accessed on September 2nd.
- Native Plant Information Network (NPIN). 2009. Information on *Symphoricarpos occidentalis*. The Lady Bird Johnson Wildflower Center.

<http://www.wildflower.org/plants/result.php?id_plant=SYOC>. Site accessed November 2009.

Natural Resources and Conservation Service (NRCS). 2009. Reference soil maps and soil data tables for Section 25, T149N R92W, Dunn County, North Dakota. <<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>> and <<http://soildatamart.nrcs.usda.gov/>>. Site accessed in August and September.

Natural Resources Conservation Service (NRCS). 2004. North Dakota Ecological Site Descriptions Major Land Resource Area 54. Available URL: <<http://esis.sc.egov.usda.gov/Welcome/pgReportLocation.aspx?type=ESD>>. Site accessed in September 2008 and December 2009.

Natural Resources and Conservation Service (NRCS). 2003. *National Range and Pasture Handbook*. Issues September 1997; Revised December. Grazing Lands Technology Institute. Fort Worth, Texas.

North Dakota Department of Agriculture (NDDA). 2009. Information on Invasive and Noxious plants of North Dakota. <<http://www.agdepartment.com/NoxiousWeeds/index.asp>>. Site accessed on November 25th.

North Dakota Department of Health (NDDH). 2009. *Annual Report: North Dakota Air Quality Monitoring Data Summary 2008*. Issued in June 2009. North Dakota Department of Health. Bismarck, North Dakota. 74 p. <www.health.state.nd.us/AQ/AmbientMonitoring.htm>. Site accessed in October.

North Dakota Industrial Commission (NDIC). 2009. Oil and Gas GIS records from the Oil and Gas Division. September 26th. <<https://www.dmr.nd.gov/oilgas/>>. Site accessed in November 2008.

North Dakota Lake Sakakawea State Park (NDLSSP). 2008. Overview of Lake Sakakawea. <<http://www.parkrec.nd.gov/parks/lssp.htm>>. Site accessed in September 2008.

North Dakota Parks and Recreation (NDPR). 2009. Information on plant and animal species of concern in vicinity of the Baker/Walker 34X-25 project site. North Dakota Natural Heritage biological conservation database, Bismarck, North Dakota. November 17th letter written to Andrea Pipp, PBS&J, from Jesse Hanson, NDPR.

North Dakota State Water Commission (NDSWC). 2009. North Dakota State Water Commission GIS data. <<http://www.swc.state.nd.us/4dlink9/4dcgi/redirect/index.html>>. Downloaded data in November 2009.

- Poitra, F. 2010. Director, Fort Berthold Fish & Game, New Town, North Dakota. Phone conversation with Andrea Pipp, PBS&J Biologist, on January 19th.
- Poitra, F. 2008. Director, Fort Berthold Fish & Game, New Town, North Dakota. Phone conversation with Andrea Pipp, PBS&J Biologist, on September 17th.
- Rabe, Angie M. 2009. Baker 34x-25 Well Pad and Access Road: A Class III Cultural Resources Inventory in Dunn County, North Dakota. KLJ Cultural Resources for XTO Energy, Fort Worth, TX.
- U.S. Army Corps of Engineers (USACE). 2009. U.S. Army Corps of Engineers, Least Tern and Piping Plover Data Management System, 1993-2009.
- U.S. Army Corps of Engineers (USACE). 2007. Garrison Dam/Lake Sakakawea Master Plan with Integrated Programmatic Environmental Assessment. Update of Design Memorandum MGR-107D.
<https://www.nwo.usace.army.mil/html/Lake_Proj/MasterPlan/GarrisonMP.pdf>
- U. S. Census Bureau. 2008. 2008 population estimates for counties in North Dakota.
<<http://factfinder.census.gov/>>. Site accessed on November 10-12, 2009.
- U. S. Census Bureau. 2000. 2000 census data for North Dakota.
<<http://www.census.gov/main/www/cen2000.html>>. Site accessed on November 10-12, 2009.
- U. S. Department of Agriculture – Fire Effects Information System (USDA-FEIS). 2009a. Information on *Symphoricarpos occidentalis*.
<<http://www.fs.fed.us/database/feis/plants/shrub/symocc/all.html>>. Site accessed November 2009.
- U. S. Department of Agriculture – Fire Effects Information System (USDA-FEIS). 2009b. Information on *Shepherdia argentea*.
<<http://www.fs.fed.us/database/feis/plants/shrub/shearg/all.html>>. Site accessed November 2009.
- U. S. Department of Interior and United States Department of Agriculture (USDI-USDA). 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+3071/REV 07. Bureau of Land Management. Denver, Colorado. 84pp.
- U. S. Fish and Wildlife Service (USFWS). 2009a. National Wetlands Inventory Map for the Baker/Walker 34X-25 project site.
<http://wetlandsfws.er.usgs.gov/imf/imf.jsp?site=NWI_CONUS>
Site accessed on December 1, 2009.
- U. S. Fish and Wildlife Service (USFWS). 2009b. *County Occurrence of Endangered, Threatened, and Candidate Species and Designated Critical Habitat in North Dakota*. July.
<http://www.fws.gov/northdakotafieldoffice/county_list.htm>. Site accessed in November.
- U. S. Fish and Wildlife Service (USFWS). 2009c. Response letter from Jeffrey Towner, Field Supervisor, USFWS, Bismarck, North Dakota to Andrea Pipp, PBSJ, Helena, Montana. December 17, 2009.

- U. S. Fish and Wildlife Service (USFWS). 2009d. Information on the Dakota Skipper. <<http://www.fws.gov/midwest/endangered/insects/dask.html>> Site accessed on December 1st.
- U. S. Fish and Wildlife Service (USFWS). 2009e. Required Reading for Users of the Whooping Crane Tracking Project Database. GIS Shapefiles: ND_Conf_WC_Sightings_thru_Sp2009 and ND_MT_Clip_US_WC_Migration_Corridor.
- U. S. Fish and Wildlife Service (USFWS). 2008. Information on the Piping Plover and Piping Plover Critical Habitat. <<http://www.fws.gov/mountain-prairie/species/birds/pipingplover/>>. Site accessed on December 1, 2009.
- U. S. Geological Survey (USGS). 2008. Hydrologic Unit Codes for Region 10 – Missouri Region. <http://water.usgs.gov/GIS/huc_name.html#Region10>. Site accessed in September.
- U. S. Geological Survey (USGS). 2006. Establishment of Seeded Grasslands of Wildlife Habitat in the Prairie Pothole Region. Northern Prairie Wildlife Research Center. U.S. Geological Survey. Available URL: <<http://www.npwrc.usgs.gov/resource/habitat/grasland/index.htm#contents>>. Site accessed in January 2010.
- Wald, J.D., and S.W. Cates. 1995. Water resources data for the Fort Berthold Indian Reservation, west-central North Dakota. USGS Open-File Report 95-304. <<http://pubs.er.usgs.gov/usgspubs/ofr/ofr95304>>. Site accessed November 2009.

5.0 List of Preparers

An interdisciplinary team contributed to this document, following guidance in Part 1502.6 of CEQ regulations. Post, Buckley, Schuh, and Jernigan prepared this EA under contract to XTO Energy, Inc. and in cooperation with the Bureau of Indian Affairs, Great Plains Regional Office, Division of Environment, Safety and Cultural Resources. Preparers, reviewers, consultants, and federal officials include the following:

- Chris Miller Project Manager, PBS&J
Sections 1 and 2; document QA/QC.
- Richard McEldowney Senior Scientist, PBS&J
Affected Environment, Water Resources, General Wildlife and
Fisheries, and Cumulative Effects.
- Andrea Pipp Scientist, PBS&J
Air Quality, Public Health and Safety, Water Resources, Cultural
Resources, Threatened and Endangered Species, Environmental
Justice, and Socio-Economics; document preparation.
- Bridget Belliveau GIS Specialist, PBS&J
Maps
- Dennis Phillippi Principal, Natural Resource Options, Inc.
Document QA/QC
- Matt Phillippi Range Scientist, Natural Resource Options, Inc.
Vegetation and Invasive Species
- Doug Harrison Soil Scientist, Natural Resource Options, Inc.
Soils
- Jennifer Harty Cultural Resources Specialist, Kadrmas, Lee & Jackson
Cultural Investigation
- Donny Worthington XTO Energy, Inc.
Document QA/QC
- Marilyn Bercier BIA - Regional Environmental Scientist. Division of Environmental,
Safety and Cultural Resources. Review of draft EA and
recommendation to BIA Regional Director regarding FONSI or EIS.

6.0 Consultation and Coordination

The project scoping letter reproduced below was mailed on February 19, 2010 and posted at the BIA Fort Berthold Agency on February 19, 2010. Direct mail recipients include those listed in Table 6.0. Eleven comments were received within the 30-day scoping period.

Dear Interested Party:

The Bureau of Indian Affairs (BIA) is preparing an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA), in cooperation with the Bureau of Land Management (BLM). The proposed action includes approval by the BIA and BLM of the drilling and completion of up to ten exploratory oil and gas wells using one well pad and one access road on the Fort Berthold Reservation by XTO Energy. The well pad and access road are proposed at the following location and shown on the enclosed project location map:

- Baker/Walker 34X-25 Site: SW ¼, SE ¼, Section 25, Township 149N, Range 92W

Development of the project would consist of the mechanical excavation and preparation of one well pad and construction of one access road. The well pad is roughly 6.06 acres in size. The proposed access road for the Baker/Walker 34X-25 site is roughly 3,293 feet long, of which 1,283 feet would be new road and 2,010 feet would be improvements to an existing driveway. The ten wells would be located within a 1,280 acre spacing unit and positioned to use the same access road. The drilling of these well sites is proposed to begin as early as spring/summer 2010.

To ensure that social, economic, and environmental effects are analyzed accurately, we solicit your views and comments on the Proposed Action, pursuant to Section 102(2) (D) (IV) of NEPA, as amended. We are interested in developments proposed or underway that should be considered in connection with the proposed project. We also ask your assistance in identifying any property or resources that you own, manage, oversee or otherwise value that might be adversely impacted. Please send your replies and requests for additional project information to:

Chris Miller, Project Manager
PBS&J
115 N. 28th Street, Suite 202
Billings, Montana 59101-2045
406-259-7979
cmiller@pbsj.com

If we do not hear from you by **March 24, 2010** we will assume that you have no comment on this project. Questions can be directed to Chris Miller using the information provided, or Rich McEldowney at (406) 587-7275 (ext. 223).

Sincerely,

Chris Miller
Project Director

Scoping Contacts

Table 6.0: Responses by direct mail recipients of scoping letter sent on February 19, 2010.

| Entity | Contact | Response ¹ |
|---|--|---|
| MHA Nation | | |
| Chairman | Marcus Wells Jr. | No comments received. |
| Four Bears Representative | V. Judy Brugh | No comments received. |
| Mandaree Representative | Nathan Hale | No comments received. |
| New Town Representative | Malcom Wolf | No comments received. |
| Parshall/Lucky Mound Representative | Mervin Packineau | No comments received. |
| Twin Buttes Representative | Barry Benson | No comments received. |
| THPO | | |
| | Perry Brady | No comments received. |
| | Fred Fox | No comments received. |
| Director of Game and Fish | Fred Poitra | No comments received. |
| | Damon Williams | No comments received. |
| | NAGPRA Office | No comments received. |
| Natural Resource Dept. | Barry Benson | No comments received. |
| Regional Native American Tribes | | |
| Sisston-Wahpeton Sioux Tribe | Mike Selvage | No comments received. |
| Spirit Lake Sioux Tribe | Myra Pearson | No comments received. |
| Standing Rock Tribe | Charles W. Murphy | No comments received. |
| Turtle Mountain Band of Chippewa | Richard Marcellais | No comments received. |
| U.S. Department of Agriculture | | |
| Natural Resource Conservation Service | Paul Sweeney State Conservationist | The proposed project is not supported by federal funding or action, therefore, the Farmland Protection Policy Act (FPPA) does not apply and no further action is needed. |
| Little Missouri National Grassland-McKenzie | | No comments received. |
| U.S. Department of Defense | | |
| Minot Air Force Base | | No comments received. |
| U.S. Army Corps of Engineers | Garrison Project Office | No comments received. |
| U.S. Army Corps of Engineers | Omaha District | No comments received. |
| U.S. Army Corps of Engineers | Daniel E. Cimarosti Bismarck District Regulatory Program Manager | If construction activities involve work in waters of the U.S., a Section 404 permit may be required. If the proposed project related activities would affect navigable waters or if fill material would be placed in waters of the U.S., the project would require Section 10 approval and/or 404 permit. |

¹ See Appendix F for full comments from the agencies or organizations.

Table 6.0 (continued): Responses by direct mail recipients of scoping letter sent on February 19, 2010.

| Entity | Contact | Response ¹ |
|---|--|--|
| U.S. Department of Defense | | |
| U.S. Army Corps of Engineers | Charles Sorensen Riverdale, ND Office | USACE requests the following conditions be considered in the construction of a well location: avoid potential for river and lake contamination by using a closed loop mud and drilling fluid system; establish a catch trench on the down slope side of the pad closest to the COE boundary; all fluids in trench will be pumped out and disposed of properly; all sewage collection systems are a closed system –no open or exposed tanks, catch basins; and all fill/soil material be certified free of noxious weeds. |
| U.S. Department of Energy | | |
| Western Area Power Administration | | No comments received. |
| U.S. Department of Homeland Security | | |
| Federal Emergency Management Agency Region VIII | | No comments received. |
| U.S. Department of the Interior | | |
| Bureau of Indian Affairs | Marilyn Bercier | No comments received. |
| Bureau of Indian Affairs Fort Berthold Agency | Darryl Turcotte | No comments received. |
| Bureau of Indian Affairs Fort Berthold Agency | Marietta Shortbull | No comments received. |
| Bureau of Indian Affairs Fort Berthold Agency | Jeff DeSarley | No comments received. |
| Bureau of Land Management | Billings, ND Office | No comments received. |
| Bureau of Land Management | Dickinson, ND Office | No comments received. |
| Bureau of Reclamation | Kelly B. McPhillips Bismarck Office | Proposed oil well sites appear to be a sufficient distance from rural water lines to avoid damage, however access roads are not shown on map. A rural water system pipeline key is attached to assist in determining potential affects to reclamation facilities (wells, access roads). Any work planned should be coordinated with Mr. Marvin Danks. |
| U.S. Fish and Wildlife Service | Jeffrey Towner | Received many recommendations for conservation measures. See Appendix F for all comments. |
| National Park Service | Midwest Regional Office | No comments received. |
| U.S. Environmental Protection Agency | | |
| Region 8 NEPA Program | Larry Svoboda | No comments received. |
| Region 8 Water Quality Program | David Moon | No comments received. |
| U.S. Department of Transportation | | |
| Federal Aviation Administration | | No comments received. |

¹ See Appendix F for full comments from the agencies or organizations.

Table 6.0 (continued): Responses by direct mail recipients of scoping letter sent on February 19, 2010.

| Entity | Contact | Response ¹ |
|---|--|--|
| North Dakota State Government | | |
| Department of Health | L. David Glass, Chief Environmental Health Section | Impacts from proposed construction are considered minor. Efforts should be made to control fugitive dust. Care should be taken during construction to minimize adverse impacts on water bodies. Caution must be taken to minimize spills of oil and grease that may reach the receiving water(s) from equipment maintenance and/or the handling of fuels. May need a permit to discharge storm water runoff from EPA. Guidelines to minimize erosion and control sediment to protect surface water quality are provided. |
| Department of Transportation | Ronald J. Henke Director - Office of Project Development | Proposed project will have no adverse effect on the highways unless working in highway ROW's then appropriate permits and risk management documents need to be completed. |
| Game and Fish Department | Michael McKenna Conservation and Communication Division | Primary concern is the fragmentation and loss of wildlife habitat associated with well pads and access roads. Recommend avoiding, to the extent possible, native prairie, wooded draws, riparian corridors and wetlands. Suggest botanical surveys be completed during the appropriate season and aerial surveys be conducted for raptor nests prior to construction. |
| Indian Affairs Commission | Scott Davis | No comments received. |
| Parks and Recreation | Jesse Hanson Planning and Natural Resources Division | Proposed project does not affect state park lands or Land and Water Conservation Fund recreation projects. There are no known occurrences of animal or plant species of concern within or adjacent to the proposed project. Recommend using native species for revegetation on impacted areas. |
| State Water Commission | Larry Knudtson Research Analyst | The proposed project is not located in an identified floodplain nor will it affect an identified floodplain. All waste material must be properly disposed - not in floodways. No sole-source aquifers have been designated. |
| State Historical Society of North Dakota/SHPO | Merlan E. Paaverud, Jr. Director | Request that a copy of cultural resource site forms and reports be sent to this office to keep records current. |
| North Dakota State Land Department | Energy Development Impact Office | No comments received. |
| North Dakota Industrial Commission | Oil & Gas Division | No comments received. |

¹ See Appendix F for full comments from the agencies or organizations.

Table 6.0 (continued): Responses by direct mail recipients of scoping letter sent on February 19, 2010.

| Entity | Contact | Response¹ |
|---|--------------------------------------|-----------------------------|
| County Governments | | |
| Dunn County | Reinhard Hauck Treasurer | No comments received. |
| Dunn County | Ray Kadrmas Commissioner | No comments received. |
| Dunn County | Cliff Ferebee Commissioner Chair | No comments received. |
| McKenzie County | Richard Cayko County Commissioner | No comments received. |
| McKenzie County | Frances Olson County Auditor | No comments received. |
| Municipal Governments | | |
| New Town Municipal Airport | Harley Johnson Manager | No comments received. |
| Parshall-Hankins Field Airport | John Kuehn Manager | No comments received. |
| Utility Companies | | |
| McKenzie Electric Cooperative | | No comments received. |
| McLean Electric Co-operative, Inc. | | No comments received. |
| Mid-Continent Cable Company | | No comments received. |
| Montana-Dakota Utilities | | No comments received. |
| NoDak Electric Co-op, Inc. | | No comments received. |
| Northern Border Pipeline Company | | No comments received. |
| Reservation Telephone Cooperative | | No comments received. |
| Southwest Water Authority | | No comments received. |
| West Plains Electric Cooperative, Inc. | | No comments received. |

¹ See Appendix F for full comments from the agencies or organizations.

Appendix A

Baker 34X-25 - Application for Permit to Drill (APD)
Walker 34X-25 - Application for Permit to Drill (APD)

Baker/Walker 34X-25 Site Environmental Assessment
XTO Energy, Inc.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

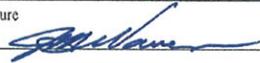
FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

| | |
|---|---|
| 5. Lease Serial No. Tribal Lease Nos. 7420A-48644; 7420A | |
| 6. If Indian, Allottee or Tribe Name See SUPO for Allottee's Names | |
| 7. If Unit or CA Agreement, Name and No. | |
| 8. Lease Name and Well No. FBIR Baker 34X-25 | |
| 9. API Well No. Pending | |
| 10. Field and Pool, or Exploratory Heart Butte - Bakken | |
| 11. Sec., T. R. M. or Blk. and Survey or Area 25-149N-92W | |
| 12. County or Parish Dunn | 13. State ND |
| 14. Distance in miles and direction from nearest town or post office* | |
| 15. Distance from proposed* 250' location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) | 16. No. of acres in lease 1280 Ac. Spacing Unit |
| 17. Spacing Unit dedicated to this well All of Sec. 24 & 25-149N-92W | |
| 18. Distance from proposed location* n/a to nearest well, drilling, completed, applied for, on this lease, ft. | 19. Proposed Depth 19,989' MD 10,363' TVD |
| 20. BLM/BIA Bond No. on file UTB000138 | |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.) 2191' GL | 22. Approximate date work will start* 09/01/2010 |
| 23. Estimated duration 45 days | |

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Well plat certified by a registered surveyor. 2. A Drilling Plan. 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | <ol style="list-style-type: none"> 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). 5. Operator certification 6. Such other site specific information and/or plans as may be required by the BLM. |
|---|---|

| | | |
|--|---|--------------------|
| 25. Signature  | Name (Printed/Typed) J. Michael Warren | Date 03/16/2010 |
| Title Regulatory Supervisor | | |
| Approved by (Signature) | Name (Printed/Typed) | Date |
| Title Office | | |

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)



Drilling Plan - Drill, Complete & Equip Single Lateral Wellbore in the Bakken

Well Name and Location

FBIR Baker 34X-25

Location: SW SE Sec 25, 149N-92W
 Footage: 250 ft FSL, 1845 ft FEL
 Elev: Graded Pad 2184', KB 2208'
 Dunn County, ND

| | | |
|-----------|------------|-------|
| Latitude | 47.689275 | North |
| Longitude | 102.393433 | West |

Driving Directions

From Mandaree, ND: 15.3 mi ESE on BIA 12, 1.7 mi NE x N on BIA 13, 0.4 mi SW on 19th St. NW, then 0.25 mi N into location

Drilling Rig Description

Rig Patterson 311
 Draw Works Oilwell 860-E - 1400 HP
 Mast Pyramid 142' mast (750,000# on 12 lines)
 Prime Movers 3 - Caterpillar 3512 w/ 1365 KW generators
 Pumps 2 - NOV FD-1600 (independently driven)
 BOPE Shaffer 13-5/8" 5,000 psi double gate BOP
 Hydril 13-5/8" 5,000 psi Annular BOP
 4" x 10,000 psi manifold

Formation Tops

| Formation | TVD | Offset XTO Wells - none |
|---------------------|----------------------|-------------------------------------|
| Base of Fox Hills | 1,888 | |
| Greenhorn | 4,311 | |
| Dakota Silt | 5,031 Brackish Water | |
| Dunham Salt | 6,201 (0 - 50+ ft) | |
| Spearfish | 6,511 | |
| Pine / Opeche Salts | 6,685 (+400 ft) | |
| Minnelusa | 7,130 | soft/hard formation |
| Tyler | 7,616 | laminations can wipe |
| Kibbey Lime | 8,061 | out bit if drilled too aggressively |
| Charles | 8,220 | |
| Base Last Salt | 8,717 | |
| Mission Canyon | 8,885 | Possible losses |
| Lodgepole | 9,466 | |
| Bakken Shale | 10,333 | |
| Middle Bakken | 10,351 | |
| Target - Bakken | 10,363 | |

Logging, DST and Coring Program

- A mud log will be run from Base of Last Salt to TD & on all laterals: Mudlog to include: total gas chromatograph and sample cuttings - 10' sample intervals in vertical hole & 30' intervals in laterals. A CBL/GR log will be run from deepest free-fall depth in 7 inch casing to surface. An MWD GR/ROP log will also be run from KOP (where the CBL will tie into) to TD of lateral.
- Open hole logs are anticipated for this well (if first well on this dual pad).
- No DST's are planned at this time.

H2S

A minor H2S show may be present from below Base Last Salt to KOP. If noticed, RU H2S safety trailer etc.

Maximum Formation Pressure and Temp

- Normal formation pressure gradient is expected (up to 0.5 psi/ft or 9.6 ppg) from surface to the Bakken Shale. The Bakken Shale, Bakken Middle Member, and Three Forks may be over pressured up as much as 0.66 psi/ft (12.8 ppg).
- The maximum anticipated BHT is 250 degrees F. or less.

BOP Equipment Requirements

See attached diagram detailing BOPE specifications.

- Rig will be equipped with upper and lower kelly cocks with handles available.
- Inside BOP and TIW valves will be available to use on all sizes and threads of DP used on well.
- BOP accumulator will have enough capacity to close HCR valve, close all rams plus annular preventer & retain minimum of 200 psi above precharge on the closing manifold without the use of closing pumps. The fluid reservoir capacity shall be at least double the usable fluid volume of the accumulator system capacity & the fluid level shall be maintained at manufacturer's recommendation. There will be 2 additional sources of power for the closing pumps (electric and air). Sufficient N2 bottles will be available and will be recharged when pressure falls below manufacturer's minimum
- BOP ram preventers will be tested to 5,000 psi using a test plug when initially installed and after 7 inch casing is nipples up and at 30 day intervals. Test BOP & casing strings to 1,500 psi just prior to drilling out 9-5/8" and 7" casing shoes. Function test rams and hydraulically operated remote choke line valve daily (preferably at every crew change).
- Remote valve for BOP rams, HCR & choke shall be placed in a location that is readily available to Driller. The remote BOP valve shall be capable of closing and opening the rams.
- Hand wheels on BOP shall be equipped with locking devices. A locking device shall be placed on annular preventer line valve & must be locked in the open position. This lock shall only be removed when the closing unit is inoperative.

Drilling Fluid and Related Equipment

- Pumps shall be equipped with stroke counters with displays located in dog house. Slow pump speed shall be recorded on drilling report daily after mudding up.
- A Pit Volume Totalizer will be installed and the readout will be displayed in the dog house.
- Gas detecting equipment (for a chromatograph) will be installed at shaker. Readouts will be available in dog house and in geologist trailer.

4. In the event gas flow becomes an issue. A flare pit shall be constructed not less than 100' from wellhead & 50' from reserve pit area. Lines to the flare pit will be straight runs (staked down) and turns will utilize targeted tees. Flare pit will be located down wind as much as possible. An electronic ignitor will be used along with a propane line to provide for a continuous flare pilot.

Drilling Plan

Section 1 - Surface Casing>> Surface to: 2,020 (Surface Casing Depth + 20')

Conductor: 16" set at 45' - 80' (depending on gravel or coal depths)
 Hole Size: 13-1/2"
 Mud: Fresh Water
 Bits: Type 1 mill tooth
 Procedure: Set 16" conductor pipe into firm clay (45'-80').
 Drill to casing setting depth (plus necessary rathole).
After reaching TD, run multi-shot directional survey (inclination and azimuth at 100' stations).
 Run casing and cement. Weld on C22 5M psi casing head, NU 11" x 5M psi drilling spool.
 NU 5M psi BOPE. Test to 5,000 psi.
 Casing: 9-5/8" 36# K-55 8rd ST&C R3 SMLS - New. Set at: 2,000 ft
 Centralizers: 2 turbolizers per jt on 1st 2 jts (stop banded 10' from each collar) & 1 regular centralizer per 5 jts to surface.
 Cement: Lead Slurry: 410 Sacks
 High Yield Class C w/ 3% CaCl2, water control & 1/8 #/sk polyflakes. Mixed at 19.6 gps wr, 3.2 cf/sk yield & 11.2 ppg.
 Tail Slurry: 200 Sacks
 Class G with 2% CaCl2 & 1/8 #/sk polyflakes. Mixed at 4.97 gps wr, 1.15 cf/sk yield and 15.8 ppg.
 Note: Volumes calculated assuming 55% excess over 13-1/2" hole size.

Section 2 - Surf Csg Shoe to KOP>> 2,000 to: 9,954

Hole Size: 8-3/4"
 Mud: Invert - 80% Diesel / 20% Salt Water. Mud Weight 9.5 - 9.7 PPG. ES 500-600.
 Bits: PDC bits with mud motors and MWD.
 Procedure: Drill w / PDC bit & mud motor. Steer as needed with MWD or SWD. Survey every 90'. Hold deviation to 2 deg max from surf csg shoe to -6,000'; then -3 deg max to -8,000'; then -4 deg max to KOP. Condition hole for logs (if needed). TOH

Logs: Mudlogger will start at Base of Last Salt.
 If required by the State { GR, Resistivity, BHC Sonic From TD To Surf Csg
 Density - Neutron Porosity From TD To 50' above Tyler

Section 3 - Drill Curve (14 Degree/100')>> 9,954 to: 10,667 7" Casing Point

Hole Size: 8-3/4"
 Mud: Invert - 80% Diesel / 20% Salt Water. Mud weight 9.5 - 9.7 PPG. ES 500-600.
 Bits: Type 3 insert Roller Cone.
 Procedure: Drill Curve per directional plan (maximum survey interval is 30').
 Casing: Set 7" 29# P-110 LT&C and 32# MS or P-110 (100' above and below salts) at 10,647 ft
 Anticipated Casing Design to facilitate fracture stimulating down casing

| Top | Btm | Ftg | |
|--------|--------|--------------------------|---|
| 0 | 6,101 | 6,101 7" 29# P-110 LT&C | Surf to 100' above Dunham salt |
| 6,101 | 7,230 | 1,129 7" 32# P-110 LT&C | 100' above Dunham to 100' below base of Pine/Opache salts |
| 7,230 | 8,120 | 890 7" 29# P-110 LT&C | 100' below base of Pine/Opache to 100' above Charles salt |
| 8,120 | 8,817 | 697 7" 32# P-110 LT&C | 100' above Charles salt to 100' below Base of Last Salt |
| 8,817 | 10,054 | 1,237 7" 29# MS-110 LT&C | 100' below Base of Last Salt 100' below KOP |
| 10,054 | 10,647 | 593 7" 29# P-110 LT&C | 100' below KOP to TD |

Centralizers: 2 stand-off bands per jt on btm 3 jts (banded 10' from collars). 1 stand-off band on every other jt from curve landing depth through KOP. 1 turbolizer centralizer per jt from 100' above to 100' below each salt section. Then, 1 regular centralizer per 5 jts up to anticipated cement top.
 Cement: Lead Slurry: 225 Sacks (est. TOC ~ 300' above Mowry)
 LiteCRETE with defoamer, fluid loss additive, dispersant, retarder, 10% salt & 1/8 #/sk polyflakes. Mixed at 6.528 gps, 1.86 cf/sk, 11.5 ppg
 1st Tail Slurry: 476 Sacks (est. TOC 200' above Dunham Salt)
 Class G with 35% silica flour, 10% salt, dispersant, fluid loss additive, retarder, 1/8 #/sk polyflakes. Mixed at 7.145 gal/sk, 1.65 cf/sk, 15.6 ppg.
 2nd Tail Slurry: 269 Sacks (est. TOC 100' below the Mission Canyon)
 Class G with 35% silica flour, 10% salt, expanding agent, dispersant, defoamer, fluid loss additive, retarder, 1/8 #/sk polyflakes. Mixed at 6.911 gal/sk, 1.62 cf/sk, 15.8 ppg.
 NOTE: Slurry volumes are based on 9" hole + 50% excess (= 8.75" hole + 75% excess)
 Logs: MWD GR/ROP. Mud log.

Section 4 - Lateral #1>> 10,647 to: 19,989 TD (MD)

Hole Size: 6"
 Mud: Salt Water Mud. Typically 9.5-9.7 ppg using NaCl. If conditions warrant use CaCl brine (up to 11.2 ppg).
 Bits: PDC bits.
 Procedure: TIH w/bit and directional tools. Drill open hole lateral per directional plan to TD target. Max survey interval in lateral is 90'.
 TOH with DP & BHA. Run 4 1/2" 11.35# J-55 FM-II liner w/ pre-drilled, 0.5" holes per 2 ft below bottom-most external swell pkr, followed by 13.5# P-110 FM-II blank pipe with external swell packers (evenly spaced in open hole, unless natural fractures were encountered while drilling) from +/- TD to last swell packer in open hole. Run 4.5" 13.5# P-110 Tenaris-Blue casing above last swell packer in the open hole to +/- KOP, with a final swell packer located immediately below the liner hanger.
 Once liner is run, circulate out oil & gas and spot FW in lateral to activate swell pkrs. Drop ball & wait +/- 1 hr for it to seat.
 Set liner hanger & top pkr - test to +/- 5,000 psi.
 Liner: Top: Btm:
 9,954 - KOP 19,989 <- spaced out as close to TD as possible

Finalize Well >>>> Set wireline-set, tubing-retrievable packer with BHP gauges and top blanking plug installed at, or just above, KOP. LD DP. ND BOP and NU free. RDMO.

Prepared By: Ross H. Lubbers



Well Construction Diagram

From Mandaree, ND: 15.3 mi ESE on BIA 12, 1.7 mi NE x N on BIA 13, 0.4 mi SW on 19th St. NW, then 0.25 mi N into location

FBIR Baker 34X-25

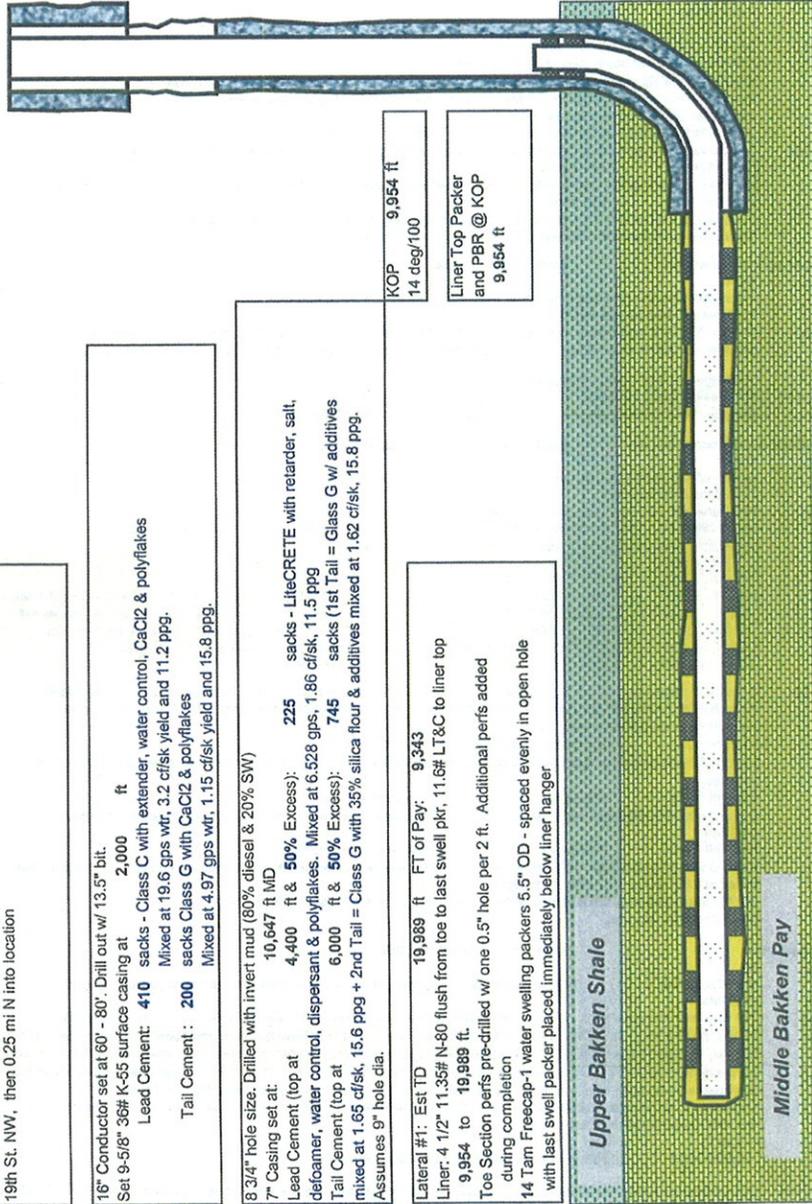
Location: SW SE Sec 25, 149N-92W
 Footage: 250 ft FSL, 1845 ft FEL
 Elev: Graded Pad 2184', KB 2208'
 Dunn County, ND

16" Conductor set at 80' - 80'. Drill out w/ 13.5" bit.
 Set 9-5/8" 36# K-55 surface casing at 2,000 ft
 Lead Cement: 410 sacks - Class C with extender, water control, CaCl₂ & polyflakes
 Mixed at 19.6 gps wr, 3.2 cf/sk yield and 11.2 ppg.
 Tail Cement: 200 sacks Class G with CaCl₂ & polyflakes
 Mixed at 4.97 gps wr, 1.15 cf/sk yield and 15.8 ppg.

8 3/4" hole size. Drilled with invert mud (80% diesel & 20% SW)
 7" Casing set at: 10,647 ft MD
 Lead Cement (top at 4,400 ft & 50% Excess): 225 sacks - LiteCRETE with retarder, salt, defoamer, water control, dispersant & polyflakes. Mixed at 6.528 gps, 1.86 cf/sk, 11.5 ppg
 Tail Cement (top at 6,000 ft & 50% Excess): 745 sacks (1st Tail = Class G w/ additives mixed at 1.65 cf/sk, 15.6 ppg + 2nd Tail = Class G with 35% silica flour & additives mixed at 1.62 cf/sk, 15.8 ppg.
 Assumes 9" hole dia.

Lateral #1: Est TD 19,989 ft FT of Pay: 9,343
 Liner: 4 1/2" 11.35# N-80 flush from toe to last swell pkr, 11.6# LT&C to liner top 9,954 to 19,989 ft.
 Toe Section perfs pre-drilled w/ one 0.5" hole per 2 ft. Additional perfs added during completion
 14 Tam Freecap-1 water swelling packers 5.5" OD - spaced evenly in open hole with last swell packer placed immediately below liner hanger

KOP 9,954 ft
 14 deg/100
 Liner Top Packer and PBR @ KOP 9,954 ft

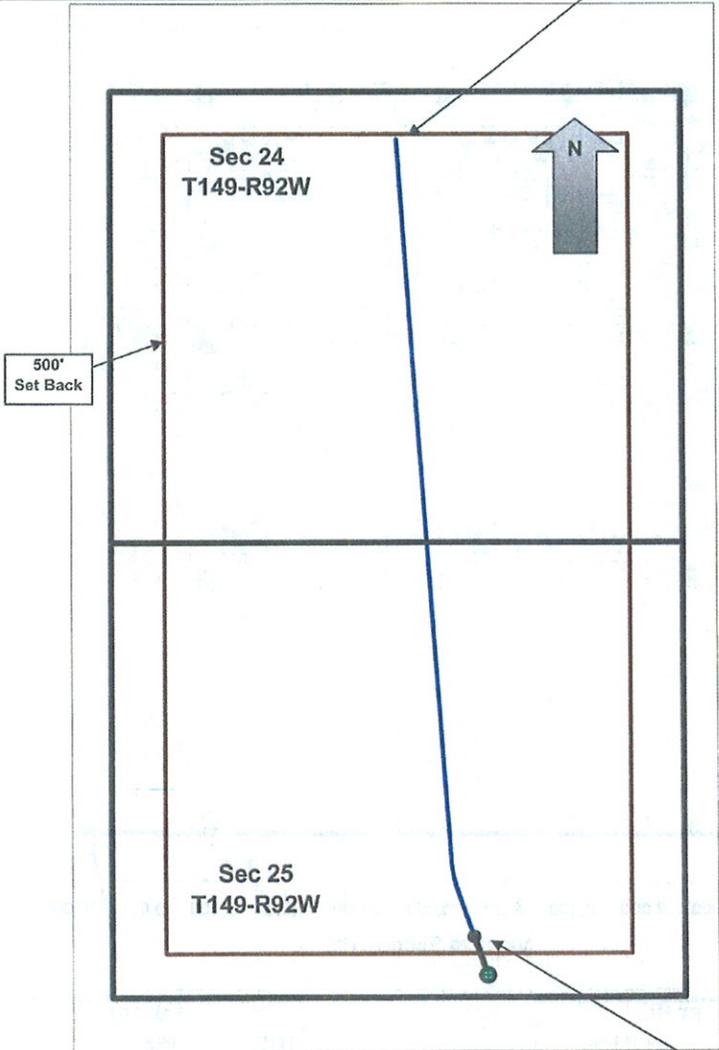


Upper Bakken Shale

Middle Bakken Pay

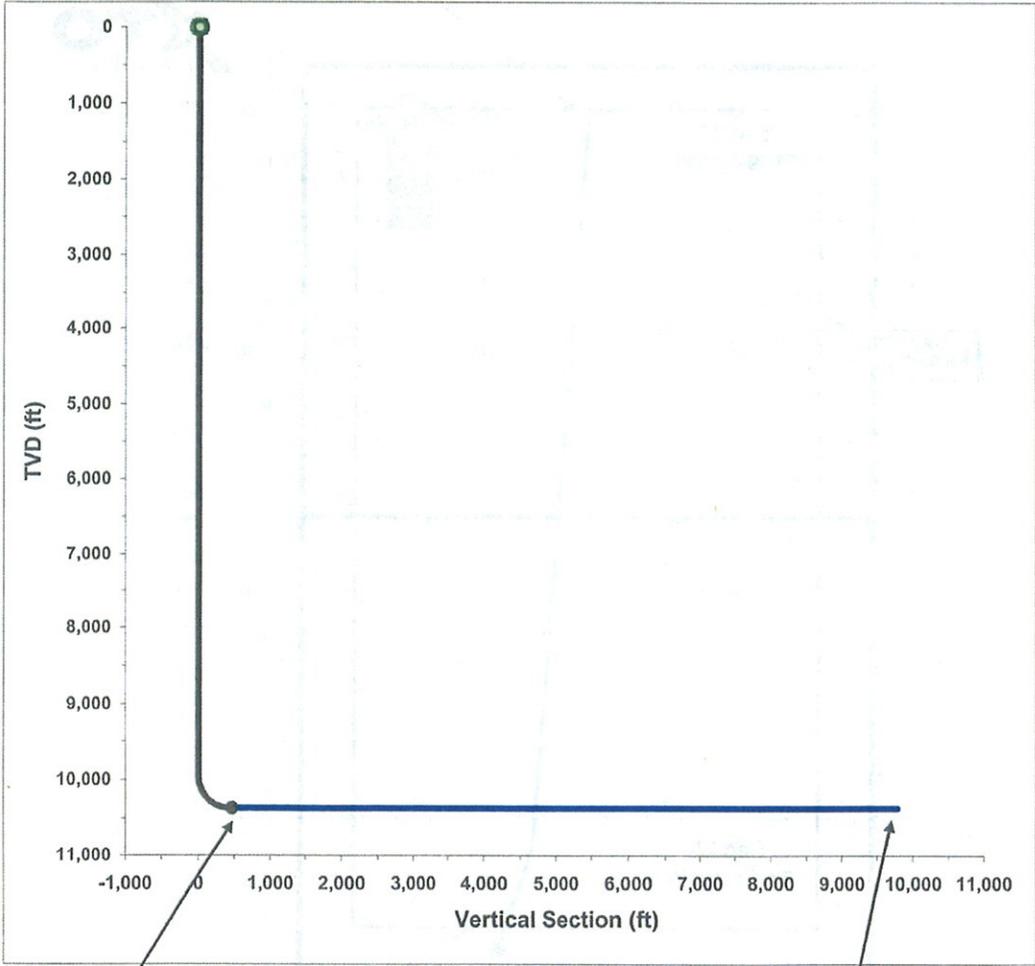
DIRECTIONAL DRILLING PLAN
FBIR Baker 34X-25
 Location: SW SE Sec 25, 149N-92W
 Footage: 250 ft FSL 1845 ft FEL
 Elev: Graded Pad 2184', KB 2208'
 Dunn County, ND
 Scale: 1 sq = 100'

TARGET
 TMD: 19,989 ft
 TVD: 10,363 ft
 9,749 NOW 793 WOW
 550 FSL 2,637 FWL
 WH to BH Target Az 355.35



7" Casing: 10,647 FT MD
 BHL: 1,964 ft FEL 694 ft FSL
 Coord: 119 W 444 N
 Az to Shoe: 345.00 Deg

DIRECTIONAL DRILLING PLAN
FBIR Baker 34X-25
 Location: SW SE Sec 25, 149N-92W
 Footage: 250 ft FSL 1845 ft FEL
 Elev: Graded Pad 2184', KB 2208'
 Dunn County, ND
 Scale: 1 sq = 500'



7" Casing: 10,647 FT MD
 BHL: 1,964 ft FEL 694 ft FSL
 Coord: 119 W 444 N
 Az to Shoe: 345.00 Deg

TARGET
 TMD: 19,989 ft
 TVD: 10,363 ft
 9,749 NOW 793 WOW
 550 FSL 2,637 FWL
 WH to BH Target Az 355.35

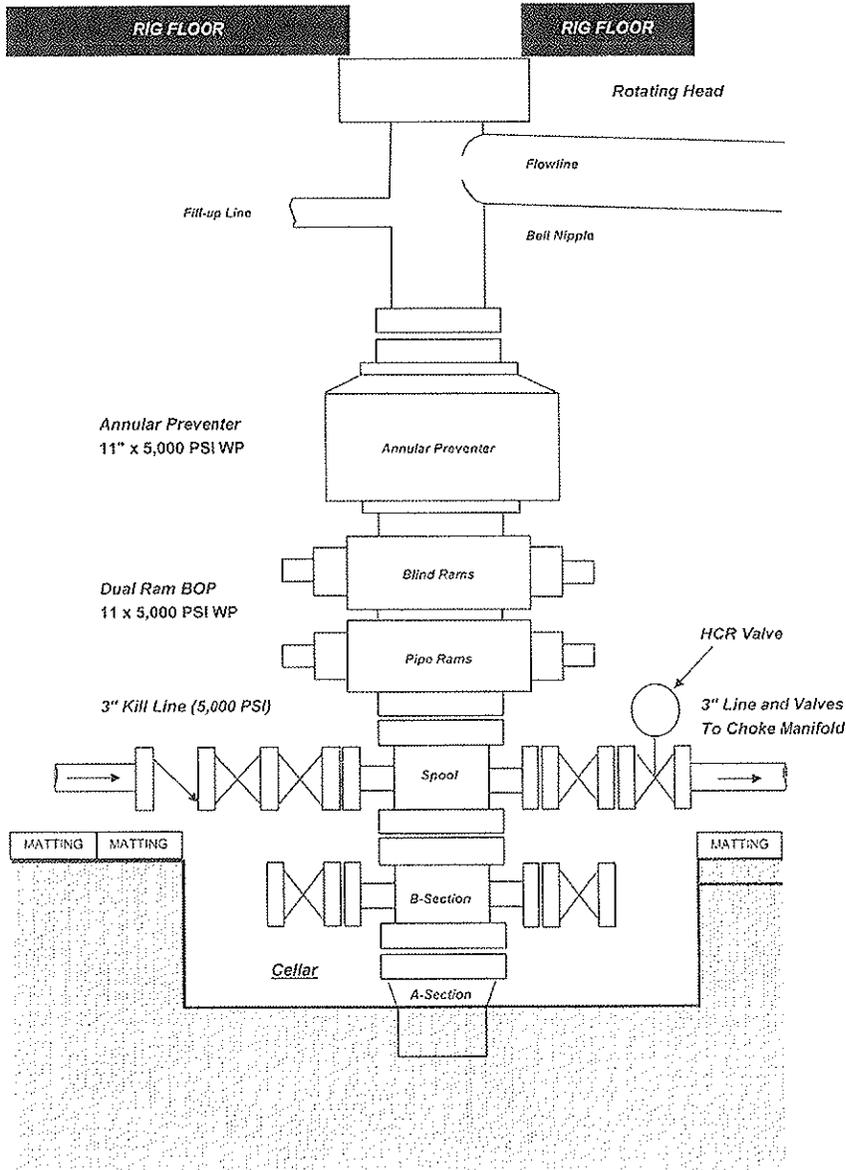
HORIZONTAL DRILLING PLAN - LATERAL NO.1

| Company XTO Energy, Inc | | | | | | | | | | Target Inclination 90 | | | |
|---|-----|--------|-------|--------|------|----------|---------|-----------|----------|---|-------|-----------------|-------|
| Well FBIR Baker 34X-25 | | | | | | | | | | Magnetic Declination | | | |
| Build Rate 14.00 | | | | | | | | | | Target TVD 10,363 | | | |
| Relative Turn Direction 4.000 | | | | | | | | | | Target Azimuth 355.35 345.00 Initial Azimuth | | | |
| Turn Rate - Deg/100 4.00 11.80 Total Turn | | | | | | | | | | Target Coordinates from Surf Locn 793 W 9749 N | | 9,781 VS | |
| Date | No. | DEPTH | INC. | AZM | C.L. | T.V.D. | V.S. | N/S | E/W | DLS | B./D. | Walk | BRN |
| | 1 | 0 | | | | 0.00 | 0.00 | 0.00 N | 0.00 E | 0.00 | | 0.00 | 0.00 |
| KOP1 | 2 | 9,954 | 0.00 | 0.00 | 9954 | 9953.74 | 0.00 | 0.00 N | 0.00 E | 0.00 | 0.00 | 0.00 | 14.00 |
| | 3 | 9,967 | 1.80 | 345.00 | 12.9 | 9966.60 | 0.20 | 0.20 N | 0.05 W | 14.00 | 14.00 | 2683.33 | 14.00 |
| | 4 | 9,979 | 3.60 | 345.00 | 12.9 | 9979.44 | 0.81 | 0.78 N | 0.21 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 5 | 9,992 | 5.40 | 345.00 | 12.9 | 9992.28 | 1.82 | 1.75 N | 0.47 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 6 | 10,005 | 7.20 | 345.00 | 12.9 | 10005.04 | 3.23 | 3.12 N | 0.84 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 7 | 10,018 | 9.00 | 345.00 | 12.9 | 10017.77 | 5.04 | 4.87 N | 1.30 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 8 | 10,031 | 10.80 | 345.00 | 12.9 | 10030.43 | 7.25 | 7.00 N | 1.88 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 9 | 10,044 | 12.60 | 345.00 | 12.9 | 10043.02 | 9.86 | 9.52 N | 2.55 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 10 | 10,057 | 14.40 | 345.00 | 12.9 | 10055.52 | 12.86 | 12.42 N | 3.33 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 11 | 10,069 | 16.20 | 345.00 | 12.9 | 10067.92 | 16.25 | 15.70 N | 4.21 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 12 | 10,082 | 18.00 | 345.00 | 12.9 | 10080.21 | 20.03 | 19.35 N | 5.18 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 13 | 10,095 | 19.80 | 345.00 | 12.9 | 10092.37 | 24.19 | 23.37 N | 6.26 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 14 | 10,108 | 21.60 | 345.00 | 12.9 | 10104.40 | 28.74 | 27.76 N | 7.44 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 15 | 10,121 | 23.40 | 345.00 | 12.9 | 10116.28 | 33.66 | 32.51 N | 8.71 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 16 | 10,134 | 25.20 | 345.00 | 12.9 | 10128.00 | 38.95 | 37.62 N | 10.08 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 17 | 10,147 | 27.00 | 345.00 | 12.9 | 10139.54 | 44.61 | 43.09 N | 11.54 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 18 | 10,159 | 28.80 | 345.00 | 12.9 | 10150.90 | 50.62 | 48.90 N | 13.10 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 19 | 10,172 | 30.60 | 345.00 | 12.9 | 10162.07 | 56.99 | 55.05 N | 14.75 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 20 | 10,185 | 32.40 | 345.00 | 12.9 | 10173.03 | 63.71 | 61.54 N | 16.49 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 21 | 10,198 | 34.20 | 345.00 | 12.9 | 10183.78 | 70.77 | 68.36 N | 18.32 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 22 | 10,211 | 36.00 | 345.00 | 12.9 | 10194.30 | 78.16 | 75.50 N | 20.23 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 23 | 10,224 | 37.80 | 345.00 | 12.9 | 10204.58 | 85.88 | 82.95 N | 22.23 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 24 | 10,237 | 39.60 | 345.00 | 12.9 | 10214.61 | 93.92 | 90.72 N | 24.31 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 25 | 10,249 | 41.40 | 345.00 | 12.9 | 10224.39 | 102.27 | 98.78 N | 26.47 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 26 | 10,262 | 43.20 | 345.00 | 12.9 | 10233.90 | 110.92 | 107.14 N | 28.71 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 27 | 10,275 | 45.00 | 345.00 | 12.9 | 10243.13 | 119.87 | 115.78 N | 31.02 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 28 | 10,288 | 46.80 | 345.00 | 12.9 | 10252.08 | 129.10 | 124.70 N | 33.41 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 29 | 10,301 | 48.60 | 345.00 | 12.9 | 10260.73 | 138.61 | 133.89 N | 35.87 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 30 | 10,314 | 50.40 | 345.00 | 12.9 | 10269.08 | 148.39 | 143.33 N | 38.40 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 31 | 10,327 | 52.20 | 345.00 | 12.9 | 10277.12 | 158.42 | 153.02 N | 41.00 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 32 | 10,339 | 54.00 | 345.00 | 12.9 | 10284.84 | 168.70 | 162.95 N | 43.66 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 33 | 10,352 | 55.80 | 345.00 | 12.9 | 10292.23 | 179.22 | 173.11 N | 46.38 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 34 | 10,365 | 57.60 | 345.00 | 12.9 | 10299.29 | 189.96 | 183.49 N | 49.16 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 35 | 10,378 | 59.40 | 345.00 | 12.9 | 10306.01 | 200.93 | 194.08 N | 52.00 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 36 | 10,391 | 61.20 | 345.00 | 12.9 | 10312.38 | 212.09 | 204.87 N | 54.89 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 37 | 10,404 | 63.00 | 345.00 | 12.9 | 10318.39 | 223.46 | 215.84 N | 57.83 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 38 | 10,417 | 64.80 | 345.00 | 12.9 | 10324.05 | 235.00 | 227.00 N | 60.82 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 39 | 10,429 | 66.60 | 345.00 | 12.9 | 10329.34 | 246.72 | 238.31 N | 63.85 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 40 | 10,442 | 68.40 | 345.00 | 12.9 | 10334.26 | 258.60 | 249.79 N | 66.93 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 41 | 10,455 | 70.20 | 345.00 | 12.9 | 10338.81 | 270.62 | 261.40 N | 70.04 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 42 | 10,468 | 72.00 | 345.00 | 12.9 | 10342.97 | 282.79 | 273.15 N | 73.19 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 43 | 10,481 | 73.80 | 345.00 | 12.9 | 10346.75 | 295.08 | 285.02 N | 76.37 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 44 | 10,494 | 75.60 | 345.00 | 12.9 | 10350.14 | 307.48 | 297.00 N | 79.58 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 45 | 10,507 | 77.40 | 345.00 | 12.9 | 10353.14 | 319.98 | 309.08 N | 82.81 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 46 | 10,519 | 79.20 | 345.00 | 12.9 | 10355.75 | 332.57 | 321.24 N | 86.07 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 47 | 10,532 | 81.00 | 345.00 | 12.9 | 10357.96 | 345.23 | 333.47 N | 89.35 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 48 | 10,545 | 82.80 | 345.00 | 12.9 | 10359.77 | 357.96 | 345.76 N | 92.64 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 49 | 10,558 | 84.60 | 345.00 | 12.9 | 10361.18 | 370.74 | 358.11 N | 95.95 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 50 | 10,571 | 86.40 | 345.00 | 12.9 | 10362.19 | 383.56 | 370.49 N | 99.27 W | 14.00 | 14.00 | 0.00 | 14.00 |
| | 51 | 10,584 | 88.20 | 345.00 | 12.9 | 10362.80 | 396.40 | 382.89 N | 102.59 W | 14.00 | 14.00 | 0.00 | 14.00 |
| END OF CURVE | 52 | 10,597 | 90.00 | 345.00 | 12.9 | 10363.00 | 409.25 | 395.31 N | 105.92 W | 14.00 | 14.00 | 0.00 | 0.00 |
| CASING SHOE | 53 | 10,610 | 90.00 | 345.00 | 50 | 10363.00 | 459.25 | 443.61 N | 118.86 W | 0.00 | 0.00 | 0.00 | 0.00 |
| START TURN | 54 | 11,247 | 90.00 | 345.00 | 600 | 10363.00 | 1059.25 | 1023.16 N | 274.15 W | 0.00 | 0.00 | 0.00 | 0.00 |
| | 55 | 11,252 | 90.00 | 345.24 | 5.90 | 10363.00 | 1047.82 | 1028.86 N | 275.67 W | 4.00 | 0.00 | 4.00 | 0.00 |
| | 56 | 11,258 | 90.00 | 345.47 | 5.90 | 10363.00 | 1053.63 | 1034.57 N | 277.16 W | 4.00 | 0.00 | 4.00 | 0.00 |
| | 57 | 11,264 | 90.00 | 345.71 | 5.90 | 10363.00 | 1059.44 | 1040.28 N | 278.62 W | 4.00 | 0.00 | 4.00 | 0.00 |
| | 58 | 11,270 | 90.00 | 345.94 | 5.90 | 10363.00 | 1065.26 | 1046.00 N | 280.07 W | 4.00 | 0.00 | 4.00 | 0.00 |
| | 59 | 11,276 | 90.00 | 346.18 | 5.90 | 10363.00 | 1071.08 | 1051.72 N | 281.49 W | 4.00 | 0.00 | 4.00 | 0.00 |
| | 60 | 11,282 | 90.00 | 346.42 | 5.90 | 10363.00 | 1076.90 | 1057.45 N | 282.89 W | 4.00 | 0.00 | 4.00 | 0.00 |
| | 61 | 11,288 | 90.00 | 346.65 | 5.90 | 10363.00 | 1082.73 | 1063.19 N | 284.26 W | 4.00 | 0.00 | 4.00 | 0.00 |
| | 62 | 11,294 | 90.00 | 346.89 | 5.90 | 10363.00 | 1088.56 | 1068.93 N | 285.61 W | 4.00 | 0.00 | 4.00 | 0.00 |
| | 63 | 11,300 | 90.00 | 347.12 | 5.90 | 10363.00 | 1094.40 | 1074.67 N | 286.94 W | 4.00 | 0.00 | 4.00 | 0.00 |
| | 64 | 11,306 | 90.00 | 347.36 | 5.90 | 10363.00 | 1100.24 | 1080.43 N | 288.24 W | 4.00 | 0.00 | 4.00 | 0.00 |
| | 65 | 11,311 | 90.00 | 347.59 | 5.90 | 10363.00 | 1106.08 | 1086.18 N | 289.52 W | 4.00 | 0.00 | 4.00 | 0.00 |
| | 66 | 11,317 | 90.00 | 347.83 | 5.90 | 10363.00 | 1111.92 | 1091.95 N | 290.77 W | 4.00 | 0.00 | 4.00 | 0.00 |
| | 67 | 11,323 | 90.00 | 348.07 | 5.90 | 10363.00 | 1117.77 | 1097.71 N | 292.00 W | 4.00 | 0.00 | 4.00 | 0.00 |

| | | | | | | | | | | | | | |
|---------------|--------|--------|--------|--------|----------|----------|-----------|-----------|----------|------|------|------|------|
| 68 | 11,329 | 90.00 | 348.30 | 5.90 | 10363.00 | 1123.62 | 1103.49 N | 293.21 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 69 | 11,335 | 90.00 | 348.54 | 5.90 | 10363.00 | 1129.48 | 1109.26 N | 294.39 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 70 | 11,341 | 90.00 | 348.77 | 5.90 | 10363.00 | 1135.34 | 1115.05 N | 295.55 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 71 | 11,347 | 90.00 | 349.01 | 5.90 | 10363.00 | 1141.20 | 1120.83 N | 296.69 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 72 | 11,353 | 90.00 | 349.25 | 5.90 | 10363.00 | 1147.06 | 1126.62 N | 297.80 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 73 | 11,359 | 90.00 | 349.48 | 5.90 | 10363.00 | 1152.92 | 1132.42 N | 298.89 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 74 | 11,365 | 90.00 | 349.72 | 5.90 | 10363.00 | 1158.79 | 1138.22 N | 299.96 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 75 | 11,370 | 90.00 | 349.95 | 5.90 | 10363.00 | 1164.66 | 1144.03 N | 301.00 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 76 | 11,376 | 90.00 | 350.19 | 5.90 | 10363.00 | 1170.54 | 1149.83 N | 302.01 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 77 | 11,382 | 90.00 | 350.43 | 5.90 | 10363.00 | 1176.41 | 1155.65 N | 303.01 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 78 | 11,388 | 90.00 | 350.66 | 5.90 | 10363.00 | 1182.29 | 1161.47 N | 303.98 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 79 | 11,394 | 90.00 | 350.90 | 5.90 | 10363.00 | 1188.17 | 1167.29 N | 304.92 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 80 | 11,400 | 90.00 | 351.13 | 5.90 | 10363.00 | 1194.05 | 1173.11 N | 305.84 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 81 | 11,405 | 90.00 | 351.37 | 5.90 | 10363.00 | 1199.93 | 1178.94 N | 306.74 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 82 | 11,412 | 90.00 | 351.61 | 5.90 | 10363.00 | 1205.81 | 1184.77 N | 307.61 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 83 | 11,418 | 90.00 | 351.84 | 5.90 | 10363.00 | 1211.70 | 1190.61 N | 308.46 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 84 | 11,424 | 90.00 | 352.08 | 5.90 | 10363.00 | 1217.59 | 1196.45 N | 309.29 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 85 | 11,429 | 90.00 | 352.31 | 5.90 | 10363.00 | 1223.47 | 1202.29 N | 310.09 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 86 | 11,435 | 90.00 | 352.55 | 5.90 | 10363.00 | 1229.36 | 1208.14 N | 310.86 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 87 | 11,441 | 90.00 | 352.79 | 5.90 | 10363.00 | 1235.25 | 1213.99 N | 311.62 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 88 | 11,447 | 90.00 | 353.02 | 5.90 | 10363.00 | 1241.15 | 1219.84 N | 312.34 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 89 | 11,453 | 90.00 | 353.26 | 5.90 | 10363.00 | 1247.04 | 1225.69 N | 313.05 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 90 | 11,459 | 90.00 | 353.49 | 5.90 | 10363.00 | 1252.93 | 1231.55 N | 313.73 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 91 | 11,465 | 90.00 | 353.73 | 5.90 | 10363.00 | 1258.83 | 1237.41 N | 314.39 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 92 | 11,471 | 90.00 | 353.96 | 5.90 | 10363.00 | 1264.72 | 1243.28 N | 315.02 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 93 | 11,477 | 90.00 | 354.20 | 5.90 | 10363.00 | 1270.62 | 1249.14 N | 315.63 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 94 | 11,483 | 90.00 | 354.44 | 5.90 | 10363.00 | 1276.52 | 1255.01 N | 316.21 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 95 | 11,488 | 90.00 | 354.67 | 5.90 | 10363.00 | 1282.41 | 1260.88 N | 316.77 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 96 | 11,494 | 90.00 | 354.91 | 5.90 | 10363.00 | 1288.31 | 1266.76 N | 317.31 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 97 | 11,500 | 90.00 | 355.14 | 5.90 | 10363.00 | 1294.21 | 1272.63 N | 317.82 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 98 | 11,506 | 90.00 | 355.38 | 5.90 | 10363.00 | 1300.11 | 1278.51 N | 318.30 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 99 | 11,512 | 90.00 | 355.62 | 5.90 | 10363.00 | 1306.00 | 1284.39 N | 318.77 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 100 | 11,518 | 90.00 | 355.85 | 5.90 | 10363.00 | 1311.90 | 1290.27 N | 319.21 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 101 | 11,524 | 90.00 | 356.09 | 5.90 | 10363.00 | 1317.80 | 1296.15 N | 319.62 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 102 | 11,530 | 90.00 | 356.32 | 5.90 | 10363.00 | 1323.69 | 1302.04 N | 320.01 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| 103 | 11,536 | 90.00 | 356.55 | 5.90 | 10363.00 | 1329.59 | 1307.92 N | 320.38 W | 4.00 | 0.00 | 4.00 | 0.00 | |
| END TURN | 104 | 11,541 | 90.00 | 356.80 | 5.90 | 10363.00 | 1335.49 | 1313.81 N | 320.72 W | 4.00 | 0.00 | 4.00 | 0.00 |
| TD | 105 | 18,939 | 90.00 | 356.80 | 8448 | 10363.00 | 9780.30 | 9749 N | 793 W | 0.00 | 0.00 | 0.00 | 0.00 |
| OPEN HOLE PAY | | | | | | | | | | | | | |
| 9,343 | | | | | | | | | | | | | |

XTO Energy, Inc.
BOP STACK DIAGRAM

FBIR Baker 34X-25
Location: SW SE Sec 25, 149N-92W
Footage: 250 ft FSL, 1845 ft FEL
Elev: Graded Pad 2184', KB 2208'
Dunn County, ND



**XTO ENERGY INC
H2S CONTINGENCY PLAN**

FBIR Baker 34X-25

**Location: SW SE Sec 25, 149N-92W
Footage: 250 ft FSL, 1845 ft FEL
Elev: Graded Pad 2184', KB 2208'**

Dunn County, ND

**Latitude 47.689275N
Longitude 102.393433W**

H2S DRILLING OPERATIONS PLAN INDEX

- I. INTRODUCTION
 - A. Operator's Address and Legal Description of Well Site
 - B. Directions to Well Site
 - C. Purpose of Plan
- II. LOCATION LAYOUT
 - A. Location Map
 - B. General & Specific Area Maps
- III. SAFETY EQUIPMENT
 - A. Safety Equipment Provided by TOTAL SAFETY INC.
 - B. Type of Equipment and Storage Locations
 - C. Maximum Number of People on Location at any one time
- IV. OPERATING PROCEDURES
 - A. Blowout Prevention Measures During Drilling
 - B. Gas Monitoring Equipment
 - C. Crew Training and Protection
 - D. Metallurgical Considerations
 - E. Mud Program and Treating
 - F. Well Control Equipment
- V. OPERATING CONDITIONS
 - A. Definition of Warning Flags
 - B. Circulating Out Kick (Wait and Weight Method)
 - C. Coring Operations in H2S Bearing Zones
 - D. Drill Stem Testing of H2S Zones
- VI. EMERGENCY PROCEDURES
 - A. Sounding Alarm
 - B. Drilling Crew Actions
 - C. Responsibilities of Personnel
 - D. Steps to be Taken
 - E. Company and Contract Personnel
 - F. Leak Ignition
 - G. General Equipment
- VII. LIST OF APPENDICES
 - A. Emergency and Medical Facilities
 - B. Law Enforcement Agencies and Fire Fighting Facilities
 - C. Well Control Specialists
 - D. Governmental Agencies
 - E. Radio and Television Stations
- VIII. RESIDENTS AND LANDOWNERS
 - A. Radius of Exposure Map with Residences Shown
 - B. Residents Within Radius of Exposure and Telephone Numbers

I. INTRODUCTION

A. OPERATOR'S ADDRESS AND PHONE

XTO ENERGY, INC.
PO BOX 1589 or 35399 Highway 23 - 8 miles East
SIDNEY, MT 59270
406-482-4000 (24 HR #)

B. DIRECTIONS TO WELL SITE

From Mandaree, ND: 15.3 mi ESE on BIA 12, 1.7 mi NE x N on BIA 13, 0.4 mi SW on
19th St. NW, then 0.25 mi N into location

C. PURPOSE OF PLAN

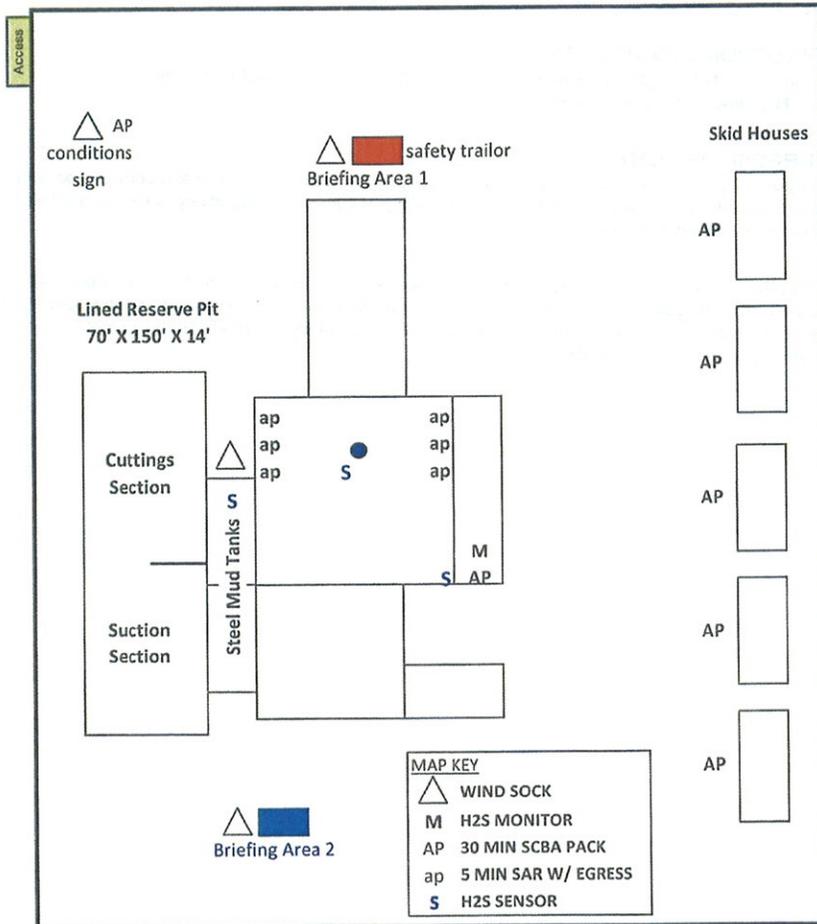
The purpose of this plan is to safeguard the lives of the public, contract personnel and company personnel in the event of equipment failure or disasters during drilling or completion operations in formations which may contain Hydrogen Sulfide Gas, H₂S.

As a precautionary measure, this H₂S Contingency Plan has been prepared to assure the safety of all concerned, should a disaster occur. However, the Operator's on-site representative may have specified materials and practices for the drilling or completion of this well, which supercede the minimum requirements as outlined in this plan.

II. LOCATION LAYOUT

A. LOCATION MAP

FBIR Baker 34X-25



III. SAFETY EQUIPMENT

All H₂S related safety equipment must be installed, tested and operational at a depth of 500 feet above, or 3 days prior to penetrating the first zone expected to contain H₂S (whichever comes first).

A. SAFETY EQUIPMENT PROVIDED BY TOTAL SAFETY INC.

1. Safety trailer w/ 10-380 C.F. cylinder air supply system
2. Sufficient low-pressure airline hose with quick connects
3. Six-airline mask w/emergency escape cylinders
4. Seven 30 minute self contained breathing apparatus
5. Airline manifolds and air pack stands to accompany air packs
6. Three windsocks, frames and poles
7. Oxygen powered resuscitator
8. One set of signs
9. One 36 unit first aid kit
10. One 30# fire extinguisher
11. One stretcher
12. Flare gun w/shells (supplied upon request)
13. Gastec pump type gas detector w/full range of H₂S detector tubes
14. One air cylinder w/regulator and filler hose for briefing area #2
15. H₂S and briefing area signs
16. Well condition signs and flags
17. Explosion-proof bug blower (provided upon request)
18. 3 channel electronic monitor w/explosion proof warning system
19. One SO₂ (Sulfur Dioxide) portable detector (supplied if or when H₂S is being flared)
20. Additional equipment - added as needed.

B. TYPE OF EQUIPMENT AND STORAGE LOCATIONS

1. There will be six Scott airline masks on location. Five will be located on the rig floor with access to the shale shaker. One will be located in the derrick. Each mask will have an easily accessible air line hose.
2. There will be seven 30-minute self-contained breathing apparatus on location. They will be positioned as follows: one at Operator's representative's trailer, one at Tool Pusher's trailer, one at Briefing Area #1 one at Briefing Area #2, one at rig dog house stairway, one at mud logger's trailer and one at hopper area.
3. A Gastec, pump type, gas detector with low and high range detector tubes will be located in the doghouse
4. Two cleared, briefing areas will be designed as Safe Briefing Areas #1 and #2.
5. The Briefing Area most upwind is designated as Safety Briefing Area #1. In an emergency, personnel must assemble at this upwind area for instructions from their supervisor.
6. The H2S Safety Trailer will contain a cascade system of (10) 380 C.F. air cylinders that will provide a continuous air supply to air lines located on the rig. It will also contain one resuscitator, one 30 minute air pack and one stretcher, one 36 unit first aid kit, one 30# dry chemical fire extinguisher, and will have a windsock or streamer to indicate wind direction.
7. Two other windsocks will be installed so as to be visible from all parts of the location.
8. A well condition warning sign will be displayed at the location entrance to advise of current operating conditions.
9. A list of emergency telephone numbers will be kept on rig floor, tool pusher's trailer, the Operator's on-site representative's trailer and in the Safety Trailer.
10. A barricade will be available to block the entrance to location should an emergency occur. In most cases, a vehicle will be used to block the entrance.
11. A three-channel H2S monitor will be located in the doghouse. The three sensors will be installed: one on the shale shaker, one in the cellar and one near the bell nipple.
12. An undulating high and low pitch siren and light will be installed on the derrick "A" leg.
13. If H2S concentrations reach 10 ppm, an explosion-proof bug blower (fan) will be installed under the rig floor to disperse possible accumulations of H2S.
14. Any time it is necessary to flare gas containing H2S, a Sulfur Dioxide monitor will be used to determine SO2 concentrations

C. MAXIMUM NUMBER OF PEOPLE ON LOCATION AT ANY ONE TIME

1. There will be a maximum of 13 persons on location at any one time, unless additional respirators are provided during special operations where more than 13 persons will be on location.

IV. OPERATING PROCEDURES

A. BLOWOUT PREVENTION MEASURES DURING DRILLING

1. Blowout Prevention Requirements: All BOP equipment shall meet the American Petroleum Institute specifications as to materials acceptable for H₂S service and tested accordingly (or to BLM specifications).
2. Drilling String Requirements: All drill string components are to be of material that meets the American Petroleum Institute's specifications for H₂S service. All drill string components should be inspected to IADC critical service specifications prior to running in well.

B. GAS MONITORING EQUIPMENT

1. A continuous H₂S detection system, consisting of three H₂S detectors and an audible/visual warning system will be in operation during all phases of this H₂S Contingency Plan. The detection system will be adjusted and calibrated such that an H₂S exposure of 10 ppm or higher (at any sensor) will trigger the visual portion (blinking or rotating light), and an H₂S exposure of 15 ppm or higher (at any sensor) will trigger the audible portion (wailing or yelping siren) of the warning system (i.e., H₂S continually present at or above threshold levels). A trained operator or H₂S supervisor will monitor the H₂S detection system.
2. When approaching or completing H₂S formations, crewmembers may attach 8-hour electronic H₂S personnel monitors to their person.
3. Hand held H₂S sampling gas detectors will be used to check areas not covered by automatic monitoring equipment.

C. CREW TRAINING AND PROTECTION

1. All personnel working at the well site will be properly trained in accordance with the general training requirements outlined in the API Recommended Practices for Safe Drilling of Wells Containing H₂S. The training will include, but not be limited to, the following:
 - a. General information about H₂S and SO₂ gases
 - b. Hazards associated with H₂S and SO₂ gases
 - c. Safety equipment on location
 - d. Proper use and care of personal protective equipment
 - e. Operational procedures in dealing with H₂S gas
 - f. Evacuation procedures
 - g. First aid, reviving an H₂S victim, toxicity, etc.
 - h. Designated Safe Briefing Areas
 - i. Buddy System
 - j. Regulations
 - k. Review of Drilling Operations Plan
2. Initial training shall be completed when drilling reaches a depth of 500' above or 3 days prior to penetrating (whichever comes first) the first zone containing or expected to contain H₂S.
3. Weekly H₂S and well control drills for all personnel on each working crew shall be conducted.
4. Safety Equipment: As outlined in the Safety Equipment index, H₂S safety protection equipment will be available to/or assigned each person on location.

D. METALLURGICAL CONSIDERATIONS

1. Steel drill pipe used in H₂S environments should have yield strength of 95,000 psi or less due to potential embrittlement problems. Drill stem joints near the top of the drill string are normally under the highest stress levels during drilling and do not have the protection of elevated down hole temperatures. These factors should be considered in design of the drill string.

Precautions should be taken to minimize drill string stress caused by conditions such as excessive dogleg severity, improper torque, whip, abrasive wear or tool joints and joint imbalance. American Petroleum Institute, Bulletin RR 7G, will be used as a guideline for drill string precautions.

2. Corrosion inhibitors may be applied to the drill pipe or to the mud system as an additional safeguard.

3. Blowout preventors should meet or exceed the recommendations for H₂S service as set forth in the latest edition of API RI 53.

E. MUD PROGRAM AND TREATING

1. It is of utmost importance that the mud be closely monitored for detection of H₂S and reliability of the H₂S treating chemicals.

2. Identification and analysis of sulfides in the mud and mud filtrates will be carried out per operator's prescribed procedures.

3. The mud system will be pre-treated with Zinc Carbonate, Ironite Sponge or similar chemicals of H₂S control prior to drilling into the H₂S bearing formation. Sufficient quantities of corrosion inhibitor should be on location to treat the drill string during Drill Stem Test Operations. Additionally, Aqua Ammonia should be on hand to treat the drill string for crew protection, should H₂S be encountered while tripping the drill string following drill stem testing

F. WELL CONTROL EQUIPMENT

1. Flare System

- a. A flare system shall be designed and installed to safely gather and burn H₂S bearing gas.
- b. Flare lines shall be located as far from the operating site as feasible and in a manner to compensate for wind changes.
- c. The flare line mouth shall be located not less than 150' from wellbore.
- d. Flare lines shall be straight unless targeted with running tees.

2. Remote Controlled Choke: A remote controlled choke shall be installed for all H₂S drilling and where feasible for completion operations. A remote controlled valve may be used in lieu of this requirement for completions operations.

3. Mud-gas separators and rotating heads shall be installed and operable for all exploratory wells.

V. OPERATING CONDITIONS

A Well Condition Sign and Flag will be posted on all access roads to the location. The sign shall be legible and large enough to be read by all persons entering the well site and be placed a minimum of 200', but no more than 500', from the well site to allow vehicles to turn around at a safe distance prior to reaching the site.

A. DEFINITION OF WARNING FLAGS

1. Condition Green: No H₂S present. No warning flag or sign is required.

2. Condition Yellow: Potential Danger. Any operation where the possibility of encountering H₂S exists and in all situations where concentrations of H₂S are detected in the air below the threshold level (10 ppm).

- a. Cause of condition:
 - *Circulating up drill breaks
 - *Trip gas after trip
 - *Circulating out gas on choke
 - *Poisonous gas present, but below threshold concentrations
 - *Drill stem test
- b. Safety Action:
 - *Check safety equipment and keep it with you
 - *Be alert for a change in condition
 - *Follow instructions

3. Condition Red: Extreme Danger. Presence of H₂S at or greater than 10 ppm. Breathing apparatus must be worn.

- a. Safety action:
 - *MASK UP. All personal will have protective breathing equipment with them. All nonessential personnel will move to the Safe Briefing Area and stay there until instructed to do otherwise. All essential personnel (those necessary to maintain control of the well) shall wear breathing apparatus to perform operations related to well control.
- b. Order evacuation of local people within the danger zone. Request help from local authorities, State Police, Sheriff's Dept. and Service Representative.
- c. The decision to ignite the well is the responsibility of the Operator's on-site representative and should be made only as a last resort, when it is clear that:
 - *human life is endangered
 - *there is no hope of controlling the well under prevailing conditions

B. CIRCULATING OUT KICK (WAIT AND WEIGHT METHOD)

If it is suspected that H₂S is present with the gas whenever a kick is taken, the wait and weight method of eliminating gas and raising the mud will be followed (below):

- a. Increase density of mud in pits to 'kill' weight mud.
- b. Open choke and bring pump to initial circulating pressure by holding casing pressure at original value until pump is up to predetermined speed.
- c. When initial circulating pressure is obtained on drill pipe, zero pump stroke counter and record time.
- d. Reduce drill pipe pressure from initial circulating pressure to final circulating pressure by using pump strokes and/or time according to graph
- e. When 'kill' weight mud is at the bit, hold final circulating pressure until kill weight mud is to surface.
- f. When the well has been put on the choke and circulation has been established, the following safety procedures must be initiated:
 - *determine when gas is anticipated to reach surface
 - *move all non-essential personnel to Safe Briefing Area
 - *check out protective breathing apparatus to all remaining personnel

(apparatus is to be kept with them until the kick has been completely circulated out)
*mud men will see that the proper amount of H2S scavenging chemical is in the mud and record times checked
*ensure ignition flare is burning and valves are open to designated flare stacks

C. CORING OPERATIONS IN H2S BEARING ZONES

1. Personal protective breathing apparatus will be worn from 10 to 15 stands in advance of retrieving the core barrel. Cores to be transported should be sealed and marked indicating the presence of H2S.
 - a. Yellow Caution Flag will be flown at the well condition sign.
 - b. The "NO SMOKING" rule will be enforced

D. DRILL STEM TESTING OF H2S ZONES

1. The DST subsurface equipment will be suitable for H2S service as recommended by the API.
2. Drill stem testing of H2S zone will be conducted in daylight hours.
3. All non-essential personnel will be moved to an established safe area or off location.
4. The "NO SMOKING" rule will be enforced.
5. DST fluids will be circulated through a remote controlled choke and a separator to permit flaring of gas. A continuous pilot light will be used.
6. A yellow or red flag will be flown at entrance to location depending on present gas condition.
7. If warranted, use Aqua Ammonia for neutralizing the toxicity of H2S from drill string. Aqua Ammonia should be on location even if not used for DST.
8. On completion of DST, if H2S contaminated formation fluids or gases are present in drill string, floor workers will be masked up before test valve is removed from drill string and continue "mask on" condition until such time that readings in work area do not exceed 15 ppm of H2S gas.

VI. EMERGENCY PROCEDURES

A. SOUNDING ALARM

1. The fact is to be instilled in the minds of all rig personnel that the sounding of the alarm means only one thing - H2S IS PRESENT and everyone is to proceed to his assigned station and the contingency plan is put into effect.

B. DRILLING CREW ACTIONS

1. All personnel will don their protective breathing apparatus. The driller will take necessary precautions as indicated in operating procedures.
2. The Buddy system will be implemented. All personnel will act upon directions from the Operator's on-site representative.
3. If there are non-essential personnel on location, they will move off location.

4. Entrance to the location will be patrolled, and the proper well condition flag will be displayed at the entrance to the location.

C. RESPONSIBILITIES OF PERSONNEL

1. In order to assure the proper execution of this plan, it is essential that one person be responsible for and in complete charge of implementing these procedures. The responsible person will be as follows:

- a. The Operator's on-site representative (consultant) or his assistant.
- b. Contract Tool Pusher.

D. STEPS TO BE TAKEN

1. Contact the main office(s) of the Operator &/or the Rig Contractor as listed in this plan below (by the quickest means of communications):
2. An assigned crewmember will blockade the entrance to the location. No unauthorized personnel will be allowed entry into the location.
3. The Operator's on-site representative will remain on location and attempt to regain control of the well.
4. The Rig Contractor's rig superintendent will begin evacuation of those persons in immediate danger. He will begin by telephoning residents in the danger zone. In the event of no contact by telephone, the tool pusher will proceed at once to each dwelling for a person-to-person contact. In the event the tool pusher cannot leave the location, he will assign a responsible crewmember to proceed in the evacuation of local residents. Upon arrival, the Sheriff's Department and safety equipment contractor's personnel will aid in further evacuation.

E. COMPANY & CONTACT PERSONNEL

| | | |
|--|--------|--------------|
| 1. Operator's Drilling Supt Kal Beckman | Office | 406-482-6808 |
| | Home | 701-572-6057 |
| | Cell | 701-570-2536 |
| 2. Operator's Drilling Engineer Ross Lubbers | Office | 405-319-3285 |
| | Home | 405-513-5955 |
| | Cell | 405-659-8563 |
| 3. Ensign Drilling Supt Perry Junt | Office | 701-572-0131 |
| | Cell | 701-570-3701 |
| 4. Nabors Drilling Supt Scott Reid | Office | 701-572-6704 |
| | Home | 701-385-4697 |
| | Cell | 701-848-6227 |
| 5. Petroleum Experience -- Drilling Consultants Pete Peterson | Office | 701-774-8357 |

F. LEAK IGNITION

Leak Ignition Procedure: (used to ignite a leak in the event it becomes necessary to protect the public)

1. Two men, the Operator's on-site representative and the Contractor's Drig Superintendent or safety equipment provider's representative, wearing self-contained pressure demand air masks must determine the perimeter of the flammable area. This should be done with one man using an H2S detector and the other one using a flammable gas detector. The flammable perimeter should be established at 30% to 40% of the lower flammable limits.
2. After the flammable perimeter has been established and all employees and citizens have been removed from the area, the ignition team should move to the up-wind area of the leak perimeter and fire a flare into the area. If the leak isn't ignited on the 1st attempt, move in 30 - 40 feet and fire again. Continue moving in and firing until the leak is ignited or the flammable gas detector indicates the ignition team is moving into the hazardous area. If trouble is incurred in igniting the leak by firing toward the leak, try firing 40 - 90 feet to each side of the area where you have been firing. If still no ignition is accomplished, ignite the copper line burner and push it into the leak area. This should accomplish ignition. If ignition is not possible due to the makeup of the gas, the toxic leak perimeter must be established and maintained to ensure evacuation is completed and continue until the emergency is secure.
3. The following equipment and man-power will be required to support the ignition team:
 - a. One flare gun.
 - b. Four pressure demand air packs.
 - c. Two nylon ropes tied to the ignition team.
 - d. Two men in a clear area equipped with air packs.
 - e. Portable butane bottle with copper line.
4. The person with the final authority will then ignite the well.

G. GENERAL EQUIPMENT

1. Two areas on the location will be designated as briefing areas. The one that is upwind from the well will be designated as the "Safe Briefing Area" or "Briefing Area #1".
2. In the case of an emergency, personnel will assemble in the upwind area as per prior instructions from the operator's representative.
3. The H2S trailer provided by the safety contractor will contain 10 air cylinders, a resuscitator, one 30 minute air pack and will have a windsock.
4. Two other windsocks will be installed.
5. A condition warning sign will be displayed at the location entrance.
6. A list of emergency telephone numbers will be kept on the rig floor, tool pusher's trailer and the Operator's on-site representative's trailer.
7. Two barricades will be available to block the entrance to location.
8. An undulating high and low pitch siren will be installed.
9. A telephone line or mobile phone will be available at the well site for incoming and outgoing communications.

VII. APPENDIX

A. EMERGENCY & MEDICAL FACILITIES:

NORTH DAKOTA EMERGENCY ASSISTANCE: 800-472-2121

AMBULANCE SERVICE:

| | |
|-----------------------|--------------|
| BELFIELD, ND | 911 |
| DICKINSON, ND | 911 |
| SIDNEY, MT | 406-488-2100 |
| TIOGA, ND | 701-664-2200 |
| WILLISTON, ND | 911 |
| WATFORD CITY, ND | 701-444-3516 |
| KILLDEER, MANNING, ND | 911 |

HOSPITALS:

| | |
|--|--------------|
| SIDNEY HEALTH CENTER - SIDNEY, MT | 406-488-2100 |
| MERCY MEDICAL CENTER - WILLISTON, ND | 701-774-7400 |
| McKENZIE COUNTY MEMORIAL HOSPITAL - WATFORD CITY | 701-842-3000 |
| ST. JOSEPH'S HOSPITAL - DICKINSON, ND | 701-225-7200 |
| TIOGA MEDICAL CENTER | 701-568-3626 |

B. LAW ENFORCEMENT AND FIRE FIGHTING AGENCIES

POLICE or SHERIFF:

| | |
|-------------------------|---------------------|
| BELFIELD, ND | 911 |
| DICKINSON, ND | 911 |
| SIDNEY, MT | 911 OR 406-433-2809 |
| MCKENZIE COUNTY | 701-444-3654 |
| TIOGA - WILLIAMS COUNTY | 911 OR 701-664-2514 |
| WATFORD CITY, ND | 911 OR 701-842-2400 |
| MANNING, ND SHERIFF | 911 OR 701-573-4449 |

FIRE:

| | |
|------------------|--------------|
| ALEXANDER, ND | 911 |
| ARNEGARD, ND | 701-586-3500 |
| BELFIELD, ND | 911 |
| DICKINSON, ND | 911 |
| SIDNEY, MT | 406-433-1122 |
| TIOGA, ND | 701-664-2200 |
| WATFORD CITY, ND | 701-842-3516 |
| WILLISTON, ND | 911 |

C. WELL CONTROL SPECIALISTS:

| | |
|-----------------------|--------------|
| BOOTS AND COOTS | 713-931-8884 |
| RED ADAIR COMPANY INC | 713-464-0230 |
| WILD WELL CONTROL | 701-353-5481 |

D: GOVERNMENTAL AGENCIES:

STATE WATER COMMISSION 701-224-4940

NDIC:
CHIEF ENFORCEMENT OFFICER 701-224-2969
STATE GEOLOGIST 701-777-2231

NORTH DAKOTA STATE DEPARTMENT OF HEALTH:
DIVISION OF ENVIRONMENTAL ENGINEERING 701-224-2348

DIVISION OF WATER & POLLUTION CONTROL:
BISMARCK, ND 701-224-2375

DISTRICT FOREST SERVICE RANGER:
DICKINSON, ND 701-225-5151
MEDORA, ND 701-623-4466
WATFORD CITY, ND 701-842-2393

BUREAU OF LAND MANAGEMENT:
DICKINSON, ND 701-225-9148

U.S. CORPS OF ENGINEERS:
RIVERDALE, ND 701-654-7411

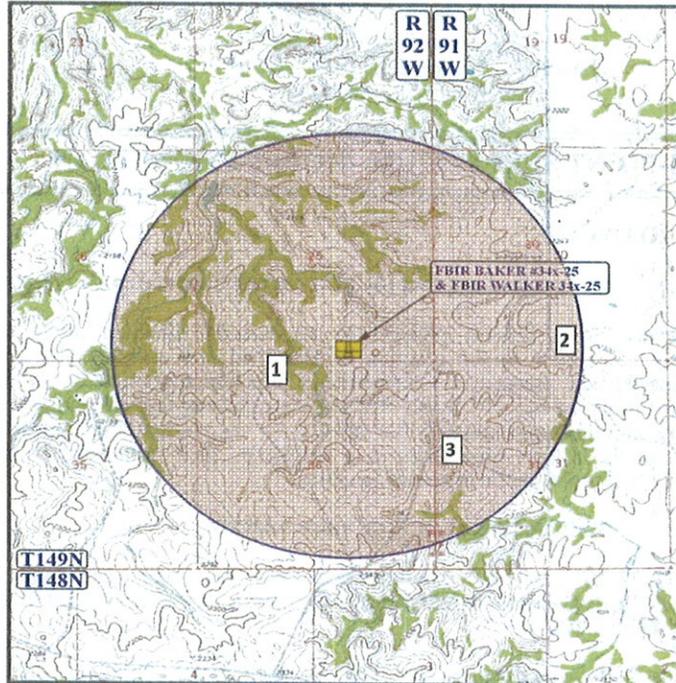
OIL SPILLS DISASTER REPORTING: 800-424-8802

E. RADIO & TELEVISION STATIONS:

KEYZ AM 680 701-572-5371
KYYZ FM 96.1 701-572-3911
KDIX 701-225-5133
KRRB-FM 701-227-1222
KUMV TV 701-572-4676
KXMD TV 701-572-2345
KQCD TV 701-225-6843

VIII. RESIDENTS AND LANDOWNERS

A. 1 MILE RADIUS EXPOSURE MAP



B. RESIDENTS WITHIN 1 MILE AND PHONE NUMBERS

- 1 Tillie Walker - *phone number 701-759-3456*
~ 0.4 miles WSW of drilling pad
P.O. Box 625
Mandaree, ND 58757
- 2 Willie & Gerald Hunts Along - *phone numbers 701-759-3394*
~ 0.9 miles E of drilling pad
P.O. Box 601
Mandaree, ND 58757
- 3 Avalon, James, and Leonard Hale - *phone number 701-759-3323*
~ 0.66 miles SE of drilling pad
P.O. Box 423
Mandaree, ND 58757

XTO ENERGY, INC.
FBIR Baker 34X-25
Tribal Lease # 7420A48644
Tribal Lease # 7420A48645
Tribal Lease # 7420A48879
Tribal Lease # 7420A48632
SW¼SE¼, Section 25, T149N, R92W
Dunn County, North Dakota

MULTI-POINT SURFACE USE & OPERATIONS PLAN

A. EXISTING ROADS -

1. The proposed well site is staked and four (4) 200-foot reference stakes are present.
2. From Mandaree, North Dakota proceed in an easterly direction along BIA 12 approximately 15.3 miles to the junction of this road and existing BIA 13 to the northeast; turn left and proceed in a northeasterly direction approximately 1.7 miles to the junction of this road and 19th Street NW to the southwest; turn left and proceed in a southwesterly direction approximately 0.4 miles to the beginning of the proposed access road to the north; follow road flags in a northerly, then northwesterly direction approximately 0.25 miles to the proposed location
3. Access roads - All roads are labeled on Topo Maps A and B.
4. Approximately 2,010 feet of existing, graveled, two-track road will require improvements. Improvements would follow road design standards outlined in the Gold Book (USDI-USDA 2007).
5. Existing roads will be maintained and kept in good repair during all drilling and completion operations associated with this well.
6. Total distance from Mandaree, ND to the proposed well location is approximately 17.65 miles.

B. PLANNED ACCESS ROADS - Refer to Topo Map "B"

Approximately 1,283 feet (~0.25 miles) of new road construction will be required for access to the proposed FBIR Baker 34X-25 well location.

1. Width - fourteen (14) foot running surface with a sixteen (16) foot sub-grade, crowned and ditched.
2. Construction standard - the access road will be constructed in accordance with roading guidelines established for oil & gas exploration and development activities as referenced in the joint BLM/USFS publication: *Surface Operating Standards for Oil and Gas Exploration and Development*, Fourth Edition and/or BLM Gold Book.

All topsoil will be stripped from the access road route prior to performing any further construction activities thereon. The salvaged topsoil will be stockpiled apart from subsoil materials for future reclamation of the access road right-of-way.

If soils along the access road route are dry during construction, water will be applied to the road surface to facilitate soil compaction and minimize soil loss as a result of wind erosion.

3. Maximum grade - eight (8) percent or less.
4. Turnouts – as deemed necessary
5. Drainage design - the access road will be upgraded and maintained as necessary to prevent soil erosion and accommodate all-weather traffic. Road will be crowned and ditched with water turnouts installed as necessary to provide for proper drainage along the access road route.
6. Culverts, cuts and fills - culverts will be installed along the access road route as depicted on Topo Map B or required by the Authorized Officer, Bureau of Indian Affairs. These culverts will be installed in accordance with roading guidelines contained in the joint BLM/USFS publication: *Surface Operating Standards for Oil and Gas Exploration and Development*, Fourth Edition and/or BLM Gold Book.
7. Surfacing material - the access road will be surfaced with gravel or scoria purchased from a local contractor having a permitted source of materials within the general area, as required by the Authorized Officer, Bureau of Indian Affairs.
8. Gates, cattle guards or fence cuts - one (1) cattle guard will be required at the entrance of the location as the entire location will be fenced for drilling and completion operations.
 - a. These cattle guards will be installed in accordance with roading guidelines contained in the joint BLM/USFS publication: *Surface Operating Standards for Oil and Gas Exploration and Development*, Fourth Edition and/or BLM Gold Book.
 - b. One fence cut will be made in an existing fence at the point where the cattle guard is installed. Refer to Figure #1 for the location of the fence cut and cattle guard.
9. Road maintenance - the road surface and shoulders will be kept in a safe and useable condition and will be maintained in accordance with the original construction standards.

All drainage ditches and culverts will be kept clear and free-flowing, and will also be maintained in accordance with the original construction standards.

The access road right-of-way will be kept free of trash during all operations.
10. The proposed access road route has been centerline staked.

C. EXISTING WELLS WITHIN A ONE (1) MILE RADIUS -

1. Existing Wells – Refer to Topo Map C showing the location of the proposed well and the point of radius for the one mile area of review.
 - a. Water wells - none known
 - b. Abandoned wells - none known

- c. Temporarily abandoned wells - none known
- d. Disposal wells - none known
- e. Drilling wells - none known
- f. Producing wells - none known
- g. Shut-in wells - none known
- h. Injection wells - none known
- i. Monitoring wells - none known

D. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES OWNED BY XTO ENERGY, INC. WITHIN A ONE (1) MILE RADIUS

1. Existing Facilities

- a. Tank batteries - none.
- b. Production facilities - none.
- c. Oil gathering lines - none.
- d. Gas gathering lines - none.

2. New Facilities Contemplated

- a. All production facilities will be located on the disturbed portion of the well pad and at a minimum of twenty (25) feet from the toe of the back slope or top of the fill slope. See Figure #1 and Figure #2 for plats depicting the original contours of the location and the proposed cuts and fills and the typical cross sections for the location.
- b. Production facilities will require a working area approximately 300' X 500' in size and will generally consist of a pumping unit at each well head, tank battery, heater-treater and emergency/flare pit.

A berm will be constructed completely around those production facilities designed to hold fluids (i.e., production tanks, produced water tanks and/or heater-treater). These berms will be constructed to hold >110% of the capacity of the largest tank plus one full day's production, and is independent of the back cut. See Figure 3 for a diagram of the proposed facilities.

Load out lines will be located within the tank battery berm and will have a drip barrel with steel mesh guard installed under the outlet.

- 3. Prior to the commencement of drilling operations, the FBIR Baker 34X-25 well location will be fenced, having four (4) strands of barbed wire held in place by metal side posts and wooden corner "H" braces in order to protect both livestock and wildlife.
- 4. During drilling and subsequent operations, all equipment and vehicles will be confined to the access road and any additional areas which may be specified in the approved Application for Permit to Drill.
- 5. Reclamation of disturbed areas no longer needed for operations will be accomplished by grading, leveling and seeding as recommended.

E. LOCATION AND TYPE OF WATER SUPPLY

1. Fresh water for use in drilling operations will be obtained from the water supply close to the town of Killdeer, North Dakota.

F. SOURCE OF CONSTRUCTION MATERIALS

1. Any construction materials (gravel or scoria) which may be required for surfacing of the drill pad will be obtained from a private contractor having a previously approved source of materials within the general area.

G. METHODS OF HANDLING WASTE MATERIALS

1. Cuttings - the drilled cuttings will be deposited in the reserve pit as shown on Figure #4. The reserve pit will be designed to prevent the collection of surface runoff and will be constructed entirely in cut section of the well location (see Figure #1).

Reclaiming and backfilling will occur when completion operations are finished by solidifying with fly ash and burial in accordance with North Dakota rules and regulations.

2. Drilling fluids utilized in the mud systems will be contained in the reserve pit. Drilling fluids utilized in the oil-based mud system will be contained in steel tanks on location. All free fluid will be reclaimed from the reserve pit before solidification.
3. Produced fluids - liquid hydrocarbons produced during completion operations will be placed in test tanks on the location. Produced water will be placed in the reserve pit for a period not to exceed ninety (90) days after initial production.

Any spills of oil, gas, salt water or any other potentially hazardous substance will be cleaned up and immediately removed to an approved disposal site.

4. Sewage - portable, self-contained chemical toilets will be provided for human waste disposal. As required, the toilet holding tanks will be pumped and the contents disposed of in an approved sewage disposal facility.
5. Garbage and other waste material - all garbage and non-flammable waste materials will be contained in a self contained, portable dumpster or trash cage. Upon completion of operations, or as needed, the accumulated trash will be hauled off-site to a state approved sanitary landfill.

Used motor oil (change oil) will be placed in closed containers and disposed of at an authorized disposal site.

No trash will be placed in the reserve pit.

6. Immediately after removal of the drilling rig, all debris and other waste materials not contained in the trash cage will be cleaned up and removed from the well location. No potentially adverse materials or substances will be left on the location.

7. Hazardous Materials – XTO Energy, Inc. maintains responsibility for recognizing and handling hazardous materials. All hazardous materials will be handled in an appropriate manner to minimize the potential for leaks or spills to the environment. All spills of reportable quantity will be contained, reported and cleaned up in accordance with State and Federal regulations.

H. ANCILLARY FACILITIES

None anticipated.

I. WELLSITE LAYOUT

1. Figure #1 shows the drill site layout as staked. Cross-sections have been drafted to visualize the planned cuts and fills across the proposed well location (refer to Figure #2). All topsoil will be stripped from the location (including areas of cut, fill, and/or subsoil storage) and stockpiled for future reclamation of the well site.
2. Figure #4 is a diagram showing a typical location layout. No permanent living facilities are planned on the FBIR Baker 34X-25 well location.
3. All equipment and vehicles will be confined to the approved areas in this application for Permit to Drill (i.e., access road, well pad, spoil and topsoil storage areas).
4. The reserve pit will be lined with a minimum 12 mil liner and designed to maintain a two foot free board. See Figure #6 for a spec sheet on the proposed liner.
5. Prior to the commencement of drilling operations, the entire well location will be fenced with four (4) strands of barbed wire. The fencing will be maintained until such time as the well bore has been physically plugged and abandoned and the well location has been successfully reclaimed.
6. Any hydrocarbons on the pit will be removed as soon as possible after drilling operations are completed.

J. PLANS FOR SURFACE RECLAMATION

1. Rat and mouse holes will be backfilled immediately upon release of the drilling rig from the location.
2. If any oil is in the pits and is not immediately removed after operations cease, the pit containing the oil or other adverse substance(s) will be flagged overhead or covered with wire mesh to protect migrating waterfowl.
3. Producing Operations:
 - a. Backfilling, leveling and re-contouring are planned as soon as possible after cessation of drilling and completion operations.
 - b. All disturbed surfaces (including the access road and well pad areas) will be reseeded using a seed mixture to be recommended by the Authorized Officer, Bureau of Indian Affairs in consultation with the surface allottee as appropriate.

4. Abandoned Well Location:

- a. Upon final abandonment of the well location, both the access road and well location will be restored to approximately the original ground contour(s) by replacing the fill material into the cut and over the back slope.

K. SURFACE OWNERSHIP

The well site and part of the access road is situated on an allotted surface estate within the Fort Berthold Indian Reservation, Allotment Number 625-A. The allottee's of these tribal lands are as follows:

Hans Walker, Jr.
1700 Maple Hill Pl.
Alexandria, VA 22302

Leah A. Walker
P. O. Box 1127
Black River Falls, WI 54615

Thomas S. Walker
P. O. Box 430
Belcourt, ND 58316

Carey A. Walker
2602 18th St. S, Apt. #308
Fargo, ND 58103

Reba Walker
2952 Ontario Lane
Bismarck, ND 58501

Tillie Walker
Box 625
Mandaree, ND 58757

The remainder of the access road is situated on an allotted surface estate within the Fort Berthold Indian Reservation, Allotment Number 632-A. The allottee's of these tribal lands are as follows:

Emerson Baker
New Town, ND 58763

Linda Baker
Whereabouts Unknown

Sharon Bowman Estate
No Valid Address Found

Casey Brim
Rt. 2, Box 4400
Gatesville, TX 76397

Roberta Dahlen
475 89th Ave. SW
Halliday, ND 58536

Bonita Fimbres
Mandaree, ND 58757

Valentine Finley, Sr.
415 Community Rd.
Box 506
Mandaree, ND 58757

Jodi Finley
P. O. Box 361
New Town, ND 58763

Kevin T. Finley
P. O. Box 412
Fort Yates, ND 58538

Helen Baker
Box 487
Mandaree, ND 58757

Whitney M. Bell
Whereabouts Unknown

Albert H. Brim
2305 Jackson
Carlsbad, NM 88220

Dean Brim
20 S. Lyle St., Apt. F
Kennewick, WA 99336

Karen H. Fettig
2051 Highway 22
Mandaree, ND 58757

Evan Finley, Jr.
303 N. 9th St.
New Town, ND 58763

Jerrold D. Finley
P. O. Box 361
New Town, ND 58763

Kathleen M. Finley
3000 Ivy Ave. SW, Apt. 27B
Huntsville, AL 35805

Mary C. Finley
P. O. Box 675
Mandaree, ND 58757

Richard Finley
P. O. Box 615
Wolf Point, MT 59201

Robert Finley
Box 638
Mandaree, ND 58757

Edward Flys Away
P. O. Box 633
Mandaree, ND 587573

Georgia Green
P. O. Box 1043
Rapid City, SD 57709

Jordan R. Gunderson
Whereabouts Unknown

Thomas J. Gunderson
1017 53rd Street SE
Minot, ND 58701

Karen Lynch
4630 Rebel Dr.
Bismarck, ND 58503

Donald McGrady Jr.
307 9th Street N
New Town, ND 58763

Doris McGrady
P. O. Box 1279
New Town, ND 58763

Carlin Rave, Jr.
Whereabouts Unknown

Jodi Rave
2113 Charlott Ave.
Missoula, MT 59801

Tiffany Rave
851 BIA Route 20
Halliday, ND 58636

Lorenzo Spotted Bear, Jr.
P. O. Box 511
Mandaree, ND 58757

Alice Spotted Bear
8097 BIA Route 20
Halliday, ND 58636

Anna Jo Spotted Bear
3769 Charles St.
Ft. Worth, TX 76118

Carla G. Spotted Bear
P. O. Box 162714
Ft. Worth, TX 76161

Ivetta Spotted Bear
925 Highway 8 N.
Halliday, ND 58636

Leishawn Spotted Bear
3769 Charles St.
Ft. Worth, TX 76180

Lonnie Spotted Bear
8089 BIA Route 20
Halliday, ND 58636

Olive Sholaas Spotted Bear
P. O. Box 370
New Town, ND 58763

Sandra J. Spotted Bear
Halliday, ND 58636

Hans Walker, Jr.
1700 Maple Hill Pl.
Alexandria, VA 22302

Carey A. Walker
2602 18th Street S., Apt. #308
Fargo, ND 58103

Hattie T. Walker
P. O. Box 1127
Black River Falls, WI 54615

Leah H. Walker
P. O. Box 1127
Black River Falls, WI 54615

Reba Walker
2952 Ontario Lane
Bismarck, ND 58501

Thomas S. Walker
P. O. Box 430
Belcourt, ND 58316

Tillie Walker
Box 625
Mandaree, ND 58757

Myrtle J. Wilcox
Whereabouts Unknown

Helen Zarfos
430 South Fork Circle
Hudson, WI 54016

Three Affiliated Tribes
404 Frontage Road
New Town, ND 58763

XTO Energy, Inc. will send copies of the approved Surface Use Plan of Operations and the Conditions of Approval to each surface owner listed above.

L. OTHER INFORMATION

1. Surface Use Activities:
 - a. The primary surface use is for livestock grazing.
2. Proximity of Water, Occupied Dwellings, Archaeological, Historical or Cultural Sites:
 - a. The closest source of permanent water is Lake Sakakawea, which is located approximately four and a half (4.5) miles north of the proposed well location.
 - b. There are no known occupied dwellings located within a 3,000 foot radius of the proposed well location.
 - c. XTO Energy, Inc. will be responsible for informing all persons associated with this project that they will be subject to prosecution for damaging, altering, excavating or removing any archaeological, historical, or vertebrate fossil objects or site(s).
 - d. If archaeological, historical or vertebrate fossil materials are discovered, XTO Energy, Inc. will suspend all operations that further disturb such materials and immediately contact the Authorized Officer. Operations will not resume until written authorization to proceed is issued by the Authorized Officer.

Within five (5) working days the Authorized Officer will evaluate the discovery and inform XTO Energy, Inc. of actions that will be necessary to prevent loss of significant cultural or scientific values.

XTO Energy, Inc. will be responsible for the cost of any mitigation required by the Authorized Officer. The Authorized Officer will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the Authorized Officer that the required mitigation has been completed, XTO Energy, Inc. will be allowed to resume operations.

3. Additional Requirements for Operations on Surface Estate Administered by the Bureau of Indian Affairs:
 - a. XTO Energy, Inc. will be responsible for weed control on disturbed areas within the exterior limits of this permit and will consult with the Authorized Officer, Bureau of Indian Affairs and/or local authorities for acceptable weed control measures.

Lessee's or Operator's Representative and Certification

**FBIR Baker 34X-25
SWSE Sec. 25-T149N-R92W
Dunn County, North Dakota
Tribal Lease Nos. 7420A-48644; 7420A-48645; 7420A-48879; 7420A-48632**

OPERATOR

XTO Energy, Inc.
7114 W. Jefferson Ave., Suite 305
Denver, Colorado 80235
303.969.8280

OPERATOR'S REPRESENTATIVES

Permit Matters: J. Michael Warren (303.963.8243)
Drilling Matters: Ross Lubbers (405-319-3285)
Completion Matters: Doug McCrady (303.969.8280)
On-Site Meeting Representative: Kal Beckman (406.482.4000)

CERTIFICATION

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 16th day of March, 2010.



J. Michael Warren
Regulatory Supervisor
XTO Energy, Inc.
7114 W. Jefferson Ave., Suite 305
Denver, CO 80235
Telephone: 303-969-8280
mike_warren@xtoenergy.com

LEGEND:

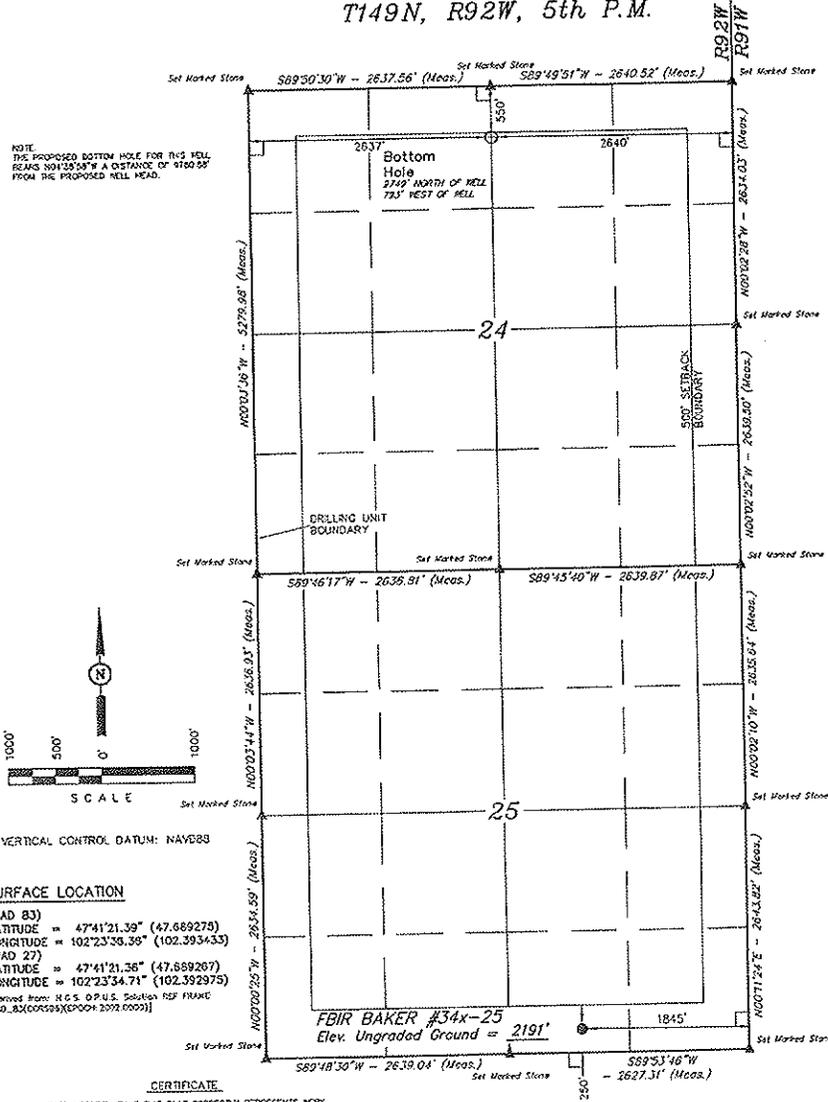
- └ = 90° SYMBOL
- ⊙ = PROPOSED WELL HEAD.
- ▲ = SECTION CORNERS LOCATED.

XTO ENERGY, INC.

Well location, FBIR BAKER #34x-25, located as shown in the SW 1/4 SE 1/4 of Section 25, T149N, R92W, 5th P.M., Dunn County, North Dakota.

WELL LOCATION PLAT
T149N, R92W, 5th P.M.

NOTE:
THE PROPOSED BOTTOM HOLE FOR THIS WELL BEARS N04°25'58"W A DISTANCE OF 2750.55' FROM THE PROPOSED WELL HEAD.



SURFACE LOCATION

(NAD 83)
 LATITUDE = 47°41'21.39" (47.689275)
 LONGITUDE = 102°23'38.38" (102.393433)
 (NAD 27)
 LATITUDE = 47°41'21.58" (47.689287)
 LONGITUDE = 102°23'34.71" (102.392975)
 (Adapted from: N.C.S. 0.P.U.S. 50480N 125° 1740E
 NAD_83(000000)EPOCH=2002.000000)

CERTIFICATE
 I HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



Troy Jensen
 REGISTERED LAND SURVEYOR
 REGISTRATION NO. 24854
 STATE OF NORTH DAKOTA

| | | |
|--|--------------------------|-----------------------|
| UTAH ENGINEERING & LAND SURVEYING | | |
| 85 SOUTH 200 EAST - VERNAL UTAH 84078 | | |
| (435) 788-1017 | | |
| SCALE 1" = 1000' | DATE SURVEYED 8-3-09 | DATE DRAWN 9-16-09 |
| PARTY D.Z. O.W. D.E. | REFERENCE G.L.O. PLAT | |
| WEATHER WARM | FILE XTO ENERGY, INC. | |

LEGEND:

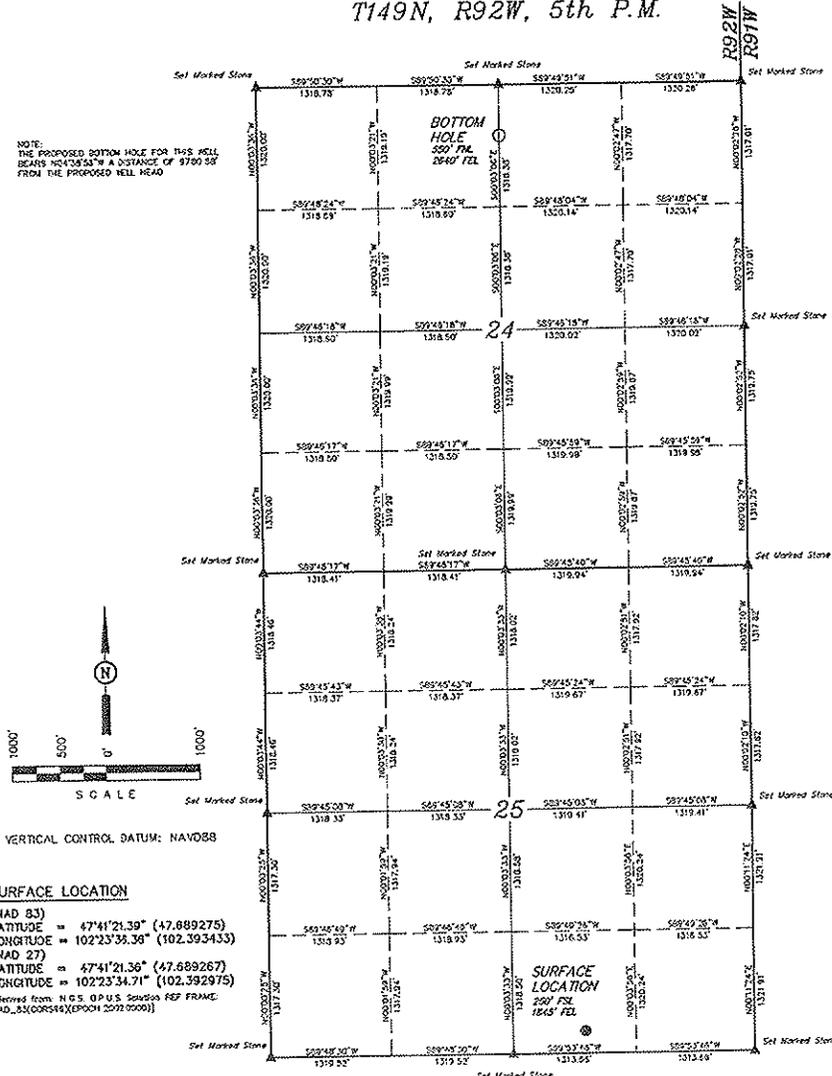
- └ = 90° SYMBOL
- = PROPOSED WELL HEAD.
- ▲ = SECTION CORNERS LOCATED.

XTO ENERGY, INC.

Well location, FBIR BAKER #34x-25, located as shown in the SW 1/4 SE 1/4 of Section 25, T149N, R92W, 5th P.M., Dunn County, North Dakota.

SECTION BREAKDOWN
T149N, R92W, 5th P.M.

NOTE:
THE PROPOSED BOTTOM HOLE FOR THIS WELL BEARS N04°38'54"W A DISTANCE OF 9700.98' FROM THE PROPOSED WELL HEAD.



VERTICAL CONTROL DATUM: NAVD83

SURFACE LOCATION

(NAD 83)
 LATITUDE = 47°41'21.39" (47.689275)
 LONGITUDE = 102°23'36.36" (102.393433)
 (NAD 27)
 LATITUDE = 47°41'21.36" (47.689267)
 LONGITUDE = 102°23'34.71" (102.392975)
 [derived from N.G.S. G.P.U.S. Solution REF FRAME:
 NAD_83(CORS84[EPOCH 2002.0000])]

CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



Troy Jensen
 REGISTERED LAND SURVEYOR
 REGISTRATION NO. 27554
 STATE OF NORTH DAKOTA

| | | |
|--|---------------------------|------------------------|
| UTAH ENGINEERING & LAND SURVEYING 85 SOUTH 200 EAST - VERNAL, UTAH 84078 (435) 789-1017 | | |
| SCALE: 1" = 1000' | DATE SURVEYED: 9-3-09 | DATE DRAWN: 9-16-09 |
| PARTY: O.Z. D.W. D.E. | REFERENCE: G.L.O. PLAT | |
| WEATHER: WARM | FILE: XTO ENERGY, INC. | |



LEGEND:

● PROPOSED LOCATION

XTO ENERGY, INC.

N
FBIR BAKER #34x-25 & FBIR WALKER 34x-25
SECTION 25, T149N, R92W, 5th P.M.
SW 1/4 SE 1/4



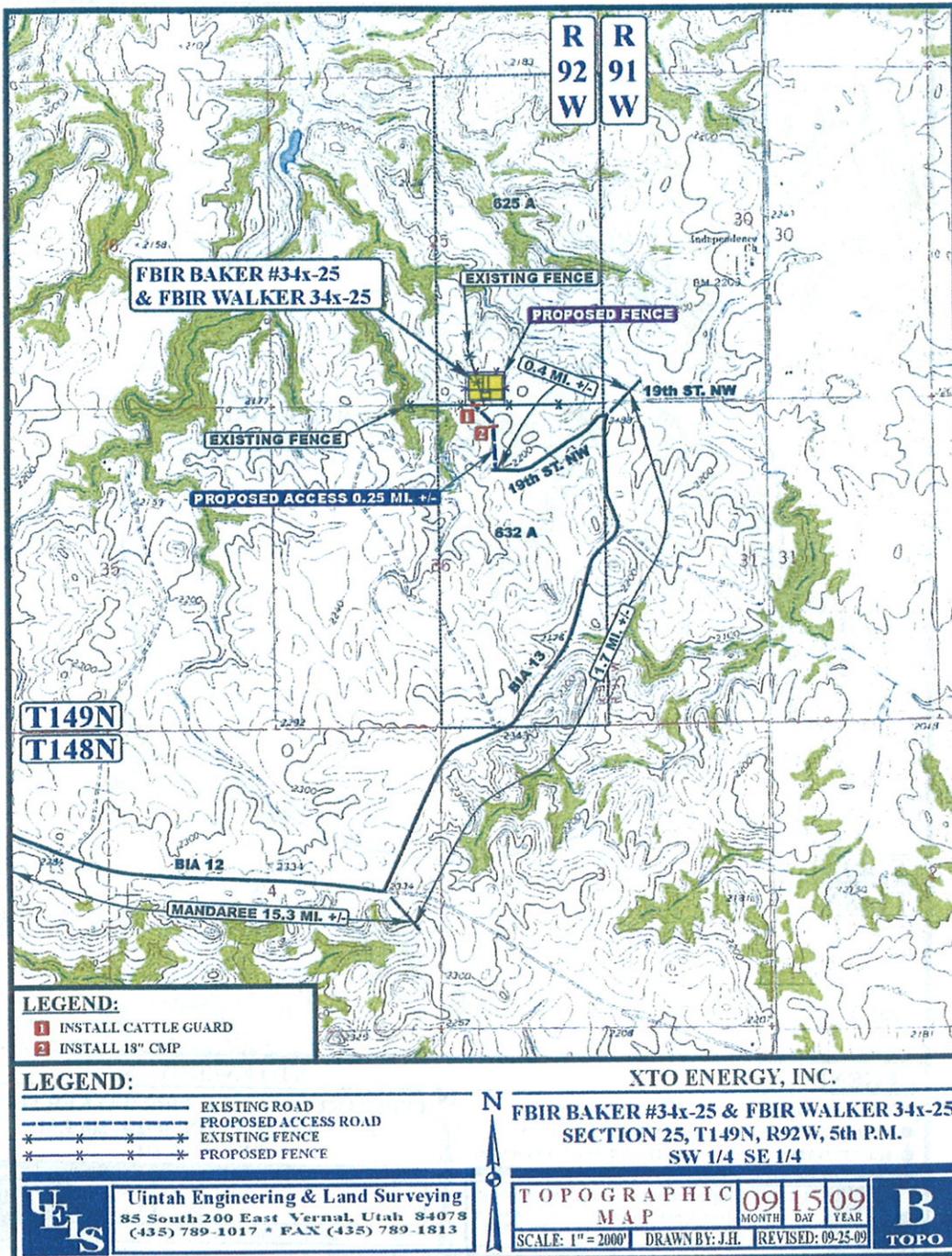
Uintah Engineering & Land Surveying
 85 South 200 East Vernal, Utah 84078
 (435) 789-1017 * FAX (435) 789-1813

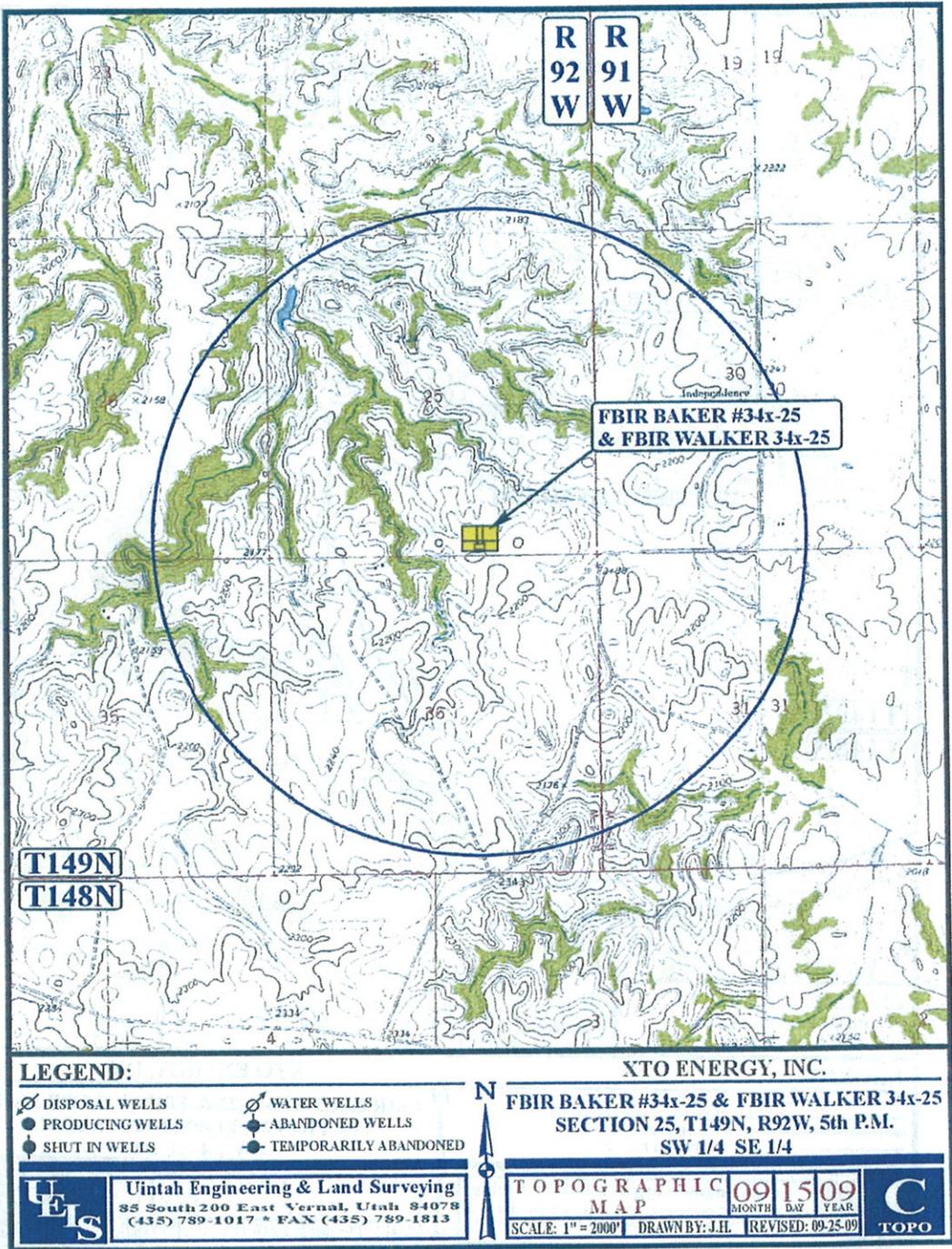
TOPOGRAPHIC
MAP

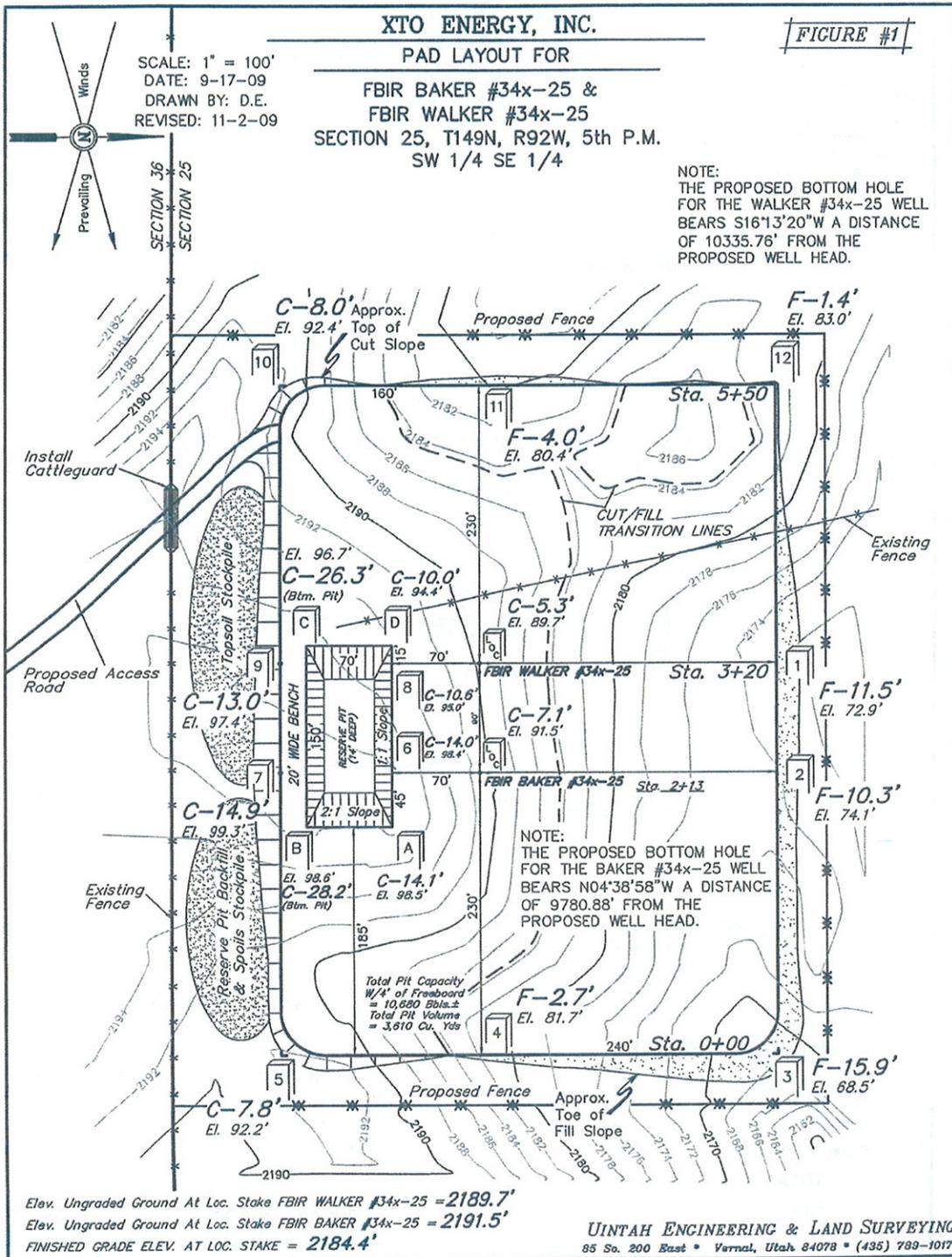
09 15 09
 MONTH DAY YEAR

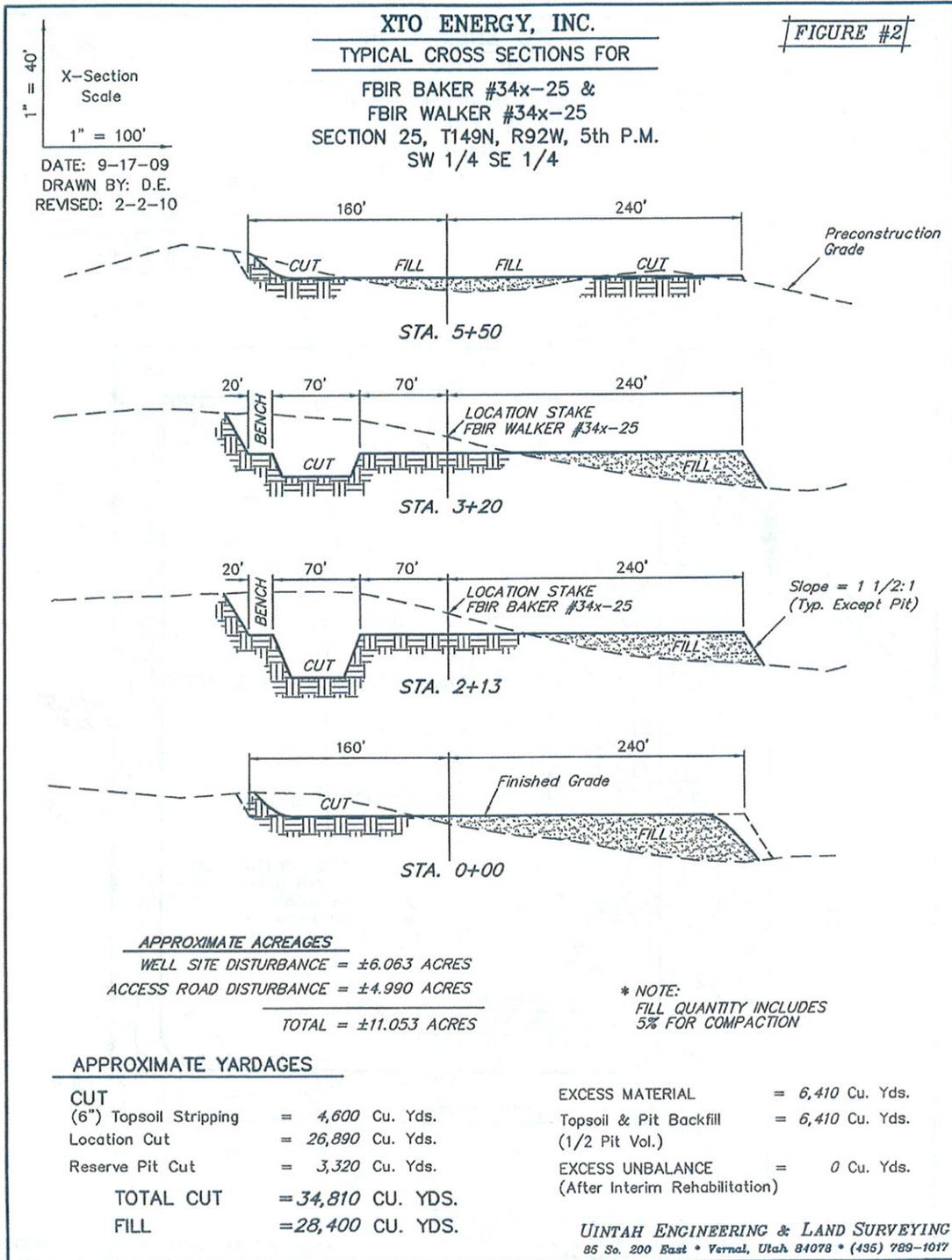


SCALE: 1:100,000 DRAWN BY: J.H.L. REVISED: 09-25-09









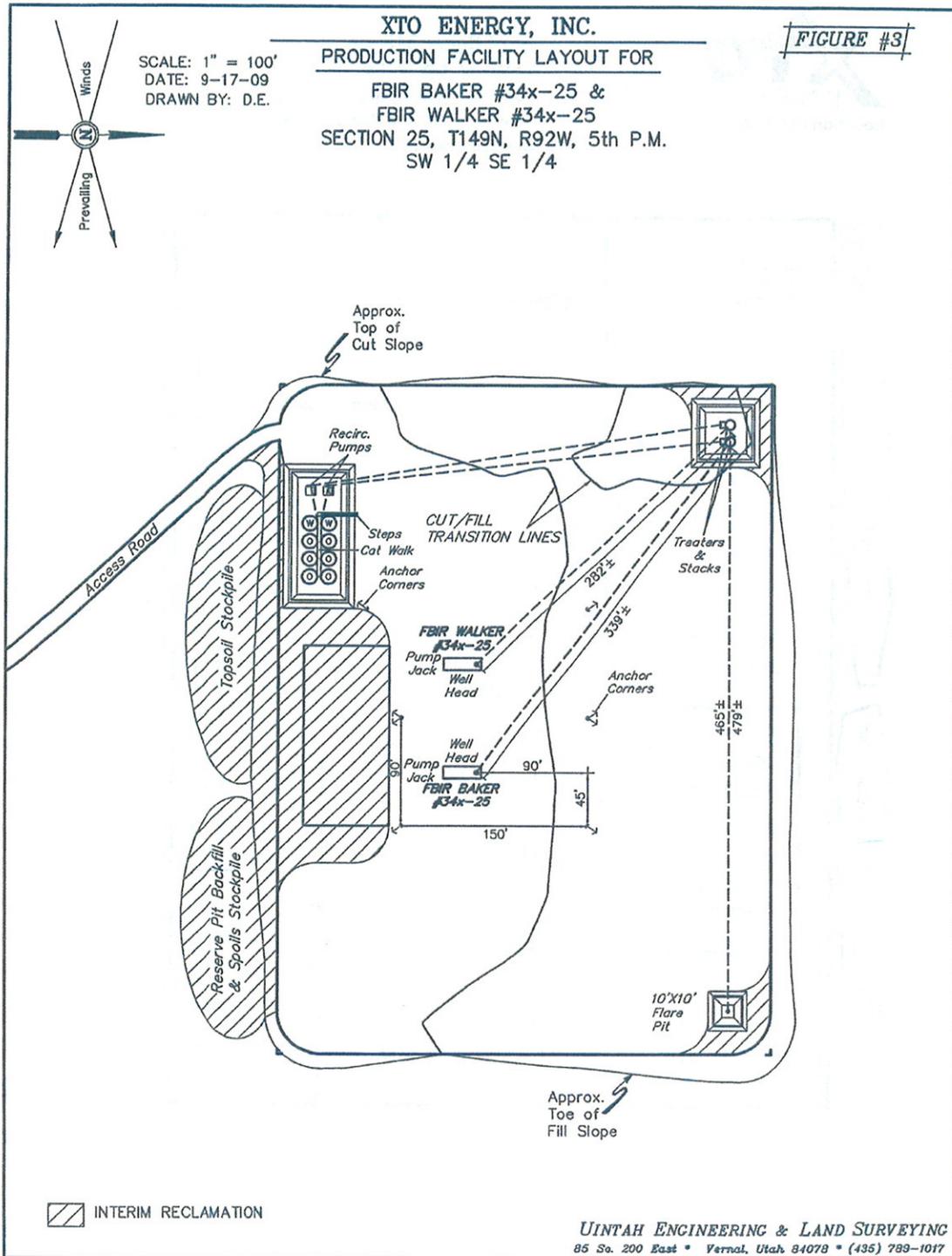


FIGURE # 4



FBIR Baker 34X-25

Location: SW SE Sec 25, 149N-92W

Footage: 250 ft FSL, 1845 ft FEL

Elev: Graded Pad 2184', KB 2208'

Dunn County, ND

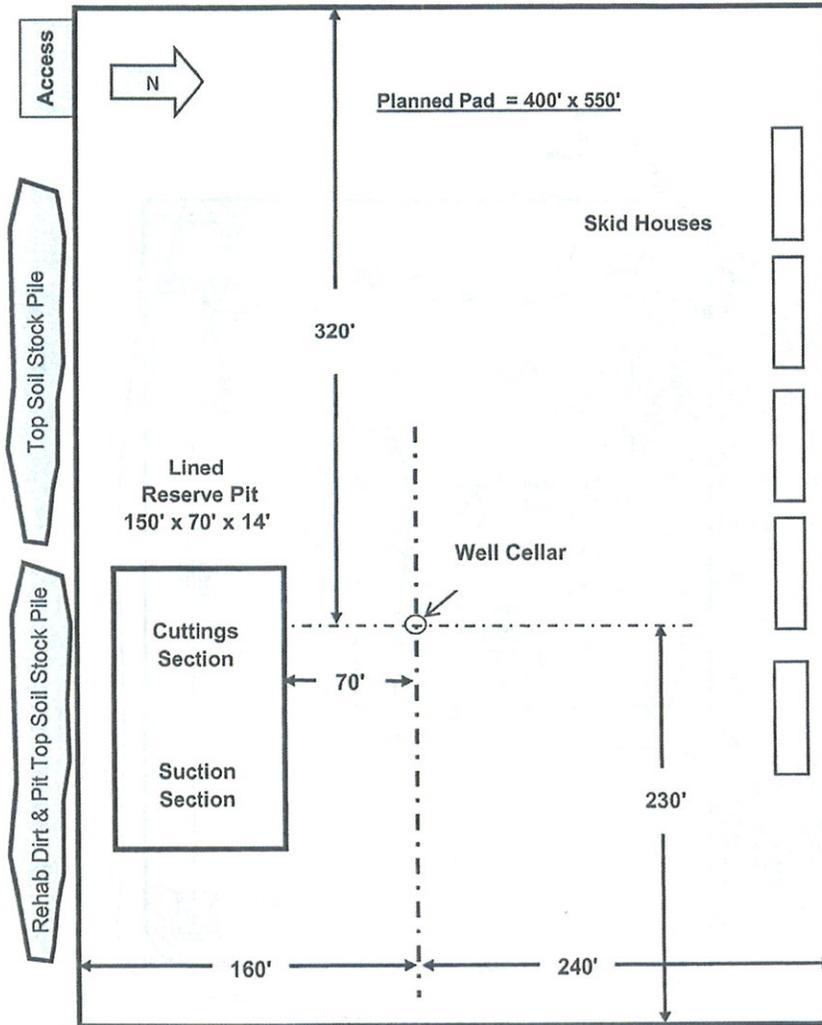
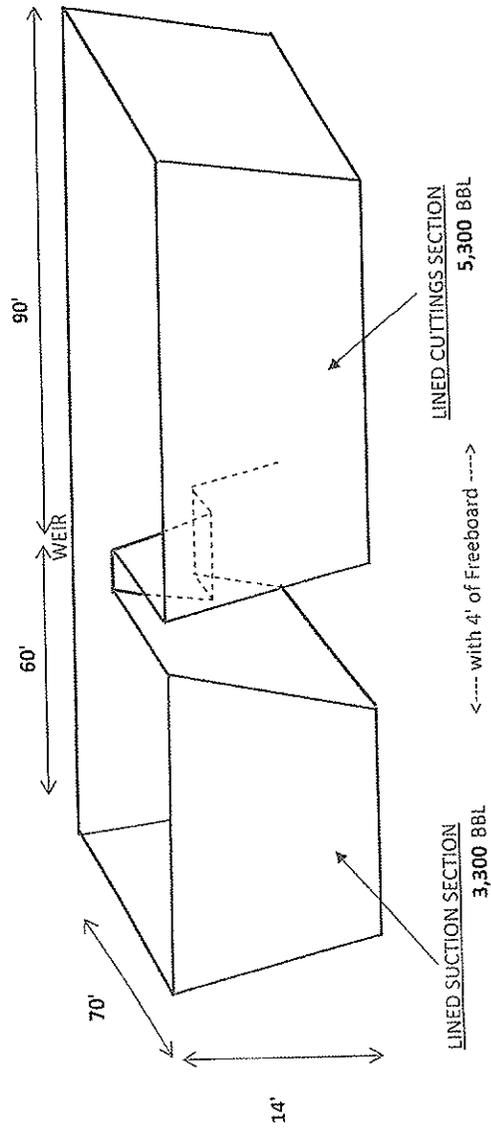


Figure #5

XTO Energy, Inc.
RESERVE PIT LAYOUT

FBIR Baker 34X-25
Location: SW SE Sec 25, 149N-92W
Footage: 250 ft FSL, 1845 ft FEL
Elev: Graded Pad 2184', KB 2208'
Dunn County, ND



LORTEX 12 MIL LINER

Woven Reinforced High Density Polyethylene Fabric Coated With Low Density Polyethylene

PHYSICAL PROPERTIES AND SPECIFICATIONS

| | |
|-----------------------------|---|
| CONSTRUCTION: | 12xD6 count per square inch Warp 950 Denier @ 50 Fill 1900 Denier @ 100 |
| FABRIC GRADE: | Industrial, Carbon Black |
| STANDARD COATING COLORS: | Black |
| STANDARD COATING THICKNESS: | 12 Mils +/- .15 mil each side LDRE |
| TOTAL THICKNESS: | 12 Mils +/- .5 mil |
| NOMINAL WEIGHT: | 5.3 oz/ square yard |
| NOMINAL TENSILE STRENGTH: | 160 lbs W x 140 lbs Fill ASTM 1682-64 (Grab) |
| TEAR STRENGTH: | 46 lbs W x 49 lbs Fill ASTM 2261-71 (Tongue) |
| MULLEN BURST STRENGTH: | 325 psi ASTM D751-73 |
| HYDROSTATIC RESISTANCE: | 125 psi ASTM D1682-63 |
| FLEX ABRASION: | 5000+ cycles W 5000+ cycles Fill ASTM D1175-71 |
| PUNCTURE RESISTANCE: | 40 pounds FTMS 101B method 2065 |
| IDENTIFICATION: | Printed in white ink "12 Mil" on 36 inch repeat |

FIGURE #7

XTO ENERGY, INC.
FBIR BAKER #34x-25 & FBIR WALKER 34x-25
LOCATED IN DUNN COUNTY, NORTH DAKOTA
SECTION 25, T149N, R92W, 5th P.M.



PHOTO: VIEW FROM CORNER #1 TO LOCATION STAKE

CAMERA ANGLE: SOUTHERLY



PHOTO: VIEW FROM BEGINNING OF PROPOSED ACCESS

CAMERA ANGLE: NORTHERLY



Uintah Engineering & Land Surveying
85 South 200 East Vernal, Utah 84078
(435) 789-1017 * FAX (435) 789-1813

LOCATION PHOTOS

09 15 09
MONTH DAY YEAR

PHOTO

TAKEN BY: D.Z.

DRAWN BY: J.H.

REVISED: 09-25-09

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. **7420A 48538**
7420A48705;7420A48710;7420A49713;

6. If Indian, Allottee or Tribe Name
Three Affiliated Tribes -
See SUPO for Allottee's Names

7. If Unit or CA Agreement, Name and No.

1a. Type of work: DRILL REENTER

1b. Type of Well: Oil Well Gas Well Other Single Zone Multiple Zone

2. Name of Operator XTO Energy, Inc.

8. Lease Name and Well No.
Walker 34X-25

9. API Well No.
Pending

3a. Address 7114 W. Jefferson Ave., Suite 305
Denver, CO 80235

3b. Phone No. (include area code)
303.969.8280

10. Field and Pool, or Exploratory
Heart Butte - Bakken

4. Location of Well (Report location clearly and in accordance with any State requirements.)*

At surface 250' FSL & 1935' FEL, SWSE Sec. 25-T149N-R92W

At proposed prod. zone 550' FNL & 2090' FWL, NENW Sec. 36-T149N-R92W

11. Sec., T. R. M. or Bk. and Survey or Area
25-149N-92W

14. Distance in miles and direction from nearest town or post office*

12. County or Parish
Dunn

13. State
ND

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 250'

16. No. of acres in lease
640 Ac. Spacing Unit

17. Spacing Unit dedicated to this well
W/2 Sec. 36-149N-92W and
E/2 Sec. 4-148N-92W

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. n/a

19. Proposed Depth
21,144' MD
10,363' TVD

20. BLM/BIA Bond No. on file
UTB000138

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
2190' GL

22. Approximate date work will start*
09/01/2010

23. Estimated duration
45 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

- | | |
|---|---|
| <ul style="list-style-type: none"> 1. Well plat certified by a registered surveyor. 2. A Drilling Plan. 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | <ul style="list-style-type: none"> 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). 5. Operator certification 6. Such other site specific information and/or plans as may be required by the BLM. |
|---|---|

| | | |
|---|---|--------------------|
| 25. Signature  | Name (Printed/Typed) J. Michael Warren | Date 03/26/2010 |
|---|---|--------------------|

Title Regulatory Supervisor

| | | |
|-------------------------|----------------------|------|
| Approved by (Signature) | Name (Printed/Typed) | Date |
|-------------------------|----------------------|------|

| | | |
|-------|--------|--|
| Title | Office | |
|-------|--------|--|

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)



Drilling Plan - Drill, Complete & Equip Single Lateral Wellbore in the Bakken

Well Name and Location

FBIR Walker 34X-25

Location: SW SE Sec 25, 149N-92W
 Footage: 250 ft FSL, 1935 ft FEL
 Elev: Graded Pad 2184', KB 2208'
 Dunn County, ND

| | | |
|-----------|------------|-------|
| Latitude | 47.689275 | North |
| Longitude | 102.393800 | West |

Driving Directions

From Mandaree, ND: 15.3 mi ESE on BIA 12, 1.7 mi NE x N on BIA 13, 0.4 mi SW on 19th St. NW, then 0.25 mi N into location

Drilling Rig Description

Rig Patterson 311
 Draw Works Oilwell 860-E - 1400 HP
 Mast Pyramid 142' mast (750,000# on 12 lines)
 Prime Movers 3 - Caterpillar 3512 w/ 1365 KW generators
 Pumps 2 - NOV FD-1600 (independently driven)
 BOPE Shaffer 13-5/8" 5,000 psi double gate BOP
 Hydril 13-5/8" 5,000 psi Annular BOP
 4" x 10,000 psi manifold

Formation Tops

| Formation | TVD | Notes |
|---------------------|--------|-------------------------------------|
| Base of Fox Hills | 1,888 | |
| Greenhorn | 4,311 | |
| Dakota Silt | 5,031 | Brackish Water |
| Dunham Salt | 6,201 | (0 - 50+ ft) |
| Spearfish | 6,511 | |
| Pine / Opeche Salts | 6,685 | (+400 ft) |
| Minnelusa | 7,130 | soft/hard formation |
| Tyler | 7,616 | laminations can wipe |
| Kibbey Lime | 8,061 | out bit if drilled too aggressively |
| Charles | 8,220 | |
| Base Last Salt | 8,717 | |
| Mission Canyon | 8,895 | Possible losses |
| Lodgepole | 9,496 | |
| Bakken Shale | 10,333 | |
| Middle Bakken | 10,351 | |
| Target - Bakken | 10,363 | |

Offset XTO Wells - none

Logging, DST and Coring Program

- A mud log will be run from Base of Last Salt to TD & on all laterals: Mudlog to include: total gas chromatograph and sample cuttings - 10' sample intervals in vertical hole & 30' intervals in laterals. A CBL/GR log will be run from deepest free-fall depth in 7 inch casing to surface. An MWD GR/ROP log will also be run from KOP (where the CBL will tie into) to TD of lateral.
- Open hole logs are anticipated for this well.
- No DST's are planned at this time.

H2S

A minor H2S show may be present from below Base Last Salt to KOP. If noticed, RU H2S safety trailer etc.

Maximum Formation Pressure and Temp

- Normal formation pressure gradient is expected (up to 0.5 psi/ft or 9.6 ppg) from surface to the Bakken Shale. The Bakken Shale, Bakken Middle Member, and Three Forks may be over pressured up as much as 0.66 psi/ft (12.8 ppg).
- The maximum anticipated BHT is 250 degrees F. or less.

BOP Equipment Requirements

See attached diagram detailing BOPE specifications.

- Rig will be equipped with upper and lower kelly cocks with handles available.
- Inside BOP and TIW valves will be available to use on all sizes and threads of DP used on well.
- BOP accumulator will have enough capacity to close HCR valve, close all rams plus annular preventer & retain minimum of 200 psi above precharge on the closing manifold without the use of closing pumps. The fluid reservoir capacity shall be at least double the usable fluid volume of the accumulator system capacity & the fluid level shall be maintained at manufacturer's recommendation. There will be 2 additional sources of power for the closing pumps (electric and air). Sufficient N2 bottles will be available and will be recharged when pressure falls below manufacturer's minimum.
- BOP ram preventers will be tested to 5,000 psi using a test plug when initially installed and after 7 inch casing is nipped up and at 30 day intervals. Test BOP & casing strings to 1,500 psi just prior to drilling out 9-5/8" and 7" casing shoes. Function test rams and hydraulically operated remote choke line valve daily (preferably at every crew change).
- Remote valve for BOP rams. HCR & choke shall be placed in a location that is readily available to Driller. The remote BOP valve shall be capable of closing and opening the rams.
- Hand wheels on BOP shall be equipped with locking devices. A locking device shall be placed on annular preventer line valve & must be locked in the open position. This lock shall only be removed when the closing unit is inoperative.

Drilling Fluid and Related Equipment

- Pumps shall be equipped with stroke counters with displays located in dog house. Slow pump speed shall be recorded on drilling report daily after mudding up.
- A Pit Volume Totalizer will be installed and the readout will be displayed in the dog house.
- Gas detecting equipment (for a chromatograph) will be installed at shaker. Readouts will be available in dog house and in geologist trailer.

4. In the event gas flow becomes an issue. A flare pit shall be constructed not less than 100' from wellhead & 50' from reserve pit area. Lines to the flare pit will be straight runs (staked down) and turns will utilize targeted tees. Flare pit will be located down wind as much as possible. An electronic ignitor will be used along with a propane line to provide for a continuous flare pilot.

Drilling Plan

Section 1 - Surface Casing>> Surface to: 2,020 (Surface Casing Depth + 20')

Conductor: 16" set at 45' - 80' (depending on gravel or coal depths)
 Hole Size: 13-1/2"
 Mud: Fresh Water
 Bits: Type 1 mill tooth
 Procedure: Set 16" conductor pipe into firm clay (45'-80').
 Drill to casing setting depth (plus necessary rat hole).
After reaching TD, run multi-shot directional survey (inclination and azimuth at 100' stations).
 Run casing and cement. Weld on C22 5M psi casing head. NU 11" x 5M psi drilling spool.
 NU 5M psi BOPE. Test to 5,000 psi.
 Casing: 9-5/8" 36# K-55 8rd ST&C R3 SMLS - New. Set at: 2,000 ft
 Centralizers: 2 turbolizers per jt on 1st 2 jts (stop banded 10' from each collar) & 1 regular centralizer per 5 jts to surface.
 Cement: Lead Slurry: 410 Sacks
 High Yield Class C w/ 3% CaCl₂, water control & 1/8 #/sk polyflakes. Mixed at 19.6 gps wtr, 3.2 cf/sk yield & 11.2 ppg.
 Tail Slurry: 200 Sacks
 Class G with 2% CaCl₂ & 1/8 #/sk polyflakes. Mixed at 4.97 gps wtr, 1.15 cf/sk yield and 15.8 ppg.
 Note: Volumes calculated assuming 55% excess over 13-1/2" hole size.

Section 2 - Surf Csg Shoe to KOP>> 2,000 to: 9,954

Hole Size: 8-3/4"
 Mud: Invert - 80% Diesel / 20% Salt Water. Mud Weight 9.5 - 9.7 PPG. ES 500-600.
 Bits: PDC bits with mud motors and MWD.
 Procedure: Drill w/ PDC bit & mud motor. Steer as needed with MWD or SWD. Survey every 90'. Hold deviation to 2 deg max from surf csg shoe to ~6,000'; then ~3 deg max to ~8,000'; then ~4 deg max to KOP. Condition hole for logs (if needed). TOH

Logs: Mudlogger will start at Base of Last Salt.
 if required by the State { GR, Resistivity, BHC Sonic From TD To Surf Csg
 Density - Neutron Porosity From TD To 50' above Tyler

Section 3 - Drill Curve (14 Degree/100')>> 9,954 to: 11,696 7" Casing Point

Hole Size: 8-3/4"
 Mud: Invert - 80% Diesel / 20% Salt Water. Mud weight 9.5 - 9.7 PPG. ES 500-600.
 Bits: Type 3 Insert Roller Cone.
 Procedure: Drill Curve per directional plan (maximum survey interval is 30').
 Casing: Set 7" 29# P-110 LT&C and 32# MS or P-110 (100' above and below salts) at 11,676 ft

Anticipated Casing Design to facilitate fracture stimulating down casing

| Top | Btm | Ftg | |
|--------|--------|-------|---|
| 0 | 6,101 | 6,101 | 7" 29# P-110 LT&C Surf to 100' above Dunham salt |
| 6,101 | 7,230 | 1,129 | 7" 32# P-110 LT&C 100' above Dunham to 100' below base of Pine/Opeche salts |
| 7,230 | 8,120 | 890 | 7" 29# P-110 LT&C 100' below base of Pine/Opeche to 100' above Charles salt |
| 8,120 | 8,817 | 697 | 7" 32# P-110 LT&C 100' above Charles salt to 100' below Base of Last Salt |
| 8,817 | 10,054 | 1,237 | 7" 29# MS-110 LT&C 100' below Base of Last Salt 100' below KOP |
| 10,054 | 11,676 | 1,622 | 7" 29# P-110 LT&C 100' below KOP to TD |

Centralizers: 2 stand-off bands per jt on btm 3 jts (banded 10' from collars). 1 stand-off band on every other jt from curve landing depth through KOP. 1 turbolizer centralizer per jt from 100' above to 100' below each salt section. Then, 1 regular centralizer per 5 jts up to anticipated cement top.
 Cement: Lead Slurry: 225 Sacks (est. TOC ~ 300' above Mowry)
 LiteCRETE with defoamer, fluid loss additive, dispersant, retarder, 10% salt & 1/8 #/sk polyflakes. Mixed at 6.528 gps, 1.86 cf/sk, 11.5 ppg
 1st Tail Slurry: 476 Sacks (est. TOC 200' above Dunham Salt)
 Class G with 35% silica flour, 10% salt, dispersant, fluid loss additive, retarder, 1/8#/sk polyflakes. Mixed at 7.145 gal/sk, 1.65 cf/sk, 15.6 ppg.
 2nd Tail Slurry: 436 Sacks (est TOC 100' below the Mission Canyon)
 Class G with 35% silica flour, 10% salt, expanding agent, dispersant, defoamer, fluid loss additive, retarder, 1/8 #/sk polyflakes. Mixed at 6.911 gal/sk, 1.62 cf/sk, 15.8 ppg.
 NOTE: Slurry volumes are based on 9" hole + 50% excess (= 8.75" hole + 75% excess)
 Logs: MWD GR/ROP. Mud log.

Section 4 - Lateral #1>> 11,676 to: 21,144 TD (MD)

Hole Size: 6"
 Mud: Salt Water Mud. Typically 9.5-9.7 ppg using NaCl. If conditions warrant use CaCl brine (up to 11.2 ppg).
 Bits: PDC bits.
 Procedure: T1H w/bit and directional tools. Drill open hole lateral per directional plan to TD target. Max survey interval in lateral is 90'.
 TOH with DP & BHA. Run 4 1/2" 11.35# J-55 FM-II liner w/ pre-drilled, 0.5" holes per 2 ft below bottom-most external swell pkr, followed by 13.5# P-110 FM-II blank pipe with external swell packers (evenly spaced in open hole, unless natural fractures were encountered while drilling) from +/- TD to last swell packer in open hole. Run 4.5" 13.5# P-110 Tenaris-Blue casing above last swell packer in the open hole to +/- KOP, with a final swell packer located immediately below the liner hanger.
 Once liner is run, circulate out oil & gas and spot FW in lateral to activate swell pkr. Drop ball & wait +/- 1 hr for it to seat.
 Set liner hanger & top pkr - test to +/- 5,000 psi.
 Liner: Top: 9,954 - KOP Btm: 21,144 <- spaced out as close to TD as possible

Finalize Well >>>> Set wireline-set, tubing-retrievable packer with BHP gauges and top blanking plug installed at, or just above, KOP. LD DP. ND BOP and NU tree. RDMO.

Prepared By: Ross H. Lubbers



Well Construction Diagram

From Mandaree, ND: 15.3 mi ESE on BIA 12, 1.7 mi NE x N on BIA 13, 0.4 mi SW on 19th St, NW, then 0.25 mi N into location

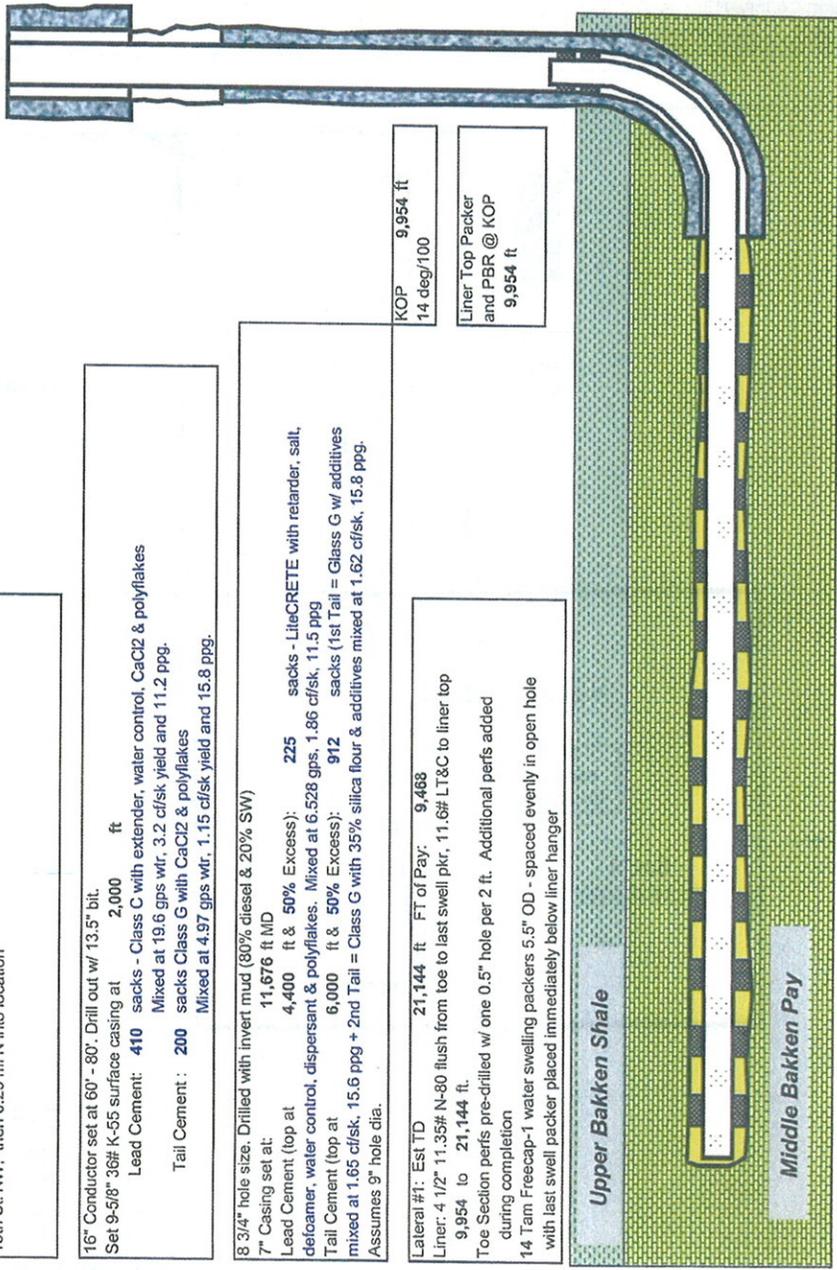
FBIR Walker 34X-25
 Location: SW SE Sec 25, 149N-92W
 Footage: 250 ft FSL, 1935 ft FEL
 Elev: Graded Pad 2184', KB 2208'
 Dunn County, ND

16" Conductor set at 60' - 80' Drill out w/ 13.5" bit.
 Set 9-5/8" 36# K-55 surface casing at 2,000 ft
 Lead Cement: 410 sacks - Class C with extender, water control, CaCl₂ & polyflakes
 Mixed at 19.6 gps wtr, 3.2 cf/sk yield and 11.2 ppg.
 Tail Cement: 200 sacks Class G with CaCl₂ & polyflakes
 Mixed at 4.97 gps wtr, 1.15 cf/sk yield and 15.8 ppg.

8 3/4" hole size. Drilled with invert mud (80% diesel & 20% SW)
 7" Casing set at 11,676 ft MD
 Lead Cement (top at 4,400 ft & 50% Excess): 225 sacks - LiteCRETE with retarder, salt, defoamer, water control, dispersant & polyflakes. Mixed at 6.528 gps, 1.86 cf/sk, 11.5 ppg
 Tail Cement (top at 6,000 ft & 50% Excess): 912 sacks (1st Tail = Glass G w/ additives mixed at 1.65 cf/sk, 15.6 ppg + 2nd Tail = Class G with 35% silica flour & additives mixed at 1.62 cf/sk, 15.8 ppg. Assumes 9" hole dia.

Lateral #1: Est TD 21,144 ft FT of Pay: 9,468
 Liner: 4 1/2" 11.35# N-80 flush from toe to last swell pkr, 11.6# LT&C to liner top 9,954 to 21,144 ft.
 Toe Section perfs pre-drilled w/ one 0.5" hole per 2 ft. Additional perfs added during completion
 14 Tam Freecap-1 water swelling packers 5.5" OD - spaced evenly in open hole with last swell packer placed immediately below liner hanger

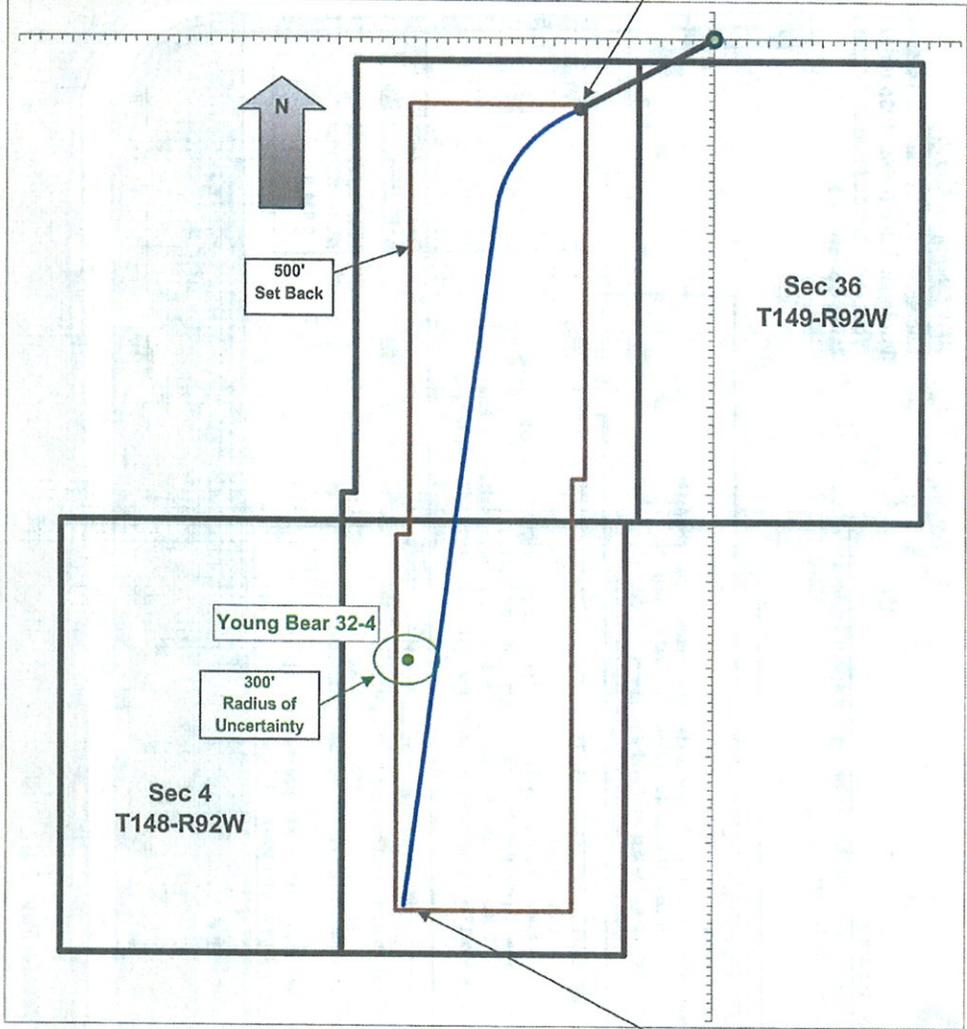
KOP 9,954 ft
 14 deg/100
 Liner Top Packer and PBR @ KOP 9,954 ft



DIRECTIONAL DRILLING PLAN
FBIR Walker 34X-25
 Location: SW SE Sec 25, 149N-92W
 Footage: 250 ft FSL 1935 ft FEL
 Elev: Graded Pad 2184', KB 2208'
 Dunn County, ND
 Scale: 1 sq = 100'

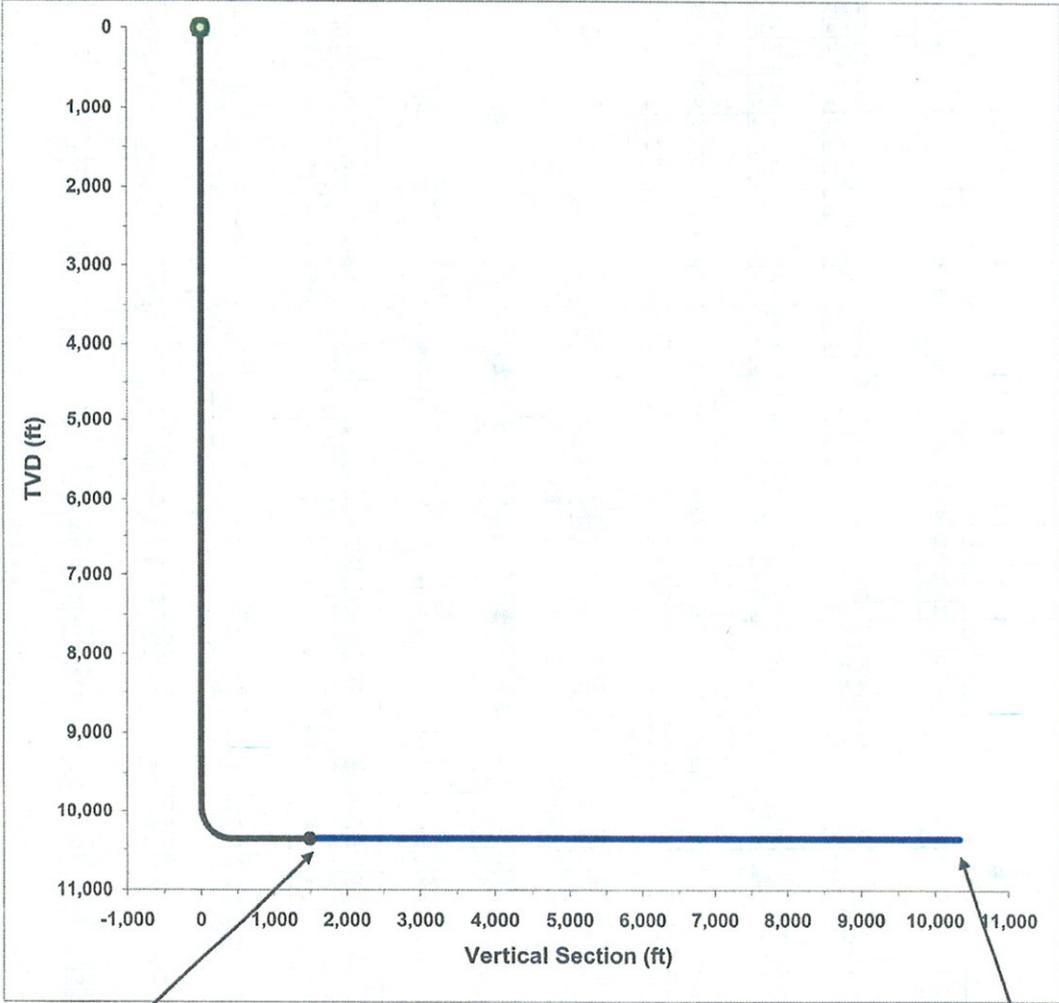


7" Casing: 11,676 FT MD
 BHL: 2,090 ft FWL 550 ft FNL
 Coord: 1255 W 800 S
 Az to Shoe: 237.50 Deg



| TARGET | |
|--------------------|-----------|
| TMD: | 21,144 ft |
| TVD: | 10,363 ft |
| 9,924 SOW | 2,887 WOW |
| 550 FSL | 2,090 FEL |
| WH to BH Target Az | 196.22 |

DIRECTIONAL DRILLING PLAN
FBIR Walker 34X-25
 Location: SW SE Sec 25, 149N-92W
 Footage: 250 ft FSL 1935 ft FEL
 Elev: Graded Pad 2184', KB 2208'
 Dunn County, ND
 Scale: 1 sq = 500'



7" Casing: 11,676 FT MD
 BHL: 2,090 ft FWL 550 ft FNL
 Coord: 1255 W 800 S
 Az to Shoe: 237.50 Deg

TARGET
 TMD: 21,144 ft
 TVD: 10,363 ft
 9,924 SOW 2,887 WOW
 550 FSL 2,090 FEL
 WH to BH Target Az 196.22

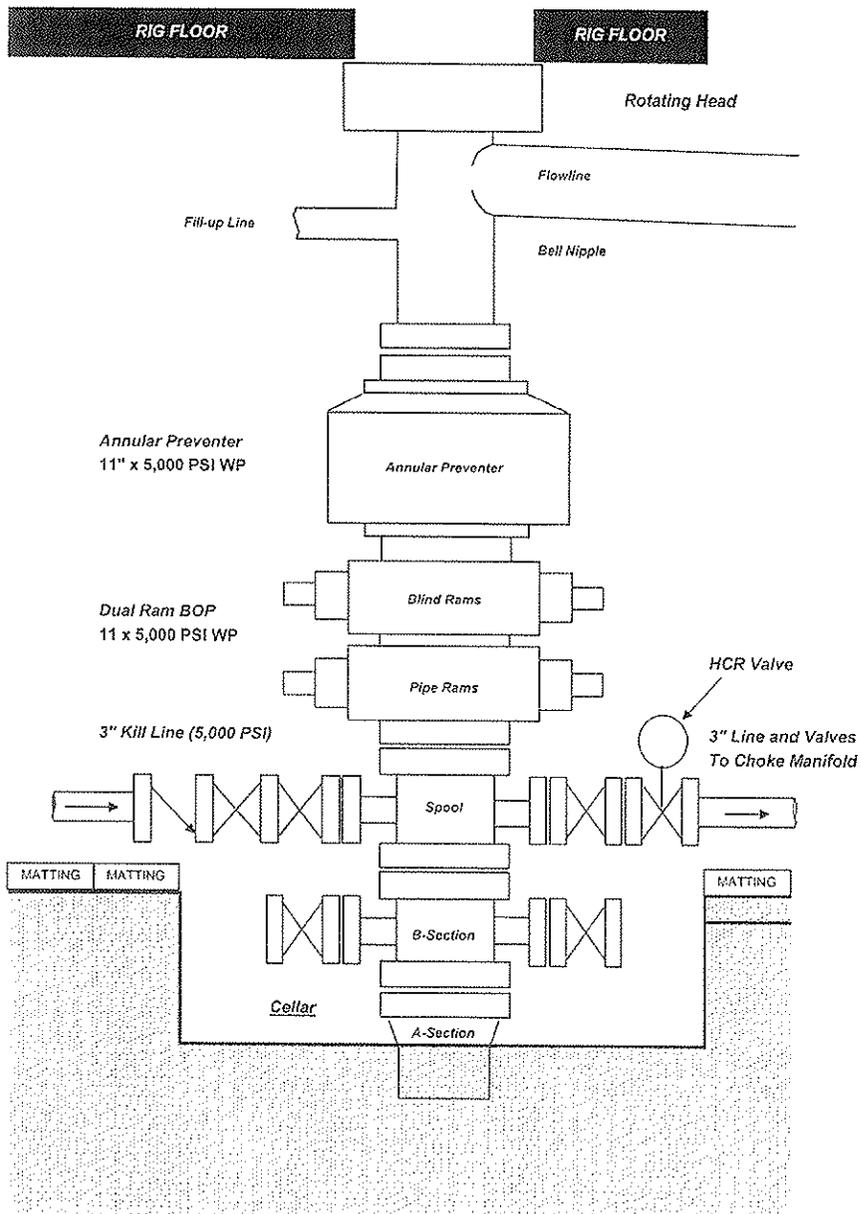
HORIZONTAL DRILLING PLAN - LATERAL NO.1

| Company XTO Energy, Inc | | | | | | | | | | | | Target Inclination | | 90 | | | | | |
|-------------------------|-----|--------|-------|--------|-------|----------|---------|-----------|-----------|-------|-------|----------------------|-------|------------------|--|-----------------------------------|--|-------------------------|--|
| Well FBIR Walker 34X-25 | | | | | | | | | | | | Magnetic Declination | | | | | | | |
| Build Rate | | | | | | | | | | | | 14.00 | | Target TVD | | 10,363 | | | |
| Relative Turn Direction | | | | | | | | | | | | L | | Target Azimuth | | 196.22 237.50 Initial Azimuth | | | |
| Turn Rate - Deg/100 | | | | | | | | | | | | 4.00 | | 51.42 Total Turn | | Target Coordinates from Surf Locn | | 2887 W 9924 S 10,335 VS | |
| Date | No. | DEPTH | INC. | AZM | C.L. | T.V.D. | V.S. | N/S | E/W | DLS | B./D. | Walk | BRN | | | | | | |
| | 1 | 0 | | | | 0.00 | 0.00 | 0.00 N | 0.00 E | 0.00 | | | 0.00 | | | | | | |
| KOP1 | 2 | 9,954 | 0.00 | 0.00 | 9954 | 9953.74 | 0.00 | 0.00 N | 0.00 E | 0.00 | 0.00 | 0.00 | 14.00 | | | | | | |
| | 3 | 9,967 | 1.80 | 237.50 | 12.9 | 9966.60 | 0.20 | 0.11 S | 0.17 W | 14.00 | 14.00 | 1847.22 | 14.00 | | | | | | |
| | 4 | 9,979 | 3.60 | 237.50 | 12.9 | 9979.44 | 0.81 | 0.43 S | 0.68 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 5 | 9,992 | 5.40 | 237.50 | 12.9 | 9992.26 | 1.82 | 0.98 S | 1.53 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 6 | 10,005 | 7.20 | 237.50 | 12.9 | 10005.04 | 3.23 | 1.73 S | 2.72 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 7 | 10,018 | 9.00 | 237.50 | 12.9 | 10017.77 | 5.04 | 2.71 S | 4.25 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 8 | 10,031 | 10.80 | 237.50 | 12.9 | 10030.43 | 7.25 | 3.89 S | 6.11 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 9 | 10,044 | 12.60 | 237.50 | 12.9 | 10043.02 | 9.86 | 5.30 S | 8.31 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 10 | 10,057 | 14.40 | 237.50 | 12.9 | 10055.52 | 12.86 | 6.91 S | 10.84 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 11 | 10,069 | 16.20 | 237.50 | 12.9 | 10067.92 | 16.25 | 8.73 S | 13.70 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 12 | 10,082 | 18.00 | 237.50 | 12.9 | 10080.21 | 20.03 | 10.76 S | 16.89 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 13 | 10,095 | 19.80 | 237.50 | 12.9 | 10092.37 | 24.19 | 13.00 S | 20.40 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 14 | 10,108 | 21.60 | 237.50 | 12.9 | 10104.40 | 28.74 | 15.44 S | 24.24 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 15 | 10,121 | 23.40 | 237.50 | 12.9 | 10116.28 | 33.66 | 18.09 S | 28.39 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 16 | 10,134 | 25.20 | 237.50 | 12.9 | 10128.00 | 38.95 | 20.93 S | 32.85 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 17 | 10,147 | 27.00 | 237.50 | 12.9 | 10139.54 | 44.60 | 23.97 S | 37.62 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 18 | 10,159 | 28.80 | 237.50 | 12.9 | 10150.90 | 50.62 | 27.20 S | 42.69 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 19 | 10,172 | 30.60 | 237.50 | 12.9 | 10162.07 | 56.99 | 30.62 S | 48.06 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 20 | 10,185 | 32.40 | 237.50 | 12.9 | 10173.03 | 63.71 | 34.23 S | 53.73 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 21 | 10,198 | 34.20 | 237.50 | 12.9 | 10183.78 | 70.77 | 38.02 S | 59.68 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 22 | 10,211 | 36.00 | 237.50 | 12.9 | 10194.30 | 78.16 | 42.00 S | 65.92 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 23 | 10,224 | 37.80 | 237.50 | 12.9 | 10204.68 | 85.88 | 46.14 S | 72.43 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 24 | 10,237 | 39.60 | 237.50 | 12.9 | 10214.61 | 93.92 | 50.46 S | 79.21 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 25 | 10,249 | 41.40 | 237.50 | 12.9 | 10224.39 | 102.27 | 54.95 S | 86.25 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 26 | 10,262 | 43.20 | 237.50 | 12.9 | 10233.90 | 110.92 | 59.60 S | 93.55 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 27 | 10,275 | 45.00 | 237.50 | 12.9 | 10243.13 | 119.86 | 64.41 S | 101.09 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 28 | 10,288 | 46.80 | 237.50 | 12.9 | 10252.08 | 129.10 | 69.37 S | 108.88 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 29 | 10,301 | 48.60 | 237.50 | 12.9 | 10260.73 | 138.61 | 74.48 S | 116.90 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 30 | 10,314 | 50.40 | 237.50 | 12.9 | 10269.08 | 148.38 | 79.73 S | 125.14 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 31 | 10,327 | 52.20 | 237.50 | 12.9 | 10277.12 | 158.42 | 85.12 S | 133.60 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 32 | 10,339 | 54.00 | 237.50 | 12.9 | 10284.84 | 168.70 | 90.64 S | 142.28 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 33 | 10,352 | 55.80 | 237.50 | 12.9 | 10292.23 | 179.21 | 96.29 S | 151.15 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 34 | 10,365 | 57.60 | 237.50 | 12.9 | 10299.29 | 189.96 | 102.07 S | 160.21 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 35 | 10,378 | 59.40 | 237.50 | 12.9 | 10306.01 | 200.92 | 107.96 S | 169.45 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 36 | 10,391 | 61.20 | 237.50 | 12.9 | 10312.38 | 212.09 | 113.96 S | 178.87 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 37 | 10,404 | 63.00 | 237.50 | 12.9 | 10318.39 | 223.45 | 120.06 S | 188.45 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 38 | 10,417 | 64.80 | 237.50 | 12.9 | 10324.05 | 235.00 | 126.27 S | 198.19 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 39 | 10,429 | 66.60 | 237.50 | 12.9 | 10329.34 | 246.71 | 132.56 S | 208.07 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 40 | 10,442 | 68.40 | 237.50 | 12.9 | 10334.26 | 258.59 | 138.94 S | 218.09 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 41 | 10,455 | 70.20 | 237.50 | 12.9 | 10338.81 | 270.62 | 145.41 S | 228.23 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 42 | 10,468 | 72.00 | 237.50 | 12.9 | 10342.97 | 282.78 | 151.94 S | 238.49 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 43 | 10,481 | 73.80 | 237.50 | 12.9 | 10346.75 | 295.07 | 158.54 S | 248.85 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 44 | 10,494 | 75.60 | 237.50 | 12.9 | 10350.14 | 307.47 | 165.21 S | 259.31 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 45 | 10,507 | 77.40 | 237.50 | 12.9 | 10353.14 | 319.97 | 171.92 S | 269.86 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 46 | 10,519 | 79.20 | 237.50 | 12.9 | 10355.75 | 332.56 | 178.69 S | 280.47 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 47 | 10,532 | 81.00 | 237.50 | 12.9 | 10357.96 | 345.22 | 185.49 S | 291.16 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 48 | 10,545 | 82.80 | 237.50 | 12.9 | 10359.77 | 357.95 | 192.33 S | 301.89 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 49 | 10,558 | 84.60 | 237.50 | 12.9 | 10361.18 | 370.73 | 199.20 S | 312.67 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 50 | 10,571 | 86.40 | 237.50 | 12.9 | 10362.19 | 383.55 | 206.09 S | 323.48 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| | 51 | 10,584 | 88.20 | 237.50 | 12.9 | 10362.80 | 396.39 | 212.99 S | 334.31 W | 14.00 | 14.00 | 0.00 | 14.00 | | | | | | |
| END OF CURVE | 52 | 10,597 | 90.00 | 237.50 | 12.9 | 10363.00 | 409.24 | 219.89 S | 345.15 W | 14.00 | 14.00 | 0.00 | 0.00 | | | | | | |
| CASING SHOE | 53 | 11,576 | 90.00 | 237.50 | 1079 | 10363.00 | 1488.24 | 799.64 S | 1255.17 W | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | |
| START TURN | 54 | 11,626 | 90.00 | 237.50 | 150 | 10363.00 | 1638.24 | 880.23 S | 1381.68 W | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | |
| | 55 | 11,851 | 90.00 | 236.47 | 25.71 | 10363.00 | 1250.61 | 894.24 S | 1403.23 W | 4.00 | 0.00 | -4.00 | 0.00 | | | | | | |
| | 56 | 11,877 | 90.00 | 235.44 | 25.71 | 10363.00 | 1270.38 | 908.63 S | 1424.54 W | 4.00 | 0.00 | -4.00 | 0.00 | | | | | | |
| | 57 | 11,903 | 90.00 | 234.41 | 25.71 | 10363.00 | 1290.44 | 923.41 S | 1445.58 W | 4.00 | 0.00 | -4.00 | 0.00 | | | | | | |
| | 58 | 11,928 | 90.00 | 233.39 | 25.71 | 10363.00 | 1310.79 | 938.55 S | 1466.35 W | 4.00 | 0.00 | -4.00 | 0.00 | | | | | | |
| | 59 | 11,954 | 90.00 | 232.36 | 25.71 | 10363.00 | 1331.42 | 954.07 S | 1486.85 W | 4.00 | 0.00 | -4.00 | 0.00 | | | | | | |
| | 60 | 11,980 | 90.00 | 231.33 | 25.71 | 10363.00 | 1352.31 | 969.95 S | 1507.06 W | 4.00 | 0.00 | -4.00 | 0.00 | | | | | | |
| | 61 | 12,006 | 90.00 | 230.30 | 25.71 | 10363.00 | 1373.48 | 986.20 S | 1526.99 W | 4.00 | 0.00 | -4.00 | 0.00 | | | | | | |
| | 62 | 12,031 | 90.00 | 229.27 | 25.71 | 10363.00 | 1394.90 | 1002.79 S | 1546.62 W | 4.00 | 0.00 | -4.00 | 0.00 | | | | | | |
| | 63 | 12,057 | 90.00 | 228.24 | 25.71 | 10363.00 | 1416.57 | 1019.74 S | 1565.95 W | 4.00 | 0.00 | -4.00 | 0.00 | | | | | | |
| | 64 | 12,083 | 90.00 | 227.22 | 25.71 | 10363.00 | 1438.49 | 1037.03 S | 1584.98 W | 4.00 | 0.00 | -4.00 | 0.00 | | | | | | |
| | 65 | 12,108 | 90.00 | 226.19 | 25.71 | 10363.00 | 1460.64 | 1054.66 S | 1603.69 W | 4.00 | 0.00 | -4.00 | 0.00 | | | | | | |
| | 66 | 12,134 | 90.00 | 225.16 | 25.71 | 10363.00 | 1483.03 | 1072.63 S | 1622.08 W | 4.00 | 0.00 | -4.00 | 0.00 | | | | | | |
| | 67 | 12,160 | 90.00 | 224.13 | 25.71 | 10363.00 | 1505.64 | 1090.92 S | 1640.14 W | 4.00 | 0.00 | -4.00 | 0.00 | | | | | | |

| | | | | | | | | | | | | | |
|---------------|--------|--------|--------|--------|----------|----------|-----------|-----------|-----------|------|-------|-------|------|
| 68 | 12,186 | 90.00 | 223.10 | 25.71 | 10363.00 | 1528.46 | 1109.53 S | 1657.88 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 69 | 12,211 | 90.00 | 222.07 | 25.71 | 10363.00 | 1551.50 | 1128.46 S | 1675.28 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 70 | 12,237 | 90.00 | 221.05 | 25.71 | 10363.00 | 1574.73 | 1147.70 S | 1692.33 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 71 | 12,263 | 90.00 | 220.02 | 25.71 | 10363.00 | 1598.16 | 1167.24 S | 1709.04 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 72 | 12,288 | 90.00 | 218.99 | 25.71 | 10363.00 | 1621.78 | 1187.07 S | 1725.39 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 73 | 12,314 | 90.00 | 217.96 | 25.71 | 10363.00 | 1645.57 | 1207.20 S | 1741.39 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 74 | 12,340 | 90.00 | 216.93 | 25.71 | 10363.00 | 1669.53 | 1227.61 S | 1757.02 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 75 | 12,365 | 90.00 | 215.90 | 25.71 | 10363.00 | 1693.66 | 1248.30 S | 1772.28 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 76 | 12,391 | 90.00 | 214.88 | 25.71 | 10363.00 | 1717.94 | 1269.26 S | 1787.17 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 77 | 12,417 | 90.00 | 213.85 | 25.71 | 10363.00 | 1742.37 | 1290.48 S | 1801.68 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 78 | 12,443 | 90.00 | 212.82 | 25.71 | 10363.00 | 1766.95 | 1311.96 S | 1815.91 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 79 | 12,468 | 90.00 | 211.79 | 25.71 | 10363.00 | 1791.65 | 1333.69 S | 1829.55 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 80 | 12,494 | 90.00 | 210.76 | 25.71 | 10363.00 | 1816.47 | 1355.66 S | 1842.89 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 81 | 12,520 | 90.00 | 209.73 | 25.71 | 10363.00 | 1841.42 | 1377.87 S | 1855.84 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 82 | 12,545 | 90.00 | 208.71 | 25.71 | 10363.00 | 1866.47 | 1400.30 S | 1868.39 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 83 | 12,571 | 90.00 | 207.68 | 25.71 | 10363.00 | 1891.61 | 1422.96 S | 1880.54 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 84 | 12,597 | 90.00 | 206.65 | 25.71 | 10363.00 | 1916.86 | 1445.84 S | 1892.27 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 85 | 12,623 | 90.00 | 205.62 | 25.71 | 10363.00 | 1942.18 | 1468.92 S | 1903.60 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 86 | 12,648 | 90.00 | 204.59 | 25.71 | 10363.00 | 1967.58 | 1492.20 S | 1914.51 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 87 | 12,674 | 90.00 | 203.56 | 25.71 | 10363.00 | 1993.05 | 1515.67 S | 1925.00 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 88 | 12,700 | 90.00 | 202.54 | 25.71 | 10363.00 | 2018.57 | 1539.32 S | 1935.06 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 89 | 12,725 | 90.00 | 201.51 | 25.71 | 10363.00 | 2044.15 | 1563.16 S | 1944.70 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 90 | 12,751 | 90.00 | 200.48 | 25.71 | 10363.00 | 2069.77 | 1587.16 S | 1953.91 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 91 | 12,777 | 90.00 | 199.45 | 25.71 | 10363.00 | 2095.42 | 1611.32 S | 1962.69 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 92 | 12,803 | 90.00 | 198.42 | 25.71 | 10363.00 | 2121.10 | 1635.64 S | 1971.03 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 93 | 12,828 | 90.00 | 197.39 | 25.71 | 10363.00 | 2146.80 | 1660.10 S | 1978.94 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 94 | 12,854 | 90.00 | 196.37 | 25.71 | 10363.00 | 2172.51 | 1684.70 S | 1986.40 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 95 | 12,880 | 90.00 | 195.34 | 25.71 | 10363.00 | 2198.22 | 1709.44 S | 1993.42 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 96 | 12,905 | 90.00 | 194.31 | 25.71 | 10363.00 | 2223.92 | 1734.29 S | 2000.00 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 97 | 12,931 | 90.00 | 193.28 | 25.71 | 10363.00 | 2249.60 | 1759.26 S | 2006.13 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 98 | 12,957 | 90.00 | 192.25 | 25.71 | 10363.00 | 2275.26 | 1784.33 S | 2011.81 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 99 | 12,983 | 90.00 | 191.22 | 25.71 | 10363.00 | 2300.89 | 1809.60 S | 2017.04 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 100 | 13,008 | 90.00 | 190.20 | 25.71 | 10363.00 | 2326.48 | 1834.76 S | 2021.82 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 101 | 13,034 | 90.00 | 189.17 | 25.71 | 10363.00 | 2352.03 | 1860.10 S | 2026.14 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 102 | 13,060 | 90.00 | 188.14 | 25.71 | 10363.00 | 2377.51 | 1885.52 S | 2030.01 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| 103 | 13,085 | 90.00 | 187.11 | 25.71 | 10363.00 | 2402.93 | 1911.00 S | 2033.42 W | 4.00 | 0.00 | -4.00 | 0.00 | |
| END TURN | 104 | 13,111 | 90.00 | 186.08 | 25.71 | 10363.00 | 2428.28 | 1936.54 S | 2036.37 W | 4.00 | 0.00 | -4.00 | 0.00 |
| TD | 105 | 21,148 | 90.00 | 186.08 | 8033 | 10363.00 | 10335.85 | 9924 S | 2887 W | 0.00 | 0.00 | 0.00 | 0.00 |
| OPEN HOLE PAY | | | | | | | | | | | | | |
| 9,468 | | | | | | | | | | | | | |

XTO Energy, Inc.
BOP STACK DIAGRAM

FBIR Walker 34X-25
Location: SW SE Sec 25, 149N-92W
Footage: 250 ft FSL, 1935 ft FEL
Elev: Graded Pad 2184', KB 2208'
Dunn County, ND



**XTO ENERGY INC
H2S CONTINGENCY PLAN**

FBIR Walker 34X-25

**Location: SW SE Sec 25, 149N-92W
Footage: 250 ft FSL, 1935 ft FEL
Elev: Graded Pad 2184', KB 2208'**

Dunn County, ND

**Latitude 47.689275N
Longitude 102.393800W**

H2S DRILLING OPERATIONS PLAN INDEX

- I. INTRODUCTION
 - A. Operator's Address and Legal Description of Well Site
 - B. Directions to Well Site
 - C. Purpose of Plan
- II. LOCATION LAYOUT
 - A. Location Map
 - B. General & Specific Area Maps
- III. SAFETY EQUIPMENT
 - A. Safety Equipment Provided by TOTAL SAFETY INC.
 - B. Type of Equipment and Storage Locations
 - C. Maximum Number of People on Location at any one time
- IV. OPERATING PROCEDURES
 - A. Blowout Prevention Measures During Drilling
 - B. Gas Monitoring Equipment
 - C. Crew Training and Protection
 - D. Metallurgical Considerations
 - E. Mud Program and Treating
 - F. Well Control Equipment
- V. OPERATING CONDITIONS
 - A. Definition of Warning Flags
 - B. Circulating Out Kick (Wait and Weight Method)
 - C. Coring Operations in H2S Bearing Zones
 - D. Drill Stem Testing of H2S Zones
- VI. EMERGENCY PROCEDURES
 - A. Sounding Alarm
 - B. Drilling Crew Actions
 - C. Responsibilities of Personnel
 - D. Steps to be Taken
 - E. Company and Contract Personnel
 - F. Leak Ignition
 - G. General Equipment
- VII. LIST OF APPENDICES
 - A. Emergency and Medical Facilities
 - B. Law Enforcement Agencies and Fire Fighting Facilities
 - C. Well Control Specialists
 - D. Governmental Agencies
 - E. Radio and Television Stations
- VIII. RESIDNETS AND LANDOWNERS
 - A. Radius of Exposure Map with Residences Shown
 - B. Residents Within Radius of Exposure and Telephone Numbers

I. INTRODUCTION

A. OPERATOR'S ADDRESS AND PHONE

XTO ENERGY, INC.
PO BOX 1589 or 35399 Highway 23 - 8 miles East
SIDNEY, MT 59270
406-482-4000 (24 HR #)

B. DIRECTIONS TO WELL SITE

From Mandaree, ND: 15.3 mi ESE on BIA 12, 1.7 mi NE x N on BIA 13, 0.4 mi SW on
19th St. NW, then 0.25 mi N into location

C. PURPOSE OF PLAN

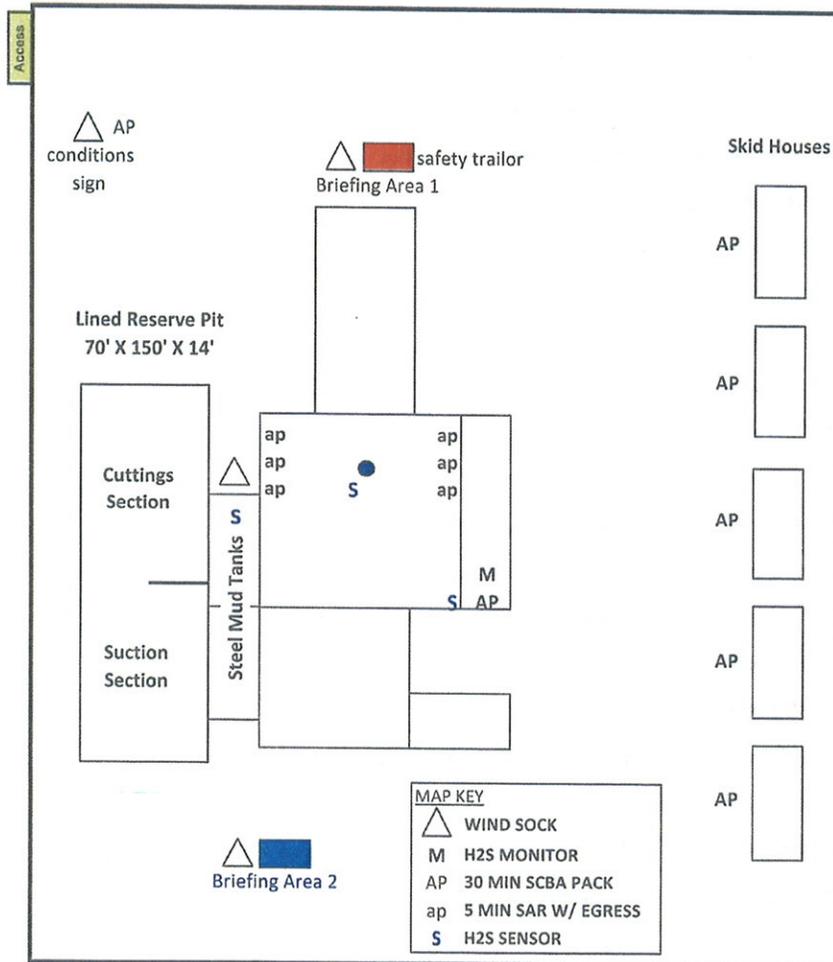
The purpose of this plan is to safeguard the lives of the public, contract personnel and company personnel in the event of equipment failure or disasters during drilling or completion operations in formations which may contain Hydrogen Sulfide Gas, H₂S.

As a precautionary measure, this H₂S Contingency Plan has been prepared to assure the safety of all concerned, should a disaster occur. However, the Operator's on-site representative may have specified materials and practices for the drilling or completion of this well, which supercede the minimum requirements as outlined in this plan.

II. LOCATION LAYOUT

A. LOCATION MAP

FBIR Walker 34X-25



III. SAFETY EQUIPMENT

All H2S related safety equipment must be installed, tested and operational at a depth of 500 feet above, or 3 days prior to penetrating the first zone expected to contain H2S (whichever comes first).

A. SAFETY EQUIPMENT PROVIDED BY TOTAL SAFETY INC.

1. Safety trailer w/ 10-380 C.F. cylinder air supply system
2. Sufficient low-pressure airline hose with quick connects
3. Six-airline mask w/emergency escape cylinders
4. Seven 30 minute self contained breathing apparatus
5. Airline manifolds and air pack stands to accompany air packs
6. Three windsocks, frames and poles
7. Oxygen powered resuscitator
8. One set of signs
9. One 36 unit first aid kit
10. One 30# fire extinguisher
11. One stretcher
12. Flare gun w/shells (supplied upon request)
13. Gastec pump type gas detector w/full range of H2S detector tubes
14. One air cylinder w/regulator and filler hose for briefing area #2
15. H2S and briefing area signs
16. Well condition signs and flags
17. Explosion-proof bug blower (provided upon request)
18. 3 channel electronic monitor w/explosion proof warning system
19. One SO2 (Sulfur Dioxide) portable detector (supplied if or when H2S is being flared)
20. Additional equipment - added as needed.

B. TYPE OF EQUIPMENT AND STORAGE LOCATIONS

1. There will be six Scott airline masks on location. Five will be located on the rig floor with access to the shale shaker. One will be located in the derrick. Each mask will have an easily accessible air line hose.
2. There will be seven 30-minute self-contained breathing apparatus on location. They will be positioned as follows: one at Operator's representative's trailer, one at Tool Pusher's trailer, one at Briefing Area #1 one at Briefing Area #2, one at rig dog house stairway, one at mud logger's trailer and one at hopper area.
3. A Gastec, pump type, gas detector with low and high range detector tubes will be located in the doghouse
4. Two cleared, briefing areas will be designed as Safe Briefing Areas #1 and #2.
5. The Briefing Area most upwind is designated as Safety Briefing Area #1. In an emergency, personnel must assemble at this upwind area for instructions from their supervisor.
6. The H2S Safety Trailer will contain a cascade system of (10) 380 C.F. air cylinders that will provide a continuous air supply to air lines located on the rig. It will also contain one resuscitator, one 30 minute air pack and one stretcher, one 36 unit first aid kit, one 30# dry chemical fire extinguisher, and will have a windsock or streamer to indicate wind direction.
7. Two other windsocks will be installed so as to be visible from all parts of the location.
8. A well condition warning sign will be displayed at the location entrance to advise of current operating conditions.
9. A list of emergency telephone numbers will be kept on rig floor, tool pusher's trailer, the Operator's on-site representative's trailer and in the Safety Trailer.
10. A barricade will be available to block the entrance to location should an emergency occur. In most cases, a vehicle will be used to block the entrance.
11. A three-channel H2S monitor will be located in the doghouse. The three sensors will be installed: one on the shale shaker, one in the cellar and one near the bell nipple.
12. An undulating high and low pitch siren and light will be installed on the derrick "A" leg.
13. If H2S concentrations reach 10 ppm, an explosion-proof bug blower (fan) will be installed under the rig floor to disperse possible accumulations of H2S.
14. Any time it is necessary to flare gas containing H2S, a Sulfur Dioxide monitor will be used to determine SO2 concentrations

C. MAXIMUM NUMBER OF PEOPLE ON LOCATION AT ANY ONE TIME

1. There will be a maximum of 13 persons on location at any one time, unless additional respirators are provided during special operations where more than 13 persons will be on location.

IV. OPERATING PROCEDURES

A. BLOWOUT PREVENTION MEASURES DURING DRILLING

1. Blowout Prevention Requirements: All BOP equipment shall meet the American Petroleum Institute specifications as to materials acceptable for H2S service and tested accordingly (or to BLM specifications).
2. Drilling String Requirements: All drill string components are to be of material that meets the American Petroleum Institute's specifications for H2S service. All drill string components should be inspected to IADC critical service specifications prior to running in well.

B. GAS MONITORING EQUIPMENT

1. A continuous H2S detection system, consisting of three H2S detectors and an audible/visual warning system will be in operation during all phases of this H2S Contingency Plan. The detection system will be adjusted and calibrated such that an H2S exposure of 10 ppm or higher (at any sensor) will trigger the visual portion (blinking or rotating light), and an H2S exposure of 15 ppm or higher (at any sensor) will trigger the audible portion (wailing or yelping siren) of the warning system (i.e., H2S continually present at or above threshold levels). A trained operator or H2S supervisor will monitor the H2S detection system.
2. When approaching or completing H2S formations, crewmembers may attach 8-hour electronic H2S personnel monitors to their person.
3. Hand held H2S sampling gas detectors will be used to check areas not covered by automatic monitoring equipment.

C. CREW TRAINING AND PROTECTION

1. All personal working at the well site will be properly trained in accordance with the general training requirements outlined in the API Recommended Practices for Safe Drilling of Wells Containing H2S. The training will include, but not be limited to, the following:
 - a. General information about H2S and SO2 gases
 - b. Hazards associated with H2S and SO2 gases
 - c. Safety equipment on location
 - d. Proper use and care of personal protective equipment
 - e. Operational procedures in dealing with H2S gas
 - f. Evacuation procedures
 - g. First aid, reviving an H2S victim, toxicity, etc.
 - h. Designated Safe Briefing Areas
 - i. Buddy System
 - j. Regulations
 - k. Review of Drilling Operations Plan
2. Initial training shall be completed when drilling reaches a depth of 500' above or 3 days prior to penetrating (whichever comes first) the first zone containing or expected to contain H2S.
3. Weekly H2S and well control drills for all personnel on each working crew shall be conducted.
4. Safety Equipment: As outlined in the Safety Equipment index, H2S safety protection equipment will be available to/or assigned each person on location.

D. METALLURGICAL CONSIDERATIONS

1. Steel drill pipe used in H₂S environments should have yield strength of 95,000 psi or less due to potential embrittlement problems. Drill stem joints near the top of the drill string are normally under the highest stress levels during drilling and do not have the protection of elevated down hole temperatures. These factors should be considered in design of the drill string.

Precautions should be taken to minimize drill string stress caused by conditions such as excessive dogleg severity, improper torque, whip, abrasive wear or tool joints and joint imbalance. American Petroleum Institute, Bulletin RR 7G, will be used as a guideline for drill string precautions.

2. Corrosion inhibitors may be applied to the drill pipe or to the mud system as an additional safeguard.

3. Blowout preventors should meet or exceed the recommendations for H₂S service as set forth in the latest edition of API RI 53.

E. MUD PROGRAM AND TREATING

1. It is of utmost importance that the mud be closely monitored for detection of H₂S and reliability of the H₂S treating chemicals.

2. Identification and analysis of sulfides in the mud and mud filtrates will be carried out per operator's prescribed procedures.

3. The mud system will be pre-treated with Zinc Carbonate, Ironite Sponge or similar chemicals of H₂S control prior to drilling into the H₂S bearing formation. Sufficient quantities of corrosion inhibitor should be on location to treat the drill string during Drill Stem Test Operations. Additionally, Aqua Ammonia should be on hand to treat the drill string for crew protection, should H₂S be encountered while tripping the drill string following drill stem testing

F. WELL CONTROL EQUIPMENT

1. Flare System

- a. A flare system shall be designed and installed to safely gather and burn H₂S bearing gas.
- b. Flare lines shall be located as far from the operating site as feasible and in a manner to compensate for wind changes.
- c. The flare line mouth shall be located not less than 150' from wellbore.
- d. Flare lines shall be straight unless targeted with running tees.

2. Remote Controlled Choke: A remote controlled choke shall be installed for all H₂S drilling and where feasible for completion operations. A remote controlled valve may be used in lieu of this requirement for completions operations.

3. Mud-gas separators and rotating heads shall be installed and operable for all exploratory wells.

V. OPERATING CONDITIONS

A Well Condition Sign and Flag will be posted on all access roads to the location. The sign shall be legible and large enough to be read by all persons entering the well site and be placed a minimum of 200', but no more than 500', from the well site to allow vehicles to turn around at a safe distance prior to reaching the site.

A. DEFINITION OF WARNING FLAGS

2. Condition Yellow: Potential Danger. Any operation where the possibility of encountering H₂S exists and in all situations where concentrations of H₂S are detected in the air below the threshold level (10 ppm).

- a. Cause of condition:
 - *Circulating up drill breaks
 - *Trip gas after trip
 - *Circulating out gas on choke
 - *Poisonous gas present, but below threshold concentrations
 - *Drill stem test
- b. Safety Action:
 - *Check safety equipment and keep it with you
 - *Be alert for a change in condition
 - *Follow instructions

3. Condition Red: Extreme Danger. Presence of H₂S at or greater than 10 ppm. Breathing apparatus must be worn.

- a. Safety action:
 - *MASK UP. All personal will have protective breathing equipment with them. All nonessential personnel will move to the Safe Briefing Area and stay there until instructed to do otherwise. All essential personnel (those necessary to maintain control of the well) shall wear breathing apparatus to perform operations related to well control.
- b. Order evacuation of local people within the danger zone. Request help from local authorities, State Police, Sheriff's Dept. and Service Representative.
- c. The decision to ignite the well is the responsibility of the Operator's on-site representative and should be made only as a last resort, when it is clear that:
 - *human life is endangered
 - *there is no hope of controlling the well under prevailing conditions

B. CIRCULATING OUT KICK (WAIT AND WEIGHT METHOD)

If it is suspected that H₂S is present with the gas whenever a kick is taken, the wait and weight method of eliminating gas and raising the mud will be followed (below):

- a. Increase density of mud in pits to 'kill' weight mud.
- b. Open choke and bring pump to initial circulating pressure by holding casing pressure at original value until pump is up to predetermined speed.
- c. When initial circulating pressure is obtained on drill pipe, zero pump stroke counter and record time.
- d. Reduce drill pipe pressure from initial circulating pressure to final circulating pressure by using pump strokes and/or time according to graph
- e. When 'kill' weight mud is at the bit, hold final circulating pressure until kill weight mud is to surface.
- f. When the well has been put on the choke and circulation has been established, the following safety procedures must be initiated:
 - *determine when gas is anticipated to reach surface
 - *move all non-essential personnel to Safe Briefing Area
 - *check out protective breathing apparatus to all remaining personnel

(apparatus is to be kept with them until the kick has been completely circulated out)
*mud men will see that the proper amount of H2S scavenging chemical is in the mud and record times checked
*ensure ignition flare is burning and valves are open to designated flare stacks

C. CORING OPERATIONS IN H2S BEARING ZONES

1. Personal protective breathing apparatus will be worn from 10 to 15 stands in advance of retrieving the core barrel. Cores to be transported should be sealed and marked indicating the presence of H2S.
 - a. Yellow Caution Flag will be flown at the well condition sign.
 - b. The "NO SMOKING" rule will be enforced

D. DRILL STEM TESTING OF H2S ZONES

1. The DST subsurface equipment will be suitable for H2S service as recommended by the API.
2. Drill stem testing of H2S zone will be conducted in daylight hours.
3. All non-essential personnel will be moved to an established safe area or off location.
4. The "NO SMOKING" rule will be enforced.
5. DST fluids will be circulated through a remote controlled choke and a separator to permit flaring of gas. A continuous pilot light will be used.
6. A yellow or red flag will be flown at entrance to location depending on present gas condition.
7. If warranted, use Aqua Ammonia for neutralizing the toxicity of H2S from drill string. Aqua Ammonia should be on location even if not used for DST.
8. On completion of DST, if H2S contaminated formation fluids or gases are present in drill string, floor workers will be masked up before test valve is removed from drill string and continue "mask on" condition until such time that readings in work area do not exceed 15 ppm of H2S gas.

VI. EMERGENCY PROCEDURES

A. SOUNDING ALARM

1. The fact is to be instilled in the minds of all rig personnel that the sounding of the alarm means only one thing - H2S IS PRESENT and everyone is to proceed to his assigned station and the contingency plan is put into effect.

B. DRILLING CREW ACTIONS

1. All personnel will don their protective breathing apparatus. The driller will take necessary precautions as indicated in operating procedures.
2. The Buddy system will be implemented. All personnel will act upon directions from the Operator's on-site representative.
3. If there are non-essential personnel on location, they will move off location.

4. Entrance to the location will be patrolled, and the proper well condition flag will be displayed at the entrance to the location.

C. RESPONSIBILITIES OF PERSONNEL

1. In order to assure the proper execution of this plan, it is essential that one person be responsible for and in complete charge of implementing these procedures. The responsible person will be as follows:

- a. The Operator's on-site representative (consultant) or his assistant.
- b. Contract Tool Pusher.

D. STEPS TO BE TAKEN

1. Contact the main office(s) of the Operator &/or the Rig Contractor as listed in this plan below (by the quickest means of communications):

2. An assigned crewmember will blockade the entrance to the location. No unauthorized personnel will be allowed entry into the location.

3. The Operator's on-site representative will remain on location and attempt to regain control of the well.

4. The Rig Contractor's rig superintendent will begin evacuation of those persons in immediate danger. He will begin by telephoning residents in the danger zone. In the event of no contact by telephone, the tool pusher will proceed at once to each dwelling for a person-to-person contact. In the event the tool pusher cannot leave the location, he will assign a responsible crewmember to proceed in the evacuation of local residents. Upon arrival, the Sheriff's Department and safety equipment contractor's personnel will aid in further evacuation.

E. COMPANY & CONTACT PERSONNEL

| | | |
|--|------------------------|--|
| 1. Operator's Drilling Supt Kal Beckman | Office Home Cell | 406-482-6808 701-572-6057 701-570-2536 |
| 2. Operator's Drilling Engineer Ross Lubbers | Office Home Cell | 405-319-3285 405-513-5955 405-659-8563 |
| 3. Ensign Drilling Supt Perry Junt | Office Cell | 701-572-0131 701-570-3701 |
| 4. Nabors Drilling Supt Scott Reid | Office Home Cell | 701-572-6704 701-385-4697 701-848-6227 |
| 5. Petroleum Experience -- Drilling Consultants Pete Peterson | Office | 701-774-8357 |

F. LEAK IGNITION

Leak Ignition Procedure: (used to ignite a leak in the event it becomes necessary to protect the public)

1. Two men, the Operator's on-site representative and the Contractor's Drig Superintendent or safety equipment provider's representative, wearing self-contained pressure demand air masks must determine the perimeter of the flammable area. This should be done with one man using an H2S detector and the other one using a flammable gas detector. The flammable perimeter should be established at 30% to 40% of the lower flammable limits.
2. After the flammable perimeter has been established and all employees and citizens have been removed from the area, the ignition team should move to the up-wind area of the leak perimeter and fire a flare into the area. If the leak isn't ignited on the 1st attempt, move in 30 - 40 feet and fire again. Continue moving in and firing until the leak is ignited or the flammable gas detector indicates the ignition team is moving into the hazardous area. If trouble is incurred in igniting the leak by firing toward the leak, try firing 40 - 90 feet to each side of the area where you have been firing. If still no ignition is accomplished, ignite the copper line burner and push it into the leak area. This should accomplish ignition. If ignition is not possible due to the makeup of the gas, the toxic leak perimeter must be established and maintained to ensure evacuation is completed and continue until the emergency is secure.
3. The following equipment and man-power will be required to support the ignition team:
 - a. One flare gun.
 - b. Four pressure demand air packs.
 - c. Two nylon ropes tied to the ignition team.
 - d. Two men in a clear area equipped with air packs.
 - e. Portable butane bottle with copper line.
4. The person with the final authority will then ignite the well.

G. GENERAL EQUIPMENT

1. Two areas on the location will be designated as briefing areas. The one that is upwind from the well will be designated as the "Safe Briefing Area" or "Briefing Area #1".
2. In the case of an emergency, personnel will assemble in the upwind area as per prior instructions from the operator's representative.
3. The H2S trailer provided by the safety contractor will contain 10 air cylinders, a resuscitator, one 30 minute air pack and will have a windsock.
4. Two other windsocks will be installed.
5. A condition warning sign will be displayed at the location entrance.
6. A list of emergency telephone numbers will be kept on the rig floor, tool pusher's trailer and the Operator's on-site representative's trailer.
7. Two barricades will be available to block the entrance to location.
8. An undulating high and low pitch siren will be installed.
9. A telephone line or mobile phone will be available at the well site for incoming and outgoing communications.

VII. APPENDIX

A. EMERGENCY & MEDICAL FACILITIES:

NORTH DAKOTA EMERGENCY ASSISTANCE: 800-472-2121

AMBULANCE SERVICE:

| | |
|-----------------------|--------------|
| BELFIELD, ND | 911 |
| DICKINSON, ND | 911 |
| SIDNEY, MT | 406-488-2100 |
| TIOGA, ND | 701-664-2200 |
| WILLISTON, ND | 911 |
| WATFORD CITY, ND | 701-444-3516 |
| KILLDEER, MANNING, ND | 911 |

HOSPITALS:

| | |
|--|--------------|
| SIDNEY HEALTH CENTER - SIDNEY, MT | 406-488-2100 |
| MERCY MEDICAL CENTER - WILLISTON, ND | 701-774-7400 |
| MCKENZIE COUNTY MEMORIAL HOSPITAL - WATFORD CITY | 701-842-3000 |
| ST. JOSEPH'S HOSPITAL - DICKINSON, ND | 701-225-7200 |
| TIOGA MEDICAL CENTER | 701-568-3626 |

B. LAW ENFORCEMENT AND FIRE FIGHTING AGENCIES

POLICE or SHERIFF:

| | |
|-------------------------|---------------------|
| BELFIELD, ND | 911 |
| DICKINSON, ND | 911 |
| SIDNEY, MT | 911 OR 406-433-2809 |
| MCKENZIE COUNTY | 701-444-3654 |
| TIOGA - WILLIAMS COUNTY | 911 OR 701-664-2514 |
| WATFORD CIY, ND | 911 OR 701-842-2400 |
| MANNING, ND SHERIFF | 911 OR 701-573-4449 |

FIRE:

| | |
|------------------|--------------|
| ALEXANDER, ND | 911 |
| ARNEGARD, ND | 701-586-3500 |
| BELFIELD, ND | 911 |
| DICKINSON, ND | 911 |
| SIDNEY, MT | 406-433-1122 |
| TIOGA, ND | 701-664-2200 |
| WATFORD CITY, ND | 701-842-3516 |
| WILLISTON, ND | 911 |

C. WELL CONTROL SPECIALISTS:

| | |
|-----------------------|--------------|
| BOOTS AND COOTS | 713-931-8884 |
| RED ADAIR COMPANY INC | 713-464-0230 |
| WILD WELL CONTROL | 701-353-5481 |

D: GOVERNMENTAL AGENCIES:

STATE WATER COMMISSION 701-224-4940

NDIC:
CHIEF ENFORCEMENT OFFICER 701-224-2969
STATE GEOLOGIST 701-777-2231

NORTH DAKOTA STATE DEPARTMENT OF HEALTH:
DIVISION OF ENVIRONMENTAL ENGINEERING 701-224-2348

DIVISION OF WATER & POLLUTION CONTROL:
BISMARCK, ND 701-224-2375

DISTRICT FOREST SERVICE RANGER:
DICKINSON, ND 701-225-5151
MEDORA, ND 701-623-4466
WATFORD CITY, ND 701-842-2393

BUREAU OF LAND MANAGEMENT:
DICKINSON, ND 701-225-9148

U. S. CORPS OF ENGINEERS:
RIVERDALE, ND 701-654-7411

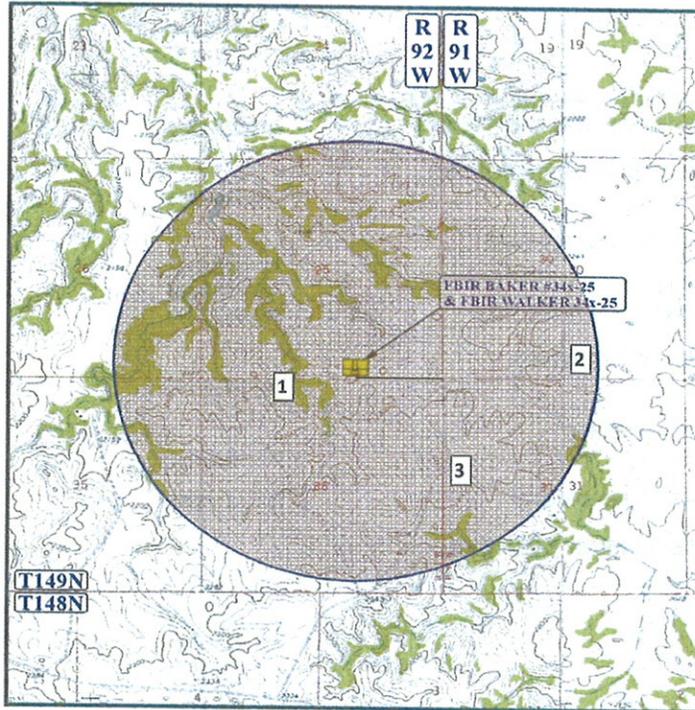
OIL SPILLS DISASTER REPORTING: 800-424-8802

E. RADIO & TELEVISION STATIONS:

KEYZ AM 660 701-572-5371
KYYZ FM 96.1 701-572-3911
KDIX 701-225-5133
KRRB-FM 701-227-1222
KUMV TV 701-572-4676
KXMD TV 701-572-2345
KQCD TV 701-225-6843

VIII. RESIDENTS AND LANDOWNERS

A. 1 MILE RADIUS EXPOSURE MAP



B. RESIDENTS WITHIN 1 MILE AND PHONE NUMBERS

- 1 Tillie Walker - *phone number 701-759-3456*
~ 0.4 miles WSW of drilling pad
P.O. Box 625
Mandaree, ND 58757
- 2 Willie & Gerald Hunts Along - *phone numbers 701-759-3394*
~ 0.9 miles E of drilling pad
P.O. Box 601
Mandaree, ND 58757
- 3 Avalon, James, and Leonard Hale - *phone number 701-759-3323*
~ 0.66 miles SE of drilling pad
P.O. Box 423
Mandaree, ND 58757

XTO ENERGY, INC.
FBIR Walker 34X-25
Tribal Lease # 7420A48705
Tribal Lease # 7420A48710
Tribal Lease # 7420A49713
Tribal Lease # 7420A48538
SW¼SE¼, Section 25, T149N, R92W
Dunn County, North Dakota

MULTI-POINT SURFACE USE & OPERATIONS PLAN

A. EXISTING ROADS -

1. The proposed well site is staked and four (4) 200-foot reference stakes are present.
2. From Mandaree, North Dakota proceed in an easterly direction along BIA 12 approximately 15.3 miles to the junction of this road and existing BIA 13 to the northeast; turn left and proceed in a northeasterly direction approximately 1.7 miles to the junction of this road and 19th Street NW to the southwest; turn left and proceed in a southwesterly direction approximately 0.4 miles to the beginning of the proposed access road to the north; follow road flags in a northerly, then northwesterly direction approximately 0.25 miles to the proposed location
3. Access roads - All roads are labeled on Topo Maps A and B.
4. Approximately 2,010 feet of existing, graveled, two-track road will require improvements. Improvements would follow road design standards outlined in the Gold Book (USDI-USDA 2007).
5. Existing roads will be maintained and kept in good repair during all drilling and completion operations associated with this well.
6. Total distance from Mandaree, ND to the proposed well location is approximately 17.65 miles.

B. PLANNED ACCESS ROADS - Refer to Topo Map "B"

Approximately 1,283 feet (~0.25 miles) of new road construction will be required for access to the proposed FBIR Walker 34X-25 well location.

1. Width - fourteen (14) foot running surface with a sixteen (16) foot sub-grade, crowned and ditched.
2. Construction standard - the access road will be constructed in accordance with roading guidelines established for oil & gas exploration and development activities as referenced in the joint BLM/USFS publication: *Surface Operating Standards for Oil and Gas Exploration and Development*, Fourth Edition and/or BLM Gold Book.

All topsoil will be stripped from the access road route prior to performing any further construction activities thereon. The salvaged topsoil will be stockpiled apart from subsoil materials for future reclamation of the access road right-of-way.

If soils along the access road route are dry during construction, water will be applied to the road surface to facilitate soil compaction and minimize soil loss as a result of wind erosion.

3. Maximum grade - eight (8) percent or less.
4. Turnouts – as deemed necessary
5. Drainage design - the access road will be upgraded and maintained as necessary to prevent soil erosion and accommodate all-weather traffic. Road will be crowned and ditched with water turnouts installed as necessary to provide for proper drainage along the access road route.
6. Culverts, cuts and fills - culverts will be installed along the access road route as depicted on Topo Map B or required by the Authorized Officer, Bureau of Indian Affairs. These culverts will be installed in accordance with roading guidelines contained in the joint BLM/USFS publication: *Surface Operating Standards for Oil and Gas Exploration and Development*, Fourth Edition and/or BLM Gold Book.
7. Surfacing material - the access road will be surfaced with gravel or scoria purchased from a local contractor having a permitted source of materials within the general area, as required by the Authorized Officer, Bureau of Indian Affairs.
8. Gates, cattle guards or fence cuts - one (1) cattle guard will be required at the entrance of the location as the entire location will be fenced for drilling and completion operations.
 - a. These cattle guards will be installed in accordance with roading guidelines contained in the joint BLM/USFS publication: *Surface Operating Standards for Oil and Gas Exploration and Development*, Fourth Edition and/or BLM Gold Book.
 - b. One fence cut will be made in an existing fence at the point where the cattle guard is installed. Refer to Figure #1 for the location of the fence cut and cattle guard.
9. Road maintenance - the road surface and shoulders will be kept in a safe and useable condition and will be maintained in accordance with the original construction standards.

All drainage ditches and culverts will be kept clear and free-flowing, and will also be maintained in accordance with the original construction standards.

The access road right-of-way will be kept free of trash during all operations.
10. The proposed access road route has been centerline staked.

C. EXISTING WELLS WITHIN A ONE (1) MILE RADIUS -

- i. Existing Wells – Refer to Topo Map C showing the location of the proposed well and the point of radius for the one mile area of review.
 - a. Water wells - none known
 - b. Abandoned wells - none known

- c. Temporarily abandoned wells - none known
- d. Disposal wells - none known
- e. Drilling wells - none known
- f. Producing wells - none known
- g. Shut-in wells - none known
- h. Injection wells - none known
- i. Monitoring wells - none known

D. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES OWNED BY XTO ENERGY, INC. WITHIN A ONE (1) MILE RADIUS

1. Existing Facilities

- a. Tank batteries - none.
- b. Production facilities - none.
- c. Oil gathering lines - none.
- d. Gas gathering lines - none.

2. New Facilities Contemplated

- a. All production facilities will be located on the disturbed portion of the well pad and at a minimum of twenty (25) feet from the toe of the back slope or top of the fill slope. See Figure #1 and Figure #2 for plats depicting the original contours of the location and the proposed cuts and fills and the typical cross sections for the location.
- b. Production facilities will require a working area approximately 300' X 500' in size and will generally consist of a pumping unit at each well head, tank battery, heater-treater and emergency/flare pit.

A berm will be constructed completely around those production facilities designed to hold fluids (i.e., production tanks, produced water tanks and/or heater-treater). These berms will be constructed to hold >110% of the capacity of the largest tank plus one full day's production, and is independent of the back cut. See Figure 3 for a diagram of the proposed facilities.

Load out lines will be located within the tank battery berm and will have a drip barrel with steel mesh guard installed under the outlet.

- 3. Prior to the commencement of drilling operations, the FBIR Walker 34X-25 well location will be fenced, having four (4) strands of barbed wire held in place by metal side posts and wooden corner "H" braces in order to protect both livestock and wildlife.
- 4. During drilling and subsequent operations, all equipment and vehicles will be confined to the access road and any additional areas which may be specified in the approved Application for Permit to Drill.
- 5. Reclamation of disturbed areas no longer needed for operations will be accomplished by grading, leveling and seeding as recommended.

E. LOCATION AND TYPE OF WATER SUPPLY

1. Fresh water for use in drilling operations will be obtained from the water supply close to the town of Killdeer, North Dakota.

F. SOURCE OF CONSTRUCTION MATERIALS

1. Any construction materials (gravel or scoria) which may be required for surfacing of the drill pad will be obtained from a private contractor having a previously approved source of materials within the general area.

G. METHODS OF HANDLING WASTE MATERIALS

1. Cuttings - the drilled cuttings will be deposited in the reserve pit as shown on Figure #4. The reserve pit will be designed to prevent the collection of surface runoff and will be constructed entirely in cut section of the well location (see Figure #1).

Reclaiming and backfilling will occur when completion operations are finished by solidifying with fly ash and burial in accordance with North Dakota rules and regulations.

2. Drilling fluids utilized in the mud systems will be contained in the reserve pit. Drilling fluids utilized in the oil-based mud system will be contained in steel tanks on location. All free fluid will be reclaimed from the reserve pit before solidification.
3. Produced fluids - liquid hydrocarbons produced during completion operations will be placed in test tanks on the location. Produced water will be placed in the reserve pit for a period not to exceed ninety (90) days after initial production.

Any spills of oil, gas, salt water or any other potentially hazardous substance will be cleaned up and immediately removed to an approved disposal site.

4. Sewage - portable, self-contained chemical toilets will be provided for human waste disposal. As required, the toilet holding tanks will be pumped and the contents disposed of in an approved sewage disposal facility.
5. Garbage and other waste material - all garbage and non-flammable waste materials will be contained in a self contained, portable dumpster or trash cage. Upon completion of operations, or as needed, the accumulated trash will be hauled off-site to a state approved sanitary landfill.

Used motor oil (change oil) will be placed in closed containers and disposed of at an authorized disposal site.

No trash will be placed in the reserve pit.

6. Immediately after removal of the drilling rig, all debris and other waste materials not contained in the trash cage will be cleaned up and removed from the well location. No potentially adverse materials or substances will be left on the location.

7. Hazardous Materials – XTO Energy, Inc. maintains responsibility for recognizing and handling hazardous materials. All hazardous materials will be handled in an appropriate manner to minimize the potential for leaks or spills to the environment. All spills of reportable quantity will be contained, reported and cleaned up in accordance with State and Federal regulations.

H. ANCILLARY FACILITIES

None anticipated.

I. WELLSITE LAYOUT

1. Figure #1 shows the drill site layout as staked. Cross-sections have been drafted to visualize the planned cuts and fills across the proposed well location (refer to Figure #2). All topsoil will be stripped from the location (including areas of cut, fill, and/or subsoil storage) and stockpiled for future reclamation of the well site.
2. Figure #4 is a diagram showing a typical location layout. No permanent living facilities are planned on the FBIR Walker 34X-25 well location.
3. All equipment and vehicles will be confined to the approved areas in this application for Permit to Drill (i.e., access road, well pad, spoil and topsoil storage areas).
4. The reserve pit will be lined with a minimum 12 mil liner and designed to maintain a two foot free board. See Figure #6 for a spec sheet on the proposed liner.
5. Prior to the commencement of drilling operations, the entire well location will be fenced with four (4) strands of barbed wire. The fencing will be maintained until such time as the well bore has been physically plugged and abandoned and the well location has been successfully reclaimed.
6. Any hydrocarbons on the pit will be removed as soon as possible after drilling operations are completed.

J. PLANS FOR SURFACE RECLAMATION

1. Rat and mouse holes will be backfilled immediately upon release of the drilling rig from the location.
2. If any oil is in the pits and is not immediately removed after operations cease, the pit containing the oil or other adverse substance(s) will be flagged overhead or covered with wire mesh to protect migrating waterfowl.
3. Producing Operations:
 - a. Backfilling, leveling and re-contouring are planned as soon as possible after cessation of drilling and completion operations.
 - b. All disturbed surfaces (including the access road and well pad areas) will be reseeded using a seed mixture to be recommended by the Authorized Officer, Bureau of Indian Affairs in consultation with the surface allottee as appropriate.

4. Abandoned Well Location:

- a. Upon final abandonment of the well location, both the access road and well location will be restored to approximately the original ground contour(s) by replacing the fill material into the cut and over the back slope.

K. SURFACE OWNERSHIP

The well site and part of the access road is situated on an allotted surface estate within the Fort Berthold Indian Reservation, Allotment Number 625-A. The allottee's of these tribal lands are as follows:

Hans Walker, Jr.
1700 Maple Hill Pl.
Alexandria, VA 22302

Leah A. Walker
P. O. Box 1127
Black River Falls, WI 54615

Thomas S. Walker
P. O. Box 430
Belcourt, ND 58316

Carey A. Walker
2602 18th St. S, Apt. #308
Fargo, ND 58103

Reba Walker
2952 Ontario Lane
Bismarck, ND 58501

Tillie Walker
Box 625
Mandaree, ND 58757

The remainder of the access road is situated on an allotted surface estate within the Fort Berthold Indian Reservation, Allotment Number 632-A. The allottee's of these tribal lands are as follows:

Emerson Baker
New Town, ND 58763

Linda Baker
Whereabouts Unknown

Sharon Bowman Estate
No Valid Address Found

Casey Brim
Rt. 2, Box 4400
Gatesville, TX 76397

Roberta Dahlen
475 89th Ave. SW
Halliday, ND 58536

Bonita Fimbres
Mandaree, ND 58757

Valentine Finley, Sr.
415 Community Rd.
Box 506
Mandaree, ND 58757

Jodi Finley
P. O. Box 361
New Town, ND 58763

Kevin T. Finley
P. O. Box 412
Fort Yates, ND 58538

Helen Baker
Box 487
Mandaree, ND 58757

Whitney M. Bell
Whereabouts Unknown

Albert H. Brim
2305 Jackson
Carlsbad, NM 88220

Dean Brim
20 S. Lyle St., Apt. F
Kennewick, WA 99336

Karen H. Fettig
2051 Highway 22
Mandaree, ND 58757

Evan Finley, Jr.
303 N. 9th St.
New Town, ND 58763

Jerrold D. Finley
P. O. Box 361
New Town, ND 58763

Kathleen M. Finley
3000 Ivy Ave. SW, Apt. 27B
Huntsville, AL 35805

Mary C. Finley
P. O. Box 675
Mandaree, ND 58757

Richard Finley
P. O. Box 615
Wolf Point, MT 59201

Robert Finley
Box 638
Mandaree, ND 58757

Edward Flays Away
P. O. Box 633
Mandaree, ND 587573

Georgia Green
P. O. Box 1043
Rapid City, SD 57709

Jordan R. Gunderson
Whereabouts Unknown

Thomas J. Gunderson
1017 53rd Street SE
Minot, ND 58701

Karen Lynch
4630 Rebel Dr.
Bismarck, ND 58503

Donald McGrady Jr.
307 9th Street N
New Town, ND 58763

Doris McGrady
P. O. Box 1279
New Town, ND 58763

Carlin Rave, Jr.
Whereabouts Unknown

Jodi Rave
2113 Charlott Ave.
Missoula, MT 59801

Tiffany Rave
851 BIA Route 20
Halliday, ND 58636

Lorenzo Spotted Bear, Jr.
P. O. Box 511
Mandaree, ND 58757

Alice Spotted Bear
8097 BIA Route 20
Halliday, ND 58636

Anna Jo Spotted Bear
3769 Charles St.
Ft. Worth, TX 76118

Carla G. Spotted Bear
P. O. Box 162714
Ft. Worth, TX 76161

Ivetta Spotted Bear
925 Highway 8 N.
Halliday, ND 58636

Leishawn Spotted Bear
3769 Charles St.
Ft. Worth, TX 76180

Lonnie Spotted Bear
8089 BIA Route 20
Halliday, ND 58636

Olive Sholaas Spotted Bear
P. O. Box 370
New Town, ND 58763

Sandra J. Spotted Bear
Halliday, ND 58636

Hans Walker, Jr.
1700 Maple Hill Pl.
Alexandria, VA 22302

Carey A. Walker
2602 18th Street S., Apt. #308
Fargo, ND 58103

Hattie T. Walker
P. O. Box 1127
Black River Falls, WI 54615

Leah H. Walker
P. O. Box 1127
Black River Falls, WI 54615

XTO Energy, Inc.
FBIR Walker 34X-25
Surface Use & Operations Plan
Page 10

Reba Walker
2952 Ontario Lane
Bismarck, ND 58501

Thomas S. Walker
P. O. Box 430
Belcourt, ND 58316

Tillie Walker
Box 625
Mandaree, ND 58757

Myrtle J. Wilcox
Whereabouts Unknown

Helen Zarfos
430 South Fork Circle
Hudson, WI 54016

Three Affiliated Tribes
404 Frontage Road
New Town, ND 58763

XTO Energy, Inc. will send copies of the approved Surface Use Plan of Operations and the Conditions of Approval to each surface owner listed above.

L. OTHER INFORMATION

1. Surface Use Activities:
 - a. The primary surface use is for livestock grazing.
2. Proximity of Water, Occupied Dwellings, Archaeological, Historical or Cultural Sites:
 - a. The closest source of permanent water is Lake Sakakawea, which is located approximately four and a half (4.5) miles north of the proposed well location.
 - b. There are no known occupied dwellings located within a 3,000 foot radius of the proposed well location.
 - c. XTO Energy, Inc. will be responsible for informing all persons associated with this project that they will be subject to prosecution for damaging, altering, excavating or removing any archaeological, historical, or vertebrate fossil objects or site(s).
 - d. If archaeological, historical or vertebrate fossil materials are discovered, XTO Energy, Inc. will suspend all operations that further disturb such materials and immediately contact the Authorized Officer. Operations will not resume until written authorization to proceed is issued by the Authorized Officer.

Within five (5) working days the Authorized Officer will evaluate the discovery and inform XTO Energy, Inc. of actions that will be necessary to prevent loss of significant cultural or scientific values.

XTO Energy, Inc. will be responsible for the cost of any mitigation required by the Authorized Officer. The Authorized Officer will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the Authorized Officer that the required mitigation has been completed, XTO Energy, Inc. will be allowed to resume operations.

3. Additional Requirements for Operations on Surface Estate Administered by the Bureau of Indian Affairs:

- a. XTO Energy, Inc. will be responsible for weed control on disturbed areas within the exterior limits of this permit and will consult with the Authorized Officer, Bureau of Indian Affairs and/or local authorities for acceptable weed control measures.

Lessee's or Operator's Representative and Certification

FBIR Walker 34X-25
SWSE Sec. 25-T149N-R92W
Dunn County, North Dakota
Tribal Lease Nos. 7420A48705; 7420A48710; 7420A49713; 7420A48538

OPERATOR

XTO Energy, Inc.
7114 W. Jefferson Ave., Suite 305
Denver, Colorado 80235
303.969.8280

OPERATOR'S REPRESENTATIVES

Permit Matters: J. Michael Warren (303.963.8243)
Drilling Matters: Ross Lubbers (405-319-3285)
Completion Matters: Doug McCrady (303.969.8280)
On-Site Meeting Representative: Kal Beckman (406.482.4000)

CERTIFICATION

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 26th day of MARCH, 20 10.



Name: J. Michael Warren
Position Title: Regulatory Coordinator
Telephone: 303-963-8243
mike_warren@xtoenergy.com

Field Representative: Kal Beckman
Address: P. O. Box 1589, Sidney, MT 59270
Phone: 406-482-4000 Ext. 107
kal_beckman@xtoenergy.com

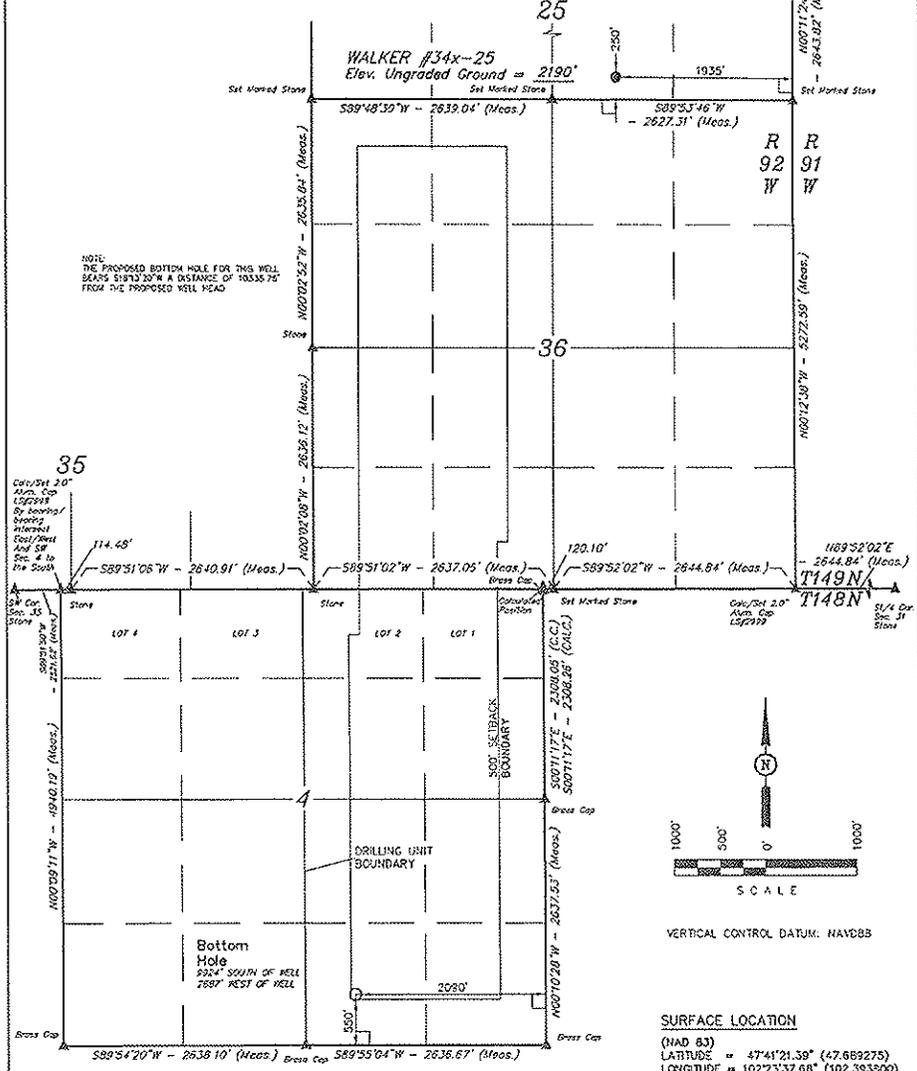
LEGEND:

- └ = 90° SYMBOL
- ⊙ = PROPOSED WELL HEAD.
- ▲ = SECTION CORNERS LOCATED.
- △ = SECTION CORNERS RE-ESTABLISHED. (Not Set on Ground)

XTO ENERGY, INC.

Well location, FBIR WALKER #34x-25, located as shown in the SW 1/4 SE 1/4 of Section 25, T149N, R92W, 5th P.M., Dunn County, North Dakota.

WELL LOCATION PLAT
T149N, R92W, 5th P.M.



SURFACE LOCATION

(NAD 83)
 LATITUDE = 47°41'21.39" (47.689275)
 LONGITUDE = 102°23'37.68" (102.393800)
 (NAD 27)
 LATITUDE = 47°41'21.36" (47.689267)
 LONGITUDE = 102°23'38.03" (102.393342)
(calculated from N.G.S. O.P.U.S. Station REF FRUW; HAD_8X(CORR50)(X)001.2002.0000)

CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



Troy Jensen
 REGISTERED LAND SURVEYOR
 REGISTRATION NO. 271554
 STATE OF NORTH DAKOTA

| | | |
|---|---------------------------|---------------------------|
| UTAH ENGINEERING & LAND SURVEYING 85 SOUTH 200 EAST - YERMAN, UTAH 84078 (435) 789-1017 | | |
| SCALE 1" = 1000' | DATE SURVEYED 10-14-09 | DATE DRAWS 10-27-09 |
| FARRY T.G. F.H. D.E. | | REFERENCES G.L.O. PLAT |
| HEADER COOL | | FILE XTO ENERGY, INC. |

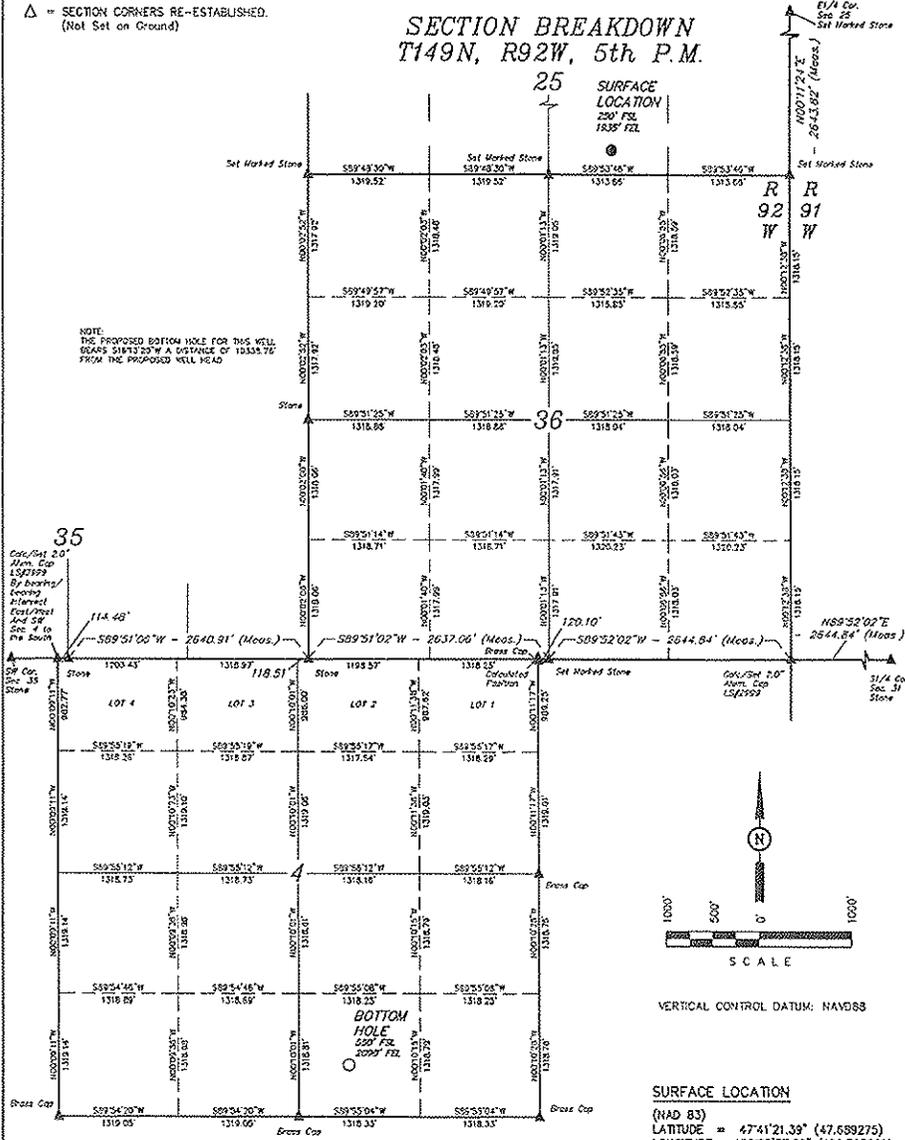
LEGEND:

- ⊥ = 90° SYMBOL
- ⊙ = PROPOSED WELL HEAD.
- ▲ = SECTION CORNERS LOCATED.
- △ = SECTION CORNERS RE-ESTABLISHED. (Not Set on Ground)

XTO ENERGY, INC.

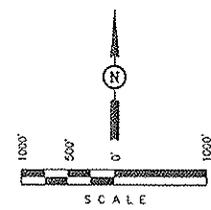
Well location, FBIR WALKER #34x-25, located as shown in the SW 1/4 SE 1/4 of Section 25, T149N, R92W, 5th P.M., Dunn County, North Dakota.

**SECTION BREAKDOWN
T149N, R92W, 5th P.M.**



NOTE: THE PROPOSED BOTTOM HOLE FOR THIS WELL BEARS S18°12'20"W A DISTANCE OF 1335.75' FROM THE PROPOSED WELL HEAD.

Calc./Set 2.0' Alum. Cap L507599 By bearing/Leaving witness Post/Post And Set Sec 4 to the South



SURFACE LOCATION
 (NAD 83)
 LATITUDE = 47°41'21.39" (47.689275)
 LONGITUDE = 102°23'37.68" (102.393800)
 (NAD 27)
 LATITUDE = 47°41'21.36" (47.689267)
 LONGITUDE = 102°23'36.03" (102.393342)
[Sourced from: N.D.S. O.P.U.S. SOLUTION REF FRAME NAD_83(CORR94)EPSH00 2002.0000]

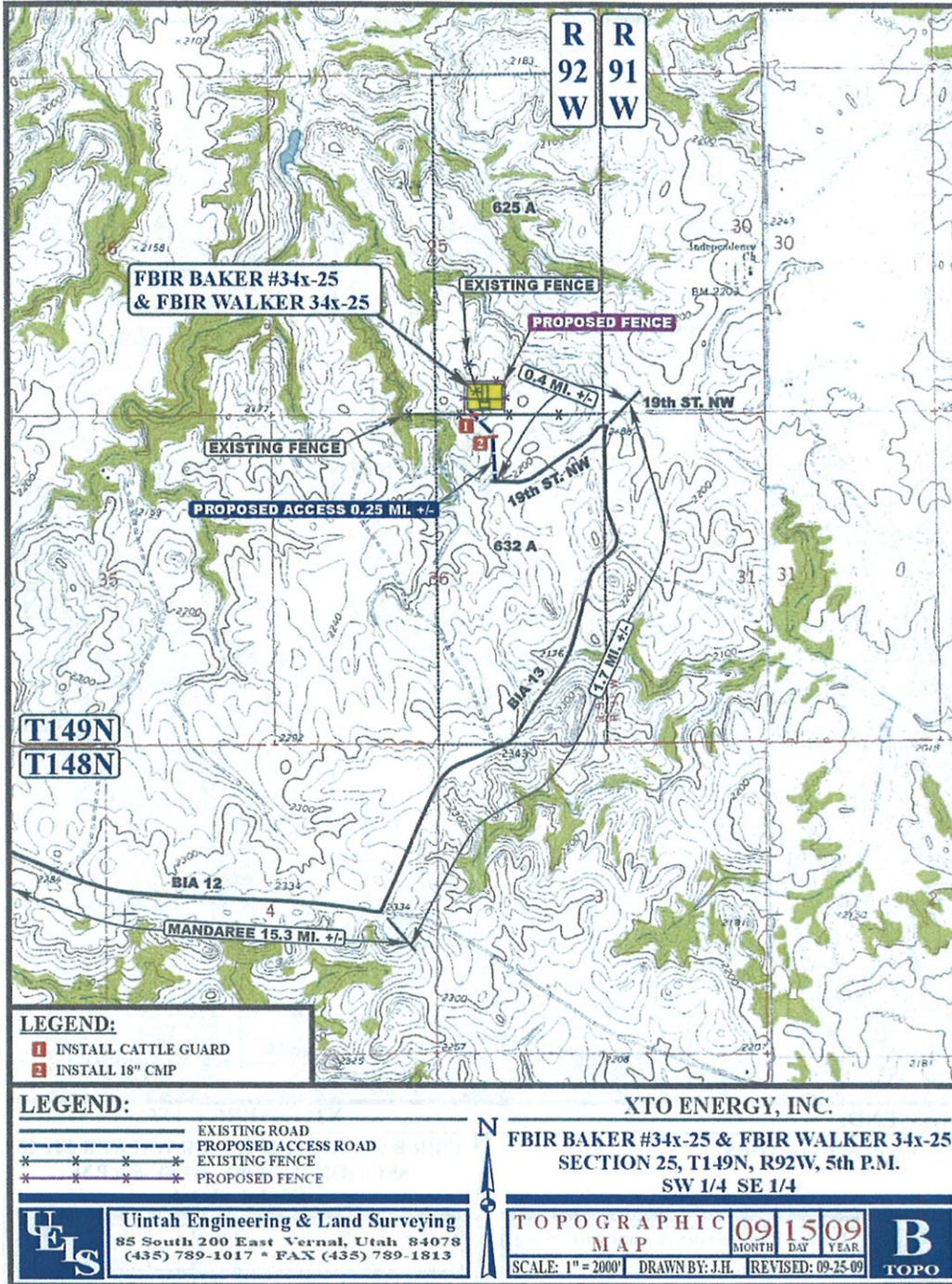
CERTIFICATE
 I HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



Troy Jensen
 REGISTERED LAND SURVEYOR
 REGISTRATION NO. 6854
 STATE OF NORTH DAKOTA

| | | |
|---|----------------------------|------------------------|
| UNTAH ENGINEERING & LAND SURVEYING 85 SOUTH 200 EAST - FERNAL, UTAH 84078 (435) 769-1017 | | |
| SCALE 1" = 1000' | DATE SURVEYED 10-14-09 | SAT. DRAWN 10-27-09 |
| PARTY T.G. F.H. D.E. | PREPARED BY C.L.O. PLAT | |
| WEATHER COOL | FILE | XTO ENERGY, INC. |





LEGEND:
 1 INSTALL CATTLE GUARD
 2 INSTALL 18" CMP

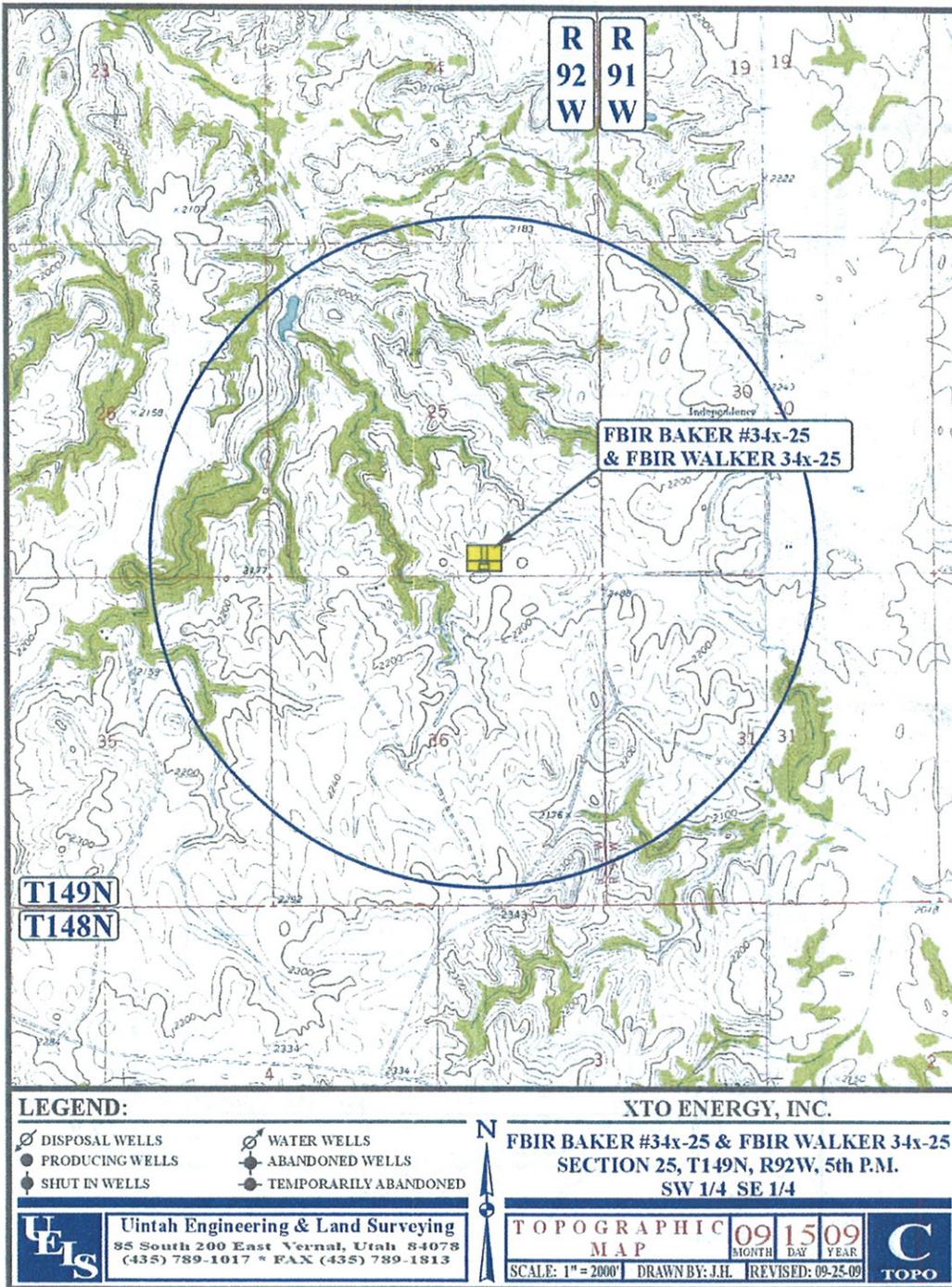
LEGEND:
 ——— EXISTING ROAD
 - - - - - PROPOSED ACCESS ROAD
 * * * * * EXISTING FENCE
 * * * * * PROPOSED FENCE

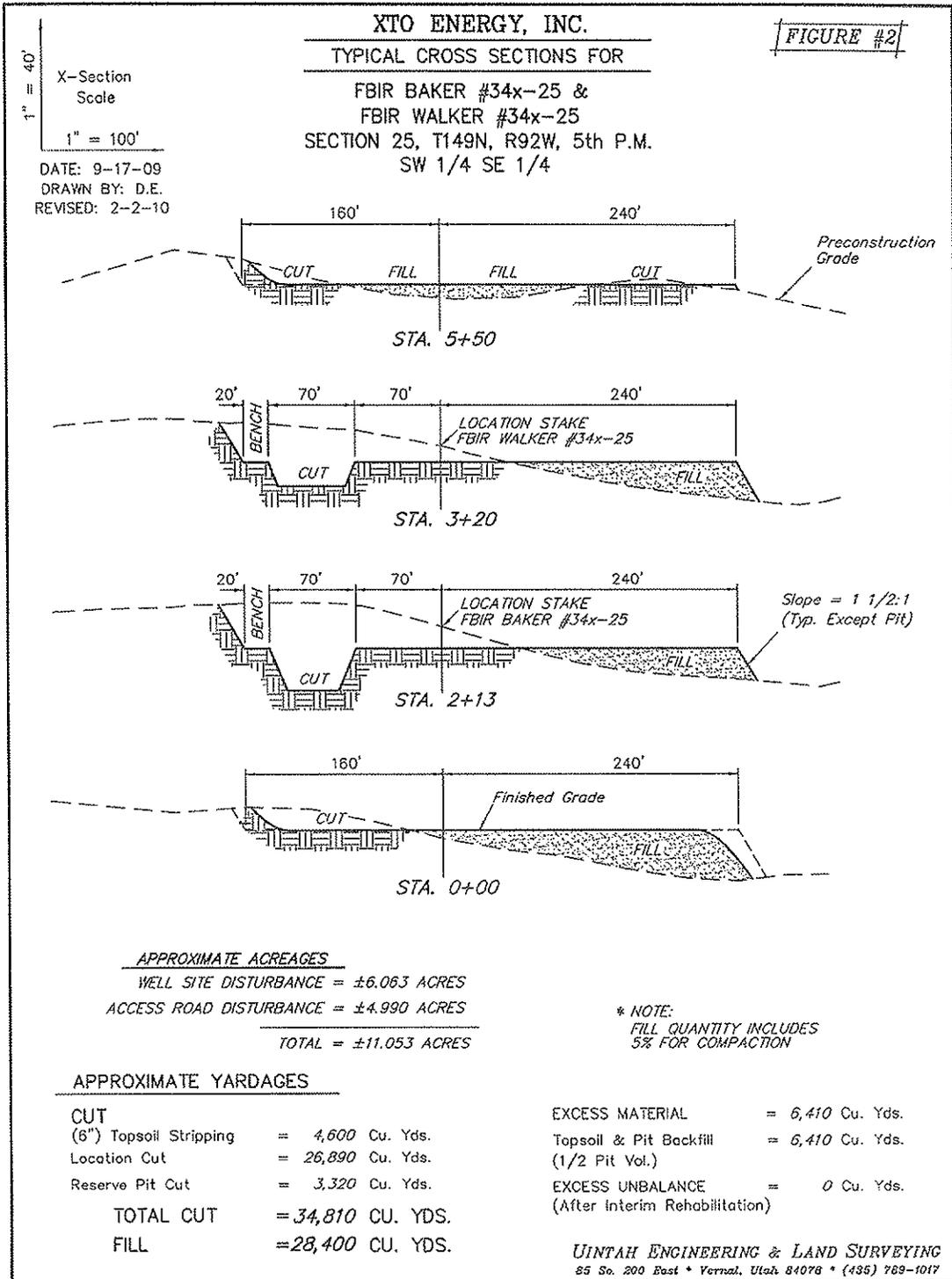
UEIS Uintah Engineering & Land Surveying
 85 South 200 East Vernal, Utah 84078
 (435) 789-1017 * FAX (435) 789-1813



XTO ENERGY, INC.
FBIR BAKER #34x-25 & FBIR WALKER 34x-25
SECTION 25, T149N, R92W, 5th P.M.
SW 1/4 SE 1/4

TOPOGRAPHIC MAP 09 15 09
 MONTH DAY YEAR
 SCALE: 1" = 2000' DRAWN BY: J.H. REVISED: 09-25-09 **B**
 TOPO





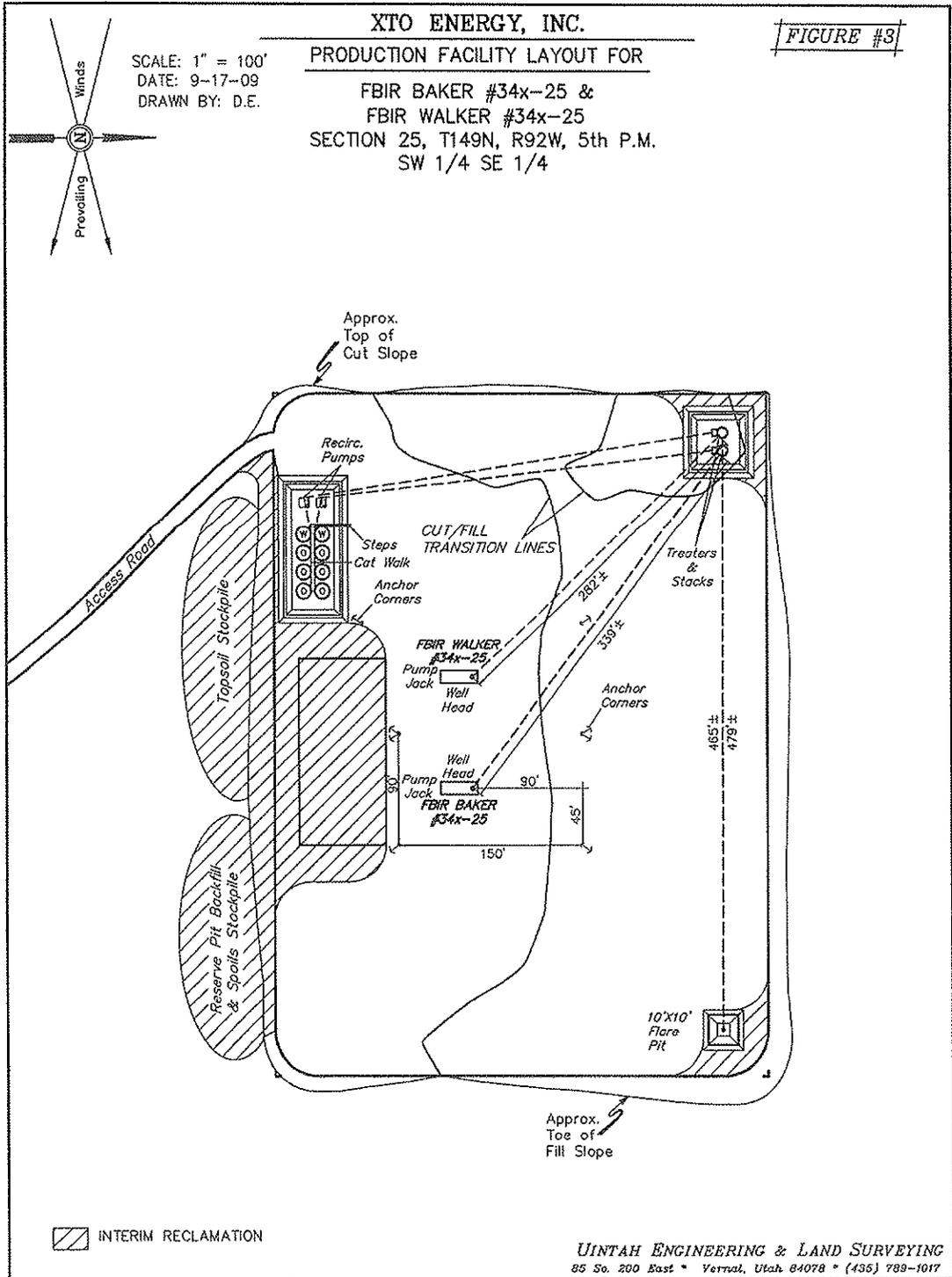


FIGURE # 4



FBIR Walker 34X-25
Location: SW SE Sec 25, 149N-92W
Footage: 250 ft FSL, 1935 ft FEL
Elev: Graded Pad 2184', KB 2208'
Dunn County, ND

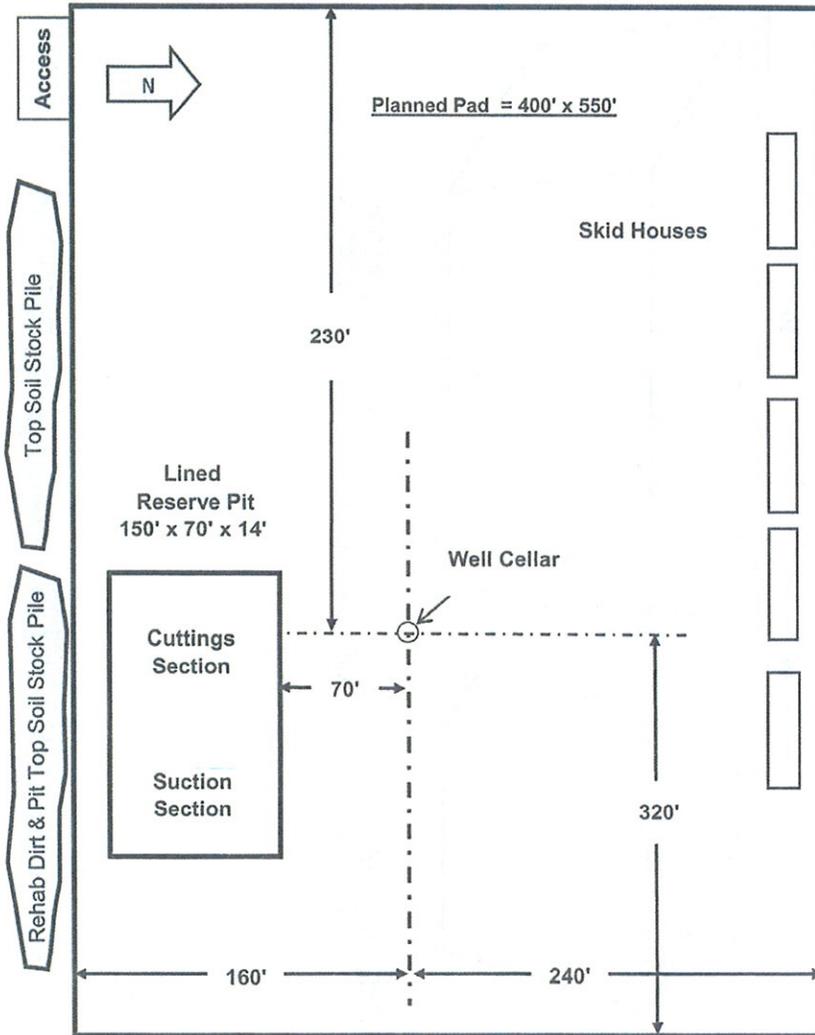


FIGURE #5

XTO Energy, Inc.
RESERVE PIT LAYOUT

FBIR Walker 34X-25
Location: SW SE Sec 25, 149N-92W
Footage: 250 ft FSL, 1935 ft FEL
Elev: Graded Pad 2184', KB 2208'
Dunn County, ND

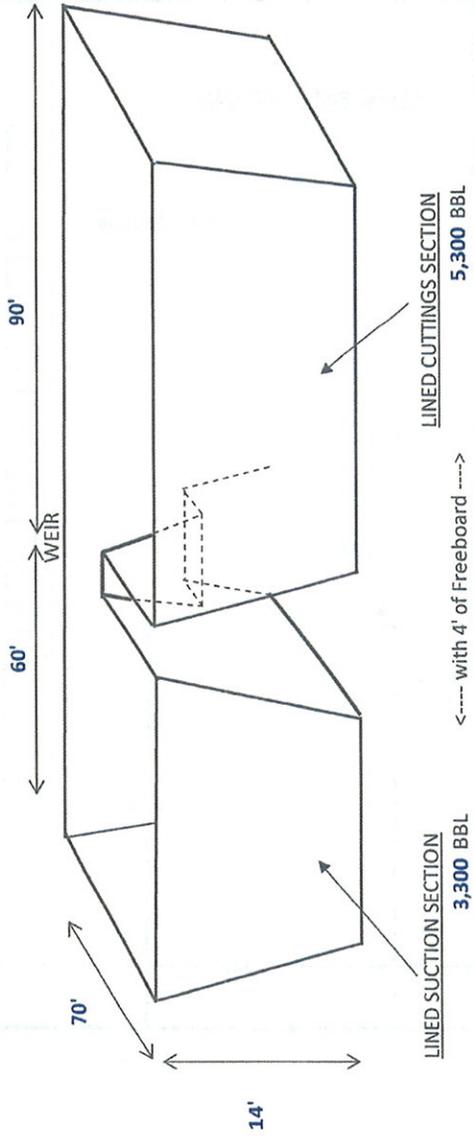


Figure #6

LORTEX 12 MIL LINER

Woven Reinforced High Density Polyethylene Fabric Coated With Low Density Polyethylene

PHYSICAL PROPERTIES AND SPECIFICATIONS

| | |
|-----------------------------|---|
| CONSTRUCTION: | 12xD6 count per square inch Warp 950 Denier @ 50 Fill 1900 Denier @ 100 |
| FABRIC GRADE: | industrial, Carbon Black |
| STANDARD COATING COLORS: | Black |
| STANDARD COATING THICKNESS: | 12 Mils +/- .15 mil each side LDRE |
| TOTAL THICKNESS: | 12 Mils +/- .5 mil |
| NOMINAL WEIGHT: | 5.3 oz/ square yard |
| NOMINAL TENSILE STRENGTH: | 160 lbs W x 140 lbs Fill ASTM 1682-64 (Grab) |
| TEAR STRENGTH: | 46 lbs W x 49 lbs Fill ASTM 2261-71 (Tongue) |
| MULLEN BURST STRENGTH: | 325 psi ASTM D751-73 |
| HYDROSTATIC RESISTANCE: | 125 psi ASTM D1682-63 |
| FLEX ABRASION: | 5000+ cycles W 5000+ cycles Fill ASTM D1175-71 |
| PUNCTURE RESISTANCE: | 40 pounds FTMS 101B method 2065 |
| IDENTIFICATION: | Printed in white ink "12 Mil" on 36 inch repeat |

FIGURE #7

XTO ENERGY, INC.
FBIR BAKER #34x-25 & FBIR WALKER 34x-25
LOCATED IN DUNN COUNTY, NORTH DAKOTA
SECTION 25, T149N, R92W, 5th P.M.



PHOTO: VIEW FROM CORNER #1 TO LOCATION STAKE

CAMERA ANGLE: SOUTHERLY

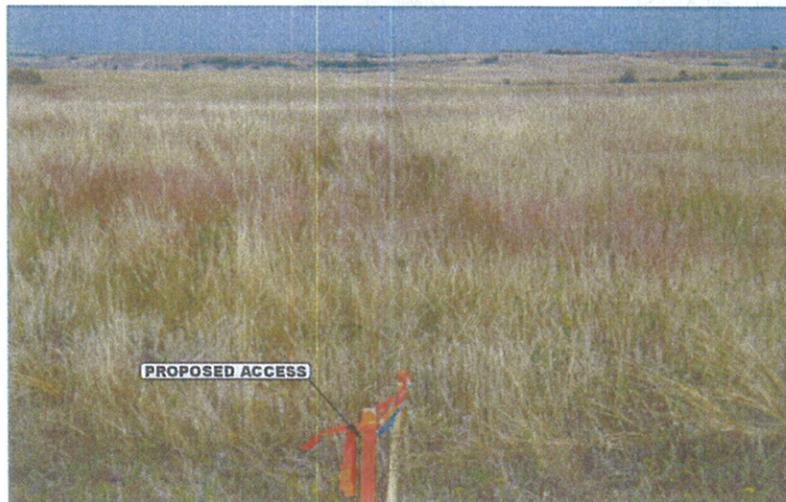


PHOTO: VIEW FROM BEGINNING OF PROPOSED ACCESS

CAMERA ANGLE: NORTHERLY



U
E
L
S
Uintah Engineering & Land Surveying
85 South 200 East Vernal, Utah 84078
(435) 789-1017 * FAX (435) 789-1813

| | | | | |
|-----------------|----------------|-----|-------------------|-------|
| LOCATION PHOTOS | 09 | 15 | 09 | PHOTO |
| | MONTH | DAY | YEAR | |
| TAKEN BY: D.Z. | DRAWN BY: J.H. | | REVISED: 09-25-09 | |

Appendix B

Ecological Site Photographs
Ecological Site Summary Table

*Baker/Walker 34X-25 Site Environmental Assessment
XTO Energy, Inc.*

2009 FBIR Baker/Walker 34X-25 Site Photographs

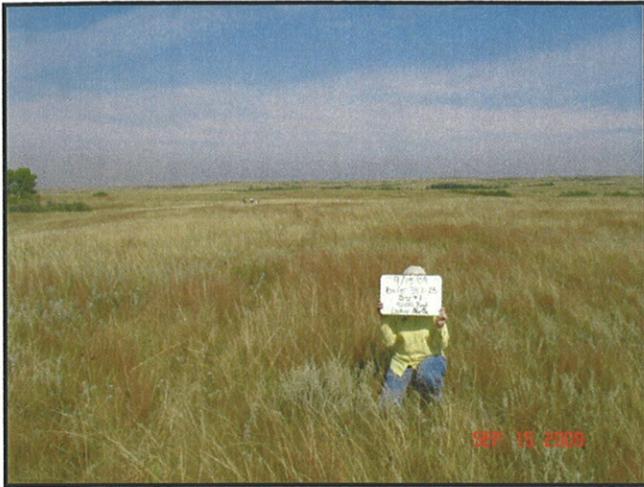


Photo 1: Ecological Site #1 - Sandy. On Access Road looking north. SE1/4NW1/4NE1/4 Section 36, T149N, R92W.

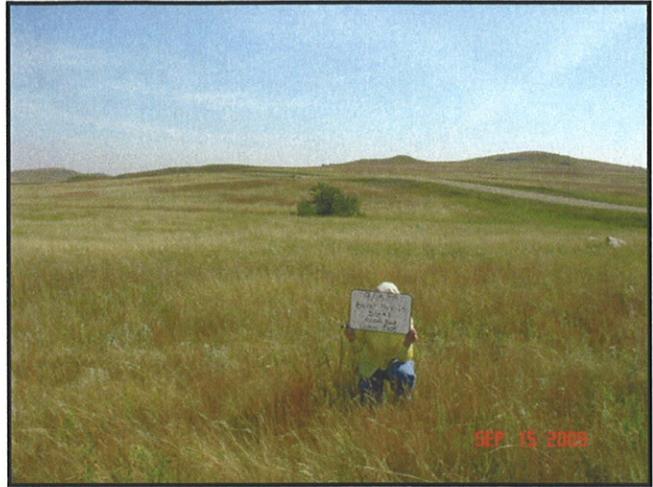


Photo 2: Ecological Site #1 - Sandy. On Access Road looking east. UTM Coordinates: N5284488.576, E695682.226.



Photo 3: Ecological Site #1 - Sandy. Soil pit on access road.

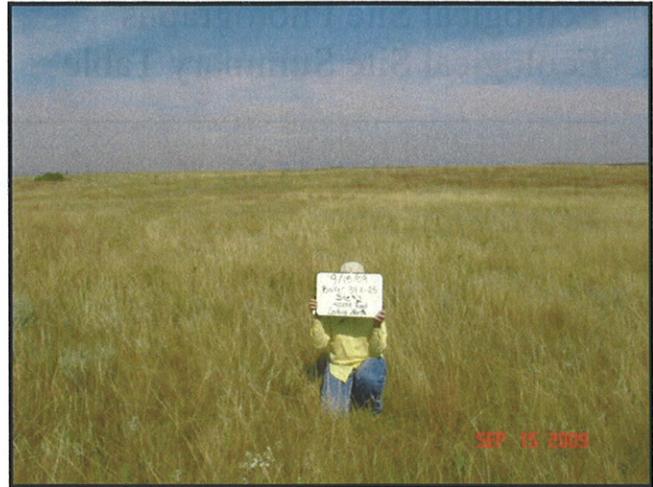


Photo 4: Ecological Site #2 - Sandy. On access road looking north. NE1/4NW1/4NE1/4 Section 36, T149N, R92W.



Photo 5: Site #2 - Sandy. On access road looking west.



Photo 6: Site #2 - Sandy. Soil pit on access road. UTM Coordinates: N5284610.892, E695685.673.

2009 FBIR Baker/Walker 34X-25 Site Photographs



Photo 7: Site #3 - Loamy Overflow. On access road looking east. NE1/4NW1/4NE1/4 Section 36, T149N, R92W.

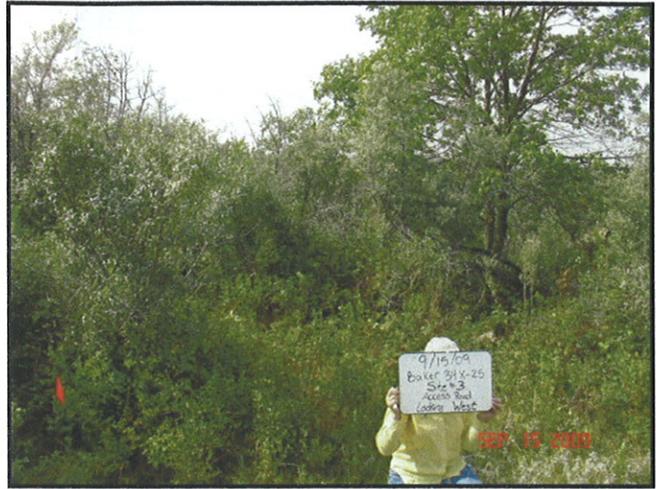


Photo 8: Site #3 - Loamy Overflow. On access road looking west. UTM Coordinates: N5284600.558, E695656.262.



Photo 9: Site #3 - Loamy Overflow. Soil pit on access road.



Photo 10: Site #4 - Sandy. On access road looking north. NE1/4NW1/4NE1/4 Section 36, T149N, R92W.



Photo 11: Site #4 - Sandy. On access road looking west. UTM Coordinates: N5284658.306, E695683.499.



Photo 12: Site #4 - Sandy. Soil pit on access road.

2009 FBIR Baker/Walker 34X-25 Site Photographs

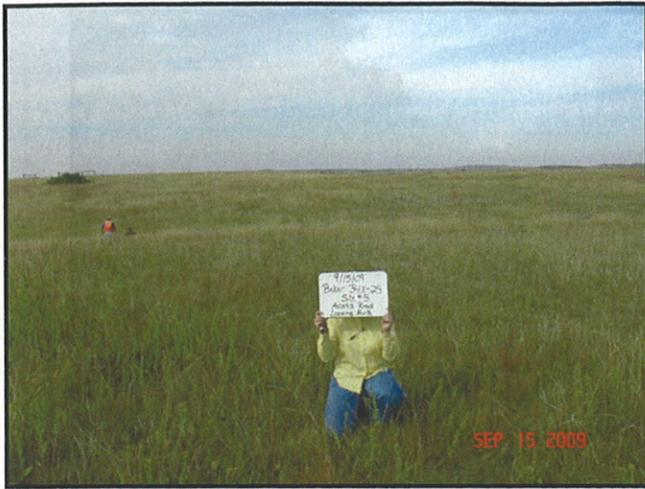


Photo 13: Site #5 - Thin Loamy. On access road looking north. NE1/4NW1/4NE1/4 Section 36, T149N, R92W.



Photo 14: Site #5 - Thin Loamy. On access road looking west. UTM Coordinates: N5284640.756 E695657.274.



Photo 15: Site #5 - Thin Loamy. Soil pit on access road.



Photo 16: Site #6 - Loamy Overflow. On access road looking north. NE1/4NW1/4NE1/4 Section 36, T149N, R92W.

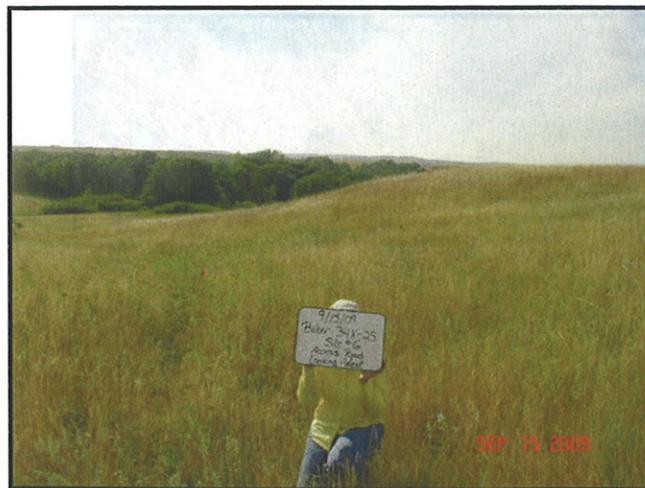


Photo 17: Site #6 - Loamy Overflow. On access road looking west. UTM Coordinates: N5284676.719, E695651.461.



Photo 18: Site #6 - Loamy Overflow. Soil pit on access road.

2009 FBIR Baker/Walker 34X-25 Site Photographs

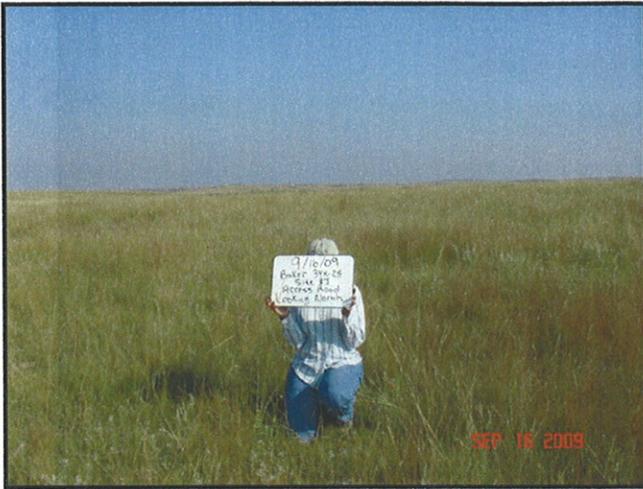


Photo 19: Site #7 - Sandy. On access road looking north. NE1/4NW1/4NE1/4 Section 36, T149N, R92W.

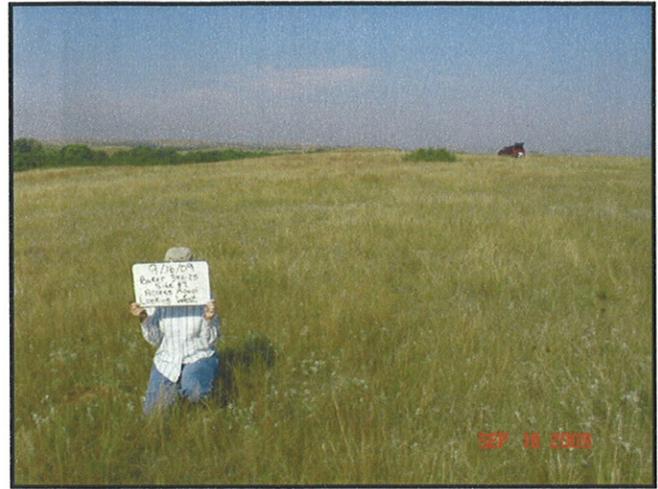


Photo 20: Site #7 - Sandy. On access road looking west. UTM Coordinates: N5284689.243, E695691.343.



Photo 21: Site #7 - Sandy. Soil pit on access road.

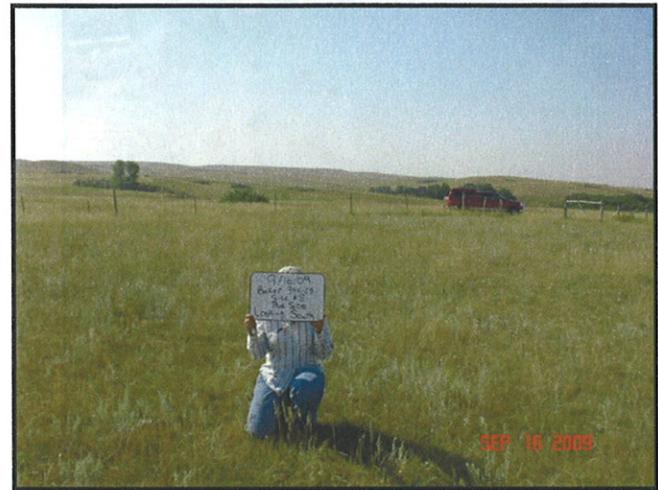


Photo 22: Site #8 - Loamy. On pad site looking south. SE1/4SW1/4SE1/4 Section 25, T149N, R92W.

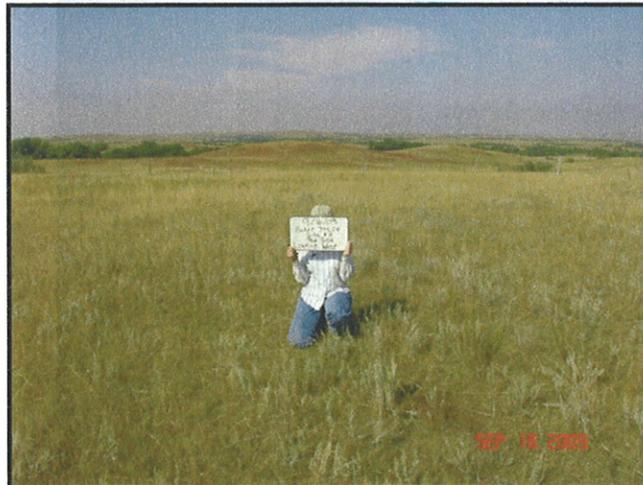


Photo 23: Site #8 - Loamy. On pad site looking west. UTM Coordinates: N5284798.754, E695644.212.



Photo 24: Site #8 - Loamy. Soil pit on pad site.

2009 FBIR Baker/Walker 34X-25 Site Photographs



Photo 25: Site #9 - Loamy. On pad site looking north. SE1/4SW1/4SE1/4 Section 25 T149N, R92W.

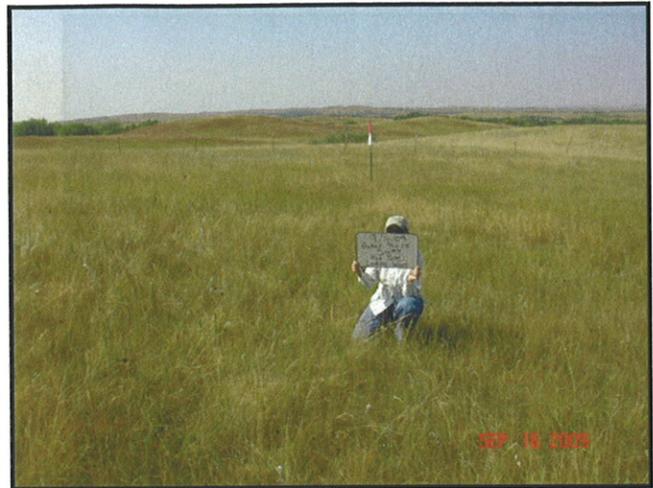


Photo 26: Site #9 - Loamy. On pad site looking west. UTM Coordinates: N5284840.311, E695636.700.



Photo 27: Site #9 - Loamy. Soil pit on pad site.

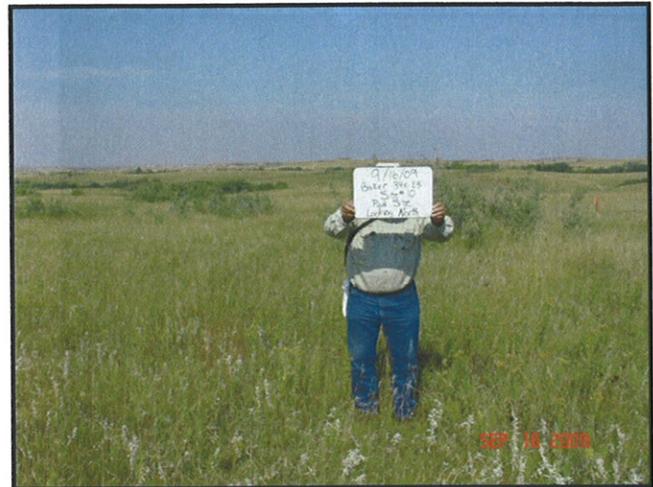


Photo 28: Site #10 - Loamy Overflow. On pad site looking north. NE1/4SW1/4SE1/4 Section 25, T149N, R92W.

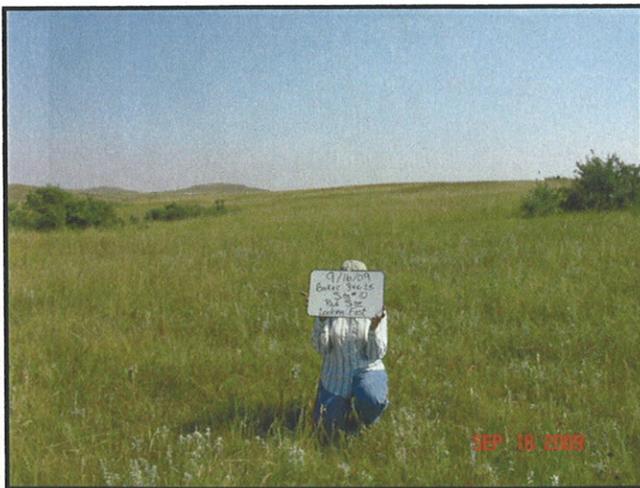


Photo 29: Site #10 - Loamy Overflow. On pad site looking east. UTM Coordinates: N5284894.795, E695631.757.



Photo 30: Site #10 - Loamy Overflow. Soil pit on pad site.

2009 FBIR Baker/Walker 34X-25 Site Photographs

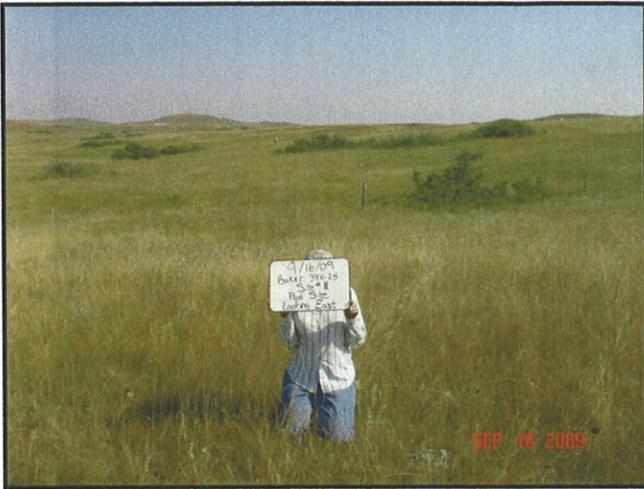


Photo 31: Site #11 - Thin Loamy. On pad site looking east. NW1/4SW1/4SE1/4 Section 25, T149N, R92W.



Photo 32: Site #11 - Thin Loamy. On pad site looking west. UTM Coordinates: N5284897.312, E695563.675.



Photo 33: Site #11 - Thin Loamy. Soil pit on pad site.

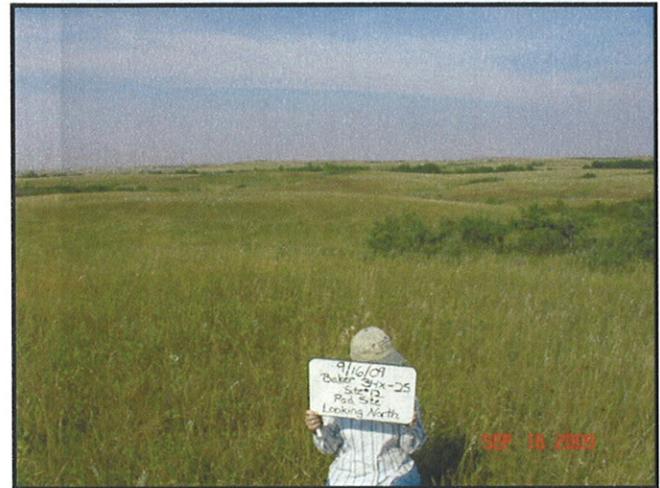


Photo 34: Site #12 - Sandy. On pad site looking north. NE1/4SW1/4SE1/4 Section 25 T149N, R92W.

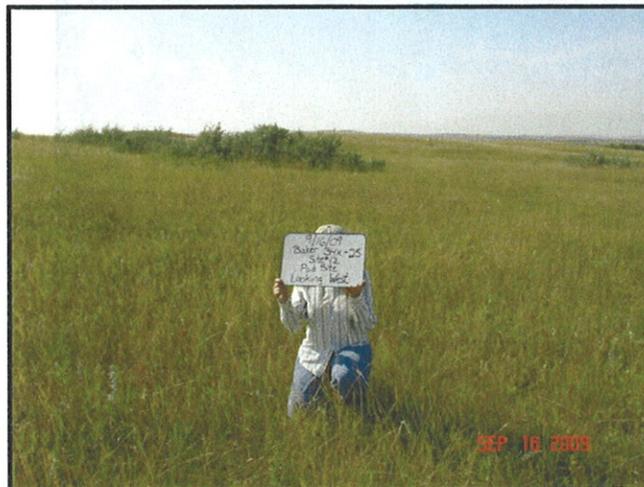


Photo 35: Site #12 - Sandy. On pad site looking west. UTM Coordinates: N5284875.599, E695687.995.



Photo 36: Site #12 - Sandy. Sand pile on pad site.

2009 FBIR Baker/Walker 34X-25 Site Photographs

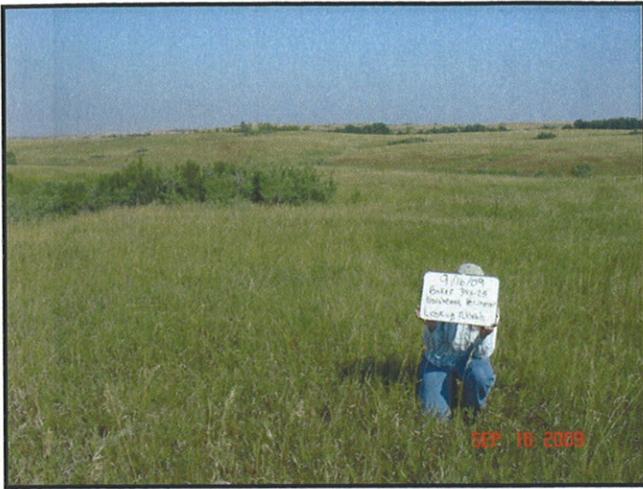


Photo 37: East Perimeter of Pad. Looking North.
NW1/4SE1/4SE1/4 Section 25, T149N, R92W.



Photo 38: East Perimeter of Pad. Looking Southwest.
UTM Coordinates: N5284951.737, E695775.758.



Photo 39: North Perimeter of Pad. Looking North.
NE1/4SW1/4SE1/4 Section 25, T149N, R92W.



Photo 40: North Perimeter of Pad. Looking South.
UTM Coordinates: N5284953.707, E695629.302.



Photo 41: West Perimeter of Pad. Looking East.
SW1/4SE1/4 Section 25, T149N, R92.

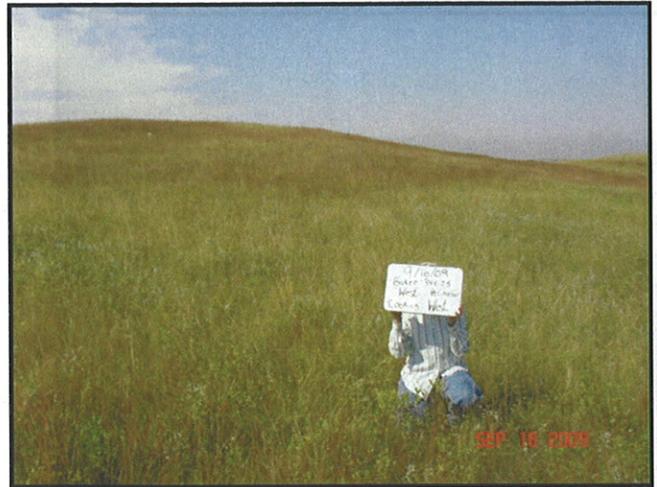


Photo 42: West Perimeter of Pad. Looking west.
UTM Coordinates: N5284851.799, E695503.146.

2009 FBIR Baker/Walker 34X-25 Site Photographs

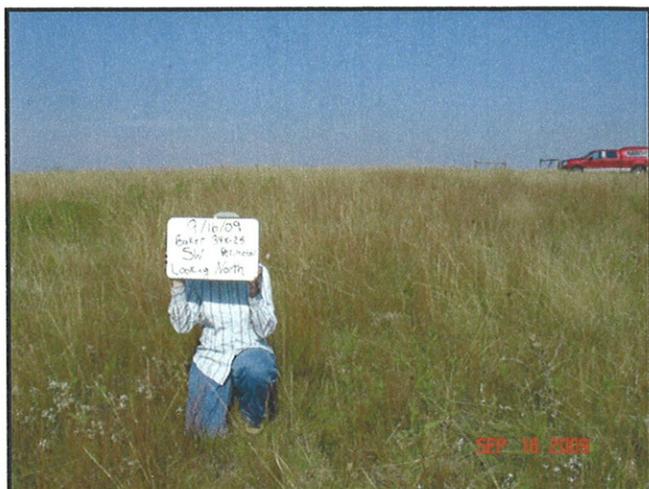


Photo 43: South Perimeter of Pad. Looking North.
NE1/4NW1/4NW1/4NE1/4 Section 36, T149N, R92W.

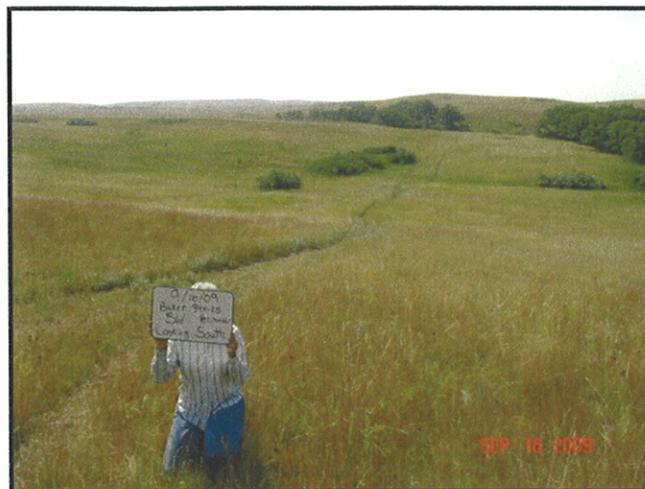


Photo 44: South Perimeter of Pad. Looking South.
UTM Coordinates: N5284718.426, E695598.001.

Table B-1: Summary of ecological sample sites at the proposed Baker/Walker 34X-25 project area.

| Sample Site ID | Ecological Soil Type | Access Road, Pad Site, or Perimeter | Legal Description (T, R, S) | Zone 13T - UTM Coordinates |
|----------------|----------------------|-------------------------------------|---|-----------------------------|
| Site #1 | Sandy | Access Road | SE1/4NW1/4NE1/4 Sect. 36, T 149N, R 92W | N5284488.576 E695682.226 |
| Site #2 | Sandy | Access Road | NE1/4NW1/4NE1/4 Sect. 36, T 149N, R 92W | N5284610.892 E695685.673 |
| Site #3 | Loamy Overflow | Access Road | NE1/4NW1/4NE1/4 Sect. 36, T 149N, R 92W | N5284600.558 E695656.262 |
| Site #4 | Sandy | Access Road | NE1/4NW1/4NE1/4 Sect. 36, T 149N, R 92W | N5284658.306 E695683.499 |
| Site #5 | Thin Loamy | Access Road | NE1/4NW1/4NE1/4 Sect. 36, T 149N, R 92W | N5284640.756 E695657.274 |
| Site #6 | Loamy Overflow | Access Road | NE1/4NW1/4NE1/4 Sect. 36, T 149N, R92W | N5284676.719 E695651.461 |
| Site #7 | Sandy | Access Road | NE1/4NW1/4NE1/4 Sect. 36, T 149N, R 92W | N5284689.243 E695691.343 |
| Site #8 | Loamy | Pad Site | SE1/4SW1/4SE1/4 Sect. 25, T 149N, R 92W | N5284798.754 E695644.212 |
| Site #9 | Loamy | Pad Site | SE1/4SW1/4SE1/4 Sect. 25, T 149N, R 92W | N5284840.311 E695636.700 |
| Site #10 | Loamy Overflow | Pad Site | NE1/4SW1/4SE1/4 Sect. 25, T 149N, R 92W | N5284894.795 E695631.757 |
| Site #11 | Thin Loamy | Pad Site | NW1/4SW1/4SE1/4 Sect. 25, T 149N, R 92W | N5284897.312 E695563.675 |
| Site #12 | Sandy | Pad Site | NE1/4SW1/4SE1/4 Sect. 25, T 149N, R 92W | N5284875.599 E695687.995 |
| East | ----- | Perimeter | NW1/4SE1/4SE1/4 Sect. 25, T 149N, R 92W | N5284951.737 E695775.758 |
| North | ----- | Perimeter | NE1/4SW1/4SE1/4 Sect. 25, T 149N, R 92W | N5284953.707 E695629.302 |
| West | ----- | Perimeter | SW1/4SE1/4 Sect. 25, T 149N, R 92W | N5284851.799 E695503.146 |
| South | ----- | Perimeter | NE1/4NW1/4NW1/4NE1/4 Sect. 36, T 149N, R 92W | N5284718.426 E695598.001 |

Appendix C

Ecological Site Plant Worksheets
Characteristics of Native Seed Mix

Baker/Walker 34X-25 Site Environmental Assessment
XTO Energy, Inc.

Plant Species Worksheet

Date: 9-15-09

Slope: 2 Percent

Aspect: North

Resource Area: Baker #34x-25

Legal Description: SE1/4NW1/4NE1/4 Section 36, T149N, R92W

UTM Coordinates: N5284488.576 E695682.226

Ecological Site: Sandy

Site #1 - Access Road

Community Type: Sandberg bluegrass/Little bluestem/Green needlegrass

| Common Name | Plant Composition | Scientific Name |
|---|-------------------|--|
| GRASSES: Bearded wheatgrass Blue grama Green needlegrass Little bluestem Needleandthread grass Prairie junegrass Prairie sandreed Red threeawn Sandberg bluegrass Sun sedge Thickspike wheatgrass Threadleaf sedge Western wheatgrass | | Elymus caninus Bouteloua gracilis Nassella viridula Schizachyrium scoparium Hesperostipa comata Koeleria macrantha Calamovilfa longifolia Aristida longiseta Poa secunda Carex inops Elymus lanceolatus Carex filifolia Pascopyrum smithii |
| FORBS: Arrowleaf balsamroot Black samson Cudweed sagewort Dotted gayfeather Green sagewort Hairy goldenaster Heath aster Milk vetch Missouri goldenrod Penstemon Prairie smoke Purple prairie clover Rose pussytoes Scarlet globemallow Silverleaf scurpea Rush skeletonweed Stiff goldenrod Western yarrow White prairie aster Wild onion | | Balsamorhiza sagittata Echinacea angustifolia Artemisia ludoviciana Liatris punctata Artemisia dracunculus Heterotheca villosa Symphyotrichum ericoides Astragalus spp. Solidago missouriensis Penstemon spp. Geum triflorum Dalea purpurea Antennaria rosea Sphaeralcea coccinea Psoralea argophylla Lygodesmia juncea Oligoneuron rigidum Achillea millefolium Symphyotrichum falcatum Allium ascalonicum |
| INVASIVES/WEEDS: Common dandelion False flax Smooth brome Western salsify | | Taraxacum officinale Camelina crantz Bromus inermis Tragopogon dubius |
| SHRUBS: Common snowberry Fringed sagewort Prairie rose Silver buffaloberry | | Symphoricarpos albus Artemisia frigida Rosa arkansana Shepherdia argentea |

Plant Species Worksheet

Date: 9-15-09

Slope: 3 Percent

Aspect: North

Resource Area: Baker #34x-25

Legal Description: NE1/4NW1/4NE1/4 Section 36, T149N, R92W

UTM Coordinates: N5284610.892 E695685.673

Ecological Site: Sandy

Site #2 - Access Road

Community Type: Sandberg bluegrass/Green needlegrass

| Common Name | Plant Composition | Scientific Name |
|--|-------------------|--|
| GRASSES: Bearded wheatgrass Blue grama Green needlegrass Little bluestem Needleandthread grass Plains dropseed Prairie junegrass Prairie sandreed Red threeawn Sandberg bluegrass Threadleaf sedge Western wheatgrass | | Elymus caninus Bouteloua gracilis Nassella viridula Schizachyrium scoparium Hesperostipa comata Sporobolus heterolepis Koeleria macrantha Calamovilfa longifolia Aristida longiseta Poa secunda Carex filifolia Pascopyrum smithii |
| FORBS: Balsamroot Black samson Dotted gayfeather Green sagewort Hairy goldenaster Missouri goldenrod Penstemon Prairie coneflower Prairie smoke Rose pussytoes Silverleaf scurfpea Stiff goldenrod Western yarrow White prairie aster | | Balsamorhiza spp. Echinacea angustifolia Liatris punctata Artemisia dracunculus Heterotheca villosa Solidago missouriensis Penstemon spp. Ratibida columnifera Geum triflorum Antennaria rosea Psoralea argophylla Oligoneuron rigidum Achillea millefolium Symphyotrichum falcatum |
| INVASIVES/WEEDS: Common dandelion Crested wheatgrass False flax Kentucky bluegrass Smooth brome Western salsify | | Taraxacum officinale Agropyron cristatum Camelina crantz Poa pratensis Bromus inermis Tragopogon dubius |
| SHRUBS: Fringed sagewort Prairie rose Silver buffaloberry | | Artemisia frigida Rosa arkansana Shepherdia argentea |

Plant Species Worksheet

Date: 9-15-09

Slope: 11 Percent

Aspect: West

Resource Area: Baker #34x-25

Legal Description: NE1/4NW1/4NE1/4 Section 36, T149N, R92W

UTM Coordinates: N5284600.558 E695656.262

Ecological Site: Loamy Overflow

Site #3 - Access Road

Community Type: Sandberg bluegrass/Green needlegrass/

Silver buffaloberry/Western snowberry

| Common Name | Plant Composition | Scientific Name |
|--|-------------------|--|
| GRASSES: Bearded wheatgrass Big bluestem Blue grama Green needlegrass Little bluestem Needleandthread grass Penn sedge Porcupine grass Prairie dropseed Prairie sandreed Red threeawn Sandberg bluegrass Sideoats grama Western wheatgrass | | Elymus caninus Andropogon gerardii Bouteloua gracilis Nassella viridula Schizachyrium scoparium Hesperostipa comata Carex pensylvanica Hesperostipa spartea Sporobolus heterolepis Calamovilfa longifolia Aristida longiseta Poa secunda Bouteloua curtipendula Pascopyrum smithii |
| FORBS: American licorice Black samson Cudweed sagewort Dotted gayfeather Green sagewort Hairy goldenaster Meadow anemone Missouri goldenrod Northern bedstraw Penstemon Prairie coneflower Prairie smoke Purple prairie clover Rose pussytoes Richardson's geranium Scarlet globemallow Silverleaf scurfpea Stiff goldenrod Western yarrow | | Glycyrrhiza lepidota Echinacea angustifolia Artemisia ludoviciana Liatris punctata Artemisia dracunculus Heterotheca villosa Anemone canadensis Solidago missouriensis Galium boreale Penstemon spp. Ratibida columnifera Geum triflorum Dalea purpurea Antennaria rosea Geranium richardsonii Sphaeralcea coccinea Psoralea argophylla Oligoneuron rigidum Achillea millefolium |
| INVASIVES/WEEDS: Canadian thistle Common dandelion Crested wheatgrass False flax Flixweed Flodmanfts thistle Kentucky bluegrass Smooth brome Western salsify | | Cirsium arvense Taraxacum officinale Agropyron cristatum Camelina crantz Descurainia sophia Cirsium flodmanii Poa pratensis Bromus inermis Tragopogon dubius |

Site #3 - Access Road (continued)

| | | |
|--|--|---|
| <p>SHRUBS/TREES: Chokecherry Common snowberry Creeping juniper Fringed sagewort Golden current Green ash Hawthorn Poison ivy Prairie rose Serviceberry Silver buffaloberry</p> | | <p>Prunus virginiana Symphoricarpos albus Juniperus horizontalis Artemisia frigida Ribes aureum Fraxinus pennsylvanica Crataegus spp. Toxicodendron rydbergii Rosa arkansana Amelanchier spp. Shepherdia argentea</p> |
|--|--|---|

Plant Species Worksheet

Date: 9-15-09

Slope: 2 Percent

Aspect: Northeast

Resource Area: Baker #34x-25

Legal Description: NE1/4NW1/4NE1/4 Section 36, T149N, R92W

UTM Coordinates: N5284658.306 E695683.499

Ecological Site: Sandy

Site #4 - Access Road

Community Type: Sandberg bluegrass/Green needlegrass/

Little bluestem/Prairie junegrass

| Common Name | Plant Composition | Scientific Name |
|--|-------------------|---|
| GRASSES: Bearded wheatgrass Big bluestem Blue grama Green needlegrass Little bluestem Needleandthread grass Prairie dropseed Prairie junegrass Prairie sandreed Red threeawn Sandberg bluegrass Threadleaf sedge Western wheatgrass | | Elymus caninus Andropogon gerardii Bouteloua gracilis Nassella viridula Schizachyrium scoparium Hesperostipa comata Sporobolus heterolepis Koeleria macrantha Calamovilfa longifolia Aristida longiseta Poa secunda Carex filifolia Pascopyrum smithii |
| FORBS: American vetch Black samson Cudweed sagewort Dotted gayfeather Green sagewort Hairy goldenaster Heath aster Milk vetch Missouri goldenrod Penstemon Prairie smoke Purple prairie clover Rose pussytoes Silverleaf scurfpea Stiff goldenrod Western yarrow White prairie aster Wild onion Woolly indianwheat | | Vicia americana Echinacea angustifolia Artemisia ludoviciana Liatris punctata Artemisia dracunculus Heterotheca villosa Symphyotrichum ericoides Astragalus spp. Solidago missouriensis Penstemon spp. Geum triflorum Dalea purpurea Antennaria rosea Psoralea argophylla Oligoneuron rigidum Achillea millefolium Symphyotrichum falcatum Allium ascalonicum Plantago patagonica |
| INVASIVES/WEEDS: Common dandelion Crested wheatgrass False flax Smooth brome Western salsify | | Taraxacum officinale Agropyron cristatum Camelina crantz Bromus inermis Tragopogon dubius |
| SHRUBS: Common snowberry Fringed sagewort Prairie rose | | Symphoricarpos albus Artemisia frigida Rosa arkansana |

Plant Species Worksheet

Date: 9-15-09

Slope: 3 Percent

Aspect: Northwest

Resource Area: Baker #34x-25

Legal Description: NE1/4NW1/4NE1/4 Section 36, T149N, R92W

UTM Coordinates: N5284640.756 E695657.274

Ecological Site: Thin Loamy

Site #5 - Access Road

Community Type: Little bluestem/Green needlegrass/

Prairie junegrass/Stiff goldenrod

| Common Name | Plant Composition | Scientific Name |
|---|-------------------|--|
| GRASSES: Bearded wheatgrass Blue grama Green needlegrass Little bluestem Needleandthread grass Prairie dropseed Prairie junegrass Prairie sandreed Red threeawn Sandberg bluegrass Sideoats grama Threadleaf sedge Western wheatgrass | | Elymus caninus Bouteloua gracilis Nassella viridula Schizachyrium scoparium Hesperostipa comata Sporobolus heterolepis Koeleria macrantha Calamovilfa longifolia Aristida longiseta Poa secunda Bouteloua curtipendula Carex filifolia Pascopyrum smithii |
| FORBS: Balsamroot Black samson Common yarrow Cudweed sagewort Dotted gayfeather Green sagewort Hairy goldenaster Missouri goldenrod Penstemon Prairie coneflower Prairie smoke Rock cress Rose pussytoes Silverleaf scurfpea Stiff goldenrod White prairie aster | | Balsamorhiza spp. Echinacea angustifolia Achillea millefolium Artemisia ludoviciana Liatris punctata Artemisia dracunculul Heterotheca villosa Solidago missouriensis Penstemon spp. Ratibida columnifera Geum triflorum Arabis spp. Antennaria rosea Psoralea argophylla Oligoneuron rigidum Symphyotrichum falcatum |
| INVASIVES/WEEDS: Common dandelion False flax Flodmanfts thistle Kentucky bluegrass Wavyleaf thistle Western salsify | | Taraxacum officinale Camelina crantz Cirsium flodmanii Poa pratensis Cirsium undulatum Tragopogon dubius |
| SHRUBS: Common snowberry Fringed sagewort Prairie rose Silver buffaloberry | | Symphoricarpos albus Artemisia frigida Rosa arkansana Shepherdia argentea |

Plant Species Worksheet

Date: 9-15-09

Slope: 8 Percent

Aspect: West

Resource Area: Baker #34x-25

Legal Description: NE1/4NW1/4NE1/4 Section 36, T149N, R92W

UTM Coordinates: N5284676.719 E695651.461

Ecological Site: Loamy Overflow

Site #6- Access Road

Community Type: Sandberg bluegrass/Green needlegrass/Common snowberry

| Common Name | Plant Composition | Scientific Name |
|---|-------------------|--|
| GRASSES: Bearded wheatgrass Big bluestem Blue grama Green needlegrass Little bluestem Needleandthread grass Prairie junegrass Prairie sandreed Red threeawn Sandberg bluegrass Sideoats grama Threadleaf sedge | | Elymus caninus Andropogon gerardii Bouteloua gracilis Nassella viridula Schizachyrium scoparium Hesperostipa comata Koeleria macrantha Calamovilfa longifolia Aristida longiseta Poa secunda Bouteloua curtipendula Carex filifolia |
| FORBS: American licorice Arrowleaf balsamroot Black-eyed susan Black samson Cudweed sagewort Green sagewort Hairy goldenaster Missouri goldenrod Penstemon Prairie coneflower Prairie smoke Purple prairie clover Silverleaf scurfpea Stiff goldenrod White prairie aster Wild onion | | Glycyrrhiza lepidota Balsamorhiza sagittata Rudbeckia hirta Echinacea angustifolia Artemisia ludoviciana Artemisia dracunculoides Heterotheca villosa Solidago missouriensis Penstemon spp. Ratibida columnifera Geum triflorum Dalea purpurea Psoralea argophylla Oligoneuron rigidum Symphyotrichum falcatum Allium ascalonicum |
| INVASIVES/WEEDS: False flax Flodman's thistle Kentucky bluegrass Smooth brome Western salsify | | Camelina crantz Cirsium flodmanii Poa pratensis Bromus inermis Tragopogon dubius |
| SHRUBS: Common snowberry Fringed sagewort Prairie rose Silver buffaloberry | | Symphoricarpos albus Artemisia frigida Rosa arkansana Shepherdia argentea |

Plant Species Worksheet

Date: 9-16-09

Slope: 6 Percent

Aspect: Southwest

Resource Area: Baker #34x-25

Legal Description: NE1/4NW1/4NE1/4 Section 36, T149N, R92W

UTM Coordinates: N5284689.243 E695691.343

Ecological Site: Sandy

Site #7- Access Road

Community Type: Sandberg bluegrass/Green needlegrass/

Little bluestem/Cudweed sagewort

| Common Name | Plant Composition | Scientific Name |
|--|-------------------|---|
| GRASSES: Bearded wheatgrass Blue grama Green needlegrass Little bluestem Needleandthread grass Prairie dropseed Prairie junegrass Prairie sandreed Red threeawn Sandberg bluegrass Western wheatgrass | | Elymus caninus Bouteloua gracilis Nassella viridula Schizachyrium scoparium Hesperostipa comata Sporobolus heterolepis Koeleria macrantha Calamovilfa longifolia Aristida longiseta Poa secunda Pascopyrum smithii |
| FORBS: Black samson Cudweed sagewort Dotted gayfeather Green sagewort Groundplum milkvetch Hairy goldenaster Missouri goldenrod Penstemon Prairie coneflower Prairie smoke Purple prairie clover Rose pussytoes Scarlet globemallow Silverleaf scurfpea Stiff goldenrod White prairie aster Wild onion | | Echinacea angustifolia Artemisia ludoviciana Liatris punctata Artemisia dracunculus Astragalus crassicaulus Heterotheca villosa Solidago missouriensis Penstemon spp. Ratibida columnifera Geum triflorum Dalea purpurea Antennaria rosea Sphaeralcea coccinea Psoralea argophylla Oligoneuron rigidum Symphyotrichum falcatum Allium ascalonicum |
| INVASIVES/WEEDS: Common dandelion False flax Wavyleaf thistle Western salsify | | Taraxacum officinale Camelina crantz Cirsium undulatum Tragopogon dubius |
| SHRUBS: Fringed sagewort Prairie rose | | Artemisia frigida Rosa arkansana |

Plant Species Worksheet

Date: 9-16-09

Slope: 2 Percent

Aspect: Southwest

Resource Area: Baker #34x-25

Legal Description: SE1/4SW1/4SE1/4 Section 25, T149N, R92W

UTM Coordinates: N5284798.754 E695644.212

Ecological Site: Loamy

Site #8 - Pad Site

Community Type: Prairie junegrass/Fringed sagewort

| Common Name | Plant Composition | Scientific Name |
|---|-------------------|---|
| GRASSES: Blue grama Green needlegrass Little bluestem Needleandthread grass Prairie junegrass Prairie sandreed Sandberg bluegrass Threadleaf sedge Western wheatgrass | | Bouteloua gracilis Nassella viridula Schizachyrium scoparium Hesperostipa comata Koeleria macrantha Calamovilfa longifolia Poa secunda Carex filifolia Pascopyrum smithii |
| FORBS: Black samson Common yarrow Cudweed sagewort Green sagewort Hairy goldenaster Missouri goldenrod Penstemon Woolly indianwheat | | Echinacea angustifolia Achillea millefolium Artemisia ludoviciana Artemisia dracunculus Heterotheca villosa Solidago missouriensis Penstemon spp. Plantago patagonica |
| INVASIVES/WEEDS: | | |
| Common dandelion Crested wheatgrass False flax Smooth brome | | Taraxacum officinale Agropyron cristatum Camelina crantz Bromus inermis |
| SHRUBS: Common snowberry Fringed sagewort Prairie rose Common snowberry Fringed sagewort Poison ivy Prairie rose Silver buffaloberry | | Symphoricarpos albus Artemisia frigida Rosa arkansana Symphoricarpos albus Artemisia frigida Toxicodendron rydbergii Rosa arkansana Shepherdia argentea |

Plant Species Worksheet

Date: 9-16-09

Slope: 5 Percent

Aspect: North

Resource Area: Baker #34x-25

Legal Description: NE1/4SW1/4SE1/4 Section 25, T149N, R92W

UTM Coordinates: N5284894.795 E695631.757

Ecological Site: Loamy overflow

Site #10 - Pad Site

Community Type: Green needlegrass/Smooth brome/
Cudweed sagewort/Common snowberry

| Common Name | Plant Composition | Plant Composition Common Name |
|---|-------------------|---|
| GRASSES: Bearded wheatgrass Green needlegrass Little bluestem Prairie dropseed Prairie junegrass Sandberg bluegrass Threadleaf sedge Western wheatgrass | | Elymus caninus Nassella viridula Schizachyrium scoparium Sporobolus heterolepis Koeleria macrantha Poa secunda Carex fillifolia Pascopyrum smithii |
| FORBS: Black samson Cudweed sagewort Dotted gayfeather Green sagewort Missouri goldenrod Penstemon Prairie coneflower Purple prairie clover Silverleaf scurfpea Stiff goldenrod White prairie aster | | Echinacea angustifolia Artemisia ludoviciana Liatris punctata Artemisia dracunculus Solidago missouriensis Penstemon spp. Ratibida columnifera Dalea purpurea Psoralea argophylla Oligoneuron rigidum Symphyotrichum falcatum |
| INVASIVES/WEEDS: Common dandelion False flax Kentucky bluegrass Smooth brome Western salsify | | Taraxacum officinale Camelina crantz Poa pratensis Bromus inermis Tragopogon dubius |
| SHRUBS: Common snowberry Fringed sagewort Poison ivy Prairie rose Silver buffaloberry | | Symphoricarpos albus Artemisia frigida Toxicodendron rydbergii Rosa arkansana Shepherdia argentea |

Plant Species Worksheet

Date: 9-16-09 Slope: Six Percent

Aspect: Northeast

Resource Area: Baker #34x-25

Legal Description: NW1/4SW1/4SE1/4 Section 25, T149N, R92W

UTM Coordinates: N5284897.312 E695563.675

Ecological Site: Thin loamy

Site #11 - Pad Site

Community Type: Green needlegrass/Prairie junegrass

Fringed sagewort/Prairie rose

| Common Name | Plant Composition | Scientific Name |
|---|-------------------|---|
| GRASSES: Bearded wheatgrass Blue grama Green needlegrass Little bluestem Needleandthread grass Prairie junegrass Red threeawn Sandberg bluegrass Threadleaf sedge Western wheatgrass | | Elymus caninus Bouteloua gracilis Nassella viridula Schizachyrium scoparium Hesperostipa comata Koeleria macrantha Aristida longiseta Poa secunda Carex filifolia Pascopyrum smithii |
| FORBS: Black samson Green sagewort Hairy goldenaster Missouri goldenrod Prairie coneflower Prairie smoke | | Echinacea angustifolia Artemisia dracunculus Heterotheca villosa Solidago missouriensis Ratibida columnifera Geum triflorum |
| INVASIVES/WEEDS: False flax | | Camelina crantz |
| SHRUBS: Fringed sagewort Prairie rose | | Artemisia frigida Rosa arkansana |

Plant Species Worksheet

Date: 9-16-09

Slope: 11 Percent

Aspect: Northeast

Resource Area: Baker #34x-25

Legal Description: NE1/4SW1/4SE1/4 Section 25, T149N, R92W

UTM Coordinates: N5284875.599 E695687.995

Ecological Site: Sandy

Site #12 - Pad Site

Community Type: Green needlegrass/Smooth brome/Common snowberry

| Common Name | Plant Composition | Scientific Name |
|--|-------------------|--|
| GRASSES: Bearded wheatgrass Blue grama Green needlegrass Little bluestem Needleandthread grass Prairie dropseed Prairie junegrass Prairie sandreed Sandberg bluegrass Western wheatgrass | | Elymus caninus Bouteloua gracilis Nassella viridula Schizachyrium scoparium Hesperostipa comata Sporobolus heterolepis Koeleria macrantha Calamovilfa longifolia Poa secunda Pascopyrum smithii |
| FORBS: Biscuitroot Black samson Cudweed sagewort Dotted gayfeather Green sagewort Hairy goldenaster Missouri goldenrod Penstemon Prairie coneflower Prairie smoke Stiff goldenrod White prairie aster | | Lomatium spp. Echinacea angustifolia Artemisia ludoviciana Liatris punctata Artemisia dracunculus Heterotheca villosa Solidago missouriensis Penstemon spp. Ratibida columnifera Geum triflorum Oligoneuron rigidum Symphyotrichum falcatum |
| INVASIVES/WEEDS: False flax Smooth brome | | Camelina crantz Bromus inermis |
| SHRUBS: Common snowberry Fringed sagewort Poison ivy Prairie rose Silver buffaloberry | | Symphoricarpos albus Artemisia frigida Toxicodendron rydbergii Rosa arkansana Shepherdia argentea |

Plant Species Worksheet

Date: 9-16-09

Resource Area: Baker #34x-25

Legal Description: NE1/4SW1/4SE1/4 Section 25, T149N, R92W

UTM Coordinates: N5284953.707 E695629.302

North Perimeter

| Common Name | Plant Composition | Scientific Name |
|---|-------------------|---|
| GRASSES: Bearded wheatgrass Blue grama Green needlegrass Kentucky bluegrass Little bluestem Needleandthread grass Prairie dropseed Prairie junegrass Red threeawn Sandberg bluegrass Smooth brome Threadleaf sedge Western wheatgrass | | Elymus caninus Bouteloua gracilis Nassella viridula Poa pratensis Schizachyrium scoparium Hesperostipa comata Sporobolus heterolepis Koeleria macrantha Aristida longiseta Poa secunda Bromus inermis Carex filifolia Pascopyrum smithii |
| FORBS: Black samson Cudweed sagewort Dotted gayfeather Green sagewort Missouri goldenrod Penstemon Prairie coneflower Prairie smoke Purple prairie clover Silverleaf scurfpea Stiff goldenrod White prairie aster | | Echinacea angustifolia Artemisia ludoviciana Liatris punctata Artemisia dracunculus Solidago missouriensis Penstemon spp. Ratibida columnifera Geum triflorum Dalea purpurea Psoralea argophylla Oligoneuron rigidum Symphyotrichum falcatum |
| INVASIVES/WEEDS: Common dandelion False flax Western salsify | | Taraxacum officinale Camelina crantz Tragopogon dubius |
| SHRUBS: Common snowberry Fringed sagewort Poison ivy Silver buffaloberry | | Symphoricarpos albus Artemisia frigida Toxicodendron rydbergii Shepherdia argentea |

Plant Species Worksheet

Date: 9-16-09

Resource Area: Baker #34x-25

Legal Description: NW1/4SE1/4SE1/4 Section 25, T149N, R92W

UTM Coordinates: N5284951.737 E695775.758

East Perimeter

| Common Name | Plant Composition | Scientific Name |
|---|-------------------|--|
| GRASSES: Bearded wheatgrass Blue grama Green needlegrass Kentucky bluegrass Little bluestem Needleandthread grass Prairie dropseed Prairie junegrass Red threeawn Sandberg bluegrass Smooth brome Threadleaf sedge Western wheatgrass | | Elymus caninus Bouteloua gracilis Nassella viridula Poa pratensis Schizachyrium scoparium Hesperostipa comata Sporobolus heterolepis Koeleria macrantha Aristida longiseta Poa secunda Bromus inermis Carex filifolia Pascopyrum smithii |
| FORBS: Black samson Cudweed sagewort Dotted gayfeather Green sagewort Missouri goldenrod Penstemon Prairie coneflower Prairie smoke Purple prairie clover Silverleaf scurfpea Stiff goldenrod White prairie aster Biscuitroot | | Echinacea angustifolia Artemisia ludoviciana Liatris punctata Artemisia dracunculus Solidago missouriensis Penstemon spp. Ratibida columnifera Geum triflorum Dalea purpurea Psoralea argophylla Oligoneuron rigidum Symphyotrichum falcatum Lomatium spp. |
| INVASIVES/WEEDS: False flax Western salsify Common dandelion | | Camelina crantz Tragopogon dubius Taraxacum officinale |
| SHRUBS: Common snowberry Fringed sagewort Poison ivy Silver buffaloberry Prairie rose Woods rose Currant | | Symphoricarpos albus Artemisia frigida Toxicodendron rydbergii Shepherdia argentea Rosa arkansana Rosa woodsii Ribes spp. |

Plant Species Worksheet

Date: 9-16-09

Resource Area: Baker #34x-25

Legal Description: NE1/4NW1/4NW1/4NE1/4 Section 36, T149N, R92W

UTM Coordinates: N5284718.426 E695598.001

South Perimeter

| Common Name | Plant Composition | Scientific Name |
|--|-------------------|---|
| GRASSES: Bearded wheatgrass Blue grama Green needlegrass Kentucky bluegrass Little bluestem Needleandthread grass Prairie dropseed Prairie junegrass Red threeawn Sandberg bluegrass Smooth brome Threadleaf sedge Western wheatgrass Big bluestem Prairie sandreed Sideoats grama | | Elymus caninus Bouteloua gracilis Nassella viridula Poa pratensis Schizachyrium scoparium Hesperostipa comata Sporobolus heterolepis Koeleria macrantha Aristida longiseta Poa secunda Bromus inermis Carex filifolia Pascopyrum smithii Andropogon gerardii Calamovilfa longifolia Bouteloua curtipendula |
| FORBS: Hairy goldenaster Green sagewort Missouri goldenrod Penstemon Prairie coneflower Prairie smoke Purple prairie clover Silverleaf scurfpea Stiff goldenrod White prairie aster Arrowleaf balsamroot Black samson Cudweed sagewort Dotted gayfeather Wild onion Groundplum milkvetch Rose pussytoes Scarlet globemallow Woolly Indianwheat Western yarrow | | Heterotheca villosa Artemisia dracunculus Solidago missouriensis Penstemon spp. Ratibida columnifera Geum triflorum Dalea purpurea Psoralea argophylla Oligoneuron rigidum Symphyotrichum falcatum Balsamorhiza sagittata Echinacea angustifolia Artemisia ludoviciana Liatris punctata Allium ascalonicum Astragalus crassicaerpus Antennaria rosea Sphaeralcea coccinea Plantago patagonica Achillea millifolium |
| SHRUBS: Common snowberry Fringed sagewort Silver buffaloberry Prairie rose | | Symphoricarpos albus Artemisia frigida Shepherdia argentea Rosa arkansana |
| INVASIVES/WEEDS: Common dandelion False flax Flodman's thistle Western salsify Wavyleaf thistle | | Taraxacum officinale Camelina crantz Cirsium flodmanii Tragopogon dubius Cirsium undulatum |

Plant Species Worksheet

Date: 9-16-09

Resource Area: Baker #34x-25

Legal Description: SW1/4SE1/4 Section 25, T149N, R92W

UTM Coordinates: N5284851.799 E695503.146

West Perimeter

| Common Name | Plant Composition | Scientific Name |
|---|-------------------|---|
| GRASSES: Bearded wheatgrass Blue grama Green needlegrass Kentucky bluegrass Little bluestem Needleandthread grass Prairie dropseed Prairie junegrass Red threeawn Sandberg bluegrass Smooth brome Threadleaf sedge Western wheatgrass Crested wheatgrass | | Elymus caninus Bouteloua gracilis Nassella viridula Poa pratensis Schizachyrium scoparium Hesperostipa comata Sporobolus heterolepis Koeleria macrantha Aristida longisetata Poa secunda Bromus inermis Carex fillifolia Pascopyrum smithii Agropyron cristatum |
| FORBS: Cudweed sagewort Dotted gayfeather Green sagewort Missouri goldenrod American vetch Prairie coneflower Prairie smoke Purple prairie clover Silverleaf scurpea Stiff goldenrod White prairie aster Arrowleaf balsamroot Black samson Hairy goldenaster | | Artemisia ludoviciana Liatris punctata Artemisia dracunculus Solidago missouriensis Vicia americana Ratibida columnifera Geum triflorum Dalea purpurea Psoralea argophylla Oligoneuron rigidum Symphyotrichum falcatum Balsamorhiza sagittata Echinacea angustifolia Heterotheca villosa |
| INVASIVES/WEEDS: Common dandelion False flax Canadian thistle Wavyleaf thistle Western salsify | | Taraxacum officinale Camelina crantz Cirsium arvense Cirsium undulatum Tragopogon dubius |
| SHRUBS: Common snowberry Fringed sagewort Poison ivy Prairie rose | | Symphoricarpos albus Artemisia frigida Toxicodendron rydbergii Rosa arkansana |

Table C1: Native seed mix proposed for use in reclamation of the proposed project site.

| Common Name | Plant Species | Suggested Variety ¹ | Pounds (PLS) ² | Seeds per Pound | Composition | Preferred soil type | Notes ^{1,3} |
|----------------------------|---|--------------------------------|---------------------------|-----------------|-------------|-------------------------------|---|
| Cool Season Grasses | | | | | | | |
| Slender wheatgrass | <i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i> | Primer | 0.5 | 135,000 | 10% | Sandy to clayey | Moderate drought tolerance. Rapid establishment, short-lived. Saline-tolerant and adapted to a wide range of sites. Useful where quick, native, non-aggressive perennial cover is desired. |
| Western wheatgrass | <i>Pascopyrum smithii</i> | Mandan 456 | 2.4 | 115,000 | 30% | Silty-loamy to clay | Drought tolerant. Fairly easy to moderate establishment, long-lived. Useful for slightly saline, erosive soils where long-lived hardy vegetation is desired and rapid establishment is not. |
| Prairie junegrass | <i>Koeleria macrantha</i> | NA | 0.1 | 2,315,000 | 10% | Sandy | Drought tolerant. Easy establishment. Useful where early season forage is desired and erosion is not a severe problem. Not tolerant of heavy early season grazing. |
| Green needlegrass | <i>Nassella viridula</i> | Lodorm | 1.2 | 167,840 | 20% | Wide-range | Drought tolerant. Establishes on a wide variety of sites, long-lived, fibrous deep root system. Moderately palatable to livestock and wildlife year-round. |
| Warm season grasses | | | | | | | |
| Blue grama | <i>Bouteloua gracilis</i> | Bad River | 0.2 | 724,400 | 10% | Fine-textured rolling uplands | Drought resistant. Easy establishment. Saline tolerant. Sod-forming with seedling vigor and leafiness. |
| Sidecoats grama | <i>Bouteloua curtipendula</i> | Killdeer | 0.6 | 159,200 | 10% | Fine to coarse textured | Moderately drought tolerant. Excellent winter hardiness. Saline tolerant. High palatability during spring and summer. |
| Little bluestem | <i>Andropogon scoparius</i> | Aldous, Blaze, Camper | 0.4 | 240,670 | 10% | Wide-range | Moderately drought tolerant. Long-lived bunchgrass with deep fibrous root system. Intolerant of saline or wetland conditions. |
| Total | | | 5.4 | | 100% | | |

¹ USGS 2006

² pounds of pure live seed

³ Goodwin and Sheley 2003

Appendix D

Soil Data Summary

*Baker/Walker 34X-25 Site Environmental Assessment
XTO Energy, Inc.*

Table D1: A summary of soil attributes for ecological sites at the proposed Baker/Walker 34X-25 project site.

| Site ID | Soil Pit Location | SMU | Soil Series Component | Texture Family / Taxonomic Class | Slope % | Aspect | Landform | Depth | Parent Material | Ecological Site |
|--------------------|-------------------|-----|--------------------------|----------------------------------|---------|--------|-----------------|-------|--------------------|-----------------|
| Access Road | | | | | | | | | | |
| >001 | E695634 N5284701 | 81C | Parshall fine sandy loam | Co-lo.m.SA.f.Pachic Haplustolls | 2 | N | Hills/Summit | >60" | Alluvium/sandstone | Sandy |
| >002 | E695637 N5284820 | 81C | Parshall fine sandy loam | Co-lo.m.SA.f.Pachic Haplustolls | 2 | N | Hills/Swale | >60" | Alluvium/sandstone | Sandy |
| >003 | E695608 N5284813 | 93D | Bowbells loam | Fn-lo.m.SA.f.Pachic Argiustolls | 11 | W | Hills/Drainage | >60" | Alluvium/mixed | Loamy Overflow |
| >004 | E695634 N5284869 | 81C | Parshall fine sandy loam | Co-lo.m.SA.f.Pachic Haplustolls | 2 | NE | Hills/Backslope | >60" | Alluvium/sandstone | Sandy |
| >005 | E695608 N5284851 | 93D | Zahl loam | Fn-lo.m.SA.f.Typic Calcustolls | 3 | NW | Hills/Summit | >60" | Alluvium/till | Thin Loamy |
| >006 | E695602 N5284888 | 93D | Bowbells loam | Fn-lo.m.SA.f.Pachic Argiustolls | 8 | W | Hills/Drainage | >60" | Alluvium/till | Loamy Overflow |
| >007 | E695643 N5284902 | 81C | Parshall fine sandy loam | Co-lo.m.SA.f.Pachic Haplustolls | 6 | SW | Hills/Backslope | >60" | Alluvium/sandstone | Sandy |
| Pad | | | | | | | | | | |
| >008 | E695596 N5285011 | 93C | Williams loam | Fn-lo.m.SA.f.Typic Argiustolls | 2 | SW | Hills/Summit | >60" | Alluvium/till | Loamy |
| >009 | E695588 N5285052 | 93D | Williams loam | Fn-lo.m.SA.f.Typic Argiustolls | 10 | N | Hills/Backslope | >60" | Alluvium/till | Loamy |
| >010 | E695583 N5285106 | 93D | Arnegard loam | Fn-lo.m.SA.f.Pachic Haplustolls | 5 | N | Hills/Drainage | >60" | Alluvium/mixed | Loamy Overflow |
| >011 | E695515 N5285109 | 93D | Zahl loam | Fn-lo.m.SA.f.Typic Calcustolls | 6 | NE | Hills/Summit | >60" | Alluvium/till | Thin Loamy |
| >012 | E695640 N5285087 | 81D | Tally sandy loam | Co-lo.m.SA.f.Typic Haplustolls | 11 | NE | Hills/Backslope | >60" | Alluvium/sandstone | Sandy |

>
>
>

>**Note: UTM Zone is 13T**

Figure D1: Definitions of the Unified Soil Classification System.

UNIFIED SOIL CLASSIFICATION SYSTEM

| MAJOR DIVISIONS | | GROUP SYMBOLS | TYPICAL NAMES | | | | |
|---|--|--|--|--------|--------|---------|----------|
| COARSE GRAINED SOILS (More than 50% of material is LARGER than No. 200 sieve size) | GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size) | CLEAN GRAVELS (Little or no fines) |  GW Well-graded gravels or gravel-sand mixtures, little or no fines. | | | | |
| | | GRAVELS WITH FINES (Appreciable amt. of fines) |  GP Poorly-graded gravels or gravel-sand mixtures, little or no fines. | | | | |
| | | |  GM Silty gravels, gravel-sand-silt mixtures. | | | | |
| | |  GC Clayey gravels, gravel-sand-clay mixtures. | | | | | |
| | SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 sieve size) | CLEAN SANDS (Little or no fines) |  SW Well-graded sands or gravelly sands, little or no fines. | | | | |
| | | SANDS WITH FINES (Appreciable amt. of fines) |  SP Poorly-graded sands or gravelly sands, little or no fines. | | | | |
| | | |  SM Silty sands, sand-silt mixtures. | | | | |
| | |  SC Clayey sands, sand-clay mixtures. | | | | | |
| FINE GRAINED SOILS (More than 50% of material is SMALLER than No. 200 sieve size) | SILTS AND CLAYS (Liquid limit LESS than 50) |  ML Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity. | | | | | |
| | |  CL Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays. | | | | | |
| | |  OL Organic silts and organic silt-clays of low plasticity. | | | | | |
| | SILTS AND CLAYS (Liquid limit GREATER than 50) |  MH Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts. | | | | | |
| | |  CH Inorganic clays of high plasticity, fat clays. | | | | | |
| | |  OH Organic clays of medium to high plasticity, organic silts. | | | | | |
| | |  Pt Peat and other highly organic soils. | | | | | |
| HIGHLY ORGANIC SOILS | | Pt | Peat and other highly organic soils. | | | | |
| <p>BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.</p> | | | | | | | |
| PARTICLE SIZE LIMITS | | | | | | | |
| SILT OR CLAY | SAND | | | GRAVEL | | COBBLES | BOULDERS |
| | Fine | Medium | Coarse | Fine | Coarse | | |
| | No. 200 | No. 40 | No. 10 | No. 4 | ¾ in. | 3 in. | 12 in. |
| U. S. STANDARD SIEVE SIZE | | | | | | | |

Reference: The Unified Soil Classification System, Corps of Engineers, U.S. Army Technical Memorandum No. 3-357, Vol. 1, March, 1953 (Revised April, 1960)

1969

A.W.F.

Figure G 160

Appendix E

Cultural Resources Correspondence

*Baker/Walker 34X-25 Site Environmental Assessment
XTO Energy, Inc.*



United States Department of the Interior

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



IN REPLY REFER TO
DESCRM
MC-208

OCT 14 2009

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

Dear Mr. Brady:

We have considered the potential effects on cultural resources of two oil well pads and access roads in Dunn County, North Dakota. Approximately 31.6 acres were intensively inventoried using a pedestrian methodology. Potential surface disturbances are not expected to exceed the areas depicted in the enclosed reports. No historic properties were located that appear to possess the quality of integrity and meet at least one of the criteria (36 CFR 60.4) for inclusion on the National Register of Historic Places. No properties were located that appear to qualify for protection under the American Indian Religious Freedom Act (16 USC 1996).

As the surface management agency, and as provided for in 36 CFR 800.5, we have therefore reached a determination of **no historic properties affected** for this undertaking. Catalogued as **BIA Case Number AAO-1669/FB/09**, the proposed undertakings, locations, and project dimensions are described in the following reports:

Rabe, Angie M.

- (2009) Bird 31x-19 Well Pad and Access Road: A Class III Cultural Resources Inventory in Dunn County, North Dakota. KLJ Cultural Resources for XTO Energy, Fort Worth, TX.
- (2009) Baker 34x-35 Well Pad and Access Road: A Class III Cultural Resources Inventory in Dunn County, North Dakota. KLJ Cultural Resources for XTO Energy, Fort Worth, TX.

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

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

Sincerely,

Regional Director

Enclosure

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

Appendix F

Agency Correspondence

*Baker/Walker 34X-25 Site Environmental Assessment
XTO Energy, Inc.*

October 27, 2009

Christine Dirk
Natural Resource Division
North Dakota Parks & Recreation Department
1600 East Century Ave., Suite 3
Bismarck, ND 58503

Dear Ms. Dirk:

We are requesting known location information and any associated data for threatened, endangered, and rare animals and plants within a one-mile distance of our project area boundary (**Project Vicinity Map**). Our project is located on the Fort Berthold Indian Reservation, east of Mandaree, in Dunn County, North Dakota. The project area occurs within:

- * Township 149N, Range 92W, Sections 10-12, 13-15, 22-24, 25-27, and 34-36;
- * Township 149N, Range 91W, Sections 7-8, 17-18, 19-20, 29-30, and 31-32;
- * Township 148N, Range 92W, Sections 3 & 10.

I understand there is a fee for out-of-state information requests. I will gladly pay this fee. Please let me know the amount, types of payment you accept (e.g. check, money order, etc.), and any other details. I can be contacted by phone at (406) 439-0284 or through e-mail at apipp@pbsj.com. Information can be mailed to me at the address on this letterhead or to my e-mail address.

Thank you very much for providing plant and animal information.

Sincerely,



Andrea K. Pipp
Botanist



John Hoeven, Governor
Douglass A. Prechal, 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 17, 2009

Andrea K. Pipp
PBS & J
801 N. Last Chance Gulch, Suite 101
Helena, MT 59601-3360

Re: Project on the Fort Berthold Indian Reservation

Dear Ms. Pipp:

The North Dakota Parks and Recreation Department has reviewed the above referenced project proposal located in Sections 10-12, 13-15, 22-27, and 34-36, T149N, R92W; Sections 7-8, 17-20, and 29-32, T149N, R91W; and Sections 3 and 10, T148N, R92W, Dunn County.

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

The North Dakota Natural Heritage biological conservation database has been reviewed to determine if any current or historic plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, there are no known occurrences within or adjacent to the project area.

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

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

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

Sincerely,

Jesse Hanson, Coordinator
Planning and Natural Resources Division

B.USNDNHI*2009-332

.....
Play in our backyard!

October 27, 2009

Jeffery Towner
U.S. Fish and Wildlife Service
North Dakota Field Office
3425 Miriam Avenue
Bismarck, North Dakota 58501-7926

Subject: XTO Energy Oil Exploration on the Fort Berthold Indian Reservation

Dear Mr. Towner:

XTO Energy, Inc. (XTO) is proposing to conduct oil exploration activities at several sites in Dunn County, east of Mandaree, North Dakota on the Fort Berthold Indian Reservation (FBIR). The well sites fall under the jurisdiction of the U.S. Department of Interior's Bureau of Indian Affairs (BIA), necessitating the preparation of an environmental assessment (EA). XTO is preparing a draft EA on behalf of the BIA. As outlined under Section 7 of the Endangered Species Act of 1973, as amended, XTO and their consultants, as the designated agent for the BIA for XTO projects, requests that the U.S. Fish and Wildlife Service provide a list of and any ancillary information for known occurrences of proposed, candidate, threatened, and endangered species, as well as, designated critical habitat areas that occur or potentially occur in the project area (**Project Vicinity Map**). We would also appreciate any additional guidance regarding migratory birds, wetlands, other related biological issues that your office regulates or has a specific interest in, and concerns related to proposed activities.

The proposed action includes approvals by the BIA and BLM of the drilling and completion of multiple exploratory oil wells at six sites on the FBIR (**Approximate Well Pad & Access Road Location Map**). The general legal descriptions of the well pads and access roads are provided in **Table 1**. The development of these sites would require mechanical excavation and construction for the well pads and access roads. Well pads will range in size from four to five acres. Access roads vary in length, but will generally be a maximum of 40 feet wide and will be placed to maximize the use of the existing road system to the greatest extent possible.

Table 1. Proposed XTO Energy oil well sites on the Fort Berthold Indian Reservation.

| Site Name | Township | Range | Section(s) | Notes |
|--|--------------|------------|-------------|---|
| FBIR Iron Woman 21X-10, FBIR Yellow Wolf 21X-10 | 148N | 92W | 3, 10 | Well pad and access road occur on native prairie with existing cattle use. |
| FBIR Stephen 31X-19, FBIR Bird 31X-19 | 149N | 91W | 19 | The well pad and access road occur in a hayfield. |
| FBIR Beaks 24X-8, FBIR Medicine 24X-8 | 149N | 91W | 8, 17 | Well pad occurs on native prairie with a substantial amount of snowberry on it. Site has some use by cattle. Access road follows an existing two-track road for the majority of its length. It also crosses along one edge of a hayfield and some native prairie to reach the well pad. |
| FBIR Smith 11X-10 | 149N | 92W | 9, 10 | The well pad and access road occur on native prairie. |
| FBIR Walter Packs Wolf 31X-12 | 149N 149N | 92W 91W | 12 7, 18 | Well pad occurs on native prairie with existing cattle use and a substantial amount of snowberry. Access road follows an existing two-track road for almost its entire length. |
| FBIR Baker 34X-25 | 149N | 92W | 25, 36 | Well pad occurs on native prairie with existing horse and cattle use. Access road follows an existing driveway from BIA Road 13 before heading north across native prairie to the well pad. |

If at all possible, we would greatly appreciate a response by November 15, 2009. Please contact me with questions by e-mail at apipp@pbsj.com or by phone at (406) 439-0284.

Thank you very much for your attention and I look forward to discussing this project with you.

Sincerely,



Andrea K. Pipp
Botanist

Cc: C. Miller, PBS&J
R. McEldowney, PBS&J
D. Phillippi, NRO
D. Worthington, XTO Energy



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
3425 Miriam Avenue
Bismarck, North Dakota 58101



DEC 17 2009

Ms. Andrea K. Pipp, Botanist
PBS&J
801 N. Last Chance Gulch, Suite 101
Helena, Montana 59601-3360

Re: Nine exploratory oil and gas wells on
the Fort Berthold Reservation

Dear Ms. Pipp:

This is in response to your October 27, 2009, letter regarding proposed exploratory oil and gas wells on the Fort Berthold Reservation. XTO Energy Inc. has proposed nine exploratory oil and gas well on six well pad sites on the Fort Berthold Reservation, Dunn County, North Dakota.

Specific locations are:

FBIR Iron Woman 21X-10 and FBIR Yellow Wolf 21 X-10: T. 148 N., R. 92 W., Sections 3, 10
FBIR Stephen 31 X-19 and FBIR Bird 31X-19: T. 149 N., R. 91 W., Section 19
FBIR Beaks 24X-8 and FBIR Medicine 24X-8: T. 149 N., R. 91 W., Sections 8, 17
FBIR Smith 11X-10: T. 149 N., R. 92 W., Sections 9, 10
FBIR Walter Packs: T. 149 N., R. 92 W., Section 12
Wolf 31X-12: T. 149., R. 91 W., Sections 7, 18
FBIR Baker 34X-25: T. 149 N., R. 92 W., Sections 25, 36

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

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

Threatened and Endangered Species

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

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

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

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

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

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

The Dakota skipper is a small to medium-sized hesperine 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 (*Gallardia sp.*). Because of the difficulty of surveying for Dakota skippers and a short survey window, we recommend that the project avoid any impacts to potential Dakota skipper habitat. If Dakota skipper habitat is present near the proposed project, and you intend to take precautions to avoid impacts to skipper habitat, please notify the Service for further direction.

Migratory Birds

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

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

The Service estimates that 500,000 to 1 million birds are killed nationwide every year from exposed oil at oil drilling and/or production sites. The unauthorized take of migratory birds at oil production facilities can be prevented with a minimum of expense

and effort. Wildlife mortalities in North Dakota are most often observed in association with drilling reserve pits, flare pits, and/or drip buckets and barrels. The Service strongly recommends that the pads be constructed as closed-loop systems, without a reserve pit. Regardless of whether the pads are built with reserve pits, we recommend that the BIA include the following measures in the EA so as to ensure compliance with the MBTA.

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

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

The Service recommends that aerial raptor surveys be conducted prior to any on-the-ground activities. The Service recommends that an aerial nest survey (preferably by

helicopter) be conducted within 1.0-mile of any proposed ground disturbances to identify active and inactive nest sites near the proposed well pad and associated facilities, including proposed new roads. Aerial surveys should be conducted between March 1 and May 15, before leaf-out so that nests are visible.

Aerial surveys should include the following:

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

High Value Habitat Avoidance

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

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

Cumulative Effects Analysis

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

existing and proposed pads, roads, electrical transmission lines, and preferably pipelines to transport the products.

Habitat Fragmentation

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

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

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

Post-production Phase – Reclamation

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

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

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

Sincerely,



Jeffrey K. Towner
Field Supervisor
North Dakota Field Office

Enclosures

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

Literature Cited

- Buchler, David A. 2000. Bald Eagle (*Haliaeetus leucocephalus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/506>.
- Esmoil, B. 1995. Wildlife mortality associated with oil pits in Wyoming. *Prairie Naturalist* 27(2): 81-88.
- Kochert, M. N., K. Steenhof, C. L. McIntyre and E. H. Craig. 2002. Golden Eagle (*Aquila chrysaetos*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology. Accessed October 13, 2009. Available online at: <http://bna.birds.cornell.edu/bna/species/684>.
- Ricketts, T. H., E. Dinerstein, D. M. Olsen, C. J. Loucks, W. Eichbaum, D. DellaSala, K. Kavanagh, P. Hedao, P. T. Hurley, K. M. Carney, R. Abell, and S. Walters. 1999. *Terrestrial ecoregions of North America: a conservation assessment*. Island Press, Washington, D.C. 485 pages.
- Strong, L. L., T. H. Sklebar, and K. E. Kernes. 2005. *The North Dakota Gap Analysis Project – Final Report*. U.S. Geological Survey. 451 pages. Available online at http://www.npwrc.usgs.gov/projects/ndgap/NDGAP_FinalReport_complete.pdf.
- USDA. 2001. *Land and resource management plan for the Dakota Prairie Grasslands Northern Region*. Accessed October 13, 2009. Available at http://www.fs.fed.us/ngp/plan/feis_plan_dakota_prairie.htm.

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

ENDANGERED SPECIES

Birds

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

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

Fish

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

Mammals

Black-footed ferret (*Mustela nigripes*): Exclusively associated with prairie dog towns. No records of occurrence in recent years, although there is potential for reintroduction in the future.

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

THREATENED SPECIES

Birds

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

CANDIDATE SPECIES

Invertebrates

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

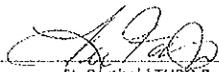
DESIGNATED CRITICAL HABITAT

Birds

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

Class III Monitoring Form

On this date of September 1st, 2009, representatives from the Fort Berthold THPO office and Kadrmas, Lee & Jackson performed a Class III Inventory and TCP Evaluation at the BAKER 34x-25 site for the proposed WELL POND AND ACCESS RD. It was concluded that there are 0 areas of significance or concern that need to be avoided by construction. Areas that need to be avoided were recorded by KI&J personnel.



Ft. Berthold THPO Representative

9/1/09

Date



Kadrmas, Lee & Jackson Representative

9-1-09

Date



**STATE
HISTORICAL
SOCIETY
OF NORTH DAKOTA**

 **COPY**

John Hoeven
Governor of North Dakota

North Dakota
State Historical Board

Chester E. Nelson, Jr.
Bismarck - President

Gerald Gemtholz
Valley City - Vice President

Richard Kloubec
Fargo - Secretary

Albert I. Berger
Grand Forks

Calvin Grinnell
New Town

Diane K. Larson
Bismarck

A. Ruric Todd III
Jamestown

Sara Otte Coleman
Director
Tourism Division

Kelly Schmidt
State Treasurer

Alvin A. Jaeger
Secretary of State

Douglass Prehal
Director
Parks and Recreation
Department

Francis Ziegler
Director
Department of Transportation

Merlan E. Paaverud, Jr.
Director

Accredited by the
American Association
of Museums

February 23, 2010

Chris Miller, Project Manager
PBS&J
115 N. 28th St Suite 202
Billings MT 59101-2045

NDSHPO REF. 10-0712 BIA/BLM/MHAN Environmental Assessment for one well pad and construction of one access road 6.06 acres Baker/Walker 34X-25 in portions of [SW SE T149N R92W Section 25] Dunn County, North Dakota

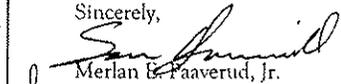
Dear Chris,

We received your letter regarding NDSHPO REF. 10-0712 BIA/BLM/MHAN Environmental Assessment for one well pad and construction of one access road 6.06 acres Baker/Walker 34X-25 in portions of [SW SE T149N R92W Section 25] Dunn County, North Dakota as detailed above.

We request that a copy of cultural resource site forms and reports be sent to this office so that the cultural resources archives can be kept current. Perhaps one might consider putting TCP (Traditional Cultural Properties) related information in separate reports not sent to this office.

Thank you for your consideration. Consultation is with MHAN THPO. If you have any questions please contact Susan Quinnell, Review & Compliance Coordinator at (701)328-3576 or squinnell@nd.gov

Sincerely,



Merlan E. Paaverud, Jr.
State Historic Preservation Officer (North Dakota)
and Director, State Historical Society of North Dakota



DK-5000
ENV-6.00

United States Department of the Interior

BUREAU OF RECLAMATION

Dakotas Area Office
P.O. Box 1017
Bismarck, North Dakota 58502



FEB 23 2010

Chris Miller
Project Manager
PBS&J
115 N 28th Street, Suite 202
Billings, MT 59101-2045

Subject: Solicitation for Environmental Assessment for Construction, Drilling, Completion, and Production of up to ten Exploratory Oil and Gas Wells on the Fort Berthold Reservation in Dunn County, North Dakota

Dear Ms. Ruffo:

This letter is written to inform you that your letter was received on February 22, 2010, and the information and map have been reviewed by Bureau of Reclamation staff.

Proposed oil well sites located in Dunn County appear to be sufficient distance from Fort Berthold Rural Water System lines to avoid damage. However, access roads are not depicted on your map. Therefore I have enclosed a copy of the Rural Water System pipeline key in the general proximity in order that your plans may account for potential affects to Reclamation facilities in the form of wells, access roads, or other disturbances.

Dunn County

Baker/Walker #34-25H: SW ¼ SE ¼, Section 25, T149N, R92W, Dunn County, North Dakota

Please note that I have prepared a detailed map to correspond with the general proximity of the proposed wells within the two quadrangles 149N, 92W. Should you require more detailed maps for more specific locations, please do not hesitate to notify us. Since Reclamation is the lead Federal agency for the Fort Berthold Rural Water System, we request that any work planned on the reservation be coordinated with Mr. Marvin Danks, Fort Berthold Rural Water Director, Three Affiliated Tribes, 308 4 Bears Complex, New Town, North Dakota 58763.

Thank you for providing the information and the opportunity to comment. If you have any further questions, please contact me at 701-221-1287 or Ron Melhouse at 701-221-1288.

Sincerely,

Kelly B. McPhillips
Environmental Specialist

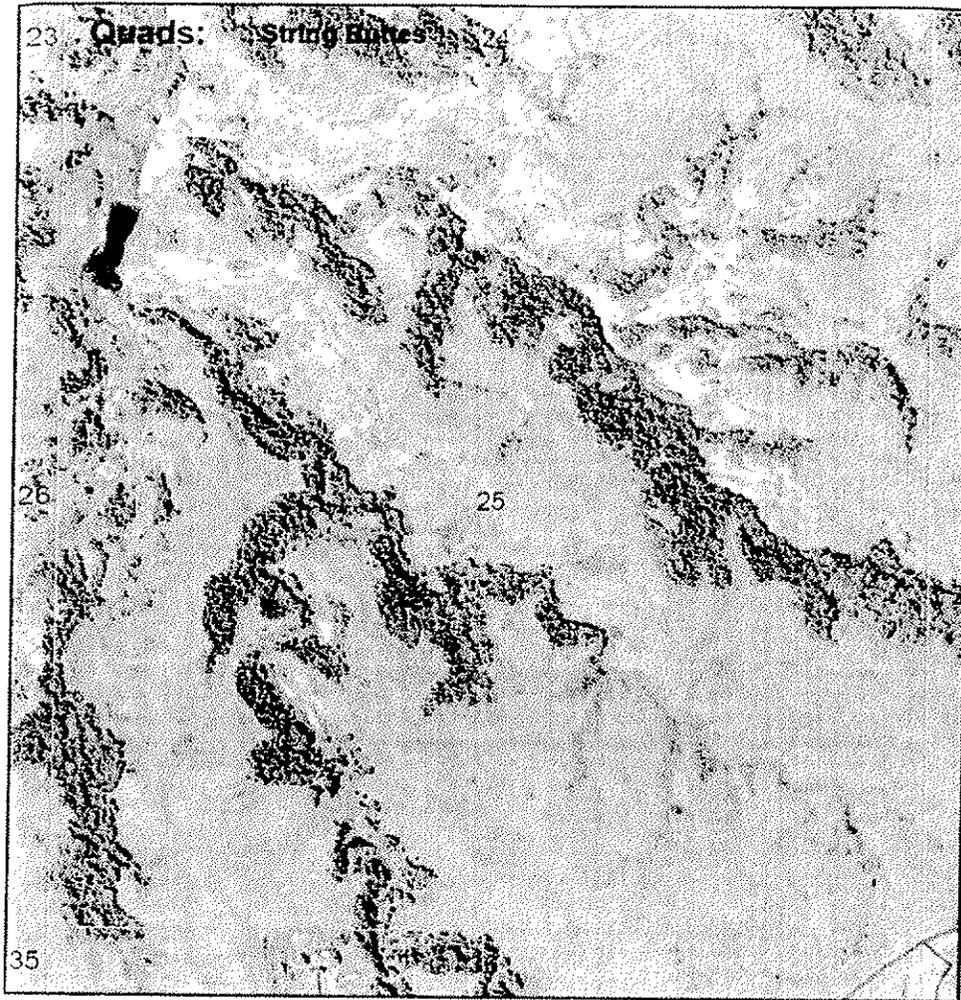
Enclosure

cc: See next page.

Subject: Solicitation for Environmental Assessment for Construction, Drilling, Completion,
and Production of up to ten Exploratory Oil and Gas Wells on the Fort Berthold
Reservation in Dunn County, North Dakota

cc: Bureau of Indian Affairs
Great Plains Regional Office
Attention: Ms. Marilyn Bercier
Regional Environmental Scientist
115 Fourth Avenue S.E.
Aberdeen, SD 57401

Mr. Marvin Danks
Fort Berthold Rural Water Director
Three Affiliated Tribes
308 4 Bears Complex
New Town, ND 58763
(w/encl)



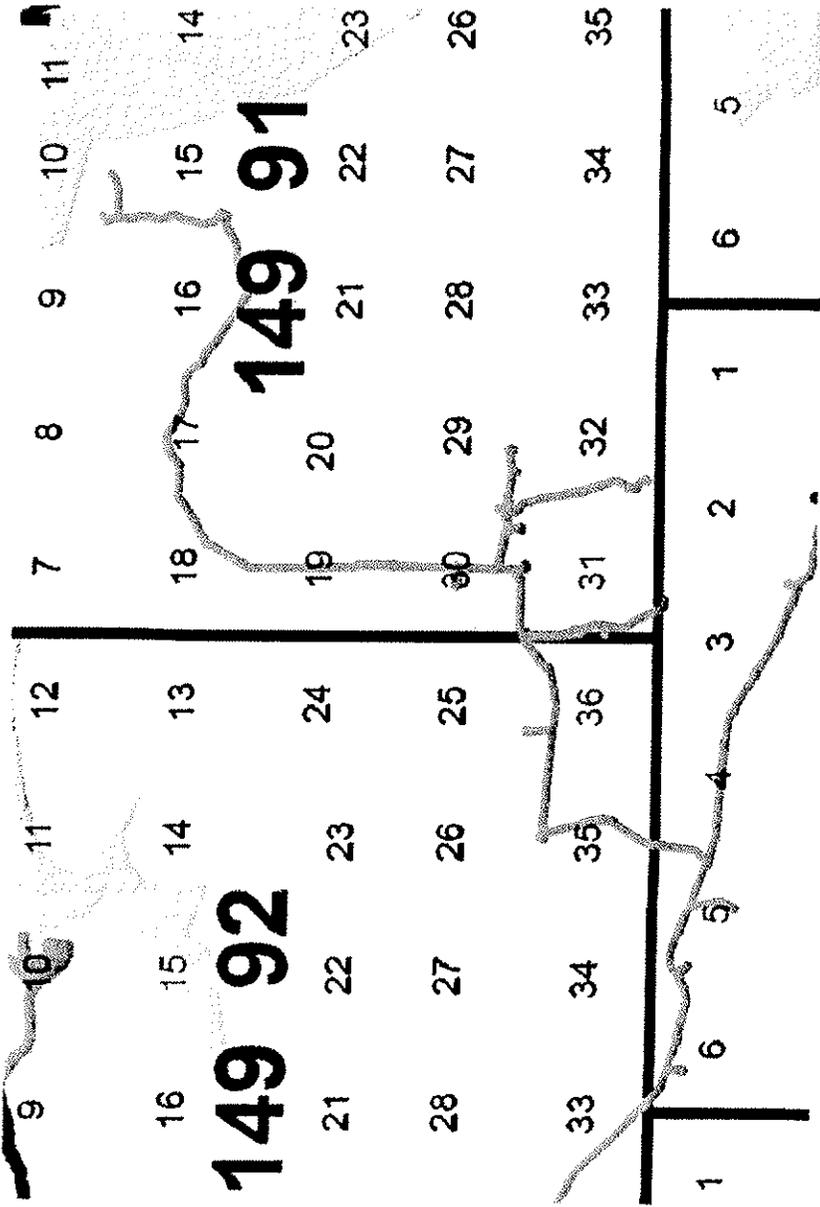
T 149 N R 92 W sec 25

| | | | | | |
|----|----|----|----|----|----|
| 6 | 5 | 4 | 3 | 2 | 1 |
| 7 | 8 | 9 | 10 | 11 | 12 |
| 16 | 17 | 18 | 19 | 20 | 21 |
| 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | 31 | 32 | 33 |
| 34 | 35 | 36 | 37 | 38 | 39 |

1,000 500 0 1,000 Feet

25

Pipeline Overview Key – Blue and Orange Lines Represent Fort Berthold Rural Water System Waterlines. General Vicinity of Section 25 Township 149N Range 92W Fort Berthold Indian Reservation, ND





REPLY TO
ATTENTION OF

North Dakota Regulatory Office

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
NORTH DAKOTA REGULATORY OFFICE
1513 SOUTH 12TH STREET
BISMARCK ND 58504-6640

February 24, 2010

 COPY

[NWO-2010-0333-BIS]

Chris Miller, Project Manager
PBS&J
115 N. 28th Street, Suite 202
Billings, Montana 59101-2045

Dear Mr. Miller:

This is in response to a letter received February 22, 2010 requesting Department of the Army, U.S. Army Corps of Engineers (Corps) comments regarding the proposed preparation of a 6.06 acre oil and gas well pad and construction of a 3,293 foot access road in the SW1/4 and SE1/4 of Section 25, Township 149 North, Range 92 West, Dunn County, Fort Berthold Reservation, North Dakota by XTO Energy.

Corps regulatory offices administer Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Section 10 of the Rivers and Harbors Act regulates work impacting navigable waters. Work over, in, or under navigable waters is considered to have an impact. Section 404 of the Clean Water Act regulates the discharge of dredge or fill material (temporarily or permanently) in waters of the United States. Waters of the United States may include, but are not limited to, rivers, streams, ditches, coulees, lakes, ponds, and their adjacent wetlands. Fill material includes, but is not limited to, rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mines or other excavation activities and materials used to create any structure or infrastructure in the waters of the United States.

Please submit a location map and completed Corps permit application (copy enclosed) describing all proposed work and construction methodology, to the letterhead address if a Section 10/404 permit is required.

Do not hesitate to contact this office by letter or telephone (701-255-0015) if we can be of further assistance.

Sincerely,

Daniel E. Cimarosti
Regulatory Program Manager
North Dakota

Enclosure

Printed on  Recycled Paper

| APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT (33 CFR 325) | | | OMB APPROVAL NO. 0710-0003 EXPIRES: 31 August 2012 | | |
|--|--|----------------------|---|------------------------------|--|
| Public reporting burden for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity. | | | | | |
| PRIVACY ACT STATEMENT | | | | | |
| Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. | | | | | |
| (ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS) | | | | | |
| 1. APPLICATION NO | | 2. FIELD OFFICE CODE | | 3. DATE RECEIVED | |
| | | | | 4. DATE APPLICATION COMPLETE | |
| | | | | | |
| (ITEMS BELOW TO BE FILLED BY APPLICANT) | | | | | |
| 5. APPLICANT'S NAME: First - Middle - Last - Company - E-mail Address - | | | 8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required) First - Middle - Last - Company - E-mail Address - | | |
| 6. APPLICANT'S ADDRESS Address - City - State - Zip - Country - | | | 9. AGENT'S ADDRESS Address - City - State - Zip - Country - | | |
| 7. APPLICANT'S PHONE NOS. W/AREA CODE a. Residence b. Business c. Fax | | | 10. AGENT'S PHONE NOS. W/AREA CODE a. Residence b. Business c. Fax | | |
| STATEMENT OF AUTHORIZATION | | | | | |
| 11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application. | | | | | |
| _____ APPLICANT'S SIGNATURE | | | _____ DATE | | |
| NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY | | | | | |
| 12. PROJECT NAME OR TITLE (see instructions) | | | | | |
| 13. NAME OF WATERBODY, IF KNOWN (if applicable) | | | 14. PROJECT STREET ADDRESS (if applicable) | | |
| 15. LOCATION OF PROJECT Latitude: "N Longitude: "W | | | Address City - State - Zip - | | |
| 16 OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID Municipality Section - Township - Range - | | | | | |
| 17 DIRECTIONS TO THE SITE | | | | | |

ENG FORM 4345, SEPT 2009

EDITION OF OCT 2004 IS OBSOLETE

Proponent: CECW-OR

18. Nature of Activity (Description of project, include all features)

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

| Type | Type | Type |
|-----------------------|-----------------------|-----------------------|
| Amount in Cubic Yards | Amount in Cubic Yards | Amount in Cubic Yards |
| | | |

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)
 Acres
 Or
 Liner Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

24. Is Any Portion of the Work Already Complete? Yes No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

Address –
 City – State – Zip –

26. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.

| AGENCY | TYPE APPROVAL* | IDENTIFICATION NUMBER | DATE APPLIED | DATE APPROVED | DATE DENIED |
|--------|----------------|-----------------------|--------------|---------------|-------------|
| | | | | | |

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

 SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

ENG FORM 4345, SEPT 2009

**Instructions for Preparing a
Department of the Army Permit Application**

Blocks 1 through 4. To be completed by Corps of Engineers.

Block 5. Applicant's Name. Enter the name and the E-mail address of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the name of the organization and responsible officer and title. If more than one party is associated with the application, please attach a sheet with the necessary information marked Block 5.

Block 6. Address of Applicant. Please provide the full address of the party or parties responsible for the application. If more space is needed, attach an extra sheet of paper marked Block 6.

Block 7. Applicant Telephone Number(s). Please provide the number where you can usually be reached during normal business hours.

Blocks 8 through 11. To be completed, if you choose to have an agent.

Block 8. Authorized Agent's Name and Title. Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, or any other person or organization. Note: An agent is not required.

Blocks 9 and 10. Agent's Address and Telephone Number. Please provide the complete mailing address of the agent, along with the telephone number where he / she can be reached during normal business hours.

Block 11. Statement of Authorization. To be completed by applicant, if an agent is to be employed.

Block 12. Proposed Project Name or Title. Please provide name identifying the proposed project, e.g., Landmark Plaza, Burned Hills Subdivision, or Edsall Commercial Center.

Block 13. Name of Waterbody. Please provide the name of any stream, lake, marsh, or other waterway to be directly impacted by the activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.

Block 14. Proposed Project Street Address. If the proposed project is located at a site having a street address (not a box number), please enter it here.

Block 15. Location of Proposed Project. Enter the latitude and longitude of where the proposed project is located. If more space is required, please attach a sheet with the necessary information marked Block 15.

Block 16. Other Location Descriptions. If available, provide the Tax Parcel Identification number of the site, Section, Township, and Range of the site (if known), and / or local Municipality that the site is located in.

Block 17. Directions to the Site. Provide directions to the site from a known location or landmark. Include highway and street numbers as well as names. Also provide distances from known locations and any other information that would assist in locating the site. You may also provide description of the proposed project location, such as lot numbers, tract numbers, or you may choose to locate the proposed project site from a known point (such as the right descending bank of Smith Creek, one mile downstream from the Highway 14 bridge). If a large river or stream, include the river mile of the proposed project site if known.

Block 18. Nature of Activity. Describe the overall activity or project. Give appropriate dimensions of structures such as wing walls, dikes (identify the materials to be used in construction, as well as the methods by which the work is to be done), or excavations (length, width, and height). Indicate whether discharge of dredged or fill material is involved. Also, identify any structure to be constructed on a fill, piles, or float-supported platforms.

The written descriptions and illustrations are an important part of the application. Please describe, in detail, what you wish to do. If more space is needed, attach an extra sheet of paper marked Block 18.

Block 19. Proposed Project Purpose. Describe the purpose and need for the proposed project. What will it be used for and why? Also include a brief description of any related activities to be developed as the result of the proposed project. Give the approximate dates you plan to both begin and complete all work.

INQUIRY FROM PBSJ.COM

| | |
|-----------------------|---|
| Subject of Inquiry | Other |
| Title | Mr. |
| First Name | Charles |
| Last Name | Sorensen |
| Email | charles.g.sorensen@usace.army.mil |
| Phone | (701) 654 7614 |
| City | Riverdale |
| State/Region/District | North Dakota |
| Country | United States of America |
| Message | <p>To Mr. Chris Miller Billings Montana Office Dear Mr. Miller This email is in response to your scoping letter for the Baker/Walker 34X-25 oil well site located within the Fort Berthold Indian Reservation As the well location is located adjacent to a drainage that terminates in Lake Sakakawea, the U.S. Army Corps of Engineers requests that the following conditions be considered in the construction of the well location. Due to the close proximity of the well location to lands managed by the U.S. Army Corps of Engineers (USACE) and the Due to the potential of possible contamination of the Missouri River and Lake Sakakawea due to a possible loss of drilling mud's and or fluids it is USACE recommendation that a Closed Loop mud and drilling fluid system be used in the drilling of this well. The USACE as suggests that a catch trench be established on the down slope side of the pad closest to the COE boundary to aid in the retention of preventing any hazardous wastes due to run off from the pad and associated facilities. All fluids that accumulate in said trench should be pumped out of the trench and disposed of properly. If living quarters will be onsite it is requested that all sewage collection systems are to be of a closed system ensuring that there are no open or exposed tanks, catch basins, etc. That all additional fill material required for the construction of the well pad is obtained from a private supplier who's material has been certified as being free of all noxious weeds. If you have any questions regarding the above recommendations please feel free to contact me Thank you Charles Sorensen Natural Resource Specialist U.S. Army Corps of Engineers Riverdale, North Dakota Office (701) 654 7411 ext 232</p> |



NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov



February 24, 2010

 COPY

Chris Miller, Project Manager
PBS&J
115 N. 28th Street, Suite 202
Billings, MT 59101-2045

Re: Up to 10 Proposed Exploratory Oil and Gas Wells by XTO Energy
At the Baker/Walker 34X-25 Site on the Fort Berthold Reservation
Dunn County, North Dakota

Dear Mr. Miller:

This department has reviewed the information concerning the above-referenced project submitted under date of February 18, 2010, with respect to possible environmental impacts.

This department believes that environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. With respect to construction, we have the following comments:

1. Development of the production facilities and any access roads or well pads should have a minimal effect on air quality provided measures are taken to minimize fugitive dust. However, operation of the wells has the potential to release air contaminants capable of causing or contributing to air pollution. We encourage the development and operation of the wells in a manner that is consistent with good air pollution control practices for minimizing emissions.
2. Care is to be taken during construction activity near any water of the state to minimize adverse effects on a water body. This includes minimal disturbance of stream beds and banks to prevent excess siltation, and the replacement and revegetation of any disturbed area as soon as possible after work has been completed. Caution must also be taken to prevent spills of oil and grease that may reach the receiving water from equipment maintenance, and/or the handling of fuels on the site. Guidelines for minimizing degradation to waterways during construction are attached.
3. Oil and gas related construction activities located within tribal boundaries within North Dakota may be required to obtain a permit to discharge storm water runoff from the U.S. Environmental Protection Agency. Further information may be obtained from the U.S. EPA's website or by calling the U.S. EPA – Region 8 at (303) 312-6312. Also, cities or counties may impose additional requirements and/or specific best management practices for

Environmental Health
Section Chief's Office
701.328.5150

Division of
Air Quality
701.328.5188

Division of
Municipal Facilities
701.328.5211

Division of
Waste Management
701.328.5166

Division of
Water Quality
701.328.5210

Printed on recycled paper.

Chris Miller

2.

February 24, 2010

construction affecting their storm drainage system. Check with the local officials to be sure any local storm water management considerations are addressed.

The department owns no land in or adjacent to the proposed improvements, nor does it have any projects scheduled in the area. In addition, we believe the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

These comments are based on the information provided about the project in the above-referenced submittal. The U.S. Army Corps of Engineers may require a water quality certification from this department for the project if the project is subject to their Section 404 permitting process. Any additional information which may be required by the U.S. Army Corps of Engineers under the process will be considered by this department in our determination regarding the issuance of such a certification.

If you have any questions regarding our comments, please feel free to contact this office.

Sincerely,



L. David Glatt, P.E., Chief
Environmental Health Section

LDG:cc
Attach.



Construction and Environmental Disturbance Requirements

These represent the minimum requirements of the North Dakota Department of Health. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect the waters of the State of North Dakota. All projects will be designed and implemented to restrict the losses or disturbances of soil, vegetative cover, and pollutants (chemical or biological) from a site.

Soils

Prevent the erosion of exposed soil surfaces and trapping sediments being transported. Examples include, but are not restricted to, sediment dams or berms, diversion dikes, hay bales as erosion checks, riprap, mesh or burlap blankets to hold soil during construction, and immediately establishing vegetative cover on disturbed areas after construction is completed. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, or land resources will be protected against compaction, vegetation loss, and unnecessary damage.

Surface Waters

All construction which directly or indirectly impacts aquatic systems will be managed to minimize impacts. All attempts will be made to prevent the contamination of water at construction sites from fuel spillage, lubricants, and chemicals, by following safe storage and handling procedures. Stream bank and stream bed disturbances will be controlled to minimize and/or prevent silt movement, nutrient upsurges, plant dislocation, and any physical, chemical, or biological disruption. The use of pesticides or herbicides in or near these systems is forbidden without approval from this Department.

Fill Material

Any fill material placed below the high water mark must be free of top soils, decomposable materials, and persistent synthetic organic compounds (in toxic concentrations). This includes, but is not limited to, asphalt, tires, treated lumber, and construction debris. The Department may require testing of fill materials. All temporary fills must be removed. Debris and solid wastes will be removed from the site and the impacted areas restored as nearly as possible to the original condition.

Environmental Health
Section Chief's Office
701.328.5150

Division of
Air Quality
701.328.5188

Division of
Municipal Facilities
701.328.5211

Division of
Waste Management
701.328.5166

Division of
Water Quality
701.328.5210

Printed on recycled paper.



North Dakota Department of Transportation

Francis G. Ziegler, P.E.
Director

John Hoeven
Governor

March 4, 2010

Chris Miller
Project Director
PBSJ
3810 Valley Commons Dr. - Suite 4
Bozeman, MT 59718

EA PROPOSED ACTION TO INCLUDE APPROVAL BY BIA AND BLM OF DRILLING
AND COMPLETION OF UP TO TEN EXPLORATORY WELLS, FORT BERTHOLD
RESERVATION, NORTH DAKOTA

We have reviewed your February 18, 2010, letter.

The project referenced above will have no adverse effect on the North Dakota Department of
Transportation highways.

However, if any work needs to be done on highway right-of-way, appropriate permits and risk
management documents will need to be obtained from the Department of Transportation District
Engineer, Walter Peterson at 701-774-2700.

A handwritten signature in cursive script, appearing to read "Ronald Henke".

RONALD J. HENKE, P.E., DIRECTOR - OFFICE OF PROJECT DEVELOPMENT

57:rjh:js

c: Walter A. Peterson, Williston District

608 East Boulevard Avenue • Bismarck, North Dakota 58505-0700
Information: (701) 328-2500 • FAX: (701) 328-0310 • TTY: (701) 328-4156 • www.dot.nd.gov



"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

March 19, 2010

Chris Miller
Project Manager
PBS&J
115 N 28th Street, Suite 202
Billings, MT 59101-2045

Dear Mr. Miller:

RE: Exploratory Oil & Gas Wells
Forth Berthold Reservation

XTO Energy has proposed up to ten exploratory oil and gas wells using one well pad on the Fort Berthold Reservation in Section 25, T149N, R92W, of Dunn 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.

We appreciate the use of a single well pad for multiple wells as a means to reduce impacts to the environment, and support the use of such where feasible.

Sincerely,

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

js

United States Department of Agriculture



Natural Resources Conservation Service
P.O. Box 1458
Bismarck, ND 58502-1458

March 11, 2010

Chris Miller
PBS&J
115 N. 28th Street, Suite 202
Billings, Montana 59101-2045

RE: The proposed action includes approval by the BIA and BLM of the drilling and completion of up to ten exploratory oil and gas wells using one well pad and one access road on the Fort Berthold Reservation by XTO Energy. The well pad and access road are proposed at the following location in Dunn County, ND:

- Baker/Walker 34X-25 Site: SW1/4, SE1/4, Section 25, Township 149N, Range 92W

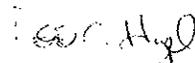
Dear Mr. Miller:

The Natural Resources Conservation Service (NRCS) has reviewed your letter dated February 18, 2010, concerning drilling and completion of up to ten exploratory wells using one well pad and one access road on the Fort Berthold Reservation by XTO Energy in Dunn County, North Dakota.

NRCS has a major responsibility with the Farmland Protection Policy Act (FPPA) in documenting conversion of farmland (i.e., prime, statewide, and local importance) to non-agricultural use when federal funding is used. It appears your proposed project is not supported by federal funding or actions; therefore, FPPA does not apply and no further action is needed.

If you have additional questions pertaining to FPPA, please contact Steve Sieler, State Soil Liaison, at (701) 530-2019.

Sincerely,


ACTING PAUL J. SWEENEY
State Conservationist

cc:
Susan Tuhy, DC, NRCS, Killdeer, ND
Terrance Gisvold, ASTC (FO), NRCS, Dickinson, ND

Helping People Help the Land
An Equal Opportunity Provider and Employer



North Dakota State Water Commission

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

RECEIVED

PBS & J

March 24, 2010

Chris Miller
PBS & J
3810 Valley Commons Drive STE 4
Bozeman, MT 59718

Dear Mr. Miller:

This is in response to your request for review of environmental impacts associated with the drilling and completion of up to ten exploratory oil and gas wells using one well pad and one access road on the Fort Berthold Reservation by XTO Energy.

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

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

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

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

Sincerely,

Larry Knudtson
Research Analyst

LJK:ds/1570

JOHN HOEVEN, GOVERNOR
CHAIRMAN

DALE L. FRINK
SECRETARY AND STATE ENGINEER

UNITED STATES
DEPARTMENT OF THE INTERIOR
CERTIFICATE OF UNSERVICEABLE PROPERTY

Page 1 of 1

Certificate No.

Date

3/29/2010

May only be used when property is unserviceable through fair wear and tear; there are no apparent property irregularities; no need to determine employee financial liability; no possible claims against the Government; firearms and weapons, ammunition, hazardous materials, controlled substances, explosives, or museum property are not included.

A. Originating Office and Telephone No. (include area code)

BIA - Great Plains Regional Office
Environment, Safety and Cultural Resources
605-226-7656

Accountable Office and Location

BIA - Great Plains Regional Office
Division of Property Management
Aberdeen, SD

Identified Item(s) are:

Unserviceable Obsolete

Other (specify) _____

STATEMENT OF CIRCUMSTANCES INVOLVING THE IDENTIFIED PROPERTY MUST BE ATTACHED

| ITEM NO. | QUANTITY OR PROPERTY ID NO. | ITEM DESCRIPTION | ORIGINAL ACQUISITION COST (OAC) | CONDITION CODE (see reverse) | ESTIMATED VALUE |
|----------|--|--|---------------------------------|------------------------------|-----------------|
| 1 | Model No. 7000 | Laminator, with mouse | ? | S | \$0.00 |
| 2 | Model C5364A, SGB82A038H | Hewlett Packard Office Jet Pro 1175 | ? | s | \$0.00 |
| 3 | Monitors | Monitors | ? | s | \$0.00 |
| 4 | | | | s | \$0.00 |
| 5 | Justification: These items are obsolete and are no longer cost effective to maintain or repair. Recommend recycling. | | | s | \$0.00 |
| 6 | | | | s | \$0.00 |
| 7 | | | | s | \$0.00 |
| 8 | | | | s | \$0.00 |
| 9 | | | | s | \$0.00 |
| 10 | | | | s | \$0.00 |
| | | | | | |

B. Recommended disposition (check one): Repair/Reutilization Sale/Trade-in Salvage Scrap/Destruction Abandon Other (specify) _____

To the best of my knowledge the attached statement of circumstances is correct and recommendations are in the best interest of the Government

Signature of Cognizant Employee:

Date:

Signature of Custodial Officer:

Date:

Property Staff Recommendations:

Signature:

Date:

Signature of Accountable Officer:

Date:

C. Reviewing Authority:

Approved Disapproved

Signature:

Date:

Comments Attached

D. Certificate of Destruction: I certify that the Item(s) No.(s)

listed above has been destroyed.

Official Responsible for Destruction:

Title:

Signature:

Date:

Witness Name:

Title:

Signature:

Date:

Adjustment to property records (Property Official Signature):

Date Completed:

Financial Official (If Required):

Date Completed

CONDITION CODES

| | | |
|---|---|--|
| 1 | = | Unused - good |
| 2 | = | Unused - fair |
| 3 | = | Unused - poor |
| 4 | = | Used - good |
| 5 | = | Used - fair |
| 6 | = | Used - poor |
| 7 | = | Repairs required - good (less than 15% of Original Acquisition Cost (OAC) required). |
| 8 | = | Repairs required - fair (16 - 40% of OAC required). |
| 9 | = | Repairs required - poor (41 - 65% of OAC required). |
| X | = | Salvage - Repair exceeds 65% of OAC, but parts have remaining value making cannibalization cost effective. |
| S | = | Scrap - there is no remaining value except for basic material content. |

Notice of Availability and Appeal Rights

XTO Energy: Baker/Walker 34X-25

The Bureau of Indian Affairs (BIA) is planning to issue administrative approvals related to installation of one oil/gas well pad and related infrastructure as shown on the attached map. Construction by XTO Energy is expected to begin in the spring of 2010.

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

The FONSI is only a finding on environmental impacts – it is not a decision to proceed with an action and *cannot* be appealed. BIA’s decision to proceed with administrative actions *can* be appealed until June 5, 2010 by contacting:

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

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



Project location.

