



**ENVIRONMENTAL ASSESSMENT
EA: AK-023-07-001**

November 24, 2006

**National Petroleum Reserve-Alaska (NPR-A)
Northwest Planning Area**

**FEX L.P.
.Winter Exploration Drilling Program
2006-2008**

Prepared By:

**USDOl Bureau of Land Management Alaska
Fairbanks District Office
Arctic Field Office**



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Arctic Field Office, Fairbanks District Office
Anchorage Field Office**

Technical Assistance:

**Tileston & Associates
Anchorage, Alaska 99503**

November 24, 2006

NOTE:

This Environmental Assessment (EA) has been prepared to support BLM decision-making, to identify appropriate mitigation measures, and to satisfy requirements of the National Environmental Policy Act (NEPA).

This EA tiers from EA: AK-023-06-003, prepared last year for proposed FEX exploration drilling in the same area, with a Finding of No Significant Impact (FONSI) issued in December 2005. This EA focuses on new project elements, with proposed activities evaluated on the basis of relevant site-specific terms and conditions.

This EA considers the Final Coastal Consistency Determination issued by the State Office of Project Management and Permitting on November 3, 2006, documenting project consistency with the Alaska Coastal Management Program.

ENVIRONMENTAL ASSESSMENT

- Title:** National Petroleum Reserve-Alaska (NPR-A)
Northwest Planning Area Winter Exploration Drilling Program
- EA Number:** AK-023-07-001
- Serial Number:** AA-085536, AA-085573, AA-085503, AA-085491, AA-085517, AA085504, AA085494, AA085484, AA085495, FF-94439
- Applicant:** FEX L.P. Inc. (FEX)
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Calgary, AB T2P 5C5 Canada
- Date Prepared:** November 2006
- District:** Fairbanks District Office
Planning Unit: NPR-A, Northwest and Northeast Planning Areas
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- Lands Involved:** New access corridor totaling about 62 miles from Cape Simpson to nine new exploration ice drill pads (and one previously authorized drill site) and 34 new water supply lakes in the FEX exploration prospects in the Northwest (NW) NPR-A. Also, proposed access using previously authorized Rights of Way (ROW) in the NPR-A. Specific locations are identified in the case files and project plans. The nine newly proposed drilling pad locations are:
- T15N, R11W, Sec. 26, Umiat Meridian (Aklaq #3)
 - T15N, R12W, Sec. 26, Umiat Meridian (Aklaq #4)
 - T14N, R12W, Sec. 8, Umiat Meridian (Aklaq #5)
 - T16N, R11W, Sec. 25, Umiat Meridian (Aklaq #6)
 - T15N, R12W, Sec. 13, Umiat Meridian (Aklaq #7)
 - T15N, R12W, Sec. 12, Umiat Meridian (Aklaq #7A)
 - T14N, R14W, Sec. 10, Umiat Meridian (Aklaqyaaq #2)
 - T12N, R15W, Sec. 18, Umiat Meridian (Amaguq #2)
 - T17N, R12W, Sec. 35, Umiat Meridian (Ugag #1)

This Environmental Assessment (EA) has been prepared to meet requirements of the National Environmental Policy Act (NEPA), and to support U.S. Department of Interior (USDOI) Bureau of Land Management (BLM) decision-making on permits required to construct and implement the proposed project. The scope of the EA includes analysis of effects of the proposed exploration activity and alternatives. The EA also addresses the impacts of hypothetical oil and gas field development if an economic discovery is made during this activity.

This EA is the most recent in a series of NEPA assessments prepared by BLM in evaluating potential and proposed oil exploration and development in the NPR-A. Over the past seven years, BLM has evaluated construction and drilling at 73 potential exploration drill sites, construction of ice roads along approximately 400 miles of corridor, construction of ice airstrips at 35 locations, and use of approximately 500 miles of overland trail corridor in the NPR-A. Impacts of these types of activities have also been evaluated in three Integrated Activity Plan (IAP)/ Environmental Impact Statements (EIS) associated with multi-use management plans in the NPR-A and one EIS for development in the Northeast NPR-A and adjacent Colville River delta. This EA is tiered to and incorporates the relevant portions of the NW IAP/EIS and NPR-A Exploration EAs described in more detail in this document.

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LIST OF ACRONYMS

ACMP	Alaska Coastal Management Program
ACS	Alaska Clean Seas
ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
AEWC	Alaska Eskimo Whaling Commission
ANILCA	Alaska National Interest Land Conservation Act
AO	Authorized Officer
AOGCC	Alaska Oil and Gas Conservation Commission
APD	Application for Permit to Drill
ARCO	[Formerly] Arco Alaska Incorporated; [Currently] ConocoPhillips Alaska, Incorporated
ASDP	Alpine Satellite Development Plan
ASRC	Arctic Slope Regional Corporation
ATV	All-Terrain Vehicle
BLM	Bureau of Land Management
BPX	BP Exploration (Alaska) Incorporated
CAA	Clean Air Act
CE	Categorical Exclusion
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CMP	Coastal Management Program
CPAI	ConocoPhillips Alaska, Incorporated
CWA	Clean Water Act
DMLW	(ADNR) Division of Mining, Land, and Water
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FEX	FEX L.P. Incorporated
FLPMA	Federal Land Policy and Management Act of 1976
FONSI	Finding of No Significant Impact
GCD	General Concurrence Determination
GP	General Permit
H ₂ S	Hydrogen Sulfide
IAP	Integrated Activity Plan
ICAS	Iñupiat Community of the Arctic Slope
IHA	Incidental Harassment Authorization
IHLCC	Iñupiat History, Language, and Culture Commission
IMT	Incident Management Team
LCP	Low Centered Polygons
LOA	Letter of Authorization
LPV	Low Ground-Pressure Vehicle
LUEA	Land Use Emphasis Area
MG	Million Gallons
MGP1	Minor General Permit 1
MMPA	Marine Mammal Protection Act
NE	Northeast
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOS	Notice of Staking

NP	Non Patterned
NPDES	National Pollutant Discharge Elimination System
NPR-A	National Petroleum Reserve – Alaska
NPRPA	Naval Petroleum Reserve Production Act
NRC	National Research Council
NSB	North Slope Borough
NW	Northwest
ODPCP	Oil Discharge Prevention and Contingency Plan (or C-Plan)
OHMP	(ADNR) Office of Habitat Management and Permitting
ROD	Record of Decision
ROP	Required Operating Procedure
ROW	Right of Way
RPS	Response Planning Standard
SAP	Subsistence Advisory Panel
SHPO	State Historic Preservation Office
SPCC	Spill Prevention, Control, and Countermeasures
TAPS	Trans Alaska Pipeline System
TLH	Teshekpuk Lake Herd (Caribou)
TWUP	Temporary Water Use Permit
USDOI	U.S. Department of Interior
USFWS	U.S. Fish and Wildlife Service
VSP	Vertical Seismic Profiles
WAH	Western Arctic Herd (Caribou)
WSR	Wild and Scenic River

1 INTRODUCTION

FEX L.P. (FEX), a wholly-owned subsidiary of Fortuna Energy, Inc., has applied for permits to access and drill on valid oil and gas leases during a two-year winter exploration program in the National Petroleum Reserve-Alaska (NPR-A). FEX (the Applicant) has submitted permit applications, including the Bureau of Land Management (BLM) Right-of-Way (ROW) application and Surface Use Program, to Federal and State agencies and the North Slope Borough (NSB).

This Environmental Assessment (EA) has been prepared to support BLM decision-making, to identify appropriate mitigation measures, and to satisfy requirements of the National Environmental Policy Act (NEPA).

This EA tiers from EA: AK-023-06-003, prepared last year for a similar FEX proposal (exploration drilling at seven ice drill pads using water from 28 lakes in the same area as the proposed project), with a Finding of No Significant Impact (FONSI) issued in December 2005. This EA focuses on new project elements (exploration drilling at nine new ice drill pad locations; 62 miles of new access corridor, and 34 new water sources), with proposed activities evaluated on the basis of relevant site-specific terms and conditions. See **Figure 1**.

1.1 HISTORY OF ACTIVITY IN THE NPR-A

Following creation of the 23 million-acre Naval Petroleum Reserve Number 4 (later renamed the National Petroleum Reserve-Alaska), the Federal government drilled at 123 sites¹, and private industry and ASRC each drilled at one test site.² Within the vicinity of the proposed exploration program, the U.S. Navy drilled wells at five sites, and the U.S. Geological Survey drilled at two well sites. Early exploration resulted in discovery of oil deposits at Fish Creek (in the NE NPR-A) and Cape Simpson (in the NW NPR-A), as well as gas deposits near Barrow.³ The Barrow and Walakpa gas fields are owned by the NSB; the Walakpa field now produces up to 90 percent (%) of Barrow's consumption of natural gas.⁴

In 1998, an Integrated Activity Plan (IAP) with associated Environmental Impact Statement (EIS) for the

Northeast (NE) NPR-A Planning Area was released,⁵ followed by a Record of Decision (ROD) adopting the IAP/EIS and making approximately 4 million acres in the NE Planning Area available for oil and gas leasing.⁶ The 1998 ROD includes 79 stipulations as prescriptive measures to insure environmental protection from activities authorized in the NE Planning Area. In 2003, a final IAP/EIS for the Northwest (NW) NPR-A Planning Area was published.⁷ In 2004, a ROD was issued, adopting the NW IAP/EIS and making approximately 8.8 million acres in the NW Planning Area available for oil and gas leasing, with approximately 2 million acres of this deferred from leasing, pending further study.⁸ The 2004 ROD includes performance-based environmental protection measures set forth in 11 stipulations and 32 Required Operating Procedures (ROPs) that control activities authorized in the NW Planning Area.

In early 2005, BLM issued a new IAP/EIS that evaluated a proposal to amend the 1998 NE IAP/EIS. The Amended NE IAP/EIS has been vacated by the federal court. On the basis of this recent legal decision, the 1998 stipulations are still in force in the NE.

The new elements of the proposed project are within the NW Planning Area, within the same areas evaluated last year in EA AK-023-06-003. Petro Canada (Alaska) Inc. and ConocoPhillips Alaska, Inc. (CPAI) have staked potential exploration drilling sites in the NW NPR-A under the 2004 ROD. In addition, CPAI has staked new exploration drilling sites in the NE NPR-A, still under terms of the 1998 ROD, as well as several sites near a producing gas field south of Barrow, which is privately held. While specific environmental safeguards in place for the NE and NW NPR-A are different, the level of environmental protection provided is similar. Potential cumulative impacts of multiple exploration programs, with up to four drill rigs operating during the same season in the same general area will be evaluated.

FEX is proposing to drill at up to nine new sites and one previously authorized site in the NW NPR-A, with access via barge, aircraft, ice road, and hardened trail, including use of existing authorized routes. The proposed exploration program is intended to span two winter

¹ USGS Professional Paper 1399 (1988), p. 333.

² USDOJ. August 1998. Northeast NPR-A Final Integrated Activity Plan/Environmental Impact Statement (IAP/EIS), Vol. 1, p. III-A-5

³ USGS Professional Paper 1240-C (1985), p. C14.

⁴ USDOJ 1998 Northeast IAP/EIS, p. III-A-43.

⁵ USDOJ. August 1998. Northeast NPR-A Final Integrated Activity Plan/Environmental Impact Statement (IAP/EIS), Vol. 1 and 2.

⁶ Secretary of the Interior. October 1998. Northeast NPR-A IAP/EIS Record of Decision (ROD), p.1.

⁷ USDOJ. November 2003. Northwest NPR-A Final Integrated Activity Plan/Environmental Impact Statement (IAP/EIS), Vol. 1, 2, and 3.

⁸ Secretary of the Interior. January 2004. Northwest NPR-A IAP/EIS Record of Decision (ROD), p. 3.

drilling seasons, beginning in December 2006, with the drilling schedule contingent upon permitting, weather, ongoing data analysis, and funding.

Activities proposed by FEX are similar to previously authorized exploration activities in the NPR-A. Since 1999, ten winter exploration drilling programs in the NPR-A have been authorized and implemented. For this, BLM evaluated access and exploratory drilling up to 167 wells, although only 21 wells were actually drilled during this period (including one by FEX). The relatively small number of wells drilled is due to contingencies included in most exploration programs (e.g., multiple drilling site locations and wells) to provide operational flexibility, the ability to adapt to changing conditions, and the availability of new geologic data. Drilling is limited to only the most promising prospects, and only a portion of the authorized program is actually completed.

1.2 PURPOSE OF AND NEED FOR THE PROJECT

FEX believes that significant recoverable oil potential exists on lease holds within NPR-A. The purpose of the proposed action is to permit FEX to drill exploration wells and/or sidetracks at any of the nine newly proposed pad locations, within a flexible timeframe. The project is composed of several elements and is designed to meet the Applicant's needs and objectives, including:

- Access to drilling sites and water supply lakes in a manner that allows for maximum operations during any one winter season in a cost effective manner while minimizing environmental impact
- Drilling to acquire sufficient subsurface information to satisfy the Applicant's economic and exploration performance criteria
- Compliance with all related requirements of the NPR-A leases, RODs, and all associated laws, regulations, permits and approvals.

The purpose of the FEX proposed project is to determine if leases contain economically recoverable oil and gas in a two-year exploration program. A primary need for the project is implicit in the growing demand for oil and gas worldwide, accompanied by concern in the U.S. over dependence on foreign oil supplies. National energy needs are key issues in authorizing exploration. The project is also needed to replace diminishing North Slope oil supplies and maintain design efficiency of the Trans Alaska Pipeline System (TAPS). Revenues from production are needed to support local, State, and national economies.

Alternatives to the proposed project are evaluated on the basis of their effectiveness in meeting these objectives.

1.3 RELATED STATUTES, REGULATIONS, POLICIES, AND PROGRAMS

The 2003 IAP/EIS was completed to fulfill BLM's responsibility to manage lands in the NW Planning Area under the authority of the Naval Petroleum Reserve Production Act, as amended (NPRPA), Federal Land Policy and Management Act of 1976 (FLPMA), NEPA, Alaska National Interest Land Conservation Act (ANILCA), and the Wild and Scenic Rivers Act. Findings in the IAP/EIS and decisions reflected in the 2004 ROD were based upon an open and collaborative public process as well as experience with multiple exploration programs completed in the NPR-A.

1.3.1 Federal Laws and Regulations

The proposed action must comply with numerous Federal laws that govern activities on public lands. Key Federal controls associated with the proposed action have been described in related NEPA documents. These include, but are not limited to: NPRPA, FLPMA, NEPA, ANILCA, Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), National Historic Preservation Act (NHPA), Clean Water Act (CWA), Clean Air Act (CAA), Archaeological Resource Protection Act, and Magnuson-Stevens Fishery Conservation and Management Act.

The proposed action is consistent with the 2001 National Energy Policy, which called for increased domestic exploration and production, and directed BLM to address issues vital to the nation's energy program. The subsequent BLM implementation plan directs the agency to continue ongoing operations associated with existing leases (i.e., Applications to Drill or APDs, inspection and enforcement, NEPA compliance) within the NPR-A. The proposed action is also consistent with the Energy Policy Act of 2005 which specifically addresses incentives for exploration in the NPR-A.

1.3.2 Required Permits, Licenses, Authorizations, and Approvals

A number of Federal, State, and local permits and approvals must be obtained before the Applicant can access a drill site and commence drilling. Primary regulatory authorization requirements for the proposed project are listed in **Table 1**.

1.3.3 Related Environmental Analyses

The environmental analyses most closely related to the proposed action are listed in **Table 2**. All exploration EAs and associated FONSI document findings that the subject project: was in compliance with provisions for protecting subsistence use and access, as required by ANILCA Title VIII; was not likely to adversely affect Essential Fish Habitat (EFH); and was not likely to adversely impact listed Threatened and Endangered Species.

Council of Environmental Quality (CEQ) Regulation 40 CFR 1502.20 encourages agencies to “tier off their

environmental impact statements to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review.” This EA is tiered to the 2003 NW IAP/EIS and the 2004 ROD, which are incorporated in their entirety by reference per CEQ Regulation 40 CFR 1502.21.

This EA is also tiered to the NPR-A exploration drilling EAs and their FONSI listed in Table 2. EA:AK-023-06-003 and the associated FONSI are directly related to the proposed action, in that they evaluate proposed FEX exploratory drilling operations similar in scope and location to the proposed project.

Table 1. Permits and Authorizations for Proposed Project ^a

Federal Authorizations and Approvals	
Bureau of Land Management (BLM)	<ul style="list-style-type: none"> ▪ Application for Permit to Drill (APD) ▪ Amended ROW FF-94439 ▪ Threatened and Endangered Species “No Effect” Determination” ▪ Essential Fish Habitat Assessment (No NMFS consultation required) ▪ ANILCA 810 Evaluation and Findings
U.S. Fish and Wildlife Service (USFWS) ^c	<ul style="list-style-type: none"> ▪ Letter of Authorization (LOA) for Incidental Take of Polar Bears; Polar Bear/Personnel Encounter Plan ▪ ESA Consultation
U.S. Environmental Protection Agency (EPA)	<ul style="list-style-type: none"> ▪ Domestic Wastewater Discharge, under National Pollutant Discharge Elimination System (NPDES) General Permit No. AKG-33-0000 (drilling/camp contractor) ▪ Spill Prevention, Control, and Countermeasures (SPCC) Plan (drilling/testing contractor)
State Authorizations and Approvals	
Alaska Department of Natural Resources (ADNR) ^b	<ul style="list-style-type: none"> ▪ Program General Concurrence Determination (e.g., GCD 5, 8) for related elements ▪ Temporary Water Use Permit (TWUP) ▪ Cultural Resources Coordination/Consultation with State Historic Preservation Office (SHPO) ▪ Fish Habitat Permit (Office of Habitat Management and Permitting) ▪ Alaska Coastal Management Program (ACMP) Consistency Determination
Alaska Department of Environmental Conservation (ADEC)	<ul style="list-style-type: none"> ▪ Temporary Storage of Drilling Wastes ▪ Air Quality Minor Source General Permit ▪ Oil Discharge Prevention and Contingency Plan (ODPCP) ▪ Certificate of Financial Responsibility ▪ Wastewater and Water Treatment System Approval (drilling/camp contractor)
Alaska Oil and Gas Conservation Commission (AOGCC)	<ul style="list-style-type: none"> ▪ Permit to Drill ▪ Approval for annular disposal of drilling wastes (optional)
Local Authorizations and Approvals	
North Slope Borough (NSB)	<ul style="list-style-type: none"> ▪ NSB Coastal Zone Consistency Determination ▪ Development Permit (for related elements)

^a FEX has an Incidental Harassment Authorization (IHA) from the National Marine Fisheries Service (NMFS) to take small numbers of marine mammals incidental to barging equipment and supplies to Cape Simpson and Point Lonely. FEX entered into a Conflict Avoidance Agreement with the Alaska Eskimo Whaling Commission (AEWC) to minimize impacts to subsistence whaling. The Federal Aviation Administration (FAA) issues “no objection to proposed airstrips”

^b TWUPs issued October 31, 2006; Title 41 Fish Habitat (water withdrawal) issued October 27, 2006; Title 41 for fish stream crossings issued November 2, 2006; ACMP Final Consistency Determination issued November 3, 2006

Table 2. Related Environmental Analyses

Environmental Analysis^a	Decision Document	Related Activity^b <i>(proposed exploration drilling sites, access route corridors, and water supply associated with the total program, unless otherwise noted)</i>	Special Areas and Other Designated Land Use Areas Evaluated
Northeast National Petroleum Reserve-Alaska Integrated Activity Plan/Environmental Impact Statement. USDO I BLM. August 1998.	Record of Decision, Northeast National Petroleum Reserve-Alaska Integrated Activity Plan/Environmental Impact Statement. BLM, October 1998	Multi-use management of the Northeast NPR-A, including oil and gas leasing, exploration and development	All within the NE Planning Area
EA: AK-020-00-011. Environmental Assessment, 1999-2000 Winter Exploration Drilling Program in the National Petroleum Reserve-Alaska (NPR-A). USDO I BLM, Alaska, Northern Field Office and Anchorage Field Office. January 2000. [ARCO]	Finding of No Significant Impact and Decision Record AA-081794. Application for Permit to Drill and Right-of-Way. BLM. January 2000	Spark 1, Lookout A, Clover A, Clover B, Moose's Tooth A, Moose's Tooth C, Rendezvous A, and Rendezvous B. 30-mi ice road corridor; 20-mi packed snow trail corridor; 1 ice airstrip/yr; 137 MG water (23 lakes in NPR-A). 3-year program over 5 years	Colville River Special Area; Fish Creek, Judy Creek and Colville River Fish Habitat LUEAs, Colville River Raptor, Passerine and Moose LUEA
EA: AK-023-01-001. Environmental Assessment, Trailblazer Exploration Drilling Program, 2000-2005, National Petroleum Reserve-Alaska (NPR-A). USDO I BLM, Alaska, Northern Field Office and Anchorage Field Office. November 2000 (minor revision January 2001). [BPX]	Finding of No Significant Impact and Decision Record AA-081752. Application for Permit to Drill and Right-of-Way. BLM. January 2001	Trailblazer A-H. 34-mi ice road corridor; 18-mi packed snow trail corridor; 1 ice airstrip/yr; 525 MG water (52 lakes in NPR-A); 54-mi non-federal offshore ice road. 5-year program	Teshekpuk Lake Special Area; Teshekpuk Lake Watershed LUEA; Teshekpuk Lake Caribou Habitat LUEA; No Surface Activity Area
EA: AK 023-01-003. Environmental Assessment, National Petroleum Reserve-Alaska (NPR-A) Exploration Program, Winter Drilling 2000-2006. USDO I BLM, Alaska, Northern Field Office and Anchorage Field Office. December 2000 (minor revision March 2001). [Phillips]	Finding of No Significant Impact and Decision Record AA-081780. Application for Permit to Drill and Right-of-Way. BLM. March 2001	Spark 2, Spark 3, Spark 4, Spark 5, Rendezvous 1, Rendezvous 2, Outlook 1, Oxbow 1, Hunter 1, and Sunrise 2. Up to 5 temporary camp/storage ice pads; 56-mi ice road corridor (+20 mi existing ROW); 0-mi packed snow trail corridor (+20 mi existing ROW); 1 ice airstrip/yr; 500 MG water (83 lakes in NPR-A). 5-year program	Colville River Special Area; Fish Creek, Judy Creek, and Colville River Fish Habitat LUEAs; Colville River Raptor, Passerine and Moose LUEA
EA: AK-023-02-004. Environmental Assessment, National Petroleum Reserve-Alaska (NPR-A) Altamura Prospect Exploration Program. December 2001 (Minor revision January 2002). [Anadarko]	Finding of No Significant Impact and Decision Record AA-081736. Application for Permit to Drill. BLM. January 2002.	Altamura 1 and Altamura 2. 7-mi ice road corridor; 4-mi packed snow trail corridor (+15 mi existing ROW); 1 ice airstrip/yr; 19 MG water (9 lakes in NPR-A). 2-year program	Colville River Special Area; Colville River Raptor, Passerine, and Moose LUEA; Colville River Fish Habitat LUEA
EA: AK-023-02-005. Environmental Assessment, National Petroleum Reserve-Alaska (NPR-A) 2001-2006 Exploration Drilling Program. USDO I BLM, Alaska, Northern Field Office and Anchorage Field Office. December 2001 (Minor revision January 2002). [Phillips]	Finding of No Significant Impact and Decision Record AA-081780. Application for Permit to Drill and Right-of-Way. BLM. January 2002.	Spark 6, Spark 7, Spark 8, Hunter A, Hunter 2, Lookout 2, Mitre 1, Rendezvous 3, Nova 1, Nova 2, Pioneer 1, Grandview 1, Tuvaq 1, Tuvaq 2, and Tuvaq 3. 30-mi ice road (+40 mi existing ROW); 100-mi packed snow trail (+31 mi existing ROW); 2 ice airstrip sites; 120 MG water (14 lakes in NPR-A). 5-year program	Colville River Special Area; Fish Creek and Judy Creek and Colville River Fish Habitat LUEAs; Colville River Raptor, Passerine, and Moose LUEA

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Environmental Analysis ^a	Decision Document	Related Activity ^b <i>(proposed exploration drilling sites, access route corridors, and water supply associated with the total program, unless otherwise noted)</i>	Special Areas and Other Designated Land Use Areas Evaluated
EA: AK-023-02-033. Environmental Assessment, Puviaq Storage Site Project, National Petroleum Reserve-Alaska. USDO I BLM, Northern Field Office, Arctic Management Team. March 2002. [CPAI]	Finding of No Significant Impact and Decision Record FF-093572. BLM NPR-A Permit 298401. March 28, 2002.	Access to and rig storage near Puviaq; 1 over-summer ice storage pad; 80-mi packed snow trail corridor. 1-year program	Teshekpuk Lake Special Area; Teshekpuk Lake Watershed LUEA; Spectacled Eider Breeding Range LUEA; Teshekpuk Lake Caribou Habitat LUEA
EA: AK-023-03-008. Environmental Assessment. National Petroleum Reserve-Alaska (NPR-A) Exploration Drilling Program, Puviaq #1 and #2 Exploration Wells. USDO I BLM, Alaska, Northern Field Office and Anchorage Field Office. December 2002. [CPAI]	Finding of No Significant Impact and Decision Record AA-081854. Application for Permit to Drill and Right-of-Way. BLM. December 2002.	Puviaq 1 and Puviaq 2. 76-mi ice road corridor; 168 mi packed snow trail corridor (+107 mi existing ROW); one over-summer ice storage pad, 2 ice airstrip sites; 124 MG water (28 lakes in the NPR-A). 2-year program	Teshekpuk Lake Special Area; Teshekpuk Lake Watershed LUEA, Spectacled Eider Breeding Range LUEA, Teshekpuk Lake Caribou Habitat LUEA; Goose Molting Habitat LUEA Ikkipuk River Paleontological Sites LUEA; Teshekpuk Lake and Miguakiak River Fish Habitat LUEAs; No Permanent Facility Use Area
EA: AK-023-03-027. Environmental Assessment, Storage Ice Pads, USDO I BLM, Northern Field Office, Arctic Management Team. February 2003. [CPAI]	Finding of No Significant Impact and Decision Record FF-093905. Permit 298401. February 2003.	Alternate trail access to and rig storage near Kokoda/Carbon. 11-mi packed snow trail corridor; over-summer ice storage pad. 1-year program	Teshekpuk Lake Special Area; Teshekpuk Lake Watershed LUEA, Spectacled Eider Breeding Range LUEA, Teshekpuk Lake Caribou Habitat LUEA; Fish Habitat LUEAs
EA: AK-023-03-032. Environmental Assessment, Access To and Drill Stacking at Inigok. USDO I BLM, Northern Field Office, Arctic Management Team. February 2003. [TOTAL E&P USA, Inc.]	Finding of No Significant Impact and Decision Record FF-093906. BLM NPR-A Permit 281001. February 2003.	Access to and rig storage at existing facility at Inigok; 30-mi packed snow trail corridor (+27 mi existing ROW). Access to lease; 6-mi hardened trail corridor. 1-year program	No Permanent Facility Use Area
CX: AK-023-03-055. Categorical Exclusion, Access Trail to Inigok. April 2003. [CPAI]		Alternate trail access from Puviaq to existing facility at Inigok for rig storage. Approximately 36-mi packed snow trail corridor. One-year program	Teshekpuk Lake Special Area; Teshekpuk Lake Watershed LUEA, Spectacled Eider Breeding Range LUEA, Teshekpuk Lake Caribou Habitat LUEA; Fish Habitat LUEAs; No Permanent Facility Use Area
Northwest National Petroleum Reserve-Alaska Final Integrated Activity Plan/Environmental Impact Statement. USDO I BLM. November 2003.	Record of Decision, Northwest National Petroleum Reserve-Alaska Integrated Activity Plan/Environmental Impact Statement. BLM. January 2004.	Multi-use management of the Northwest NPR-A, including oil and gas leasing, exploration and development	All within the NW Planning Area
EA: AK-023-04-005. Environmental Assessment, National Petroleum Reserve-Alaska (NPR-A) 2003-2008 Exploration Drilling. USDO I BLM, Northern Field Office, Arctic Management Team. December 2003. [TOTAL E&P USA]	Finding of No Significant Impact and Decision Record AA-084161. Application for Permit to Drill and Right-of-Way. BLM. December 2003.	Caribou 07-16, Caribou 09-11, Caribou 14-12, Caribou 18-08, Caribou 23-14, Caribou 26-11, Caribou 35-05, and Caribou 35-14. One temporary staging ice pad; 60-mi ice road corridor (+22 mi existing ROW); 31-mi packed snow trail corridor (+ 27 mi existing ROW);	Teshekpuk Lake and Colville River Special Areas; Teshekpuk Lake Watershed LUEA, Pik Dunes LUEA; Fish Creek, Judy Creek and Colville River Fish Habitat LUEAs; Colville River Raptor, Passerine, and Moose LUEA; Permanent Facility Use Area

Environmental Analysis^a	Decision Document	Related Activity^b <i>(proposed exploration drilling sites, access route corridors, and water supply associated with the total program, unless otherwise noted)</i>	Special Areas and Other Designated Land Use Areas Evaluated
		corridor; 170 MG water (35 lakes in NPR-A). 5-year program	
EA: AK-023-04-004. Environmental Assessment National Petroleum Reserve-Alaska (NPR-A) 2003-2008 Exploration Drilling Program, USDOI BLM, Alaska, Northern Field Office and Anchorage Field Office. November 2003 (Minor revision December 2003). [CPAI]	Finding of No Significant Impact and Decision Record AA-084129. Application for Permit to Drill and Right-of-Way. BLM. December 2003.	Kokoda 1, Kokoda 2, Powerline 1, Grandview 2, Carbon 1, Summit 2, and Scout 1. 62-mi ice road corridor (+ 22 mi existing ROW); 5 ice airstrip sites; 92 MG water (12 lakes in NPR-A). 5-year program	Teshekpuk Lake Special Area; Colville River Special Area; Teshekpuk Lake Watershed LUEA; Fish Creek and Colville River Fish Habitat LUEAs; Colville River Raptor, Passerine, and Moose LUEA
Final Environmental Impact Statement. Alpine Satellite Development Plan. USDOI BLM, Alaska State Office, in cooperation with US Army Corps of Engineers, US Environmental Protection Agency, US Coast Guard, and the State of Alaska Anchorage, Alaska. September 2004.	Record of Decision, Final Environmental Impact Statement, Alpine Satellite Development Plan. Prepared by BLM, October 2004.	Production Development	Teshekpuk Lake and Colville River Special Areas
EA: AK-023-05-005. Environmental Assessment National Petroleum Reserve-Alaska (NPR-A) Northeast Planning Area, Winter Exploration Drilling Program. USDOI BLM, Alaska, Northern Field Office and Anchorage Field Office. December 2004 [CPAI]	Finding of No Significant Impact and Decision Record AA-081727. Application for Permit to Drill and Right-of-Way. BLM. December 2004.	Kokoda 3, Kokoda 4, Kokoda 5, Noatak 1, Bounty 1, Defiance 1; up to 10 temporary camp/storage ice pads; 26-mi ice road corridor (+84 mi existing ROW); 8-mi packed snow trail corridor (+88 mi existing ROW); 2 ice air strips/yr; 80 MG water (58 lakes in NPR-A). 5-year program	Teshekpuk Lake Special Area; Colville River Special Area; Teshekpuk Lake Watershed LUEA; Pik Dunes LUEA; Teshekpuk Lake Caribou Habitat LUEA, Fish Creek, Judy Creek, Kealok Creek and Colville River Fish Habitat LUEAs; Colville River Raptor, Passerine and Moose LUEA
Final Northeast National Petroleum Reserve-Alaska Amended Integrated Activity Plan/Environmental Impact Statement. USDOI BLM. January 2005 – vacated by federal court	ROD – vacated by federal court	Multi-use management of the Northeast NPR-A, including oil and gas leasing, exploration and development	
EA: AK-023-06-003. Environmental Assessment National Petroleum Reserve-Alaska (NPR-A) Northwest Planning Area, Winter Exploration Drilling Program 2005-2007. USDOI BLM, Alaska, Fairbanks District Office, Arctic Field Office. December 2005 [FEX]	Finding of No Significant Impact and Decision Record AA-085574. Application for Permit to Drill, 3100.00 and Right-of-Way, 2884.01. BLM. December 2005.	Aklaq 1, Aklaq 1A, Aklaq 2, Aklaq 2A, Aklaq 2B, Aklaqyaaq 1, Amaguq 1; 31-mi ice road corridor; 78-mi packed snow trail corridor (+399 mi existing ROW); 2 ice air strips/year; up to 4 temporary camp/storage ice pads. 85 MG water (28 lakes in NPR-A). 2-year program	Teshekpuk Lake and Colville River Special Areas, Deep Water Lakes, Ikpikpuk, Chipp, Alaktak Inaru, Meade, Topogoruk, Oumalik, Miguakiak, and Titaluk rivers; Teshekpuk Lake Caribou Habitat LUEA; Fish and Judy creek and Colville River Fish Habitat LUEAs; Colville River Raptor, Passerine and Moose LUEA

^a Documents are available for review at the Fairbanks District Office, BLM, 1150 University Avenue, Fairbanks, Alaska 99709.

^b All mileage and water volumes are approximate for comparative impact analysis purposes. NOTE: Distance and volume values were updated in 2006, based on a standardized approach to estimate new elements of the proposed program (i.e., maximum program total new length of ice roads and trails and volumes of water potentially used); also estimated existing ice road and snow trail corridor ROWs proposed for possible use).

1.3.4 Land Status

All proposed drill sites are located on NPR-A lease tracts held by FEX in whole or in part with Petro Canada, under jurisdiction of the BLM. Access to the drilling areas and water supply lakes includes approximately 62 miles of new access corridor as well as use of ROWs previously authorized by the BLM. The proposed project lies wholly within the NPR-A, inside the boundaries of the NSB. Traditional land use sites (e.g., cabins and campsites) will be avoided. BLM does not authorize use of private property; access over private lands requires authorization of the land owner. Within the NW Planning Area, BLM has designated areas where special stipulations and ROPs apply.

1.4 PUBLIC INVOLVEMENT

Development of the 2003 NW IAP/EIS involved extensive input from other Federal agencies, the State, the NSB, thousands of individuals, and many institutions.⁹ BLM consulted with Federally-recognized tribes, and drafted measures to protect tribal interests.

Since the 1999 lease sale in the NE Planning Area, a number of meetings and consultations have been held with residents of Nuiqsut, Barrow, Anaktuvuk Pass, Atqasuk, Pt. Lay, and Wainwright to discuss NPR-A exploration plans. All recent NPR-A exploration drilling programs have been public-noticed by BLM, with exploration EAs made available for public review via the Internet. Public and agency comments have been considered, and required Federal, State, and local permits have been issued – some with stipulations to mitigate specific issues of concern. There was also extensive public involvement in the 2004 Alpine Satellites Development Plan (ASDP) Final EIS associated with development at three drill sites in the NPR-A and two drill sites in the adjacent Colville delta.¹⁰

The proposed project reflects input gained from meetings with local communities, the NSB, NPR-A Subsistence Advisory Panel (SAP), Inupiat Community of the Arctic Slope (ICAS) and other agencies and entities. FEX hosted meetings and open houses in Barrow, Wainwright, Atqasuk, Nuiqsut, and Point Lay to continue consultation and public comment (See **Table 13**). FEX included a Native Elder in the review of proposed well sites and access routes to obtain traditional knowledge of subsistence resources and to identify site-specific environmental concerns. FEX also has a

program that provides additional opportunities for public involvement (e.g., newsletters, radio, and local meetings).

1.5 BLM DECISION PROCESS

BLM's decision on the proposed action will be based on statutory and regulatory authority. Prior to authorizing the proposed project, BLM must conduct a project-specific NEPA analysis and determine whether the proposed project should be approved, rejected, or modified, and if additional mitigation is needed.

The 2003 IAP/EIS and 2004 ROD serves as required NEPA documentation for lease sales in the NW NPR-A. This EA will be based on management controls and protective measures of relevant stipulations and ROPs in the 2004 ROD, as well as actual experience with exploration activity in the NPR-A.

The proposed action represents an extension of FEX exploration activity in the NW NPR-A evaluated in EA: AK-023-06-003, to which this EA is tiered. The Applicant is the same, the plan of operations is essentially the same, and the proposed drill sites, local access roads, and water supply lakes are in the same area. The ten winter exploration programs completed in the NE NPR-A over the past seven years were based on similar plans and methods of operations. Expected effects of associated activities (i.e., overland transport, water use, ice road/pad construction, drilling, other operations and maintenance, and abandonment and restoration) are known. Several minor problems occurred during the earlier years, but these have been successfully corrected or mitigated.

There have been no significant direct, indirect, or cumulative adverse impacts associated with the ten authorized winter exploration programs in the NPR-A. The environmental protection measures that reasonably apply to the proposed drilling area and associated activities are not substantially different than those applied to these previous exploration programs. Results of BLM field inspections confirmed there were no significant impacts resulting from the FEX authorized winter drilling program during 2005-2006 in the same area as the proposed action. As a result, the current analysis will focus primarily on differences in proposed activities and locations that might result in impacts different from those evaluated in previous NEPA analyses, including cumulative impacts.

⁹ 2003 NW IAP/EIS, Vol. 2, Sec. VI.

¹⁰ BLM in cooperation with US Army Corps of Engineers, EPA, USCG, and State of Alaska. September 2004. Alpine Satellites Development Plan Final EIS, Vol. 2, Sec. 5.

November 24, 2006

Figure 1. Proposed FEX Project Area Map

2 PROPOSED ACTION AND ALTERNATIVES

The proposed project includes exploration drilling at any of nine drill sites (and one previously authorized drill site), using two rigs each season during a two-year winter exploration program in the NW NPR-A. As documented in **Table 3**, Notices of Staking (NOS) were filed, with field inspections performed as required for BLM approval of the FEX surface use plan. A NOS for Aklaqyaaq #1 was originally filed in 2005, with a new NOS and field inspection completed in 2006. Only the nine new drill sites are considered part of the proposed project.

Table 3. Staking and Field Inspection

Drill Site	Notice of Staking date	Field Inspection date
Uugaq #1	8/03/06	8/10/06
Aklaq #3	8/03/06	8/10/06
Aklaq #4	8/03/06	8/10/06
Aklaq #5	8/03/06	8/10/06
Aklaq #6	8/03/06	8/10/06
Aklaq #7	8/03/06	8/10/06
Aklaq #7A	8/18/06	8/10/06
Aklaqyaaq #2	8/03/06	8/10/06
Amaguq #2	8/03/06	8/10/06

A new NOS for previously authorized Aklaqyaaq #1 was filed 8/18/06

Access routes and stream crossings have been identified and field examined. Locations of the drill sites and access routes are depicted on **Figure 2**.

2.1 PROPOSED ACTION

The project proposed by FEX is described below, with main project components summarized in **Table 4**. The drilling locations are approximately 65 miles southeast of Barrow and 150 miles west of Prudhoe Bay. Details are provided in the Applicant's Plan of Operations and Surface Use Program, submitted to multiple agencies including BLM, EPA, ADNR, and NSB.¹¹ The proposed project is similar to exploration programs completed in the NPR-A during the past seven winter seasons (1999/2000 -2005/2006). Therefore, the project description is tiered to the 2003 NW IAP/EIS and the exploration drilling EAs in **Table 2** for description of common project elements.¹²

¹¹ On file with the BLM, Northern Field Office, and the North Slope Borough Planning Department.

¹² 2003 NW IAP/EIS, Vol. 1, Sec. IV.A.1. a.(3) and (5) and Sec. IV.A.1. b (2) and (3); Sec. II/2 of the EAs cited in Table 2.

Table 4. Summary of Proposed Project

Project Component	Program Total
Ice Drill Pads and Wells	Up to 5 drill pads; approximately 42 acres (ac) per season. Up to 27 total penetrations (wells and sidetracks); multiple wells may be drilled from a single pad. More than one drill rig may operate during a single season. Drilling camps on the pad typically accommodate 60-70 people (there may be more than one camp per pad)..
Construction ice pads	May be constructed to support ice construction crews (camps of approximately 36 people) along existing ROW, at least 500 feet from waterbody
Access	Approximately 62 miles of new ice road (148 ac) to access drill pads and water supply lakes from the main ROW (37 miles previously authorized). No new packed snow trail corridor proposed. Snow trails will be constructed in existing authorized corridors.
Ice Airstrip	1 main airstrip (23 ac) per season; smaller lake ice strips as needed.
Water requirement	Up to 113 million gallons (MG) annually for all project components (for 2 yrs)

Mileage/acreage estimated for comparative impact analysis.

2.1.1 Access and Construction

All new drill sites are located south of Cape Simpson, near the eastern boundary of the NW Planning Area. Drill site locations are listed in **Table 5**. These sites are in the same area as drill sites evaluated in 2005.¹³ Approval to drill at any proposed site was requested to accommodate changes in exploration strategy and funding priorities as new data become available.

Table 5. Drilling Locations (All Federal Land)

Name	BLM Lease No.	Section Location (Umiat Meridian)
Uugaq #1	AA085536	T17N, R12W Sec 35
Aklaq #3	AA085573	T15N, R11W Sec 26
Aklaq #4	AA085503	T15N, R12W Sec 26
Aklaq #5	AA085491	T14N, R12W Sec 8
Aklaq #6	AA085517	T16N, R11W Sec 25
Aklaq #7	AA085504	T15N, R12W Sec 13
Aklaq #7A	AA085504	T15N, R12W Sec 12
Aklaqyaaq #2	AA085495	T14N, R14W Sec 10
Amaguq #2	AA085484	T12N, R15W Sec 18

Aklaqyaaq #1 (AA085494; T14N, R14W, Sec. 23) was authorized in December 2005.

¹³ EA: AK-023-06 -003.

Equipment and supplies needed to support the project were barged to Cape Simpson during summer 2006. During winter operations, fuel, supplies and equipment, will be regularly transported by low ground-pressure vehicle (LPV) over snow trail, with some project components and personnel transported by aircraft. A gravel airstrip may be available at Cape Simpson. Temporary ice airstrips are planned for construction each year on frozen tundra or on grounded lake ice with the runway extended onto frozen tundra. BLM will approve the location prior to construction based on site-specific circumstances encountered. Ice airstrips will be constructed up to 5,000 ft x 200 ft to accommodate large aircraft (e.g., C-130) or smaller to accommodate smaller aircraft (e.g., Otter).

Primary access to the drilling areas will be along existing ROW via ice road or packed snow trail, authorized by BLM. However, FEX has proposed several new access segments to more effectively reach new drilling locations and water supply lakes. (See **Figure 2**) Ice roads will be approximately 20 feet wide, but may be wider depending on terrain and equipment requirements). FEX has installed 50 thermistors along the route from Cape Simpson to Aklaqyaaq#1 to collect ground temperature information. This thermistor data will be used by BLM in conjunction with other environmental measurements and monitoring data to determine when conditions are appropriate for winter overland travel.

The proposed new access routes cross channels and tributaries of several major rivers and unnamed streams in the NPR-A. These include Piasuk and Chipp Rivers, three Chipp River tributaries, eight Ikipuk River tributaries, and eight unnamed streams. Previous stream crossing permits were also extended. Typically, an ice bridge is required when ice roads cross major streams and rivers. Crossings with fish habitat must comply with Office of Habitat Management and Permitting (OHMP) requirements for fish protection.¹⁴

Mobilization to the drill sites will proceed when tundra travel conditions allow. To begin construction of local ice roads and pads, LPVs and other all-terrain vehicles (ATVs) may be used to mobilize small camps, equipment, and personnel along packed snow trails. Ice pads for construction support (including camps for 30-40 workers) located along the ROW corridor will be at least 500 feet from waterbodies.

Two crews will construct ice pads at two drill sites. Further ice pad construction will occur as needed, with up to five ice drill pads per winter season. Ice drill pads will be approximately 8 acres in area. Drilling camps for up to 140 people will be housed on a drill pad. It is expected that at least one 5,000 foot-long ice airstrip will be constructed on tundra, with smaller runways on grounded lake ice to support smaller aircraft operations. Ice roads, pads, airstrips and packed snow trails will be constructed and maintained using generally accepted North Slope practices developed over time to protect the tundra and support safe operations.

Two drill rigs may be operating concurrently during each drilling season. One drill rig with ancillary equipment was stored at Cape Simpson after the 2005-2006 drilling season. The second rig will be transported to the site overland from Kuparuk on existing, authorized ROW. Existing ROW will also be used to transport supplies and equipment between Cape Simpson, Camp Lonely, Barrow, Prudhoe Bay, and project sites.

Access to the project location may be controlled for public safety. Typically, signs to this effect are posted by the operator.

The freshwater requirements for constructing project features (ice road/pads construction, maintenance, drilling operations, and camp use) are shown on **Table 4**. The proposed new water source lakes in the NPR-A are listed in **Table 6**, and summarized below.¹⁵

Lake feature:	No.:	Depth:
• Total	34	All > 7 feet
• - With fish	32	
• - Without fish	2	
• Deep water	18	>13.1 feet (all with fish)
• Surface >25 acres	32	

Lake water intake structures will comply with OHMP requirements for fish protection, with screen integrity monitored. FEX has requested approval to harvest ice aggregate from proposed lakes in locations where the water is shallower than 4 feet (i.e., grounded ice), unrestricted by volume limitations (ROP B-2f. See footnote "f" **Table 6**).

¹⁴ Listed waterbodies were permitted for ice road or trail crossing by OHMP on November 2, 2006.

¹⁵ On October 24, 2006, FEX withdrew 7 of the 41 lakes originally proposed for water withdrawal, based on project modification and discussion with OHMP. All 34 NPR-A lakes requested for water withdrawal were permitted by ADNR OHMP October 27, 2006.

Potable water will be hauled from an approved source or taken from local lakes and processed through the

approved water purification system in the drilling contractors' camp.

Table 6. New Water Sources

Lake ID ^a	Town-Ship	Range	Section	Surface Area (acres)	Depth (feet)	Calculated Total Lake Volume (MG) ^c	Volume under 4 ft of Ice (MG)	30% of volume deeper than 5 ft (MG)	15% of volume deeper than 7 ft (MG)	Fish Present ^u	Proposed water use (MG)
M0601	19N	11W	14/23/26	285.5	7.7	553.06	191.65	31.99	0.26	No	191.65
M0603	17N	11W	7/8/17/18/20	696.6	7.3	715.55	153.74	21.56	0.33	Yes - S	0.33 ^f
M0604	17N	12W	27/28/33/34	214.0	12.4	429.94	194.48	43.06	8.01	Yes - S	8.01
M0605	16N	12W	2	150.9	8.3	192.57	44.18	5.81	0.16	Yes - S	0.16 ^f
M0606 ^b	16N	12W	3/4/9	322.9	22.5	1,085.36	693.90	180.79	64.03	Yes - S	64.03
M0607 ^b	16N	12W	8/9/16/17/21	693.2	16.7	1,594.48	782.63	180.96	44.31	Yes - S	44.31
M0608 ^b	16N	12W	21/28	211.9	24.3	391.03	158.31	33.64	6.08	Yes - S	6.08
M0624 ^b	12N	15W	8/9	93.1	7.7	92.67	17.29	1.53	0.00	Yes - S/R	0.00 ^f
M0627	16N	11W	4/5/8/9	448.5	11.2	1,074.42	525.00	119.45	25.13	Yes - S	25.13
M0628	16N	11W	24	17.0	12.1	38.85	19.78	4.74	1.29	Yes - S	1.29
M0629 ^b	16N	11W	25	21.1	14.0	51.33	26.68	6.41	1.78	Yes - S	1.78
M0630	16N	11W	25/36	29.6	13.0	60.39	25.72	5.61	1.23	Yes - S	1.23
M0631 ^b	16N	11W	23/26/27	162.8	23.6	472.67	281.41	71.44	23.36	Yes - S/R	23.36
M0633 ^b	16N	11W	27/34	42.5	24.4	137.61	86.17	22.39	7.99	Yes - S/R	7.99
M0634 ^b	16N	11W	28/29/33	100.2	26.9	270.23	162.06	41.74	14.67	Yes - S	14.67
M0635 ^b	15N	11W	3/4	63.4	23.4	151.20	80.69	19.65	5.72	Yes - R	19.65
M0636 ^b	15/16N	11W	4/5/32/33	127.9	23.9	252.35	109.94	24.70	5.85	Yes - S	5.85
M0637 ^b	15N	11W	3	43.7	16.8	118.95	67.32	16.70	5.05	Yes - R	16.70
M0638 ^b	15N	11W	5/8	43.3	23.1	128.37	78.61	20.25	6.96	Yes - S	6.96
M0609 ^b	15/16N	12W	5/6/29/31/32	532.93	20.6	1,378.25	742.72	180.38	51.64	Yes - S	51.64
M0613	15N	12/13W	18/19/13/24	169.2	12.2	286.14	106.63	21.56	3.02	Yes - S/R	3.02 ^f
M0614 ^b	15N	12/13W	19/30/25	130.3	14.2	275.84	124.04	27.00	4.78	Yes - S	4.78
M0618	14N	14W	10	109.4	8.3	193.14	65.92	11.38	0.23	Yes - R	11.38
M0619	13N	14/15W	7/18/19/12/13/24	488.2	7.5	471.57	90.13	12.33	0.06	Yes - S/R	0.06 ^f
M0620	13N	15W	24/25	218.8	9.2	233.15	62.40	11.64	1.65	Yes - R	11.64
M0621	13N	15W	25/35	235.0	8.7	265.22	75.31	14.56	0.82	Yes - R	14.56
M0622 ^b	12/13N	15W	2/3/35/36	250.1	21.9	337.40	129.88	29.28	7.21	Yes - R	29.28
M0623	12/13N	15W	4/34/35	79.2	7.2	87.45	18.63	2.85	0.03	Yes - S/R	0.03 ^f
M0625 ^b	12N	15W	8	115.9	27.0	192.14	77.54	18.16	5.46	Yes - S/R	5.46
M0626	12N	15W	18	20.0	7.9	24.48	5.82	0.91	0.02	No	5.82
M0639A ^b	15N	11/12W	7/1/12	175.8	14.5	286.26	95.56	18.00	1.98	Yes - S	1.98 ^f
M0640 ^b	15N	12W	14	191.5	15.4	471.25	247.58	59.08	15.59	Yes - S	15.59
M0641 ^b	15N	11W	23/26/35	137.1	16.4	254.95	97.47	20.30	4.17	Yes - S/R	4.17
M0642	15N	11W	26	77.4	12.9	137.43	47.91	8.83	0.67	Yes - S/R	0.67 ^f

- Source: Moulton, 2006 fieldwork. Lake location maps on file at ADNR and BLM.
- Deep water lakes are defined as lakes deeper than 4 m (13.1 feet). Some are not designated on 2003 NW IAP/EIS, Map 11 as deep water lakes, but during field investigations were measured at greater than 13 feet. BLM considers these deep water lakes.
- MG = million gallons
- No = No fish caught; Yes = fish present during survey; S = Sensitive fish species; R = Resistant fish species
- Proposed maximum withdrawal based on 15% of winter volume deeper than 7 feet when sensitive species are present, 30% of winter volume deeper than 5 feet when only resistant fish are/are likely to be present; and unlimited volume when no fish are present.
- Ice aggregate removal has been proposed for all lakes. Total proposed withdrawal of water as free water and/or ice chips exceeds the 15/30% rule (ref. ROP B-2).

2.1.2 Drilling Operations and Support

Ancillary facilities include camps to support drilling and ice construction, pump houses on water sources (lakes), light plants near pump houses and along ice roads, and a warm-up shelter near the airstrip, if needed. A dish antenna or a 75 foot-high portable antenna will be used to support communications.

The proposed drilling and testing operations will be used to determine future drilling plans in the project area, and may lead to future seismic or drilling activity. Drilled wells will be temporarily suspended or plugged and abandoned prior to end of the winter drilling season.¹⁶ When operations are completed, the drill rig will be transported out of the project area. For drilling multiple years, the rig may be stored over-summer at Cape Simpson, or at another suitable storage location. Data for vertical seismic profiles (VSP) may be collected in the vicinity of the well.

Storage of diesel fuel and crude oil (for wells that are tested) will be stored in bladders or tanks, contained in lined, bermed storage areas on ice pads. Fuel may be stored at airstrip locations, but not on lake ice.

2.1.3 Waste Management

The FEX NPR-A waste management plan will conform to State and Federal requirements. Waste management will include onsite incineration. Non-burnable wastes will temporarily be stored on site and then hauled to an approved disposal facility. Drilling wastes will be temporarily stored on-site, pending down hole disposal on site or at another approved facility. Crude oil and other produced fluids from production testing will be stored in tanks within containment and then re-injected or hauled out of the NPR-A for processing at an approved facility. Domestic wastewater will be processed and discharged under North Slope NPDES General Permit AKG-33-0000.

2.1.4 Air Emissions

FEX will operate under the ADEC Minor General Permit 1 (MGP1) implementing a public access control plan, with entry by unauthorized personnel restricted, as required during the project period. The potential for hydrogen sulfide (H₂S) release will be evaluated prior to onsite drilling work. Measures and precautions associated with H₂S are addressed in the APD filed with BLM. Produced gas will be flared in accordance with the ADEC air permit requirements.

¹⁶ Drilling process described in NW IAP/EIS, pp. IV-53 and 54.

2.1.5 Contingency Plans

Applicant contingency plans are described below.

Oil Discharge Prevention and Contingency Plan (ODPCP or C-Plan)

The Applicant is required to have oil spill response measures in place to meet Federal and State requirements. For the proposed activity, FEX must have a site-specific ODPCP approved by ADEC, which is considered sufficient to meet BLM requirements.¹⁷ Additionally, BLM inspects the wells and pads during construction and drilling.

The FEX ODPCP that was approved in 2005 has been modified to include the nine new drill sites and access routes.¹⁸ As summarized below, elements of the 2006 amended plan are essentially the same as those previously evaluated in EA: AK-023-06-003.

Under ADEC regulations, the worst case response planning standard (RPS) is a blowout of 5,500 barrels of oil per day lasting 15 days. Such a release is considered to be exceedingly unlikely. Based on required modeling, a blowout would distribute oil in a triangular plume extending southwest of the well. The model shows that up to 80 percent (%) of the oil discharged would fall within 648 feet of the well. The remainder of the oil would fall to the frozen ground in a very thin layer up to a distance of 4,510 feet from the well. In a typical scenario, 10% of the oil does not hit the ground.

A zone with a 1-mile radius around each drill site has been examined to identify sensitive areas that could be affected in the unlikely event of such a blowout (see **Table 7**).

The Applicant's approved ODPCP, along with approved spill control equipment and supplies, will be kept on site. Response equipment will also be staged at Cape Simpson. Phone service will be available 24 hours a day at the drilling camp. When needed, FEX will call on resources of other North Slope operators through Alaska Clean Seas (ACS), Mutual Aid, spill response cooperatives, and contractors, as available.¹⁹

¹⁷ Substances addressed in the October 2005 FEX Oil Discharge Prevention and Contingency Plan (ODPCP), Plan No. 054-CP-5118, include fuel, crude oil, produced water, drilling fluids, glycol, ethylene glycol, methanol, sewage, and brine. p 1-31.

¹⁸ Amendment to Plan No. 054-CP-5118 was submitted to ADEC in October 2006.

¹⁹ Plan No. 054-CP-5118 is available at ADEC.

Table 7. Areas Potentially Affected by Blowout

Drill Site	Sensitive Area within 1 mile of drill site ^a
Uugaq #1	Unnamed stream; deep water lake, Caribou Study Area
Aklaq #3	Ikpikpuk River; Caribou Study Area, Teshekpuk Lake Special Area
Aklaq #4	Caribou Study Area
Aklaq #5	Deep water lakes; >25 acre lake (yellow-billed loon high density habitat area); Alaktak River; Caribou Study Area
Aklaq #6	Unnamed stream; Caribou Study Area; Teshekpuk Lake Special Area
Aklaq #7	Deep water lakes; >25 acre lakes (yellow-billed loon high density habitat area); Caribou Study Area
Aklaq #7A	Deep water lakes; unnamed stream; Caribou Study Area
Aklaqyaaq #2	Chipp River; unnamed stream; deep water lake
Amaguq #2	Topagoruk River; deep water lake

^a All areas used for subsistence purposes

No drilling will begin until the well pad is fully constructed and accessible by packed snow trail or ice road; the period of active drilling is subject to seasonal restrictions set in the ODPCP. FEX proposes to cease drilling operations by April 21st of the exploration season.

Spill Prevention Control and Countermeasures (SPCC) Plans

An SPCC Plan provides guidelines for pollution prevention and addresses secondary containment. The drilling contractor will have an SPCC Plan for fuel storage facilities, and the well testing contractor will have an SPCC Plan for its testing tanks.

Wildlife Protection and Encounter Plans

The Applicant has a Bear and Pacific Walrus Avoidance and Human Encounter/Interaction Plan (September 2006). This, along with the required Subsistence Plan, will provide appropriate wildlife protection measures. FEX will also have an approved orientation program, required for all personnel working in the NPR-A, to increase awareness of related environmental, social, and cultural concerns. Project personnel will be instructed not to feed wildlife or attempt to attract, harass or hunt them at drill sites or along transportation routes.

Other Plans

FEX will have Environmental Health and Safety Policies and Procedures Manuals and Emergency Response Plans available at the facilities. FEX will also have an established Incident Management Team (IMT)

on call 24 hours a day. Contractors and employees will complete an 8-hour North Slope environmental and safety training program in addition to specialized training as required.

2.1.6 Operations and Maintenance

The proposed schedule calls for mobilization and ice construction to begin as soon as required authorizations and weather conditions allow, with drilling from ice pads expected to begin in January 2007. Operations and maintenance plans for roads and pads are similar to those previously evaluated and incorporated by reference.²⁰

2.1.7 Abandonment and Restoration

Upon completion of drilling operations, all equipment and supplies will be removed and ice surfaces cleaned. Dirty ice will be melted; water will be filtered with a scrubber, and then discharged under North Slope NPDES General Permit AKG 33-0000. Ice road and pad sites will be inspected at demobilization and again after snowmelt to insure proper cleanup. Wells are planned to be plugged and abandoned prior to the end of the winter drilling season. Well suspensions, if needed, will comply with applicable BLM and Alaska Oil and Gas Conservation Commission (AOGCC) regulations. Final site closure will be approved by all appropriate agencies. Well heads left in place will be covered to prevent attracting wildlife.

2.1.8 Community Relations

FEX has developed a program to address issues with the local communities, regulatory agencies, and special interest groups. BLM and FEX have conducted a series of community meetings and consultations with residents of potentially affected communities, as noted in Sections 1.5 and 5.1. In addition to meetings when needed, FEX will keep the public informed in a variety of ways, including newsletters, radio and television announcements, and reports from local subsistence observers employed by FEX.

Cultural and Paleontological Resources

New road and pad locations were selected to avoid known archaeological and cultural resources and traditional land use sites. FEX conducted a cultural and paleontological resources survey at pad locations and along new access corridors. The routing shown is approximate and may be altered in the field due to terrain, stream crossing conditions, or wildlife. Any re-routing outside the corridor that has been examined for

²⁰ EA: AK-020-00-011, Sec. II.A.1, II.A.3 and II.A.9.

cultural and paleontological resources will require site specific authorization by BLM.

Subsistence

The project area is recognized as a subsistence use area, particularly for Atkasuk, Nuiqsut, and Barrow,²¹ and many of the public meetings and consultations have included discussions on subsistence. Under the 2004 ROD, prospective operators in the NPR-A are required to consult with local communities and develop a Subsistence Plan to prevent unreasonable conflicts between subsistence use and exploration activities. FEX community consultations are described in Section 5.1, and FEX has submitted a Subsistence Plan of Cooperation to BLM (September 2006). The Applicant also plans to continue consultation with subsistence users and implement mitigation measures as necessary.

The Applicant has presented plans to the NPR-A SAP; ICAS; NSB; and the Alaska Eskimo Whaling Commission (AEWC). Traditional Knowledge, including subsistence-related advice, was shared by Native Elders in meetings. Mr. Arnold Brower Sr. was hired as a Traditional Knowledge Consultant to examine the project area. Data from those consultations is considered in Section 4.

Prior to issuing development permits, the NSB solicits public review including State and Federal agencies, local officials, residents, and private property owners. In 2006, the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) authorized barging activities from the Prudhoe Bay West Dock to Cape Simpson or Point Lonely after publication in the Federal Register and public review. FEX also completed a Conflict Avoidance Agreement with the AEWC and the NSB.

Economic Opportunity

The FEX employment process places a priority on local hire, and will insure that NSB residents are provided with economic opportunities.

2.2 POSSIBLE FUTURE ACTION

Exploration drilling is the only reliable method of verifying the presence of oil, but drilling may or may not result in discovery of potentially producible resources. If a discovery is made, it typically takes an additional 4 to 10 years for further study, design, and installation of facilities before production can begin. Each phase of decision-making requires additional site

²¹ 2003 NW IAP/EIS, Vol. 3, Map 66.

specific environmental review and potential mitigation and additional environmental protection measures.

BLM regulations provide the option of deferring plans for proposed facilities. Based on the uncertainties associated with wells to be drilled in the proposed program, FEX has elected to defer planning for future facilities. Potential field development in and around the NPR-A has been discussed in previous evaluations incorporated by reference.²²

The area likely would be developed and operated in a manner similar to that recently approved for the Alpine Satellite Development Project, incorporating relevant design and environmental protection measures required by the 2003 NW IAP/EIS and the associated ROD.

2.3 ALTERNATIVES

This EA is tiered to the broader alternatives analyzed in the 2003 NW IAP/EIS and to more specific alternatives evaluated in exploration EAs, as discussed below.²³

The 2003 NW IAP/EIS evaluated a defined exploration model, and developed extensive, site-specific protective measures for that concept. As a result, the 2004 ROD includes stipulations and ROPs that substantially limit the range of alternatives.

The proposed action is to authorize additional FEX drilling exploration wells from ice drill pads on specific oil and gas leases in the NW NPR-A and access to lakes and ice airstrips (as summarized in **Table 4.**). This proposed approach, along with BLM's standard environmental protection requirements, significantly limits alternatives for the location and timing of exploration activities. Therefore, only a few alternatives to the proposed project are possible.

Alternatives to the proposed project are evaluated at several levels: alternatives considered, but eliminated from detailed analysis; functional alternatives; and the no action alternative. In summary, all but two alternatives were eliminated because they do not meet the purpose of the proposed action, fail to reduce environmental impact or provide an environmental advantage, or are technically infeasible or unreliable.

²² 2003 NW IAP/EIS, Vol. 1, Sec. IV.A.b.4, and ASDP FEIS, Vol. 1, Sec. 2.2.2 and Sec. 2.2.3 and Vol. 2, Sec. 4.G.4.4.

²³ 2003 NW IAP/EIS, Vol. 1, Sec. II and EA's cited in Table 2, Sec. II.C/2.3, Alternatives.

2.3.1 Alternatives Considered but Eliminated from Detailed Analysis

Some alternatives considered but eliminated from detailed analysis have been described in previous evaluations. One of these alternatives involves a constructed water supply to eliminate water withdrawal from multiple fish-bearing lakes, which is still under consideration by BLM.²⁴

Another alternative initially considered in this EA involves drilling to different target locations from a single ice pad (i.e., directional drilling). This alternative might be technologically feasible for extended reach drilling to multiple targets from a single location (e.g., drilling from Aklaq # 7 instead of Aklaq #7A or Aklaq #4). Relocating or using a centralized drill pad outside “no permanent facility zones” was also considered because it could be accomplished with extended reach drilling. However, extended reach drilling methods are rarely employed for exploration wells when practicable alternatives are available because it would adversely affect data collection. Limitations of this alternative have been previously addressed.²⁵ In summary, drilling a vertical well provides far better exploration data than drilling a deviated well, and there appears to be no environmental advantage to altering the proposed winter exploration plan accordingly. Therefore, this alternative was eliminated from further analysis.

A third alternative considered but eliminated from detailed analysis was barging equipment via Smith Bay rather than Cape Simpson (i.e., shorter overland route). The associated need for shore-based storage facilities and substantial new disturbance of nesting and brooding waterfowl habitat in deltas of the Piasuk or Ikpikpuk rivers during the ice free season eliminated this alternative from further consideration. Access via a sea ice road from Smith Bay (i.e., shorter overland route) was also considered and rejected due to unstable ice in the river delta areas.²⁶ Peard Bay has an existing barge landing, airstrip, and connecting road. However, this site was also eliminated from detailed analysis because it would require a longer overland route and longer barge transport (to Prudhoe Bay) through whale migration routes.

Other alternatives previously considered, but rejected from further consideration in this EA include primary access by air, packed snow trail or ice road only.²⁷ Primary access by aircraft and/or packed snow trail

would eliminate the requirement for water for ice road construction (1-1.5 MG/mile); however there are other impacts associated with both alternatives. Primary access by aircraft would substantially increase the number of flights required, with the associated noise and visual impacts. Additionally, only a small number of drill rigs can be transported by air, which limits the number of wells that could be drilled in any one year. Even with some use of LPVs via snow trails, logistical support (e.g., crew changes, material supply, waste haul) and emergency response would depend primarily on the availability of aircraft and flight conditions (e.g., weather).

Primary access by packed snow trail requires a drill rig that can be broken down to loads transportable by LPV, Approximately 200-260 modules traveling in 20-25 trains would be required for most mobilization and demobilization efforts, limiting the number of wells that could be drilled during any one season. Even with some use of aircraft, logistical support and emergency response would depend on the availability and limitations of LPV use. Due to the availability of appropriate LPVs and the time required for LPV travel, the need for local storage would increase, and pad sizes would likely be larger.

For flexibility, the proposed project includes a combination of access via barge, air, ice road, and/or packed snow trail. The applicant has proposed to use/share previously authorized ROW corridors to points of common destination. Previous winter exploration EAs have evaluated these alternatives and found that none of them would result in significant adverse direct, indirect or cumulative effects; and that none of them offer a distinct environmental advantage over the others.²⁸

Also considered was the option for shared access corridors when no ice road would be constructed (i.e., LPV use only). Protective measures in the 1998 ROD and 2004 ROD and field verification of previous LPV use resulted in no significant impacts. Therefore, this option was not carried forward because it offered no distinct environmental advantage over the proposed project.

No unusual factors are present that would make exclusive use of air, ice road or hardened LPV trail more environmentally viable for the FEX exploration plan, which incorporates all of these transportation modes.

²⁴ EA: AK-023-02-005, p. IV-27.

²⁵ EA: AK 023-04-004, p. 2-6.

²⁶ EA: AK-023-03-008, pp. 4-25 and 4-26.

²⁷ EA: AK-023-00-011, p. II-12.

²⁸ EA: AK-023-03-008, p. 4-26; AK-020-00-011, pp. IV-26 and IV- 27, and Table 12; and AK-023-01-001, pp. IV-28 – IV-32,.

In summary, these action alternatives to the proposed project were eliminated because they do not meet the purpose of the proposed action, are technically infeasible or unreliable, fail to reduce environmental impact or provide an environmental advantage, or fail to comply with the stipulations and ROPs of the NE and NW RODs.

2.3.2 Alternatives to the Proposed Action

Based on limitations imposed by lease stipulations and ROPs and the flexibility included in the proposed project, only two alternatives warrant further detailed consideration at this time: shared use of ice roads/ice airstrips in the project area and “no action”.

Alternative 1 – Shared Ice Road/Airstrip

In the future, if another applicant proposes activity in the same general area, shared facilities such as ice roads and ice airstrips would be considered as a way to reduce environmental impacts (e.g., water use, footprint). Both CPAI and Petro Canada have staked potential drill sites in the general vicinity of the FEX project area. At present, no related applications have been submitted; however another exploration may be proposed concurrent with proposed FEX activity.

Alternative 2 –No Action

Under the no-action alternative, exploratory drilling under FEX existing valid oil and gas lease would not be allowed. FEX permit applications to BLM would be denied, and no access, drilling, or drilling support activities would occur on Federal lands in the NW NPR-A, and no access via the NE NPR-A would occur.

November 24, 2006

Figure 2. Proposed Drill Sites & Access

3 AFFECTED ENVIRONMENT

The proposed NPR-A exploratory drilling operations has the following geographic features:

- Ice drill pads, ice airstrips, ice roads, and water supply lakes, all in the NW Planning Area
- The proposed drill pads are located inland between Admiralty Bay to the west/northwest and Smith Bay to the east/northeast
- Access corridors cross lands in the NW Planning Area.

Several project components involve areas with special designations and restrictions in the NPR-A. NPR-A sensitive areas associated with drilling sites are listed in **Table 7**. Access routes cross the Teshekpuk Lake Special Area, as well as tributaries and channels of the Chipp, Piasuk, and Ikpikpuk rivers, and eight unnamed streams, and near several deep water lakes with permanent facility setbacks. Winter exploration drilling and associated access is permitted in these areas.²⁹

All authorized ROWs with associated stream crossings, including those previously evaluated and authorized for other NPR-A exploration programs, may continue to be used during the proposed two-year exploration program.

3.1 PHYSICAL CHARACTERISTICS

Proposed activities will take place on the Arctic Coastal Plain, where temperatures average below freezing for eight months of the year. A dramatic change to higher temperatures and longer day length occurs during the other four months. Annual precipitation is low, averaging 8 inches per year, with more than half falling as snow. Snow cover is typically established in late September - October and disappears late May - mid June.

Recent changes in weather patterns reduced the winter exploration season from 208 days (1970) to 103 days (2002).³⁰ North Slope air quality exceeds the National Ambient Air Quality Standards and State of Alaska air quality regulations. Concentrations of regulated air pollutants are far less than the maximum allowable

levels.³¹ Prevailing winds blow cold air from the Arctic Ocean.

Topography is generally flat to gently rolling, dominated by permafrost-related geomorphic features, including polygonal patterned ground, shallow lakes, and extensive areas of wetland interlaced with small, meandering streams.

Surficial deposits of the general area are marine silts and sands, aeolian sands, and outwash gravels, with permafrost ranging from 650 to 1,330 feet deep. The active thaw layer is typically 1 to 2 feet deep. Soils are shallow, poorly drained, and constantly wet. There are undulating and rolling sand dunes, especially in areas bordering the floodplains of major streams and some larger lakes. Most of the dunes are stabilized by vegetation, though some dunes adjacent to streams are active.

FEX has identified 34 new lakes for water withdrawal in NPR-A (see **Table 6**). The volume authorized depends on depth and habitat value for fish. Ice aggregate may be removed from grounded ice on any approved lake. Water quality data from potential sources are within the general ranges of water quality discussed in the 2003 IAP/EIS and reviewed by BLM in previous analyses. Conductivity measurements taken in potential water sources range from 43 – 286 microSiemens (or micromhos; μmhos) per centimeter are well under 4,000 μmhos per centimeter, which is the accepted OHMP limit for water used on tundra.³²

Several active oil seeps in the general drilling area led to establishment of the Petroleum Reserve in 1923. Since then, 37 Federal wells/borings have been drilled near the project area to obtain geologic data for evaluation of the petroleum source rock potential.³³ The general relation of the project area to existing oil and gas fields on the North Slope is shown on **Figure 3**.

3.2 BIOLOGICAL RESOURCES

Biological resources in the project area within the NPR-A are described in the 2003 NW IAP/EIS,³⁴ as well as in previous BLM assessment documents. Key elements are discussed in more site-specific detail below.

²⁹ 2003 NW IAP/EIS, Vol. 3, Maps 18 & 89; 2004 ROD, Map 1.

³⁰ G. Schultz, ADNR. Tundra Access Symposium, sponsored by AOGA, ADNR, and BLM. October 7, 2003.

³¹ 2003 NW IAP/EIS, Vol. 1, p. III-43.

³² Pers. Comm. Jack Winters, OHMP. October 5, 2005.

³³ USGS Professional Paper 1399, p. 523.

³⁴ 2003 NW IAP/EIS, Vol. 1, Sec. III.B.

3.2.1 Vegetation

The project area is located in the Arctic Coastal Plain, which is generally characterized as a mosaic of tundra wetlands with low relief. However, even small-scale relief features can influence vegetation patterns. Land cover in the NW Planning Area has been mapped by BLM in cooperation with Ducks Unlimited, NSB, and USFWS. Land cover is classified into the 17 cover types, shown in **Table 8**, with the percent cover in the Planning Area.³⁵

Table 8. Land Cover in the NW NPR-A

Land Cover Category	% cover
WATER:	
Ice	2.3
Clear Water	7.6
Turbid Water	6.8
AQUATIC:	
<i>Carex Aquatilis</i>	2.0
<i>Arctophylla fulva</i>	0.6
FLOODED TUNDRA:	
Flooded Tundra LCP (LCP = low centered polygons)	5.9
Flooded Tundra NP (NP= non patterned)	4.0
WET TUNDRA:	
Wet Tundra	6.4
MOIST TUNDRA:	
Sedge Meadow	6.6
Tussock Tundra	23.5
Moss Lichen	1.7
SHRUB:	
Dwarf Shrub	27.0
Low Shrub	4.1
Tall Shrub	0.0
BARREN GROUND:	
Sparsely Vegetated	0.3
Dunes / Dry Sand	0.4
Barren Ground / Other (e.g., clouds)	0.7

The inventory of ground cover in the project area, as shown on Figures 1 and 2, and summarized in Table 9, shows a variety of vegetation types present. The proposed project would occupy approximately 23 acres for the ice airstrip and 75 acres for the nine drill sites. The 62 miles of new primary access corridor cleared for paleontological and cultural resources has a total area of approximately 20,915 acres. However, the actual footprint of the selected ice road route will occupy approximately 148 acres (less than 1%) of the total corridor.

Flooded tundra-LCP dominates the proposed drill site locations, with smaller associations of moss lichen, flooded tundra-nonpattern, and tussock tundra.

³⁵ 2003 NW IAP/EIS, Vol.3, Table III-06.

Flooded tundra-LCP also is the dominate vegetation along the access corridor, followed by tussock tundra and lesser amounts of moss lichen, wet tundra, flooded tundra-NP, clear water and turbid water.

There are no known Federally-designated Threatened or Endangered plants in the project area. Several plant species within the project area are considered to be rare or sensitive, which can include species with small or declining populations and species for which there is little information or plant survey. A review of the Alaska inventory indicated that rare plants potentially present have been previously considered for impact of exploration drilling activity.³⁶ No further vegetation survey was required for the proposed project because no ground disturbing activity is expected, except for *de minimis* disturbance (approximately 0.0006 acre) at each completed well cellar.

3.2.2 Fish and Wildlife

Fish found within the area of the proposed action include Pacific salmon, lake trout, arctic char, arctic grayling, Alaska blackfish, northern pike, longnose sucker, whitefish species, burbot, slimy sculpin, arctic lamprey, ninespine stickleback, and possibly threespine stickleback. Nearly all species may utilize lakes as well as streams and rivers.³⁷ Fish most likely to inhabit streams crossed by new elements of the project include: anadromous whitefish, resident arctic grayling and ninespine stickleback. In the lakes surveyed for water withdrawal, the following species considered sensitive to water withdrawal were found: broad whitefish, least cisco, arctic grayling, and northern pike. Ninespine stickleback and Alaska blackfish were also found in these surveys; these fish are considered more resistant to water withdrawal.³⁸

The Applicant surveyed new lakes proposed for water withdrawal and/or ice harvesting (see **Table 6**). All but two lakes have fish (broad whitefish, least cisco, Arctic grayling, northern pike, ninespine stickleback, and Alaska blackfish). Fish habitat protections apply to all water with fish or fish habitat. These include limitations on the amount of water and ice aggregate that can be removed; deep water lakes also have setback requirements for permanent facilities.

³⁶ Alaska Natural Heritage Program List, available at <http://aknhp.uaa.alaska.edu/rareguide/rarelist.html>; September 8, 2006, and EA: AK-023-03-008, p. 3-5.

³⁷ 2003 NW IAP/EIS, Vol. 1, pp 54-56.

³⁸ OHMP Title 41 permits, November 2, and October 27, 2006.

Table 9. Land Cover Types at Proposed Drill Sites, Airstip, and Access Corridors (Units = acres)

	<i>Carex aquatilis</i>	Flooded Tundra - LCP	Flooded Tundra - NP	Low Shrub	Moss Lichen	Sedge/Grass Meadow	Turbid Water	Tussock Tundra	Wet Tundra	Total
Drill Site:										
Uugaq #1	0	5.2	1.8	0	0.9	0	0	0.2	0.2	8.3
Aklaq #3	0	2.1	2.1	0	3.3	0.2	0	0	0.5	8.2
Aklaq #4	0	2.9	0	0	4.9	0.2	0	0	0.2	8.2
Aklaq #5	0	7.3	0.7	0	0	0.1	0	0	0.2	8.3
Aklaq #6	0	4.1	3.2	0	0.7	0	0	0	0.3	8.3
Aklaq #7	0.3	2.8	0.1	0	4.3	0.2	0	0.2	0.2	8.1
Aklaq #7A	0.8	5.9	0.2	0	1.0	0	0.3	0	0	8.2
Aklaqyaaq #2	0	5.0	1.0	0	1.6	0.3	0	0	0.5	8.4
Amaguq #2	0	0.1	0	0.1	0	0	0	8.0	0	8.2
Total	1.1	35.4	9.1	0.1	16.7	1	0.3	8.4	2.1	74.2

Source:

Blue Skies Solutions. 2006. Acres computer-calculated using BLM/Ducks Unlimited digitized \vegetation association map.

See **Figure 2** for location of new ROW segments.

Notes:

LCP = Low-centered polygons; NP = Non patterned; Ice Road corridor approximately 0.5 miles wide.

All numbers are approximate.

Drill site totals differ due to rounding.

	<i>Arctophylla fulva</i>	Barren Ground/Other	<i>Carex aquatilis</i>	Clear Water	Dunes/Dry Sand	Dwarf Shrub	Flooded Tundra - LCP	Flooded Tundra - NP	Ice	Low Shrub	Moss Lichen	Sedge/Grass Meadow	Sparse Vegetated	Turbid Water	Tussock Tundra	Wet Tundra	Total
Ice Airstrip	0	0.2	1.2	0	0	0	8.0	3.7	0	0	7.1	0.5	0	0.6	0	1.6	22.9
Corridor:																	
Segment 1 (21.9 miles)	41.5	36.4	376.9	491.6	56.2	2.2	2635.1	602.5	0.7	75.3	773.2	197.7	33.2	500.4	575.2	703.5	7101.6
Segment 2 (3.2 miles)	6.8	55.3	20.2	9.0	10.7	14.0	211.6	14.7	0	0.7	41.1	101.7	10.8	77.9	503.2	77.7	1155.4
Segment 3 (7.9 miles)	6.8	31.5	121.3	225.8	7.1	0	1188.0	180.2	0	28.2	425.4	30.3	5.1	188.6	48.9	111.5	2598.7
Segment 4 (8.1 miles)	8.3	23.2	189.1	213.1	119.5	0	1006.6	209.2	0	12.5	476.9	35.8	44.6	197.1	20.1	134.2	2690.2
Segment 5 (3.0 miles)	2.5	9.5	60.0	52.8	8.7	0	459.1	83.1	0	4.0	283.1	15.2	5.8	57.8	11.6	49.7	1102.9
Segment 6 (2.4 miles)	2.5	0.9	46.5	79.6	0	0	364.0	66.6	0	0.7	189.4	12.8	0.4	67.5	8.5	41.0	880.4
Segment 7 (2.0 miles)	1.4	1.3	46.3	10.0	0	0	296.9	51.4	0	0.5	61.6	67.6	0	58.5	55.9	124.1	775.5
Segment 8 (1.7 miles)	2.0	0.2	24.7	82.8	0	0	156.4	50.4	0	8.5	64.9	37.8	0	28.4	103.1	103.3	662.5
Segment 9 (0.4 miles)	0	0	2.3	21.9	0	0	12.2	6.9	0	3.1	10.5	17.4	0	25.5	111.1	55.8	266.7
Segment 10 (9.9 miles)	12.2	0.7	58.1	144.6	0	6.8	268.1	103.1	0	207.6	55.2	82.4	0.7	169.1	1951.8	235.0	3295.4
Segment 11 (0.8 miles)	3.3	0.2	48.8	69.2	0	0	134.0	45.3	0	1.6	36.8	1.6	0.8	19.8	1.6	22.8	385.8
Total	87.3	159.2	994.2	1400.4	202.2	23	6732	1413.4	0.7	342.7	2418.1	600.3	101.4	1390.6	3391.0	1658.6	20915.1
Grand Totals	87.3	159.4	995.4	1400.4	202.2	23	6740	1417.1	0.7	342.7	2425.2	600.8	101.4	1391.2	3391.0	1660.2	20938

During the winter months of project operation, avian populations of special interest (e.g., eiders, brant, yellow-billed loons, other waterfowl, and shorebirds) are generally absent from the North Slope. Birds that may be present during winter include owls, ravens, ptarmigan, and possibly gyrfalcon. Steller's eiders and spectacled eiders are listed as Threatened under the Endangered Species Act. However, neither species is present during winter, is known to be habitat-limited on the North Slope, or has designated critical habitat on the North Slope.³⁹

A portion of the drilling area is designated as high density use habitat for yellow-billed loon, a species of special status to BLM with special requirements for permanent facilities; however, they are not present during the winter.⁴⁰ Recent studies note that yellow-billed loon broods depend on fish available and in the brood rearing lake, and suggest that a dependable supply of fish is more likely in larger lakes, those deep enough to have open water under winter ice, and those near streams.⁴¹

Drill sites Aklaq # 5 and Aklaq #7A are within 1 mile of a lake larger than 25 acres, where multi-year data on yellow-billed loons must be collected before development can be authorized. Eighteen lakes proposed as sources of water supply are larger than 25 acres and are located within the area designated in the NW IAP/EIS (Map 37) as high/medium high density nesting habitat. Approximately 10 of those are "deep water lakes" (i.e., deeper than 4 meters or 13.1 feet).

Brant are also identified as species requiring study before development (Brant Survey Area, Map 1 and ROP K-4 of the 2004 NW ROD). The route south from Cape Simpson is also within the "Brant Survey Area," where new multi-year data on brant must be collected before development can be authorized. No proposed water supply lakes or drill sites are within the brant brood-rearing habitat, as shown on Map 90 of the NW IAP/EIS or in the Brant Survey Area, as shown on Map 1 of the ROD. Other sensitive bird species may occur in the project area, but not during winter months.⁴²

The bowhead whale is listed under the Endangered Species Act. The proposed project involves barging

from Cape Simpson or Camp Lonely. The 2003 NW IAP/EIS notes that several whales were found between Dease Inlet and Smith Bay near the shoreline during the survey by MMS in 2000.⁴³ In 1989, three bowhead whales were harvested within three miles of Cape Simpson.⁴⁴

Mammalian wildlife species that may be present during winter include: Arctic fox, red fox, rodents, weasels, wolverine, over-wintering caribou, and possibly moose and musk ox. Though not common, wolves also may be present. Polar bear and caribou are large mammals of special interest. Polar bears are not expected in the project area. It is noted, however, that a near-shore sea ice road/trail would involve an area where dens and sightings have been documented.⁴⁵ Brown bears typically hibernate in dens throughout winter, although occasionally individuals could be encountered during early or late phases of project activity. Brown bears tend to den in river and lake banks, sand dunes, pingos, and gullies.⁴⁶ No active bear dens are known to occur in the project area. The applicant has consulted with ADF&G and USFWS to stay updated on location of bear sightings and active dens.

The proposed project area is located within the "peripheral range" of the Western Arctic Herd (WAH) caribou and "winter range" of the Teshekpuk Lake Herd (TLH) caribou.⁴⁷ BLM has designated lands in the vicinity of the proposed winter drilling area as a "Caribou Study Area" where new multi-year data on caribou use must be collected before development can proceed. The focus of these caribou studies is on avoiding conflicts with caribou movement to insect-relief habitats through the July 1-15 mosquito season and the July 16 - August 7 oestrid fly season.⁴⁸ No concentrated calving areas are associated with the project area and there are no designated caribou migration corridors affected.

Most of the TLH caribou begin migrating from winter ranges to the Teshekpuk Lake area during May. By early June, most cows move to calving areas around the lake, with calving from late May to late June. After calving, most caribou move north of the lake.⁴⁹ Actual timing of spring migration varies from year to year. Along authorized access routes in the NE NPR-A, stipulations protect caribou resources primarily by timing restrictions on activity to avoid disturbance during spring migration.

³⁹ FR Vol. 66, No 23, p.8879. February 2, 2001 (Steller's eider); FR Vol. 66, No. 25, p. 9177. February 6, 2001. (spectacled eider).

⁴⁰ 2003 NW IAP/EIS, Vol. 3, Map 37; 2004 ROD, p. 11.

⁴¹ Earnst, Susan L, et al. *Hydrobiologia*, Vol 567, No. 1. September 2006, pp 227-236, as abstracted on <http://www.springerlink.com/content/a277141584w8g327/>.

⁴² 2003 NW IAP/EIS, Vol. 1, p. II-6.

⁴³ 2003 NW IAP/EIS, Vol. 1, p. III-82.

⁴⁴ 2003 NW IAP/EIS, Vol. 3, Map 75.

⁴⁵ 2003 NW IAP/EIS, Vol. 3, Map 51.

⁴⁶ 2003 NW IAP/EIS, p. III-74.

⁴⁷ 2003 NW IAP/EIS, Vol. 3, Map 47.

⁴⁸ 2004 NW ROD, p. 6.

⁴⁹ 2003 NW IAP/EIS, Vol. 1, p. III-71.

3.3 SOCIOECONOMIC RESOURCES

Related socioeconomic resources are described in detail in the 2003 NW IAP/EIS and the 1998 NE IAP/EIS documents, which are incorporated in their entirety. Tiered BLM assessments have focused on additional issues relevant to proposed exploration activity on leases issued under the associated RODs.⁵⁰

National energy needs and U.S. dependence on foreign oil are key issues in authorizing exploration. The increasing reliance on foreign-produced oil is a challenge to U.S. security. Last year, damage to Gulf of Mexico production platforms caused by Hurricanes Katrina and Rita demonstrated the vulnerability of the Nation's major source of domestic oil and gas. The current political climate in the world is a continuing issue as other nations increase their own use of oil and gas, which in turn impacts the availability of imported oil and gas resources needed to supplement the domestic supplies of oil and gas.

The proposed drilling sites are located in a region considered to have a "high probability for occurrence of economic oil and gas fields."⁵¹ The proposed action would authorize exploratory drilling on Federal leases issued in this area.

The economies of the State and the NSB are heavily dependent on oil and gas revenues. Economic resources include lease bonuses and rentals, production royalties, corporate income taxes, NSB property taxes, and employment, as previously described and incorporated by reference.⁵²

Residents of Atkasuk and Barrow use the general drilling area for subsistence, which is also important to the local economy.⁵³ Nuiqsut subsistence use areas are typically more to the east and would be crossed by proposed access corridors which have been previously evaluated and authorized. Subsistence activities, particularly hunting and fishing, are exceedingly important to local residents, who are primarily Iñupiat – the Native people of Alaska's North Slope. These activities are central to the Iñupiat ages-old cultural system, providing critical sustenance for people who

reside off Alaska's road network and are not connected to the nation's food-distribution system.⁵⁴

Atkasuk and Nuiqsut have substantial subsistence economies, supplemented by employment in local construction and energy production jobs. Barrow is a regional center and the seat of local government, but also supports a subsistence economy. Primary subsistence resources used by all three communities include caribou, birds, fish, and marine mammals.

The proposed project area is flat, wet, and remote, with a limited number of private cabins, camps, and former drill sites/drilling support facilities the only development.⁵⁵ No cabins or related structures are in close proximity to the drill sites or the primary access corridors.

There are no known commercial recreation businesses and no developed commercial or public recreation facilities. There is limited use of the area for primitive recreation due to the expense and demands of travel to and in the area. Extremely minor-to-no winter recreational use by other than local residents is documented or expected, due to harsh weather, limited daylight, and limited access. Local cabins are sometimes accessed by snowmobile. For the most part, cabins, campsites, and lakes are largely inaccessible until late summer when wheeled vehicles, boats, and light aircraft are used for access. Inland water bodies also tend to be shallow and isolated, and river/stream channels are shallow and convoluted – conditions which are not conducive to recreational boating.

Surface and subsurface estates of affected federal lands within the NPR-A are under the jurisdiction of the BLM. The Applicant has located project elements to avoid impacting subsistence resources, cultural resources, historic/prehistoric sites, and cabins/camp sites in the project area. FEX and BLM have consulted with local residents, the NSB, the ICAS, and the NPR-A SAP to insure that the proposed project does not unreasonably restrict access to subsistence resources and protects cultural and historical sites.

Site investigations by professional archaeologists and coordination with the BLM and NSB have identified archaeological sites in the area, and proposed facility/access locations are sufficiently offset to avoid impacts. Results of the archaeological survey must be submitted to the State Historic Preservation Office (SHPO) for the required cultural resource clearance.

⁵⁰ 2003 NW IAP/EIS, Vol. 1, Sec. III.C; 1998 IAP/EIS, Vol. 1, Sec. III.C; EA: AK-020-00-011, Sec. III.C; EA: AK-023-01-003, Sec. III.C; and EA: AK-023-02-005, Sec. III.C. EA: AK-023-06-003, Sec 3.3.

⁵¹ 2003 NW IAP/EIS, Vol. 3, Map 105.

⁵² EA: AK-023-02-005, Sec. III.C.3; 2003 NW IAP/EIS, Vol. 1, Sec. III.C.11; EA: AK-023-06-003, Section 3.3.

⁵³ 2003 NW IAP/EIS, Vol 3, Map 66.

⁵⁴ 2004 NW ROD, p. 4.

⁵⁵ NSB Camps and Cabins Map, prepared for NPRA Exploration Bidders, June 2, 2004.

In addition, bedrock formations in the NPR-A contain a wide variety of plant and animal fossils. However, most *in situ* paleontological resources are deeply buried, and the landscape is snow-covered and frozen nine months of the year.⁵⁶

The proposed project area is located within an area classified as Visual Resource Management Class III, which extends laterally three miles from the Ikpikpuk, Alaktak, Piasuk and Chipp rivers and the shores of Admiralty and Smith bays.⁵⁷ Class III areas are managed by BLM to partially retain the existing character of the landscape, and allow a moderate level of visual change. The visual character of the remainder of the project area was designated Class IV where major modification to the existing scenic character can occur.⁵⁸ All of the main access corridors have been evaluated for visual resources and subsequently authorized as ROW.

The project is not associated with a designated Wilderness Area, a designated Wilderness Study Area, or an area under consideration for wilderness recommendations.⁵⁹ No affected rivers are included in the National Wild and Scenic Rivers System. The Ikpikpuk, Alaktak, Piasuk and Chipp rivers have been determined to be eligible for designation as a unit of the National Wild and Scenic Rivers System.⁶⁰ However, no Wild and Scenic Rivers were proposed for designation.⁶¹

⁵⁶ 2003 NW IAP/EIS, Vol. 1, p. III-30.

⁵⁷ 2003 NW IAP/EIS, Vol. 3, Map 23.

⁵⁸ 2004 NW ROD, pp. 6-7.

⁵⁹ 2003 NW IAP/EIS, Vol. 3, Map 12.

⁶⁰ 2003 NW IAP/EIS, Vol. 3, Map 13.

⁶¹ 2004 NW ROD, p. 4.

November 24, 2006

Figure 3. Existing/Proposed Oil and Gas Activities on the North Slope

4 ENVIRONMENTAL IMPACTS

If authorized, the proposed project would be the eleventh winter exploration drilling program in the NPR-A since 2000. Nine have been completed under the 1998 ROD; and last year, the Applicant completed the first exploration program under the 2004 NW NPR-A ROD.

All authorized winter exploration drilling programs have used similar technologies and equipment operating in similar habitats. All have been approved and monitored on the basis of full implementation of relevant restrictions, protective measures, and mitigation set forth in the applicable ROD, as well as State and local permits, and compliance with enforceable standards of the NSB Coastal Management Program (CMP), where applicable. **Table 10** summarizes exploration programs on Federal land within the NPR-A since 2000.

To date, authorizations to conduct winter exploration for oil and gas resources in the NPR-A have resulted in no long-term significant impacts to the environment or access to and the use of subsistence resources. The requirements and protective measures set forth in the ROD, in addition to site-specific recommendations and stipulations, have provided sufficient environmental protection to keep environmental impacts to a minimum.

The 2004 ROD allows for granting exceptions to stipulations under a set of strict conditions. This option allows the BLM Authorized Officer (AO) to consider technical and economic feasibility and potential environmental advantages of alternatives, as long as the alternative fully satisfies the objectives of the stipulation. In making an exception, the AO shall consult with appropriate regulatory and resource agencies.

New elements of the proposed program are all within the NPR-A NW Planning Area. Access to and from the drilling area has been previously evaluated and authorized.⁶² The proposed exploration program:

- Incorporates all relevant decisions made in the NW IAP/EIS and ROD
- Comprises the general scope of exploration activities evaluated in the IAP/EIS
- Reflects the experience gained during similar operations in the NPR-A and along the North Slope on lands managed by the State of Alaska, and on private lands.

More specifically, during the winter of 2005-2006, FEX conducted winter exploration activities in the same area considered in this EA. **Table 11** shows FEX activity last winter and compares it to the proposed activities evaluated in this EA. The FEX 2005-2006 winter exploration program was authorized and completed in full compliance with the NE and NW RODs and FONSI AA-085574. BLM monitored actions as they were being implemented and made follow-up site specific examinations at the conclusion of operations and during the following summer. No violations of BLM permit conditions were noted and no significant environmental damage was observed. Likewise, no violations or significant environmental damage has been reported by other agencies including the NSB, USFWS, and NOAA.

Accordingly, because proposed activities are not substantially different from those previously evaluated (i.e., listed in **Table 2**), and because no significant new scientific information or analyses have been developed since the most recent related evaluation (i.e., December 2005), this NEPA analysis will focus on impacts due to project-specific/site-specific differences of the proposed action.

4.1 ASSUMPTIONS

The following assumptions were made in evaluating potential impacts of the proposed action.

Assumption 1: When applied to the proposed action, management decisions, stipulations and ROPs of the applicable RODs provide significant protections to surface resources and human uses in the NPR-A.

Rationale: Through careful planning and significant public involvement, resources in the NW NPR-A have been protected, and environmental impacts have been effectively minimized by prohibitions, restrictions, stipulations and/or ROPs applicable to oil and gas exploration activities, and through positive, protective management measures (e.g., Special Area designations) as described in the 2004 ROD.⁶³ In all decisions, the Secretary of the Interior concluded that all practical means to avoid or minimize environmental harm had been adopted.⁶⁴ All requirements of the existing applicable RODs and stipulations have been adhered to.

⁶² EA: AK-023-06-003

⁶³ 2004 ROD, p. 13.

⁶⁴ 2004 ROD, pp. 20 and 25.

Table 10. 1999-2006 Exploration Drilling Activity on Federal Land in the NPR-A

Project Element	Total for 10 Exploration Programs Evaluated (with FONSI)	Actual
Wells (with sidetracks)	167	20 + 1 sidetrack
Ice drill pads ^a	73	23
Ice storage pads (over-summer)	2	1
Ice roads - new ROW corridor ^b (previously authorized ice road ROW corridor)	412 mi (201 mi)	279 mi
Packed snow trail – new ROW corridor ^c (previously authorized snow trail ROW corridor)	504 mi (687 mi)	678 mi
Ice airstrips	35	7
Water supply lakes ^{d, e}	342	126
Water use	1852 MG	513 MG

Mileage and acreage values are estimated for comparative purposes.

NT – Not tracked

a – Does not include pads reconstructed for testing or temporary construction pads

b – Total length of ice road ROW and on-lease access authorized.

c – Total length of packed snow trail ROW and on-lease access authorized.

d – Lakes on Federally-owned land within NPR-A; may include some lakes previously evaluated

e – Includes lakes authorized for ice aggregate removal.

Table 11. Exploration Drilling Activity in the Proposed Project Area

Project Element:	2006 Proposed Project:	2005 Authorized Project (EA: AK-023-06-003)	Actual Activity in 2005-2006
• Wells	Up to 27 (wells and sidetracks)	Up to 8 wells	1 well
• Drill rigs	2 /season	1/season	1
• Ice Drill Pads	9 @ 8.3 ac each; predominantly flooded tundra LCP and moss lichen	7 @ 5.7 ac each; predominantly flooded tundra LCP	2
• Ice road	Approximately 62 miles of new ice road all onshore; predominantly flooded tundra-LCP, tussock tundra, and moss lichen	31 mi onshore; predominantly flooded tundra-LCP, moss lichen, and tussock tundra. 230 mi offshore	19 mi
• Packed Snow LPV Trail	No new trail corridor	287 mi (total); predominantly tussock tundra, sedge/grass meadow, and flooded tundra LCP	249 mi
• Ice Airstrips	One new 23 ac location; predominantly flooded tundra LCP and moss lichen	Up to 2 @ 24 ac each; predominantly flooded tundra LCP and moss lichen	1
• Water supply lakes	34 new lakes meeting habitat protection standards	28 lakes meeting habitat protection standards	10 lakes
• Seasonal Water use	Approximately 113 MG.	Approximately 85 MG.	36 MG
• Exception	None	None	None

Despite the multiple controls in place, winter exploration has resulted in several minor impacts during the past six years (e.g., fish uptake with water withdrawal, tundra scuffing and minor tundra damage, willow damage in a few specific locations). These impacts can be mitigated, meaning they can be made less severe, but not always eliminated entirely. Under BLM guidance, information has been shared, operating procedures refined, and new studies initiated to prevent recurrence of these problems. Most of the early problems have been resolved, and ongoing monitoring and reporting requirements support the assumption made.

Assumption 2: Impact of the proposed action on the marine environment is expected to be negligible.

Rationale: At the closest point, the proposed drill sites are approximately 10 miles inland from Smith Bay. As evaluated in the 2003 IAP/EIS, large spills are unlikely,⁶⁵ and distance, snow/ice cover, surface use restrictions, and response requirements minimize the potential for any spill to reach the marine environment.

Fuel transport and storage are regulated to minimize the risk of large spills and reduce the potential for environmental impact to the marine environment. Additionally, BLM ROP A-3 requires preparation and implementation of a Hazardous Materials Emergency Contingency Plan before transportation, storage, or use of fuel or hazardous substances on federal land in the NPR-A. A Conflict Avoidance Agreement has been finalized with the AEWC.

Assumption 3: Impacts associated with the proposed action in the NPR-A are expected to be the same as those previously evaluated in the NE and NW Planning Areas.

Rationale: The proposed activity in the NPR-A comprises winter exploration drilling with associated access (i.e., packed snow LPV trails, ice roads, ice airstrips, and use of existing permanent facilities for staging and storage). Authorized activities have been monitored by BLM over the past seven exploration seasons, with no significant impacts observed. Most specifically, the proposed activity represents an extension of FEX activity evaluated in 2005, with a FONSI issued by BLM.⁶⁶ A comparison of the two projects is presented in **Table 11**.

This EA provides a site-specific evaluation of all new elements to confirm this assumption. In addition, continued use of previously authorized winter

exploration activities in the project area is evaluated under cumulative impacts, Section 4.4.

4.2 CRITICAL ELEMENTS

BLM guidelines for environmental assessment include “Critical Elements” to consider in evaluating project impacts. The EA is not limited to only those strictly described elements and will address other elements specific to the proposed action, as shown in Table 12 and incorporated in the discussion of project-specific impacts.

Table 12. Elements of this Environmental Assessment

Critical Element	May Be Affected	Can Be Mitigated
1. Air Quality	Yes	Yes
2. Areas of Critical Environmental Concern	None ^a	NA ^b
3. Cultural Resources	Yes	Yes
4. Farmland, Prime or Unique	None	NA
5. Flood Plains	Yes	Yes
6. Invasive/Non-Native Plants	NA	NA
7. Native American Religious	Yes	Yes
8. Threatened or Endangered Species ^c	Not Expected	Yes
9. Waste, Hazardous or Solid	Yes	Yes
10. Water Quality	Yes	Yes
11. Wetlands / Riparian Zones	Yes	Yes
12. Wild and Scenic Rivers	None	NA
13. Designated Wilderness Areas	None	NA
14. Environmental Justice	Yes	Yes
Other Important Elements		
Adverse Energy Impact	No	NA
Wildlife	Yes	Yes
Fisheries	Yes	Yes
NPR-A Special Areas	Yes	Yes
Local Land Use and Subsistence	Yes	Yes

^a None – Element not present in project area; therefore, no related impacts will result from proposed action.

^b NA – Not applicable to the proposed action.

^c Listed animals are not present during the period of the proposed activity.

⁶⁵ 2003 NW IAP/EIS, Vo1. 1, Sec. IV.A.2, and Vol. 2, Sec. V.B.5.b(2).

⁶⁶ EA: AK-023-06-003 and FONSI December 2005.

4.3 ENVIRONMENTAL CONSEQUENCES

The proposed action is built on experience gained from decades of similar operations on the North Slope. This EA is tiered to the 2003 NW IAP/EIS and previous EAs that focus on issues and potential impacts of the proposed action (as shown in **Table 2.**)

4.3.1 Project-Specific Impacts

This analysis evaluates the potential direct and indirect impacts associated with affected critical elements and other issues of concern specific to the proposed project, as defined and discussed in this section of the EA.

Project-specific issues have been grouped as follows:

- Air Quality
- Hazardous Materials, Solid Wastes, and Spills
- Cultural and Paleontological Resources
- Disturbance to Floodplains, Wetlands, Riparian Zones and Vegetation
- Threatened and Endangered Species, Polar Bears, and other Sensitive Wildlife
- Water Resources and Potential Impacts to Water Quality, Fish, and Waterfowl
- Teshekpuk Lake Special Area
- Local Land Use and Subsistence
- Scenery/Wilderness/Primitive Recreation Opportunities
- Environmental Justice
- Adverse Energy Impacts.

Relevant stipulations and ROPs that eliminate, reduce, or otherwise mitigate related impacts are cited in the following analyses. The analysis also considers the results of ten winter exploration programs completed over the past seven years in the NPR-A that confirm the environmental protection measures that apply to the proposed action.

AIR QUALITY			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
2004 NW ROD	K-3		ADEC Permit

Discussion Incorporated by Reference: Air quality impacts are derived from emissions associated with drilling and camp operations and transportation.

Emissions from exploration drilling operations under an approved ADEC air quality permit will not cause significant deterioration of air quality. Other potential impacts include accidental emissions, damage to vegetation, acidification of rain and water resources, visibility effects, and contribution to global warming.

Related discussions on air quality issues and potential impacts are incorporated from the 2003 NW IAP/EIS, Vol. 2, Section V.B.6, and EA: 023-06-003, p. 4-4. Discussion incorporated by reference is addressed below as it pertains to the proposed action.

Analysis of Proposed Action: The Applicant will operate under ADEC Minor General Permit MGPI for oil or gas drilling rigs. A surveillance program is required when the sulfur content of fuel combusted is greater than 0.19 %. FEX will post signs in English and Iñupiat to inform the public of any required exclusion zones around the drill pad. Any accidental emission or impact on vegetation, acidification, visibility, or global warming is expected to be short term and minor. The proposed winter exploration operations are similar to those previously evaluated for access with drilling and camp operations on 73 drill pads in the NPR-A, which were determined to have no long-term or significant effects on air quality. Accordingly, it is determined that effects on air quality associated with the proposed action are not expected to be more than minor and short-term.

HAZARDOUS MATERIALS, SOLID WASTES, AND SPILLS			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
2004 NW ROD	D-1	A-1 – A-7 K-1. K-2	43 CFR 3160 ; Onshore Order 1; Orientation and Subsistence Protection Plans; ODPCP and SPPC Plan

Discussion Incorporated by Reference: The extent of environmental impacts from accidental release would depend on the type of materials spilled; size and location of the spill; underlying substrate; effectiveness of response; and site rehabilitation success. North Slope companies participate in spill drills to improve practices and techniques when responding to an emergency event.

The tundra and all waterbody surfaces should be frozen throughout the project area. Sensitive land and water surfaces are afforded protection from spills by snow and ice cover. In most cases, spills on snow and ice can be

effectively cleaned up. Spilled product thawing through the ice/snow or cleanup procedures could result in impacts to water quality and aquatic habitat. Tundra impacts might include soil contamination, vegetation damage, wildlife injury, or surface disturbance from traffic and cleanup activity.

Related discussion is incorporated from the 2003 NW IAP/EIS, Vol. 1, Sections IV.A.1.a(4) and IV.A.2 – IV.A.4; EA: AK-023-06-003, pp. 4-4 and 4-5. Discussion incorporated by reference is addressed below as it pertains to the proposed action.

Analysis of Proposed Action:

The proposed action is very similar to previously approved exploration programs in the NPR-A, which were determined to have no significant impacts under similar environmental conditions.⁶⁷

FEX has an ODPCP approved by ADEC, demonstrating the capability to control, contain and cleanup any expected release. SPCC Plans will be required for FEX drilling and testing contractors. The approved ODPCP and SPCC Plans will be accepted by BLM as meeting the lease stipulation for spill planning. FEX will comply with all stipulations for fuel and chemical transportation and storage using a combination of existing plans and approvals for spill response, waste handling, tracking, and disposal on the North Slope.

The FEX ODPCP lists potential spill sources associated with drilling activities as: minor operational spills, major tank failures, and well blowouts. Minor operational spills (typically less than 10 gal of diesel or lubricants) could result from a wide variety of causes including hose/line failures, tank overflow, and equipment leaks. Major spills would be either from rupture of a large (e.g., 20,000 gal) drill site diesel storage tank or from a diesel fuel tank truck accident. The greatest potential threat would be from a blowout that continued into breakup, which is considered a very low probability event. Modeling for the ODPCP worst-case response planning standard (i.e., blowout) indicates that such an event could potentially include several sensitive areas, shown on **Table 7**. Stipulations K-1b, K-1c, K-2 were designated to protect these water bodies and associated resources from fuel and crude oil spills. The proposed action has no permanent facilities, and the ODPCP limits the drilling period to better insure that spill cleanup activities are largely confined to winter conditions.⁶⁸

BLM has field checked all potential drill sites and determined that impacts would be minimal due to protective environmental stipulations and ROPs that: (1) restrict drilling in active floodplains, (2) restrict fueling operations near active floodplains and, (3) require exploratory drilling to be completed when waterbodies are frozen and the ground is snow-covered, substantially limiting the potential for impacts from a spill. Based on the Applicant’s operations programs, protective measures of the ROD, and stringent requirements of ADEC and EPA, no significant impact is expected.

CULTURAL AND PALEONTOLOGICAL RESOURCES			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
2004 NW ROD		C-2; E-13; I-1	NHPA (SHPO Clearance); E.O. 13007, <i>Indian Sacred Sites</i>

Discussion Incorporated by Reference: Previous analyses concluded that during winter when the ground was frozen and there were no surface disturbing activities, subsurface cultural resources were usually safe from disturbance, with little chance that significant impact to archaeological deposits could occur. Paleontological resources, usually protected by deep burial in permafrost, would also be protected by adequate snow cover. However, there is somewhat greater risk of damage to cultural resources on the surface if there is inadequate snow cover (e.g., stream bank exposure).

Related discussion on this subject is incorporated from the 2003 NW IAP/EIS, Vol. 2, Sections V.B.2.b & d and V.B.13.b & d; 1998 NE IAP/EIS, Vol. 1, Sections IV.A.6.b, IV.G.2 and IV.G.12; EA: AK-023-06-003, p. 4-5. Discussion incorporated by reference is addressed below as it pertains to the proposed action.

Analysis of Proposed Action: Cultural surveys (air and ground) at all proposed drill sites and along access corridors were completed by a qualified professional archaeologist, who also makes note of paleontological resources. Findings have been submitted to the SHPO, NSB, and BLM, but are not identified in this EA due to the sensitive nature of the information. Results of the survey indicate that project activities are not expected to encounter paleontological or cultural resources, including sacred sites. The final ACMP consistency determination included a provision for cultural resource protection.

⁶⁷ FONSI AA-085574, BLM. December 16, 2005.

⁶⁸ FEX ODPCP Plan No. 054-CP-5118. October 2005, pp. 2-32 and 2-33. Amendment submitted October 2006.

The proposed action is very similar to previously approved exploration programs in the NPR-A, which had no significant impacts under similar environmental and operating conditions. Results of cultural resources surveys, along with proposed use of ice construction and LPVs, and avoidance of sensitive areas, collectively support the conclusion that cultural and paleontological resources have been provided adequate protection, and that no adverse impacts are expected from the proposed action. The proposed action will fully comply with requirements of the NHPA of 1966.

incorporate results and observations from exploration in the NPR-A since 2000.

Discussion specific to winter exploration impacts is provided in EA: AK-023-03-008, pp. 4-13 – 4-14; EA: AK-023-04-004, pp. 4-4 – 4-7; EA: AK-023-05-005, pp. 4-5 – 4-7; and EA: AK-023-06-003, pp.4-5 – 4-7. These assessments evaluated over 400 miles of ice road and 500 miles of hardened trail, and BLM concluded that no significant impacts to floodplains, riparian zones, vegetation, or wetlands were expected, and a FONSI was issued in each case (see **Table 2**).

DISTURBANCE TO FLOODPLAINS, WETLANDS, RIPARIAN ZONES AND VEGETATION			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
2004 NW ROD	D-1, D-2	A-4, A-5, B-1, C-2– C-4	Subsistence Protection; Orientation; EO 11988 and 11990

Compliance with Executive Order (EO) 11988 and EO 11990 is discussed in the NW ROD (pp. 16-19) and EA: AK-023-06-003, pp. 4-5 – 4-7. Discussion incorporated by reference is addressed below as it pertains to the proposed action.

Discussion Incorporated by Reference: Applicable stipulations and ROPs restrict construction of permanent facilities and use of gravel for oil and gas exploration. Several existing permanent facilities are available for staging and storage, and the long period of below freezing temperatures makes ice construction a feasible alternative. Experience from the past seven years of winter exploration in the NPR-A has shown that ice pads, ice roads, and hardened trails create few lasting impacts to tundra vegetation, wetlands, floodplains, and riparian zones while minimizing potential impacts from exploration activity and spills. Ice structures exist only when soils, wetlands, floodplains, and riparian habitat are frozen, resulting in impacts that are typically minor and short-term, i.e., a few to several years.

Analysis of Proposed Action: The only direct surface-disturbing activity expected is *de minimis* acreage lost to construction of well cellars (approximately 6 ft diameter collar; 0.0006 acre).

Proposed operations will occur only during winter, when soils, wetlands, and riparian habitat are frozen and snow covered. The AO will determine when there is adequate snow cover and frost penetration for winter activity.

Incorporated discussions from the 2003 NW IAP/EIS, Vol. 1, Sections IV.A.1.a, IV.A.1.b(2) & (3), and Vol. 2, V.B.7.b &d, and V.B.21 describe reasonably-expected ground disturbance from overland winter travel, ice roads, ice pads, and well cellars as relatively minor and often temporary. The 2004 NW ROD (p. 19) found that oil and gas exploratory drilling and overland moves and other winter related-winter exploration activities would have “minimal to negligible impacts on the function and values [of floodplains and wetlands].” The 1998 NE IAP/EIS, Vol. 1, Sections IV.A.1, IV.G.3 and IV.G.6 includes similar discussion of potential ground disturbance from exploration activities. The ASDP FEIS Vol. 1, Section 4.A.3.1 provides additional findings of a similar nature. The two recent EIS evaluations

Impacts vary according to the type and number of vehicles used, number of trips, soil type, ground cover, ground hardness, and snow conditions. Relatively minor, site-specific impacts are expected from ice construction and LPV travel (e.g., limited extent of scuffing, compaction, crushing and breakage). Some impacts to floodplains, riparian zones, wetlands and vegetation are expected to occur despite existing stipulations and ROPs, and further mitigation is not presently practicable. The project area is predominantly classified as wetlands and associated floodplains, and there are no practicable upland alternatives. The proposed action incorporates all of the applicable protective stipulations and ROPs of the 2004 NW ROD and 1998 NE ROD to avoid and minimize impacts to wetlands and floodplains. BLM personnel have inspected all proposed drill sites, ice airstrip locations, ice road routes, and trail routes. In addition, BLM personnel will perform regular inspections throughout implementation of the proposed project, including abandonment of the sites to insure standards are met.

The primary differences between the proposed FEX program and the authorized FEX program last year is the amount of ice road and the corresponding increase in the number of potential water supply lakes in this proposed action (**Table 11**). In total, ice pads will cover up to 75

acres. **Table 9** shows the vegetation types associated with these pad locations. As shown, the predominant vegetation type is flooded tundra-LCP (48%); the next two most predominant vegetation types are moss lichen (22%) and flooded tundra-NP (13%). The tundra ice airstrip will cover up to 23 acres, the predominant vegetation type is flooded tundra-LCP (35%); the next most predominate vegetation type is moss lichen (31%). Both drill pads and airstrips are constructed of ice which is expected to result in only short-term, minimal impact to vegetation as documented above and observed by BLM over the past seven years of exploration in the NPR-A involving similar types of vegetation.

The proposed new access corridor segments total approximately 62 miles (148 acres). **Table 9** shows the vegetation types associated with the full 0.5 mile wide corridor (approximately 20,915 acres), in which the ice road will be located. With an average width of 20 feet, ice roads would potentially impact less than 1 % of the total ground cover shown.

The dominant ground cover type within the corridor is flooded tundra-LCP (32%); the next most predominant ground cover types are tussock tundra (16%), moss lichen (12%), wet tundra (8%). Water (clear, turbid, and ice) account for a combined total of about 2,795 acres (13%) of the new access corridor. The final location of ice roads and trails will be selected to avoid areas of frozen “clear water” to the extent practicable. Lake and stream crossings are controlled (e.g., ROPs B-2, C-3, and C-4), limiting related impacts. Ice roads are expected to result in short-term, minimal impact to vegetation, as described above. BLM observations over the past seven years of exploration in the NPR-A, involving similar types of vegetation, have confirmed protective standards have been met.

No new packed snow trails are proposed. However, continued use of authorized trail ROW is expected to result in only short-term, minimal impact to vegetation, as previously described in EA:023-06-003 and observed by BLM over the past seven years of exploration in the NPR-A involving similar types of vegetation. More specifically, during the summer of 2006, BLM inspected pad sites, roads and trails associated with FEX winter exploration activity and found no significant impacts to wetlands. Based on the proposed action, associated regulatory authorizations, and requirements and protective measures of the ROD, site-specific impacts of proposed activities on wetlands are expected to be short-term and minimal.

Habitat associated with several rare and sensitive plant species may occur in the project area. Except for the *de minimis* impact of well cellars, the project involves no

ground disturbing activities. Additionally, access routes are selected to minimize topographic relief and avoid sandy soils and waterbodies to the maximum extent practicable. All proposed operations in the NPR-A occur when the ground (and water) is frozen and snow covered. Most tundra plants survive winter travel activities without harm. Impacts to rare or sensitive plants are expected to be localized and minor.

Some drilling operations and overland travel will be located in active floodplains, as defined in the 2004 ROD. Stipulation D-1 restricts exploratory drilling in rivers and streams and active floodplain, unless BLM determines that site specific impacts are minimal or there is no feasible or prudent alternative. Based on associated regulatory authorizations, and requirements and protective measures of the ROD, and BLM field examination, site-specific impacts of proposed activities in floodplains are expected to be short-term and minimal. No feasible or prudent locations that would avoid active floodplains or wetlands are available.

In consideration of future activities evaluated in the 2003 IAP/EIS, BLM completed the impact analysis and made findings contemplated by both EO 11988 (floodplain management) and 11990 (protection of wetlands). The ROD concluded that the long-term effects of exploration and development activities, both direct and cumulative in nature, on wetlands and floodplains are expected to be insignificant.⁶⁹ A further evaluation of EO 11988 and EO 11990 will be included in the decision record for this action.

THREATENED AND ENDANGERED SPECIES, POLAR BEARS, AND OTHER SENSITIVE WILDLIFE			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
2004 NW ROD	J-1; E-11, K-2, K-3, K-6	A-4, A-8; B-2, C-1; F-1, I-1, K-4, K-5	Sec. 7 Evaluation

Discussion Incorporated by Reference: Spectacled and Steller’s eiders are the only two terrestrial species listed under the ESA. No “critical habitat” has been designated in the project area for these two species.⁷⁰ Neither of these species is present in the project area during the winter. BLM consultations with the USFWS for the previous winter exploration drilling programs have

⁶⁹ 2004 NW ROD, pp. 16 -19.

⁷⁰ 2004 ROD, Appendix C, Final Threatened and Endangered Species Documentation.

resulted in findings that proposed projects were not expected to have adverse effects on either listed species.

The yellow-billed loon is a “sensitive species” designated by BLM. Although no specific yellow-billed loon habitat has been designated for protection in the NPR-A, this species uses deep water lakes, lakes generally larger than 25 acres, and sometimes other nearby waters for nesting and brood rearing. Deep water lakes and other lakes larger than 25 acres, have been identified by BLM for protection that must be considered in planning for development. Previous analysis of winter exploration activities resulted in a conclusion that no significant impacts would be expected from approved amounts of water withdrawal when the stipulations and ROPs noted above are applied.⁷¹

The bowhead whale may be found near the coast during spring and fall migration. The NW IAP/EIS determined that some whales in some years could be affected by barge traffic and concluded that “effects from such exposure are likely to be negligible.”⁷² NOAA Fisheries has reviewed FEX barging activities and issued an Incidental Harassment Authorization (IHA).⁷³ The marine activities associated with the FEX exploration project are similarly expected to have negligible impacts on whales.

Polar bears are not listed under the ESA, but they are protected under the MMPA. Polar bears and/or maternal dens could be encountered along nearshore project areas. Grizzly bears are neither listed under the ESA nor protected under the MMPA, but may be present and subject to disturbance in the project area. Several stipulations and ROPs provide for avoidance of both polar and grizzly bears in the NPR-A.

Caribou are likely to be present in the project area, and are subject to disturbance by drilling, vehicle traffic, aircraft, and human activity. In most cases, these activities are expected to cause short-term minor displacement and/or disturbance. Camps and drilling activity can cause localized disturbance and/or displacement for several weeks to months. Traffic on trails and ice roads would traverse caribou wintering areas (both the TLH and WAH). Impacts to wildlife include loss or damage of habitat and altered patterns of habitat use (e.g., noise and traffic disturbance), and possibly a negative effect on their energy balance (intake versus expenditure). Since animals are mobile and

operations are seasonal and affect only a very small proportion of available winter habitat, no lasting adverse impacts to caribou, moose, muskoxen, or other furbearers in the area are expected from winter exploration drilling. However, this assumption has not been tested, and conditions for winter survival vary from year to year; it is possible that this disturbance could have an additive effect on natural winter mortality. As an additional measure, local subsistence advisors were hired by FEX for the 2005-2006 winter exploration program to monitor activities to insure the objectives of protecting subsistence resources is met. The Applicant has also proposed hiring local subsistence advisors for this project.

Related discussion is incorporated from the 2003 NW IAP/EIS, Vol. 2, Sections V.B.10.a(2) & (4) and V.B.11, and Vol. 3, Appendices 10 and 16; 1998 NW IAP/EIS, Vol. 1, Sections G.9.a and G10, and Vol. 2, Appendix C; and EA: AK-023-06-003, pp. 4-7 – 4-9. Discussion incorporated by reference is addressed below as it pertains to the proposed action.

Analysis of Proposed Action: No spectacled or Steller’s eiders or their habitat is expected to be adversely affected. Under Section 7 of the ESA, a no effect determination has been documented for the two listed species of eiders.⁷⁴

The project area includes an area identified as “high and medium high density” for yellow-billed loons. The 2004 ROD includes three protective measures, which directly apply to yellow-billed loons: survey prior to development near lakes 25 acres or larger with potential setback (ROP E-11), development setback from deep water lakes (Stipulation K-2); and water withdrawal limitations from fish-bearing lakes (ROP B-2).

The proposed project occurs only in winter when loons are not present, and includes no permanent development. Water withdrawal from the seven deep water, fish-bearing lakes (potential loon nesting habitat within the area designated as “high” and “medium high density” nesting habitat) could affect habitat. Prior studies have shown that lakes used as a source of water for winter exploration in NPR-A have fully recharged within the following summer. As data on **Tables 10 and 11** show, it is very unlikely that all of the 11 lakes in the high to medium high density yellow-billed loon nesting area, or other lakes larger than 25 acres having potential yellow-billed loon nesting habitat requested for water withdrawal, will be used in any one year. As a result,

⁷¹ EA: AK-023-06-003, p. 4-7 – 4-8 and FONSI AA-085574.

⁷² 2004 NW IAP/EIS, Vol. 2, pp. V-104 and 105.

⁷³ *Incidental Harassment Authorization (IHA)*, issued to FEX L.P. by NOAA Fisheries on July 28, 2006.

⁷⁴ EA: AK-023-06-003, Appendix B.

adverse impacts to habitat utilized by loons are expected to be short-term, localized and negligible to minor.

The USFWS reviewed the Applicant's Polar Bear/Personnel Encounter Plan (dated May 2005), and determined that it provides appropriate safeguards to limit human/animal interactions.⁷⁵ A similar plan has been prepared by FEX for the proposed operation. (September 2006). The potential for impacts to individual bears is unlikely, but still present. Individual bears may be present, which creates the potential for interaction or disturbance by project activities; however no significant impacts are expected to occur. The Applicant and its contractors will comply with the required Bear Avoidance Plan, which is expected to keep impacts to a minimum. In summary, the Applicant uses past den site information, looks for current denning sites, and avoids dens, thereby reducing the opportunity for encounters. No significant impacts to either polar or grizzly bears are projected.

The proposed winter exploration drilling program would occur primarily between mid-December and early May. During this time, caribou may be in the general project area. The construction of ice roads, pads, and airstrips can cause caribou to avoid using habitat in close proximity to the areas where construction is underway. The project area is located at the western edge of the very large winter caribou habitat area identified in the three NPR-A IAP/EISs. Impact to caribou that are avoiding the immediate vicinity of these construction activities is not expected to be more than minimal and short-term.

After ice roads, pads, and airstrips are constructed, the drilling equipment and associated supplies would be moved to the first drill site, and drilling would commence. Drilling activities, including setting up and taking down the drilling rig, typically last for 30 days. During that period, caribou would tend to avoid using winter habitat in close proximity to the drill site, airstrip and roads. At the end of the 30-day period, the drilling rig and camp would be moved to the next drill site and the drilling process repeated. Impact to caribou that are avoiding the immediate vicinity of these activities is not expected to be more than minimal and short-term.

The FEX plan of operations provides the potential to drill at two sites simultaneously and/or to drill a second well at any one pad. In either, caribou would tend to avoid winter habitat in close proximity to the drilling operations, access roads, and airstrip. The proposed action includes three drill sites (Aklaq #4, #7 and #7A) that are located in close proximity to each other (from

one to three miles apart). Concurrent operations on any two of these sites could cause a wider deflection of caribou during periods of operation.

At the conclusion of the first winter drilling season, FEX proposes to return the drilling rig, camp, associated facilities and supplies to Cape Simpson, or another suitable existing site if space is not available at Cape Simpson, for storage until the following winter season. The second drilling season would involve similar activities in the project area, with similar short-term, minor impacts. At the conclusion of the second winter drilling season (Spring 2008), FEX proposes to return the drilling rig, related facilities, and remaining supplies to Cape Simpson for demobilization to Prudhoe Bay. FEX already has the option to demobilize to other existing permanent facilities at Camp Lonely. The impacts to caribou under the Cape Simpson and Camp Lonely options would be temporary displacement from the permanent facilities used for insect relief in the summer (July 1 – August 7). The temporary loss of insect relief habitat at either Cape Simpson or Camp Lonely would be negligible given the large amount of insect-relief habitat available in the area and the fact that these two areas are existing developed areas.

FEX has also identified the option to remove the drilling rig and associated equipment and supplies by previously evaluated ROW (FONSI AA-085574). Transportation via air and hardened trail has been previously determined to not significantly affect caribou moving between the winter range and their calving areas. FEX proposes to use routes and transportation schedules similar to prior operations. Accordingly, the impact to caribou moving to calving areas would be minor and short-term.

In summary, any direct or indirect adverse impacts to local wildlife populations are expected to be localized, minor, and short-term (e.g., startling and temporary displacement of individuals). Any direct or indirect adverse impacts on the habitats of these populations are expected to be negligible. This assessment is consistent with results of compliance monitoring in previous exploration activities in the NW and NE Planning Areas. However, conditions for winter survival vary from year to year, and it is possible that this disturbance could have some degree of additive effect on winter mortality. If so, this impact would likely be insignificant at the population level.

The Applicant will have plans in place to minimize harassment, displacement, attraction or injury of wildlife. This includes protection of wellheads from providing nesting, denning, or shelter sites for ravens, raptors and foxes (ROP E-7).

⁷⁵ USFWS letter to FEX, dated June 13, 2005.

Due to the project location, no impact to bowhead whales, other marine mammals, seabirds, or their habitats is expected from winter drilling and related operations. Prior to barging equipment and supplies from West Dock to Cape Simpson, an IHA for marine mammals was approved by NOAA Fisheries after publication in the Federal Register and consideration of comments.

WATER RESOURCES AND POTENTIAL IMPACTS TO WATER QUALITY, FISH, WATERFOWL AND OTHER BIRDS			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
2004 NW ROD	D-1; K-3	A-1 – A-7; B-1, B-2; C-3 – C-4; D-1; E-9; I-1	DNR TWUP; DNR/OHMP Fish Habitat permit; NPDES General Permit, ACMP, EFH

Discussion Incorporated by Reference: Winter exploration activities have little impact to fish, waterfowl, and water quality. Impacts to fish would most likely be from water withdrawal and/or stream crossings. Protective ROPs and stipulations prohibit winter water withdrawal from streams, limit water withdrawal from lakes, and limit stream crossing operations, substantially limiting potential impact on fish or fish habitat. Additionally, Fish Habitat permits are required for water withdrawals and stream crossings that can impact fish. OHMP makes decisions on water withdrawal (including ice aggregate) and fish stream crossings specifically to protect any fish which may be present.

As a result, impacts to fish are expected to be minor and short-term. An EFH assessment for salmon resources was completed last year regarding the proposed action, as required by the NMFS. The finding is “*may effect, not likely to adversely effect, and no consultation is required.*”⁷⁶

No impacts to waterfowl are expected because they are essentially absent during project activities, and protective measures are in force to protect summer habitat from any significant adverse impacts. (See discussion above on spectacled and Steller’s eiders and yellow-billed loons).

Water quality can be negatively affected due to water withdrawal, or runoff from melting ice, and modification of local hydrology by ice roads/pads. Potential impacts

are mitigated by existing stipulations and ROPs, as well as, DNR TWUP and Title 41 permitting requirements for water withdrawal and habitat protection. These effects are expected to be minor, localized, and short-term, typically lasting only one season.

As noted in **Table 7**, projected blowout plumes encounter deep water lakes, streams, and rivers. Impacts of spills on water quality, waterfowl, and fish depend on type, size, location, and duration of the discharge, but are expected to be minor and short-term due to continuing protection offered by snow/ice covered frozen ground while clean-up occurs and the ODPCP and SPCC Plans required by ADEC and EPA.

None of the previous evaluations of winter exploration drilling in the NPR-A produced evidence of adverse effects to fish due to water quantity or water quality changes. Lake recharge studies and observations from several North Slope residents indicate that surface recharge from spring snowmelt has been sufficient to completely replace volumes withdrawn during the rest of the year.⁷⁷

Related discussion is incorporated from the 2003 NW IAP/EIS, Vol. 2, Sections V.B.4.a-d, V.B.8.a(2), and V.B.9.a-d; EA: AK-023-06-003, pp. 4-4 – 4-5 and 4-10 – 4-11. Discussion incorporated by reference is addressed below as it pertains to the proposed action

Analysis of Proposed Action: FEX identified a project need of an estimated 113 MG of water per year for the proposed exploration program. FEX has applied for approval from DNR to withdraw water from up to 34 lakes with approximately 600 MG potentially available for withdrawal (**Table 8**). FEX can also withdraw water from lakes evaluated and authorized in 2005 for temporary water use in the project area.⁷⁸

For eight of the proposed lakes, the estimated quantities of free water and ice chips “available for withdrawal” exceed the 30/15% rule (as shown on **Table 6**). OHMP has evaluated all lakes proposed and determined that the proposed water withdrawals should not adversely impact fish. However, ice chip removal was restricted to grounded ice. In two lakes, OHMP requires follow up data collection to document adequate lake recharge before reuse.

ROP B-2 provides that water withdrawal from lakes may be authorized on a site-specific basis. BLM concurs with the determinations of OHMP that fish will not be

⁷⁶ EA: AK- 023-06-003, Appendix C.

⁷⁷ ASDP FEIS, Vol. I, pp. 428-434.

⁷⁸ EA: AK-023-06-003, pp. 4-10 – 4-11.

adversely impacted by proposed water and ice aggregate removal as proposed for these eight lakes.

ROP B-2 is particularly important for protecting water resources and aquatic habitat for over-wintering fish. Ice construction methods proposed by FEX (including shaving aggregate from grounded ice and appropriate screening at hose intake) also minimize impacts on fisheries. It is expected that the proposed action may effect, but is not likely to adversely effect, EFH.

There would be few potential direct impacts on birds as there are few bird species present in the proposed operations during the winter operation period. Birds that do remain in the winter (e.g., ptarmigans) may be displaced by exploration activity. No long-term adverse potential direct impacts are expected. Indirect impacts may occur through loss of habitat. Protective measures of lease stipulations and ROPs minimize the potential loss of bird habitat. (See previous discussion under “Disturbance to Floodplains, Wetlands...”). Therefore, indirect impact to birds is expected to be negligible.

No adverse impacts to waterfowl habitat have been reported as a result of building ice roads over the past several decades, including several years of ice road and pad construction in the Colville River delta and the Northeast NPR-A.

Shorebirds are not present in the project area during the winter. Non-winter activities at permanent facilities located at Cape Simpson or at Camp Lonely may displace a very small amount of shorebird nesting that otherwise might occur on the gravel pads or airstrip or along the beach barge landing area. The proposed project will not impact shorebird habitats since no permanent facilities are proposed. No significant impacts to shorebirds or their habitats are expected.

Wastewater will be treated and discharged under NPDES permit or hauled off site for disposal. Fuel and material handling practices generally protect lakes from potential pollution. **Table 7** shows sensitive areas within the modeled trajectory of a blowout. A release would occur when the ground is snow-covered and frozen, which facilitates containment and cleanup and should prevent any appreciable amount from reaching these protected water bodies. The approved ODPCP, including the mandated “end date” for drilling, will help insure that required cleanup would occur under winter conditions to the extent practicable.

Site inspections and oversight by the FEX local Subsistence Advisor/Environmental Liaison Coordinator will help identify and mitigate potential impacts to water quality and fish habitat. The only expected impacts to

fish will be possible short-term, temporary stress from water withdrawal. Little to no impact to waterfowl habitat is expected. As described above, fuel and materials handling practices, along with spill response and containment measures will also protect from potential pollution.

In summary, expected impacts of ice structures and transportation routes and water/ice aggregated withdrawal to water quality, fish or wildlife are expected to be minor, localized, and temporary, resulting in no significant impacts.

TESHEKPUK LAKE SPECIAL AREA			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
2004 NW ROD	D-1, D-2	A-1 – A-7, B-1, B-2; C-1 – C-4 F-1; H-1	NPRPA

Discussion Incorporated by Reference: Section 104 (b) of the NPRPA authorized the Secretary of the Interior to designate special areas containing significant subsistence, recreational, fish and wildlife, or historical or scenic values where all activities, including oil and gas exploration and development, shall be conducted in a way that will provide maximum protection to the natural and cultural resources present.

The Teshekpuk Lake Special Area was established to protect important nesting, staging and molting habitat for ducks, geese and swans; brant are particularly important. This area also provides important habitat for caribou. In addition to those controls listed above, development of permanent facilities in the Teshekpuk Lake Special Area would be subject to setbacks from designated waterbodies and other restrictions contained in stipulations and ROPs E-10, E-11, E-12, K-1 and K-4 all provide maximum protection to waterfowl in general and to Steller’s and spectacled eiders in particular (as documented in the 2004 NW ROD). Stipulations K-5 and K-6 will provide maximum protection to caribou.⁷⁹

While many of the referenced protective measures apply primarily to development, a number of other stipulations and ROPs also provide maximum protection in the Special Area and other sensitive areas (e.g., spill protection, aircraft use, winter overland moves and seismic work). In addition, applicants for oil and gas related activities are required to consult with the NSB,

⁷⁹ 2004 NW ROD, p. 20.

the NPR-A SAP, and directly affected subsistence communities to prevent unreasonable conflicts between subsistence uses and oil and gas activities. BLM also makes onsite examinations of proposed drill sites, ice road and overland trail routes, including stream crossings to insure maximum environmental protection as envisioned in the stipulations and ROPs.

In the NW and NE NPR-A, BLM has previously considered and evaluated proposals for winter exploration programs, including drilling, construction of ice drill pads, ice roads, and hardened trails, and lake water withdrawal in the Teshekpuk Lake Special Area. These evaluations have all concluded that the exploration activities would have no significant impact.⁸⁰

Analysis of Proposed Action: The proposed project involves activities within the Teshekpuk Lake Special Area. Proposed project elements in the Teshekpuk Lake Special Area include drilling at Aklaq #3 and Aklaq #6, access corridors, and several lakes proposed for water supply. These facilities are similar to facilities previously evaluated in the Teshekpuk Lake Special Area in the NE NPR-A. These facilities are similar to facilities actually constructed by FEX during the 2005-2006 winter exploration program in the project area. These all were found to have no significant impacts in the BLM decision documents and verified by on-the-ground monitoring during operations and after the authorized activities were completed.

Based on similarities in both the project activities and site conditions, along with protective measures of applicable stipulations and ROPs, no significant impacts to the Teshekpuk Lake Special Areas are expected from the proposed action.

The current analysis has also reconsidered reuse of previously authorized overland travel routes, drill sites and water supply lakes, and concluded that impacts would be limited to those previously considered and determined to have no significant impact.

LOCAL LAND USE AND SUBSISTENCE			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
2004 NW ROD	D-1, D-2 K-3	A-1 – A-7, B-1, B-2; C-1 – C-4 F-1; H-1; H-2, I-1	IHA; AEWC Conflict Avoidance Agreement, NSB Permits, and ANILCA 810 Evaluation and Findings.

Discussion Incorporated by Reference: Alaska is unique in that local land uses, including subsistence, are strongly tied to cultural values. Impacts to subsistence include loss of subsistence resources (e.g., caribou, fish and waterfowl) and/or impeding access to subsistence resources. Effects from winter exploration come typically from ground-impacting activity, construction and drilling activity, vehicle and aircraft traffic, and spills.

A major goal of the protective measures in the stipulations and ROPs noted above is to insure continuing access to, and use of, subsistence resources in NPR-A, and to avoid a significant restriction on subsistence use of: caribou, small mammals, marine mammals, waterfowl and other birds, fish, and plants. These measures include continuing consultation with local residents and government entities (see Section 5, Consultation and Coordination) and BLM monitoring. In addition, exploration companies have hired local residents to monitor activities for adverse impact to subsistence resources.

All of the previous NEPA evaluations listed in Table 2 have concluded that winter exploration programs in NPR-A would have no significant restriction on subsistence use or access to subsistence resources. BLM monitoring has confirmed the findings made under ANILCA 810.

Related discussion is incorporated from the 2003 NW IAP/EIS, Vol. 2, Sections V.B.12.b-d, V.B.14.a-d, V.B.15.a-d, Vol. 3, Appendix 5, and 2004 ROD, pp. 21-24. These values have been discussed in related environmental assessments and their associated FONSI, including the ANILCA Section 810 findings.⁸¹ Discussion incorporated by reference is addressed below as it pertains to the proposed action.

⁸⁰ See Table 2 for related documentation.

⁸¹ Exploration EAs in Table 2 (Section IV.D or 4.3) and the associated FONSI and Decision Record documents.

Analysis of Proposed Action: The proposed project involves winter activity in an area with high subsistence value. The importance of subsistence has been a general topic at all meetings with local residents. The NPR-A SAP typically meets quarterly and advises applicants and BLM on potential conflicts between proposed development actions and subsistence activities. Additionally, a Subsistence Plan is required for each exploration program (ROP H-1, H-2).

Subsistence activities that occur during the winter, and thus could be impacted by the proposed exploratory drilling program, include caribou hunting, furbearer hunting and trapping. These activities are frequently based from subsistence cabin or camp locales, which are accessed during the winter by snow machine. Ice fishing may also occur, although this activity usually takes place in relatively close proximity to the harvester's community. The nine proposed exploratory drilling sites, as well as the associated access routes, are located in an area utilized by subsistence harvesters from Barrow and Nuiqsut. While not supported by hypothesis-based scientific data, local knowledge, as elicited through public testimony at NPR-A SAP meetings, indicates that exploratory activity both displaces resources from the area of effect, and serves as a barrier to caribou that may be traveling from the Teshekpuk Lake area to Barrow.

FEX has developed a Subsistence Cooperation Plan that includes local subsistence advisors to identify and help mitigate potential impacts on subsistence. The plan also includes methods for conflict resolution, if needed. The proposed project avoids long-term cabins and campsites, and Traditional Land Use Sites.

It is expected that the proposed two-year winter exploratory drilling program will not substantially impact subsistence resources or restrict use of, or access to, subsistence resources reflected in the ANILCA 810 finding.⁸² The proposed project will occupy the smallest practicable amount of land determined necessary, on only a temporary basis. Stipulations and ROPs will help mitigate impacts on subsistence. Impacts will be re-evaluated based on the subsistence reports filed after each season of proposed exploration activity.

Based on protective measures of the 2004 ROD, and experience during the past seven winter drilling seasons in the NPR-A, including FEX exploration in the project area, impacts are expected to be minor and short-term. Subsistence resources may be potentially affected periodically, but no resource is expected to become unavailable or undesirable for use. Similarly, any

restricted access is expected to be minor and short-term and affecting only very limited areas. No significant restriction on subsistence will result from this winter exploration plan.

SCENERY / WILDERNESS / PRIMITIVE RECREATION OPPORTUNITIES			
Environmental Controls and Mitigation:			
	Stipulation	ROP	Other
2004 NW ROD	D-1, D-2	A-1- A-7; C-2, C-3; F-1; I-1	

Discussion Incorporated by Reference: The project area is predominately low-relief wetlands, with little visual variety, contrast, or harmony. No designated Wilderness Area or designated Wilderness Study Area is involved. Use of ice roads/pads and hardened snow trails may cause some temporary greening or browning of the tundra, that would be most visible from the air. Impacts to scenery, natural wilderness appearance, solitude, quietude, and other aesthetic values are expected to be temporary and local. The entire NPR-A offers primitive recreation opportunities, but access limits use. BLM has no record of commercial recreation services using the general vicinity during the winter

Related discussion is incorporated from the 2003 NW IAP/EIS, Vol. 2, Sections V.B.18 – V.B.20 and the 2004 ROD, p. 4; EA: AK-023-06-003, p. 4-13- 4-14 and the associated FONSI and Decision Record documents (see Table 2). Discussion incorporated by reference is addressed below as it pertains to the proposed action.

Analysis of Proposed Action: The proposed project is located in an area where there have been a large number of oil and gas and military activities in the past. The proposed action involves both Class III and Class IV Visual Resource Management Areas. Any visual impacts will be short-term, temporary, and restricted to the winter season. The project is not in an area being considered for Wilderness Recommendation. BLM has identified the Alaktak and Topagoruk rivers as eligible for Wild and Scenic designation.⁸³ The Ikpikpuk River does not contain outstanding Wild and Scenic River values, and is not eligible.⁸⁴ No existing or planned public recreation facilities are known to be associated with the project area.

⁸² EA: AK-023-06-003, Appendix C.

⁸³ 2003 NW IAP/EIS, Vol. 3, Map 13. The 2004 ROD did not recommend these rivers be included in the WSR system.

⁸⁴ 1998 NE IAP/EIS, Vol. 1, p. III-C-52.

The project does not provide long-term access, which could impact on naturalness, wilderness values/attributes, or scenic resources. Some localized noise, air pollution, and visibility of industrial activity will adversely affect values of solitude, quietude, and the natural appearance of the winter landscape, but these effects are short-term and are not expected to degrade primitive winter or summer recreation to any notable degree.

ENVIRONMENTAL JUSTICE			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
2004 NW ROD	D-1, D-2	A-1 – A-7; B-1, B-2; C-1 – C-4; F-1, H-1, I-1	EO 12898; ANILCA; EO13175

Discussion Incorporated by Reference: Federal agencies are required to identify and address actions that would have disproportionately high and adverse human health and environmental effects on minority and low-income populations. Alaska Native landowners and residents could be directly affected by impacts of the proposed action on subsistence activities.

No disproportionately high and adverse human health or environmental effects on minority or low-income populations are expected from winter exploration drilling. Numerous stipulations and ROPs, as well as in-place and on-going BLM initiatives and consultation with subsistence users will help mitigate impacts on these groups of people in the project area.

Related discussion is incorporated from the 2003 NW IAP/EIS, Vol. 2, Section V.B.16; and EA: AK-023-06-003, pp. 4-14. Discussion incorporated by reference is addressed below as it pertains to the proposed action.

Analysis of Proposed Action: Subsistence resources provide an important source of food and sustain the cultural heritage of North Slope residents. Consequently, impacts to subsistence have a direct relationship to the analysis of impacts that may have a disproportionately adverse effect on minority and low income populations. The previous discussion on Subsistence concludes that the proposed two-year winter exploratory drilling program is not expected to substantially impact subsistence resources or restrict the use of, or access to, subsistence resources. Therefore, environmental justice impacts will be insignificant.

ADVERSE ENERGY EFFECTS			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
2004 NW ROD	NA	NA	EO 13212, Energy Policy Act of 2005

Discussion Incorporated by Reference: BLM considers whether an official decision will have an adverse energy impact (i.e., impact on energy development, production, supply and/or distribution). For exploration, there would only be a potential adverse energy impact if the proposed project is denied or substantially reduced. If the proposed project is approved, there will be no adverse energy impact. These potential effects were discussed previously in EA: AK-023-04-004, p.4-11.

Analysis of Proposed Action: Because the proposed action is similar to the winter exploration programs previously evaluated in the NPR-A, an adverse energy impact is not expected. In the event the proposed project is denied or substantially reduced, the oil and gas potential of the area may not be discovered.

4.3.2 Unavoidable Adverse Impacts

Despite the system of controls in place and the modern technology and methods proposed, some minor impacts from the proposed action cannot be avoided. They include:

- Temporary surface disturbance by winter drilling at well sites
- Temporary increase in industrial activity affecting wintertime local tranquility and solitude
- Temporary minor impacts to tundra from ice roads/pads/airstrips. Longer-term, but relatively minor, visual impacts from multiple green and/or brown trails along portions of the spur routes to ice pads and water supply lakes
- Short-term visual and noise impacts of drill rig, camp, traffic, etc.
- Temporary disturbance with possible displacement of some wildlife in the area while exploration activities are underway. Possible additive effect on winter mortality
- Possible minor, temporary impact on subsistence resources and activities if caribou or other animal movements shift away from places where winter activity occurs

- Possible loss of some small mammals (e.g., lemmings, voles, and ground squirrels) due to ice road/pad construction and the hardened overland trail. This would be an adverse impact to those individuals lost, but not to any local wildlife population
- Temporary, localized, minor degradation of air quality and possibly water quality (oxygen depletion; wastewater disposal; spills)
- Possible temporary restriction of public access to land around drill sites during active drilling activities to meet air quality requirements and increase safety.

Unavoidable adverse effects have been broadly evaluated for those areas considered for leasing, leased, and subsequently explored.⁸⁵ The site-specific effects expected from the proposed action are consistent with those impacts, and none of the impacts are expected to be significant during exploration over the next 2 years.

4.3.3 Potential Impacts of Possible Future Permanent Facilities

Permanent facilities are expressly prohibited during exploration. In addition to stipulations associated with exploration and other activities, the 2004 ROD contains 13 stipulations and ROPs that are specific to any future permanent facilities. Potential impacts of possible future permanent facilities were evaluated in the 2003 NW IAP/EIS, Vol. 1, Section IV.A.1.b, and throughout the 2004 ASDP FEIS, all of which are incorporated by reference and summarized below.

No new or additional impacts not already discussed in prior NEPA documentation are anticipated.

General descriptions, issues, and potential impacts of oil and gas development were considered by the Secretary of the Interior in determining whether to proceed with lease sales, and where to offer lease sales in the NW Planning Area. In the preferred alternative, the 2003 NW IAP/EIS evaluated the hypothetical discovery and production of up to 8 oil/gas fields in the NW NPR-A. Impacts associated with conceptual development of oil/gas fields were also discussed.⁸⁶

In September 2004, the BLM released the ASDP FEIS for potential development of five satellite oil production pads, including two in the NPR-A. If a commercially producible discovery is made as a result of the proposed

action, it is likely that a pipeline would connect with this production system.⁸⁷ The ASDP system includes 20-30 wells on each drill site, with transportation of product by pipeline to the Alpine Central Processing Facility, where it will then follow the current piped system for shipment to market at the Valdez Terminal. A ROD on the ASDP FEIS was signed in November 2004.

If a commercially producible discovery is made as a result of the proposed action, subsequent work to develop and produce the oil and gas will also require a separate evaluation and public involvement process under NEPA, based on the specific development plan. As evaluated in the 2003 NW IAP/EIS, development affecting movement of the TLH caribou to insect relief habitats could have moderate to high impacts to subsistence harvest patterns. There also could be low to moderate effects on species of waterfowl and shorebirds with declining populations.⁸⁸

As mitigation, BLM has adopted a number of protective stipulations and ROPs to reduce potential impacts. These include Stipulations E1, E-2 and E-3 and ROPs E-4 through E-13 from the 2004 NW ROD and others as shown under the foregoing discussion on project impacts related to threatened and endangered species and other sensitive wildlife; water quality, fish, and waterfowl; special areas; and local land use and subsistence.

4.4 POTENTIAL CUMULATIVE IMPACTS FROM THE PROPOSED ACTION

For the past 50 years, oil and gas exploration and development has been the main source of industrial change on the North Slope, and is expected to continue to be a major agent of change on the North Slope for the foreseeable future.

The proposed project is a two-year oil and gas exploration program of winter-only construction and use of new ice pads, ice roads, ice airstrips, and drilling camps; water withdrawals from specified lakes; and drilling up to 27 penetrations (wells and/or sidetracks) from nine drill sites. It includes *no permanent facilities or long-term activities*.

CEQ Regulation 40 CFR 1508.7 defines cumulative impact as "...the impact on the environment which results from the incremental impact of the [proposed] action when added to other past, present, and reasonably foreseeable future actions..."

⁸⁵ 2003 NW IAP/EIS, Vol. 1, Sec.IV-G.

⁸⁶ 2003 NW IAP/EIS, Vol. 2, Section V.B.

⁸⁷ 2003 NW IAP/EIS, Vol. 1, pp. IV-62 and 63. and Vol. 3, Map 108.

⁸⁸ 2003 NW IAP/EIS, Vol. 2, Section V.B.14.d(2).

BLM has evaluated the cumulative effects of past, present, and reasonably foreseeable oil and gas activities in and around NPR-A in a series of recent EIS efforts, which are incorporated herein. These include: 2002 Final EIS for the Renewal of the Federal Grant for the Trans-Alaska Pipeline System (TAPS) Right-of-Way, 2004 ASDP FEIS, 2003 NW IAP/EIS, and the 1998 NE IAP/EIS.

BLM's recent evaluation of *Effects of the Cumulative Case*⁸⁹ is based on multiple scenarios of leasing, oil price, exploration, and production activities. Based on relevance, this discussion is incorporated by reference and summarized below.

The 2003 EIS evaluation considered:

- North Slope development
- Past and present exploration, development and production of oil and gas
- Reasonably foreseeable future exploration, development, and production
- Speculative development.

The cumulative effects evaluation noted that at least five of the exploration wells drilled in NPR-A have discovered oil and/or gas reserves (p. 4-436). The size of these recent discoveries has not been made public, but the operators have indicated that the oil reserves are at least equal to those of the Alpine field. Tables IV-06 and IV-07 (Vol. 3) summarize the past, present, and reasonably foreseeable oil and gas development on the North Slope. The evaluation considered there would be as many as 36 exploration wells, 36 delineation wells, 12 production pads, 464 production and service wells associated with up to eight fields. The current level of proposed winter exploration activity is within levels anticipated by the NW EIS.

Over the past seven years, BLM has also evaluated ten winter exploration drilling programs and associated activities proposed in the NPR-A, (see **Tables 2** and **10**). The direct, indirect, and cumulative effects for proposed facilities were predicted to be insignificant, and a FONSI and Decision Record were issued in each case. On-the-ground monitoring during and following winter exploration activities affirm the fact that impacts were as predicted; no significant effects have been observed.

To date, none of the recent exploration activities authorized by BLM in the NPR-A, individually or in combination, have caused significant direct, indirect or

cumulative adverse impacts to the environment, including access to and use of subsistence resources. There have been some minor, short-term, local adverse impacts as a direct result of activities associated with approved winter exploration programs. These are:

- Noise impacts on local residents from low-flying aircraft
- Tundra damage from vehicles skidding off the ice road
- Tundra damage by construction equipment during ice road construction
- Tundra damage from prolonged heated fluid discharge (gray water)
- Lake-bottom sediments picked up with water for ice-road construction and deposited on the tundra
- Localized stream scour and downstream deposition resulting from flow over ice bridges which are not completely removed
- Fish screens not in place or not working effectively
- Damage to willows at a river crossing.

These impacts are additive, but at a very low level, and are not anticipated to result in any cumulatively significant impacts. The direct cause of these impacts has been addressed by industry in consultation with BLM, NSB, other permitting entities, and local residents, and measures were developed to reduce the potential for repeated occurrences. The small number and minimal severity of the impacts occurring from 1999-2006 demonstrates the overall effectiveness of the present environmental protections that are applied to winter oil and gas exploration activities in the NPR-A.

4.4.1 Framework of the Analysis

This cumulative effects analysis is bound by a framework appropriate for a relatively short-term winter exploration program in the NW NPR-A which has been determined to be consistent with the State Coastal Management Program.⁹⁰

To keep the cumulative effects analysis focused and relevant, governing laws and policies for oil and gas exploration projects on Federal land are given priority consideration. Additionally, those activities that are more likely to occur and those that are in close proximity to the proposed project are given greater weight. For

⁸⁹ 2003 NW IAP/EIS Vol. 1, Chapter IV.F, pp. IV-401 – IV-503.

⁹⁰ November 3, 2006 Final Consistency Determination, ADNR OPMP.

purposes of this cumulative impact analysis, potential activities that meet the CEQ definition are:

- Other exploration activity in the NPR-A and near the NPR-A on land owned by the State and private interests. Potential activity also includes drilling at any of the authorized drill sites in the NW or NE NPR-A. There are four potential drill sites in the NW NPR-A that have been staked by Petro Canada (Tupaagruk #1, #2, and #3 and Akaqtaq #1) and two staked last year by CPAI (Aviullaavik #1 and #2).⁹¹ CPAI also has staked several drilling sites south of Barrow, near a producing gas field (private surface and subsurface) and in the NE Planning Area well east of the project area. Winter geophysical (seismic) activities may occur in both the NW and NE Planning Areas.
- Traditional overland re-supply and winter travel associated with Barrow, Atqasuk, and Nuiqsut.
- Historic travel associated with subsistence by local residents.
- Production activity in the NPR-A and near the NPR-A on land owned by the State and private interests, including continued development of the Alpine and Alpine Satellites fields and gas fields near Barrow.

Based on the proposed project, the analysis of direct and indirect project impacts, and the cumulative impacts analyses that have been incorporated by reference, this cumulative impacts analysis will focus on the following issues:

- Impacts to fish and wildlife
- Conflicts with subsistence
- Visual and functional impacts to tundra
- Impacts of oil and gas industrial development
- Economic potential for village and regional corporations and the NSB; increase in State and Federal revenues.

The potential impacts of global warming have been discussed in the 2003 NW IAP/EIS, which is incorporated herein.⁹² Production facilities associated with any commercial development in the NPR-A are not expected to approach the size of activity at Prudhoe Bay. Even under the most extensive management actions considered, air quality in NPR-A as a result of development would be expected to show no significant deterioration. Due to the scale and limited timeframe of activity, the proposed project is not expected to

significantly deteriorate air quality or contribute to global climate change.

This EA will consider the effect of several recent events affecting the North Slope oil and gas industry, on the analysis of cumulative impacts analysis. These events include:

- Higher than normal prices of oil and gas
- Continued decrease in levels of U.S. production of oil and gas, with increasing dependence on foreign oil and gas
- Applications filed with the State of Alaska, and Federal Legislation (Energy Policy Act of 2005) that will expedite construction of a large diameter natural gas pipeline to the Lower 48 States through Canada
- Incentives for exploration in the NPR-A included in the Energy Policy Act of 2005
- Revised process for issuing permits to drill on Federal lands provided in the Energy Policy Act of 2005
- Continued threat to national and international security
- Extended use of Alpine and TAPS transportation facilities
- Demonstrated vulnerability of production, refining, and transportation facilities to natural disaster (e.g., recent inclement weather problems in Alaska, and the Gulf of Mexico).

This EA will consider the cumulative impacts of past and ongoing activities in addition to the proposed FEX exploration plan and other reasonably foreseeable future activities, as well as potential cumulative impacts of the proposed action, within the framework described above.

4.4.2 Cumulative Effects of Proposed Action

The proposed BLM action is to authorize FEX to access up to nine drills sites for drilling up to 27 wells and/or sidetracks during this and the following winter season. Associated actions having potential cumulative impacts are construction of ice road/pad/camp/airstrips, water withdrawals from fresh water lakes, and transport of materials, equipment, and personnel by barge, aircraft, LPV, and conventional vehicles.

The cumulative effects analysis assumes that any existing authorizations for ice roads, packed snow trails, and water withdrawal necessary for the proposed winter exploration drilling operation would have appropriate extensions or re-authorizations for FEX through the project period. The direct, indirect, and cumulative effects of continuing use of those existing authorizations

⁹¹ EA: AK-023-06-003, Figure 2.

⁹² 2003 NW IAP/EIS, Vol. 1, pp. IV-418 and 419.

with their respective environmental protective measures are expected to be no different, individually or collectively, than those considered by BLM for the original authorizations of similar activities.

Results of previous analyses that have been incorporated by reference, and consideration of existing and proposed protective measures in the NPR- A (e.g., stipulations and ROPs), are the primary factors limiting this cumulative impacts analysis to the issues listed in Section 4.4.1. The discussion of potential cumulative impacts associated with each of these five issues is presented below.

Issue 1. Impacts to Fish and Wildlife: BLM protective measures have been applied in the NPR-A for the last seven winter drilling seasons without any individual or collective direct, indirect, or cumulative impacts to fish habitats or to fish populations.⁹³ These protective measures include setbacks from water bodies and limitations on the amount of water that can be withdrawn from a lake based on the depth of the lake, presence or absence of fish, the type of fish if present, and restriction of activities that could cause freeze-down (i.e., thicker ice results in less unfrozen water available for fish). The proposed FEX winter exploration drilling program is similar to the winter drilling programs conducted in the NW and NE NPR-A Planning Areas under BLM and other Federal, State, NSB, and local authorizations.

For three years, BLM required exploration companies to monitor selected lakes to identify any recharge problems following winter water withdrawals for ice road/pad construction. During this monitoring program, no significant adverse effects from water withdrawal were found. Several related studies are currently underway (e.g., OHMP required monitoring for FEX water withdrawal at two lakes).

The proposed FEX winter exploration drilling program is within an area where winter exploration during 2005-2006 was completed by FEX (see **Table 11**). Those FEX activities were conducted without direct or indirect cumulative impacts. The proposed action in the same area using the same winter exploration techniques and protective measures required by the NW ROD is not reasonably expected to have an additive effect that would cause a significant adverse cumulative impact to fish habitat or fish populations. This is due to water withdrawal considered on site specific conditions with conservative factors applied, and a demonstrated ability to avoid significant impacts to fish.

⁹³ See Section 4.3.1, *Water Resources and Potential Impacts to Water Quality, Fish, and Waterfowl*, for a discussion of these protective measures.

ADNR has issued TWUPs for water withdrawals from the fish bearing lakes requested by FEX. These State authorizations limit ice aggregate removal to areas where the ice is grounded. Petro Canada has identified potential water sources that might be needed to support winter exploration and the four drill sites it has staked. None of these lakes have been proposed or authorized for water use by FEX. However, water withdrawals would be evaluated and authorized under the same site specific conditions as FEX. Should FEX and Petro Canada request water from the same lake, the total amount of water authorized for withdrawal from that lake would remain unchanged.

ADNR OHMP has also issued Title 41 permits (Fish Habitat) for both water withdrawal from fish bearing lakes and for fish stream crossings.

BLM protective measures have been applied in the NPR-A for the last seven winter drilling seasons without any individual or collective direct, indirect, or cumulative impacts to wildlife habitats or to wildlife populations. These protective measures include seasonal restriction activities, height and frequency restrictions for aircraft flights, as well as prohibitions in certain special areas.⁹⁴ The proposed FEX winter drilling program is essentially the same as the authorized FEX 2005-2006 winter exploration program and is similar to the winter drilling programs conducted in the NE NPR-A Planning Area under BLM and other Federal, State, NSB, and local authorizations.

Caribou are of special importance for subsistence purposes. Therefore, this cumulative effects analysis focuses on potential cumulative impacts to caribou.

Potential cumulative impacts from the proposed FEX, CPAI, and Petro Canada projects operating in the same general time frames would be similar to the direct, indirect and cumulative effects to wildlife evaluated for periods when two operators (i.e., CPAI with Anadarko or TOTAL) had concurrent winter exploration programs in the NE NPR-A in relatively close proximity to one another.⁹⁵ There is, however, additional potential for cumulative impacts in the event: (a) drilling operations operating *concurrently* within three miles of each other, with associated aircraft support, or (b) two or more drill rigs are moved *concurrently* via the same or nearby overland route to the south of Teshekpuk Lake.

⁹⁴ See Section 4.3.1, *Threatened and Endangered Species, Polar Bears, and Other Sensitive Wildlife*, for a discussion of these protective measures.

⁹⁵ EA: AK-023-02-004, and EA: AK-023-02-005, Section D.3; EA: AK-023-04-004, and EA: AK-023-04-005, Section 4.5.

Concurrent drilling with aircraft support at sites within three miles of each other in an area where there is no other industrial activity (e.g., a producing field) can reasonably be expected to cause localized displacement of caribou around the operations. The proposed and authorized FEX operations, along with potential Petro Canada (and possibly CPAI) operations in the NW Planning Area may impact caribou. The eastern part of the project area overlaps an area designated as “Peripheral Range” for the WAH and CAH caribou (2003 NW IAP/EIS, Map 47), and as “Winter Area” (December 1 to April 30) for the TLH caribou (2003 NW IAP/EIS, Map 54).

The cumulative effect of concurrent drilling operations with multiple air support operations would be short-term and local, (i.e., only to the extent that the two drilling exploration programs were running concurrently in close proximity (i.e., at Aviullaavik 1 or Aviullaavik 2 and Aklaq #2A or Aklaq #s 4, #7 and #7A, or Aklaqyaaq #1 and #2). The displacement of caribou on the winter range is not expected to have a significant adverse cumulative effect. However, this assumption is based on observations at winter drilling operations in the NPR-A since 1999. Conditions vary from year to year, and it is possible that continuing disturbances could have an additive effect on natural winter mortality.

For purposes of cumulative impact evaluation, it is assumed that FEX would remove drilling equipment from private land at Cape Simpson at the conclusion of the 2006-2007 winter drilling season by marine transportation by barge in a manner similar to that evaluated by NOAA. However, there is also potential that FEX may decide to remove the drill rig and support infrastructure overland by low-ground-pressure vehicles. If so, it is possible that the FEX and Petro Canada (and possibly CPAI) could demobilize via overland movement during the same general time frame through the same areas.

Overland travel in the Caribou Special Stipulations Area in the NE NPR-A must be completed before May 1, unless an exception is granted. It is noted, however, that ROP C-2 for the NW Planning Area and Stipulation 24 for the NE Planning Area (protect stream banks, minimize compaction of soils, and minimize breakage, abrasion, compaction or displacement of vegetation) would, depending on the exact time of break-up, allow overland travel until about May 15th. The FEX ODPCP includes a stop-drilling date of April 21, which may not be early enough to meet the May 1 deadline for travel through the Caribou Special Stipulations Area in the NE NPR-A, if that route is used.

The concurrent overland movement of several drill rigs and associated equipment south of Teshekpuk Lake would have the potential to cause localized short-term deflection of some of the Teshekpuk Lake caribou herd away from the winter grounds to the calving area. This possible cumulative impact of deflecting caribou movement is expected to be short-term, localized, and not significant on the caribou.

The proposed CPAI winter drilling program in the NE Planning Area is located in close proximity to a cluster of existing authorized drilling sites and authorized ROWs which have been found by BLM in site-specific EAs (**Table 2**) and on-the-ground monitoring to have no significant impact to caribou when the protective measures of the 1998 NE IAP/EIS and its ROD are applied.

Steller’s and spectacled eider (both species are listed under the ESA) are not present in the project area during the period that the winter drilling operation would be underway. Neither are yellow-billed loons. The bowhead whale (also listed under the ESA) is not present during the winter, but may be in the general area off Cape Simpson during the time FEX has proposed to barge the drill rig and associated equipment out of the project area. Impacts to bowhead whales or to other marine mammals are not expected since the appropriate Federal agencies in consultation with local residents, the AEWG, and public at large has determined that barging can be done without adverse impacts. In summary, no cumulatively significant impacts on any wildlife species, including those listed under the Endangered Species Act or the Marine Mammal Protection Act, are anticipated.

Issue 2. Conflicts with Subsistence: This discussion focuses on cumulative impacts of winter oil and gas exploratory drilling. See Issue 4 for further discussion of cumulative impacts to subsistence from oil and gas production activities.

BLM protective measures have been applied in the NPR-A for the last seven winter drilling seasons without any significant individual or collective direct, indirect, or cumulative impacts to fish habitats or to fish populations.⁹⁶ Activity levels are expected to be similar in the future, such that cumulative impacts will remain insignificant. In addition, a series of stipulations and ROPs have been developed to avoid the potential for significant restriction of subsistence uses or access to subsistence resources.⁹⁷

⁹⁶ See Issue 1 for additional discussion of reasonably foreseeable cumulative impacts to fish and wildlife.

⁹⁷ See Section 4.3.1, *Land Use and Subsistence*, for a discussion of these protective measures. .

Multi-year winter exploration drilling projects and the potential for concurrent operations within and adjacent to the NPR-A (including both the FEX authorized and potential operations as well as potential actions by CPAI and Petro Canada) at existing staked drilling sites have been discussed with local residents through meetings with the community, NSB, regulatory and resource agencies, and the NPR-A SAP to insure that project-specific and cumulative effects are not expected to have a significant adverse impact to subsistence resources or access.

Historically, the Iñupiat have traveled via snow machine and sometimes conventional vehicles from Barrow to the Nuiqsut region along a cluster of snow trails and nearshore ice routes. Since 1983, local villagers have constructed ice bridges across the Colville River to the nearest oil exploration road. These routes are used regularly in winter for hauling fuel, food, and supplies to the communities in the NPR-A as well as for travel to the west from Nuiqsut to reach subsistence resources during the winter, primarily caribou. Local residents travel to the project area during the summer by small open boats or by small aircraft.

The ROPs and stipulations for the NW NPR-A Planning Area do not include specific dates for completing overland movement in the Caribou Habitat Area. However, the potential for caribou moving to a calving area to be deflected by the *concurrent* movement of several drilling rigs and associated facilities is expected to be short-term (i.e., several hours over a period of several days), localized to the area where traffic is underway, and cumulatively not significant to either the caribou herd or to local residents harvesting caribou for subsistence purposes.

Winter seismic work is conducted in the NPR-A on a regular basis. In general, winter seismic programs are transitory, being in a general area only a few days or weeks. Subsistence hunters have stated at NPR-A SAP meetings that seismic exploration results in the displacement of caribou from the area of seismic activity. Additionally, they state that when seismic exploration and exploratory drilling occur within 20 miles of each other, caribou are displaced from the area and will not use the area as a travel corridor.⁹⁸ To the extent this impact may occur, it is expected to be limited to the duration of concurrent operations in the same locale. No long term adverse cumulative impacts for access to or use of subsistence resources are expected.

Seismic work planned this winter would be similar to other recent winter seismic activities in NPR-A. The

⁹⁸ NPR-A SAP meeting minutes March 23, 2006, Barrow, AK

BLM protective measures that apply to winter seismic activity avoid significant adverse impacts to tundra, fish, wildlife, and subsistence. Therefore, no significant cumulative effect on subsistence is expected from the proposed action, in combination with other reasonably foreseeable seismic or other drilling projects.

In addition to winter activities, summer activity including studies, monitoring, and recreational use in the NPR-A occur. These include aircraft support for fish and wildlife studies as well as inspections of proposed drilling sites and abandonment inspections. Frequently, helicopters are used as the basic means of air support. Helicopter activity can result in deflection of wildlife and disturbance of people engaged in subsistence activities. Although every effort is made to minimize the effects of aircraft activity (e.g., NW NPR-A ROP F-1, NE NPR-A Stipulations 52-57), aircraft transportation is crucial to many summer activities (e.g., local passenger and freight transportation, subsistence, studies and monitoring, land management, wildlife management, and recreation).

Current economic conditions suggest that the existing level of aircraft traffic is expected to continue, and may increase, in the foreseeable future. The BLM is currently working with the NPR-A SAP on ways to minimize impacts to subsistence as the result of summer aircraft activity. Separate permits for summer activities will consider additional mitigation measures if recommended by the SAP.

The ANILCA 810 Analysis in the 2003 NW IAP/EIS found that the cumulative case of development would result in a reasonably foreseeable and significant restriction of subsistence use for local communities as a result of potential impacts to the TLH caribou.⁹⁹

Issue 3. Visual and Functional Impacts to Tundra: BLM protective measures have been applied in the NPR-A for the last six winter drilling seasons without any individual or significant direct, indirect, or cumulative impacts to tundra vegetation. There have been both direct and cumulative impacts, but none have been significant. These protective measures include requirements for offsetting ice roads from year to year, opening and closing of winter tundra travel, avoiding willow patches to the extent practicable, and prescribing the type of vehicles that may be used off road.¹⁰⁰ The proposed FEX winter exploration drilling program is similar to the FEX 2005-2006 activities in the project area and to winter drilling programs conducted in the NE NPR-A

⁹⁹ 2003 NW IAP/EIS Vol. 3, Appendix 5, p. 5-17.

¹⁰⁰ See Section 4.3.1, *Disturbance to Floodplains, Wetlands, Riparian Zones & Vegetation*, for a discussion of related protective measures.

Planning Area under BLM and other Federal, State, NSB, and local authorizations, and similar types and levels of impacts are anticipated.

A 2003 report by the National Research Council (NRC)¹⁰¹ notes that seismic trails, off-road vehicle trails, ice roads and ice pads are a cause for concern because they can damage vegetation and because they can be seen from the air. Since 1999, the effects of packed snow trails and ice road and pad construction in the NPR-A have been field checked during construction, operation, and succeeding summers to determine if there were significant adverse environmental impacts. During that period, no cumulatively significant impacts to tundra vegetation have been noted from winter exploration activities, including seismic work. Field inspections at the conclusion of the 2005-2006 winter exploration season had similar findings. Future impacts are expected to remain at a cumulatively insignificant level.

Findings and observations have been discussed with operators, local residents, and government officials, resulting in elimination or reduction of damage (e.g., enforcing speed limits, modifying ice removal methods, eliminating pickup of lake bottom sediments during water withdrawal, expanding the width of the ice road in key locations, pre-marking the grade at stream crossings, and installing reflective markers along road edges). As a result, the cumulative effects of winter exploration activities on tundra are expected to be minimal and localized, with visual effects (principally green or brown trails) most notable from the air, with no cumulatively significant effects. Since road and trail routes may be visible for more than one summer, the number of visible routes accumulates over multi-winter operations. However, these cumulative effects are not environmentally significant.

Issue 4. Oil and Gas Industrial Development: Higher than normal oil prices suggest that the exploration and development of energy resources will continue in the foreseeable future. In addition, Congress recently enacted economic incentives to construct a large diameter natural gas pipeline to domestic markets in the Lower 48 States. At the current time, no agreements have been negotiated which will insure that it will be built. Therefore, it is uncertain that natural gas deposits in NPR-A that are currently uneconomic would be developed. The National Energy Act includes requirements to streamline permitting and decisions needed to develop energy resources.

The nearest permanent petroleum production facilities are at the Barrow gas fields (approximately 64 miles northwest of the project area) and the western extension of the Alpine Satellites field approximately 85 miles to the east.¹⁰² The former supplies energy for Barrow; the latter connects to TAPS and is either used in Alaska or exported to the conterminous States via tanker from Valdez.

The State was previously considering options to construct a permanent gravel road from the Dalton Highway to the NPR-A boundary near Nuiqsut to provide year around access to Federal oil and gas leases and State leases in the Brooks Range Foothills and the basin south of the Tarn and Meltwater fields. The State has now suspended work on this access option, and initiated the process to expand the existing North Slope road infrastructure eastward from Prudhoe Bay to Point Thomson.

The proposed project does not include a request to construct permanent facilities. However, because the proposed action is in an area of high oil and gas potential, the cumulative effects analysis addresses development as a possible future action. It is noted, however, that any potentially significant impacts associated with production facilities, such as roads and pipelines, must be reevaluated through a separate NEPA process prior to any Federal authorizations. The location and design of any future development on Federal land in NPR-A would be subject to project-specific mitigation by the BLM similar to that recently completed for the Alpine Satellites Development.

These analyses are incorporated herein. No new or different development impacts are expected beyond those already evaluated in detail in the referenced EISs. Drill sites Aklaq #1, Aklaq #1A, Aklaq #2, Aklaq #2A, and Aklaq #2B are all within the Caribou Study Area, which requires a minimum three years of current data before construction can be authorized by BLM (ROP K-5). As noted above, any development resulting from the proposed exploration program would also be subject to additional NEPA analysis prior to authorization by BLM. In addition, a new ANILCA Section 810 analysis and finding would be required.

Should a commercially viable discovery be made in the project area as a result of this or other winter exploration programs, new production would likely extend the life of the Alpine and TAPS transportation facilities. While recent events have shown that there is increasing potential for accidental spills from the aging production

¹⁰¹ National Research Council. Cumulative Environmental Effects of Oil and Gas Activities on Alaska's North Slope. 2003. Summary, pp. 19-20.

¹⁰² See Figure 3.

facilities at Prudhoe Bay, new discoveries in the NPR-A would not likely utilize these facilities.

Issue 5. Economic potential for Alaska Native Village and Regional Corporations and the NSB; increase in State and Federal revenues: The project area is considered to have high probability for the occurrence of economic oil and gas resources. The proposed action involves potential economic gains at multiple levels: direct employment and utilization of local services, access fees, and, if commercial quantities of oil or gas are discovered, State and Federal taxes and royalties. FEX and other operators have policies and procedures in place for hiring and training local residents.

A critical issue facing the NSB is the growing shortfall in revenues due to the decline in assessed value resulting from depreciation of petroleum-production related facilities. The real property assessed evaluation for the NSB declined from \$11.5 billion in 1992 to \$9.4 billion in 2001.

Fifty percent of federal oil and gas lease sale revenues and rents in the NPR-A are made available to the State. These monies (over \$94 million to date) may be used for a variety of purpose. These include: NPR-A Impact Mitigation Grants, to assist affected communities in dealing with related impacts; Public School Trust Fund; Power Cost Equalization and Rural Electric Capitalization Fund; Alaska Permanent Fund; and the General Fund.¹⁰³

The ANILCA 810 Analysis in the 2003 NW IAP/EIS found that the cumulative case of development would result in a reasonably foreseeable and significant restriction of subsistence use for local communities as a result of potential impacts to the TLH caribou.¹⁰⁴

4.4.3 Cumulative Impact Conclusions

Considering the protective stipulations and ROPs of the 2004 NW NPR-A ROD, the demonstrated effectiveness of the same winter exploration technologies in the project area by FEX during 2005-2006, and other operations during the seven year demonstrated record of *winter exploration* in the NPR-A, no significant direct or indirect or cumulative impacts are expected from the proposed winter exploration drilling program when

added to other past, present, and reasonably foreseeable activities.

The appropriate agencies have been consulted to confirm that species listed under the ESA and the MMPA, and EFH are not directly, indirectly, or cumulatively impacted in a significant adverse manner. The cumulative effects analyses related to the five key issues support the findings of this EA that there are no significant adverse direct, indirect or cumulative impacts. Impacts of the proposed action, when considered with other past, present, and reasonably foreseeable future actions, are expected to be localized, minor and short-term.

The 2003 NRC report indicates that there have been cumulative effects associated with the operation of year-around *production* facilities and roads. However, development potential from the proposed action is uncertain and speculative. Additionally, future development and production activities in the NPR-A will require additional NEPA analysis.

4.5 MITIGATION AND MONITORING

North Slope operators have actively worked to develop winter exploration technologies that create minimal impact to the environment and to local residents. Operators, regulators and local officials have participated in a series of workshops to review the results of winter exploration with a special emphasis on identifying ways that future operations can be modified to provide enhanced protection of the environment. Many of these enhancements, such as ways to reduce damage to the tundra, have been incorporated into the operational plans, including the proposed project. FEX has incorporated all the applicable stipulations and ROPs contained in the 2004 ROD for the NW NPR-A, and will comply with relevant stipulations of the 1998 ROD for activities in the NE NPR-A.

BLM will give special attention to monitoring the following resources as the proposed action is implemented:

- Access to subsistence use areas and winter caribou movements
- Cultural resources
- Tundra/vegetation
- Fish habitat
- Bear and other predators
- Teshekpuk Lake Special Area, and Biological Sensitive Areas such as designated river setbacks, Deep Water Lakes, Yellow-billed Loon and Brant

¹⁰³ NPR-A Impact Mitigation Program History and Overview Department of Commerce Community and Economic Development, Division of Community Advocacy 2006 Annual Report. <http://www.commerce.state.ak.us/dca/pub/AnnualReport06N PRA.pdf>

¹⁰⁴ 2003 NW IAP/EIS Vol. 3, Appendix 5, p. 5-17.

Survey Areas, Caribou Study Area, Teshekpuk Lake Caribou Habitat Area, and the Coastal Area.

Monitoring measures will involve: 1) the drilling operation, including the drill rig and ancillary facilities, and 2) other surface activities. The former involves geotechnical and engineering considerations such as the presence of hydrogen sulfide gas. The latter includes the movement of equipment, supplies and personnel to and from the drilling operations and the continuing protection of vegetation, and fish and wildlife habitat. The objective of this monitoring program is to insure that all terms and conditions in the Federal oil and gas leases, the 2004 ROD for the NW NPR-A and the 1998 ROD for the NE NPR-A are met as previously described and incorporated by reference.

Additional Mitigation

The cumulative effects evaluation (Section 4.5) has identified the potential for cumulative impacts possibly associated with concurrent operations of the proposed FEX winter exploration project and the potential CPAI and Petro Canada winter exploration projects, as indicated by their respective staked drill sites in the general vicinity of the proposed and authorized FEX programs. Although found to be not significant, this potential cumulative effect involves: a) the concurrent operation of several drilling operations within a distance of three miles, and/or b) concurrent demobilization of drilling equipment.

In the event that there will be concurrent, but independent drilling operations with associated air support in close proximity, BLM will require the independent operators to consider options for reducing the potential short-term, minor impacts to caribou movement by:

1. Determining whether shared facilities such as a centrally located common ice airstrip and/or common ice roads are economically feasible, safe, and prudent.

In the event that FEX, Petro Canada, and/or CPAI (or another operator) are concurrently demobilizing drilling operations, and transporting equipment using LPVs on the overland route going south of Teshekpuk Lake through the biologically sensitive Caribou Habitat Area (designated as a Land Use Emphasis Area [LUEA] under the 1998 NE ROD), BLM will require the operators to:

2. Make an effort during demobilization operations to avoid deflection of any caribou movement from the wintering area to the calving areas.

3. Alternatively, BLM will request that affected operators consider different routes/methods of demobilizations occurring at approximately the same time.

In order to minimize disturbance caused by barging, BLM will request that operators planning exploration in two or more sequential years to:

4. Consider over-summer storage of the drilling rig, equipment, and supplies at Cape Simpson or another approved existing storage area such as Camp Lonely, to the extent that space is available.

4.6 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

This analysis has considered and incorporated by reference previous studies and findings on oil and gas winter exploration activities on the North Slope and specifically in NPR-A, including the stipulations and ROPs in the NE and NW IAP/EISs and RODs. In addition, FEX conducted winter exploration activities in the project area in a manner that is very similar to that of the proposed action. FEX operations last year were conducted without either a violation of the terms and conditions of their permits or significant environmental damage. Based on this analysis, it is concluded that direct, indirect and cumulative impacts from the proposed action should be relatively minor and short-term.

Cumulative effects to date are similar to those described in the NW and NE IAP/EISs. This project does not introduce any impacts that have not been considered previously. A potential cumulative impact associated with the possibility of concurrent drilling operations and associated air support within three miles of each other has been evaluated. This evaluation has concluded that no significant direct or indirect cumulative impact is expected from the proposed action.

Also considered were the requirements and restrictions for water withdrawals and fish stream crossings included in authorizations issued by the ADNOR OHMP.

FEX has maintained an open, effective communication process with local governmental entities and residents. Further, on July 28, 2006 the NMFS Office of Protected Resources authorized FEX for "incidental harassment" of a small number of marine mammals associated with the proposed barging operation.

4.7 IMPACTS OF THE ALTERNATIVES

This EA considers the proposed action to authorize a two-year winter exploration program involving drilling at up to five drill sites each winter. Nine drill sites have been staked and field verified by BLM for use this winter. Also identified to support winter drilling are 34 water/ice aggregate supply lakes. The drill rig was used during the 2005-2006 winter exploration season in the project area and has been demobilized and stored at Cape Simpson for use under the proposed action. A second drill rig will be transported to the project area by LPV using existing ROWs.

For a second season of drilling, the rig and related equipment would be demobilized at the end of the first winter and stacked/stored at Cape Simpson or another approved site.

Demobilization at the end of the drilling program would be by barge from Cape Simpson or Camp Lonely to the Prudhoe Bay area, with the option of using LPVs via packed snow trail within previously authorized corridors for some or all transport of equipment out of the NPR-A. The Applicant will use standard equipment and accepted arctic practice, in compliance with applicable stipulations and ROPs of the 2004 NW ROD and the 1998 NE ROD. The overall impact from the proposed action, including additional use of previously authorized overland access corridors, to the environment, including to species listed under the ESA and MMPA and to yellow-billed loons, to water resources, to subsistence, and to socioeconomic resources is expected to be minor, short-term, and cumulatively insignificant.

The “Shared Ice Road/Ice Airstrip” alternative would have the primary advantage of reducing the amount of water needed from fresh water lakes for construction of parallel ice roads or multiple airstrips in close proximity to each other. Shared facilities would also reduce the short-term impacts to wetlands, vegetation, and floodplains.

The “No Action” alternative considers that the proposed project is not authorized by BLM. This would eliminate all direct environmental impact of the project, which is expected to be minor. However, the Applicant would be restricted from drilling at new prospects on valid leases in the NPR-A and prospective oil deposits would not be drilled, no oil would be discovered, which would eliminate opportunities for local employment, potential to expand national energy reserves, and increased revenues to Federal, State, and local governments.

Additionally, if the “No Action” alternative were selected and assuming no major operational differences,

other NPR-A leaseholder applications such as CPAI and Petro Canada proposing winter exploration in the area would likely be rejected by BLM. Future Federal lease offerings in this area or in the NPR-A might not be pursued due to the precedent of not approving a winter drilling program that has been determined to have no significant or long-term site-specific or cumulative adverse impacts. This would lessen the likelihood of production facilities extending beyond the Alpine Satellites and perhaps substantially defer the pending development of the extension and associated production of oil from the Alpine Field. Ultimately, the Federal government might have to buy back the Federal leases associated with the proposed project and other Federal leases in the area.

The Applicant would have the option of canceling or redesigning the project, or otherwise seeking a change in the decision by BLM to deny the proposed project. Finally the “No Action” alternative might shift some on-shore exploration work to offshore areas of the North Slope.

In summary, the “Shared Ice Road/Ice Airstrip” alternative could reduce the quantities of water needed for ice road and ice airstrip construction and maintenance. It also would reduce the short-term and minor impacts to vegetation, wetlands and floodplains from multiple facilities. This alternative is only viable to the extent there are concurrent winter exploration activities in the same general area.

The “No Action” alternative eliminates the minor adverse environmental impacts expected from the proposed action, but does not enable the Applicant to access and drill on existing, valid oil and gas leases. This in turn eliminates the potential for economic gain and creates the potential that the Federal government would have to buy back leases that can't be used. There are no significant adverse impacts to be avoided.

5 CONSULTATION AND COORDINATION

5.1 AGENCY COORDINATION

The preparers of this EA have consulted with following contacts in completing this analysis:

- ADNR
 - Division of Mining, Land, and Water
 - Office of Habitat Management and Permitting
- NSB
- USFWS
- NPR-A SAP

In preparing its plan of operations, FEX conducted a series of meetings with resource and regulatory agencies, local government. The proposed project has subsequently undergone review by the NSB, State and Federal agencies, and the general public. FEX consulted with the NSB in the selection of routes, trails, water sources, and pad locations.

FEX provided BLM permit applications and support documentation that summarize the proposed project and compliance with applicable stipulations and ROPs. BLM has inspected the proposed drill sites and access routes. BLM and FEX have met to discuss the proposed action as the proposed program was being developed. These meetings are expected to continue as the project progresses.

5.2 PUBLIC COORDINATION

In preparing its plan of operations, FEX conducted a series of meetings with affected North Slope communities. See **Table 13**. The Iñupiat Community of the Arctic Slope (ICAS), Native Elders, and other local residents provided Traditional Knowledge at these meetings, which was incorporated in the project plan and into this assessment. FEX and a Traditional Knowledge Consultant participated in an on-site inspection of the proposed project area.

FEX has prepared a Subsistence Plan of Cooperation that documents coordination efforts and presents plans to mitigate potential impacts on subsistence resources and access. FEX also completed a Conflict Avoidance Agreement with the AEW, NSB, and other whaling communities, as required by the IHA.

FEX intends to attend future village meetings and will continue to provide project information updates to local radio station KBRW.

5.3 LIST OF PREPARERS

This EA was prepared by BLM with technical assistance from Don Meares of Plover Associates, and Tileston & Associates, a third-party EA contractor. Following is a list of BLM staff and Tileston team members involved in preparation of the EA.

BLM

- Dave Yokel, Wildlife Biologist
- Michael Kunz, Archaeologist
- Susan Flora, Environmental Scientist
- Mike Worley, Realty Specialist
- Richard Kemnitz, Hydrologist
- Donna Wixon, Natural Resource Specialist
- Debbie Nigro, Wildlife Biologist
- Matt Whitman, Fisheries Biologist
- Stacie McIntosh, Anthropologist/Subsistence Specialist

Plover Associates

Don Meares, Consultant to BLM

Tileston & Associates Team

- Jules Tileston, Project Manager
- Carol Gibson, Editor
- Sandra Hamann, MWH
- Mile Knapp, Blue Skies Solutions

Table 13. Community Involvement in FEX Exploration Planning

Date	Event (Some specify applicant and/or project focus)
3/17/05	Meeting in Barrow – ICAS, NSB Realty, Wildlife and Planning Departments (FEX)
3/17/05	NPR-A Subsistence Advisory Panel Meeting - Barrow
5/2005	FEX NPR-A Newsletter distribution
5/25/05	Open House – Barrow (FEX)
5/26/05	Planning Meeting - Barrow (FEX)
6/9/05	NPR-A Subsistence Advisory Panel Meeting – Atqasuk (FEX)
6/27/05	Open House – Atqasuk (FEX)
6/28/05	Wainwright Nalukataq – (FEX)
6//29/05	Open House - Wainwright (FEX)
6/30/05	Open House – Nuiqsut (FEX)
8/2005	FEX NPR-A Newsletter distribution
8/30/05	NPR-A Subsistence Advisory Panel Meeting - Nuiqsut
9/28/05	Open House – Pt Lay meeting – confirm (FEX)
10/19/05	Alaska Oil and Gas Association 2005 Projects Conference (with agencies, operators and NSB participating)
12/2005	FEX NPR-A Newsletter distribution
12/8/05	NPR-A Subsistence Advisory Panel Meeting - Barrow
1/31/06	NSB Planning Dept. Meeting - teleconference
2/9/06	Meeting with Alaska Eskimo Whaling Commission (AEWC) regarding Conflict Avoidance Agreement - Barrow
2/16/06	NSB Planning Dept. Meeting – Barrow
2/16/06	NSB Wildlife Dept. Meeting – Barrow
3/23/06	NPR-A Subsistence Advisory Panel Meeting – Barrow
4/7/06	Meeting with Alaska Eskimo Whaling Commission (AEWC) regarding Conflict Avoidance Agreement
4/8/06	Meeting with Alaska Eskimo Whaling Commission (AEWC) regarding Conflict Avoidance Agreement
6/27/06	Open House – Atqasuk (FEX & PCA)
6/28/06	Open House – Barrow (FEX & PCA)
8/3/06	NPR-A Subsistence Advisory Panel Meeting – Wainwright (FEX)

November 24, 2006

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