

December 20, 2006

## FINAL ENVIRONMENTAL ASSESSMENT

# National Petroleum Reserve-Alaska (NPR-A)

## ConocoPhillips Alaska, Inc. 5-Year Winter Exploration Drilling Program 2006-2011

Prepared By: USDO I Bureau of Land Management, Alaska Arctic Field Office, Fairbanks District Office, Alaska State Office



It is the mission of the Bureau of Land Management (BLM) to sustain the health, diversity and productivity of the public lands for the use and enjoyment of present and future generations.

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**EA-AK-023-07-002**

**ENVIRONMENTAL ASSESSMENT**

**EA: AK-023-07-002**

**National Petroleum Reserve-Alaska (NPR-A)  
5-Year Winter Exploration Drilling Program  
2006-2011**

**ConocoPhillips Alaska, Inc.**

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**USDOI Bureau of Land Management, Alaska  
Arctic Field Office, Fairbanks District Office  
Alaska State Office**

**Technical Assistance:**

**MWH  
Anchorage, Alaska**

## ENVIRONMENTAL ASSESSMENT

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- Title:** National Petroleum Reserve-Alaska (NPR-A)  
Winter Exploration Drilling Program, Northeast and Northwest Planning Areas
- EA Number:** AK-023-07-002
- Serial Number:** AA-081840, AA-084127, AA-081833, AA-081747, AA-081754, AA-081800, FF-92931, FF-93835
- Applicant:** ConocoPhillips Alaska Inc.  
P.O. Box 100360  
Anchorage, Alaska 99520-0360
- Date Prepared:** December 20, 2006
- District:** Fairbanks District Office  
**Planning Unit:** NPR-A, Northwest (NW) and Northeast (NE) Planning Areas
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- Lands Involved:** New access corridor totaling about 110 miles, to improve and shorten the existing authorized Rights-of-Way (ROW) from Kuparuk to Barrow, as well a continued use of authorized ROW in the NPR-A. Also proposed are 4 new ice airstrip locations, 11 new drill sites and 9 new water supply lakes in the NE NPR-A. Specific locations are identified in the project plans. The 11 newly proposed drilling pad locations are:
- T12N, R5W, Sec. 21, Umiat Meridian (Noatak 2)
  - T12N, R5W, Sec. 21, Umiat Meridian (Noatak 3)
  - T11N, R4W, Sec. 28, Umiat Meridian (Nugget 1)
  - T11N, R4W, Sec. 28, Umiat Meridian (Nugget 2)
  - T12N, R1W, Sec. 27, Umiat Meridian (Cassin 1)
  - T11N, R1W, Sec. 17, Umiat Meridian (Cassin 2)
  - T12N, R1W, Sec. 31, Umiat Meridian (Cassin 3)
  - T10N, R2E, Sec. 21, Umiat Meridian (Spark DD 9)
  - T10N, R2E, Sec. 21, Umiat Meridian (Spark DD 10)
  - T10N, R2E, Sec. 28, Umiat Meridian (Spark DD 11)
  - T10N, R2E, Sec. 21, Umiat Meridian (Spark DD 12)

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 this EA includes analysis of the effects of the proposed exploration activity and alternatives. This 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 the BLM in evaluating potential and proposed oil exploration and development in the NPR-A. Over the past 7 years, the BLM has evaluated construction and drilling at 73 potential exploration drill sites, access via approximately 950 miles of corridor, and construction of ice airstrip at 36 locations in the NPR-A. Impacts of these types of activities have also been evaluated in 3 Integrated Activity Plan (IAP)/Environmental Impact Statements (EIS) for the NPR-A and one EIS for development in the Northeast NPR-A and adjacent Colville River Delta. This EA is tiered from and incorporates relevant portions of the 1998 NE IAP/EIS, the 2003 NW IAP/EIS, and NPR-A Exploration EAs described in more detail in this document.

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**APPENDIX A**

Related Environmental Analyses, NPR-A Exploration

## LIST OF ACRONYMS

ACMP	Alaska Coastal Management Program
ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
ANILCA	Alaska National Interest Land Conservation Act
AOGCC	Alaska Oil and Gas Conservation Commission
ASDP	Alpine Satellite Development Plan
BLM	Bureau of Land Management
CAH	Central Arctic Caribou Herd
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CPAI	ConocoPhillips Alaska, Incorporated
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
H <sub>2</sub> S	Hydrogen Sulfide
IAP	Integrated Activity Plan
KSOP	Kuukpik Subsistence Oversight Panel
LCP	Low Centered Polygons
LPV	Low-Pressure Vehicle
LUEA	Land Use Emphasis Area
MMPA	Marine Mammal Protection Act
NE	Northeast
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
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
NSB	North Slope Borough
NW	Northwest
ODPCP	Oil Discharge Prevention and Contingency Plan
OHMP	(ADNR) Office of Habitat Management and Permitting
ROD	Record of Decision
ROP	Required Operating Procedure
ROW	Right of Way
SAP	Subsistence Advisory Panel
SHPO	State Historic Preservation Office
SPCC	Spill Prevention, Control, and Countermeasures
TAPS	Trans Alaska Pipeline System
TLH	Teshekpuk Lake Caribou Herd
TWUP	Temporary Water Use Permit
USDOI	U.S. Department of Interior
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service
WAH	Western Arctic Caribou Herd

## 1 INTRODUCTION

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ConocoPhillips Alaska, Inc. (CPAI) has applied for permits to access and drill on valid oil and gas leases during a five-year winter exploration program in the National Petroleum Reserve-Alaska (NPR-A). CPAI (the Applicant) has submitted permit applications, including the Bureau of Land Management (BLM) Right-of-Way (ROW) application and Plan of Exploration (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 draws heavily from previous BLM analyses of proposed CPAI exploration in the Northeast (NE) NPR-A, documented in:

- EA: AK-023-05-005 (2004)
- EA: AK-023-04-004 (2003)
- EA: AK-023-03-008 (2002)
- EA: AK-023-02-005 (2002)

All of these analyses resulted in Findings of No Significant Impact (FONSI). This EA focuses on new project elements (i.e., exploration drilling at up to 11 new locations; 110 miles of new ROW corridor (crossing both the NE and Northwest [NW] NPR-A, and 10 new water supply lakes), 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 sites<sup>1</sup>, and private industry drilled at two test sites.<sup>2</sup> Early exploration resulted in the 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 at Barrow.<sup>3</sup> The Walakpa gas field in the Barrow area was developed by the NSB, and is one of the most recently developed gas fields in Alaska. This

field now produces up to 90 percent of Barrow's consumption of natural gas.<sup>4</sup>

In 1998, an Integrated Activity Plan (IAP) with associated Environmental Impact Statement (EIS) for the NE NPR-A Planning Area was released,<sup>5</sup> 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.<sup>6</sup> The 1998 ROD includes 79 stipulations as prescriptive measures to ensure environmental protection from activities authorized in the NE Planning Area.

In 2003, a final IAP/EIS for the NW NPR-A Planning Area was published.<sup>7</sup> 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 deferred, pending further study.<sup>8</sup> 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, the BLM issued a new IAP/EIS that evaluated a proposal to amend the 1998 NE IAP/EIS. The associated ROD (issued in 2006) 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 Planning Area.

The new drill sites, eight new lakes, and segments of the proposed ROW amendment are within the NE Planning Area. As shown on Figure 1, CPAI has staked three exploration drilling sites approximately 20 miles south of Barrow (i.e., Intrepid 1 through 3), on private land, which requires ROW amendments on adjacent federal land and water withdrawal from one lake in the NW NPR-A. While specific environmental safeguards in place for the NE and NW NPR-A are different, the level of environmental protection provided is similar.

As noted above, activities proposed by CPAI are similar to previously authorized exploration activities in the NPR-A. Since 1999, 11 winter exploration drilling programs in the NPR-A have been authorized. For this, the BLM evaluated access and exploratory drilling at 82

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<sup>1</sup> U.S. Geological Survey (USGS) Professional Paper 1399 (1988), p. 333.

<sup>2</sup> USDOl. August 1998. Northeast NPR-A Final Integrated Activity Plan/Environmental Impact Statement (IAP/EIS), Vol. 1, p. III-A-5 (One well drilled by Arctic Slope Regional Corporation (ASRC), and one by CPAI).

<sup>3</sup> USGS Professional Paper 1240-C (1985), p. C14.

<sup>4</sup> USDOl 1998 Northeast IAP/EIS, p. III-A-43.

<sup>5</sup> USDOl. 1998. Northeast NPR-A /EIS, Vol. 1 and 2.

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

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

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

sites, although drilling has only been completed at 20 of these sites (15 of which were drilled by CPAI). 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 expected to be completed. Exploration drilling by CPAI has led to the discovery of producible reserves at two sites recently evaluated for development in the NPR-A.<sup>9</sup>

## 1.2 PURPOSE OF AND NEED FOR THE PROJECT

CPAI believes that significant recoverable oil potential exists on lease holdings within the NPR-A. The purpose of the proposed action is to permit CPAI to drill wells and/or sidetracks at any of the 11 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 CPAI's proposed project is to determine if lease holdings contain economically recoverable oil and gas in a 5-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 the 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.

<sup>9</sup> BLM in cooperation with U.S. Army Corps of Engineers, EPA, USCG, and State of Alaska. Alpine Satellites Development Plan Final EIS. September 2004.

## 1.3 RELATED STATUES, REGULATIONS, POLICIES, AND PROGRAMS

The 1998 and 2003 IAP/EIS programs were completed to fulfill the BLM's responsibility to manage lands in the NE and NW Planning Areas 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/EISs and decisions reflected in the 1998 and 2004 RODs 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 the: NPRPA, FLPMA, NEPA, ANILCA, Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), National Historic Preservation Act (NHPA), Clean Water Act, Clean Air Act, 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 the BLM to address issues vital to the nation's energy program. The BLM implementation plan directs the agency to continue ongoing operations associated with existing leases (i.e., Applications for Permit to Drill, inspection and enforcement, and NEPA compliance) within the NPR-A. The proposed action is 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 Appendix A. All exploration EAs and associated FONSI documents

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.

The Council of Environmental Quality (CEQ) Regulation 40 Code of Federal Regulations (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 from the 1998 NE IAP/EIS and ROD and the 2003 NW IAP/EIS and 2004 ROD, which are incorporated in their entirety by reference per CEQ Regulation 40 CFR 1502.21.

This EA tiers from EAs: AK-023-05-005 and AK-023-06-003 and the associated FONSI. These are the most recent analyses directly related to the proposed action. They evaluate proposed CPAI exploratory drilling operations similar in scope and location to the proposed project and access through the NE and NW

(respectively). This EA also draws heavily from other previous evaluations of NPR-A exploration documented in the drilling EAs and their associated FONSI listed in **Appendix A**.

**1.3.4 Land Status**

The proposed drill sites are located on NPR-A lease tracts held by CPAI, in whole or in part with Anadarko Petroleum Company, and also Pioneer Natural Resources Alaska, Inc. (Noatak 2 and 3 and Nugget 1 and 2), under the jurisdiction of the BLM. Access to drilling areas (including the Intrepid sites) and water supply lakes requires approximately 110 miles of new access corridor, as well as continued 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) are avoided. The BLM does not authorize use of private property; access over private lands requires authorization of the land owner. Within both the NE and NW Planning Areas, the BLM has designated areas where special stipulations apply.

**Table 1. Permits and Authorizations for Proposed Project <sup>a</sup>**

<b>Federal Authorizations and Approvals</b>	
Bureau of Land Management (BLM)	<ul style="list-style-type: none"> <li>▪ Application for Permit to Drill</li> <li>▪ Amended Rights-of-Way FF92931 and FF93835</li> <li>▪ Threatened and Endangered Species “No Effect” Determination</li> <li>▪ Essential Fish Habitat Assessment (No consultation with National Marine Fisheries Service required)</li> <li>▪ Alaska National Interest Land Conservation Act 810 Evaluation and Findings</li> </ul>
U.S. Fish and Wildlife Service (USFWS)	<ul style="list-style-type: none"> <li>▪ Letter of Authorization (LOA) for Incidental Take of Polar Bears; Polar Bear/Personnel Encounter Plan</li> <li>▪ Concurrence on BLM Threatened and Endangered Species “No Effect” Determination</li> </ul>
U.S. Environmental Protection Agency (EPA)	<ul style="list-style-type: none"> <li>▪ Domestic Wastewater Discharge, under National Pollutant Discharge Elimination System (NPDES) General Permit No. AKG-33-0000 (drilling/camp contractor)</li> <li>▪ Spill Prevention, Control, and Countermeasures Plan (drilling/testing contractor)</li> </ul>
<b>State Authorizations and Approvals</b>	
Alaska Department of Natural Resources (ADNR)	<ul style="list-style-type: none"> <li>▪ Program General Concurrence Determinations (e.g., General Concurrence Determination 5 and 8) for related elements</li> <li>▪ Temporary Water Use Permit</li> <li>▪ Cultural Resources Coordination/Consultation with the State Historic Preservation Office</li> <li>▪ Fish Habitat Permit (Office of Habitat Management and Permitting)</li> <li>▪ Alaska Coastal Management Program Consistency Determination</li> </ul>
Alaska Department of Environmental Conservation (ADEC)	<ul style="list-style-type: none"> <li>▪ Temporary Storage of Drilling Wastes</li> <li>▪ Air Quality Minor Source General Permit</li> <li>▪ Oil Discharge Prevention and Contingency Plan</li> <li>▪ Certificate of Financial Responsibility</li> <li>▪ Wastewater and Water Treatment System Approval (drilling/camp contractor)</li> </ul>
Alaska Oil and Gas Conservation Commission (AOGCC)	<ul style="list-style-type: none"> <li>▪ Permit to Drill</li> <li>▪ Approval for annular disposal of drilling wastes (optional)</li> </ul>
<b>Local Authorizations and Approvals</b>	
North Slope Borough (NSB)	<ul style="list-style-type: none"> <li>▪ NSB Coastal Zone Consistency Determination</li> <li>▪ Development Permit (for related elements)</li> </ul>

<sup>a</sup> The Federal Aviation Administration issues “no objection to proposed airstrips”

## 1.4 PUBLIC INVOLVEMENT

Development of the 1998 NE IAP/EIS and the 2003 NW IAP/EIS involved extensive input from other Federal agencies, the State, the NSB, thousands of individuals, and many institutions.<sup>10</sup> The 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, Point Lay, and Wainwright to discuss NPR-A exploration plans. All recent NPR-A exploration drilling programs have been public-noticed by the BLM. 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 in the NE NPR-A and adjacent Colville River Delta.<sup>11</sup>

The proposed project reflects input gained from meetings with local communities, the NSB, NPR-A Subsistence Advisory Panel (SAP), and other agencies and entities. CPAI hosted meetings and open houses in Barrow, Wainwright, Atqasuk, Nuiqsut, and Anaktuvuk Pass to continue consultation and public comment (details are provided in Section 5.2). CPAI also has an ongoing program to provide additional opportunities for public involvement (e.g., newsletters, radio, and local meetings).

## 1.5 BLM DECISION PROCESS

The BLM's decision on the proposed action will be based on statutory and regulatory authority. Prior to authorizing the proposed project, the 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 1998 IAP/EIS and ROD serve as required NEPA documentation for lease sales in the NE NPR-A. This EA will be based on management controls and relevant stipulations in the 1998 NE ROD, as well as actual experience with exploration activity in the NPR-A. Analysis of segments of the new access corridor within the NW NPR-A are based on relevant stipulations and ROPs of the 2004 NW ROD.

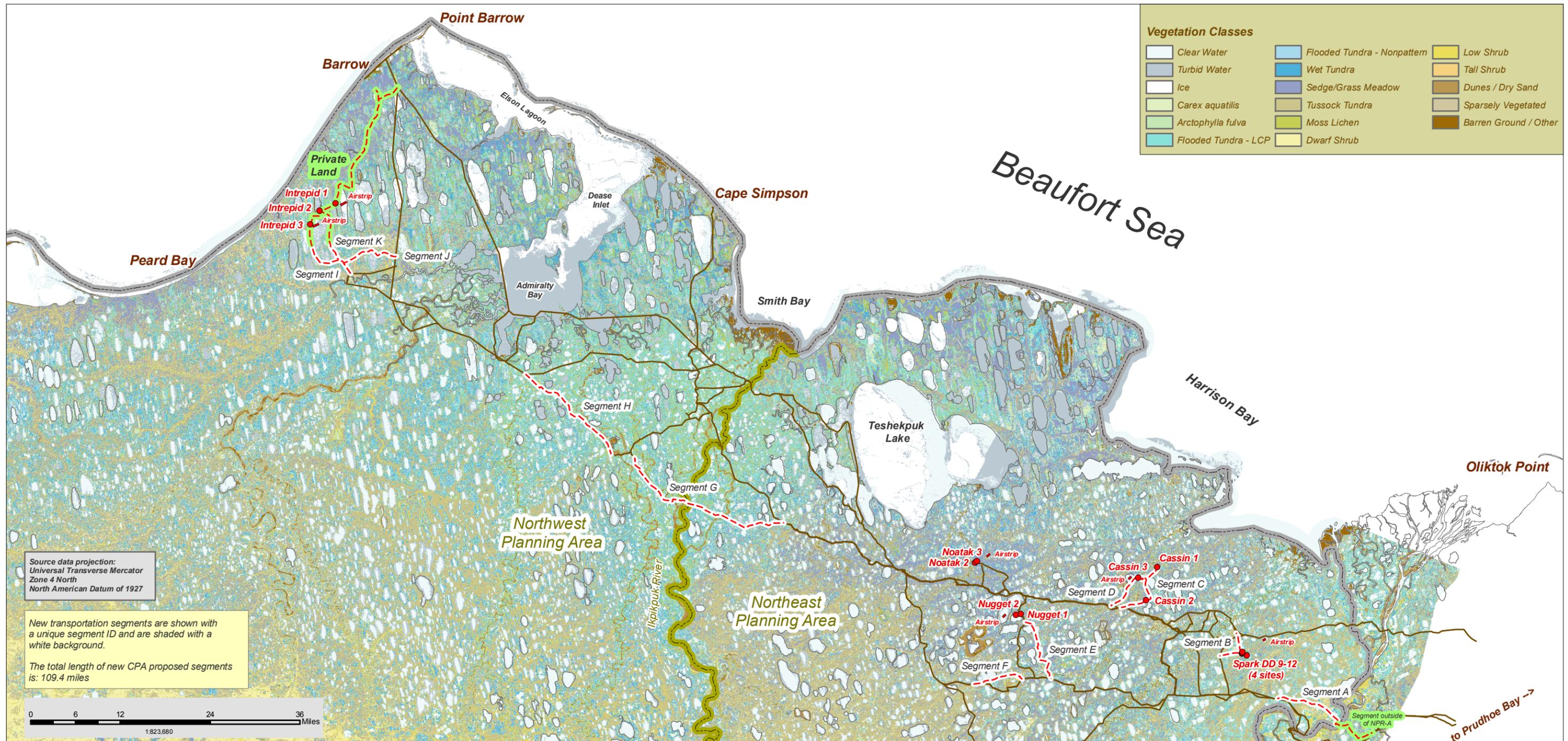
The proposed action represents an extension of CPAI exploration activity in the NE NPR-A. The Applicant is the same, the plan of operations is essentially the same, and the proposed drill sites, local access roads, and water supply lakes are in the same area. Overland transport through the NW NPR-A to Barrow has also been evaluated and completed in several previous programs. The 10 winter exploration programs completed in the NPR-A over the past 7 years were based on similar plans and methods of operation. 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.

As shown on Figure 1, the proposed project involves a low ground pressure vehicle (LPV) trail from Barrow that may provide access by local residents in passenger vehicles and pickup trucks to the Dalton Highway. Concern has been raised that use of private vehicles may pose both a safety and environmental damage risk. Some private use of LPV trails and ice roads has occurred previously without significant environmental impact. This co-use of an access corridor authorized for winter exploration will be considered in the cumulative effects analysis.

There have been no significant direct, indirect, or cumulative adverse impacts associated with the 10 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. The BLM field inspections have identified no significant impacts resulting from the CPAI authorized winter drilling program in the same area as the proposed action. 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.

<sup>10</sup> 1998 NE IAP/EIS, Vol. 2, Section V; 2003 NW IAP/EIS, Vol. 2, Sec. VI.

<sup>11</sup> Alpine Satellites Development Plan FEIS Vol. 2, Sec. 5.



**Figure 1: Proposed CPAI Project Area Map**

**BLM EA: AK-023-07-002**  
 (2006 - 2011 Permitting Period)

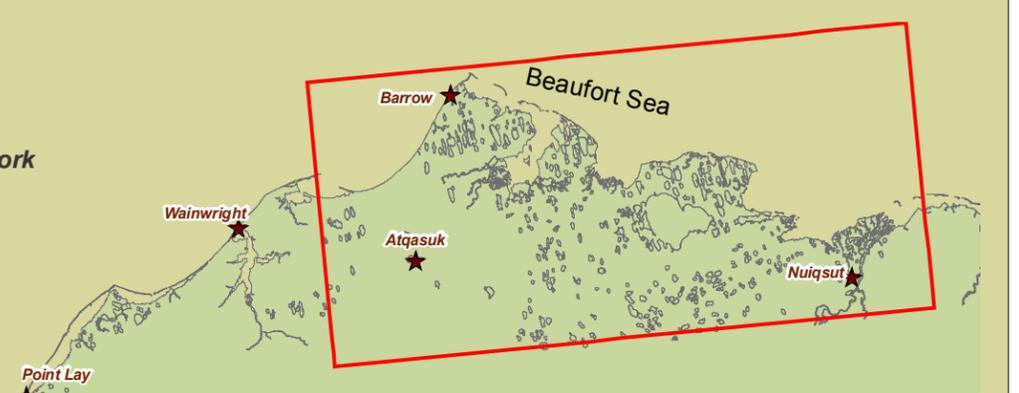


December 8, 2006

**Legend**

- NPR-A Boundary Segment
- ConocoPhillips Proposed Drill Site
- ConocoPhillips Transportation Network**
- Proposed Right-of-Way
- Previously Authorized Right-of-Way
- Proposed Ice Airstrip

Note: All authorized ice roads / trails are not depicted



## 2 PROPOSED ACTION AND ALTERNATIVES

The proposed project includes exploration drilling at any of 11 drill sites, during a 5-year winter exploration program in the NE NPR-A. The proposed exploration program will begin in winter 2006-2007, with the drilling schedule contingent upon permitting, weather, ongoing data analysis, and funding.

**Table 2** documents the Notices of Staking (NOSs) with field inspections, as required for BLM approval of the CPAI surface use plan. A NOS for Noatak 1 was originally filed in 2004, with a new NOS and field inspection completed in 2006. Only the 11 new drill sites are considered part of the proposed project.

**Table 2. Staking and Field Inspection**

Drill Site	Notice of Staking date	Field Inspection date
Noatak-2	10/22/06	8/24/06
Noatak-3	10/22/06	8/24/06
Nugget-1	10/22/06	8/24/06
Nugget -2	10/22/06	8/24/06
Cassin -1	10/22/06	8/24/06
Cassin -2	10/22/06	8/24/06
Cassin- 3	10/22/06	8/24/06
Spark DD- 9	10/22/06	8/24/06
Spark DD -10	10/22/06	8/24/06
Spark DD-11	10/22/06	8/24/06
Spark DD-12	10/22/06	8/24/06

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

### 2.1 PROPOSED ACTION

The proposed project is described below, with main project components summarized in **Table 3**. The proposed project is similar to exploration programs completed in the NPR-A during the past 7 winter seasons. The description of project components is tiered from the 1998 NE IAP/EIS, the 2004 NW IAP/EIS, and the NPR-A exploration drilling EAs listed in **Appendix A**.<sup>12</sup>

<sup>12</sup> 1998 NE IAP/EIS. Vol 1, Sec. IV.A.1.b ; 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 in Appendix A.

**Table 3. Summary of Proposed Project**

Project Component	Program Total <sup>a</sup>
Ice Drill Pads and Wells	Up to 11 drill pads; totaling approximately 63 acres. Construction estimate of up three pads per season  Up to 44 total penetrations (wells and sidetracks); multiple wells may be drilled from a single pad. Drilling camps typically accommodate 60 to 70 people on the pad.
Construction/ drilling support ice pads	May be constructed to support ice construction crews and/or drilling. Approximately 2-acre ice pad may be constructed near any drill site, and one approximately 1.4-acre ice storage pad may be built along access corridor.
Access	Approximately 110 miles of new access corridor to drill pads and water supply lakes.
Ice Airstrip	An estimated three airstrips (each up to 5,000 feet long) per season on lake surface locations.
Water requirement	Approximately 15.5 million gallons per drill site; for all 11 project sites, approximately 201.5 million gallons.

<sup>a</sup> Mileage/acreage estimated for comparative impact analysis.

#### 2.1.1 Access and Construction

Drill site locations are listed in **Table 4**. These sites are in the same general area as drill sites evaluated in 2004.<sup>13</sup> Approval to drill at any of the proposed sites over the 5-year period was requested to accommodate changes in exploration strategy and funding priorities as new data become available.

**Table 4. Drilling Locations (All Federal Land)**

Name	BLM Lease No.	Section Location (Umiat Meridian)
Noatak-2	AA-081840	T12N, R5W, Sec. 21
Noatak-3	AA-081840	T12N, R5W, Sec. 21
Nugget-1	AA-084127	T11N, R4W, Sec. 28
Nugget-2	AA-084127	T11N, R4W, Sec. 28
Cassin-1	AA-081833	T12N, R1W, Sec. 27
Cassin-2	AA-081747	T11N, R1W, Sec. 17
Cassin-3	AA-081754	T12N, R1W, Sec. 31
Spark DD-9	AA-081800	T10N, R2E, Sec. 21
Spark DD-10	AA-081800	T10N, R2E, Sec. 21
Spark DD-11	AA-081800	T10N, R2E, Sec. 28
Spark DD-12	AA-081800	T10N, R2E, Sec. 21

Noatak 1 (AA -081939; T12N, R5W, Section 22) was authorized in December 2004

<sup>13</sup> EA: AK-023-05 -005.

Temporary ice airstrips are planned for construction each year on lake ice up to 5,000 feet by 150 feet to accommodate large aircraft (e.g., Herc) or 3,000 feet by 100 feet to accommodate smaller aircraft (e.g., Otter). Sites in the NE Planning Area proposed at this time are listed below; several have been previously authorized.

<u>Drill Site:</u>	<u>Ice Air Strip Location:</u>
Noatak 2–3 and Nugget 1–2	Lake M4010* Lake M4015 Lake B84057
Cassin 1–3	Lake M0305* Lake Z06001
Spark DD 9–12	Lake M9923

\* *Previously authorized ice airstrip locations. Lake M9922, approximately 1 mile west of M9923, has also been previously authorized as an airstrip location.*

In the NW NPR-A Planning Area, CPAI proposes to construct an ice airstrip on Kilusiktok Lake to provide access to the Intrepid drill sites which are located on private land. This lake extends to the south, across the border into the NPR-A.

Primary access to the drilling areas will be via packed snow trail/ice road ROWs authorized by the BLM and extending from Barrow, eastward across the NPR-A to the Colville River. CPAI has proposed several new ROW corridor segments to more effectively reach proposed drilling locations (See **Figure 1**).

Rolligon units and other LPVs will be used to transport equipment and personnel to construct ice roads/pads/airstrips associated with a particular years' winter exploration program. The final routes will be within a 1-mile corridor along the alignment depicted on **Figure 1**. This flexibility is needed to accommodate minor rerouting due to field conditions, animal dens, changes in creek crossing characteristics, or other field conditions.

CPAI proposes up to 110 miles of new access corridor (ice roads/packed snow trails). Ice spur roads will connect drilling pads, staging pads, airstrips, and permitted water sources. Rolligons/LPVs may be used to pre-pack the ice road, or sidecast water on the ice road route to expedite the penetration of frost. Ice roads will be approximately 25 to 35 feet wide or smaller, depending on rig and vehicle requirements. Pullout or widened sections may be constructed at certain locations along the ROW depending on field conditions. These areas are used to protect the tundra

during rig moves, where heavy equipment is required to help pull the rigs up hills or to temporarily stage material. Rig mats will be used, if needed, but will be removed prior to the end of the operating season.

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. Biodegradable traction material may be applied sparingly to high foot traffic areas to reduce slickness for safety purposes.

The proposed new ROW segments cross channels and tributaries of several rivers and unnamed streams in the NPR-A. Typically, an ice bridge is required when ice roads cross major stream/rivers. Crossings with fish habitat must comply with the Alaska Department of Natural Resources (ADNR) Office of Habitat Management and Permitting (OHMP) requirements for fish protection.

Road and pad construction may be concurrent. The ice pads will be constructed to approximately 500 feet by 500 feet (5.7 acres). A remote camp and staging area pad may also be built near the ice pad to facilitate construction and support during operations. This pad will be approximately 300 feet by 300 feet (2.1 acres). An ice lay down pad, approximately 250 feet by 250 feet (1.4 acres) may also be built on the west side of the Ublutuoch River (Sections 1, 2, 3, 10, 11, and 12 of T10N, R3E UM). Access to project locations may be controlled for public safety. Well sites will be closed to the general public for purposes of safety and confidentiality.

The freshwater requirements for constructing the project features (ice road/pads construction, maintenance, drilling operations, and camp use) are provided in **Table 3**. CPAI plans to utilize previously permitted water sources, as well as some new water sources, for this exploration program. The proposed new water source lakes in the NPR-A are listed in **Table 5**. Methods are summarized below.

Snow cover will be removed from a portion of all water source lakes to provide access for water trucks and ice chippers, installation of temporary water houses, and truck turnaround areas. Lake water intake structures will comply with OHMP requirements for fish protection, with screen integrity monitored, even on lakes with no fish. CPAI has requested approval to harvest ice aggregate from all new lakes.

Table 5. New Water Sources

Lake ID <sup>a</sup>	Town-Ship	Range	Sections	Surface Area (acres)	Depth (feet)	Calculated Total Lake Volume <sup>b</sup> (MG)	Volume for Ice removal (MG)	30% of volume deeper than 5 ft (MG)	15% of volume deeper than 7 ft (MG)	Fish Present <sup>d</sup>	Proposed water withdrawal (max) (MG)	Authorized Water withdrawal (max) (MG) (DNR TWUP)
<b>NE NPR-A</b>												
Z06001 <sup>c</sup>	11N 12N	2W	1/2; 25/26/35/36	750.34	6.6	445.04	421.37	0	0	Yes-S	Ice only	15% of under ice volume of water below 7ft. depth; Ice aggregate removal restricted to grounded ice only; total water/ice withdrawal limited to 20% total volume of lake
Z06002	12N 12N	1W 2W	31/31 36	50.67	8.2	59.76	16.21			No	30.0	20% total lake volume of water; Ice aggregate removal restricted to grounded ice only; total water/ice withdrawal limited to 20% total volume of lake
Z06003	11N 12N	1W 1W	3 34	161.31	11.6	245.50	77.63		0.75	Yes-S	0.75	15% of under ice volume of water below 7ft. depth. Ice aggregate removal restricted to grounded ice only; total water/ice withdrawal limited to 20% total volume of lake
Z06004	11N	1W	9/10/15/16	217.85	10.9	378.10	237.07	28.39	2.67	Yes-R <sup>e</sup>	28.39	30% of under ice volume of water below 5ft; ice aggregate removal restricted to grounded ice only; total water/ice withdrawal limited to 20% total volume of lake
Z06005	10N	2E	22/23/26/27	81.24	7.6	116.74	90.68	2.79	0.08	Yes-R <sup>e</sup>	2.79	30% of under ice volume of water below 5ft; ice aggregate removal restricted to grounded ice only; total water/ice withdrawal limited to 20% total volume of lake
Z06006	10N	2E	22	22.53	7.7	39.05	26.54	2.11	0.03	Yes-R <sup>e</sup>	2.11	30% of under ice volume of water below 5ft; ice aggregate removal restricted to grounded ice only; total water/ice withdrawal limited to 20% total volume of lake
Z06007	12N	5W	22/27	16.43	6.3	15.46	14.76			No	7.75	Total water and ice withdrawal limited to 20% total volume of lake; ice aggregate removal restricted to grounded ice only
M0415 <sup>c</sup>	12N	5W	14	209.2	6.1	183.44	157.46			No	25.98	Total water and ice withdrawal limited to 20% total volume of lake; ice aggregate removal restricted to grounded ice only
<b>NW NPR-A</b>												
Z06010 <sup>g</sup>	19N 12N	20W 20W	21/27/28/33/3 45/9/10	1705.74	7.9	3349.40	2086.21 <sup>f</sup>	237.08	8.87	Yes-R	237.08	30% of under ice volume of water below 5ft; ice aggregate removal restricted to grounded ice only

## Key:

- a. Source: CPAI Temporary Water Use Permit (TWUP) applications and ADNR TWUP permits A2006-131, A2206-132 and A2006-133
- b. MG = million gallons
- c. Lake designated as an ice airstrip location. Note: The four other lakes proposed as ice airstrip locations have been previously evaluated for water withdrawal
- d. No = No fish caught; Yes = fish present during survey; S = Sensitive fish species; R = Resistant fish species only
- e. Exceeds 15 percent (%) of free water under the ice when fish are present (NE Stipulation 20)
- f. Exceeds 15%/30% rule for water/ice aggregate removal (NW ROP B-2)
- g. Lake is located on both Federal and Non-federal lands.

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.

### 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. Communication antennas and satellite dishes will be portable and attached to camp structures or freestanding. Drilling camps will accommodate approximately 60 people. Small camps (housing up to about 30 people) may be utilized on well sites where well testing is conducted with the rig off site. Up to four reservoir penetrations (e.g. two wells and/or sidetracks) may be completed at each drill site.

The proposed drilling and testing operations will be used to determine future drilling plans in the NPR-A. Testing may include extended flow periods to determine productivity of the well. Produced fluids will pass through an adequately sized separator system to prevent oil carryover into the gas stream. Oil from testing will be held in tanks until testing is completed. After testing, the oil will either be injected back into the formation or hauled to Alpine or Kuparuk and processed through their facilities. Produced gas will be flared.

Drilled wells will be temporarily suspended or plugged and abandoned prior to end of the winter drilling season.<sup>14</sup> 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 the summer on an existing gravel pad, or at another suitable, authorized storage location.

Data for vertical seismic profiles may be collected in the vicinity of the well. The vibroseis trucks will probably remain on the roads and pads; these trucks are off-road vehicles approved for tundra travel. If the truck leaves a pad, all vertical seismic profiles lines will lie within a 2-mile radius of the well or along the road.

Up to approximately 40,000 gallons of diesel fuel will be stored in multiple tanks, contained in lined, bermed storage areas on ice pads. Fuel may be stored at airstrip locations, but not on lake ice. Light plants will be refueled on frozen lakes following CPAI standard procedures for fuel transfer, as discussed with the BLM and ADNDR in previous exploration programs in the NE

NPR-A. All light plants will have 110 percent (%) containment.

### 2.1.3 Waste Management

Procedures described in the CPAI NPR-A waste management plan will conform to State and Federal requirements. Excess drilling mud that cannot be reused will be transported to an approved injection well at Alpine, Kuparuk, or Prudhoe Bay, or potentially disposed of down an approved disposal site/well. Prior to hauling, cuttings will be stored in an ice-bermed storage cell or tanks at the drill sites; liquids will be temporarily stored in tanks. Upon completion of well site activities, the drilling waste storage cells will be cleaned of any residual contamination. Drilling waste storage plans must be approved by the Alaska Department of Environmental Conservation (ADEC). Crude oil and other produced fluids from production testing will be stored in tanks, and then re-injected or hauled out of the NPR-A for processing at an approved facility, as described above.

Approximately 6,500 gallons per day of domestic wastewater could be generated at a rig camp. Domestic wastewater will be processed and discharged under North Slope General Permit AKG-33-0000, or hauled to an approved disposal facility at Alpine or Kuparuk.

Waste management may include onsite incineration. Solid, non-burnable wastes will be deposited in large dumpsters, or other suitable containers, which will be backhauled to the NSB landfill or taken to the Kuparuk incinerator. Food waste will be stored in enclosed connex containers pending periodic hauling, or will be hauled daily to a secured disposal site.

### 2.1.4 Air Emissions

Sources of air emissions may include: drill rig engines, camp generator engines, stream generators, mobile non-road engine and construction equipment, used oil burners, hot-air heaters, light plants, incinerators, and (potentially) well test flaring equipment. CPAI will operate under the ADEC Minor General Permit 1 and will implement a public access control plan, with entry by unauthorized personnel restricted, as required during the project period, and as approved by BLM. Evaluation of the potential for hydrogen sulfide (H<sub>2</sub>S) release indicates that significant quantities are not expected at any drilling location. Measures and precautions associated with H<sub>2</sub>S are addressed in the Application for Permit to Drill filed with the BLM. Produced gas will be flared in accordance with the ADEC air permit requirements.

<sup>14</sup> Drilling process most recently 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 approved oil spill response measures in place to meet Federal and State requirements. For the proposed activity, CPAI must have a site-specific ODPCP approved by ADEC, which is considered sufficient to meet BLM requirements. Additionally, the BLM inspects the wells and pads during construction and drilling.

CPAI has requested a minor amendment to their North Slope Exploration ODPCP for the proposed exploration locations. Information related to immediate response actions, spill cleanup (e.g., fuels, lubricants, or produced fluids) is found in the ODPCP. Elements of the 2006 amended ODPCP are essentially the same as those previously evaluated in EA: AK-023-05-005.

The Applicant's approved ODPCP, along with approved spill control equipment and supplies, will be kept on site. Phone service will be available 24-hours a day at the drilling camp. North Slope operators regularly participate in spill drills to improve practices and techniques for responding to an emergency event. When needed, CPAI will call on resources of other North Slope operators through Alaska Clean Seas, Mutual Aid, spill response cooperatives, and contractors, as available.<sup>15</sup>

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. CPAI has designated deadlines to stop drilling operations, depending on the location and access available.

#### **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. Additionally, CPAI has a SPCC Plan for exploration activities.

### **Wildlife Protection and Encounter Plans**

CPAI has a Polar Bear/Personnel Encounter Plan approved by the U.S. Fish and Wildlife Service (USFWS). This plan, along with CPAI's Wildlife Avoidance and Interaction Plan, provides appropriate wildlife protection measures. CPAI 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**

CPAI has an established Incident Management Team that follows the Incident Command System 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. Additionally, an Environmental Health and Safety Policies and Procedures manual is available on CPAI's intranet web page, and Emergency Response Plans are available at individual facilities.

### 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.<sup>16</sup>

### 2.1.7 Abandonment and Restoration

Upon completion of drilling operations, all equipment and supplies will be removed and ice surfaces cleaned. Debris will be hauled to an approved disposal site. Dirty ice will be hauled to an approved disposal well. Ice road and pad sites will be inspected 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.

<sup>15</sup> Plan No. 024-CP-5096 is available at ADEC.

<sup>16</sup> EA: AK-020-00-011, Sec. II.A.1, II.A.3 and II.A.9.

### 2.1.8 Community Relations

CPAI regularly meets with local communities, regulatory agencies, and other interest groups. The BLM and CPAI have conducted a series of community meetings and consultations with residents of potentially affected communities, as noted in Sections 1.4 and 5.2. In addition to meetings, CPAI will keep the public informed in a variety of ways, including newsletters, radio and television announcements, and reports from local subsistence observers that may be employed by CPAI. CPAI posts permit applications on an internet web site to provide additional opportunity for public input and involvement.<sup>17</sup>

#### Cultural and Paleontological Resources

New road and pad locations were selected to avoid known archaeological and cultural resources and traditional land use sites. CPAI conducted a cultural and paleontological resources survey at pad locations and along new access corridors. According to this survey, no known cultural resources will be affected by the proposed exploration activities. A report of survey findings has been submitted to the BLM.

The proposed routing 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 cultural and paleontological resources will require site-specific authorization by the BLM.

#### Subsistence

The project area is recognized as a subsistence use area, particularly for Nuiqsut and Barrow, and many of the public meetings and consultations have included discussions on subsistence. The Applicant also plans to continue consultation with subsistence users and implement mitigation measures, as necessary. CPAI has a NPR-A Subsistence Plan and Orientation program that will be implemented as required.

The Applicant has presented plans to the NPR-A SAP, Kuukpik Subsistence Oversight Panel (KSOP), and the NSB. 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 the affected area.

<sup>17</sup> [www.conocophillips.com/permits/](http://www.conocophillips.com/permits/)

### Economic Opportunity

CPAI will provide local residents with access to job applications and economic opportunity. In previous years, CPAI has participated in job fairs held in the Village of Nuiqsut, including the job fair held in October 2006. CPAI also maintains a 24-hour Jobs Hotline and an external job posting Website.

### 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-specific environmental review and potential mitigation, as well as 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, CPAI has elected to defer planning for future facilities. Potential field development in and around the NPR-A has been discussed in previous evaluations and is incorporated by reference.<sup>18</sup>

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 1998 NE IAP/EIS and the associated ROD.

### 2.3 ALTERNATIVES

This EA is tiered from the broader alternatives analyzed in both the 1998 NE IAP/EIS and 2003 NW IAP/EIS and to more specific alternatives evaluated in exploration EAs, as discussed below.<sup>19</sup>

The 1998 NE IAP/EIS evaluated a defined exploration model, and developed extensive, site-specific protective measures for that concept. As a result, the 1998 ROD includes 79 stipulations that substantially limit the range of alternatives possible for this EA. The NW ROD has similar protective measures that narrow the range of

<sup>18</sup> 1998 IAP/EIS, Vol. I, Section IV.A; 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.

<sup>19</sup> 1998 IAP/EIS, Vol. 1, Section II.C.1-6; 2003 NW IAP/EIS, Vol. 1, Sec. II and EA's cited in Table 2, Sec. II.C/2.3, Alternatives.

possible access alternatives. The proposed action itself (i.e., drilling a specified number of exploration wells on specific oil and gas prospects, with access to those specific sites) significantly limits alternatives for the location and timing of exploration. Therefore, only a few alternatives 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.

### 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 the BLM.<sup>20</sup>

The second 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 all Spark DD wells from one drill site). However, extended reach drilling methods are rarely employed for exploration wells when practicable alternatives are available, because it adversely affects data collection. Limitations of this alternative have been previously addressed.<sup>21</sup> 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.

Another option considered was access via a sea ice road from Harrison Bay (i.e., similar to the Trailblazer project<sup>22</sup>). This option was rejected as an alternative because it does not offer an environmental advantage for access to all drilling sites along the proposed ROW (from Spark DD to the Barrow area) for the entire 5-year CPAI exploration program. Similarly, use of only previously authorized access routes that go to the same general areas as new proposed segments was initially

considered. However, this offers no distinct environmental advantage and the proposed route changes will shorten and improve access. Both of these options were, therefore, eliminated from detailed analysis.

Other alternatives previously considered, but rejected from further consideration in this EA include primary access by air, packed snow trail, or ice road only.<sup>23</sup> Primary access by aircraft and/or packed snow trail would eliminate the requirement for water for ice road construction (1 to 1.5 million gallons/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, and emergency response would depend primarily on the availability of aircraft and flight conditions (e.g., weather). Use of only ice roads would involve substantially more water for construction of access required to reach the more distant drilling sites. Use of only packed snow trails limits the Applicant's ability to move associated equipment, supplies, and personnel.

For flexibility, the proposed project includes a combination of access via air, ice road, and/or packed snow trail. The applicant has proposed to use 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.<sup>24</sup>

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

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 protective measures of the NE and NW RODs.

<sup>20</sup> EA: AK-023-02-005, p. IV-27.

<sup>21</sup> EA: AK 023-04-004, p. 2-6.

<sup>22</sup> EA: AK-023-01-001, Sec. II.A.

<sup>23</sup> EA: AK-023-00-011, p. II-12.

<sup>24</sup> 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.

### **2.3.2 Alternatives to the Proposed Action**

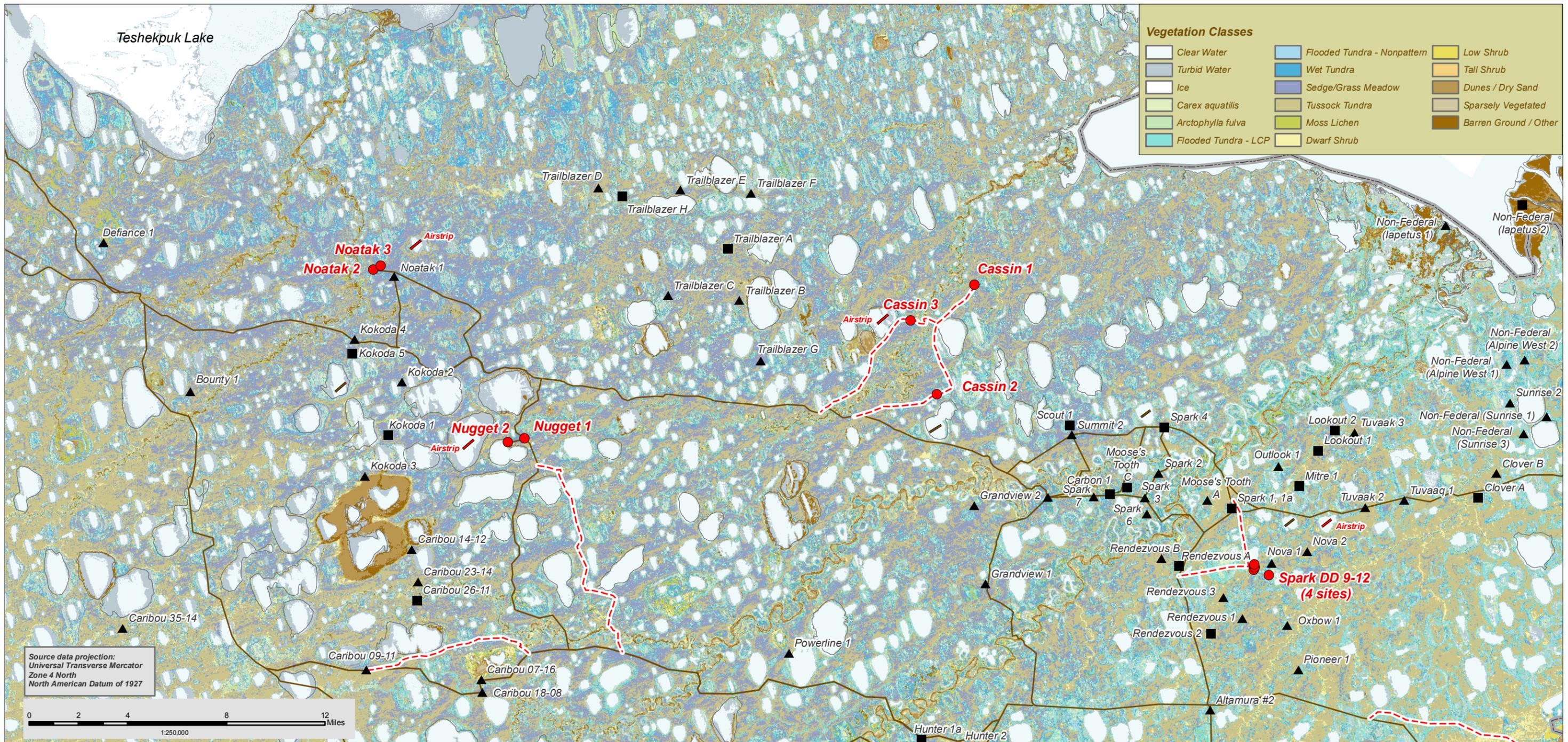
Based on limitations imposed by lease stipulations and the flexibility included in the proposed project, only two alternatives warrant further detailed consideration at this time: shared use of ice roads/ice airstrips in the project area and “no action.”

#### **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). Other operators hold leases in the general vicinity of the CPAI project area (including areas accessed by the ROWs). At present, no related applications have been submitted; however, another exploration may be proposed concurrent with proposed CPAI activity in the future.

#### **Alternative 2 –No Action**

With the no-action alternative, exploratory drilling by CPAI under existing valid oil and gas lease would not be allowed as proposed. CPAI permit applications to the BLM would be denied; no access, drilling, or drilling support activities would occur on Federal lands in the NE NPR-A; and no amended access corridor in the NE and the NW NPR-A would be allowed.



**Figure 2: Proposed Drill Sites & Access**

**BLM EA: AK-023-07-002**  
(2006 - 2011 Permitting Period)

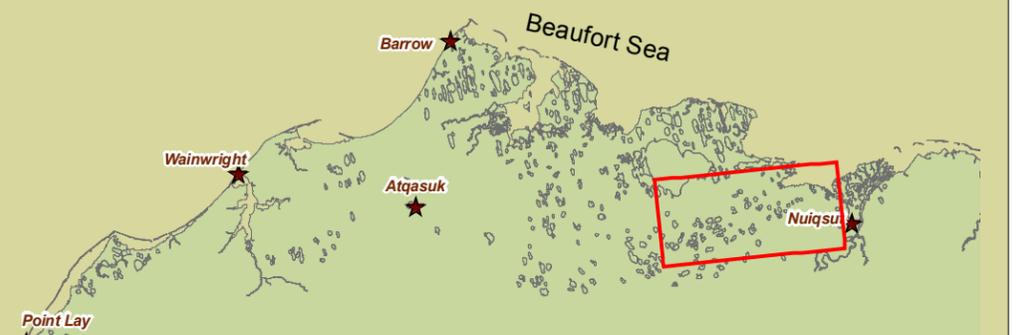


November 30, 2006

**Legend**

- NPRA Boundary
- ConocoPhillips Proposed
- 1999-2006 Drilled
- 1999-2006 Permitted, Not Drilled
- ConocoPhillips Transportation Network**
- Proposed Right-of-Way
- Proposed Ice Airstrip
- Previously Authorized Airstrip

**Note: All authorized ice roads / trails are not depicted**



### 3 AFFECTED ENVIRONMENT

The proposed CPAI exploratory drilling operations, ice roads, and ice airstrips are in the NE Planning Area. Access corridors and water supply lakes are in both the NE and NW Planning Areas. Environmental characteristics of the general project area have been extensively described in the 1998 NE IAP/EIS and the 2003 NW IAP/EIS (Vol. 1, Sections III), which are incorporated by reference, with some site-specific features summarized below.

The proposed drill pads are located approximately 9 to 28 miles inland from Harrison Bay, between Teshekpuk Lake and the Colville River. The general relation of the project area to existing oil and gas fields on the North Slope is shown on **Figure 3**.

Drill sites Noatak 2 and 3 are in the Teshekpuk Lake Special Area and Teshekpuk Lake Watershed Land Use Emphasis Area (LUEA). Drill sites Nugget 1 and 2 are in the Deep Water Lakes Fish Habitat LUEA. Drill Sites Spark DD 9 through 12 are in the Kuukpik Selection Area and are also adjacent to the boundary of the Judy Creek Sensitive Area Consultation zone. Exploration drilling and associated access is permitted in all of these areas.

New access route segments cross tributaries and channels of several major rivers and a number of unnamed streams. The route is also near several deep water lakes. All authorized stream crossings, including those previously evaluated and authorized for other NPR-A exploration programs, may continue to be used during the proposed 5-year exploration program. New access route segments also cross through the: Colville River Special Area, Colville River Fish Habitat LUEA, Potential Colville Wild & Scenic River LUEA, Deep Water Lakes Fish Habitat LUEA, Teshekpuk Lake Special Area, and Teshekpuk Lake Caribou Habitat LUEA/Special Caribou Stipulations Area in the NE NPR-A.<sup>25</sup> New route segments in the NW NPR-A cross the Brant Survey Area and the Caribou Study Area.

#### 3.1 PHYSICAL CHARACTERISTICS

Proposed activities will take place on the Arctic Coastal Plain, where temperatures average below freezing for 8 months of the year. A dramatic change to higher temperatures and longer day length occurs during the other 4 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 have reduced the winter exploration season from 208 days (1970) to 103 days (2002).<sup>26</sup> North Slope air quality meets 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.<sup>27</sup>

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. Permafrost ranges from 650 to 1,330 feet deep, with an active thaw layer typically 1 to 2 feet deep.

In *Exploratory Soil Survey of Alaska* (Rieger, Schoephorster, and Furbush, 1970), soil types that exist in the NE Planning Area are described in EA: AK-023-05-005, Section 3.1 (p. 3-1), which is incorporated by reference and summarized herein. Surficial deposits of the general area are marine silts and sands, aeolian sands, and outwash gravels. Soils are shallow, poorly drained, and constantly wet over permafrost. 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.

The proposed new ROW segments cross channels and tributaries of several rivers and unnamed streams in the NPR-A, including the Ikpikpuk, Chipp, Topagoruk, and Kalikpik rivers and Inigok Creek.

CPAI has identified eight new lakes for water withdrawal in the NE NPR-A, and one in the NW NPR-A (**Table 5**). The volume of water withdrawal authorized is based on depth and habitat value for fish. Based on available data, water quality of potential sources for this project appear to be within the general ranges of water quality discussed in the 1998 NE IAP/EIS and reviewed by the BLM in previous analyses, which are incorporated by reference. None of the conductivity measurements available for potential water sources exceed 4,000 micromhos ( $\mu\text{mhos}$ ) per centimeter, which is used as a guideline for water use on tundra.<sup>28</sup>

<sup>25</sup> 1998 NE ROD, Figure II.C.1.

<sup>26</sup> G. Schultz, ADNR. Tundra Access Symposium, sponsored by AOGA, ADNR, and BLM. October 7, 2003.

<sup>27</sup> 1998 NE IAP/EIS, Vol. 1, p. III-A-53; 2003 NW IAP/EIS, Vol. 1, p. III-43.

<sup>28</sup> Pers. Comm. Jack Winters, OHMP. October 5, 2005.

### 3.2 BIOLOGICAL RESOURCES

Biological resources in the project area within the NPR-A are described in both the 2003 NW IAP/EIS and the 1998 NE IAP/EIS,<sup>29</sup> as well as in previous BLM assessment documents. Key elements are discussed in more site-specific detail below.

#### 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 NE and NW Planning Areas has been mapped by the BLM in cooperation with Ducks Unlimited, the NSB, and USFWS. Land cover is classified into 17 cover types (**Table 6**), with the percent cover in the Planning Areas.<sup>30</sup> Ground cover in the proposed project area, as shown on Figures 1 and 2, is summarized in **Tables 7 and 8**.

The inventory of ground cover in the project area in Tables 7 and 8 shows a variety of vegetation types present, with tussock tundra and sedge/grass meadow are predominant at drill sites. Tussock tundra, flooded tundra-low centered polygon (LCP), sedge/grass meadow are common along the new corridor segments.

There are no known Federally-designated threatened or endangered plants in the project area. Several plant species are considered to be rare or sensitive within the project area. As used here, this classification can include species with small or declining populations or species for which there is little information or plant survey work.

One such species (*Pleuropogon sabenei*, an aquatic grass) was reported to occur in the general vicinity of Noatak and Nugget prospects.<sup>31</sup> A review of the Alaska inventory indicated that rare plants potentially present have been previously analyzed regarding impacts associated with exploration drilling activity. No further vegetation survey was required for the proposed project, because no ground disturbing activity is expected, except for the de minimis disturbance (approximately 0.0006-acre) at each completed well cellar.

**Table 6 Land Cover in the NPR-A**

Land Cover Category	% cover NW NPR-A	% cover NE NPR-A
<b>WATER:</b>		
Ice	2.3	2.2
Clear Water	7.6	10.8
Turbid Water	6.8	8.4
<b>AQUATIC:</b>		
<i>Carex aquatilis</i>	2.0	3.8
<i>Arctophylla fulva</i>	0.6	0.4
<b>FLOODED TUNDRA:</b>		
Flooded Tundra LCP (LCP = low centered polygons)	5.9	6.5
Flooded Tundra NP (NP=non patterned)	4.0	2.7
<b>WET TUNDRA:</b>		
Wet Tundra	6.4	5.0
<b>MOIST TUNDRA:</b>		
Sedge Meadow	6.6	10.1
Tussock Tundra	23.5	29.1
Moss Lichen	1.7	1.6
<b>SHRUB:</b>		
Dwarf Shrub	27.0	15.5
Low Shrub	4.1	1.7
Tall Shrub	0.0	0.1
<b>BARREN GROUND:</b>		
Sparsely Vegetated	0.3	2
Dunes / Dry Sand	0.4	0.7
Barren Ground / Other (e.g., clouds)	0.7	1.0

#### 3.2.2 Fish and Wildlife

Fish found within the area of the proposed action include: Pacific salmon (primarily pink, chum and Chinook), lake trout, Arctic char, Arctic grayling, Alaska blackfish, northern pike, longnose sucker, broad whitefish, humpback whitefish, round whitefish, least cisco, Arctic cisco, Bering cisco, burbot, slimy sculpin, Arctic lamprey, ninespine stickleback, and (possibly) threespine stickleback. Nearly all species may utilize lakes as well as streams and rivers.<sup>32</sup> More specific details on life history and distribution are available in the 1998 NE IAP/EIS and the 2003 NW IAP/EIS.

<sup>29</sup> 2003 NW IAP/EIS, Vol. 1, Sec. III.B; 1998 NE IAP/EIS, Vol. 1, Sec. III.B.

<sup>30</sup> 2003 NW IAP/EIS, Vol.3, Table III-06. 1998 NE IAP/EIS, Vol. 1, Table III.B.2-1.

<sup>31</sup> EA: AK-023-05-005, p 3-2.

<sup>32</sup> 1998 NE IAP/EIS, Vol. 1, p. III-B-6 ; 2003 NW IAP/EIS, Vol. 1, pp. 54-56.

**Table 7 Land Cover at Drill Site Locations**

<b>CPAI Proposed Drill Site Vegetation Analysis (in acres)*</b>						
<b>Land Cover</b>	<b>Cassin-1</b>	<b>Cassin-2</b>	<b>Cassin-3</b>	<b>Noatak-2</b>	<b>Noatak-3</b>	<b>Nugget-1</b>
<i>Arctophylla fulva</i>						
<i>Carex aquatilis</i>						
Dwarf Shrub						
Flooded Tundra - LCP			0.7			
Flooded Tundra - Nonpattern					0.1	
Low Shrub						
Moss Lichen						
Sedge / Grass Meadow	2.1	4.2	3.6	5.7	3.3	1.5
Sparsely Vegetated						
Turbid Water						
Tussock Tundra	3.6	1.5			2.3	4.2
Wet Tundra			1.4			
<b>Grand Total</b>	<b>5.7</b>	<b>5.7</b>	<b>5.7</b>	<b>5.7</b>	<b>5.7</b>	<b>5.7</b>

Continued

<b>Land Cover</b>	<b>Nugget-2</b>	<b>Spark DD-9</b>	<b>Spark DD-10</b>	<b>Spark DD-11</b>	<b>Spark DD-12</b>	<b>Total Acres (11 drill sites)</b>
<i>Arctophylla fulva</i>						0.0
<i>Carex aquatilis</i>				3.0		3.0
Dwarf Shrub						0.0
Flooded Tundra - LCP				1.6		2.3
Flooded Tundra - Nonpattern				0.4		0.5
Low Shrub						0.0
Moss Lichen						0.0
Sedge / Grass Meadow	1.4			0.2		22.0
Sparsely Vegetated						0.0
Turbid Water						0.0
Tussock Tundra	4.3	5.3	5.7	0.1	5.7	32.7
Wet Tundra		0.4		0.4		2.2
<b>Grand Total</b>	<b>5.7</b>	<b>5.7</b>	<b>5.7</b>	<b>5.7</b>	<b>5.7</b>	<b>62.7</b>

\*Assume 500 foot x 500 foot drill pad footprint

See Notes following Table 8.

**Table 8 Land Cover Along New Transportation Corridor Segments (in acres)**

<b>Land Cover</b>	<b>Segment A (10.0 miles)</b>	<b>Segment B (5.7 miles)</b>	<b>Segment C (9.2 miles)</b>	<b>Segment D (7.2 miles)</b>	<b>Segment E (10.0 miles)</b>	<b>Segment F (7.1 miles)</b>	<b>Segment G (25.1 miles)</b>	<b>Segment H (16.9 miles)</b>	<b>Segment I (7.8 miles)</b>	<b>Segment J (8.0 miles)</b>	<b>Segment K (2.3 miles)</b>	<b>Total Acres</b>
<i>Arctophylla fulva</i>	49.8	18.6	5.9	3.6	11.6	7.2	84.2	102.5	38.6	30.3	24.6	<b>376.8</b>
Barren Ground / Other	44.8	1.1	73.1	139.0	54.1	66.8	313.8	242.1	0.4	0.9	0.7	<b>936.8</b>
<i>Carex aquatilis</i>	273.6	458.3	346.2	267.4	375.8	206.7	1011.0	512.5	178.8	100.6	98.4	<b>3829.4</b>
Clear Water	480.3	311.5	523.9	550.7	937.5	433.7	1296.7	1111.2	246.0	125.7	105.3	<b>6122.5</b>
Dunes / Dry Sand	132.4		7.5	174.8	16.2	22.0	724.9	500.4				<b>1578.2</b>
Dwarf Shrub	882.0	104.0	115.6	163.4	159.6	181.5	9.5	0.2	326.9	605.2	136.8	<b>2684.6</b>
Flooded Tundra - LCP	920.0	778.2	385.7	287.6	563.0	354.0	4106.4	2963.5	607.9	503.0	203.2	<b>11672.4</b>
Flooded Tundra - NP	274.1	208.8	163.2	130.8	165.3	136.2	1232.3	674.5	376.7	196.3	107.4	<b>3665.8</b>
Ice							3.9	2.7				<b>6.5</b>
Low Shrub	391.5	0.7		0.9			226.0	524.9	128.7	232.0	42.8	<b>1547.4</b>
Moss Lichen	5.3	21.8	80.6	93.4	106.2	102.4	2037.5	1592.8	163.6	142.2	52.0	<b>4397.8</b>
Sedge / Grass Meadow	61.3	221.2	1773.2	993.6	1869.6	1105.6	1077.0	273.8	493.4	768.7	173.8	<b>8811.2</b>
Sparsely Vegetated	45.8	0.2	38.0	139.7	29.9	64.1	359.1	151.8				<b>828.6</b>
Turbid Water	294.0	137.9	324.4	333.6	396.9	386.9	1419.8	1203.3	882.7	339.0	368.5	<b>6087.1</b>
Tussock Tundra	2486.6	1518.3	2080.6	1245.9	1569.7	1664.9	814.7	451.2	1373.3	2028.6	447.7	<b>15681.5</b>
Wet Tundra	466.2	286.8	430.1	386.8	496.6	280.5	1642.6	919.2	693.1	540.1	208.0	<b>6350.0</b>
<b>Grand Total</b>	<b>6807.7</b>	<b>4067.5</b>	<b>6348.0</b>	<b>4910.9</b>	<b>6752.0</b>	<b>5012.4</b>	<b>16359.3</b>	<b>11226.6</b>	<b>5510.2</b>	<b>5612.8</b>	<b>1969.2</b>	<b>74576.7</b>

\*1/2-mile buffer around proposed segment (1-mile corridor width total)

NOTES for Tables 7 and 8

LCP = Low centered polygons; NP = Non-patterned

Acresages computer calculated using BLM/Ducks Unlimited digitized vegetation association map. The computer adds a buffer to both ends of each segment; therefore the values shown are conservative. Totals may differ due to rounding of computer generated values.

Values reflect vegetation coverage for drill sites 500 feet by 500 feet, and along transportation corridor segments 1 mile wide (within which only a small proportion will be used)



The proposed new trail route crosses numerous streams and rivers, several of which have setback requirements for permanent facilities to minimize loss of fish habitat. However, the proposed action includes no permanent facilities, and crossings will only be used during the winter open-tundra season when water bodies are adequately frozen. Crossings are strategically located to avoid deep-water areas that may provide overwintering fish habitat.<sup>33</sup>

Regarding lake classification for water withdrawals, Alaska blackfish and stickleback species (and potentially sculpin and lamprey, although rare) are considered “resistant” due to their greater tolerance to low dissolved oxygen concentrations. Other species are considered “sensitive.” CPAI has proposed water withdrawal and/or ice harvesting from eight new lakes in the NE Planning Area, two of which have sensitive fish present (see **Table 5**).

In the NW Planning Area, CPAI is proposing water withdrawal from only one lake, which contains ninespine stickleback. At present, the second lake in the NW NPR-A is intended for use only as an ice airstrip. Lakes in both the NE and NW Planning Areas have fish and fish habitat protections through limitations on the amount of water and ice aggregate that can be removed. CPAI proposes to remove ice aggregate from all authorized lakes.

During the winter months of project operation, avian populations of special interest (e.g., eiders, brant, loons, other waterfowl, and shorebirds) are generally absent from the North Slope. The few birds that might be present during winter include owls, ravens, ptarmigan, and possibly gyrfalcon. Steller’s eiders and spectacled eiders are listed as threatened under the ESA. 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.

Mammalian wildlife species that might be present during winter include: Arctic fox, red fox, rodents, weasels, wolverine, over-wintering caribou, and possibly moose and musk ox. Although not common, wolves also might be present. Polar bear and caribou are large mammals of special interest. Polar bears are not expected in the project area. Grizzly bears typically hibernate in dens throughout winter, although individuals occasionally could be encountered during early or late phases of project activity. Grizzlies tend to den in river and lake banks,

sand dunes, pingos, and gullies.<sup>34</sup> Active bear dens are known to occur on Federal lands in the vicinity of the new Colville River crossing site. The applicant consulted with the State and USFWS to stay updated on the location of bear sightings and active dens.

Members of the Teshekpuk Lake Caribou Herd (TLH) might be present in the drilling area during the winter. The calving area for this herd generally surrounds Teshekpuk Lake, north of the immediate project area. As early as late spring, migration begins from over-wintering areas to the calving grounds; however, bulls and other females may remain on winter ranges until June. Actual timing of spring migration varies from year-to-year. Along proposed access routes in the NE NPR-A, stipulations protect caribou resources primarily by timing restrictions on activity to avoid disturbance during spring migration. Proposed overland access routes are generally within or near corridors previously evaluated and subsequently authorized.<sup>35</sup>

The new route segments cross portions of caribou ranges used by the TLH, Western Arctic Caribou Herd (WAH), and Central Arctic Caribou Herd (CAH).<sup>36</sup> No calving areas are associated with new segments of the corridor, and no designated caribou migration corridors are affected.<sup>37</sup>

Segment G of the new access corridor crosses the Teshekpuk Lake Caribou Habitat LUEA/Caribou Special Stipulation Area. Lease stipulations designed to protect caribou resources in this area deal primarily with controlling access to avoid disturbance during spring migration and calving. Other new road segments do not cross areas with special stipulations for caribou protection during winter exploration.

### 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.<sup>38</sup>

<sup>33</sup> 1998 NE ROD, Figure II.C.1; 2004 NW ROD, Map 1.

<sup>34</sup> 2003 NW IAP/EIS, p. III-74.

<sup>35</sup> 1998 IAP/EIS, p. III-B-41, Figure III.B.5.a-1, p. III-B-40.

<sup>36</sup> 2003 NW IAP/EIS, Vol. 3, Map 47.

<sup>37</sup> 2003 NW IAP/EIS, Vol. 3, Map 48; and 1998 IAP/EIS, Vol. 1, Fig. III.B.5.a-1, p. III-B-40.

<sup>38</sup> 2003 NW IAP/EIS, Vol. 1, Sec. III.C; 1998 IAP/EIS, Vol. 1, Sec. III.C; EA: AK-023-05-005, Sec 3.3; EA: AK-023-06-003, Sec 3.3.

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. Damage to Gulf of Mexico production platforms caused by Hurricanes Katrina and Rita in 2005 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."<sup>39</sup> 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.<sup>40</sup>

Residents of Nuiqsut and Barrow use the general drilling area for subsistence, which is also important to the local economy.<sup>41</sup> Atqasuk subsistence use areas are typically more to the west and would be crossed by proposed access corridor segments that 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 ages-old Iñupiat 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.<sup>42</sup>

Nuiqsut and Atqasuk 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.

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. CPAI and the BLM have consulted with local residents, the NSB, and the NPR-A SAP to ensure 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 were submitted to the Bureau of Land Management for the required cultural resource clearance.

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 9 months of the year.<sup>43</sup>

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 developments.<sup>44</sup>

Visual Resource Management (VRM) classes were not established in the 1998 NE IAP/EIS. At that time, visual resources were described using a 16 scenic-quality rating unit system, based on landform, vegetation, water, color, distinctiveness, and cultural modification, which is incorporated by reference.<sup>45</sup> The 1998 ROD did, however assign VRM classes to the Colville River Scenic Area LUEA, which is to be managed for VRM Class I upstream of Umiat and VRM Class II below Umiat, with exceptions allowed for subsistence structures and essential pipeline crossings.<sup>46</sup> VRM Class I is the most protected level, with only a low level of change allowed. Class II is not as restrictive; however, neither Class I nor Class II areas are directly associated with the proposed project, because the proposed crossing of the Colville River is downstream of the LUEA boundary.

Portions of the new corridor segments in the NW NPR-A cross areas classified as VRM Class IV (where major modification to the existing scenic character can occur), and VRM Class III, which are managed by the BLM to

<sup>39</sup> 2003 NW IAP/EIS, Vol. 3, Map 105.

<sup>40</sup> 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.

<sup>41</sup> 2003 NW IAP/EIS, Vol 3, Map 66.

<sup>42</sup> 2004 NW ROD, p. 4.

<sup>43</sup> 2003 NW IAP/EIS, Vol. 1, p. III-30.

<sup>44</sup> NSB Camps and Cabins Map, prepared for NPRA Exploration Bidders, June 2, 2004.

<sup>45</sup> 1998 NE IAP/EIS. Vol. 1, pp. III-C-54 and 55.

<sup>46</sup> 1998 NE ROD, p. 5.

partially retain the existing character of the landscape, and allow a moderate level of visual change.<sup>47</sup> Other portions of the access corridor 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.<sup>48</sup> No affected rivers are included in the National Wild and Scenic Rivers System. Portions of the Colville River were considered for designation as a Wild and Scenic River, but no Congressional action was taken. The Colville River was reconsidered in the 1998 NE IAP/EIS, but found to be unsuitable.<sup>49</sup> In the NW Planning Area, the Ikpikpuk and Chipp rivers were determined to be eligible for designation as a unit of the National Wild and Scenic Rivers System; however, they were not proposed for designation.<sup>50</sup>

There are no known commercial recreation businesses and no developed commercial or public recreation facilities in the project area. There is limited use of this 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.

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<sup>47</sup> 2004 NW ROD, pp. 6-7; 2003 NW IAP/EIS, Vol. 3, Map 23.

<sup>48</sup> 1998 IAP/EIS, Vol. 1, p. III-C-54 and pp. II-51 and 52. 2003 NW IAP/EIS, Vol. 3, Map 12.

<sup>49</sup> 1998 IAP/EIS, p.II-3; 1998 NE ROD, p. 5

<sup>50</sup> 2003 NW IP/EIS, Vol. 3, Map 13; 2004 NW ROD, p.4.

**Figure 3 Existing/Proposed Oil & Gas Activities on the North Slope**



## 4 ENVIRONMENTAL IMPACTS

If authorized, the proposed project would be the 12th winter exploration drilling program in the NPR-A since the 1999-2000 winter drilling season; all but the two FEX L.P. Incorporated (FEX) drilling programs have been in the NE Planning Area. Several other programs involving summer storage or alternative overland access also have been evaluated.

All authorized winter exploratory drilling operations 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 Alaska Coastal Management Program (ACMP) and the NSB Coastal Management Program, where applicable. **Table 9** summarizes exploration programs on federal land within the NPR-A since 1999.

Authorizations under the 1998 and 2004 RODs 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 to access and use of subsistence resources. The requirements and protective measures set forth in the 1998 NE ROD and 2004 NW ROD, in addition to site-specific recommendations and stipulations, have provided sufficient environmental protection to keep environmental impacts to a minimum.

Both the 1998 and 2004 RODs provide for granting exceptions to stipulations and/or ROPs under a set of strict conditions. This option allows the BLM Authorized Officer 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 Authorized Officer shall consult with appropriate regulatory and resource agencies.

All new drilling operations on federal land would be located in the NE Planning Area. CPAI also proposes to drill several wells on private land about 20 miles south of Barrow. Access to these private lands involves proposed additional authorized access corridors to Barrow that cross federal land in the NE and NW Planning Areas to shorten and improve the route.

The proposed winter exploration program:

- Incorporates all relevant decisions made in the applicable IAP/EIS and ROD.
- Uses techniques and practices that are within the general scope of exploration activities evaluated in the NE and NW IAP/EISs, and the protective measures incorporated in their respective RODs.
- Reflects the experience gained during similar operations in the NPR-A, on the North Slope on lands managed by the State of Alaska, and on NSB and private lands.

**Table 10** shows the relationship of the Applicant's proposed drill sites in the NE Planning Area to nearby drill sites approved since 1999. A total of 55 sites are within 12 miles of proposed drill sites, of which 17 have been drilled. The proposed sites south of Barrow on private land in the NW Planning Area are in close association with three operating gas fields on non-federal land that supply natural gas to Barrow.

Because proposed activities are not substantially different from those previously evaluated (Appendix A), and because no significant new scientific information or analyses have been developed since the most recent related evaluation (i.e., November 2006), this NEPA analysis will focus on impacts due to the project-specific/site-specific differences of the proposed action.

### 4.1 ASSUMPTIONS

Three assumptions were made in evaluating potential impacts of the proposed action, as discussed below.

*Assumption 1: When applied to the proposed action, management decisions and stipulations of the 1998 ROD for activity in the NE NPR-A and the stipulations and ROPs of the 2004 ROD for the NW NPR-A 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 and the NE 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 Areas, LUEAs, and sensitive area designations) described in the 1998 NE ROD and the 2004 NW ROD.

**Table 9. 1999-2006 Exploration Drilling Activity on Federal Land in the NPR-A**

Project Element	Total for 11 Exploration Programs Evaluated (with FONSI)	Actual
Wells (with sidetracks)	194	20 + 1 sidetrack
Ice drill pads <sup>a</sup>	82	23
Ice storage pads (over-summer)	2	1
ROW corridor <sup>b</sup>	980	950 <sup>c</sup>
Ice airstrips	36	7
Water supply lakes <sup>d, e</sup>	376	126
Water use	2000 MG	513 MG

Mileage and acreage values are estimated for comparative purposes.

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

b – Total miles of ice road/packed snow trail ROW and on-lease access authorized.

c – Includes use of some ROW segments over multiple years.

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

e – Includes lakes authorized for ice aggregate removal.

FONSI – Finding of Non Significant Impact

MG – million gallons

NPRA – National Petroleum Reserve - Alaska

NT – Not tracked

ROW – Right-of-Way

**Table 10. Previously Approved and Drilled Sites within 12 miles of Proposed Drill Sites**

Proposed Drill Sites	Previously Authorized Drill Sites 0 to 6 miles away		Previously Authorized Drill Sites 6 to 12 miles away	
	Not drilled	Drilled	Not Drilled	Drilled
Spark DD 9, 10, 11, 12	12	3	10	8
Cassin 1	0	0	12	5
Cassin 2	4	1	14	6
Cassin 3	0	0	16	5
Nugget 1 and 2	1	1	13	4
Noatak 2 and 3	3	1	6	2

Note: Numbers do not add because there is overlap between most drill sites. See Appendix A for additional details on previously authorized drill sites.

In both decisions, the Secretary of the Interior concluded that all practical means to avoid or minimize environmental harm had been adopted.<sup>51</sup>

Despite the multiple controls in place, winter exploration has resulted in several minor impacts during the past 7 years (e.g., fish uptake with water withdrawal, tundra scuffing and minor tundra damage, and 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 this assumption.

*Assumption 2: 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 the BLM over the past 7 exploration seasons, with no significant impacts observed. Most specifically, the proposed activity represents an extension of CPAI activity previously evaluated and determined to have no significant impacts.

Also considered is the fact that the BLM has monitored authorized activities located within or adjacent to Special Areas, LUEAs, and sensitive areas that are associated with the proposed project. These include: Colville River Special Area; Teshekpuk Lake Special Area; Teshekpuk Lake Watershed LUEA; Fish Habitat LUEA; Colville River Raptor, Passerine and Moose LUEA; Scenic Area LUEA; Potential Colville River Wild & Scenic River LUEA; Ikpikpak Paleontological Sites LUEA; and the Teshekpuk Lake Caribou Habitat LUEA/Special Caribou Stipulations Area.

Similar consideration was given to the NW Planning Area, which contains the western part of the Teshekpuk Lake Special Area and identifies the following sensitive areas: Deep Water Lakes, Rivers Eligible for Designation as Wild & Scenic Rivers, River Setback Transition Locations, Visual Resource

Management Areas, Teshekpuk Lake Caribou Winter Range, and Areas with Highest Potential for Cultural and/or Paleontological Resource Discoveries.

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.

*Assumption 3: 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 9 miles inland from Harrison Bay. As evaluated in the 1998 IAP/EIS, large spills are unlikely,<sup>52</sup> and distance, snow/ice cover, surface use restrictions, and response requirements minimize the potential for any spill to reach the marine environment.

## 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 11** and incorporated in the discussion of project-specific impacts.

## 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 from the 1998 NE Planning Area IAP/EIS and its ROD, the 2004 NW Planning Area IAP/EIS and its ROD, and the 2004 FEIS Alpine Satellite Development Plan and its ROD. More specifically, this EA is tiered from EA: AK-023-06-003, and EA: AK-023-05-005.

### 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.

<sup>51</sup> 1998 ROD, P. 21. 2004 ROD, pp. 20 and 25

<sup>52</sup> 1998 NE IAP/EIS, Vo1. 1, Sec. IV.G.

**Table 11. 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 <sup>a</sup>	NA <sup>b</sup>
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 <sup>c</sup>	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
<b>Other Important Elements</b>		
Adverse Energy Impact	No	NA
Wildlife	Yes	Yes
Fisheries	Yes	Yes
NPR-A Special Areas, LUEAs, and other sensitive areas	Yes	Yes
Local Land Use and Subsistence	Yes	Yes

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

<sup>b</sup> NA – Not applicable to the proposed action.

<sup>c</sup> Listed animals are not present during the period of the proposed activity.

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.
- Colville River Special Area and Other Associated Sensitive Areas.
- Teshekpuk Lake Special Area and Other Associated Sensitive Areas.
- 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 winter exploration related impacts are cited in the following analyses. The analysis also considers the results of 10 winter exploration programs completed over the past 7 years in the NPR-A that confirm the effectiveness of the environmental protection measures applicable to the proposed action.

AIR QUALITY			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
2004 NW ROD	None	None	ADEC Permit
1998 NE ROD	None	None	

**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. Related discussions on air quality issues and potential impacts are incorporated from the 2003 NW IAP/EIS, Vol. 2, Section V.B.6 and the 1998 NE IAP/EIS, Vol. 1, Section IV.G.5. Discussion incorporated by reference is addressed below as it pertains to the proposed action.

**Analysis of Proposed Action:** CPAI will operate under the ADEC Minor General Permit 1 for oil or gas drilling rigs. A surveillance program is required when the sulfur content of fuel combusted is greater than 0.19 %. CPAI will enforce an exclusion zone, using methods approved by ADEC and the BLM. 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 82 drill pads in the NPR-A, which were determined to have no long-term or significant effects on air quality.

**Table 10** shows that the four proposed Spark DD drill sites, three Cassin drill sites, two Nugget drill sites, and two Noatak drill sites are located in close proximity to 55 drill sites previously evaluated by the BLM and ADEC for potential impacts to air quality. Seventeen of these have been drilled since the 1999-2000 winter drilling

season; all without a significant adverse impact to air quality.

The proposed winter exploration operations at the proposed 11 drill sites are similar to those previously evaluated and authorized by the BLM. Accordingly, it is determined that effects on air quality associated with the proposed project are not expected to be more than minor and short-term.

<b>HAZARDOUS MATERIALS, SOLID WASTES, AND SPILLS</b>			
<i>Environmental Controls and Mitigation:</i>			
	<b>Stipulation</b>	<b>ROP</b>	<b>Other</b>
2004 NW ROD	None	A-1 – A-7	43 CFR 3160 ; Onshore Order 1; Orientation and Subsistence Protection Plans; ODPCP and SPCC Plan
1998 NE ROD	1 – 17; 24; 28; 63; 65; 70; 71	None	

**Discussion Incorporated by Reference:** The extent of environmental impacts from an 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 during the proposed winter exploration activities. 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: 1998 NE IAP/EIS, Sections IV.A.2 – IV.A.4; 2003 NW IAP/EIS, Vol. 1, Sections IV.A.1.a(4) and IV.A.2 – IV.A.4; and Sections 4.3 of EA: AK-023-05-005 and EA: AK-023-06-003. 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.<sup>53</sup>

CPAI has an ODPCP approved by ADEC, demonstrating the capability to control, contain, and cleanup any expected release. SPCC Plans will be required for CPAI drilling and testing contractors. The approved ODPCP and SPCC Plans will be accepted by the BLM as meeting the lease stipulation for spill planning. CPAI 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.

Potential spill sources associated with drilling activities include: minor operational spills (typically less than 10 gallons of diesel or lubricants), major tank failures (e.g. rupture of a 20,000-gallon diesel storage tank or fuel truck), and well blowouts. The greatest potential threat would be from a blowout that continued into breakup, which is considered a very low probability event.

Several areas determined by the BLM to have special status lie within a 1-mile radius of the proposed drill sites. Noatak 2 and 3 lie within the Teshekpuk Lake Special Area and Watershed LUEA and within 1 mile of the boundary of the Teshekpuk Lake Special Caribou Stipulation Area and Kealok Creek. Nugget 1 and 2 lie within the Deep Water Lakes Fish Habitat LUEA. The Spark DD 9, 10, and 12 and Cassin 2 sites lie approximately 1 mile from the Judy Creek Sensitive Area Consultation boundary, and all Spark DD sites are within the Kuukpik Withdrawal Area. Winter operations, protective measures listed above, and the Applicants approved ODPCP protect these resources from spills. The ODPCP limits the drilling period to better ensure that spill cleanup activities are largely confined to winter conditions.<sup>54</sup>

The BLM has field checked all 11 potential drill sites and determined that impacts would be minimal due to protective environmental stipulations 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. In addition, the BLM has monitored drilling at 20 wells in the project area that produced no apparent significant adverse impacts.

<sup>53</sup> FONSI AA-081727, December 2004 and FONSI AA-085574, December 2005.

<sup>54</sup> CPAI ODPCP No. 024-CP-5096 is available at ADEC.

Based on the Applicant’s proposed operations programs, protective measures of the 1998 ROD, and stringent requirements of ADEC and the EPA, no significant impact is expected from drilling operations at any of the eleven sites.

CULTURAL AND PALEONTOLOGICAL RESOURCES			
Environmental Controls and Mitigation:			
	Stipulation	ROP	Other
2004 NW ROD		C-2; E-13; I-1	NHPA (SHPO Clearance); Executive Order (EO) 13007, <i>Indian Sacred Sites</i>
1998 NE ROD	24; 26; 62 – 65; 74	None	

**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 a 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 a 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 and d and V.B.13.b and d; 1998 NE IAP/EIS, Vol. 1, Sections IV.A.6.b, IV.G.2, and IV.G.12; EA: AK-023-05-005, p. 4-4; and 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 proposed drill sites and along access corridors were completed by a qualified professional archaeologist, who also noted paleontological resources. Findings have been submitted to the 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 proposed action is very similar to previous authorizations in the NE and NW NPR-A Planning Areas, which had no significant impacts to cultural and paleontological resources under similar environmental and operating conditions. Results of cultural resources surveys and proposed use of snow and ice construction and LPV trails, along with 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.

DISTURBANCE TO FLOODPLAINS, WETLANDS, RIPARIAN ZONES, AND VEGETATION			
Environmental Controls and Mitigation:			
	Stipulation	ROP	Other
2004 NW ROD	D-2	A-4 -- A-7, B-1, B-2, C-2 – C-4	Subsistence Protection; Orientation; EOs 11988 and 11990
1998 NE ROD	1; 3 –16; 18 – 22, 24 – 28; 61 – 63; 65; 67; 70	None	

**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 periods of below freezing temperatures makes ice construction a feasible alternative. Experience in evaluating and monitoring winter drilling programs in NPR-A since the winter of 1999-2000 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.

The 1998 IAP/EIS, Volume 1, Sections IV.A.1, IV.G.3, and IV.G.6 describe reasonably-expected ground disturbance from overland winter travel, ice roads, ice pads, and well cellars as relatively minor and often temporary, and this discussion is incorporated by reference.

The 2003 NW IAP/EIS, Vol. 1, Sections IV.A.1.a, IV.A.1.b(2) and (3), Vol. 2, V.B.7.b and 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 ASDP FEIS Vol. 1, Section 4.A.3.1 provides additional findings of a similar nature. The two recent EIS evaluations incorporate results and observations from exploration in the NPR-A since 2000.

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

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

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

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. Further mitigation is not currently 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, and access corridors, including access to/from the new Colville River crossing. In addition, BLM personnel will perform regular inspections throughout implementation of the proposed project, including abandonment of the sites to ensure standards are met.

In total, the 11 ice pads will cover approximately 63 acres. **Table 7** shows the land cover types associated with these pad locations. As shown, the predominant vegetation type is tussock tundra (52%) and sedge/grass meadow (35%), with other associations present less than 5% each. Drill pads are constructed of ice, which is expected to result in only short-term, minimal impacts to vegetation as documented above and observed by the BLM over the past seven drilling seasons.

CPAI has proposed ice airstrips on six lakes in the NE NPR-A; two of these lakes (M0305 and M0410) were previously evaluated as ice airstrip locations; two

other lakes (B84057 and M9923) were previously evaluated only for water withdrawal. Based on drawings provided, the airstrip shown for lake B84057 does not appear to be located on grounded ice. This action is not consistent with previous BLM/State decisions for ice airstrips on lakes with sensitive fish. The proposed ice airstrip will be further considered in the decision record for this action. The airstrip proposed to support private drilling operations (Intrepid) in the NW NPR-A (Kilusiktok Lake) is only partially on federal land, with most of the lake area, including the ice airstrip, on private land.

The proposed project includes 11 new, relatively short (2.3 to 25.1 miles) ROW corridor segments that total approximately 110 miles. CPAI has proposed a new crossing of the Colville River channels that is approximately 2 miles north of the authorized crossing at Ocean Point. **Table 8** shows land cover types associated with the new segments, where the area of coverage has been calculated on the basis of a 1-mile wide access corridor (approximately 74,600 acres), in which CPAI proposes to use a combination of ice road and LPV overland travel. The actual footprint of LPV trails and ice roads will impact only a small percent of the total ground cover shown. See *Colville River Special Area and Other Associated Sensitive Areas* (below) for a discussion of the proposed new crossing of federal lands adjacent to the Colville River.

The dominant ground cover type within the corridor is tussock tundra (21%), flooded tundra-LCP (16%) followed by sedge/grass meadow (12%); the next most predominant land covers are clear and turbid water (9% each). Ice roads and LPV trails are located to avoid areas of frozen "clear water" to the extent practicable: Lake and stream crossings in the NW Planning area are controlled. The NE Planning Area has comparable environmental protections.

Some tundra travel impacts are expected to occur despite protective mitigation measures. The yearly repetition of overland moves, or ice road construction, could worsen the impacts. Typically, disturbance is negligible to low, with higher levels of disturbance in low willow shrub and dwarf shrub tundra (found along approximately 6% of the overall new access corridors). High levels of disturbance from overland travel might occur on ridges of ancient stabilized dunes and on thinly vegetated sand bars along streams in areas of relatively dry sand (found along approximately 2% of the overall new access corridors). Recovery time is unknown. As a general rule, sandy areas are avoided to the maximum extent practicable because they can provide unstable foundations for travel and ridgetops tend to have less snow depths due to winds.

Continued use of the existing, authorized ROWs is expected to result in only short-term minimal impact to vegetation, as described in EA: 023-06-003(p. 4-5 – 4-7), and observed by the BLM over the past 7 years of exploration in the NPR-A involving similar vegetation and terrain. With the extensive occurrence of wetlands in the project area, they cannot be avoided. In fact, the wetter the soils are, the more resistant to disturbance they are when frozen. However, impacts to wetlands from the proposed activities are expected to be localized and relatively short term (a few to several years).

Habitat associated with several rare and sensitive plant species may occur in the project area (NW and NE NPR-A). 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 to avoid sandy soils to the maximum extent practicable. All proposed operations in the NPR-A occur when the ground is frozen and snow covered. Most tundra plants survive winter travel activities without harm. Accordingly, any impacts to rare or sensitive plants are expected to be localized and minor.

Some drilling operations and new access corridors will be located in active floodplains, as defined in the 1998 and 2004 RODs. Protective stipulations for the NE Planning Area cited above restricts exploratory drilling in rivers, streams, wetlands, and active floodplains, unless the BLM determines that site-specific impacts are minimal, or there is no feasible or prudent alternative. Based on associated regulatory authorizations, the requirements and protective measures of the two RODs, 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 NW IAP/EIS, the BLM completed an 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.<sup>55</sup> These findings apply to the NW Planning Area, but also involve similar floodplain and wetland values as those in the NE Planning Area. A

further evaluation of EO 11988 and EO 11990 will be included in the decision record for this action.

Recent meetings in Barrow elicited concern about potential use of the proposed LPV access route to/from the Colville River which ends approximately 20 miles south of Barrow. It is reasonably expected that some local residents may choose to drive their private vehicles across this LPV trail to the Colville River and continue eastward across non-federal land to the Prudhoe Bay area to access the Dalton Highway. In addition to safety concerns for drivers/passengers about long distance winter time travel across remote sections of the NPR-A, there is concern that the tundra may be damaged by private vehicles that are not intended to be used on a LPV trail. Non-LPV traffic on LPV trails by local residents is not new. To date, neither the BLM nor authorized users of the ROW have noted significant tundra damage. The BLM will continue to monitor non-LPV use of authorized ROWs in the NPR-A by local residents and is working with the NSB to develop a plan to control non-LPV traffic.

THREATENED AND ENDANGERED SPECIES, POLAR BEARS, AND OTHER SENSITIVE WILDLIFE			
Environmental Controls and Mitigation:			
	Stipulation	ROP	Other
2004 NW ROD	J-1	A-4 – A6, A-8; C-1; E-9; F-1; I-1	ESA Sec. 7 Evaluation
1998 NE ROD	24, 25, 50 – 57, 62, 63, 75, 76, 77	None	

**Discussion Incorporated by Reference:** Spectacled and Steller’s eiders are the only two terrestrial species listed under the ESA. These two species of birds are listed as Threatened. No “critical habitat” has been designated in the project area for these two species.<sup>56</sup> Neither of these species is present in the project area during the winter.

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,

<sup>55</sup> 2004 NW ROD, pp. 16 -19.

<sup>56</sup> 1998 NE IAP/EIS, Appendix C; 2004 NW ROD, Appendix C, Final Threatened and Endangered Species Documentation.

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 in the new access corridors would traverse caribou wintering areas (both the TLH and WAH). Impacts to caribou 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).

Animals are mobile and operations are seasonal and affect only a very small proportion of available winter habitat; therefore, 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 have been successfully used in the NPR-A winter exploration programs to monitor activities to ensure the objectives of protecting subsistence resources is met. The Applicant will hire subsistence representatives.

Related discussion is incorporated from the 2003 NW IAP/EIS, Vol. 2, Sections V.B.10.a(2) and (4) and V.B.11, and Vol. 3, Appendices 10 and 16; and the 1998 NE IAP/EIS, Vol. 1, Sections G.9.a and G10, and Vol. 2, Appendices C and E. Other related discussion is in the 1998 NE IAP/EIS (pp. III-B-46 and III-B-47 and pp. IV-G-37 and IV-G-38).

This EA incorporates EA: AK-023-05-005, p. 4-7 and EA: AK-023-06-003, pp. 4-7 through 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. Neither of these species is present in the project area during the winter. BLM's informal consultations with the USFWS for the previous winter exploration drilling programs have resulted in findings that the proposed projects were not expected to have adverse effects on either listed species. The BLM has made a similar finding for the proposed project.

The USFWS reviewed the Applicant's Polar Bear/Personnel Encounter Plan and determined that it provides appropriate safeguards to limit human/animal interactions. 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 avoidance measures, which are 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.

A grizzly bear has been seen and may be denning on federal land along the Colville River, in the general vicinity of ROW Segment A. The State recently conducted a survey to determine whether there are one or more occupied bear dens in Segment A.<sup>57</sup> BLM and the Applicant were notified of the results of this survey. Stipulation 27 establishes a 0.5-mile exclusion zone around known grizzly bear dens.

The proposed winter exploration drilling program would occur primarily between mid-December and early May. During this time, caribou might be in the general project area and subject to disturbance by ice road/pad construction, drilling, vehicle traffic, aircraft, and human activity. In most cases, these activities are expected to cause short-term, minor displacement and/or disturbance.

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 drilling period, the 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 expected to be localized, minimal, and short-term (but can last for several weeks or months).

CPAI proposes to use routes and transportation schedules similar to prior operations. Several stipulations restrict overland travel and air traffic activity in the Teshekpuk Lake Caribou Habitat LUEA/Special Stipulation Area. Accordingly, with the RODs protective measures in place (as listed above), the impact to caribou movements 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

<sup>57</sup> Jack Winters, OHMP, personal communication November 28, 2006.

expected to be negligible. This assessment is consistent with results of compliance monitoring of previous exploration activities in the NPR-A. Conditions for winter survival vary from year-to-year, and it is possible that this disturbance could have a small degree of additive effect on winter mortality. This impact is expected to be insignificant at the population level. Additionally, the Applicant will have plans in place to minimize harassment, displacement, attraction, or injury of wildlife.

Due to the project inland location, no impact to bowhead whales, other marine mammals, seabirds, or their habitats is expected from the proposed winter drilling and related operations.

<b>WATER RESOURCES AND POTENTIAL IMPACTS TO WATER QUALITY, FISH, AND WATERFOWL</b>			
<i>Environmental Controls and Mitigation:</i>			
	<b>Stipulation</b>	<b>ROP</b>	<b>Other</b>
2004 NW ROD	D-1	A-1 – A-7; B-1, B-2; C-2 -- C-4; E-9; I-1	ADNR TWUP; ADNR/OHMP Fish Habitat permit; EFH, NPDES General Permit; ACMP Consistency
1998 NE ROD	1, 3 – 5, 7 – 16, 19, 20, 22, 24, 28, 62, 63, 67, 70, 71	None	

**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 stipulations in the NE Planning Area and stipulations and ROPs in the NW Planning Area prohibit winter water withdrawal from streams, limit water withdrawal from lakes, and limit stream crossing operations, thereby substantially limiting potential impacts 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 that may be present. OHMP also requires measures to prevent stream crossings from forming dams or otherwise change the natural hydraulic regime so that stream bottom or bank scour is minimized during breakup, where applicable.

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). Birds that do remain during the winter (e.g., ptarmigan) may be displaced by exploration activity.

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, ADNR 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.

None of the previous evaluations of winter exploration drilling in the NPR-A produced evidence of adverse effects to fish. 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.<sup>58</sup>

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; 1998 NE IAP/EIS, Vol. 1, Sections IV.G.4, IV.G .7, and IV.G .8, and Vol. 2, Appendix E; EA: AK-023-05-005, pp. 4-7 through 4-9; and EA: AK-23-06-003, pp. 4-10 and 4-11. Discussion incorporated by reference is addressed below as it pertains to the proposed action.

**Analysis of Proposed Action:** This EA evaluates water withdrawal from nine new water sources and four new airstrip locations. Operations at ice airstrips are governed by a series of stipulations designed to prevent undue impact to wildlife, and other protective measures in the 1998 ROD minimize impacts to water quality and fish.

Based on available information about the four new lake ice airstrips in the NE Planning Area, the impacts appear to be substantially the same as previously evaluated, i.e., short-term and minor.

Proposed water withdrawals and ice construction methods proposed by CPAI (including shaving aggregate from grounded ice and appropriate screening at hose intake) comply with the stipulations and ROPs listed above. No impacts to water quality are expected.

ADNR Division of Mining, Land, and Water has issued TWUPs for water withdrawals from the fish-bearing lakes requested by CPAI. ADNR OHMP has also issued Title 41 permits (Fish Habitat) for both water withdrawal from fish bearing lakes and for fish stream crossings for

<sup>58</sup> ASDP FEIS, Vol. 1, pp. 428-434.

the proposed project. These State authorizations limit ice aggregate removal to areas where the ice is grounded.

The approved water withdrawal/ice aggregate volumes from several lakes shown in Table 5 are greater than limits set in the BLM stipulations. In issuing permits, the State has determined that fish populations and habitat will be adequately protected. In prior NEPA evaluations and subsequent decisions about winter exploratory drilling in the NPR-A, the BLM has given strong consideration to State authorizations for crossing streams with fish habitat, water/ice aggregate withdrawals from lakes, and construction of ice airstrips on lakes.

As a result of these protective measures, impacts to fish are expected to be minor and short-term, including impacts in Fish Habitat LUEAs. The BLM has considered the potential impacts to salmon and made an EFH finding that the proposed project “*may affect, not likely to adversely affect,*” and no EFH consultation is required.

The proposed project will not impact waterfowl or shorebird populations or habitats, since these birds are not present in the project area during the winter, and protective measures associated with winter exploration drilling operations result in only minor, short term, localized impact.

Wastewater will be treated and discharged under the NPDES permit, or hauled off site for disposal. Fuel and material handling practices generally protect lakes from potential pollution.

Projected blowout plumes encounter 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 cleanup occurs and the ODPCP and SPCC Plans required by ADEC and EPA are implemented.

In summary, expected impacts of winter exploratory drilling, construction and maintenance of new ice structures including new lake airstrips and access corridors, and water/ice aggregated withdrawal to water quality, fish, or wildlife in the NE Planning Area are expected to be minor, localized, and temporary, resulting in no significant impacts. Likewise, impacts of new access corridors and ice airstrips in the NW Planning Area are expected to be minor, localized, and temporary, resulting in no significant impacts.

COLVILLE RIVER SPECIAL AREA and Other Associated Sensitive Areas			
Environmental Controls and Mitigation:			
	Stipulation	ROP	Other
2004 NW ROD	None	None	NPRPA
1998 NE ROD	1 – 7, 9 – 11, 14 – 20, 22, 24, 28, 50 – 57, 59 – 61, 62, 63, 64, 67, 70, 72 – 77	None	

**Discussion Incorporated by Reference:** Section 104 (b) of the NPRPA authorized the Secretary of the Interior to designate as special areas certain 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 Colville River Special Area , along the west bank of the Colville River, was designated under NPRPA as an area for protection of the peregrine falcon, which at one time was an endangered species, and is still subject to intense monitoring studies to ensure that its population continues to grow. Through a combination of setbacks, timing restrictions, air flight restrictions, and guidance that are present in the stipulations, maximum protection is provided to the peregrine falcon and its habitat.

The 1998 ROD designated several LUEAs within the Colville River Special Area that are associated with the proposed project: These are: Fish Habitat LUEA<sup>59</sup>, Colville River Raptor, Passerine, and Moose LUEA<sup>60</sup>, Scenic Area LUEA<sup>61</sup>, and Potential Colville Wild & Scenic River LUEA<sup>62</sup>. These four LUEA designations within the Colville River Special Area all start at the west bank of the Colville River and involve set backs for permanent facilities extending westward from the Colville River into NPR-A.

While many of the referenced protective measures apply primarily to development, a number of other stipulations also provide maximum protection in the Special Area and LUEAs (e.g., subsistence, spill protection, aircraft use, and winter overland moves). In addition, applicants for oil and gas related activities are required to consult with the NSB, the NPR-A SAP, and directly affected subsistence communities to prevent unreasonable

<sup>59</sup> NE NPR-A Final IAP/EIS, Vol. 1, Figure II.B.5, p. II-8.

<sup>60</sup> NE NPR-A Final IAP/EIS, Vol. I, Figure II.B.6, p. II-9.

<sup>61</sup> NE NPR-A Final IAP/EIS Vol. 1, Figure II.B.9, p. II-12.

<sup>62</sup> NE NPR-A final IAP/EIS, Vol.1, Figure 11.B.14, p. 11-17.

conflicts between subsistence uses and oil and gas activities. The BLM also makes onsite examinations of proposed drill sites, ice road and LPV trail routes (including stream crossings) to ensure maximum environmental protection – as envisioned in the stipulations.

In the NE NPR-A, the BLM has previously considered and evaluated proposals for winter exploration programs, including drilling, construction of ice roads and LPV trails, and lake water withdrawal in the Colville River Special Area. These evaluations have all concluded that those winter exploration activities would have no significant impact to the resources in the Special Area and associated LUEAs.<sup>63</sup>

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, and the 1998 NE IAP/EIS, Vol. 1, Sections IV.G.4, IV.G .7, and IV.G .8, and Vol. 2, Appendix E. This analysis is tiered from EA: AK-023-05-005, pp. 4-7 through 4-9 and EA: AK-23-06-003, pp. 4-11 and 4-12. Discussion incorporated by reference is addressed below, as it pertains to the proposed action.

**Analysis of Proposed Action:** The proposed project involves a new access corridor (Segment A) that crosses the Colville River Special Area and the two LUEAs (Potential Colville Wild and Scenic River LUEA and Fish Habitat LUEA). The existing authorized crossing at Ocean Point also involves the Colville River Raptor, Passerine, and Moose LUEA and Scenic Area LUEA. Thus, the new crossing crosses two fewer LUEAs than the Ocean Point authorized crossing (Ocean Point Segment). Segment A requires several State authorizations to cross non-federal lands and waters, including the Colville River.

**Table 12** provides a relative comparison of the land cover types on federal land at Ocean Point and Segment A, which is approximately 1 mile longer than the Ocean Point segment. The dwarf shrub and low shrub land cover types in Segment A comprise approximately 19% of all land cover. These two land cover types also occupy approximately 19% of the Ocean Point Segment. Accordingly, impacts to land cover types in the Colville River Special Area and associated LUEAs are considered to be essentially the same, e.g., site-specific, minor, and lasting only a few years.

**Table 12. Comparison of Land Cover Types in Segment A with the Ocean Point Segment**

Land Cover Type	Segment A (acres) <sup>a</sup>	Ocean Point Segment (acres) <sup>a</sup>
<i>Arctophylla fulva</i>	49	24
Barren Ground/Other	30	55
<i>Carex aquatilis</i>	274	332
Clear Water	394	217
Dunes/Dry sand	131	156
Dwarf Shrub	881	581
Flooded Tundra-LCP	920	1273
Flooded Tundra-NP	274	311
Ice	0	0
Low Shrub	387	544
Moss Lichen	5	3
Sedge/Grass Meadow	61	36
Sparsely Vegetated	45	54
Turbid Water	276	192
Tussock Tundra	2486	1464
Wet Tundra	466	488
<b>Totals</b>	<b>6680<sup>b</sup></b>	<b>5730</b>

<sup>a</sup> A 1-mile wide corridor: Segment A approximately 10 miles long, Ocean Point Segment approximately 9 miles long. All numbers rounded.

<sup>b</sup> Acreages computer calculated using BLM/Ducks Unlimited digitized vegetation association map. The computer adds a buffer to both ends of each segment; therefore, the values shown are conservative. The values shown above for Segment A are slightly different from those shown in Table 8, because the east end has no buffer included.

TESHEKPUK LAKE SPECIAL AREA and Other Associated Sensitive Areas			
Environmental Controls and Mitigation:			
	Stipulation	ROP	Other
2004 NW ROD	D-1	A-1 – A-8; B-1, B-2; C-1 – C-4; E-10; E-13, F-1; H-1, H-2; I-1	NPRPA
1998 NE ROD	1 – 7, 9 – 11, 14 – 22, 24 – 28, 50 – 57, 59 – 64, 67, 70, 72 – 77	None	

<sup>63</sup> See Appendix A for related documentation.

**Discussion Incorporated by Reference:** Section 104 (b) of the NPRPA authorized the Secretary of the Interior to designate special areas and other 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.

The 1998 ROD for the NE Planning area also designated the Teshekpuk Lake Watershed LUEA<sup>64</sup> which has the same boundary as the Teshekpuk Lake Special Area in the NE Planning Area. However, this LUEA does not extend into the NW Planning Area. Other sensitive areas designated in the 1998 ROD that are associated with the proposed action include the: Ikpikpuk River Fish Habitat LUEA<sup>65</sup> and Ikpikpuk Paleontological Sites LUEA, Spectacled Eider Breeding Range LUEA, and the Special Caribou Stipulations Area/Teshekpuk Lake Caribou Habitat LUEA<sup>66</sup>.

The 2004 NW ROD has no LUEA designations. However, the portion of the Teshekpuk Lake Special Area in this planning area was carried forward without change. The NW Final IAP/EIS identifies several areas that would be crossed by proposed access corridors. These include: Deep Water Lakes (Map 11), Rivers Eligible for Designation as Wild & Scenic Rivers (Map 13), River Setback Transition Locations (Map 20), Visual Resource Management Areas (Map 23), Designated Special Areas (Map 34), 1990-1999 Teshekpuk Lake Caribou Winter Range (Map 54), and Areas with Highest Potential for Cultural/Paleontological Resource discoveries (Map 87).

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 and the 1998 NE IAP/EIS, Vol. 1, Sections IV.G.4, IV.G.7, and IV.G.8, and Vol. 2, Appendix E. This analysis is tiered from EA: AK-023-05-005, pp. 4-7 through 4-9 and EA: AK-23-06-003, pp. 4-11 and 4-12. Discussion incorporated by reference is addressed below as it pertains to the proposed action

evaluated in the Teshekpuk Lake Special Area and associated sensitive areas. The BLM monitoring of actual drilling operations, as well as construction and maintenance of ice structures, verify the effectiveness of the stipulations and ROPs in preventing significant adverse impacts to the resources of the Teshekpuk Lake Special Area and associated designated sensitive areas.

The BLM has previously evaluated and subsequently authorized a number of access corridors in the NE and NW Planning Areas (**Appendix A**). These previous evaluations were found to have no significant impact to the Teshekpuk Lake Special Area and other important resource areas in the NE and NW Planning Areas.

**Analysis of Proposed Action:** While many of the referenced protective measures apply primarily to development, a number of other stipulations and ROPs also provide maximum protection in the Teshekpuk Lake Special Area and other identified areas with important resources (e.g., subsistence, spill protection, aircraft use, and winter overland moves). In addition, applicants for oil and gas related activities are required to consult with the NSB, the NPR-A SAP, and directly affected subsistence communities to prevent unreasonable conflicts between subsistence uses and oil and gas activities. The BLM also makes on-site examinations of proposed ice road and LPV routes, including stream crossings, to ensure proposed activities meet the environmental protection as envisioned in the stipulations in the 1998 ROD for the NE Planning Area and the stipulations and ROPs in the 2004 ROD for the NW Planning Area.

The proposed action involves the Noatak 2 and 3 drill sites and associated access and water withdrawals located within the Teshekpuk Lake Special Area and Teshekpuk Lake Watershed LUEA. Lake M0415 and associated ice airstrip and local access road are also within the Teshekpuk Lake Caribou Habitat LUEA, and Teshekpuk Lake Special Stipulations Area. The Noatak 1 drill site is previously authorized.<sup>67</sup> Proposed drill sites Noatak 2 and 3 are less than 1 mile from Noatak 1 and use the same technology evaluated for Noatak 1. The two new Noatak drill sites are deemed to have substantially the same impact on the Special Area and associated sensitive areas as the authorized Noatak 1 drill site, e.g. site-specific, short-term, and minor.

Portions of proposed new access corridors pass through the Teshekpuk Lake Special Area, Teshekpuk Lake Watershed LUEA, Teshekpuk Lake Caribou Habitat LUEA, and Teshekpuk Lake Special Stipulations Area, as well as crossing the Ikpikpuk River Fish Habitat LUEA,

<sup>64</sup> NE NPR-A Final IAP/EIS, Vol. 1, Figure II.B.1, p. II-4

<sup>65</sup> NE NPR-A Final IAP/EIS, Vol. 1, Figure II.B.5, p. II-8.

<sup>66</sup> NE NPR-A Final IAP/EIS, Vol. 1, Figure II.B.12, p. II-15. and Figure II.C.1.

<sup>67</sup> EA: AK-023-05-005.

Ikpikpuk Paleontological Sites LUEA, and Pik Dunes LUEA.

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 15<sup>th</sup>. ADEC has included stop-drilling dates in the ODP/CP (April 21 or April 24, depending on site-specific circumstances) that might not be early enough to meet the May 1 deadline for travel through the Caribou Special Stipulations Area in the NE Planning Area.

Use of Lake M0415 as an ice airstrip location would be effected by the May 1 deadline for travel through the Caribou Special Stipulation Area. Stipulation 50 restricts the period for stockpiling equipment and supplies to minimize road traffic from May 20 through June 20. In addition, there are several stipulations (i.e., 52, 54, and 55) that control timing and location of air traffic over the Teshekpuk Lake Caribou Habitat LUEA to mitigate potential impacts.

Based on similarities in project activities and site conditions between the new access corridor segments and previously authorized access corridors (along with BLM protective measures), no significant impacts to the Teshekpuk Lake Special Area and associated LUEAs in the NE Planning Area and sensitive areas identified in the NW IAP/EIS are expected.

**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 ensure continuing access to, and use of, subsistence resources in the 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 Appendix A have concluded that winter exploration programs in the 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. The LPV trail discussed above in “Disturbance to Floodplains, Wetlands...” also may provide improved temporary access to traditional winter subsistence use areas.

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; 2004 ROD, pp. 21-24; 1998 NE IAP/EIS, Vol. 1, Sections IV.G.11 and IV.G. 13, Vol. 2, Appendices D, F, and I; and 1998 ROD, pp 17-19. These values have been discussed in related environmental assessments and their associated FONSI, including the ANILCA Section 810 findings.<sup>68</sup>

Discussion incorporated by reference is addressed below as it pertains to the proposed action.

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

LOCAL LAND USE AND SUBSISTENCE			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
2004 NW ROD	D-1, D-2	E-9; F-1; H-1; H- 2; I-1	Incidental Harassment Authorization; NSB Permits, and ANILCA 810 Evaluation and Findings.
1998 NE ROD	19 – 22, 24 – 28, 50 – 55, 57, 59 – 65, 73	None	

<sup>68</sup> See Appendix A.

Subsistence activities that occur during the winter, and thus could be impacted by the proposed exploratory drilling program, include caribou hunting and 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 11 proposed exploratory drilling sites, as well as the associated access routes, are located in an area utilized by subsistence harvesters from Barrow, Atqasuk, 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.

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

BLM has found that the proposed 5-year winter exploratory drilling program will not significantly restrict subsistence uses. No reasonably foreseeable and significant decrease in the abundance of harvestable resources or in the distribution of harvestable resources, and no reasonably foreseeable limitations on harvester access will result from the proposed action.<sup>69</sup>

Stipulations and ROPs applicable to the NE and NW Planning Areas help mitigate impacts on subsistence. Impacts will be re-evaluated based on the subsistence reports filed after each season of proposed exploration activity.

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; C-4; F-1; I-1	None
1998 NE ROD	1, 6, 18, 22, 24, 26 – 28, 52 – 57, 62 – 65, 67, 73, 76	None	

**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 LPV trails may cause some temporary greening or browning of the tundra, which 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. The BLM has no record of commercial recreation services using the general vicinity during the winter.

Related discussion is incorporated from the: 1998 NE IAP/EIS, Vol. 1, Section IV.G.16 and Section III.C.6; NW IAP/EIS, Vol. 2, Section V.B.18 through V.B.20; EA: AK-023-06-003, pp. 4-13 and 4-14; and EA: AK-023-05-005, p. 4-10. Discussion incorporated by reference is addressed below as it pertains to the proposed action.

**Analysis of Proposed Action:** Proposed exploratory drilling operations in the NE NPR-A Planning Area are located in an area where there have been a large number of oil and gas activities in the past. Proposed new access corridors, likewise, are in areas where winter transportation corridors have been established for a variety of reasons. The proposed action involves both Class III and Class IV VRMs in the NW Planning Area, but avoids designated VRM areas in the NE Planning Area. Any visual impacts will be short-term, temporary, and primarily restricted to the winter season.

The project is not in an area being considered for Wilderness Recommendation. The BLM has identified the Chipp and Topagoruk rivers as eligible for Wild and Scenic River designation.<sup>70</sup> The Ikpikpuk River does not

<sup>69</sup> ANILCA Section 810 Evaluation and Findings. December 8, 2006.

<sup>70</sup> 2003 NW IAP/EIS, Vol.3, Map 13. The 2004 ROD did not recommend these rivers be included in the WSR system.

contain outstanding values, and is not eligible.<sup>71</sup> No existing or planned public recreation facilities are known to be associated with the project area.

The proposed project does not provide long-term access, which could impact the naturalness, wilderness values/attributes, or scenic resources. Some localized noise, air pollution, and visibility of industrial activity during the winter will adversely affect values of solitude quietude, and 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-2	A-1 – A-7; B-1; B-2; C-1; C3; C-4; F-1; H-1; I-1	EO 12898; ANILCA; EO 13175
1998 NE ROD	1 – 16, 20, 25, 28, 51 – 57, 59 – 65, 73	None	

**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 affects on minority or low-income populations are expected from the proposed winter exportation 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 peoples using the project area.

Related discussion is incorporate from the: 2003 NW IAP/EIS, Vol. 2, Section V.B.16; 1998 IAP/EIS, Vol. 1, Section IV.A.6; EA:AK-023-05-005, p. 4-10; and EA: AK-023-06-003, p. 4-14.

**Analysis of Proposed Action:** Subsistence resources provide an important source of food for, 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 multi-year winter exploratory drilling program is not expected to substantially impact subsistence resources or restrict use of, or access to, subsistence resources. Therefore, potential environmental justice impacts will be insignificant.

ADVERSE ENERGY IMPACTS			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
2004 NW ROD	None	None	EO 13212, Energy Policy Act of 2005
1998 NE ROD	None	None	

**Discussion Incorporated by Reference:** The 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.

**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 project cannot be avoided. They include:

- Temporary surface disturbance by winter drilling at well sites.
- Temporary increase in industrial activity affecting wintertime local tranquility and cultural solitude.
- Temporary minor impacts to tundra from the LPV trail and ice roads/pads/airstrips. Longer-term, but relatively minor, visual impacts from multiple green and/or brown trails along portions of the access corridors.
- Short-term visual and noise impacts of the drill rig, camp, traffic, etc.

<sup>71</sup> 1998 NE IAP/EIS, Vol. 1. p. III-C-52.

- Temporary disturbance, with possible displacement of some wildlife, in the area where 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 LPV 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.<sup>72, 73</sup> 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 5 years.

#### 4.3.3 Potential Impacts of Possible Future Permanent Facilities

Construction of permanent facilities is expressly prohibited during exploration. In addition to stipulations associated with exploration and other activities, the 1998 ROD contains 20 stipulations that are specific to future permanent facilities in the NE NPR-A Planning Area. The 2004 ROD contains 20 stipulations and ROPs that are specific to future permanent facilities in the NW NPR-A Planning Area. Potential impacts of possible future permanent facilities were evaluated in Section IV.G of the 1998 NE IAP/EIS, and throughout the 2004 ASDP FEIS, both of which are incorporated by reference and summarized below. Similar discussions were included in the 2003 NW NPR-A IAP/EIS. No new or additional impacts not already discussed in prior NEPA documentation are anticipated.

If a commercially producible discovery is made as a result of the proposed action, it is likely that a pipeline

would connect with the production and transportation system at the Alpine Field. The Alpine Satellite system includes 20 to 30 wells at 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 for the ASPD was signed in November 2004.

Subsequent work to develop and produce oil and gas as a result of the proposed action in the NE Planning Unit will also require a separate evaluation and public involvement process under NEPA, based on the specific development plan. Development of permanent facilities that affect movement of caribou would 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.

As mitigation, the BLM has adopted a number of protective stipulations and ROPs (listed above) to reduce potential impacts, as shown under the foregoing discussions 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 multi-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 44 penetrations (wells and/or sidetracks) from 11 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..."

The 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 the: 2002 Final EIS for the Renewal of the Federal Grant for the

<sup>72</sup> 1998 NE NPR-A IAP/EIS. pp. IV-I-1 through IV-I-3.

<sup>73</sup> 2003 NW NPR-A IAP/EIS. pp. IV-G.

TAPS ROW; 2004 ASDP FEIS; 2003 NW IAP/EIS; and 1998 NE IAP/EIS.

The BLM's most recent evaluation of *Effects of the Cumulative Case*<sup>74</sup> 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.

This 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 the 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.

Based on the cumulative impact discussion in the 1998 NE IAP/EIS (Tables IV.A.1.b-5 and IV.A.1.b-7) and the 2003 NW IAP/EIS (Tables IV-07 and IV-08), the current level of proposed winter exploration activity is within levels projected (i.e., up to 110 exploration/delineation wells, combined total). As shown on Table 9, only 20 wells and 1 sidetrack have been drilled since 1998.

Over the past 7 years, the BLM has also evaluated 11 winter exploration drilling programs and associated activities proposed in the NPR-A, resulting in 14 site-specific BLM evaluations (see **Appendix A** and **Table 10**). These evaluations included a total 82 ice drill pads, and 980 miles of access corridor. 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. The cumulative effects evaluation of the most recent EA is also incorporated by reference.<sup>75</sup>

BLM monitoring of actual winter exploration activity in the NE and NW Planning Areas over the past 7 years affirm that impacts have been as predicted; no significant effects have been observed.

To date, none of the recent exploration activities authorized by the 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 include:

- 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 (grey 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 that 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 the 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 through 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 NPR-A.

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 that are in close proximity to the proposed project are given greatest weight. For the purposes of this cumulative impact analysis, potential activities that meet the CEQ definition are:

<sup>74</sup> 2003 NW IAP/EIS Vol. 1, Chapter IV.F, pp. IV-401 – IV-503.

<sup>75</sup> EA: AK-023-06-003, Section 4.4.

- 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.
- 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 the gas fields near Barrow.
- Travel by local residents using non-LPVs on authorized LPV trails on federal land that are developed for authorized oil and gas exploration.
- 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 and relative safety of domestic production over international production.
- Extended use of the Alpine and TAPS transportation facilities.
- Demonstrated vulnerability of production, refining, and transportation facilities to natural disasters (e.g., recent inclement weather problems in Alaska, and the Gulf of Mexico).

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 Alaska Native Village and Regional Corporations and the NSB; increase in State and Federal revenues.

The potential impacts of global climate change have been discussed in the 2003 NW IAP/EIS, which is incorporated by reference herein.<sup>76</sup> 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:

This EA will consider the cumulative impacts of past and ongoing activities, in addition to the proposed CPAI 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 CPAI to access up to 11 drill sites in the NE Planning Area and access to private land south of Barrow where CPAI proposes to drill at three sites. Associated actions having potential cumulative impacts are: construction of LPV trails; ice roads/pads and ice airstrips on lakes; water withdrawals from fresh water lakes; and transport of materials, equipment, and personnel by aircraft, LPV, and conventional vehicles.

The cumulative effects analysis assumes that any existing authorized access corridors, use of previously authorized ice airstrips on lakes, and withdrawal of fresh water from previously permitted lakes would have appropriate extensions or re-authorization for CPAI through the project period. The direct, indirect, and cumulative effects of continuing use of these existing authorizations with their respective environmental protective measures are expected to be no different, individually or collectively, than those considered by the BLM for the original authorizations of similar activities.

<sup>76</sup> 2003 NW IAP/EIS, Vol. 1, pp. IV-416 and IV-419.

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 7 winter drilling seasons without any individual or collective direct, indirect, or cumulative impacts to fish habitats or to fish populations.<sup>77</sup> 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 CPAI winter exploration drilling program is similar to other recent winter drilling programs conducted in the NW and NE NPR-A Planning Areas under the BLM and other Federal, State, NSB, and local authorizations.

For 3 years, the 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, and the requirement was suspended.

The proposed CPAI winter exploration drilling program is within an area where 55 exploration drill sites have been evaluated (17 actually drilled) since the 1999-2000 winter drilling season. Those winter exploration activities were conducted without direct or indirect cumulative impacts. The proposed action is occurring in the same general areas and uses the same winter exploration techniques and protective measures required by the 1998 NE and 2004 NW RODs, and 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 because the proposed water/ice aggregate withdrawals are considered on the basis of site-specific conditions, using conservative factors that have a demonstrated ability to avoid significant impacts to fish. PetroCanada and FEX have identified potential water sources that might be needed to support winter

exploration south of Cape Simpson in the NW NPR-A Planning Area. None of these potential water supply lakes are associated with the proposed action.

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, and prohibitions in certain special areas.<sup>78</sup> The proposed CPAI winter drilling program is essentially the same as the authorized previous winter exploration programs in the NE Planning Area, and is similar to the 2006 winter drilling program conducted in the NW 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.

The western part of the project area overlaps an area designated as "Peripheral Range" for the WAH and CAH (2003 NW IAP/EIS, Map 47), and as "Winter Area" (December 1 to April 30) for the TLH (2003 NW IAP/EIS, Map 54).

There likely will be concurrent drilling operations in NPR-A during the next several years. These could include authorized operations by FEX south of Cape Simpson in the NW Planning Area and similar operations in the same general area by PetroCanada as well as the proposed project and/or activity at CD 6 or CD 7 (Alpine Field). These areas of potential activity are shown on **Figure 3**.

Potential cumulative impacts from the proposed CPAI, FEX, and PetroCanada 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.<sup>79</sup> There is, however, additional potential for cumulative impacts in the event: (a) drilling operations operate *concurrently* within 3 miles of each other, with associated aircraft support, or (b) two or more drill rigs

<sup>78</sup> See Section 4.3.1, *Threatened and Endangered Species, Polar Bears, and Other Sensitive Wildlife*, for a discussion of these protective measures.

<sup>79</sup> 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.

<sup>77</sup> See Section 4.3.1, *Water Resources and Potential Impacts to Water Quality, Fish, and Waterfowl*, for a discussion of these protective measures.

are moved *concurrently* via the same or nearby overland route to the south of Teshekpuk Lake.

Concurrent drilling with aircraft support at sites within 3 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 a wider, but localized, displacement of caribou around the operations. Conditions vary from year-to-year, and it is possible that continuing disturbances to caribou could have an additive effect on natural winter mortality.

In addition, it is possible that the FEX, PetroCanada, CPAI, and/or others could be moving equipment overland movement through the same areas during the same general time frame. 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 15<sup>th</sup>. ADEC has been including in the various ODPCP approvals a stop-drilling date of approximately 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. Other stipulations restrict stockpiling and air travel in that special area.

The concurrent overland movement of several exploration drill rigs and associated equipment south of Teshekpuk Lake would have the potential to cause localized, short-term deflection of some of the TLH away from the winter grounds, or while migrating to their calving areas. 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 exploration drilling sites and authorized ROWs that have been found by the BLM in site-specific EAs (**Appendix A**) 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. See Issue 4 for discussion of cumulative impacts associated with oil and gas development (e.g., CD 6 and CD 7).

Steller's and spectacled eider (both species are listed as Threatened under the ESA) are not present in the project area during the period that the winter drilling

operation would be underway. In summary, no cumulatively significant impacts on any wildlife species, including those listed under the ESA, 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.<sup>80</sup> 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.<sup>81</sup>

Multi-year winter exploration drilling projects and the potential for concurrent operations by CPAI within and adjacent to the NPR-A (including potential operations by FEX and PetroCanada) have been discussed with local residents through meetings with the local communities, NSB, regulatory and resource agencies, and the NPR-A SAP to ensure 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. Residents of Barrow have similar travel patterns to the east and, as noted, may use any LPV trails to/from the Barrow area for non-LPV travel to reach the Dalton Highway at Prudhoe Bay.

As discussed under Issue 1, activities in and air traffic over the Caribou Special Stipulation Area/Habitat LUEA are limited. The ROPs and stipulations for the NW

<sup>80</sup> See Issue 1 for additional discussion of reasonably foreseeable cumulative impacts to fish and wildlife.

<sup>81</sup> See Section 4.3.1, *Land Use and Subsistence*, or a discussion of these protective measures. See also Appendix C.

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. (Also see discussion in Issue I, above.)

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.<sup>82</sup> 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 currently envisioned would be similar to other recent winter seismic activities in the NPR-A. The 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 activities 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. Fixed wing aircraft are used for local passenger and freight transportation, subsistence, and recreation. 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 through 57), aircraft transportation is crucial to many activities.

<sup>82</sup> NPR-A SAP meeting minutes March 23, 2006, Barrow, AK

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 1998 and 2004 RODs found that the cumulative case of development would result in a reasonably foreseeable and significant restriction of subsistence use.<sup>83</sup> The cumulative case for the more recent ASDP ANILCA 810 Finding concluded that the distribution of caribou would be adversely affected by development. If a major oil spill occurs in the future, it could significantly affect both populations and distributions of fish, whales, and other marine mammals, causing significant restriction to subsistence resources.<sup>84</sup>

**Issue 3. Visual and Functional Impacts to Tundra:** BLM protective measures have been applied in the NPR-A for the last seven winter drilling seasons without any individual or significant direct, indirect, or significant 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.<sup>85</sup> The proposed CPAI winter exploration drilling program is similar to previously authorized winter drilling programs conducted in the NPR-A under BLM and other Federal, State, NSB, and local authorizations. Therefore, similar types of localized and minor cumulative impacts are anticipated.

A 2003 report by the National Research Council<sup>86</sup> notes that seismic trails, off-road vehicle trails, ice roads, and ice pads are a cause for concern because they can damage vegetation and 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

<sup>83</sup> 1998 NE ROD and 2004 NW ROD, ANILCA 810 Summary

<sup>84</sup> ASDP FEIS, Vol. 3, Appendix B, pp. 15-16.

<sup>85</sup> See Section 4.3.1, *Disturbance to Floodplains, Wetlands, Riparian Zones & Vegetation*, for a discussion of related protective measures.

<sup>86</sup> National Research Council. *Cumulative Environmental Effects of Oil and Gas Activities on Alaska's North Slope*. 2003. Summary, pp. 19-20.

have been noted from winter exploration activities, including seismic work. Field inspections at the conclusion of the 2005-2006 winter exploration season continue to confirm that fact. 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 the 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 at 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 might 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 that will ensure a gas line 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.

Permanent petroleum production facilities closest to the proposed project are located at the Barrow gas fields on private land, and approximately at the western extension of the Alpine Satellites field.<sup>87</sup> 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 four Spark D sites are directly adjacent to the future site of Alpine Satellite CD 7, which has been evaluated as a development node with permanent road access and a pipeline to the main Alpine Field.<sup>88</sup> This EA incorporates the analysis of cumulative impacts

presented in the ASDP FEIS (Vol. 2, Section 4-G). With activity at both the Spark DD site(s) and CD-6 or 7, there might be some adverse cumulative impact on caribou and subsistence. There would also likely be more jobs and revenue for local entities. No new significant cumulative impacts are expected from either exploration or development at the four proposed Spark DD drill sites.

The two new Noatak drill sites are approximately 40 miles west of CD-7, 55 miles southeast of Cape Simpson, and about 110 miles east of the Barrow Gas Fields. As noted in both the 1998 NE ROD and 2004 NW ROD, there could be significant impacts if all known or prospective oil and gas deposits were found to be commercially viable. As noted, development of oil and gas requires a future, project-specific NEPA analysis.

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-round access to Federal oil and gas leases in the NPR-A and to State leases in the Brooks Range Foothills and the basin south of the Tarn and Meltwater fields. The State 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 project 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 on the basis of detailed site-specific plans under a separate NEPA process prior to any Federal authorizations in the NPR-A. The overall NEPA and public involvement process likely would be similar to that recently completed for the ASDP. These analyses are incorporated herein.

No new or different development impacts are expected beyond those already evaluated in detail in the referenced EISs. Development proposals within the Caribou Special Stipulation Area/Habitat LUEA (NE) and the Caribou Study Area (NW) are required to have a minimum of 3 years of current data before construction can be authorized by the BLM. In addition, a new Section ANILCA 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

<sup>87</sup> See Figure 3.

<sup>88</sup> ASDP FEIS, Vol. 3, Fig 2.4.6-1.

for accidental spills from aging production facilities at Prudhoe Bay, new discoveries in the NPR-A would not likely utilize those facilities. Any discovery of a commercially viable field south of Barrow would likely connect to the gas field infrastructure at Barrow.

**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 a high probability for the occurrence of economic oil and gas resources. The project elements of the CPAI project in the NE Planning Area includes the undeveloped Fish Creek Oil Field, as well as the expected southwesterly expansion of the producing Alpine Field evaluated in the 2004 ASDP FEIS and ROD. With the potential development of the Spark/Lookout discoveries (as evaluated in the ASDP FEIS), as little as 2 miles of pipeline would be needed to connect the Spark DD sites and approximately 40 miles to connect the Noatak sites.

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. CPAI and other operators in the NPR-A 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.<sup>89</sup>

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 purposes. These include: NPR-A Impact Mitigation Grants, to assist affected communities in dealing with related impacts; the Public School Trust Fund; the Power Cost Equalization and Rural Electric Capitalization Fund; the Alaska Permanent Fund; and the General Fund.<sup>90</sup>

<sup>89</sup> 2005 NE Amended IAP/EIS, Vol. 1, p 3-115.

<sup>90</sup> 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/AnnualReport06NPR\\_A.pdf](http://www.commerce.state.ak.us/dca/pub/AnnualReport06NPR_A.pdf)

Subsistence is also a very important element of local economies. See discussion under Issue 2 for potential cumulative impacts on subsistence.

#### 4.4.3 Cumulative Impact Conclusions

Considering the protective stipulations in the 1998 NE ROD, the stipulations and ROPs of the 2004 NW ROD, and the demonstrated effectiveness of the same winter exploration technologies in the NPR-A since 1999, 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 cumulative effects analyses related to the key issues support the findings of this EA that, except for Subsistence, 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 National Research Council 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 tundra, have been incorporated into the operational plans, including the proposed project. CPAI has incorporated protective measures contained in the 2004 ROD for the NW NPR-A and the 1998 ROD for activities in the NE NPR-A.

The BLM will continue to monitor the following resources as the proposed action is implemented:

- Access to subsistence use areas and winter caribou movements.
- Cultural resources.
- Tundra/vegetation.

- Fish habitat.
- Bears and other predators.
- Teshekpuk Lake Special Area, and Biologically Sensitive Areas such as designated river setbacks, Deep Water Lakes, Caribou Study Area, and Teshekpuk Lake Caribou Habitat 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, as well as fish and wildlife habitat. The objective of this monitoring program is to ensure 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 4.4.2) has identified the potential for cumulative impacts possibly associated with concurrent operations of the proposed CPAI winter exploration project and the authorized FEX and potential PetroCanada winter exploration projects, as indicated by their respective staked drill sites in the NW Planning Area with authorized and proposed access corridors in both the NW and the NE Planning Areas. Although found to be not significant, this potential cumulative effect involves: a) the concurrent operation of several drilling operations within a distance of 3 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, the BLM will require the independent operators to consider options for reducing the potential short-term, minor impacts to caribou movement by:

- 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 multiple operators are concurrently demobilizing drilling operations, and transporting equipment going south of Teshekpuk Lake through the biologically sensitive Caribou Habitat Area LUEA

under the 1998 NE ROD, the BLM will require the operators to:

- Make an effort during mobilization and/or demobilization operations to avoid deflection of any caribou movements.
- Alternatively, the BLM will request that affected operators consider different routes/methods of demobilizations occurring at approximately the same time.

There is concern that non-LPV traffic by local residents on LPV trails may cause risk for travelers and potential damage to the tundra. The State in its Final Consistency Determination for the Intrepid Exploration Project (October 31, 2006) requires CPAI in the Barrow area to enforce a 30 miles per hour speed limit, establish a 30 meter restricted area around a drill site, and to set standards for restricting access due to limited visibility, etc. These requirements apply to CPAI operations on non-federal land between Barrow and the Intrepid Drill Sites (**Figure 1**). Dual use of an authorized oil and gas exploration ice road or LPV trail is not new in NPR-A, and previous monitoring by the BLM has not documented any significant damage to the land cover. The BLM will field verify the effect of non LPV traffic on authorized LPV trails in the NPR-A. The BLM is working with the NSB to develop a policy and plan for private vehicle use of industry ice roads and LPV trails.

#### **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 in the 1998 NE ROD, and stipulations and ROPs in the 2004 NW ROD. In addition, CPAI has conducted winter exploration activities in the project area in a manner that is very similar to that of the proposed action.

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 have been found to be as described in the NE and NW NPR-A IAP/EISs. This project does not introduce impacts that have not been considered previously.

A potential cumulative impact associated with the possibility of concurrent drilling operations and associated air support within 3 miles of each other has been evaluated. Likewise, concurrent mobilization and demobilization transportation of drill rigs and associated equipment and supplies in the same general area has been

considered. This evaluation has concluded that 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 ADNR OHMP. BLM will give consideration to the requirements contained in the Final Consistency Determinations for elements of the proposed action in the Alaska Coastal Zone issued by the State and the NSB.

#### 4.7 IMPACTS OF THE ALTERNATIVES

This EA considers the proposed action to authorize a multi-year winter exploration program involving drilling at one to three drill sites in any one winter. Eleven drill sites have been staked and field verified by the BLM for use this winter. Another three drill sites are located south of Barrow on private land.

Most of the water needed to support the winter drilling is from previously authorized fresh water lakes. New access corridors have been requested (11 segments with a total length of approximately 110 miles). One of the new segments involves crossing the Colville River at a point approximately 2 miles north of the current authorized crossing at Ocean Point.

Demobilization at the end of the drilling program would be overland out of the NPR-A via authorized access corridors, or on non-federal land if the last CPAI drilling operation on private land south of Barrow is not concluded in time to allow adequate time for tundra travel (on BLM land in the NW and NE Planning Areas) before closure required by the applicable RODs. The Applicant will use standard equipment and accepted Arctic practices, in compliance with applicable stipulations and ROPs in the 2004 NW ROD and stipulations in the 1998 NE ROD.

The overall impact from the proposed action, including additional use of previously authorized overland access corridors, to the environment, including fish and wildlife, land cover, species listed under the ESA and MMPA, water resources, subsistence, and socioeconomic resources is expected to be minor, short-term, and cumulatively insignificant.

Based on previous analyses and the goals of the proposed action, viable alternatives are: “Shared Ice Road/Ice Airstrip” (conditional) and “No Action”.

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 proposed 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, the potential to expand national energy reserves, and increased revenues to Federal, State, and local governments.

Additionally, if the “No Action” alternative was selected, and assuming no major operational differences, other NPR-A leaseholder applications such as FEX and PetroCanada proposing winter exploration in the area would likely be rejected by the 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 the 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 might have to buy back leases that cannot 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 the following contacts in setting the scope of analysis and alternatives to be addressed:

- ADNR
  - Division of Mining, Land, and Water
  - OHMP
- NSB
- NPR-A SAP

In preparing its plan of operations, CPAI conducted a series of meetings with resource agencies, regulatory agencies, and local governments. The proposed project has subsequently undergone review by the NSB, State and Federal agencies, and the general public. CPAI consulted with the NSB and KSOP in developing the proposed project.

CPAI provided the BLM with permit applications and support documentation that summarize the proposed project and compliance with applicable stipulations. The BLM has inspected the proposed drill sites and access routes. The BLM and CPAI have met to discuss the proposed action on a regular basis as the proposed program was being developed. These meetings will continue as the project progresses.

### **5.2 PUBLIC COORDINATION**

In preparing its plan of operations, CPAI conducted a series of meetings with affected North Slope communities (**Table 13**). Local residents provided Traditional Knowledge at these meetings, which was considered in the project plan and in this EA.

CPAI has prepared a Subsistence Plan that presents plans to mitigate potential impacts on subsistence resources and access.

### **5.3 LIST OF PREPARERS**

This EA was prepared by the BLM with technical assistance from Don Meares of Plover Associates and MWH, a third-party EA contractor. Following is a list of BLM staff and MWH 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

#### **MWH Team**

- Sandra Hamann, Project Manager
- Gwen Turner, Technical Editor
- Jules Tileston, Tileston & Associates
- Mile Knapp, Blue Skies Solutions

**Table 13. Community Involvement in CPAI Exploration Planning**

Date	Event (Some specify applicant and/or project focus)
1999 - 2004	Numerous meetings with local communities, NSB, SAP, Inupiat Community of the Arctic Slope, and Kuukpik Subsistence Oversight Panel, etc. to identify concerns; briefed ICAS (BPXA and ARCO)
1/27/05	Community Meeting - Barrow
3/17/05	NPR-A Subsistence Advisory Panel Meeting - Barrow
8/4/05	Community Meeting - Atqasuk
8/16/05	Community Meeting – Nuiqsut
8/30/05	NPR-A Subsistence Advisory Panel Meeting - Nuiqsut
10/19/05	Alaska Oil and Gas Association 2005 Projects Conference (with agencies, operators & NSB participating)
11/1/05	Community Meeting - Anaktuvuk Pass
11/2/05	Community Meeting - Barrow
11/3/05	Community Meeting - Wainwright
12/8/05	NPR-A Subsistence Advisory Panel Meeting - Barrow
10/10/06	Nuiqsut and KSOP meeting on exploration plans
10/11/06	Atqasuk community meeting on exploration plans
10/12/06	Anaktuvuk Pass community meeting on exploration plans
10/19/06	Barrow community meeting on exploration plans
10/26/06	NPR-A Subsistence Advisory Panel Meeting – Barrow – present exploration plans
12/12/06	Wainwright community meeting on exploration plans

## Key:

ARCO – Arco Alaska Incorporated

BPXA – BP Exploration (Alaska) Inc.

CPAI – ConocoPhillips Alaska, Incorporated

ICAS – Inupiat Community of the North Slope

KSOP – Kuukpik Subsistence Oversight Panel

NPR-A – National Petroleum Reserve – Alaska

NSB – North Slope Borough

SAP – Subsistence Advisory Panel

**APPENDIX A**

**RELATED ENVIRONMENTAL ANALYSES, NPR-A EXPLORATION**

**APPENDIX A**

**Related Environmental Analyses  
NPR-A Exploration**

<b>Environmental Analysis<sup>a</sup></b>	<b>Decision Document</b>	<b>Related Activity<sup>b</sup></b> <i>(proposed exploration drilling sites, access route corridors, and water supply associated with the total program, unless otherwise noted)</i>	<b>Special Areas and Other Designated Land Use Areas Evaluated</b>
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
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

**APPENDIX A**

**Related Environmental Analyses  
NPR-A Exploration**

<b>Environmental Analysis<sup>a</sup></b>	<b>Decision Document</b>	<b>Related Activity<sup>b</sup></b> <i>(proposed exploration drilling sites, access route corridors, and water supply associated with the total program, unless otherwise noted)</i>	<b>Special Areas and Other Designated Land Use Areas Evaluated</b>
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 Ikipkuk 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
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, Alaska, Northern Field Office and Anchorage Field Office. November 2003 (Minor revision December 2003). [CPAI]	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); corridor; 170 MG water (35 lakes in NPR-A). 5-year program	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
EA: AK-023-04-004. Environmental Assessment National Petroleum Reserve-Alaska (NPR-A) 2003-2008 Exploration Drilling Program, USDO I 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. USDO I BLM, Alaska State Office, in cooperation with U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. 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

**APPENDIX A**

**Related Environmental Analyses  
NPR-A Exploration**

<b>Environmental Analysis <sup>a</sup></b>	<b>Decision Document</b>	<b>Related Activity <sup>b</sup></b> <i>(proposed exploration drilling sites, access route corridors, and water supply associated with the total program, unless otherwise noted)</i>	<b>Special Areas and Other Designated Land Use Areas Evaluated</b>
EA: AK-023-05-005. Environmental Assessment National Petroleum Reserve-Alaska (NPR-A) Northeast Planning Area, Winter Exploration Drilling Program. USDO I 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. USDO I BLM. January 2005 – remanded for further action	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. USDO I 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, Ipkipuk, Chipp, Alaktak Inaru, Meade, Topogoruk, Oumalik, Miguakiak, and Titaluk rivers; Teshekpuk Lake Caribou Habitat LUEA; Fish Creek and Judy Creek and Colville River Fish Habitat LUEAs; Colville River Raptor, Passerine and Moose LUEA
EA: AK-023-07-001. Environmental Assessment National Petroleum Reserve-Alaska (NPR-A) Northwest Planning Area, Winter Exploration Drilling Program 2006-2008. USDO I BLM, Alaska, Fairbanks District Office, Arctic Field Office. December 2006 [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 2006.	Aklaq 3, Aklaq 4, Aklaq 5, Aklaq 6, Aklaq 7, Aklaq 7A, Aklaqyaaq 2, Amaguq 2; Uugaq 1; 62 -mi new access corridor, 2ice air strips/year; 113 MG water (34 lakes in NPR-A). 2-year program	Teshekpuk Lake Special Areas, Deep Water Lakes, Caribou Study Area, kpikpuk, Chipp, Topogoruk, and Alaktak rivers.

**Key:**

<sup>a</sup> Documents are available for review at the Fairbanks District Office, BLM, 1150 University Avenue, Fairbanks, Alaska 99709.

<sup>b</sup> 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).

ARCO – Arco Alaska Incorporated  
 BLM – Bureau of Land Management  
 BPXA – BP Exploration (Alaska) Incorporated  
 CPAI – ConocoPhillips Alaska, Incorporated  
 EA – Environmental Assessment  
 FEX – FEX L.P. Incorporated  
 LUEA – Land Use Emphasis Area  
 MG – Million gallon(s)

Mi – Mile(s)  
 NE – Northeast  
 NPR-A – National Petroleum Reserve – Alaska  
 NW – Northwest  
 ROD – Record of Decision  
 ROW – Right-of-Way  
 USDO I – U.S. Department of the Interior  
 yr – year(s)

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