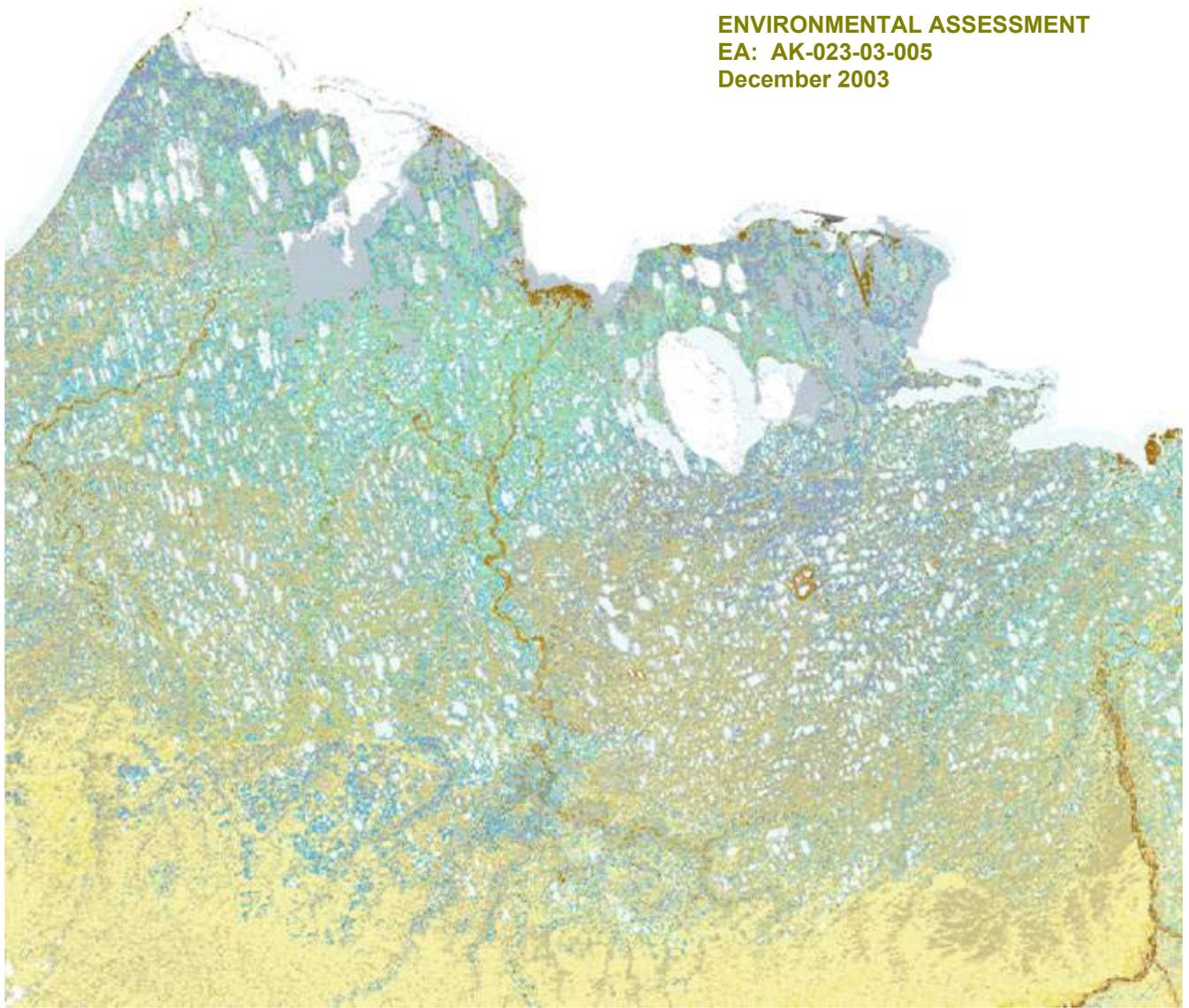


ENVIRONMENTAL ASSESSMENT
EA: AK-023-03-005
December 2003



ENVIRONMENTAL ASSESSMENT

EA: AK-023-04-005

National Petroleum Reserve-Alaska (NPR-A)
2003-2008 Exploration Drilling Program

Total E&P USA, Inc.

Prepared by: USDOI Bureau of Land Management
Northern Field Office
Anchorage Field Office

December 2003

Technical Assistance:
Hoefler Consulting Group
Anchorage, Alaska



ENVIRONMENTAL ASSESSMENT

EA: AK-023-04-005

National Petroleum Reserve-Alaska (NPR-A) Northeast Planning Area Winter Exploration Drilling Program

TOTAL E&P USA, INC.

December 2003

Prepared By:

**USDOI Bureau of Land Management, Alaska
Northern Field Office
Anchorage Field Office**

Technical Assistance:

**Hoefler Consulting Group
701 Sesame Street
Anchorage, Alaska 99503**

ENVIRONMENTAL ASSESSMENT

Title: National Petroleum Reserve-Alaska (NPR-A)
Northeast Planning Area Winter Exploration Drilling Program

EA Number: AK-023-04-005

Serial Number: AA-084161, AA-084163, AA-084171, AA-084161
AA-084170, AA-084162, AA-084172, FF-093906

Applicant: TOTAL E&P USA, INC.
4300 B Street, Suite 303
Anchorage, Alaska 99503

Date Prepared: November 2003

District: Northern Field Office
Planning Unit: NPR-A, Northeast Planning Area

Prepared By:	Arctic Management Team Northern Field Office Bureau of Land Management 1150 University Avenue Fairbanks, Alaska 99709 (907) 474-2306	Technical Assistance Provided by:	Hoefler Consulting Group 701 Sesame Street Anchorage, Alaska 99503 (907) 563-2137
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Lands Involved: Proposed alternate routes for four new packed snow trail segments (approximately 31 miles) and approximately 60 miles of ice roads to eight new exploration ice drill pads in the TOTAL E&P USA, INC. exploration prospects in the Northeast Planning Area of the NPR-A. Specific locations are identified in the case files and project plans with the drilling pads located as follows:

T10N, R5W, Sec. 23, Umiat Meridian (Caribou 23-14)	T9N, R5W, Sec. 35, Umiat Meridian (Caribou 35-05)
T10N, R5W, Sec. 26, Umiat Meridian (Caribou 26-11)	T9N, R 5W, Sec. 9, Umiat Meridian (Caribou 09-11)
T 9N, R4W, Sec. 7, Umiat Meridian (Caribou 07-16)	T10N, R5W, Sec. 14, Umiat Meridian (Caribou 14-12)
T 9N, R4W, Sec. 18, Umiat Meridian (Caribou 18-08)	T10N, R7W, Sec. 35, Umiat Meridian (Caribou 35-14)

This Environmental Assessment (EA) has been prepared to meet the requirements of the National Environmental Policy Act (NEPA), and to support U.S. Department of Interior (USDOI) Bureau of Land Management (BLM) decision-making on permits required to construct and implement the proposed project. The scope of the EA includes analysis of effects of the proposed exploration activity and alternatives, including the no-action alternative. The EA also addresses the impacts of hypothetical oil and gas field development if an economic discovery is made during this activity.

December 2003

The EA is written as a stand-alone document, but is tiered to, and incorporates by reference the following related documents, which are available for review at the Northern Field Office, BLM, 1150 University Avenue, Fairbanks, Alaska 99709, or the Alaska Resources Library and Information Services, 3150 C Street, Anchorage, Alaska, 99503:

- Environmental Assessment (EA: AK-023-04-004), National Petroleum Reserve-Alaska (NPR-A) Exploration Drilling Program, Kokoda #1 and #2, Powerline #1, Grandview #2, Carbon #1, Summit #2 and Scout #1 Exploration Wells. USDO BLM, Alaska, Northern Field Office and Anchorage Field Office. November 2003. <http://aurora.ak.blm.gov/npra/EA/default.html>
- Environmental Assessment (EA: AK-023-03-032), Access To and Drill Stacking at Inigok. USDO BLM, Northern Field Office, Arctic Management Team. February 2003.
- Environmental Assessment (EA: AK-023-03-027), Storage Ice Pads, USDO BLM, Northern Field Office, Arctic Management Team. February 2003.
- Environmental Assessment (EA: AK-023-03-008). National Petroleum Reserve-Alaska (NPR-A) Exploration Drilling Program, Puviaq #1 and #2 Exploration Wells. USDO BLM, Alaska, Northern Field Office and Anchorage Field Office. December 2002.
- Environmental Assessment (EA: AK-023-02-033), Puviaq Storage Site Project, National Petroleum Reserve-Alaska. USDO BLM, Northern Field Office, Arctic Management Team. March 2002
- Environmental Assessment (EA: AK-023-02-005), National Petroleum Reserve-Alaska (NPR-A) 2001-2006 Exploration Drilling Program. USDO BLM, Alaska, Northern Field Office and Anchorage Field Office. December 2001 (Minor revision January 2002).
- Environmental Assessment (EA: AK-023-02-004), National Petroleum Reserve-Alaska (NPR-A) Altamura Prospect Exploration Program. December 2001 (Minor revision January 2002).
- Environmental Assessment (EA: AK 023-01-003), National Petroleum Reserve-Alaska (NPR-A) Exploration Program, Winter Drilling 2000-2006. USDO BLM, Alaska, Northern Field Office and Anchorage Field Office. December 2000 (minor revision March 2001).
- Environmental Assessment (EA: AK-023-01-001), Trailblazer Exploration Drilling Program, 2000-2005, National Petroleum Reserve-Alaska (NPR-A). USDO BLM, Alaska, Northern Field Office and Anchorage Field Office. November 2000 (minor revision January 2001).
- Environmental Assessment (EA: AK-020-00-011), 1999-2000 Winter Exploration Drilling Program in the National Petroleum Reserve-Alaska (NPR-A). USDO BLM, Alaska, Northern Field Office and Anchorage Field Office. January 2000.
- Northeast National Petroleum Reserve-Alaska Final Integrated Activity Plan/Environmental Impact Statement. BLM, in cooperation with the Mineral Management Service. August 1998. [<http://aurora.ak.blm.gov/npra/final/html/>]

Other documents considered in the preparation of this EA include:

- Finding of No Significant Impact and Record of Decision FF-093906. BLM NPR-A Permit 281001. February 2003. [TotalFinaElf E&P USA, now Total E&P USA, Inc.]
- Finding of No Significant Impact and Record of Decision FF-093905. Permit 298401. February 2003.
- Finding of No Significant Impact and Record of Decision AA-081854. Application for Permit to Drill and Right-of-Way. BLM. January 2003. [ConocoPhillips]
- Finding of No Significant Impact and Record of Decision FF-093572. BLM NPR-A Permit 298401. March 28, 2002. [ConocoPhillips]
- Finding of No Significant Impact and Record of Decision AA-081780. Application for Permit to Drill and Right-of-Way. BLM. January 2002. [Phillips]
- Finding of No Significant Impact and Record of Decision AA-081736 [Anadarko]
- Finding of No Significant Impact and Record of Decision AA-081780. Application for Permit to Drill and Right-of-Way. BLM. March 2001 [Phillips]
- Finding of No Significant Impact and Record of Decision AA-081752. Application for Permit to Drill and Right-of-Way. BLM. January 2001 [BPX]

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- ♦ Finding of No Significant Impact and Record of Decision AA-081794. Application for Permit to Drill and Right-of-Way. BLM. January 2000. [ARCO]
- ♦ Record of Decision, Northeast National Petroleum Reserve-Alaska. BLM. October 1998. [<http://aurora.ak.blm.gov/npra/final/rodtitle.html/>]

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APPENDICES

- Appendix A** Threatened and Endangered Species Consultation
- Appendix B** Essential Fish Habitat Evaluation

1 INTRODUCTION

TOTAL E&P USA, INC. (TOTAL) has applied for permits to access and drill existing valid oil and gas leases as part of a winter exploration program in the National Petroleum Reserve-Alaska (NPR-A). TOTAL, formerly known as TotalFinaElf E&P USA, Inc. and their partner, Fortuna Energy, Inc. own 100 percent of the working interest in approximately 230,000 acres of oil and gas leases covering 10 townships or 360 square miles in the Northeast Planning Area of the NPR-A. This acreage was acquired in 20 tracts awarded in the June 2002 NPR-A oil and gas lease sale. TOTAL has done extensive geological and geophysical studies in the area, and is now moving into the first phase of drilling in a multi-year winter exploratory program.

TOTAL submitted permit applications, including the BLM Right-of-Way (ROW) application and Plan of Operations, to federal, state, and local agencies on January 10, August 21, November 4 and 6, 2003. TOTAL filed Notices of Staking with BLM on August 21, 2003. TOTAL plans to file applications for Permits to Drill (APDs) in accordance with 43 Code of Federal Regulations (CFR) 3160. TOTAL's BLM Nationwide Oil and Gas Bond number is RLB 0005053.

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

1.1 HISTORY OF ACTIVITY IN THE NPR-A

In 1923, President Harding created the 23-million-acre Naval Petroleum Reserve Number 4, later renamed National Petroleum Reserve-Alaska.¹ From 1945 to 1985, the federal government drilled at 135 sites and private industry drilled 1 test well in the NPR-A. In 1997, a new planning initiative evaluated resources and potential for future oil and gas leasing in the NPR-A. In August 1998, an Integrated Activity Plan (IAP) with an associated

Environmental Impact Statement (EIS)² for the Northeast NPR-A Planning Area was released. In October 1998, the Secretary of the Interior published a Record of Decision (ROD) adopting the IAP/EIS³ and making approximately 4 million acres in the Planning Area available for oil and gas leasing. On June 23, 2003, BLM issued a Notice of Intent to amend the 1998 Northeast IAP/EIS. This EA, however, is based solely on requirements for exploration drilling set forth in the 1998 ROD.

Based on the ROD, BLM held an oil and gas lease sale, and issued leases under authority of the Naval Petroleum Reserves Production Act of 1976, as amended (NPRPA). Under those leases, six winter exploration drilling programs and associated activities have been evaluated and authorized in the NPR-A.^{4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22} Proposed development is also under review.²³

Since 1999, BLM has evaluated 45 new winter exploration drilling sites and associated ROW corridors; although, only 14 wells have been drilled during four subsequent winter seasons of

¹ USGS Professional Paper 1240-C. The National Petroleum Reserve in Alaska, Earth Science Considerations. 1985. p. C 1-5.

² USDO. Northeast NPR-A Final Integrated Activity Plan/Environmental Impact Statement (IAP/EIS). Vol. I and II. August 1998.

³ Northeast NPR-A IAP/EIS Record of Decision (ROD). October 1998. p. 1.

⁴ BLM EA: AK-020-00-011. January 2000.

⁵ BLM Finding of No Significant Impact (FONSI) and ROD AA-081794. January 2000.

⁶ BLM EA: AK-023-01-003. December 2000 (minor revision March 2001).

⁷ BLM FONSI and ROD AA-081780, March 2001.

⁸ BLM EA: AK-023-01-001. November 2000 (minor revision January 2001).

⁹ BLM FONSI and ROD AA081752, January 2001.

¹⁰ BLM EA: AK-023-02-005. December 2001 (minor revision January 2002).

¹¹ BLM FONSI and ROD AA-081780, January 2002.

¹² BLM EA: AK-023-02-004. December 2001 (minor revision January 2002).

¹³ BLM FONSI and ROD AA-081736, January 2002.

¹⁴ BLM EA: AK-023-02-033. March 2002.

¹⁵ BLM FONSI and ROD FF-093572. March 2002.

¹⁶ BLM EA: AK-023-03-008. December 2002.

¹⁷ BLM FONSI and ROD, AA-081854, January 2003.

¹⁸ BLM EA: AK-023-03-027, February 2003.

¹⁹ BLM FONSI and ROD, FF093905, February 2003.

²⁰ BLM EA: AK-023-03-032. February 2003.

²¹ BLM FONSI and ROD FF-093906. February 2003.

²² BLM EA: AK-023-04-004. November 2003.

²³ Alpine Satellite Development Plan.

exploration activity. Most exploration programs include contingencies (e.g., multiple drilling site locations and wells) to provide operational flexibility and the ability to adapt to changing conditions. Drilling is limited to only the most promising prospects, and only a portion of the evaluated program is actually completed.

Based on geological and geophysical studies in the area, TOTAL believes that significant recoverable oil potential exists within the NPR-A, and is proposing to conduct exploratory drilling to explore on its leases. The proposed action is tiered to and supplements the IAP/EIS as well as NPR-A exploration programs previously evaluated and approved in 2000, 2001, 2002, and earlier in 2003. The proposed action summarized below is detailed in Section 2 of this document.

1.2 PROPOSED ACTION

TOTAL (i.e. the Applicant) has applied to access and drill existing valid oil and gas leases as part of a winter exploration program within the NPR-A. TOTAL's drilling program will include up to eight drilling locations with ice pads, access routes and possibly an ice pad for staging equipment on a temporary basis. (See Figure 1). TOTAL's drilling program is a multi-well/multiseason effort with one well planned for the first drilling season.

To the extent practicable, the proposed action will use an existing authorization to access the project area. Overland access to the drilling locations from the existing North Slope road system at the Kuparuk 2 P pad will be by Rolligon and ice road. Rights-of-ways for some of these routes had been previously examined and granted by the BLM.²⁴ These include:

- A single packed snow trail route between the Kuparuk 2P pad and the ConocoPhillips Hunter location crossing the Colville River at Ocean Point;
- A direct route between Hunter and the Inigok gravel airstrip.
- A stacking site at the existing Inigok drill pad for the storage of a drill rig; and

- A six mile route from Inigok gravel airstrip to the southeast corner of TOTAL lease tract number L-194 in Section 36, Township 9 North, Range 5 West, Umiat Meridian

The existing 5,100 foot all-season gravel airstrip at Inigok will be used to support all of the exploration wells. Ice drilling pads will be used at all locations, and access will be via ice roads and/or packed snow trails. One remote ice pad for staging equipment on a temporary basis may be constructed in Section 36, Township 9 North, Range 5 West, Umiat Meridian to facilitate access to exploration activities.

An additional packed snow route has been proposed to travel westward from Hunter. This more northerly route is a direct route to the northernmost drilling locations.

Lake water will be required to support project operations (i.e., ice road and pad construction, drilling, and domestic use). The program will span up to five winter drilling seasons, beginning in December 2003, with the drilling schedule contingent upon permitting, weather, ongoing data analysis, and funding.

1.3 PURPOSE OF AND NEED FOR THE PROJECT

The purpose of the proposed project is to permit the Applicant to access valid federal leases in the NPR-A, for drilling wells and sidetracks at any of eight pad locations, within a 5-year timeframe. The project is designed to meet a number of TOTAL needs and objectives, including:

- Obtain the ROW to access drilling sites in a manner that allows for maximum operations during any one winter season in a cost effective manner
- Acquire sufficient subsurface information to satisfy the Applicant's economic and exploration performance criteria
- Comply with all related stipulations of the ROD and associated permits and approvals.

The proposed project is needed to help determine if prospects on the Applicant's leases contain economically recoverable oil and gas. Need for the

²⁴ BLM EA: AK-023-03-032. February 2003.

project is implicit in the growing demand for oil and gas worldwide, accompanied by growing concern in the U.S. over dependence on foreign oil supplies. The project is also needed to replace diminishing North Slope oil supplies and maintain design efficiency of the Trans Alaska Pipeline System (TAPS). Revenues from production are needed to support local, state, and national economies. The project is also intended to provide the Applicant with operational flexibility, while minimizing environmental impact. Alternatives to the proposed action are evaluated on the basis of their effectiveness in meeting the stated objectives.

1.4 RELATED STATUTES, REGULATIONS, POLICIES, AND PROGRAMS

The 1998 IAP/EIS was completed to fulfill BLM's responsibility to manage lands in the planning area under the authority of the NPRPA (as amended) and Federal Land Policy and Management Act of 1976 (FLPMA), NEPA, Alaska National Interest Land Conservation Act (ANILCA), and the Wild and Scenic Rivers Act. The current EA is tiered to and incorporates by reference the 1998 IAP/EIS and associated ROD; the six previous drilling EAs and three access/storage EAs, and their associated Findings of No Significant Impact (FONSIs) and RODs; and the recent EA for the proposed exploration drilling concurrent with the proposed activity.²⁵

The proposed project is consistent with BLM management planning for the Northeast NPR-A. The 1998 IAP/EIS assessed potential use of the Northeast NPR-A for oil exploration and development, a process that involved extensive input from other federal agencies, the State of Alaska (State), the North Slope Borough (NSB), thousands of individuals, and many institutions.²⁶ The IAP/EIS and ROD emphasize restrictions on surface activities, consultation with local residents, and coordinated scientific studies to protect wildlife habitat, subsistence use areas, and other resources. The ROD includes 79 stipulations as special mitigation measures for activity on oil and gas leases under the IAP. Applicable stipulations from the ROD will be applied to the proposed action.

BLM recently conducted land-use planning and impact assessment of future management of the Northwest NPR-A. This plan considers resources such as wilderness, wildlife, and subsistence resources, as well as current and potential future activities on these lands, including possible development of the area's oil and gas potential. The Northwest NPR-A Final IAP/EIS was released in November 2003, describing four possible management alternatives for 8.8 million acres of public lands in the northwest NPR-A.²⁷ This analysis includes approximately 40 Stipulations and Required Operating Procedures that indicate where, when, and under what conditions oil and gas activities may occur under each alternative. The ROD is pending.

1.4.1 Federal Laws and Regulations

Key federal controls over the proposed project, described in previous EAs incorporated by reference, include: NPRPA, FLPMA, NEPA, ANILCA, Coastal Zone Management Act (CZMA), Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), National Historic Preservation Act (NHPA), Alaska Native Claims Settlement Act (ANCSA), and the Clean Water Act (CWA). Other federal laws, regulations and executive orders (EO) governing the proposed action include: Clean Air Act, Safe Drinking Water Act (including the Underground Injection Control Program), Resource Conservation and Recovery Act, Fish and Wildlife Coordination Act, Migratory Bird Treaty Act, Native American Graves Protection and Repatriation Act, the Archaeological Resource Protection Act, the Magnuson-Stevens Fishery Conservation and Management Act, EO 11988 (floodplain management), EO 11990 (wetlands protection), EO 12898 (environmental justice), EO 13112 (non-native species protection), EO 13175 (government-to-government consultation), and EO 13212 (streamlining energy-related projects).²⁸

The National Energy Policy adopted by the President in May 2001, calls for increased domestic exploration and production, and directs BLM to address issues vital to the current and future status

²⁵ See documents cited in footnotes 4 to 23.

²⁶ 1998 ROD. Summary.

²⁷ USDOJ. Northwest NPR-A Final IAP/EIS. November 2003.

²⁸ Described in Section 1. EA AK-020-00-011 and EA: AK-023-03-008.

of the nation's energy program.²⁹ Subsequently, BLM developed an implementation plan that, among other things, directs the agency to continue ongoing operations associated with existing leases (APDs, inspection and enforcement, and NEPA compliance) within the NPR-A.

1.4.2 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.³⁰ Primary requirements are listed in Table 1.

1.4.3 Related Environmental Analyses

The environmental analyses most closely related to the proposed action include:

- 1998 IAP/EIS and ROD for the Northeast NPR-A.
- EA: AK-020-00-011 for the NPR-A 1999-2000 Winter Exploration Drilling.
- EA: AK-023-01-001 for the NPR-A Trailblazer Exploration Program.
- EA: AK-023-01-003 for the NPR-A 2001-2006 Winter Drilling Exploration Program.
- EA: AK-023-02-004 for the Altamura Prospect Exploration Program
- EA: AK-023-02-005 for the NPR-A 2001-2006 (Expanded) Exploration Drilling Program.
- EA: AK-023-02-033 for Puviaq access and ice storage pad construction.
- EA: AK-023-03-008 for Puviaq Exploration Drilling Program
- EA: AK-023-03-027 for ice storage pad construction near Kokoda and Carbon
- EA: AK-023-03-032 for packed snow trail from Kuparuk 2P Pad to Inigok drill pad, stacking site at the Inigok Drill pad and ice road to TOTAL lease
- EA: AK-023-04-004 for 2003-2008 Exploration Drilling Program (ConocoPhillips).

For all but the last exploration program, the EA led to a FONSI and a ROD, and a finding that the project was in compliance with provisions for protecting subsistence use and access, as required by ANILCA Title VIII.³¹ Findings for EA: AK-023-04-004 (November 2003) are still being developed. For the 2001 Foothills lease sale, the ADNR also concluded that exploration drilling did not result in significant long-term direct, indirect, or cumulative impacts.³² Approximately one half of the lease sale area lies adjacent to the NPR-A, southeast of the Colville River.

²⁹ National Energy Policy. Report of the National Energy Policy Development Group. May 2001.

³⁰ Permit applications have been submitted to the agencies.

³¹ BLM FONSI and ROD documents cited in footnotes 5, 7, 9, 11, 13, 15, 17, 19, and 21.

³² Final Findings of the Director, Oil and Gas Lease Sale, North Slope Foothills Areawide 2001. Alaska Department of Natural Resources (ADNR) Division of Oil & Gas. Anchorage, Alaska. February 7, 2001.

Table 1. Permits and Authorizations

Federal Authorizations and Approvals	
Bureau of Land Management (BLM)	<ul style="list-style-type: none"> ▪ ROW authorization for access ▪ Application for Permit to Drill (APD)
U.S. Fish and Wildlife Service (USFWS)	<ul style="list-style-type: none"> ▪ Letter of Authorization for Incidental Take of Polar Bears; Polar Bear/Personnel Encounter Plan ▪ Threatened and Endangered Species Consultation ^a
U.S. Environmental Protection Agency (EPA)	<ul style="list-style-type: none"> ▪ Domestic Wastewater Discharge, under National Pollutant Discharge Elimination System (NPDES) General Permit No. AKG-31-0000 or AKG-33-0000 (drilling/camp contractors) ▪ Spill Prevention, Control, and Countermeasures (SPCC) Plan (drilling/testing contractors)
National Marine Fisheries Service (NMFS)	<ul style="list-style-type: none"> ▪ Essential Fish Habitat Consultation ^b
Federal Aviation Administration (FAA)	<ul style="list-style-type: none"> ▪ Approval for Non-Precision IFR Approach at Inigok (Day and Night)
State Authorizations and Approvals	
Alaska Department of Natural Resources (ADNR)	<ul style="list-style-type: none"> ▪ ACMP Consistency Determination ^c ▪ Program General Concurrences (e.g., GCD 34) ▪ Land Use Permit for tundra travel and ice road construction on state lands ▪ Temporary Water Use Permit ▪ Cultural Resources Consultation with SHPO ▪ Fish Habitat Permit (Office of Habitat Management and Permitting (OHMP))
Alaska Department of Environmental Conservation (ADEC)	<ul style="list-style-type: none"> ▪ Temporary Storage of Drilling Wastes ▪ Air Quality Permit by Rule (Drilling rig and storage tanks, if needed) ▪ Oil Discharge Prevention and Contingency Plan (ODPCP) ▪ Certificate of Financial Responsibility ▪ Wastewater and Water Treatment System Approval (drilling/camp contractors)
Alaska Oil and Gas Conservation Commission (AOGCC)	<ul style="list-style-type: none"> ▪ Permit to Drill ▪ Approval for annular disposal of drilling wastes (optional)
Local Authorizations and Approvals	
North Slope Borough (NSB)	<ul style="list-style-type: none"> ▪ Development Permit (for related project elements)

^a No-Effect Determination provided to BLM by USFWS on November 25, 2003 for Steller's and spectacled eiders. See Appendix A.

^b Essential Fish Habitat evaluation by BLM determined that no consultation with NMFS is required. See Appendix B.

^c A determination that "no ACMP review was necessary" was made by the Division of Governmental Coordination (now ADNR Office of Project Management and Permitting), and was sent to TOTAL and other State Agency representatives by email dated 1/22/2003.

1.4.4 Land Status

All eight drill sites described in the proposed action are located on NPR-A lease tracts held by TOTAL, under jurisdiction of the BLM. Primary access to the project area from the NPR-A federal land boundary will be via a packed snow trail or ice road ROW previously authorized by the BLM and from an existing gravel airstrip at Inigok. Additional packed snow trail/ice road routes directly to exploratory locations are planned to connect the existing gravel airstrip at Inigok with the drilling

location(s) within the NPR-A. The proposed action lies wholly within the NSB. Traditional Land Use Sites (TLUS, defined in Stipulation 64) will be avoided; Native Allotments will not be crossed unless authorized by the allotment owner and the Bureau of Indian Affairs (BIA).

1.5 PUBLIC INVOLVEMENT

Development of the 1998 IAP/EIS involved extensive input from other federal agencies, the State, the NSB, thousands of individuals, and many

institutions.³³ Since the 1999 lease sale, a number of meetings and consultations have been held with residents of Nuiqsut, Barrow, Anaktuvuk Pass, Atqasuk, and Wainwright to discuss various NPR-A exploration plans. Table 10 (Section 5.1) presents a summary of community involvement associated with exploration program planning in the Northeast NPR-A.

There was also an extensive public/agency involvement program associated with development of the Northwest Planning Area IAP/EIS that addressed issues associated with activity in the northeast planning area.³⁴ A number of public and community meetings are also being held to discuss potential development at two NPR-A sites and several sites in the Colville Delta area.

TOTAL met with the NPR-A Subsistence Advisory Panel (SAP) on June 19 and November 3, 2003 to discuss their winter exploration plans. TOTAL also presented their winter exploration plans to the NSB Planning Commission in Barrow on October 30, 2003. In addition, TOTAL held informational meetings with the local communities of Atqasuk (November 4, 2003) and Nuiqsut (November 20, 2003). TOTAL has a program that provides additional opportunities for public involvement (e.g., local meetings) and will address concerns expressed by local residents. TOTAL will solicit local input on facets of the exploration program that could affect traditions, local values and lifestyles.

Prior to 2003, the previously evaluated exploration drilling programs in the NPR-A were public-noticed by BLM and as part of the State ACMP consistency review. Public and agency comments were considered, and each exploration program received an ACMP Consistency Determination and was issued all required federal, state, and local permits-- some with stipulations to mitigate specific issues of concern. However, because expected effects on the coastal zone are expected to be *de minimus*, it was determined that the proposed action would not require a coastal management program review (see footnote c, Table1).

1.6 BLM DECISION PROCESS

³³ 1998 ROD. Summary.

³⁴ Northwest Planning Area Final IAP/EIS. pp IV-256 – 261.

BLM's decision on the proposed action will be based on statutory and regulatory authority. The IAP/EIS served as required NEPA documentation for the first lease sales. EA: AK-020-00-011, EA: AK-023-01-001, EA: AK-023-01-003, EA: AK-023-02-004, EA: AK-023-02-005, EA: AK-023-02-033, EA: AK-023-03-008 and EA: AK-023-04-004 have served as additional NEPA analyses for site-specific lease activities. These EAs are incorporated in their entirety by reference per Council of Environmental Quality (CEQ) Regulation 40 CFR 1502.21. Prior to authorizing the proposed action, BLM must conduct a new site-specific NEPA analysis and determine whether the proposed project should be approved, rejected, or modified, and if additional stipulations are needed.

This EA evaluates the impacts of winter exploration activities that may span multiple winter drilling seasons. A multi-year authorization provides flexibility for the applicant to reschedule elements of the project, if necessary, without the lengthy process of reevaluation. The evaluation will be based on the governing stipulations as well as actual experience with exploration activity in the NRP-A.

Over the past four years, six winter exploration programs have been completed in the NPR-A, all using similar plans and methods of operations. Effects of associated activities (i.e., overland transport, water use, ice road/pad construction, drilling, other operations and maintenance, and abandonment and restoration) are known. Several minor problems have occurred, but these have been successfully corrected or mitigated. There have been no significant direct, indirect, or cumulative impacts. As a result, the current analysis focuses on any differences in proposed activities and locations that might result in impacts different from those evaluated in previous NEPA analyses.

To date, applications have been submitted to all the agencies. The Fish Habitat Permits have been issued. The other permits and an LOA for Incidental Take of Polar Bears are pending.

December 2003

Figure 1 Project Vicinity Map

2 PROPOSED ACTION AND ALTERNATIVES

The proposed action includes drilling at up to eight locations during a five-year winter exploration program in the NPR-A. Details are provided in the Applicant's Plan of Operations. Proposed activities are similar to those completed in the NPR-A during the 1999-2003 winter seasons. The proposed description is therefore, tiered to the IAP/EIS, with the 2000-2003 Exploration EAs incorporated by reference for main project elements.³⁵

Notices of Staking were filed on August 21, 2003, with field inspections of the potential drill sites, access routes and stream crossings performed on August 26, 2003, as required for BLM approval of the Applicant's surface use plan (integrated with the Plan of Operations). Approval to drill at any of the proposed sites has been requested to accommodate changes in exploration strategy and funding priorities as new data becomes available.

TOTAL's geoscientists will determine which of the proposed eight locations will be selected for inclusion in the 2003-2004 winter drilling season before mobilizing in December 2003. One and possibly two wells are planned for the first drilling season. Prior to drilling, the Applicant will provide BLM with the location of all well sites to be drilled, including bottomhole locations.

2.1 THE PROPOSED ACTION

The proposed action is summarized in Table 2 and depicted on Figure 2.

2.1.1 Access and Construction

Seven of the drill sites (Caribou 23-14, Caribou 26-11, Caribou 07-16, Caribou 18-08, Caribou 35-5, Caribou 09-11 and Caribou 14-12) are approximately 6 to 14 miles north of Inigok Test Well #1 suspended drill site (spudded 6/7/1978). The sites are approximately 17 miles west of previous ConocoPhillips Alaska, Inc. (CPAI) drilling efforts (only Puviaq is further west) and approximately 12 miles southwest of the

authorized Trailblazer exploration program. The eighth drill site, Caribou 35-14 is approximately 18 miles northwest of Inigok Test Well #1. Access will be by packed snow trail and/or ice road via an existing, authorized ROW from Kuparuk River Unit 2P Pad (Meltwater) to Inigok, an existing gravel storage pad and gravel airstrip.³⁶ From this airstrip, the authorized ROW extends to the southeast corner of TOTAL's lease Tract L-194 in Section 36, Township 9 North, Range 5 West, Umiat Meridian. Access from this point will follow new alignments. New access corridors have been cleared of archaeological and cultural resources. An additional packed snow trail route westward from Hunter is proposed to provide a more direct route to the northern exploratory locations.

The existing 5,100 foot all-season gravel airstrip and gravel storage pad at Inigok will be used to support all of the exploration wells. Aircraft will be used extensively to support the drilling operations. The existing gravel airstrip at Inigok has been approved by FAA for day and night IFR flight operations. TOTAL will have a certified weather observer/radio operator on duty at the airstrip at all times during the winter exploration season. A portable generator has been installed at Inigok to supply power for runway lighting as well as heat and light for the radio shack on the airstrip apron. TOTAL plans to support the daily drilling operations principally by aircraft, with routine flights of fuel, groceries, and other consumables. Crew change flights will be between Fairbanks and Inigok, with Deadhorse serving as the alternate airport for weather contingencies. Additional flights between Deadhorse and Inigok will be scheduled as required for service company personnel, agency personnel, other authorized visitors and any necessary emergency support. Several types of aircraft are expected to be used, including Lockheed L-382, Douglas DC-6 and DC-4, Beechcraft 1900, and DeHaveland Twin Otter aircraft. Occasional helicopter flights may also be necessary.

A limited amount of ice road/ice pad construction equipment was mobilized to the existing Inigok gravel storage pad by aircraft in September of 2003. This equipment will be available to begin

³⁵ See IAP/EIS, Section IV.A.1.b and Section 2 of EAs cited in footnotes 4, 6, 8, 10, 14, and 16.

³⁶ BLM EA: AK-023-03-032. February 2003.

ice road and ice pad construction for the initial well as soon as all regulatory approvals are in place and tundra travel has been approved by BLM. The drilling rig will be trucked to the Kuparuk 2P Pad from Deadhorse, and then mobilized to the initial well by Rolligon from the Kuparuk River Unit 2P Pad as soon as the first drilling ice pad is completed.

One remote ice pad (about 600 ft x 600 ft) may be constructed at the southeast corner of TOTAL's lease tract L-194 in Section 36, Township 9 North, Range 5 West, Umiat Meridian to facilitate access to exploration operations. This ice pad will be used for staging equipment on a temporary basis. Ice roads are proposed to connect the existing gravel airstrip at Inigok with the drilling location(s) that are active during each winter season. All of the ice roads will not be constructed in the same season, as the construction will be limited each year to those necessary to access the exploration drilling sites that are scheduled to be drilled that year.

Construction of the ice roads will be typically 28 feet wide and 6 inches thick, except in areas where a greater thickness is required to maintain grade, or to cross minor topographic obstructions. Rig mats or high density polyethylene (HDPE) may be locally used in ice road construction as required by field conditions and/or ice bridge construction; or during movements of unusually heavy loads. Any mats or HDPE will be removed before the end of each winter operating season. Ice pullouts or widened sections of the road may be constructed at certain locations along the routes to accommodate rig moves in cases where heavy equipment may be required to assist pulling heavy loads up grades to facilitate equipment transport.

The ice road routes have been staked, but some minor re-routing may be necessary due to field conditions encountered during construction. Re-routing may also be necessary due to terrain, water sources, animal dens, changes in the characteristics of stream crossings, or other field conditions. Any re-routing will be within one mile of the routes shown on Figure 2. If re-routes require a departure of greater than one mile from the proposed routes, agencies will be contacted prior to constructing the re-routes as necessary.

Drill pads will be approximately 500 by 500 feet in area and 6 inches thick, with additional ice thickness under the drill rig and cuttings storage areas. If the underlying ground surface is uneven, the ice thickness will vary in order to provide a level working surface. Drill pad locations in Table 3 were surveyed, staked, and inspected by BLM.

Up to 170.2 million gallons (MG) of freshwater will be used for ice road/pad construction, maintenance, drilling operations, and camp use (entire 8 well program). Proposed source lakes are shown in Table 5. All of the new water supply lakes are assumed to have fish present or have the potential to provide overwintering fish habitat as the actual fish-bearing status of the waterbody was not field checked. TOTAL used the modified cone method to estimate the volume of water and available water in each lake. The modified cone method produces results similar to previous analyses and approved water withdrawal in NPR-A.³⁷

TOTAL will ensure that contractors use screen designs that comply with OHMP requirements and that the intake velocity remains below 0.5 feet per second. This EA considers all water withdrawal from fish lakes will not be more than 15 percent of free water available under the ice.

Unlimited snow removal is allowed from non-fish bearing lakes, and from grounded portions of fish bearing lakes. However, TOTAL assumes all lakes are fishbearing. Snow removal from non-grounded portions of fish-bearing lakes requires BLM and OHMP approval on a case by case basis, and must not exceed the minimum required for vehicle access and turnaround, plus ice chip removal operations. In addition to a water use permit from ADNR, any ice chip removal from non-grounded portions of fish bearing lakes also requires specific BLM and OHMP approval.

Approximately 20,000 gallons per day (gpd) of fresh water will be required for drilling operations, and camp use will require an additional volume of approximately 11,000 gpd. Ice road maintenance is anticipated to require up to 200,000 gpd per mile per season. Water use for ice pad maintenance is estimated to average 1,500 gpd.

³⁷ USDOJ BLM. EA: AK-020-00-011. p. IV-5

Table 2. Summary of Proposed Project

Project Component	Program Total
No. of wells	Up to 8 wells
Well cellar area ^a	Up to 0.144 acres
Ice Drill Pads	Up to 8 pads; 46.4 acres
Ice Staging Pad	1 pad; 8 acres
Main access ice roads	60 miles new ROW; 204 acres
Packed snow trails	31 miles new ROW; 132 acres
Water usage	170.2 MG ^b

All numbers are approximate; estimated for environmental assessment purposes only.

^a Installed through the ice drill pad; one for each surface hole @0.018 ac.

^b MG = million gallons

Table 3. Ice Drill Pad Locations (All Federal Land)

Name	BLM Lease No.	Geographic Coordinates*	Alaska State Plane Coordinates Zone 5	Section Line Offsets
Caribou 23-14	AA-084170	Lat. 70.19954 deg N Long. 153.08821 deg W	x = 613,130 ft y = 5,923,366 ft	3,584' FEL & 53' FSL 23-T10N-R5W, UM
Caribou 26-11	AA-084170	Lat. 70.18872 deg N Long. 153.08900 deg W	x = 613,087 ft y = 5,919,405 ft	3,691' FEL & 1,373' FSL 26-T10N-R5W, UM
Caribou 07-16	AA-084161	Lat. 70.14267 deg N Long. 152.97918 deg W	x = 627,005 ft y = 5,902,769 ft	513' FEL & 358' FSL 7-T9N-R4W, UM
Caribou 18-08	AA-084161	Lat. 70.13514 deg N Long. 152.97730 deg W	x = 627,282 ft y = 5,900,016 ft	292' FEL & 3,395' FSL 18-T9N-R4W, UM
Caribou 35-05	AA-084162	Lat. 70.09327 deg N Long. 153.09372 deg W	x = 613,025 ft y = 5,884,465 ft	4,317' FEL & 3,395' FSL 35-T9N-R5W, UM
Caribou 09-11	AA-084163	Lat. 70.14827 deg N Long. 153.17655 deg W	x = 602,423 ft y = 5,904,446 ft	4,036' FEL & 2,406' FSL 9-T9N-R5W, UM
Caribou 14-12	AA-084171	Lat. 70.21834 deg N Long. 153.09879 deg W	x = 611,715 ft y = 5,930,226 ft	4,888' FEL & 1,654' FSL 14-T10N-R5W, UM
Caribou 35-14	AA-084172	Lat. 70.17161 deg N Long. 153.59600 deg W	x = 550,199 ft y = 5,912,463 ft	3,597' FEL & 390' FSL 35-T10N-R7W, UM

* Coordinates are Clark 1866 (NAD 27)

Table 4. Fresh Water Use for Each Ice Drill Pad Location, Ice Road Access and Associated Camps

Name	Ice Road ROW	Total Gallons Water for Construction (MG) ^a	Total Gallons Water for Operation (MG)	Total Gallons Water for this Drill Site Location (MG)
Caribou 23-14	14.0 miles (8.0 miles new) *	18.8	5.5	24.3
Caribou 26-11	15.2 miles (9.2 miles new) *	16.9	5.2	22.1
Caribou 07-16	11.0 miles (5.0 miles new) *	12.7	4.3	17.1
Caribou 18-08	10.4 miles (4.4 miles new) *	12.1	4.2	16.4
Caribou 35-05	8.4 miles (2.4 miles new) *	10.1	3.8	14.0
Caribou 09-11	13.2 miles (7.2 miles new) *	14.9	4.8	19.7
Caribou 14-12	17.6 miles (11.6 miles new) *	19.4	5.7	25.0
Caribou 35-14	19.0 miles	20.7	6.0	26.7
Spur from Caribou 09-11 to North-South Ice Road	4.1 miles	4.1	.8	5.0

*Length of each ice road is calculated from the existing Inigok gravel airstrip to the Drill Pad Location. The first 6 miles from Inigok airstrip was previously examined and ROW granted by the BLM.³⁸

^a MG = million gallons;

³⁸ BLM EA: AK-023-03-032. February 2003.

Table 4. New Water Sources

Lake ID ^d	Township	Range	Section	Surface Area (acres)	Depth (feet)	Calculated Total Lake Volume (MG) ^a	Fish ^b Present	Volume deeper than 7 ft (MG)	15% of winter volume deeper than 7 ft. (MG)
R0301	8N	5W	28	427.2	40.8	1,893.0	Yes	1,568.2	235.2
R0302	8N	5W	20	287.7	50.0	1,562.3	Yes	1,343.5	201.5
R0303	8N	5W	8	230.2	8.7	217.5	Yes	42.5	6.4
R0304	8N	5W	9	281.3	9.5	290.2	Yes	76.4	11.5
R0305	8N	6W	1	596.8	48.9	3,169.9	Yes	2716.1	407.4
R0306	9N	5W	5	175.8	7.7	147.0	Yes	13.4	2.0
R0307	9N	5W	30	350.9	7.5	285.8	Yes	19.1	2.9
R0308	9N	5W	21	47.5	7.5	38.7	Yes	2.6	0.4
R0309	9N	5W	20	93.1	6.8	68.8	Yes	0.0	0.0
R0310 ^e	9N	5W	2&3	1,210.2	51.3	4,009.9	Yes	3,089.8	463.5
R0310E	9N	5W	2	889.0	36.0	3,476.0	Yes	2,800.1	420.0
R0310W	9N	5W	3	321.3	15.3	533.9	Yes	289.6	43.4
R0311	9N	4W	18	233.4	10.5	266.1	Yes	88.7	13.3
R0312	9N	4W	8	152.8	5.2	86.3	Yes	0.0	0.0
R0313	9N	4W	20	586.9	12.6	803.2	Yes	357.0	53.5
R0314	9N	5W	14	494.3	8.1	434.9	Yes	59.1	8.9
R0315	9N	5W	27	393.0	10.8	461.1	Yes	162.2	24.3
R0316	10N	5W	14	395.5	11.4	489.7	Yes	189.0	28.4
R0317	8N	6W	24	307.6	11.6	387.6	Yes	153.7	23.1
R0318	8N	6W	10	53.3	11.0	63.7	Yes	23.2	3.5
R0319	8N	6W	10	61.3	6.8	45.3	Yes	0.0	0.0
R0320	9N	6W	26	173.6	15.3	288.5	Yes	156.5	23.5
R0321	9N	6W	21	384.7	39.1	1,633.9	Yes	1,341.4	201.2
R0322	9N	6W	32	110.6	27.5	330.3	Yes	246.2	36.9
R0323	9N	6W	33	77.7	29.5	249.1	Yes	190.0	28.5
R0324	9N	6W	18	485.4	8.7	458.7	Yes	89.5	13.4
R0325	9N	6W	7	201.4	7.3	159.7	Yes	6.6	1.0
R0326	9N	6W	7	152.7	6.9	114.4	Yes	0.0	0.0
R0327	9N	7W	12	651.5	7.0	495.4	Yes	0.0	0.0
R0328	9N	7W	2	80.2	7.7	67.0	Yes	6.1	0.9
R0329	10N	7W	26	1,877.5	36.4	7,423.1	Yes	5995.6	899.3
R0330	8N	6W	4	224.1	7.5	182.6	Yes	12.2	1.8
R0331	9N	6W	20	60.2	11.8	77.2	Yes	31.4	4.7
R0333	9N	7W	13	355.6	8.4	324.4	Yes	54.1	8.1
R0334	9N	7W	1	122.0	12.9	170.9	Yes	78.2	11.7
R0335	8N	5W	34	41.9	38.3	174.1	Yes	142.3	21.3
R0336	8N	5W	27 & 34	260.3	44.3	1,252.6	Yes	1,054.7	158.2

Lake locations shown in Plan of Operations, Exhibit 9.

a MG = million gallons; Volume calculations were done using the Modified Cone Method (Moulton-Lobdell Cone Method)

b TOTAL did not sample for the presence of fish; fish are assumed present in all lakes.

c Lake R0310 has two distinguished basins, east and west, and designated as so in the table for calculations. The lake will be permitted as one lake.

d All lakes meets criteria for Fish Habitat Land Use Emphasis Area (LUEA).

e Lakes R0309, R0312, R0319, R0326 and R0327 are proposed to be used for ice-chips only, mined from naturally grounded ice.

2.1.2 Drilling Operations and Support

Drilling and testing operations are similar to those previously evaluated and incorporated by reference.³⁹ Wells drilled will be plugged and abandoned prior to spring breakup, according to BLM and AOGCC regulations. When the program is completed, the drill rig will be transported out of the project area, and areas of operation will be cleaned and inspected as necessary.

For drilling at different well locations over multiple years, the rig may be stored over-summer at the existing Inigok storage pad in the NPR-A or demobilized back to Kuparuk 2P Pad by Rolligon and trucked back to Deadhorse.

Vibroseis trucks may collect data for vertical seismic profiles. Should conditions arise such that a well cannot be fully tested before the close of tundra travel, the well would be temporarily suspended in accordance with BLM and AOGCC regulations, and testing (followed by plugging and abandonment) would be completed the following winter season. Every reasonable effort will be made to complete each well location within a single winter season.

Ancillary facilities include camps to support drilling and ice construction, communication towers, pump houses and light plants. A 76 man camp facility will be provided by the drilling contractor, and will be located on the active exploration location adjacent to the drill rig. A smaller 30 man camp facility will also be located on the active drill site and will house construction personnel during ice road and ice drilling pad construction. A 24-man Inigok Terminal camp was transported to Inigok in September 2003 and cold stacked on the Inigok Staging Pad. This camp will initially support ice road construction from Inigok and will remain open during the drilling season to support Inigok Terminal operations.

Communication towers guyed by concrete blocks (deadmen) may be erected at any of the proposed drilling locations. Other facilities include pump houses on water sources (lakes),

³⁹ EA: AK-020-00-011. Sections II A.3 and A.4.

light plants near pump houses and along ice roads, and a warm-up shelter near the airstrip, if needed. Up to 75,000 gallons of diesel fuel will be held in lined, bermed storage areas on the drill pad. Four to six tanks at 10,000 to 20,000 gallons each will be used for storage of diesel fuel at the drill site. Tanks having integral secondary containment will additionally be placed on top of a synthetic liner that will serve as a "drip pan" in that any leaks from the tank/secondary containment will flow horizontally from beneath the tank and be visible by visual observation.⁴⁰ Other oils (motor oil, lube oil, etc.) and other chemicals (glycol, methanol, etc.) may also be used at low quantities (normally <100 gpd). Crude Oil would normally only be on site during the testing operations. Test fluids (crude oil and produced water) would be contained in up to five 500-barrel tanks. Each tank will be located within its own metal secondary containment system and tank levels monitored using a computer based system. Fluids recovered during the tests would either be re-injected back into the formation or be transported back to the Kuparuk/Prudhoe Bay area. TOTAL has executed ballot agreements with the Kuparuk Unit working interest owners to authorize this activity.

Fuel will be routinely flown into Inigok and offloaded into receiving tanks on the airstrip apron.⁴¹ This will be done in order to maintain a comfortable fuel cushion in the event of a prolonged period of bad weather when aircraft cannot land at Inigok. Fuel will not be stored on lake ice. All fuel transfers will follow TOTAL's best management practices and spill prevention procedures.⁴²

2.1.3 Waste Management

Wastes will be stored temporarily in large covered dumpsters and periodically back hauled by Rolligon or aircraft from Inigok to existing North Slope facilities for proper treatment and disposal. Some rig camp facilities may incinerate

⁴⁰ TOTAL E & P USA, Inc. Oil Discharge Prevention and Contingency Plan dated August 2003

⁴¹ TOTAL E & P USA, Inc. Plan of Operations.

⁴² TotalFinaElf E&P USA, Inc. letter dated 3/21/2003 to ADF&G (now OHMP) regarding Fuel Transfer Procedures

burnable wastes in an approved diesel fired incinerator. Incinerator residue (ash) will be backhauled to the Prudhoe Bay landfill.

Domestic wastewater will either be processed and discharged under NPDES Permit, or hauled to an approved disposal facility.

Disposal of waste drilling fluids will be either by annular injection, as approved in the drilling permits, or it will be frozen and back-hauled by Rolligon to an approved Class II injection well in Kuparuk. TOTAL has executed ballot agreements with the Kuparuk Unit working interest owners to authorize this activity. No reserve pits will be used in the TOTAL exploration drilling program. Drill cuttings and associated drilling fluids will be temporarily stored on the ice pad in an ice bermed drilling waste storage cell. Upon completion of activities at each drilling location, and after the cells are emptied, the berms will be broken up and the cell floors scraped or chipped as necessary, and then transported to the Kuparuk injection facility or other approved facility for ultimate disposal.

Crude oil from production testing will be held in contained tanks and then injected back into the formation or hauled out of the NPR-A for processing at an approved facility.

2.1.4 Air Emissions

All of the sources of air emissions from the operation fall into the unregulated category of nonroad engines and do not require construction or operating permits except the well test flares and certain hydrocarbon storage tanks over 10,000 gallons. TOTAL will operate under the ADEC Air Permit by Rule in 18 AAC 50.390 (drilling rigs) and 18 AAC 50.385 (storage tanks) for these regulated sources. Entry by unauthorized personnel will be restricted, and TOTAL will implement any public access control plan required. In accordance with BLM Onshore Order No. 6 and APD Form 3160-3, TOTAL evaluated the potential for Hydrogen Sulfide (H₂S) release and determined it is not expected at any proposed location. Measures and precautions associated with H₂S are addressed in the APD filed with BLM. Produced gas will be flared in accordance with ADEC air permit requirements.

2.1.5 Contingency Plans

Several contingency plans are required in support of proposed activities.

Oil Discharge Prevention and Contingency Plan (ODPCP)

The Applicant is required to have oil spill response measures in place to meet federal and state requirements. For BLM to approve a Permit to Drill, TOTAL must meet federal regulations 43 CFR 3160 and lease stipulations (7-17) and comply with Onshore Order Nos. 1, 2, and 6. Prior to commencing operations, TOTAL must have a site-specific ODPCP approved by ADEC, which is considered sufficient to meet BLM requirements, and is incorporated by reference.⁴³ BLM inspects well plans and well construction prior to commencement of drilling.

Under ADEC regulations (18 AAC 75.434), the worst-case response planning standard (RPS) is 5,500 barrels of oil per day. For a blowout lasting 15 days, the initial RPS volume would be 82,500 barrels.

Modeling indicates that approximately 65 percent of the oil discharged would fall within 328 feet of the blowout location; 8 percent will be within 328 and 657 feet of the well location; 5 percent will be within 657 feet and 985 feet of the well location and the remaining 22 percent will be in excess of 985 feet. At distances greater than 657 feet, the actual deposition is predicted to be less than 0.12 inches and less than 0.04 inches at distances greater than 300 meters. The blowout plume would lie along a NE-SW trending axis, potentially impacting sensitive areas.

During winter conditions, there is the potential to impact areas for a distance of one mile or more from the well site as a result of a well blowout with a plume. Caribou 26-11, Caribou 07-16, Caribou 18-08, Caribou 35-05, Caribou 09-11 and Caribou 35-14 are within the boundary of the Deep Lakes Fish Habitat Land Use Emphasis Area (LUEA); Caribou 35-14 is also within the

⁴³The TOTAL Exploration ODPCP (Plan No. 024-CP-5102) was submitted to ADEC for approval on August 18, 2003.

Teshkepuk Lake Watershed LUEA; Caribou 23-14 and Caribou 14-12 are also within the Pik Dunes LUEA.⁴⁴ The primary strategy for protection of sensitive areas is to remove spilled oil from the snowpack prior to spring/summer breakup.

Other scenarios addressed in the ODPCP include fuel tanker spills and a well test tank rupture.

The approved ODPCP, along with approved spill control equipment and supplies, will be kept on site at all times. Onsite spill equipment will receive routine maintenance by TOTAL. Safety items and spill response equipment are inspected on a monthly basis. Two to five TOTAL representatives will be on site at each drilling location. Phone service will be available 24-hours a day at the drilling camp. When needed, TOTAL will call on resources of other North Slope operators through Alaska Clean Seas (ACS), and contractors, as well as local Village Response Teams, as available.

For the proposed action, no drilling will begin until the well pad is accessible by ice road and/or packed snow trail; the period of active drilling is subject to seasonal restrictions set in the ODPCP. In the event of a spill, it is expected that the large bulk of manpower and equipment would be mobilized by airlift to the Inigok Airstrip (or rig airstrip, if constructed), with travel to the site by surface transportation over ice roads; or by mobilizing equipment over packed trails and ice roads by Rolligon. The ODPCP estimates deployment time (mobilization via Rolligon on packed snow trail and ice road) from Kuparuk 2P Pad to the most distant area (Caribou 35-14) at approximately 11 hours. Aircraft will be used to support the drilling operations. Helicopters could land at nearly any location and fixed-wing aircraft would typically land at the Inigok Airstrip or any straight sections of the ice road. The Inigok Airstrip has been approved by FAA for day and night IFR flight operations. Large aircraft such as a Herc could be deployed in a shorter time frame, depending on aircraft availability and requirements for spill response. The deployment time using aircraft from Deadhorse to Inigok Airstrip would be 1 to 1.5 hours with an additional 2 hours by ice road to Caribou 35-14, the most distant drill site.

⁴⁴ IAP/EIS. Section II.B.

Spill Prevention Control and Countermeasures (SPCC) Plans

An SPCC Plan provides guidelines for pollution prevention and addresses secondary containment when total fuel storage at a site is greater than 1,320 gallons.⁴⁵ TOTAL and its contractors hold SPCC plans for fuel storage and transfer operations related to the Plan of Operations. The well testing contractor also holds an SPCC plan for its test tanks and ancillary equipment. Approved SPCC Plans will be in place for all equipment storing liquid hydrocarbons volumes greater than 1,320 gallons.

Wildlife Protection and Encounter Plans

TOTAL submitted a Polar Bear/Personnel Encounter Plan to the USFWS on November 4, 2003. Measures in this plan also provide for the protection of other wildlife. If a grizzly bear is sighted, the same procedures described in the plan for polar bears sightings would be applied to grizzly bear sightings. TOTAL and its contractors will exercise extreme caution when laying out ice road routes and Rolligon trails, and watch for signs of grizzly bears or polar bears. If any bear sign is observed or a den site identified, the road or trail route will be modified to avoid any disturbance to the animals. Project personnel are instructed not to feed wildlife or attempt to attract, harass or hunt them at drill sites or along transportation routes. All food will be kept inside buildings or in sealed containers. Any hazardous materials will be kept in sealed drums or other wildlife-proof containers.

2.1.6 Operations and Maintenance

The proposed schedule calls for mobilization and ice construction to begin as early as December 2003, with drilling from ice pads beginning as early as January 2004. Access to the drill rig and rig facilities will be restricted to authorized persons and regulatory personnel only.

A health, safety and environmental program will be implemented, including safety briefings, identification and correction of potential hazards,

⁴⁵ 40 CFR 112. New regulations are in effect that may change future requirements.

and environmental awareness. TOTAL requires all North Slope employees and contractors to complete an 8-hour training program provided by the North Slope Training Cooperative (NSTC). TOTAL has a BLM approved orientation program, which is required for all personnel working in the NPR-A. This training module includes awareness of NPR-A-related environmental, social, and cultural concerns. All project personnel are required to receive this training once a year, and TOTAL as well as their contractors, will maintain training records as long as TOTAL is conducting exploratory activities in the NPR-A.

2.1.7 Abandonment and Restoration

Upon completion of drilling operations, all equipment and supplies will be removed; ice pads will be cleared of equipment and ice surfaces cleaned. All waste and debris will be hauled to the Prudhoe Bay landfill or other approved disposal site (i.e. an approved injection well, in the case of drill cuttings). The ice pads will be scraped or chipped as necessary to recover any contaminated ice and the scrapings will be hauled to an approved disposal well. Current plans call for the plugging and abandonment of all wells prior to the end of each drilling season.

All packed snow trail and ice road routes will be regularly monitored for trail condition and to cleanup litter and drips. All ice road routes will be checked for complete recovery of any debris and trail markers, and for the removal of any stains on the ice surface at the end of each operating season. Road and pad sites will be inspected to ensure proper cleanup.

2.1.8 Community Relations

TOTAL has held public meetings, led field inspections and issued press releases to inform North Slope residents of TOTAL's planned exploration program in the NPR-A. Informational meetings have been held in Barrow, Nuiqsut and Atqasuk and additional meetings will be held periodically during the exploration program. TOTAL will continue to address issues with the local communities, regulatory agencies, and special interest groups.

BLM also addresses exploration activities in the NPR-A at NPR-A Subsistence Advisory Panel (SAP) meetings in the communities.

Cultural Resources

New road and pad locations avoid known archaeological and cultural resources and TLUS. An archaeological/cultural resources/TLUS clearance survey (Stipulations 64 and 74) was conducted for pad locations and along an approximately 1-mile-wide corridor represented by the new access routes shown in Figure 2. The routing shown is approximate, and may be altered in the field due to terrain, stream crossing conditions, or wildlife. No known long-term use cabins are within 1,200 feet of project facilities. Native Allotments are avoided by project siting.

Subsistence

The project area is recognized as a subsistence use area for Nuiqsut and Barrow, and TOTAL has met with the NPR-A SAP in Nuiqsut (June 19, 2003) and Atqasuk (November 4, 2003). TOTAL plans to continue consultation with subsistence users and implement the mitigation measures of Stipulations 59 and 61. TOTAL will designate a Primary Point of Contact (PC) to evaluate information, monitor activities and resolve subsistence-related activities. The PC will maintain a record regarding subsistence related issues and submit biannual reports of the effects of TOTAL's winter activities on subsistence.

TOTAL will hire a Winter Activities Coordinator (WAC) to serve as the local point of contact for Barrow, Atqasuk, and Nuiqsut to inform the communities of TOTAL activities and to relay subsistence concerns to the PC. TOTAL will also hire North Slope Residents as Subsistence Representatives (SR), working directly with field operations during the winter exploration program. The SR will provide recommendations and inform workers about sensitive areas and resources. The SR will also insure that drips from vehicles, trash and debris are cleaned up and report any tundra damage and potential tundra damage.

Economic Opportunity

The TOTAL employment process places a priority on local hire, and will ensure that NSB residents are provided with job opportunities. TOTAL and their contractors will notify Alaska Job Service of vacancies, and ensure job opportunities are communicated to North Slope Villages. During the 2003-2008 winter exploration activities, TOTAL may use local residents in a variety of roles, including: monitoring (e.g., subsistence); ice road construction and maintenance; village liaison; and project support and spill response.

2.2 POSSIBLE FUTURE ACTION

As noted in the IAP/EIS, exploration drilling is the only reliable method of verifying the presence of oil, and 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 to begin production. Each phase of decision-making requires appropriate levels of environmental review and issuance of additional specific permits stipulating environmental protection and mitigation measures.

BLM regulations for a Permit to Drill provide the option of deferring plans for proposed facilities (*Subsequent Operations* under 43 CFR 3160). Based on the uncertainties associated with wells to be drilled in the proposed program, TOTAL has elected to defer planning for future facilities. However, potential field development in and around the NPR- A has been discussed in previous evaluations, which are incorporated by reference.^{46, 47} Potential field development is also being addressed in the Alpine Satellite EIS process.⁴⁸ The area likely would be operated in a manner similar to existing North Slope operations (e.g., Alpine and Kugaruk), incorporating all relevant design and environmental protection measures required by the IAP/EIS and ROD with oil transported to the TAPS for ultimate delivery to domestic markets.

2.3 ALTERNATIVES

The IAP/EIS evaluated alternatives based on national economic security needs and broad environmental issues. As a result, the 1998 ROD includes 79 stipulations that substantially limit the range of exploration alternatives. This EA is tiered to the broader alternatives analyzed in the IAP/EIS and more specific alternatives evaluated in subsequent EAs, which have been incorporated by reference.^{49, 50}

Alternatives to the proposed project are considered at several levels, as described below.

2.3.1 Alternatives Considered but Eliminated from Detailed Analysis

The IAP/EIS evaluated a fairly specific exploration model, developing extensive, site-specific stipulations for that concept. The 1998 ROD, and the proposed action itself (i.e., drilling a specified number of exploration wells on specific oil and gas leases in the NPR-A) significantly limit alternatives for the location and timing of exploration. Locations of leases with oil and gas prospects limit the options for feasible drill site locations and access routes. Therefore, only a few alternatives for exploration are possible. Some alternatives considered, but eliminated from detailed analysis (e.g., temporary roads constructed of materials other than ice) have been described in previous evaluations, which are incorporated by reference.⁵¹

For several proposed sites, one additional alternative was considered, but eliminated from detailed evaluation. This alternative involves drilling to different target locations from a single ice pad (i.e., directional drilling). This alternative would be most feasible for drilling Caribou 18-08 wells from Caribou 07-16 pad. For most drill sites however, the distance separating targets is greater than the capability of the drilling rig planned for use – or exceeds the reach of available, reliable technology.

⁴⁶ IAP/EIS. Section IV.A.

⁴⁷ EA: AK-020-00-011. Section II.B.

⁴⁸ Alpine Satellite Development Plan.

⁴⁹ IAP/EIS. Section II.C.1-6.

⁵⁰ See EA's cited in footnotes 4,6,8, and 10. Section II.C.

⁵¹ EA: AK-020-00-011 and EA: AK-023-01-003. Section II.C.1.

A more centrally located ice pad to consolidate Caribou 14-12, Caribou 23-14 and Caribou 20-11 may be feasible, but was not evaluated. These alternatives would place unnecessary constraints on delineating resources with no appreciable environmental advantage. In addition, extended reach drilling methods are rarely employed for exploration wells when practicable alternatives are available and do not create significant cumulative impacts.

Drilling a vertical well provides far better exploration data than drilling a deviated well. In the proposed action, optional sidetrack wells will be drilled only after the main well is drilled vertically and geologic information is collected to guide the sidetrack or deviated well bore. Additionally, drilling up to 8 reservoir penetrations (maximum for two drill sites) would require at least 2 years of operation, which would require construction of 2 ice pads regardless of location. Also, the extent of commercial oil and gas prospects on TOTAL leases cannot be determined if the applicant is not allowed to drill the minimum number of wells needed to define prospective oil and gas deposits. Accordingly, alternatives involving drilling at fewer sites or drilling fewer wells than applied for were considered but eliminated from further evaluation in this EA.

In summary, all but two action alternatives and the no-action alternative were eliminated because they do not meet the purposes of the proposed action, fail to reduce overall environmental impact or provide an environmental advantage, or are technically infeasible or unreliable.

2.3.2 Alternatives to the Proposed Action

Several options previously evaluated (i.e. constructed water sources and elimination of ice road offsets) are still under consideration for exploration, but have not yet been accepted by BLM. Based on environmental limitations imposed by lease stipulations, only two exploration alternatives and the no action alternative warrant further consideration at this time: (1) primary access by air; (2) primary access by shared right-of-way; and (3) no action.

Alternative 1 – Primary Access by Aircraft

Primary access by aircraft, described in a previous evaluation (which is incorporated by reference ⁵²), is reconsidered in this EA. Hercules-type aircraft would be required for transporting the drill rig, other heavy equipment, and facilities. Smaller aircraft support would also be required on a regular basis. All other elements of design and operation would be essentially the same as the proposed action. Only local ice roads and pads would be needed, with minor, local overland transport involved in initiating ice construction and support activities.

Air traffic to and from the site would be substantially increased over the proposed action. This alternative would reduce green/brown trail traces, which can result from packed snow trail use. Emergency response would be by air or overland with approved tundra travel vehicles (if needed) throughout the entire drilling program. Operations such as logistical support, spill response, and waste management would be more difficult and would increase air traffic. On occasion, air travel is not possible due to bad weather conditions that can persist for days. As a result, local storage needs would increase, and likely more pad area would be required.

Alternative 2 – Primary Access by Shared Right-of-Way

BLM has previously evaluated and subsequently authorized access to and beyond CPAI's Kokoda drill site.⁵³ Additionally, a route to CPAI's proposed Powerline drill site has been evaluated⁵⁴ and is under consideration for authorization by BLM. Although neither of these access corridors was included in the proposed action, an alternative using shared authorized corridors warrants consideration. The CPAI approved corridor to and beyond the Kokoda drill sites could be shared and new packed snow trail/ice road routes identified to TOTAL's drill sites. Alternatively if an approved ice road corridor to Powerline is approved it could be shared and new packed snow trail/ice road routes identified west from Powerline. TOTAL

⁵² EA: AK-023-01-001. Section II.C.2.

⁵³ BLM FONSI and ROD FF-093572. March 2002.

⁵⁴ BLM EA: AK-023-04-004. November 2003. Figure 2

has proposed a packed snow trail route westward from Hunter to its northern drill site locations, which is approximately 1.25 miles south of Powerline. By sharing the right-of-way to Powerline approximately 6.25 miles of new packed snow trail would be eliminated. If TOTAL shared a right-of-way to Kokoda, a local ice road could be extended approximately 6 miles to TOTAL's northernmost drill site location, Caribou 14-12. By sharing a right-of-way to Kokoda the proposed 23.5 miles of new packed snow trail westward from Hunter to TOTAL's northernmost drilling locations would be eliminated. The route between Kuparuk 2 P Pad and Inigok was previously evaluated and granted.

This alternative would minimize the impact of overland transport over multiple routes and minimize the number of crossings of the Fish and Judy Creek LUEAs.

Alternative 3 – No Action

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

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Figure 2 Drilling Locations with Access Route

3 AFFECTED ENVIRONMENT

The proposed NPR-A exploratory drilling operations, new access corridors, and water supply lakes are all in the Northeast Planning Area. For a detailed discussion of the existing environment, see the IAP/EIS, which describes the general project area and its proximity to existing oil and gas fields on the North Slope,⁵⁵ which are shown on Figure 3. See also the six previous EAs prepared for exploration activity in the Northeast NPR-A Planning Area, all incorporated by reference.⁵⁶

3.1 PHYSICAL CHARACTERISTICS

All proposed activities will take place on the Arctic Coastal Plain of the NPR-A, approximately 25 to 45 miles inland from the coast. Topography is generally flat to gently rolling and is dominated by permafrost-related geomorphic features. These include polygonal patterned ground, shallow lakes, and extensive areas of wetland interlaced with small, meandering streams. Surficial deposits of the general area are marine silts, sands, and outwash gravels, with permafrost ranging from 650 to 1,330 feet deep. The active thaw layer is typically 1 to 2 feet deep.⁵⁷ Soils are typically wet throughout the area, although upland features such as pingos and some river benches and sand dunes are well-drained.

For eight months of the year, temperatures average below freezing, making ice construction a feasible alternative to gravel road/pad construction. During the other four months, there is a dramatic change including higher temperatures (over 60° F) and periods of long daylight. Annual precipitation is low (typically <10 inches), with more than half falling as snow. Snow cover is typically established in late September-early October; seasonal snow cover disappears from late May - mid June. Prevailing winds blow cold air from the largely frozen Arctic Ocean. Recently, changes in weather

patterns have reduced the winter exploration season from 208 days (1970) to 103 days (2002).⁵⁸

The new ice roads and ice drill locations are more westerly than most of the exploration drilling programs previously assessed in the Northeast Planning area (only Puviaq is further west). In *The Exploratory Soil Survey of Alaska* (Rieger, Schoephorster, and Furbush, 1970), soils of the eastern part of the Northeast Planning Area were classified differently than soils of the western part of the planning area.

According to Rieger et al, soils in the eastern part of the planning area tend to be shallower over permafrost and constantly wet, with many small thaw lakes, low terraces, broad shallow, depressions and alluvial floodplains. The loamy, poorly-drained soils have a thick cover of sedge tussocks, low shrubs, forbs, mosses and lichens. Very poorly-drained fibrous peat soils occupy depressions, shallow drainageways, and lake borders commonly under a thick cover of sedges. The western part of the planning area is dominated by nearly level, low tundra dotted with shallow thaw lakes. There are many undulating sand dunes; most are stabilized by vegetation, but some adjacent to streams are still active. Most of the soils in this part are sandy eolian, alluvial, and marine deposits with a few forming in loamy sediment. The soils are poorly- drained with a shallow permafrost table in level areas and areas between sand dunes. Dune soils consist of eolian sand, and although they are perennially frozen below a depth of 30 to 40 inches, they typically do not retain enough moisture for large ice crystals to form.

A number of minor drainages and two larger creeks are crossed by the new ice roads, although the proposed project does not require any major ice bridges. Most proposed stream crossing sites are expected to be frozen to the bottom. Several elements of the proposed project are located in water-related special areas: Teshekpuk Lake Watershed LUEA and Fish Habitat LUEA (i.e., along Fish Creek, as well as in the deep water lakes area).

⁵⁵ IAP/EIS. pp. III-A-1 through III-A-60; III-B-1 through III-B-633; and III-C-1 through III-C-66.

⁵⁶ See footnotes 4, 6, 8, 10, 12, 14 and 16. EA Section 3/III.

⁵⁷ USDOJ BLM. EA: AK-023-02-033. p. 5.

⁵⁸ G. Schultz, ADNR. 2003 Tundra Access Symposium, sponsored by AOGA, ADNR & BLM. October 7, 2003.

The proposed drilling operations are associated with the deep water lakes in the Fish Habitat LUEA. Access routes cross the Inigok Creek and stream channels and tributaries of Fish Creek. Several elements of the proposed project are located in water-related special areas: Teshekpuk Lake Watershed LUEA and Fish Habitat LUEA.

Caribou 23-14 and Caribou 14-12 drill sites and a portion of the local access road are located just inside the northern boundary of the Pik Dunes LUEA. The Pik Dunes, which form a basin containing five lakes, are part of a larger dune area that has been stabilized/vegetated for several thousand years. The Pik Dunes is an approximately 15-square mile complex of active, exposed dunes. The Pik dunes provide unique habitat for several uncommon plant species, insect-relief habitat for caribou and clues about the climatic history of the region.⁵⁹

TOTAL has identified 35 lakes for water withdrawal (depicted in Figure 3-1 of the Plan of Operations). The volume to be withdrawn depends on depth and habitat value for fish (as shown on Table 4). Ice aggregate may be removed from grounded ice on any approved lake.

Water quality data from potential water supply lakes are within the general ranges of water quality data discussed in the IAP/EIS and reviewed by BLM in previous analyses. In all lakes, ions are excluded from water as it freezes, concentrating solutes in free water below the ice.

3.2 BIOLOGICAL RESOURCES

Biological resources for the eight drilling sites and optional access routes within the NPR-A are described in the IAP/EIS.⁶⁰ Biological resources have also been described in previous BLM assessment documents, incorporated by reference.⁶¹

⁵⁹ IAP/EIS. p. II-3.

⁶⁰ IAP/EIS. pp. III-B-1 through III-B-53.

⁶¹ See EAs cited in footnotes 4, 6, 8, 10, 12, 14, 16, and 20. Section III.B/3.B.

3.2.1 Vegetation

The project area is located in the Arctic Coastal Plain, which is generally characterized as a mosaic of tundra wetlands with low relief. However, even small scale relief features can influence vegetation patterns. Nowacki et al.⁶² describe the dominant vegetation on the Arctic Coastal Plain as wet sedge tundra in drained lake basins, swales and floodplains; tussock tundra and sedge-*Dryas* tundra on gentle slopes; and low willow thickets on well-drained riverbanks.

Land cover in the Northeast NPR-A Planning Area has been mapped by BLM in cooperation with Ducks Unlimited, NSB, and USFWS. Land cover is classified into 17 cover types, shown below with the percent cover in the Northeast Planning Area.⁶³

WATER:

1. Ice (2.2%)
2. Clear Water (10.8 %)
3. Turbid Water (8.4%)

AQUATIC

4. *Carex Aquatilis* (3.8%)
5. *Arctohylla fulva* (0.4%)

FLOODED TUNDRA

6. Flooded Tundra LCP (6.5%)
(LCP =low centered polygons)
7. Flooded Tundra NP (2.7%)
(NP=non patterned)

WET TUNDRA

8. Wet Tundra (5%)

MOST TUNDRA

9. Sedge Meadow (10.1%)
10. Tussock Tundra (29.1%)
11. Moss Lichen (1.6%)

SHRUB

12. Dwarf Shrub (15.5%)
13. Low Shrub (1.7%)

⁶² Nowacki, G. P. Spencer, M. Fleming, T. Brock, and T. Jorgenson. Unified Ecoregions of Alaska, 2001. USGS Open File Report 02-297, p. (1sheet). 2002.

⁶³ IAP/EIS Table III.B.2-1.

14. Tall Shrub (0.1%)

BARREN GROUND

15. Sparsely Vegetated (0.5%)

16. Dunes/Dry Sand (0.7%)

17. Barren Ground/Other (e.g., clouds) (1%)

Based on this inventory, approximately 21 percent of the Planning Area is open water, and almost another 18 percent is standing water with varying extent of vegetation cover. Cotton grass (common to tussock tundra and dwarf shrub) is the most commonly occurring plant type, covering about 44 percent of the Planning Area.

For comparative purposes, drill site locations and access routes were superimposed on the digitized land cover map, and associated land cover types were estimated. Affected acreage reflects a pad size of 500 by 500 feet and approximately 60 miles of ice road constructed within a mile-wide corridor (plus approximately 10 percent overlap associated with analyzing corridors by segment). Results are provided in Tables 5 and 6.

It is important to note that data shown in Table 6 reflect 1-mile wide transportation routes. The actual ice road will be only 28-foot wide, located within that corridor, affecting less than one percent of the total acreage. In addition, Segment 4 and approximately 3400 feet of Segment 5 were previously examined and granted as ROW by the BLM.⁶⁴

Table 5. Ground Cover at Well Pad Sites

<i>Well Pads (500 x 500 feet)</i>			
Well site	Land Cover	Area (acres)	% Cover
Caribou 23-14	Sedge/Grass Meadow	.35	6.1
	Tussock Tundra	5.38	93.9
	TOTAL	5.73	100.0
Caribou 26-11	Dwarf Shrub	.02	0.3
	Sedge/Grass Meadow	.58	10.2
	Tussock Tundra	5.13	89.5
	TOTAL	5.73	100.0
Caribou 07-16	Sedge/Grass Meadow	1.94	33.8

⁶⁴ BLM EA: AK-023-03-032. February 2003.

	Tussock Tundra	3.80	66.2
	TOTAL	5.73	100.0
Caribou 18-08	Sedge/Grass Meadow	3.24	56.5
	Tussock Tundra	2.49	43.5
	TOTAL	5.73	100.0
Caribou 35-05	Sedge/Grass Meadow	0.22	3.9
	Tussock Tundra	5.51	96.1
	TOTAL	5.73	100.0
Caribou 09-11	Sedge/Grass Meadow	1.35	23.6
	Tussock Tundra	4.38	76.4
	TOTAL	5.73	100.0
Caribou 14-12	Sedge/Grass Meadow	2.89	50.3
	Tussock Tundra	2.62	45.7
	Wet Tundra	.23	4.0
	TOTAL	5.73	100.0
Caribou 35-14	Moss Lichen	0.45	7.8
	Sedge/Grass Meadow	0.38	6.6
	Sparsely Vegetated	0.00	0.1
	Tussock Tundra	4.90	85.5
	TOTAL	5.73	100.0

Table 6. Ground Cover Along Access Routes

Potential Access Routes (1-mile wide corridor)		
<i>(28-ft wide ice road will be located within mile-wide corridor, depending on site-specific conditions)</i>		
Segment 1: Inigok Storage Pad to Caribou 35-14		
Length: 18.28 miles		
Vegetation Type	Area (acres)	% Cover
Clear Water	1,424.4	11.7
Turbid Water	976.77	8.0
<i>Carex Aquatilis</i>	293.16	2.4
<i>Arctophila Fulva</i>	51.37	0.4
Flooded Tundra LCP	326.25	2.7
Flooded Tundra NP	202.33	1.7
Wet Tundra	374.92	3.1
Sedge Meadow	1,703.03	14.0
Tussock Tundra	6,156.13	50.7
Moss / Lichen	65.84	0.5
Dwarf Shrub	433.08	3.6
Low Shrub	19.81	0.2
Dunes/Dry Sand	12.02	0.1
Sparse Vegetation	19.80	0.2
Other/Barren Ground	84.26	0.7
TOTAL	12,143	100

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Segment 2 : Alternate westerly Spur to Caribou 09-11
Length: 7.36 miles

Vegetation Type	Area (acres)	% Cover
Clear Water	1,030.64	19.8
Turbid Water	358.40	6.9
<i>Carex Aquatilis</i>	116.30	2.2
<i>Arctophila Fulva</i>	22.26	0.4
Flooded Tundra LCP	117.65	2.3
Flooded Tundra NP	71.98	1.4
Wet Tundra	127.21	2.4
Sedge Meadow	811.69	15.6
Tussock Tundra	2,379.28	45.7
Moss / Lichen	8.67	0.2
Dwarf Shrub	118.41	2.3
Low Shrub	1.11	0.0
Dunes/Dry Sand	1.01	0.0
Sparse Vegetation	3.78	0.1
Other/Barren Ground	38.17	0.7
TOTAL	5,207	100

Segment 3: Packed snow trail between Caribou 09-11 and Segment 1
Length: 7.56 miles

Vegetation Type	Area (acres)	% Cover
Clear Water	500.62	9.4
Turbid Water	559.54	10.5
<i>Carex Aquatilis</i>	234.40	4.4
<i>Arctophila Fulva</i>	95.40	1.8
Flooded Tundra LCP	82.71	1.6
Flooded Tundra NP	143.03	2.7
Wet Tundra	214.64	4.0
Sedge Meadow	668.45	12.5
Tussock Tundra	2,515.54	47.2
Moss / Lichen	27.42	0.5
Dwarf Shrub	268.68	5.0
Low Shrub	15.57	0.3
Dunes/Dry Sand	0.67	0.0
Sparse Vegetation	0.67	0.0
Other/Barren Ground	6.99	0.1
TOTAL	5,334	100

Segment 4: Spur from Inigok Airstrip to Segments 5 & 9
Length: 5.26 miles

Vegetation Type	Area (acres)	% Cover
Clear Water	1,011.13	26.2
Turbid Water	307.88	8.0
<i>Carex Aquatilis</i>	97.73	2.5
<i>Arctophila Fulva</i>	15.69	0.4
Flooded Tundra LCP	234.38	6.1
Flooded Tundra NP	69.63	1.8
Wet Tundra	148.57	3.8
Sedge Meadow	636.00	16.5
Tussock Tundra	1,210.58	31.3
Moss / Lichen	3.28	0.1

Dwarf Shrub	99.71	2.6
Low Shrub	1.68	0.0
Dunes/Dry Sand	0.67	0.0
Sparse Vegetation	5.78	0.1
Other/Barren Ground	22.12	0.6
TOTAL	3,865	100

Segment 5: Easterly Spur to Caribou 09-11
Length: 7.71 miles

Vegetation Type	Area (acres)	% Cover
Clear Water	559.81	10.4
Turbid Water	251.52	4.7
<i>Carex Aquatilis</i>	180.23	3.3
<i>Arctophila Fulva</i>	32.22	0.6
Flooded Tundra LCP	350.08	6.5
Flooded Tundra NP	128.51	2.4
Wet Tundra	228.64	4.2
Sedge Meadow	1,019.80	18.9
Tussock Tundra	2,508.41	46.5
Moss / Lichen	29.26	.5
Dwarf Shrub	89.77	1.7
Low Shrub	6.03	0.1
Dunes/Dry Sand	2.27	0.0
Sparse Vegetation	2.55	0.0
Other/Barren Ground	5.09	0.1
TOTAL	5,394	100

Segment 6 : Spur from southeast corner of TOTAL lease tract number L-194 in S36, T9N, R5W, UM to Segment 7
Length: 3.69 miles

Vegetation Type	Area (acres)	% Cover
Clear Water	347.37	12.2
Turbid Water	148.02	5.2
<i>Carex Aquatilis</i>	104.26	3.7
<i>Arctophila Fulva</i>	10.25	0.4
Flooded Tundra LCP	290.96	10.2
Flooded Tundra NP	81.47	2.9
Wet Tundra	169.65	6.0
Sedge Meadow	635.22	22.4
Tussock Tundra	914.66	32.2
Moss / Lichen	24.20	0.9
Dwarf Shrub	55.15	1.9
Low Shrub	3.25	0.1
Dunes/Dry Sand	11.56	0.4
Sparse Vegetation	16.23	0.6
Other/Barren Ground	28.69	1.0
TOTAL	2,841	100

Segment 7 : Continuation from Segment 6 to the intersection of the northernmost packed snow trail route
Length: 3.17 miles

Vegetation Type	Area (acres)	% Cover
Clear Water	198.37	7.8
Turbid Water	113.21	4.5

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<i>Carex Aquatilis</i>	83.87	3.3
<i>Arctophila Fulva</i>	3.02	0.1
Flooded Tundra LCP	199.68	7.9
Flooded Tundra NP	59.08	2.3
Wet Tundra	112.00	4.4
Sedge Meadow	635.19	25.1
Tussock Tundra	902.30	35.7
Moss / Lichen	72.31	2.9
Dwarf Shrub	105.85	4.2
Dunes/Dry Sand	23.86	0.9
Sparse Vegetation	10.30	0.4
Other	11.26	0.4
TOTAL	2,530	100

**Segment 8: Caribou 09-11 to the intersection of the northernmost packed snow trail route and Segments 7 and 9
Length: 3.89 miles**

Vegetation Type	Area (acres)	% Cover
Clear Water	361.01	12.1
Turbid Water	315.91	10.6
<i>Carex Aquatilis</i>	133.95	4.5
<i>Arctophila Fulva</i>	2.00	0.1
Flooded Tundra LCP	206.23	6.9
Flooded Tundra NP	90.42	3.0
Wet Tundra	160.97	5.4
Sedge Meadow	527.18	17.6
Tussock Tundra	1,054.81	35.3
Moss / Lichen	35.99	1.2
Dwarf Shrub	37.82	1.3
Dunes/Dry Sand	3.04	0.1
Sparse Vegetation	23.77	0.8
Other/Barren Ground	34.92	1.2
TOTAL	2,988	100

Segment 9 : Caribou 26-11 to the intersection of the northernmost packed snow trail route and Segments 7 and 8 Length: 2.26 miles

Vegetation Type	Area (acres)	% Cover
Clear Water	48.85	2.5
Turbid Water	178.92	9.2
<i>Carex Aquatilis</i>	85.07	4.4
<i>Arctophila Fulva</i>	1.78	0.1
Flooded Tundra LCP	115.39	5.9
Flooded Tundra NP	42.82	2.2
Wet Tundra	108.95	5.6
Sedge Meadow	560.20	28.7
Tussock Tundra	650.09	33.3
Moss / Lichen	27.40	1.4
Dwarf Shrub	52.96	2.7
Low Shrub	0.67	0.0
Dunes/Dry Sand	10.51	0.5
Sparse Vegetation	14.42	0.7

Other/Barren Ground	52.99	2.7
TOTAL	1,950	100

**Segment 10: Spur Road to Caribou 14-12
Length: 4.22 miles**

Vegetation Type	Area (acres)	% Cover
Clear Water	177.25	5.7
Turbid Water	308.79	9.9
<i>Carex Aquatilis</i>	126.72	4.1
<i>Arctophila Fulva</i>	3.83	0.1
Flooded Tundra LCP	135.52	4.3
Flooded Tundra NP	55.53	1.8
Wet Tundra	133.94	4.3
Sedge Meadow	722.76	23.2
Tussock Tundra	1,028.37	32.9
Moss / Lichen	46.81	1.5
Dwarf Shrub	53.65	1.7
Low Shrub	0.22	0.0
Dunes/Dry Sand	147.18	4.7
Sparse Vegetation	21.78	0.7
Other/Barren Ground	158.83	5.1
TOTAL	3,121	100

**Segment 11 Spur road to Caribou 23-14
Length: .68 miles**

Vegetation Type	Area (acres)	% Cover
Clear Water	59.33	6.3
Turbid Water	84.75	9.0
<i>Carex Aquatilis</i>	28.03	3.0
<i>Arctophila Fulva</i>	1.33	0.1
Flooded Tundra LCP	33.98	3.6
Flooded Tundra NP	14.26	1.5
Wet Tundra	34.44	3.7
Sedge Meadow	187.99	20.1
Tussock Tundra	444.54	47.4
Moss / Lichen	14.22	1.5
Dwarf Shrub	17.37	1.9
Dunes/Dry Sand	3.38	0.4
Sparse Vegetation	3.99	0.4
Other/Barren Ground	9.65	1.0
TOTAL	937	100

**Segment 12 : Spur road to Caribou 18-08
Length: .95 miles**

Vegetation Type	Area (acres)	% Cover
Clear Water	175.43	15.8
Turbid Water	29.64	2.7
<i>Carex Aquatilis</i>	21.58	1.9
<i>Arctophila Fulva</i>	1.89	0.2
Flooded Tundra LCP	72.87	8.5
Flooded Tundra NP	11.70	1.1
Wet Tundra	30.13	2.7
Sedge Meadow	310.05	27.8
Tussock Tundra	442.31	39.7

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Moss / Lichen	4.00	0.4
Dwarf Shrub	7.77	0.7
Dunes/Dry Sand	2.00	0.2
Sparse Vegetation	0.53	0.0
Other/Barren Ground	3.83	0.3
TOTAL	1,114	100

Segment 13 : Spur road to Caribou 07-16 from Caribou 18-08
Length: .52 miles

Vegetation Type	Area (acres)	% Cover
Clear Water	48.24	5.8
Turbid Water	12.06	1.4
<i>Carex Aquatilis</i>	16.46	2.0
<i>Arctophila Fulva</i>	0.44	0.1
Flooded Tundra LCP	43.48	5.2
Flooded Tundra NP	9.38	1.1
Wet Tundra	24.93	3.0
Sedge Meadow	182.12	21.7
Tussock Tundra	304.67	36.4
Moss / Lichen	30.81	3.7
Dwarf Shrub	36.76	4.4
Dunes/Dry Sand	72.20	8.6
Sparse Vegetation	49.63	5.9
Other/Barren Ground	6.92	0.8
TOTAL	838	100

Segment 14 : Packed snow trail to Caribou 07-16 from Segment 16
Length: 2.38 miles

Vegetation Type	Area (acres)	% Cover
Clear Water	19.57	1.0
Turbid Water	24.91	1.2
<i>Carex Aquatilis</i>	43.04	2.1
<i>Arctophila Fulva</i>	1.11	0.1
Flooded Tundra LCP	125.47	6.2
Flooded Tundra NP	25.63	1.3
Wet Tundra	85.83	4.2
Sedge Meadow	530.13	26.2
Tussock Tundra	751.14	37.2
Moss / Lichen	114.35	5.7
Dwarf Shrub	104.42	5.2
Dunes/Dry Sand	103.21	5.1
Sparse Vegetation	76.04	3.8
Other/Barren Ground	15.11	0.7
TOTAL	2,020	100

Segment 15 : Packed snow trail to the intersection of Segments 7, 8 and 9 from Segment 16
Length: 3.14 miles

Vegetation Type	Area (acres)	% Cover
Clear Water	79.93	3.2
Turbid Water	142.01	5.7

<i>Carex Aquatilis</i>	100.08	4.0
<i>Arctophila Fulva</i>	3.05	0.1
Flooded Tundra LCP	182.30	7.3
Flooded Tundra NP	55.36	2.2
Wet Tundra	157.50	6.3
Sedge Meadow	720.78	28.7
Tussock Tundra	666.45	26.5
Moss / Lichen	130.96	5.2
Dwarf Shrub	179.16	7.1
Dunes/Dry Sand	32.36	1.3
Sparse Vegetation	32.98	1.3
Other/Barren Ground	27.99	1.1
TOTAL	2,511	100

Segment 16 : Packed snow trail from Hunter 1a to the intersection of Segments 14 and 15
Length: 17.97 miles

Vegetation Type	Area (acres)	% Cover
Clear Water	1,104.06	9.2
Turbid Water	636.89	5.3
<i>Carex Aquatilis</i>	591.56	4.9
<i>Arctophila Fulva</i>	26.95	0.2
Flooded Tundra LCP	1,177.63	9.8
Flooded Tundra NP	397.42	3.3
Wet Tundra	992.26	8.3
Sedge Meadow	2,953.20	24.7
Tussock Tundra	3,189.56	26.7
Moss / Lichen	185.59	1.6
Dwarf Shrub	208.29	1.7
Low Shrub	1.33	0.0
Dunes/Dry Sand	131.65	1.1
Sparse Vegetation	181.02	1.5
Other/Barren Ground	171.15	1.4
TOTAL	2,020	100

NOTES:

- 1- A typical 28-foot wide ice road would occupy less than 1 percent of the 1-mile wide corridor described in this table. Typically, water is avoided, as are the taller shrubs.
- 2- Much of the dune/dry sand cover in the NPRA is found along lake beds and stream banks.
- 3- Segment 4 and approximately 3400 feet of Segment 5 were previously examined and granted by the BLM.⁶⁵

Several plant species are considered to be rare or sensitive within the Planning Area.⁶⁶ As used here, this classification can include species with small or declining populations or species for which there is little information or plant survey

⁶⁵ BLM EA: AK-023-03-032. February 2003.

⁶⁶ IAP/EIS. p. III-B-2.

work. One such species (*Pleuropogon sabenei*, an aquatic grass) was reported to occur in the general vicinity of the Caribou 14-12 drill site.⁶⁷ Another (*Mertensia drummondii*, a bluebell) is known to occur on sand dunes along the Meade and Kogosukruk rivers. There are no threatened or endangered plants in the Planning Area.

3.2.2 Fish and Wildlife

Fish typically found in lakes and streams include lake trout, arctic grayling, Alaska blackfish, northern pike, longnose sucker, whitefish spp., burbot, slimy sculpin, arctic lamprey, ninespine stickleback, possibly threespine stickleback, dolly varden, pink and chum salmon. Deep water lakes in the Pik Dunes area (deeper than 20 feet) may support lake trout at the northern limit of their habitat.⁶⁸

The Applicant has proposed water withdrawal and/or ice harvesting from thirty-five lakes not previously permitted. TOTAL will not withdraw free water from any lakes that are less than 7 feet in depth. TOTAL has proposed to mine ice chips from naturally grounded ice on five lakes (Lakes R0309, R0312, R0319, R0326 and R0327) that are less than 7 feet in depth. However, TOTAL did not sample for the presence of fish and fish are assumed present in all lakes.

The proposed project crosses channels and tributaries of Fish Creek, which are important for migrating, spawning and rearing anadromous fish and the Inigok Creek, which may be important for migrating, spawning and rearing anadromous fish. All new stream crossings must be approved by ADNR Office of Habitat Management and Permitting (OHMP). No water will be withdrawn from rivers or streams.

No site-specific baseline studies for bird habitat were undertaken because the project is limited to winter months, when avian populations of

special interest (e.g., eiders, 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 under the Endangered Species Act. Neither species is known to be habitat-limited on the North Slope, has designated critical habitat on the North Slope, or is present during winter.

Wildlife that might be present during winter includes: Arctic fox, red fox, rodents, shrews, weasels, wolverine, over-wintering caribou, and possibly moose and musk ox. Caribou and polar bear are large mammals of special interest. Members of the Teshekpuk Lake Caribou Herd may be present in the project area during the winter. The calving area for this herd generally surrounds Teshekpuk Lake, north of the immediate project area. As early as late March, pregnant female caribou may begin the spring migration from overwintering areas to calving grounds; bulls and other females may remain on winter ranges until June.^{69, 70} Actual timing of spring migration varies from year to year.

During winter, polar bears may be found near the proposed project area, primarily along the coast and down the Colville delta. Pregnant females come to shore in early winter to construct maternity dens. Polar bears commonly travel inland but don't usually go further than 20 or 30 miles. However, in recent years, there have been polar bear sightings up to 100 miles inland. Grizzly bears typically hibernate in dens throughout winter, although occasionally individuals 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.⁷¹ The applicant has consulted with ADF&G and USFWS on the location of sightings and active dens.

⁶⁷ Mapped in North Slope Subarea Contingency Plan (Rare Plant Locations) and identified by Rob Lipkin, Alaska National Heritage Program. Pers. Comm. April 2003.

⁶⁸ Comments by Jack Winters (ADF&G) at the TotalFinaElf NPR-A Exploration Pre-application meeting. April 24, 2003, and during Pers. Comm November 7, 2003

⁶⁹ IAP/EIS. p. III-B-41.

⁷⁰ IAP/EIS. Figure III.B.5.a-1. p. III-B-40.

⁷¹ IAP/EIS. p. III-B-43.

3.3 SOCIOECONOMIC RESOURCES

Related socioeconomic resources are described in the IAP/EIS and in previous BLM assessments from which this EA is tiered and which are incorporated by reference.^{72, 73, 74, 75} National security, land use, subsistence, cultural and historical resources; scenic resources and recreation, and wilderness are described below.

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. The proposed drilling sites are located near a region considered to have high oil potential.⁷⁶ Federal lands in these areas have been determined suitable for oil and gas activities, such as those proposed.⁷⁷

The economies of the State and the NSB are heavily dependent on oil and gas revenues. Sources include lease bonuses and rentals, production royalties, corporate income taxes, NSB property taxes, and employment, as previously described and incorporated by reference.⁷⁸ On a state-wide basis, the petroleum industry generates approximately 20 percent of all private sector payroll and 12 percent of all private sector jobs.

The closest local community is Nuiqsut, although residents of both Nuiqsut and Barrow use the general project area for subsistence.⁷⁹ Nuiqsut has about 400-450 residents, with a substantial subsistence economy, supplemented by employment in local construction and nearby energy production jobs. Barrow, a community of about 4,500 is a regional center and the seat of local government, also supporting a subsistence economy. Primary subsistence resources used by both communities include caribou moose, birds, and fish.

The Applicant has located project elements to avoid impacting subsistence activities, cultural resources, and historic/prehistoric sites. TOTAL and 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 investigation by professional archaeologists and coordination with the BLM and NSB have identified archaeological sites in the area, but the proposed facility/access locations appear to be sufficiently offset to avoid impacts.

The project area has little visual variety, contrast and harmony.⁸⁰ The area is not associated with a designated Wilderness Area or a designated Wilderness Study Area. The proposed project crosses channels and tributaries of Fish Creek, which are important for migrating, spawning and rearing anadromous fish and the Inigok Creek, which may be important for migrating, spawning and rearing anadromous fish. In addition, both Inigok and Fish Creeks were considered for eligibility as a Wild and Scenic River, but had no outstandingly remarkable values and was determined to be not eligible.⁸¹

The project area is flat, wet, and remote, with only a few private cabins and former drill sites. There are no known commercial recreation businesses and no developed commercial or public recreation facilities. There is a limited opportunity for primitive recreation; however, the expense and demands of travel to the area result in very little recreational use. Extremely limited to no winter recreational use by other than local residents is documented or expected, due to harsh weather, limited daylight, and easier access to more scenic areas. Cabins are sometimes accessed by snowmobile. For the most part, however, cabins, campsites, and lakes are largely inaccessible until late summer when wheeled vehicles, boats, and light aircraft are used for access. Inland waterbodies also tend to be shallow and isolated, used for access. Inland waterbodies also tend to be shallow and isolated, which is not conducive to recreational boating.

⁷² IAP/EIS. pp. III-C-1 through III-C-61.

⁷³ EA: AK-020-00-011. pp. III-5 to III-7

⁷⁴ EA: AK-023-01-003. pp. III-6 to III-7.

⁷⁵ EA: AK-023-02-005. pp. III-5 through III-8.

⁷⁶ IAP/EIS. Figure III.A.1.a(3)-11. p. III-A-29.

⁷⁷ IAP/EIS ROD. 1998.

⁷⁸ EA: AK-023-02-005, pp. III-6 and III-7.

⁷⁹ IAP/EIS. Figure III.C.3-1. p. III-C-8.

⁸⁰ IAP/EIS. p. III-C-55.

⁸¹ IAP/EIS. Table III.C.6-1. p III-C-53

Figure 3 **North Slope Oil and Gas
Fields**

4 ENVIRONMENTAL IMPACTS

The proposed project would be the eighth winter exploration drilling program under the 1998 IAP/EIS and ROD issued by the Secretary of the Interior. Six of these have been authorized to date. The BLM determination on the seventh program is pending.

All authorized winter exploration drilling programs have used similar technologies and equipment operating in similar habitats. All were approved and monitored on the basis of full implementation of all relevant stipulations contained in the 1998 ROD as well as state and local permits and compliance with the enforceable standards of the approved NSB Coastal Management Program (CMP). Table 7 summarizes and compares exploration programs on federal land within the NPR-A since 1999.

To date, authorizations to conduct winter exploration for oil and gas resources in the NPR-A Northeast Planning Area have resulted in no long-term significant impacts to the environment or restricted access to or use of subsistence resources. The 79 stipulations in the ROD provide for environmental protection within the Northeast Planning Area.

The ROD found that requested exceptions to stipulations could be granted under a set of strict conditions. This option allows the AO to consider technical and economic feasibility and potential environmental advantages of alternatives, as long as the alternatives fully satisfy objectives of the stipulation. In making an exception, the AO shall consult with appropriate regulatory and resource agencies.⁸² The proposed exploration program:

- Incorporates all relevant decisions made in the IAP/EIS and ROD.
- Comprises the general scope of exploration activities evaluated in the IAP/EIS.

4.1 ASSUMPTIONS

Assumptions of this EA have been considered and discussed in Section IV.B of EA: AK-023-01-003, which is incorporated by reference.

Assumption 1: When applied to the proposed action, management decisions and stipulations of the 1998 ROD provide significant protections to non-oil and gas surface resources and human uses in the NPR-A.

Assumption 2: Of the 16 designated LUEAs and Special Areas, only portions of four (Teshekpuk Lake Special Use Area, Teshekpuk Lake Watershed LUEA, Fish Habitat LUEA and Pik Dunes LUEA) are directly or indirectly involved in the proposed action, and only to a limited extent. Approved technologies and permit stipulations avoid significant adverse impacts.

Assumption 3: The proposed action has no significant potential to adversely impact 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 8 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, including six recent exploration programs in the Northeast Planning Area. This EA is tiered to the 1998 IAP/EIS, portions of the 2003 Northwest Planning Area Draft IAP/EIS, and previous EA’s that focus on issues and potential impacts related to the proposed project.

4.3.1 Project-Specific Impacts

This analysis is based on 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 the following text. Stipulations that eliminate, reduce, or otherwise mitigate related impacts are cited in each analysis. Where applicable, the analyses tier to and incorporate by reference related NEPA documents available through the BLM Northern Field Office in Fairbanks, Alaska.

⁸² 1998 ROD, p 7.

Table 7. 1999-2003 Exploration Activity on Federal Land in the NPR-A

Total for 4 Exploration Seasons		Evaluated/Authorized Activity	Actual Activity
Ice drill pads	number	45/13	13
Ice storage pad (over-summer)	number	2/2	1
Ice road (in NPR-A) ^a	miles	284/284	145
Packed trail ROW in NPR-A ^b	miles	410/410	372
Wells	maximum number	117/14	14
Ice airstrip	number	10/10	4
Water supply lakes ^{c, d, e}	number	240/240	71
Water use ^f	MG	1,655/1,655	245

Values estimated for comparative purposes (except number of pads and wells)

a – Maximum authorized in any one year of the total program proposed

b – Includes trail for construction of Puviaq ice storage pad in 2002 and pre-approved for Total E&P in 2003

c – Lakes on federally-owned land within NPR-A.

d – Includes lakes authorized for ice aggregate removal.

e – Includes, but does not duplicate, lakes authorized for more than one user

f – Does not include separate volume for ice aggregate withdrawal.

Table 8. Critical Elements of Environmental Assessment

Critical Element	May Be Affected	Can Be Mitigated
1. Air Quality	Yes	Yes
2. Areas of Critical Environmental Concern	None	NA
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 Concerns	Yes	Yes
8. Threatened or Endangered Species	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	No	NA
Other Important Elements		
Adverse Energy Impact	No	NA
Wildlife	Yes	Yes
Fisheries	Yes	Yes
Local Land Use and Subsistence	Yes	Yes

NA – Not applicable to the proposed action.

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

Project-specific issues discussed in this section 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
- Local Land Use and Subsistence
- Scenery/Wilderness/Primitive Recreation Opportunities
- Environmental Justice
- Adverse Energy Impacts

Air Quality

Related Stipulations: Managed under state and federal regulations

Discussion Incorporated by Reference: The 1998 ROD has no specific stipulations relating to air quality, which is regulated by the State and EPA. ADEC is responsible for enforcing state and national regulations controlling air quality statewide, including the NPR-A. It is expected that any emissions generated by the proposed action under an approved ADEC air quality permit will not cause a significant deterioration of air quality. Previous discussion on air quality issues and potential impacts was presented in Section IV.D.1 of EA: 023-01-003 (p. IV-15 and IV-16).

Analysis of Proposed Action: TOTAL will operate under a statewide "Permits by Rule", which limit conditions and duration of drilling, and if needed, address emissions from certain fuel storage tanks. A surveillance program is not required when the sulfur content of fuel combusted is <0.19 percent. If needed, an exclusion zone to restrict access of unauthorized personnel has been allowed by both ADEC and the EPA in other North Slope exploration permits, and accepted by BLM for previous exploration drilling and well testing in the NPR-

A. Additionally, the NPR-A is "reserved" from public lands and public access is already controlled.

Proposed drilling operations are temporary and restricted to the winter season when plants are dormant and snow-covered and surface water is frozen. There are no recreation facilities or documented winter recreation activities that would attract people to the area. Impacts to wildlife in an exclusion zone would be short-term, temporary, and of no expected consequence. Impacts to visibility, if any, are also expected to be minor and temporary. No long-term or significant effects on air quality are expected.

Hazardous Materials, and Solid Wastes and Spills

Related Stipulations: 1-12, 14-17, 28, 58, 63, 65, 70, 71

Discussion Incorporated by Reference: The extent of environmental impacts from accidental release would depend on the type of materials spilled; size and location of the spill; underlying substrate; effectiveness of response; and site rehabilitation success. The tundra and all waterbody surfaces should be frozen throughout the proposed action, with spills typically restricted to the ice or snow surface, where they can be effectively cleaned up. Potential impacts from spills are discussed in the IAP/EIS (p. IV.A.33 through IV.A.41) and in Sections IV.D.1 of EA: AK-020-00-011 and EA: AK-023-01-003, all of which are incorporated herein by reference.

Analysis of Proposed Action: The proposed action is very similar to previously approved exploration programs in the NPR-A. Stipulations 1- 9 require the applicant to have a Waste Management Plan and Hazardous Materials Emergency Contingency Plan, as well as specialized training and procedures for waste management. TOTAL submitted an ODPCP to ADEC on August 18, 2003 and the plan is in the final stages of review; SPCC Plans are required for well drilling and testing contractors, under EPA regulations. The approved ODPCP and SPCC Plans will be accepted by BLM as meeting the lease stipulation for spill planning. TOTAL

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. All fuel staging locations will use secondary containment. Secondary containment will be maintained by removing snow and ice accumulation. Mobile generators and light plants will also have secondary containment. Rolling equipment will utilize portable drip pans while equipment is parked.

No fuels will be stored on waterbodies, and on-site storage will have secondary containment. Fuel-powered equipment will have appropriate environmental protection in place (e.g., secondary containment, hard-mounted drip pans). Wastes will be transported out of the NPR-A for disposal at permitted facilities. Ice road monitors are assigned to keep ice roads and pads clean. Spills will be promptly reported and cleaned up. There were no major spill-related issues during the 2002-2003 drilling season reported in the CPAI Subsistence Report notes.⁸³

Both drill sites and associated activities are within or adjacent to areas with sensitive resources such as the Pik Dunes LUEA and the Fish Habitat LUEA. Protective environmental stipulations require exploratory drilling to be done in the winter when waterbodies are frozen and the ground is snow-covered, substantially limiting the potential for impacts from a spill. Spilled product thawing through the ice/snow and or cleanup procedures could also result in impacts to tundra, water quality or aquatic habitat. Tundra impacts might include soil contamination, vegetation damage, wildlife injury, or surface disturbance (e.g., traffic, excavation). Lake impacts would likely persist longer than stream impacts.

The greatest potential threat to Fish Habitat and Pik Dunes LUEAs would be from a blowout that continued into breakup. The ODPCP limits the drilling period to better ensure that spill cleanup activities are largely confined to winter conditions. Based on North Slope records and

current drilling technology, a blowout is considered a very low probability event.

Cultural and Paleontological Resources

Related Stipulations: 1, 24h-j, 26, 27, 62d, 62e, 62h, 63-65, 67, 74

Discussion Incorporated by Reference:

Considerable discussion on this subject is included in the IAP/EIS (Section IV.G). The IAP/EIS concluded that during winter when activities took place and the ground was frozen and there were no surface disturbing activities and subsurface cultural resources were "usually safe from disturbance." However, there is "somewhat greater risk" of damage to cultural resources on the surface if there is inadequate snow cover. Paleontological resources, usually protected by deep burial in permafrost, would also be protected by adequate snow cover.

Analysis of Proposed Action: Cultural surveys (air and ground) at proposed drill sites, and along ice road and snow trail corridors were completed by a qualified professional archaeologist, who also notes paleontological resources. Project siting avoids known archaeological resources. Findings have been submitted to the SHPO, NSB, and BLM, but based on their sensitivity, no specific identification of cultural/ historic resources is included in this EA.

Results of cultural resources surveys and the proposed use of ice construction and low surface impact ATVs support the conclusion that undiscovered cultural (and paleontological) resources have been provided adequate protection, and that no adverse impacts are expected from the proposed action. The proposed action fully complies with requirements of the NHPA of 1966.

Disturbance to Floodplains, Wetlands, Riparian Zones, and Vegetation

Related Stipulations: 1, 3-5, 7-12, 14-16, 18-22, 24c-n, 27, 28, 62a-e, h, 63, 65, 67, 70

Discussion Incorporated by Reference: The 1998 IAP/EIS describes reasonably-expected

⁸³ May 2003 Subsistence Report, 2003-2003 NPR-A Exploration, ConocoPhillips Alaska, Inc.

ground disturbance from overland winter travel, ice roads, ice pads, and well cellars as minor and often temporary, and this discussion is incorporated by reference.⁸⁴ The 2003 Northwest Planning Area IAP/EIS also includes similar discussion of potential ground disturbance from exploration activities, including multiple year ice pads, incorporating results and observations from the past four years of exploration in the Northeast Planning Area.⁸⁵

The 1998 ROD prohibits construction of permanent facilities, material excavation, and use of gravel for oil and gas exploration. Compliance with EO 11988 and EO 11990 are discussed in EA: AK-020-00-011 (pp. V-14 through IV-16), which is incorporated herein by reference and summarized below.

Analysis of Proposed Action: The only direct surface-disturbing activity expected is *de minimus* acreage lost to the construction of well cellars. Ice roads and ice pads may occupy up to 390.4 acres of federal land (250.4 acres for drill sites and ice roads with up to an additional 8 acres for an ice staging pad and 132 acres for a packed snow trail over the five year project term). Active operations will occur only during winter, when soils, wetlands, and riparian habitat are frozen. The AO will determine when there is adequate snow cover and frost penetration for winter activity. In general, ice pads and roads create few lasting impacts to tundra vegetation while minimizing potential impacts from exploration activity and spills. There could be some accidental crushing and scraping of the tundra surface during ice road/pad construction. Vegetation may be matted, bent, broken or removed. Compaction of the surface can alter drainage and thermal regime, depending on location and extent.

Unlike permanent roads, single season ice structures do not physically change the ground surface, although there may be minor, temporary alteration of surface vegetation (e.g., greening or browning) with significant recovery expected within a few years. There may also be differences

in the mean active layer depth under ice roads constructed under different conditions. Due to the importance of ice construction to North Slope exploration, both agencies and operators are studying impacts of winter tundra travel.

The existing standards have been in place for decades to protect surface vegetation and minimize soil compression caused by exploration traffic. Improvements in low ground pressure vehicles (e.g., Rolligons) and improved ice construction methods (e.g., pre-packing) warrant a reconsideration of associated tundra impacts. Although only a few years of observations and data have been collected, several recent studies are summarized below for consideration in this impact analysis.

Last winter, CPAI demonstrated the protective effectiveness of using load-bearing capacity of the frozen tundra as the standard for ice road construction (vs. depth of frost), measured with a plate indentation test and cone penetrometer. Based on this method, a test section of ice road was constructed approximately one month before general winter tundra travel opened on State land. Neither ADNR nor CPAI found any major differences in any variables between the demonstration ice road and a comparable segment of standard ice road. The few differences noted were slightly deeper active layer under the demonstration road in moist sedge dwarf shrub tundra, and a higher level of tussock disturbance under the demonstration ice road in tussock tundra.^{86,87} The ecological significance of these findings will be the subject of future studies.

The ADNR, U.S. Department of Energy (DOE), and various other participants (e.g., U.S. Army Corps of Engineers Cold Regions Research & Engineering Laboratory, Yale University, and local operators) are continuing efforts to develop scientifically-based methods for determining conditions under which the tundra would be sufficiently resistant to disturbance from ice road construction. This team is supporting additional studies and modeling to better understand how contributing factors (e.g., snow depth and

⁸⁴ IAP/EIS. pp. IV-G-16 through 18.

⁸⁵ Northwest NPR-A Final IAP/EIS. pp. IV-47 through IV-53.

⁸⁶ L. Byrne and Gary Schultz, ADNR. 2003 Tundra Access Symposium.

⁸⁷ M. Stahl, CPAI. 2003 Tundra Access Symposium.

density, ground hardness, vegetation and soil types) interact in protecting against tundra impacts. Results are expected in late 2004.⁸⁸

Other studies by ADNR include tundra travel tests of different vehicle classes, beginning in November 2003. ADNR is also encouraging North Slope operators to pre-pack ice road routes prior to the general opening of tundra travel. For the past few years, ADNR has allowed companies to use summer approved ATVs to remove the insulating snow layer along the route (e.g., packing, watering). Reducing insulation promotes the drive-down of frost, resulting in earlier compliance with standard requirements (i.e., 12-inches of ground frost), and earlier authorization for ice road construction.⁸⁹

TOTAL has proposed a new more direct packed snow trail to the northern exploratory locations. The previously permitted southern route provides the shortest route between Hunter and Inigok, and also the most southerly exploratory location, Caribou 35-05. The new packed trail may affect up to 132 acres of federal land. Impact to wetlands and riparian vegetation, and underlying soils due to travel via packed trail will vary according to the type and number of vehicle trips and vehicle loading, as well as soil type, ground cover, and snow conditions. Where snow cover is too thin, variable disturbance to tundra vegetation and the soil thermal regime may occur. Improved trail packing techniques and use of low ground pressure vehicles have resulted in fewer impacts; however there still may be site-specific impacts along multiple trails per season. Impacts will vary based on vegetation type, vehicle type and loading, and volume and timing of traffic.

As part of a long-term study on the surface effects, BLM has established new study plots in each of the past three years. Similar investigations have been sponsored by other agencies and operators. Although only a few years of observations and data have been collected, two recent studies are summarized below for consideration in this impact analysis.

In early 2002, overland trails were used to transport drilling equipment for two programs, each involving hundreds of vehicle trips. ABR, Inc. looked at the effects of Rolligons hauling drilling equipment the full 131 miles from Kuparuk to the Puviaq drill site (January - April 2002). Over 400 passes were made with up to 20 vehicles in a group, typically traveling by single lane. Disturbance was ranked as negligible to low on 77 percent of the trail. The high level disturbance (5 percent) occurred in low willow shrub and dwarf shrub tundra, and very high level disturbances (3 percent) occurred only in dwarf shrub tundra.

It was speculated that dwarf shrub tundra along the route may be sensitive to disturbance because: (1) the canopy tends to be vertical, (2) the predominantly woody vegetation tends to be brittle at low temperatures, (3) the association tends to occur on wind swept ridges (inactive dunes) where snow cover is presumably thin, and (4) underlying soils tend to be well drained with a thin surface organic horizon, making them highly susceptible to scuffing. Track depression was also the highest in dwarf shrub tundra, presumably because the Rolligon wheels generate more torque on steeper slopes, there was less snow cover, and there was less ice bonding in the drier soils.⁹⁰

A study of tundra disturbance by winter seismic work in ANWR found similar levels of disturbance in similar types of vegetation. After eight to nine years of recovery, disturbance was estimated at none to low on 95 percent, medium on 4 percent, and high on 1 percent. Taking into consideration the differences in the two studies (e.g., level of traffic, topography), it is not unreasonable to suggest that newer travel practices (e.g., protective stipulations, use of Rolligons) result in less tundra impact, and that most disturbed tundra areas are expected to recover within ten years, although the reestablished community composition may be different.

⁸⁸ DOE News: www.fossil.energy.gov/news/techlines/03/tl_arcticundramodel.html

⁸⁹ Pers. Comm. L. Lynch, ADNR. September 15, 2003.

⁹⁰ Assessment of Impacts Associated with a Rolligon Trail in Northeastern National Petroleum Reserve-Alaska, 2002. Prepared by ABR, Inc., Fairbanks, AK.

Some tundra travel impacts are expected to occur despite existing stipulations, and further mitigation is not presently practicable. The yearly repetition of overland moves or ice road construction on the same trails could worsen the impacts. The current stipulation (24i) matches the statewide requirement that has been in place for over 40 years. Based on observation of tundra impacts over the past few decades and recent demonstration data, less than 12 inches frost/6 inches snow cover may provide sufficient protection for tundra travel and ice road/pad construction, under certain conditions (e.g., Rolligon use). Increased understanding may lead to more flexibility, without increased risk of surface impact.^{91, 92}

In an ongoing effort to reduce impacts of tundra travel, workshops have been held annually to review related technology and methods with agency personnel, technical experts, NSB residents, and project personnel. As a result, tundra travel standards and practices are under reconsideration. Recently, the DOE awarded the State a grant to develop a scientifically-based method for determining the type and intensity of disturbance created by winter tundra travel.

Travel across floodplains also involves stream crossings; although the proposed project does not require any major ice bridges. Most proposed stream crossing sites are expected to be frozen to the bottom. There is expected to be minimal impact to the streambed, stream banks, or protective shoreline vegetation along the ice road route. Impacts may be greater along crossing routes where the banks are sandy and well-drained (susceptible to scuffing and gouging) and/or where stream bank shrubs susceptible to breakage (e.g., willows) occur.

Ground disturbance along trails in sandy soils can damage or destroy vegetation, depending on the degree of disturbance. The bluebell *Mertensia drummondii* is known to occur on sand dune habitat along the Kogosukruk River (Northeast Planning Area). If present, these and other plants

found in sandy substrates could be impacted. Snow trail routes are selected to minimize topographic relief. Accordingly, impacts to vegetation are expected to be localized and minor.

Mitigation measures incorporated in the proposed action should protect soils, wetlands, and riparian zones from significant impacts. Since most of the NPR-A coastal plain is classified as wetlands; there is no practicable upland alternative. All facilities will be short-term and temporary. The proposed action complies with recommendations of the 1999 BLM Raptor Workshop that wetlands and riparian habitats important to raptors not be modified in a manner that could “detrimentally and significantly” reduce prey availability.⁹³ The proposed action will incorporate all practicable steps to minimize impacts on wetlands and floodplains, complying with EOs 11988 and 11990.

Pik Dunes LUEA. Two potential drill sites are within the southern portion of the Pik Dunes LUEA. Caribou 23-14 is on the southern boundary of the LUEA and Caribou 14-12 is northwest of a lake in the southeastern portion of the LUEA. Access to these drill sites will require approximately 2.5 miles of ice road within the Pik Dunes LUEA. Stipulation 24 will protect the vegetation and dune structure, and ice road/pad construction will avoid to the extent feasible, steeper unstable dune areas. These temporary facilities are on older, stabilized/vegetated dunes, and should not impact the unique features of the active, exposed dune/lake complex.

Stipulation 45 is designed to avoid or minimize impacts to the Pik Dunes LUEA during facility design and construction (development as opposed to exploratory drilling). In a letter dated April 2, 2003 to TOTAL, the State Director of the Department of Interior indicated that “Exploration Activities, including drilling within the Pik Dunes LUEA will not be subject to more restrictive stipulations than required outside of the LUEA, although BLM may impose site specific conditions such as rare plant surveys or

⁹¹ Petroleum News. *DNR Receives Funds For Tundra Travel Research*. April 13, 2003. p. 12

⁹² CRREL Report 91-21. *Construction Guidelines for Oil and Gas Exploration in Northern Alaska*. November 1991. pp. 26-27.

⁹³ USDOJ Proceedings. February 2-3, 1999. pp. 16 - 17.

minimal buffers as a result of additional National Environmental Policy Act (NEPA) analysis".⁹⁴

Stipulation 20 is particularly important for protecting the water resources of the area and aquatic habitat for over-wintering fish. Lakes deeper than 20 feet in this area may support lake trout at the northern limit of their habitat.⁹⁵ New ice construction methods (e.g., aggregate "chips" shaved from non fish-bearing lakes and grounded portions of fish-bearing lakes) to decrease water demands, construction time and impact on fisheries will be used. All water intake hoses will have screens at the intake points to prevent entrapment of fish, regardless of whether the lake has been identified as fish-bearing.

Threatened and Endangered Species, Polar Bears, and Other Sensitive Wildlife

Related Stipulations: 2, 3, 24a, 51, 57, 76, 77

Discussion Incorporated by Reference:

Exploration drilling activity takes place in winter, when spectacled and Steller's eiders, the only two local species listed under the ESA, are absent. Consequently, there will be no impacts to these species from disturbance. The USFWS has issued a "No-Effect" determination for exploration drilling projects in NPR-A during the past four winters for both listed species. Related discussion is presented in the IAP/EIS (pp. III-B-48 to III-B-53), and Section III.B and Section IV.D.1 of EA: AK-020-00-011 and EA: AK 023-01-003, incorporated by reference.

The polar bear is not listed under the ESA, but the MMPA requires special management to avoid unnecessary impacts. Grizzly bears have been sighted in the vicinity of the proposed project in the spring, after most exploration activities have concluded. Related discussion is in the IAP/EIS (pp. III-B-46 and pp. IV-G-37 and IV-G-38) and EA: AK-023-01-001 (p. IV-19), incorporated by reference.

Analysis of Proposed Action: No "critical habitat" has been designated for spectacled or Steller's eiders in the project area and no eider habitat is expected to be adversely affected. Consultation with the USFWS under Section 7 of the ESA was completed for the two listed species of eiders. Additionally, wellheads will be protected from providing nesting, denning, or shelter sites for ravens, raptors and foxes, as described in the IAP/EIS. (Appendix C, Threatened and Endangered Species Consultation).

TOTAL has submitted a polar bear avoidance and encounter plan to USFWS. This plan will minimize the potential for adverse impacts on any polar bears that might be encountered. However, potential for minor impacts to individual bears or maternal denning is still present, especially since den sites, if any, will likely not be known in advance. There is no known grizzly bear denning habitat associated with the proposed project; however the potential for impacts is still present since all den sites are not known. Individual bears may also be present with the potential for disturbance by project activities.

Impacts to wildlife include loss or damage of habitat and altered patterns of habitat use (e.g., noise and traffic disturbance). Since animals are mobile and operations are seasonal, no lasting adverse impacts to bear, caribou moose, muskoxen, or other furbearers in the area are expected. 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).

There is no known documentation that indicates ice roads or overland trails have shifted the general abundance or distribution of caribou, small mammals, birds, other wildlife or their habitats. Some local residents have reported displacement of caribou and furbearers from the vicinity of seismic operations. The limited presence of birds and other wildlife in the winter should reduce the risk of impacts to low levels. The Applicant will have plans in place to minimize harassment, displacement, attraction or injury of wildlife. Activities are far enough inland to avoid risk to the marine environment

⁹⁴ U.S. DOI Letter dated April 2, 2003 to TotalFinaElf E&P USA, Inc. from State Director Henri R. Bisson.

⁹⁵ Comments by Jack. Winters (ADF&G) at the TotalFinaElf NPR-A Exploration Pre-application meeting. April 24, 2003, and during Pers. Comm November 7, 2003

and, hence, no impact to bowhead whales, other marine mammals, seabirds, or their habitats is expected.

Water Resources and Potential Impacts to Water Quality, Fish, and Waterfowl

Related Stipulations: 1, 3-12, 14-22, 24c-e, 24h-j, 24m-n, 26-28, 59-65, 67, 70, 71

Discussion Incorporated by Reference:

Potential impacts to fish, waterfowl, and water quality were previously described and evaluated in EA: AK-020-00-011 (pp. IV-4 through IV-7) and EA: AK-23-01-003 (p. IV-5 through IV-8), which are incorporated by reference.

Previous evaluations of methods used by the applicant for estimating water availability and previous monitoring of water withdrawals have produced no evidence of adverse effects to fish due to water quantity or water quality.⁹⁶ Lake recharge studies and anecdotal information from several North Slope residents indicate that spring recharge has been sufficient to replace volumes withdrawn during the rest of the year. CPAI's and BPXA's Subsistence reports also indicate that waterbodies have been protected from impacts of surface use and spills.

Analysis of Proposed Action: Lake water quality data is within the expected range of North Slope waters. It is noted though, that even at a relatively light load of chloride (e.g., 25 mg/L), the salts could become quite concentrated in free water under the ice. No lake had specific conductance or chloride concentrations expected to affect tundra vegetation or creek biota when used for ice roads and bridges that melt in the spring. The high degree of dilution at breakup should mitigate any potential effects of salinity on local biota associated with the ice road.

TOTAL identified a project need of an estimated 170.2 MG of water for the exploration program. Using the Stipulation 20 methods for determining available water, the thirty-five freshwater lakes have an estimated 22,399 MG of free water and ice aggregate available (3,359.8 MG of which is free water). Applications have been submitted

to ADNR Water Resources Section. For previous exploration programs in NPR-A, ADNR (in consultation with the OHMP) approved water use of 15 percent under the ice volume below seven feet on all fish bearing lakes, with ice aggregate removal restricted to areas of naturally grounded ice. TOTAL has assumed that all lakes are fish-bearing lakes. BLM will accept the State's permit conditions, with the only impact on fish likely to be slightly more stressed habitat conditions during winter on lakes where water is withdrawn.⁹⁷

TOTAL has applied to OHMP for approval of all stream crossing sites. On December 4, 2003, OHMP issued three fish habitat permits for crossings of Inigok Creek and its tributary; seven fish habitat permits for crossing the West Fork Fish Creek; and one fish habitat permit for crossing two unnamed streams interconnecting lakes.⁹⁸

As in previous years, a minimal amount of snow will be cleared from all fish-bearing lakes approved for water use. Snow removal from non-grounded portions of fish-bearing lakes must be approved by BLM and OHMP on a case-by-case basis. Removal or compaction of snow cover can increase the depth of freezing, reducing the quantity and impacting the quality of water under the ice. Stipulations 19 and 24e are designed to avoid these potential impacts.

Wastewater will be treated and discharged under NPDES permit or hauled off site for disposal. Fuel and material handling practices should generally protect lakes and streams from potential pollution. Caribou 24-14 and Caribou 26-11 are within 0.5 miles of Inigok Creek, and there is limited potential for a major release at these drill sites to reach Inigok Creek. However, there is no direct waterbody connection between either drill site and the river, and a spill would occur when the ground is snow-covered and frozen. These conditions facilitate containment and cleanup and should prevent any appreciable amount from reaching the river. The approved

⁹⁶ NPR-A Lake Recharge Study. 2001.

⁹⁷ If ADNR issues an authorization that is inconsistent with Stipulation 20, an exception to the stipulation may be considered.

⁹⁸ Fish Habitat Permits FH03-III-0349 to FH03-III-0356 dated December 4, 2003

ODPCP, including the mandated “end date” for drilling, will help ensure that required cleanup would occur under winter conditions to the extent practicable.

In summary, expected impacts of water withdrawal to fish or wildlife should be minor, localized, and temporary. There has been no relevant documentation of water withdrawal greater than the authorized amount, failure to recharge, or fish die-off in a lake where authorized withdrawal had occurred.

Fish Habitat LUEAs.

The proposed action includes ice roads/packed snow trails and ice pads within the Fish Habitat LUEA including the deep water lakes and their associated one-quarter mile setbacks. The Ice drill pad for Caribou 18-08 is located within 1000 feet of a lake with a depth of 12.6 feet (R0313). The ice drill pad for Caribou 14-12 also appears to be within one-quarter mile of a lake with a depth of 11.4 feet (R0316).

The Fish Habitat LUEA provides important spawning, migration, rearing, and overwintering habitat for fish.⁹⁹ Use of proven technology and procedures for water withdrawal and stream crossings by ice road and hardened overland trail, with relevant stipulations to protect fish and fish habitat, are similar to those evaluated in previous EAs, which are incorporated herein by reference. Stipulation 39, which addresses facility design, prohibits construction of permanent oil and gas facilities (including permanent roads, airstrips and pipelines) within one-quarter mile of any fish-bearing lake within the deep lake zone (Stipulation 39g) to protect fish and raptor habitat, cultural and paleontological resources, and subsistence and other resource values.

The fish-bearing status of all thirty-five lakes proposed for water withdrawal is unknown, so it is assumed that fish are present. Lakes deeper than 15 feet in this area likely contain lake trout. Eleven of the thirty-five lakes proposed for water withdrawal are deeper than 15 feet. OHMP has requested that TOTAL maximize use of lakes less

than 15 feet deep, to the extent feasible, for their water and ice aggregate requirements to minimize potential adverse effects to lake trout in the area.¹⁰⁰

Site inspections, an open dialogue with local residents and subsistence users and oversight by TOTAL’s Subsistence Representative will help identify and mitigate potential impacts to Fish Habitat LUEAs. Fuel and materials handling practices, along with spill response and containment measures will also protect LUEAs from potential pollution. The only expected impacts to fish habitat will be possible short-term, temporary habitat stress from water withdrawal.

Teshekpuk Lake Special Area/Teshekpuk Lake Watershed LUEA. The proposed drilling location Caribou 35-14 is within the Teshekpuk Lake Watershed LUEA. The lake to the north of Caribou 35-14 is 36.4 feet deep. The numerous deep lakes in this LUEA provide overwintering habitat for fish.

A finding on potential impacts to Essential Fish Habitat (EFH) has been made for the proposed project. Full text of the BLM finding, which concludes that proposed actions “*may affect, not likely to adversely affect,*” [EFH] is included in **Appendix B**. Additionally, no adverse impacts to waterfowl habitat have been reported as a result of building ice roads over the past several decades, including several years of ice road and pad construction in the Colville River area and the Northeast NPR-A. The proposed action is also consistent with recommendations of the 1999 BLM Raptor Workshop that lakes and ponds important to raptors not be modified in a manner that could “*detrimentally and significantly*” reduce prey availability.¹⁰¹

Local Land Use and Subsistence

⁹⁹ EA: AK-020-00-011, EA: AK -023-01-003, and EA: AK – 023-02-005. Section IV.D.1.

¹⁰⁰ Comments dated 12/2/2003 by Robert F. McLean, OHMP on temporary water use application TWUP A2003-61 and A2003-62 submitted by TOTAL

¹⁰¹ USDOI BLM. Proceedings of the National Petroleum Reserve-Alaska Raptor Disturbance and Mitigation Workshop (BLM/AK/ST-00/013+6760+020). February 2-3, 1999. pp. 15 and 17.

Related Stipulations: 1-26, 33, 35-37, 39,46, 47, 49-57, 59-64, 67,73, 74

Discussion Incorporated by Reference: Alaska is unique in that local land uses, including subsistence, are strongly tied to cultural values. These values have been discussed in previous environmental impact analyses and their associated FONSI, including the ANILCA Section 810 findings¹⁰². These evaluations address actions considered comparable to the proposed action, and related discussions are incorporated by reference.

Analysis of Proposed Action: The proposed project involves winter activity in an area with high subsistence value. The importance of subsistence has been a general topic at all meetings with local residents. The NPR-A SAP typically meets quarterly and advises applicants and BLM on potential conflicts between proposed development actions and subsistence activities. Additionally, a Subsistence Protection Plan is required for each exploration program (Stipulation 59).

In previous years, the required biannual reports have indicated nothing more than minor displacement of caribou one winter and essentially no direct impacts to subsistence the other three winters of exploration activity.¹⁰³ The proposed project avoids known Native Allotments, long-term cabin and camp sites, and TLUS.

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

¹⁰² See documents cited in footnotes 4-21. Section IV.D of documents 4, 6, 8, 10, and 12; p. 4-7 of document 16.

¹⁰³ May Subsistence Report, NPR-A Exploration, ConocoPhillips Alaska, Inc. May 2000, 2001, 2002, and 2003.

Scenery/Wilderness/Primitive Recreation Opportunities

Related Stipulations: 1-12, 14-22, 24, 26-28, 51, 56, 57, 59-65, 67, 70, 72, 73, 75, 76

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. BLM has no record of commercial recreation services using the general vicinity during the winter. No existing or planned public recreation facilities are associated with the project area. A discussion on local recreation values was included in Section IV.D.1 of EA: AK-023-01-003, and its resulting FONSI, which are incorporated by reference.

Analysis of Proposed Action: The proposed project does not provide long-term access, which could impact naturalness, wilderness values/attributes, or scenic resources. Some localized noise, air pollution, and visibility of industrial activity will adversely affect values of solitude, quietude, and the natural appearance of the winter landscape, but these effects are short-term and are not expected to degrade primitive winter or summer recreation to any notable degree. The tundra may appear different (e.g., greener, browner) under melted ice road/pads, especially when viewed from the air. This effect may persist for multiple seasons, but is not permanent and seems to have no functional effect on land use.

Environmental Justice

Related Stipulations: Governed by EO 12898 (See discussion on Subsistence.).

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 ownerships are directly associated with the proposed action.

No disproportionately high and adverse human health or environmental effects on minority or low-income populations are expected, as

discussed in the IAP/EIS¹⁰⁴ and in Section IV.D.1 of EA: AK-023-01-003, incorporated by reference. Numerous stipulations and other protective measures will help mitigate impacts on these groups of people in the project area.

Additionally, employment opportunities are available (but not restricted) to residents of Nuiqsut and Barrow because they are most conveniently located to the project area.

Analysis of Proposed Action: Subsistence is an important source of food for 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 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.

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 national taxes and royalties. TOTAL has policies and procedures in place for hiring and training local residents. Additionally, \$28 million from the first lease sale was disbursed to the NSB to assist affected communities in dealing with potentially adverse impacts in the NPR-A. Another \$33 million from the 2002 resale was also made available for community grants. No significant restriction on the continuation of subsistence in the project area is expected. In general, the proposed action is expected to have a short-term, largely beneficial effect on the local economy.

Adverse Energy Impacts

Under direction from the National Energy Office, BLM is required to determine if an official decision will have an adverse energy impact (i.e., impact on energy development, production, supply and/or distribution). There would only

be an adverse energy impact if the proposed action is denied or substantially reduced. If the proposed action is approved, there will be no adverse energy impact.

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, with a permanent subsurface marker.
- Temporary increase in industrial activity affecting wintertime local tranquility and cultural solitude.
- Temporary minor impacts to tundra from the packed snow trail and ice roads/pads. 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 drill rig, camp, traffic, etc.
- Possible minor, temporary disturbance with possible displacement of some wildlife in the area while exploration activities are underway.
- Possible minor, temporary impact on subsistence resources and activities if caribou or other animal movements shift away from places where winter activity occurs or from associated summer activity, especially helicopter traffic.
- Possible minor, temporary loss of a few ground-dwelling animals (e.g., lemmings, voles, shrews and ground squirrels) due to ice road/pad construction and the hardened overland trail. This would be an adverse impact to those individuals lost, but not to any local wildlife population including those that prey on these rodents.
- Temporary restriction of public access to land around drill sites during active drilling activities (i.e., air exclusion zone) to meet air quality requirements.
- Temporary, localized, minor degradation of air quality and possibly water quality

¹⁰⁴ IAP/EIS. Section IV.A.6.a and Appendix D.

(oxygen depletion; wastewater disposal; spills).

Unavoidable adverse effects have been broadly evaluated for those areas considered for leasing, leased, and subsequently explored.^{105, 106} 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.

4.4 POTENTIAL IMPACTS OF POSSIBLE FUTURE PERMANENT FACILITIES

Permanent facilities are expressly prohibited during exploration. In addition to stipulations associated with exploration and other activities, the 1998 ROD contains 20 stipulations that are specific to any future permanent facilities. Development has been proposed at two previously explored sites in the NPR-A, and several operators are investing in further exploration to determine whether a commercial discovery of oil and gas exists on other leases, and whether production of any oil and gas reserves discovered under the proposed action is economically feasible.

Potential impacts of possible future permanent facilities were evaluated in Section IV.G of the IAP/EIS and in Section IV.D.2 of EA: AK-023-01-003, which are incorporated by reference and summarized below.

Potential development scenarios associated with the proposed action are not defined at this time. However, general descriptions, issues, and potential impacts of oil and gas development were considered by the Interior Secretary in determining whether to proceed with lease sales, and where to offer lease sales in the Northeast NPR-A.

The IAP/EIS evaluated the hypothetical discovery and production of two oil fields in the NPR-A south of Teshekpuk Lake. When these discoveries might be developed is only speculation until exploration wells are drilled

and evaluated (p. IV-H-1). Impacts associated with conceptual development of two oil fields are discussed. There is no new information about potential impacts of proposed development beyond those discussed in the IAP/EIS, which is incorporated herein by reference.¹⁰⁷

There is a producing oil field at Alpine, about 50 miles to the east, and a proposal to develop oil and gas discoveries at Spark and Lookout Prospects. These prospects are in the vicinity of the proposed action and likely would be associated with existing infrastructure at the Alpine field.¹⁰⁸ An EIS is underway to identify and evaluate potential impacts of that development project. If a commercially producible discovery is made as a result of the proposed action, subsequent work to develop and produce the oil and gas will also require a separate evaluation and public involvement process under NEPA, based on the specific development plan.

4.5 POTENTIAL CUMULATIVE IMPACTS FROM THE PROPOSED ACTION

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..."

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, activities that are more certain and geographically closer to the proposed action are given greater weight. For purposes of this cumulative impact analysis, potential activities that meet the CEQ definition are:

- Winter geophysical (seismic) operations
- Traditional overland re-supply and winter travel associated with Barrow, Atqasuk, and Nuiqsut.

¹⁰⁵ IAP/EIS. pp. IV-I-1 through IV-I-3. and

¹⁰⁶ Northwest NPR-A Final IAP/EIS. pp. IV-504 through IV-510.

¹⁰⁷ IAP/EIS. pp. IV-G-1 through IV-G-83.

¹⁰⁸ CPAI. Letter to K. Laughlin, DGC. November 18, 2002.

- Other winter exploration in the NPR-A, the Colville Delta area, and the western Foothills.
- Nearby construction and production activities.

Based on the proposed action, focus will be on the following cumulative impacts:

- Wildlife disturbance
- Visual and functional impacts to the tundra
- Conflict with subsistence
- Oil and gas industrial development and associated pollution
- Economic potential for village and regional corporations and the NSB; increase in state and federal revenues

4.5.1 Framework of the Analysis

The cumulative effects of past, present, and reasonably foreseeable oil and gas activities in and around NPR-A, including state and private lands and offshore, were evaluated in Section IV-H of the IAP/EIS, which is incorporated by reference. The framework for this evaluation is based on multiple scenarios of leasing, oil price, exploration, and production activities. The IAP/EIS evaluation was expanded to incorporate more timely, site-specific considerations described in EA: AK-023-03-008 (pp. 4-19 and 4-23), which is incorporated by reference.

Since the IAP/EIS was completed and the ROD issued by the Secretary of the Interior, there have been several changes directly affecting the North Slope, particularly the NPR-A. Changes since the ROD include:

- Fluctuating price of oil and gas
- Lowering U.S. production levels of oil with increasing dependence on foreign oil
- Oil industry realignment, with a commitment by industry to the Governor of Alaska that there will be a continuing investment in exploration and development in Alaska, with corresponding opportunities for employment of Alaska residents
- Increasing opposition and litigation challenging offshore exploration and development

- Development of a National Energy Policy that specifically references the need for continued and expanded leasing and permitting in the NPR-A
- Increased threat to national and international security
- Proposal to develop oil and gas production facilities in the NPR-A

This assessment considers related analyses that were completed after the ROD was signed. BLM has completed the Final EIS associated with federal oil and gas leasing in the Northwest Planning Area of the NPR-A. That effort re-evaluated the effectiveness and applicability of the stipulations that have been applied to leases in the Northeast Planning Area. BLM has also begun an effort to update the Northeast NPR-A decisions; although, this cumulative effects evaluation is based on current requirements of the 1998 IAP/EIS and ROD and existing lease stipulations. Other new considerations include findings reported in the "Cumulative Environmental Effects of Oil and Gas Activities on Alaska's North Slope" (National Research Council [NRC], March 2003).

Reasonably foreseeable activity is considered. For example, in association with the Corps of Engineers, the BLM has initiated a NEPA evaluation of proposed development of several Alpine satellites and possibly a field in the NPR-A (i.e., potential development of the Spark/Lookout discoveries) that could provide a western extension of the infrastructure linked to TAPS.

This cumulative impacts analysis considers the potential effects of activities on State and Native ownerships in the vicinity of NPR-A, including continued development of the adjacent Alpine oil field and continued leasing of nearby state and private lands for oil and gas exploration.

Recently, CPAI applied to include new drilling sites and water sources in its existing NPR-A exploration program. The expanded drilling program will include up to seven new drilling locations with access routes, staging areas, and possibly an ice air strip. Five drill sites (Powerline 1, Grandview 2, Summit 2, Carbon

1, and Scout 1) are near extensions of the previously authorized or main exploration area in the NPR-A. Two sites (Kokoda 1 and 2) are approximately 25 miles west from previous CPAI drilling efforts and approximately 10 miles southwest of the authorized Trailblazer exploration program. The program will span up to five winter drilling seasons, beginning in December 2003, with the drilling schedule contingent upon permitting, weather, ongoing data analysis, and funding. Cumulative impacts of the proposed CPAI project and the TOTAL proposed project would be similar to those evaluated for the period when CPAI and another operator (i.e., BPXA or Anadarko) had concurrent programs in proximity to one another.¹⁰⁹

Accordingly, no significant long term direct, indirect cumulative impacts are expected. Stipulations in the Northeast Planning Area prohibit construction of permanent facilities during oil and gas exploratory drilling on federal land within NPR-A (Stipulations 27 and 29 through 48). The proposed wintertime exploration program does not include permanent facilities. Likewise, none of the previous exploratory drilling programs on federal oil and gas leases have had authorization to construct permanent facilities on federal land in the NPR-A. However, options to construct a permanent road from the Dalton Highway to the NPR-A boundary near Nuiqsut are currently under study. The proposed route would start 357 miles north of Fairbanks, at a new junction with the Dalton Highway, then head west before turning north toward the village of Nuiqsut. It would provide better access to oil and gas leases in the Brooks Range foothills and the basin south of the Tarn and Meltwater fields. The state expects to submit its wetlands development application to the U.S. Army Corps of Engineers within six months.¹¹⁰

One consideration behind the State's interest in a permanent access road to the NPR-A area is the average period of ice road availability due to weather conditions. Over the past decade, ice

road use on the North Slope has been shortened from 208 days (1970) to 103 days (2002). This has resulted in less time to build ice roads, complete drilling operations, and remove the drill rig. This restriction becomes a greater issue as exploration activities extend further west into the NPR-A.

4.5.2 Parameters of the Analysis

Many impacts associated with various elements of a winter exploration program can be quantified. However, the analysis of cumulative effects is more qualitative because it is not just an additive process. BLM established a threshold of acceptability in evaluating the nature of cumulative impacts associated with the proposed action. The basis of "unacceptable" consequences includes the following:

- Conflicts with the purpose and intent of related laws and policies
- Significant impacts to the local airshed
- Significant impacts to historical and paleontological resources
- Significant impacts to Threatened and Endangered Species and EFH
- Significant impacts to the population and productivity of other animal and plant species
- Significant impacts to floodplains, water resources, and water quality of the area
- Significant impacts to local lifestyles (i.e., subsistence)
- Significant impacts to the economy of the State and local governments
- Significant energy impacts.

The proposed action includes no permanent facilities or long-term activities. Cumulative effects will be primarily based on a 5-year program of winter-only construction of new ice pads, ice roads, packed snow trails and drilling camps. The cumulative effects analysis is bound by parameters appropriate for a relatively short-term winter exploration program.

The cumulative effects analysis also assumes that any existing authorizations for ice roads and water sources necessary to provide access to the proposed winter exploration drilling operation

¹⁰⁹ See EAs cited in footnotes 6,8,10, and 12.

¹¹⁰ M. McKinnon, DOT&PF, in Anchorage Daily News published 11/24/2003

would have appropriate extensions or reauthorizations through the proposed project period. The cumulative effects of those existing authorizations would be no different, individually or collectively than considered by BLM for the original authorizations of similar activities.¹¹¹

4.5.3 Analysis of Proposed Action

Most proposed actions will take place in the winter, when conventional North Slope technology and practices are expected to mitigate potential adverse impacts. There is winter seismic work in the Northeast NPR-A every winter, and has been for many years; however, there is no specific plan for proposed seismic work and the proposed exploration activities to occur concurrently in the same location. Related impacts from seismic work are discussed in the IAP/EIS. There do not appear to be any significant cumulative impacts outside the parameters described in the IAP/EIS.¹¹² In general cumulative effects of seismic operations are expected to be minimal, principally the creation of additional green trails in the area.

Historically, the Inupiat have navigated from Barrow to the Nuiqsut region along a cluster of coastal and landfast ice routes. BLM has marked trails for this purpose. Since 1983, local villagers have constructed ice bridges across the Colville River, from Nuiqsut to Oliktok or to the nearest oil exploration ice road, whichever is closer.¹¹³ These routes are used regularly in winter for hauling fuel, food, and supplies to villages in the NPR-A.

The 2003 NRC report notes that seismic trails, trails of other off-road vehicles, ice roads and ice pads cause concern because of damage to vegetation and because they can be seen from the air. Since 1999, the effects of packed snow trails and ice road and pad construction in the NPR-A have been field checked during construction, operation and during succeeding summers to determine if there were significant adverse

environmental impacts. To date, only minor impacts to the tundra vegetation have been noted. Findings and observations have been discussed with operating companies, local residents, and government officials, resulting in the elimination or reduction of damage (e.g., by enforcing speed limits, refining water withdrawal techniques, expanding the width of the ice road in key locations, pre-marking the grade at stream crossings, and installing reflective markers along the edges of ice roads).

For three years, BLM required exploration companies to monitor selected lakes to identify any recharge problems following winter water withdrawals for ice road/pad construction. During this monitoring program, no significant adverse effects from water withdrawal were found, and this requirement was suspended.

There are typically several winter exploration programs active during any one year. Over the past four years, the BLM, State of Alaska, NSB, and private landowners have authorized access and construction of ice pads at up to 45 drill sites for drilling up to 117 wells in the Northeast NPR-A (see Table 7). Of these activities, only 14 wells have actually been completed. Application of the protective stipulations from federal, state, and local agencies have resulted in no known significant individual or cumulative impacts to continued use of subsistence resources or to the environment in the Northeast NPR-A.

Multi-year winter exploration drilling projects within and adjacent to the NPR-A (including the proposed action) have been discussed with local residents through community meetings, NSB, regulatory and resource agencies, and the NPR-A SAP to assure that project-specific and cumulative effects are not expected to have a significant adverse impact to subsistence resources or access. Potential economic opportunity through local employment and commerce is a factor.

Previous analyses have generally concluded that the cumulative effects associated with exploration of oil and gas resources on valid leases within the NPR-A would be relatively minor and short-term and would not cause "unacceptable" consequences. Exploration in

¹¹¹ See EAs cited in footnotes 4,6,8,10,12, and 14 and 16. Potential Cumulative Impacts. Section IV.5.

¹¹² IAP/EIS. Section IV-H

¹¹³ IAP/EIS p. III-C-61.

nearby locations (e.g., Colville delta area), if concurrent with NPR-A exploration activities, could increase cumulative impacts on local residents and resources.¹¹⁴

There is also potential for concurrent discovery and development of one or more new oil and gas fields, which could change cumulative impacts. State and federal lease sales have been subject to public review and comment to evaluate potential impacts. The Final Northwest NPR-A IAP/EIS notes that, "Recent discoveries in the Northeast NPR-A targeted the Alpine producing horizon and all have encountered oil and gas condensate." These discoveries are located approximately 15 to 25 miles southwest of the Alpine site. Potential development of the Spark/Lookout discoveries is the subject of an EIS currently being prepared to assess additional development of the Alpine Field. There is also potential for a commercially developable find on private leases in the area.

The 2003 NRC report indicates that there were cumulative effects associated with the operation of year-around production facilities and roads. Existing operations have been considered, but there is also potential for future impacts related to future construction of the Alpine Satellites production facilities or expansion of production operations at Alpine. Any major development in the NPR-A or new development requiring associated federal action (e.g., permitting) will be subject to further NEPA review.

A NEPA review was completed for the decision on federal leasing within the Northeast Planning Area and for each of the six exploration drilling projects subsequently authorized. NEPA ensures additional environmental review of any future oil and gas exploration and/or development actions, which would include a comprehensive evaluation of the effectiveness of the stipulations, any additional mitigation, and potential impacts before allowing any future action.

Careful evaluation of each project within the NPR-A has been performed to assure that the projected impact for each resource did not

become a significantly adverse cumulative impact or cause BLM to significantly modify the proposed action. In this respect, cumulative impacts from the proposed action are considered to be relatively minor and short-term. The appropriate agencies have been consulted to confirm that species listed under the ESA, MMPA, and EFH are not directly, indirectly, or cumulatively impacted in a significantly adverse manner. In addition, this EA gives a strong weighting to actual impacts of ice road and hardened trail use, drilling from ice pads, and water withdrawals from both fish-bearing and non-fish-bearing lakes completed in and near the NPR-A in recent years without significant adverse environmental effects – either at the project level or in a cumulative perspective.

The cumulative effects analyses presented above continue to support the finding of this EA that cumulative impacts presented by the proposed action, when considered with other past, present, and reasonably foreseeable future actions, are minor and short-term.

It is noted, however, that while the 1998 ROD and other federal, state, and local regulatory authorities provide the best protection available with current knowledge and technology, the process of environmental assessment is ongoing and changes may result with time, experience, and additional knowledge. For example, if a permanent road to Nuiqsut is constructed, it would result in considerable changes in the area, which may, in turn, result in cumulative impacts not determinable at this time. It will be important to review recent changes on a regular basis to keep cumulative impact analyses current.

4.6 MITIGATION AND MONITORING

TOTAL has incorporated the extensive mitigation measures specified in the 1998 ROD in its winter exploration plan and permit applications to BLM and other regulatory agencies. All practicable mitigation has been adopted for this project, including measures for applying fish protection standards to all lakes to ensure that total impacts of the proposed action remain minor.

¹¹⁴ See EAs cited in footnotes 4,6,8,10,12, 14, 16 and 18. Potential Cumulative Impacts. Section IV.5.

North Slope Operators have worked actively towards minimal impact exploration techniques for the last several decades. As an example CPAI sponsored four annual ice road workshops to discuss environmental effects associated with winter exploration programs in and around the NPR-A and State lands to the east. The 2003 Ice Road Workshop was sponsored jointly by ADNDR and BLM. Attendance has included key Exploration and Drilling Company officials, North Slope contractors, other operators, BLM and other regulators, and North Slope residents. Open discussions have focused on ways that future winter exploration activities could be performed with enhanced environmental protection. Many of the ideas posed at the workshop, such as effective means to reduce tundra damage, have been incorporated into the proposed project.

BLM will give special attention to monitoring the following resources:

- Subsistence
- Cultural resources
- Tundra/vegetation
- Lake recharge
- Fish habitat
- Threatened and endangered species
- Raptors

Special stipulations for additional protection of raptors were recommended in the 1999 BLM Raptor Workshop. Timing and location of activities between April 15 and August 15 are discussed in Section IV.E of EA: AK-023-01-003 (p. IV-28), incorporated herein by reference.

Snow removal beyond the minimal amount required for vehicle access and water/ice removal may occur on non-fish-bearing lakes, lakes less than 7 feet deep, and grounded portions of fish-bearing lakes. Removal of additional snow over free-water portions of fish-bearing lakes will require BLM and OHMP approval on a case-by-case basis. Approvals from OHMP are provided to BLM for consideration in making these determinations prior to additional snow removal over free-water portions of fish-bearing lakes.

Surface use and occupancy of the project area will terminate before the arrival of spectacled or Steller's eiders. Standard provisions for polar bear encounters and denning, handling of hazardous materials, fuel storage, and drilling operations will be monitored. Finally, BLM and the project Subsistence Representative will perform a closeout inspection. Any final cleanup of the project area will be performed during the summer following operations to prevent unexpected adverse environmental effects, with additional mitigation measures required during subsequent years, if indicated.

Two fundamentally different monitoring programs are associated with a winter exploration program: 1) the drilling operation, including the drill rig and ancillary facilities, and 2) other surface activities. The former involves geotechnical and engineering considerations, (e.g., presence of H₂S gas). The latter addresses impact to vegetation from ice road/pad compaction, wildlife disturbance, lake suitability for water supply, and water volumes that may be removed.

TOTAL will have an approved subsistence monitoring plan in accord with Stipulation 59, similar to those approved by BLM for previous winter exploration drilling programs in the NPR-A. As in past years, the plan includes a designated point of contact between the Applicant and a Subsistence Representative (resident of Nuiqsut and/or Barrow) employed by the Applicant to provide third-party inspection services.

BLM will also coordinate with that person to track any subsistence issues that may arise. Other monitoring measures will involve drilling and surface protection. The objective of this monitoring program will be to ensure that all terms and conditions in the federal oil and gas lease, the 1998 ROD, and associated BLM permits are met in a timely manner. This will include monitoring the construction and maintenance of ice roads and pads. Special attention will be given to assuring that water intakes have proper fish screening, to the final plan for stream crossings, and to plans for breaching ice bridges before breakup to facilitate water flow.

Additional mitigation measures developed as a result of the permitting process will modify the Project Proposal or will be incorporated by BLM, as appropriate. These include OHMP conditions for all ice road/bridge crossings of fish-bearing streams and water withdrawal from lakes outside the NPR-A. These conditions minimize potential adverse impacts to stream banks during spring breakup.

4.7 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Cumulative impacts have been found to be within the parameters described in the IAP/EIS, and no significant new cumulative impacts not previously evaluated have been identified. Based on this impacts analysis, which considers and incorporates by reference previous studies and findings on exploration in the Northeast NPR-A and the North Slope in general, and the stipulations and mitigation measures required by federal leases, it is concluded that impacts from the proposed action will be minor and short-term.

TOTAL will provide information and encourage feedback from local communities and residents. Total will continue to hold public meetings with affected communities (stipulation 61). Consultation with affected communities and local, state and federal agencies has been incorporated into the proposed action to ensure that the winter exploration program is environmentally responsible and does not cause significant restriction of subsistence use or access to subsistence resources. Issue-specific monitoring plans may be developed as necessary to address concerns about effects on subsistence.¹¹⁵

It is concluded that the 79 stipulations included by the Secretary of the Interior in the 1998 ROD for the Final IAP/EIS for the Northeast NPR-A, combined with North Slope technology and procedures used by TOTAL, and supplemental site-specific mitigation and monitoring measures, are adequate to assure maximum protection of fish and wildlife and other resources, including

cultural, scenic, paleontological, and wilderness resources.

4.8 IMPACTS OF THE ALTERNATIVES

As noted, many alternatives were discussed in the 1998 IAP/EIS. Numerous stipulations were developed to provide maximum protection of the resources of the Northeast NPR-A while providing for exploration of oil and gas as authorized by NPRPA, as amended. This EA considers alternatives to the proposed action to drill up to 8 wells from 8 ice drill pads, during a 5-year exploration program.

Because the proposed action is similar to existing authorized programs, previous analyses of potential alternatives are incorporated herein by reference. EA: AK-020-00-011 evaluated the alternatives of primary access by either ice road or hardened overland trail. EA: AK-023-01-001 evaluated air access and a shared access corridor alternative. Based on previous analyses and goals of the proposed action, viable alternatives include 1) primary access by aircraft, 2) primary access by shared right-of-way, and 3) no action.

4.8.1 Alternative 1 – Primary Access by Aircraft

Under Alternative 1, primary access to the eight drill sites would be by air to the existing gravel strip at Inigok. Drill rigs, equipment, supplies, and shift changes would be moved to and from the area by a combination of Hercules-sized aircraft, smaller fixed wing aircraft and, as required helicopter. A local system of ice roads would connect the airstrip to drill pads. Spur ice roads would access proposed water sources.

This alternative has been previously evaluated in EA: AK-020-00-011 (pp. IV-26 and IV-27), EA: AK-023-02-004 (p. IV-29), EA: AK-023-02-005 (pp. IV-26 and IV-27), EA: AK-023-02-033 (pp. 8 and 9) and EA: AK-023-03-008 (p. 4-25), which are incorporated herein by reference. In an extremely short season this alternative might have additional value for the ability to get to the drill site relatively early. This alternative expands the options available, but is expensive and limited by the availability of drill rigs that

¹¹⁵ TOTAL E & P USA 2003-2004 Subsistence Monitoring Plan NPR-A Appendix B of Plan of Operations

can be disassembled into component parts that are air transportable.

Slightly more time would be required for major spill response and operations such as logistical support and waste management would be more difficult.

Previous evaluations associated with access by ice road or hardened overland trail only concluded that the 79 lease stipulations would prevent significant adverse environmental impacts to important resources of NPR-A. Therefore, no overriding net environmental advantage is offered by selecting this alternative. Few drilling rigs are available that can be transported by air, which may extend the overall program to gather the same information as the proposed action.

4.8.2 Alternative 2 – Primary Access by Shared Right-of-Way

Under this alternative, TOTAL would construct a new packed snow trail/ice road route from CPAI's Kokoda drill site.¹¹⁶ Additionally, TOTAL could construct a route from CPAI's proposed Powerline drill site, which has been evaluated¹¹⁷ and is under consideration for authorization by BLM. Although neither of these access corridors was included in the proposed action, an alternative using shared authorized corridors warrants consideration. TOTAL has proposed a packed snow trail route westward from Hunter to its northern drill site locations, which is approximately 1.25 miles south of Powerline. By sharing the right-of-way to Powerline approximately 6.25 miles of new packed snow trail would be eliminated. The route between Kuparuk 2 P Pad and Inigok was previously evaluated and permitted.

This alternative would minimize the impact of overland transport over multiple routes (green/brown trail traces) and minimize the number of crossings of the Fish and Judy Creek. However this alternative would require TOTAL to have a sharing agreement with CPAI and Kuukpik with BLM approval. A corridor

between Powerline and TOTAL's northern packed snow trail has not been ground truthed and no cultural/paleontological resources reconnaissance or local consultation on that segment has been preformed to date. Likewise a corridor south from Kokoda to TOTAL's Caribou 14-12 drill site has not been evaluated. As a result, this alternative is not available for the 2003-2004 drilling season. If this option is used in future drilling seasons, there would be no net reduction in TOTAL's water requirement. Alternative 2 would also have the effect of delaying potential discovery of a commercially valuable petroleum deposit by at least one year. For the purpose of this EA, it is assumed that Alternative 2 would extend the overall program to gather the same information as the proposed action.

4.8.3 Alternative 3 - No Action

This alternative considers that no proposed action is authorized. This alternative would eliminate the minor effects associated with water removal, ice pad construction, ice road construction, and drilling. However, no oil would be discovered as a result, eliminating some potential to expand national energy reserves and increase revenues to federal, state, and local governments.

In addition, exploratory drilling in other NPR-A leases might not be pursued, due to the precedent of not approving a winter exploration drilling program that has been determined to have no significant or long-term site-specific or cumulative adverse impacts. This lessens the likelihood of production facilities in the NPR-A, slightly lessens cumulative impacts of other oil development in the region, and BLM might eventually have to buy back the federal leases associated with the proposed project.

The Applicant would have the option of canceling or redesigning the project, or otherwise seeking a change in the no-action decision. Finally, the no-action alternative might shift some exploration work to the offshore areas of the North Slope, as inland areas become less available.

¹¹⁶ BLM FONSI and ROD FF-093572. March 2002.

¹¹⁷ BLM EA: AK-023-04-004. November 2003. Figure 2

4.9 COMPARISON OF IMPACTS

Distinct advantages and disadvantages to each of the alternatives have been evaluated. In summary, it was determined that none of the three alternatives present net benefits to the environment or would substantially reduce the environmental impacts of the proposed action. No alternative presents a clear advantage over another. The no-action alternative presents a net disadvantage in that it does not comply with terms of federal laws and policies and does not allow access to existing, valid leases in the NPR-A. A combination of alternative modes of access presents the most flexible option – both for environmental protection and for operations that afford the potential to reduce the overall costs of winter exploration.

4.9.1 Environmentally Preferred Alternative

The NEPA process requires identification and assessment of reasonable alternatives that will avoid or minimize adverse effects of the proposed action on quality of the human environment [40 CFR 1500.3(e)]. Three possible alternatives have been evaluated: primary access by aircraft only (actually, mostly air), primary access by shared right-of-way and no action.

The two winter exploration alternatives and the proposed action, all impacts considered, are environmentally equal, since no significant adverse environmental impacts would occur when the 79 stipulations and supplemental mitigation/monitoring requirements are implemented as appropriate. The no-action alternative suspends until a future time decisions about oil and gas exploratory drilling. At that time, the environmental consequences of any proposed exploration activity would need to be evaluated in the light of technology and equipment in use at that time, the urgency to increase domestic energy supplies, and any revisions to existing Native Corporation, local, NSB, state, and federal permitting requirements and, finally, to any revised environmental standards.

The proposed action meets the objective of maximum protection to the environment while enhancing the collection of geologic/subsurface information in the shortest time frame. Therefore,

the proposed action, as modified, has been selected as the environmentally preferred alternative. Alternatives 1 and 2 require more time to obtain the same base of scientific knowledge about subsurface geology. The No-Action Alternative is an indefinite deferral of the federal decision to approve or reject exploratory winter drilling as an environmentally responsible technology.

Several modifications to the proposed action were developed through this EA process and the associated permitting processes. TOTAL did not sample for the presence of fish and therefore fish are assumed present in all lakes. Lakes deeper than 15 feet in this area likely contain lake trout. Eleven of the thirty-five lakes proposed for water withdrawal are deeper than 15 feet. OHMP has requested that TOTAL maximize use of lakes less than 15 feet deep, to the extent feasible, for their water and ice aggregate requirements to minimize potential adverse effects to lake trout in the area.¹¹⁸ In addition, OHMP requested that water withdrawal or ice aggregate removal be limited to a maximum of 15% of the under-ice volume below 7 feet of depth. OHMP requested that ice aggregate be removed only from areas that have been determined to be naturally frozen to the bottom. Stipulation 20 of the 1998 ROD also requires that the applicant demonstrate that no fish exist in the lake prior to water withdrawal from lakes less than 7 feet deep and that water withdrawal from lakes 7 feet deep or deeper be limited to 15 percent of the estimated free water volume.

¹¹⁸ Comments dated 12/2/2003 by Robert F. McLean, OHMP on temporary water use application TWUP A2003-61 and A2003-62 submitted by TOTAL

5 CONSULTATION AND COORDINATION

5.1 AGENCY COORDINATION

The proposed action has undergone review by the NSB, state and federal agencies, and the general public. The USFWS has made a “No-Effect Determination” on threatened and endangered species. TOTAL and BLM participated in an on-site inspection of the proposed drill sites.

An NPR-A SAP has been established by BLM and a subsistence plan was prepared by TOTAL. TOTAL has met with the NPR-A SAP in Nuiqsut (June 19, 2003) and Atqasuk (November 4, 2003). TOTAL plans to continue consultation with subsistence users and implement the mitigation measures of Stipulations 59 and 61. The proposed plan and the current status of the proposed project have been discussed at other meetings with the BLM SAP, NSB Planning Commission and the public in Barrow, Nuiqsut and Atqasuk. In June 2003, the NPR-A SAP meeting in Nuiqsut was broadcast on KBRW, including a discussion on proposed exploration in the NPR-A. A summary of community involvement in NPR-A exploration program planning (1998-present) is included in Table 10.

The preparers of this EA have made the following contacts in setting the scope of analysis and alternatives to be addressed:

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

5.2 LIST OF PREPARERS

This EA was prepared by BLM with technical assistance from Hoefler Consulting Group, Inc., a third-party contractor. Following is a list of BLM staff and Hoefler personnel involved in preparation of the EA.

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- ♦ Dave Yokel, Wildlife Biologist
- ♦ Michael Kunz, Archaeologist
- ♦ Susan Flora, Environmental Scientist
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- ♦ Sandra Hamann
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 - ♦ Deborah Heebner
 - ♦ Riki Lebman
- Blue Skies Solutions, LLC
(vegetation mapping and graphics)

December 2003

Table 10. Community Involvement in NPR-A Exploration Program Planning

Date	Event (Some specify applicant and/or project focus)
1/8-9/98	Meeting with community members to identify cultural/traditional use data (BPX)
8/21/98	Meeting with community members to identify cultural/traditional use data (BPX)
6/2/99	Advised Arctic Slope Regional Corporation (ASRC) and Kuukpik Corporation of (BPX) intent to drill
6/24/99	Meetings with NSB Agencies (Planning and Public Works) (BPX)
6/29/99	Briefed Kuukpik Corporation on survey work and field activities (BPX)
7/99	Meeting with Nuiqsut leaders to identify concerns; briefed ICAS (BPX and ARCO)
7/27/99	Meeting with Kuukpik Subsistence Oversight Panel (BPX and ARCO)
7/29/99	Meeting with Kuukpik Subsistence Oversight Panel (BPX and ARCO)
7/29/99	Meeting with NSB Planning Commission (Barrow) (BPX)
7/29/99	Meeting with Inupiat History, Language, and Culture Commission (IHLCC) in Barrow (BPX)
7/29/99	Meeting with Nuiqsut Community (BPX and ARCO)
8/4/99	NSB, IHLCC, Kuukpik Corporation site visit to proposed (BPX) drilling sites, water sources, and access routes
8/10/99	Site tours; NSB, Kuukpik Corporation visited drill sites, lakes, and access routes with ARCO and BLM
8/18/99	Community meeting at Anaktuvuk Pass (BPX and ARCO)
8/26/99	Open house at Barrow (BPX and ARCO)
8/26/99	Meeting with NSB Planning Commission (ARCO)
8/27/99	Community meeting at Atqasuk (BPX and ARCO)
9/30/99	NSB elders from Barrow and Nuiqsut toured (ARCO) water withdrawal lakes
10/6/99	1st Annual Ice Road Construction Symposium (agencies, operators & NSB residents participating)
10/27/99	Meeting with NSB Fish and Wildlife Management Committee (BPX and ARCO)
11/4/99	Meeting with NSB and IHLCC (BPX and ARCO)
11/10/99	Job fair (Nuiqsut) (BPX and ARCO)
12/15/99	Community meeting at Barrow (BPX and ARCO)
12/15/99	ICAS meeting (BPX)
12/16/99	Meeting with NSB Planning Commission (BPX and ARCO)
12/16/99	Meeting with the Native Village of Barrow (BPX)
12/16/99	NPR-A Subsistence Advisory Panel public meeting in Barrow (included BPX and ARCO)
3/7/00	NPR-A Subsistence Advisory Panel meeting in Nuiqsut (included BPX and ARCO)
3/28/00	Meeting with NSB Fish and Game Management (BPX)
5/22/00	Consultation with NSB biologists regarding summer studies (BPX)
6/8/00	NPR-A Subsistence Advisory Panel meeting in Nuiqsut (included BPX and ARCO)
8/4/00	Pre-application meetings with NSB and ICAS (BPX)
8/9/00	NPR-A Subsistence Advisory Panel meeting in Wainwright (included BPX and ARCO)
8/26/00	Site visit with BLM and NSB and applicants (BPX and Phillips)
8/31/00	Meeting with NSB Planning and Zoning Commission (BPX)
9/28/00	Meeting with NSB Planning and Zoning Commission (BPX)
10/11/00	Presentation of proposed programs in Anaktuvuk Pass (BPX and Phillips)
11/8/00	2 nd Annual Ice Road Symposium (agencies, operators & NSB residents participating)
5/3/01	Village meeting in Anaktuvuk Pass (Phillips)
6/01	Meeting with Kuukpik Corporation executives (Anadarko's 5-year plan on North Slope)
7/16/01	NPR-A Subsistence Advisory Panel meeting in Nuiqsut
7/31/01	Meeting with BLM at Altamura site (Anadarko)
8/8/01	Site visit with regulatory agency and members of the City of Nuiqsut Cultural Guardians and Kuukpik Subsistence Oversight panel at Altamura drill pad locations (Anadarko)
8/13/01	Staking and site visit with Nuiqsut, BLM, and Applicant (Phillips)

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Table 10, continued

Date	Event (Some specify applicant and/or project focus)
8/16/01	NPR-A Subsistence Advisory Panel meeting in Nuiqsut – all projects (included Phillips and Anadarko)
11/7/01	3 rd Annual Ice Road Symposium (with agencies, operators & NSB residents participating)
11/26/01	Community meeting in Nuiqsut Pass (Anadarko)
11/26/01	Community meeting in Wainwright (Phillips)
11/27/01	Community meeting in Atqasuk (Phillips)
11/28/01	Community meeting in Anaktuvuk Pass (Anadarko)
11/29/01	Community meeting in Nuiqsut (Phillips)
12/13-14/01	NPR-A Subsistence Advisory Panel meeting in Barrow
3/14/02	NPR-A Subsistence Advisory Panel meeting in Barrow
5/16/02	Community meeting in Anaktuvuk Pass (ConocoPhillips)
6/6/02	NPR-A Subsistence Advisory Panel meeting in Nuiqsut
7/25/02	NSB Planning Commission Meeting presentation (ConocoPhillips)
8/15/02	NPR-A Subsistence Advisory Panel meeting in Nuiqsut (including ConocoPhillips)
11/4/02	KBRW Radio call-in (local exploration activities)
11/6/02	4th Annual Ice Road Symposium (with agencies, operators & NSB residents participating)
11/7/02	Community meeting in Nuiqsut (ConocoPhillips)
11/18/02	Government-to-government meeting with Native Village of Barrow (and BLM)
11/22/02	Barrow Open house (ConocoPhillips)
12/5/02	Community meeting in Atqasuk (ConocoPhillips)
12/12/02	NPR-A Subsistence Advisory Panel meeting in Barrow (included ConocoPhillips)
1/29/03	Presentation at joint meeting of NSB Planning Commission and IHLC (ConocoPhillips)
2/24/03	Community Meeting in Wainwright (ConocoPhillips)
2/25/03	Community Meeting in Atqasuk (ConocoPhillips)
3/10/03	<i>Planned Community Meeting Anaktuvuk Pass (weathered out – ConocoPhillips)</i>
3/27/03	Open House in Barrow (ConocoPhillips)
4/24/03	NSB Planning Commission Meeting presentation (ConocoPhillips)
6/19/03	NPR-A Subsistence Advisory Panel Meeting in Nuiqsut (included TOTAL and ConocoPhillips)
7/31/03	NSB Planning Commission Meeting presentation (ConocoPhillips)
9/25/03	NSB Planning Commission Meeting presentation (ConocoPhillips)
10/7/03	5 th Annual Tundra Access [Ice Road] Symposium (with agencies, operators & NSB residents participating)
10/30/03	NSB Planning Commission Meeting presentation in Barrow (TOTAL)
11/3/03	NPR-A Subsistence Advisory Panel Meeting in Atqasuk (included ConocoPhillips and TOTAL)
11/4/03	Community Meeting in Atqasuk (ConocoPhillips and TOTAL)
11/20/03	Community Meeting in Nuiqsut (ConocoPhillips and TOTAL)
11/24/03	<i>Planned Open House in Point Hope (Weathered out - ConocoPhillips)</i>
11/25/03	<i>Planned Open House in Point Lay (Weathered out - ConocoPhillips)</i>
12/8/03	Planned Community Meeting in Anaktuvuk Pass (ConocoPhillips and TOTAL)
12/8/03	Planned Community Meeting in Wainwright (ConocoPhillips and TOTAL)
12/11/03	NPR-A Subsistence Advisory Panel Meeting in Barrow (ConocoPhillips and TOTAL)

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**APPENDIX A
THREATENED AND ENDANGERED SPECIES CONSULTATION**



United States Department of the Interior

FISH AND WILDLIFE SERVICE
FAIRBANKS FISH AND WILDLIFE OFFICE
101 12th Ave., Box 19, Room 110
Fairbanks, AK 99701
November 25, 2003



Debbie Nigro, Wildlife Biologist
Bureau of Land Management
Northern Field Office
1150 University Avenue
Fairbanks, AK 99709-3899

Re: Exploratory Oil Drilling;
National Petroleum Reserve - Alaska

Dear Ms. Nigro:

This responds to your request for information addressing biological resources pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act). This information is being provided for use in evaluating TOTAL E&P Inc.'s (TOTAL) application for an exploratory drilling permit within the National Petroleum Reserve - Alaska (NPR-A). TOTAL plans on drilling 1 new well during the upcoming 2003-2004 winter. The well is slated to be drilled on an ice pad covering 6 acres. The proposed drilling site is located in the Northeast Planning Area of NPR-A about 80 miles west of the existing Meltwater pad.

The proposed project site is within the breeding range of the spectacled eider (*Somateria fischeri*) which is listed as threatened under the Act. An aerial survey done in 2002 observed spectacled eiders at several locations near the drilling site.

Based on the proposed project description the Service concludes that this project is not likely to adversely impact listed species. Although we have limited data on bird activity close to the proposed drill site, spectacled eiders would likely not be present during winter rig/ground operations and we anticipate no additional loss of habitat value as a result of the action. Therefore, preparation of a Biological Assessment or further consultation under section 7 of the Act regarding these projects is not necessary at this time. This conclusion applies only to endangered and threatened species under our jurisdiction. It does not preclude the need to comply with other environmental legislation or regulations such as the Clean Water Act.

Ms. Debbie Nigro

Page 2

Thank you for your cooperation in meeting our joint responsibilities under the Act. If you need further assistance, please contact Jonathan Friday at (907) 456-0499.

Sincerely,

A handwritten signature in cursive script that reads "Ted Swem". The signature is written in dark ink and is positioned above the typed name and title.

Ted Swem
Branch Chief
Endangered Species



United States Department of the Interior
BUREAU OF LAND MANAGEMENT

NORTHERN FIELD OFFICE
1150 University Avenue
Fairbanks, Alaska 99709-3899

IN REPLY REFER TO:
Case File #'s: AA084161, AA084162, AA084163,
AA084170, AA084172, AA084173,
6842.1 (AK-023)

MEMORANDUM

To: Jonathan Priday, U.S. Fish and Wildlife Service, Fairbanks, Alaska

From: Debbie Nigro, Wildlife Biologist

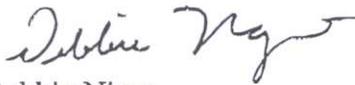
Subject: Request for concurrence on a no effect determination for spectacled and Steller's eider for Applications for Permit to Drill within the National Petroleum Reserve - Alaska (NPR-A) during the winter of 2003-2004

I request your concurrence on our no effect determination for spectacled eider (*Somateri fischeri*) and Steller's eider (*Polysticta stelleri*) for Applications for Permit to Drill within NPR-A during the winter of 2003-2004. We are processing an application from TOTAL E & P USA, Inc. Both eider species may occur in the operations area for the proposed drilling (see enclosed figure). There would be no direct impacts to eiders since all activity would occur during the winter when eiders are not present. All ground operations, including tundra travel and ice road/pad construction would begin only after the seasonal frost in the tundra and underlying mineral soils has reached a depth of 12 inches and snow cover is 6 inches deep. Stipulations of the permit would require that ground operations cease when spring snow melt begins, approximately May 5 to May 15. The only potential impact would be on habitat for these species. Habitat impacts would be limited in size and minimal in nature.

TOTAL currently has no drilling locations permitted in NPR-A. This fall, they are applying for eight drilling locations within NPR-A (attached Figure 3-1), with associated rights-of-way for supporting ice roads and rolligon travel (attached Figures 3-1 and 3-2). Permits to drill would be valid for five years. During the coming winter (2003-2004) they hope to drill only one well (Caribou 26-11, No. 1). The drilling pad (ice) would be 500' x 500' (6 acres) and 16 miles of 35'

wide ice road (68 acres) would be constructed between the well site and the Inigok airstrip (bottom-right corner of Figure 3-1). Eighty (80) miles of snow trail would be used to haul the drilling rig by rolligon from the Meltwater pad on State lands to the drill site in the NPR-A (Figure 3-2).

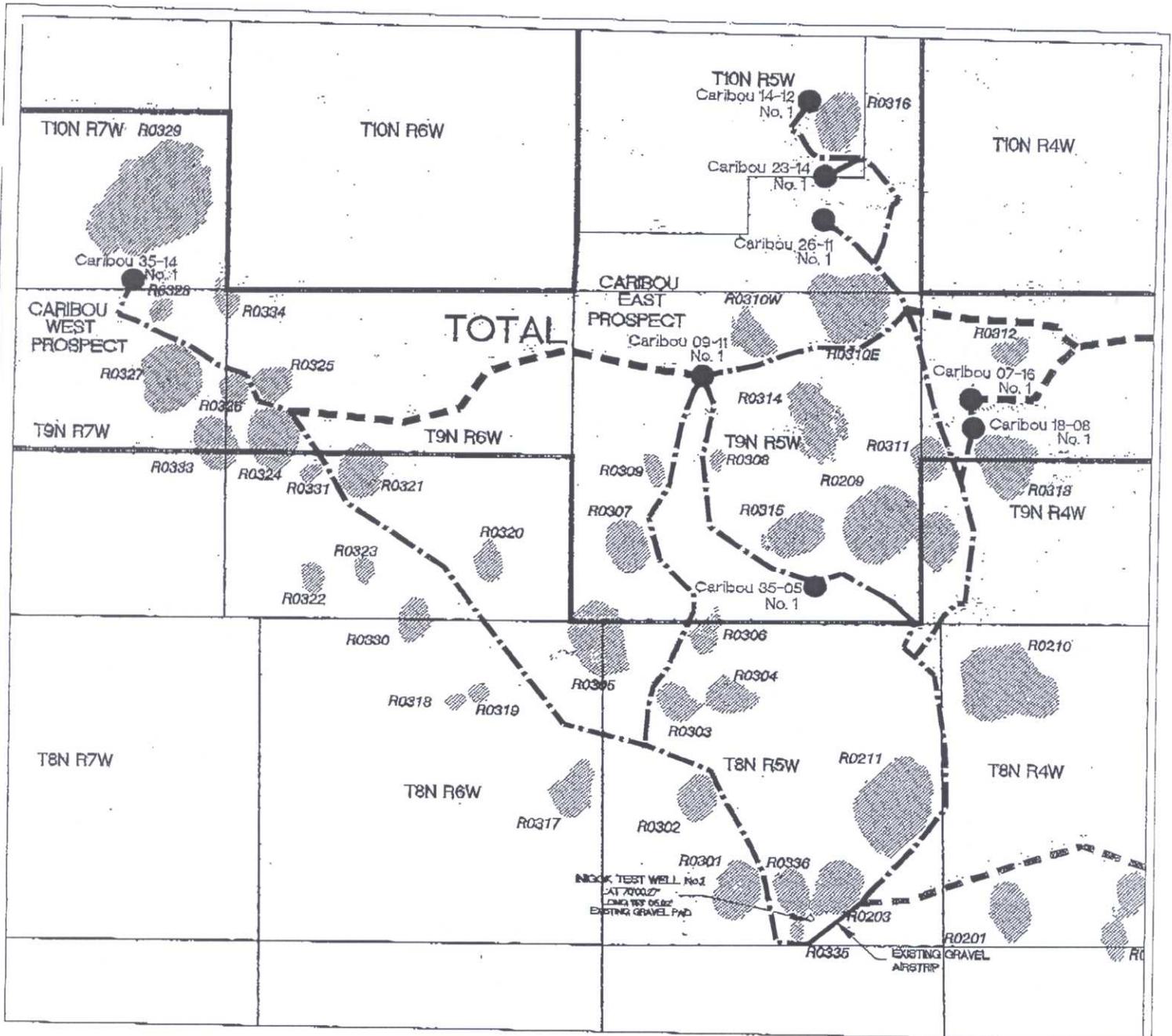
Overland moves, ice road and drill pad development, and drilling would occur during the winter when the ground is frozen and covered with snow. Impacts to vegetation and soil would vary, depending upon the vegetation type and snow conditions. Impacts would be localized to areas of ground operations and damage to vegetation is expected to be low. Travel over low shrubs and tussocks may result in some breakage or death of plants or crushing of tussocks. In a study of winter seismic operations in the Arctic Refuge (seismic trails have effects similar to ice roads and rolligon trails), the level of disturbance to the affected tundra ranged from none to low for 74% of the area, one to two years after initial disturbance. A high level of disturbance was identified only in 2% of the area. Eider population density in the project area is low, resulting in use of only a small percentage of the available habitat. Given the limited nature of potential disturbance to eider habitat, there would be no impact on populations. If you have any questions, please contact Debbie Nigro at 474-2324 or Debbie_Nigro@blm.gov.



Debbie Nigro

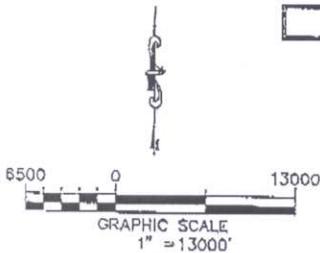
2 Attachments

- 1 – 2003-2004 Proposed Ice Road/Rolligon Routes and Water/Ice Chip Sources Caribou Prospect Area
- 2 – Rolligon Routes Between Kuparuk 2P-Pad and Caribou East Prospect Area



LEGEND

-  POTENTIAL EXPLORATION DRILL SITE
-  ROLLIGON ROUTE
-  ROLLIGON ROUTE PERMITTED 04-2003
-  ICE ROAD ROUTE
-  PERMITTED WATER SOURCE LAKE
-  TOTAL E&P USA, Inc. NPR-A LEASE BOUNDARY



TOTAL E&P USA, Inc.

FIG. 3-1

PROPOSED ICE ROAD / ROLLIGON ROUTES
AND WATER / ICE CHIP SOURCES
CARIBOU PROSPECT AREA

	<p>DATE: 10-28-03</p> <p>BY: BURT</p> <p>AS NOTED</p>	<p>PROJECT: TOTAL E&P NPR-A</p> <p>FILE: TOTAL-1 NPR-A 2003-2004 EXPLORATION FIG 3-1.DWG</p>
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F. Robert



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APPENDIX B
ESSENTIAL FISH HABITAT EVALUATION

Appendix B. ESSENTIAL FISH HABITAT ASSESSMENT

On October 11, 1996, the Sustainable Fisheries Act (Public Law 104-297) became law, which, among other things, amended the habitat provisions of the Magnuson Act. The re-named Magnuson-Stevens Act calls for direct action to stop or reverse the continued loss of fish habitats. Toward this end, Congress mandated the identification of habitats essential to managed species and measures to conserve and enhance this habitat. The Act requires federal agencies to consult with the Secretary of Commerce regarding any activity, or proposed activity, authorized, funded, or undertaken by the agency that may adversely affect essential fish habitat (EFH).

For the purposes of this environmental assessment, essential fish habitat means those waters and substrate necessary for salmon spawning, breeding, feeding, or growth to maturity (Magnuson-Stevens Act, 16 U.S.C. 1801 et seq). For the purpose of interpreting the definition of essential fish habitat: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by salmon and may include aquatic areas historically used by salmon where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species contribution to a healthy ecosystem; and spawning, breeding, feeding, or growth to maturity covers a species' full life cycle.

The National Marine Fisheries Service recognizes waters cataloged under AS 16.05.870 (Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes, ADF&G, 1999) as essential fish habitat (BLM pers. comm.; National Marine Fisheries Service, Anch, AK; 28 Mar 2000). For the purpose of the proposed action, Fish and Judy Creeks and the Ublutuoch River meet this criteria, identified as stream numbers 330-00-10840, 330-00-10840-2043, and 330-00-10840-2017, respectively, in the catalog. Chum and pink salmon are listed as using these waters for migration. No other salmon streams in the area of proposed use are noted in the catalog. Overall, Pacific salmon species are not abundant in the waters of the NPR-A (Craig, 1989). Although chinook, coho, and sockeye salmon have been reported from the Beaufort Sea, only small spawning stocks of pink and chum salmon have been identified.

Estuarine habitat that supports young salmon as they exit freshwater for life in the sea is also EFH. The estuarine zone is used primarily by juvenile salmon smolt during physiological adaptation to the saltwater environment from the freshwater. This outmigration takes place from the time the ice moves out through August. Feeding during this time, especially the first few days, is thought to be especially critical to survival. Thus, prey and prey habitat are an important part of this particular habitat. Once they enter the ocean, pink and chum salmon hug the shore. Pink salmon spend the first few weeks in water only a few centimeters deep, with their food source including prey living in the gravel substrate (benthic insects and zooplankton). Chum salmon use intertidal areas (i.e., estuarine waters in the Beaufort Sea) for months before migrating to the outside waters. They move offshore from July to September.

Proposed Action and Effects: The purpose of the proposed action (EA: AK-023-04-005) is to permit the applicant, Total E&P USA, Inc. (Total), to access and drill existing valid oil and gas leases as part of a winter exploration drilling program in the northeast (NE) portion of the National Petroleum Reserve - Alaska (NPR-A). The geographic extent of the proposed action, which

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includes new drilling sites and water sources, is included the Environmental Assessment (EA). Results of this program will help determine if any of the drilled prospects contain economically recoverable oil and gas.

Total will build, maintain, and use an annual winter ice road system and/or use overland trails and ice airstrips for the access portion of the exploration process. The proposed action also includes development of necessary ice pads for drilling exploration wells and setting up a camp infrastructure to support drilling operations. Demobilization will occur by the end of the winter tundra travel season.

Potential effects to the salmon resources and their habitat in Fish and Judy Creeks and the Ublutuooh River include direct and indirect impacts related to water withdrawal for building ice roads and pads, ice road construction at stream crossings, and fuel transport. Resultant impacts to habitat would be minimal. The impacts are mitigated through management plan guidance, stipulations, and industry practice as outlined below. Detailed discussions of impacts and mitigation are found in the EA. Due to the inland location of proposed activities, no impacts to estuarine EFH is likely.

The Northeast National Petroleum Reserve - Alaska Final Integrated Activity Plan/Environmental Impact Statement (NE IAP/EIS, 1998) and Record of Decision (ROD - 1998) and several subsequent Environmental Assessments (see this EA for a list) provide management guidance for BLM. The NE IAP recognizes the fisheries values in the Judy and Fish Creek drainages through the creation of fish habitat Land Use Emphasis Areas (LUEA). Stipulations in the IAP/EIS related to the LUEA's provide that there will be no permanent facilities except for case-by-case essential transportation crossings within three miles of Fish Creek, downstream from the east boundary of Section 31, T11N, R1E and within a 1/2 mile of the creek upstream of this point. Judy Creek has a 1/2 mile setback relative to permanent facilities construction. General stipulations found in the NE EIS and subsequent exploration EA's also provide protection by prohibiting water withdrawal from rivers and streams during winter and clearing of willows along riparian zones. Proposed stream crossings take advantage of areas with low relief banks that naturally freeze to the bottom to minimize impacts to habitat and fish resources. Limits on water withdrawal from fish bearing lakes provide protection to overwintering fish. Fuel handling and storage stipulations found in the NE IAP/EIS minimize the potential for habitat contamination, including downstream estuarine habitat.

Cumulative impacts for this proposed action and past, present, and future exploratory actions are discussed in the body of this EA. Additional impacts to salmon and their habitat from this action are expected to be minor due to low numbers of salmon utilizing the systems, minimal disturbance to their habitat (i.e. stream crossings at natural freeze down sites), low potential for fuel spills, adequate protections provided by stipulations found in the 1998 IAP/EIS and ROD, and industry proposed procedures.

EFH Finding: Based on mitigation measures assigned as part of this permit, the proposed action is not expected to impact salmon or their habitat and is assigned the EFH determination: *May affect, not likely to adversely affect*, and no further EFH consultation is required.

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References

Craig, P.C. 1989. An Introduction to Anadromous Fishes in the Alaskan Arctic. Biological Papers of the University of Alaska 24:27-54.

State of Alaska, Alaska Department of Fish and Game. 1999. An Atlas to the Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes, Resource Management Region V. Alaska, Department of Fish and Game, Habitat and Restoration Division.

USDOI, BLM and MMS. 1998. Northeast NPR-A Final Integrated Activity Plan/Environmental Impact Statement. Anchorage, AK: USDOI, BLM and MMS.

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