

ENVIRONMENTAL ASSESSMENT

BLM

National Petroleum Reserve-Alaska (NPR-A) 2-Year Winter Delineation Drilling Program 2007-2009

Arctic Field Office, Alaska

December 2007



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EA: AK-023-08-002

ENVIRONMENTAL ASSESSMENT

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**National Petroleum Reserve-Alaska (NPR-A)
2-Year Winter Delineation Drilling Program
2007-2009**

Renaissance Umiat, LLC

December 2007

Prepared By:

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

Technical Assistance:

**MWH
Anchorage, Alaska**

ENVIRONMENTAL ASSESSMENT

Title: National Petroleum Reserve-Alaska (NPR-A)
2-Year Winter Delineation Drilling Program

EA Number: AK-023-08-002

Serial Number: AA081726, AA084141, FF095270

Applicant: Renaissance Umiat, LLC
1029 W. 3rd Ave., Suite 402
Anchorage, Alaska 99501

Date Prepared: December 2007

District: Fairbanks District Office
Planning Unit: NPR-A, Northeast (NE) Planning Area

Prepared By: Arctic Field Office
Fairbanks District Office
Bureau of Land Management
1150 University Avenue
Fairbanks, Alaska 99709
(907) 474-2301

Technical assistance provided by:
MWH
1835 S. Bragaw Street, Suite 350
Anchorage, Alaska 99508
(907) 248-8883

Lands Involved: Proposed access routes inside the NPR-A totaling approximately 7 miles of Right-of-Way (ROW) to drill sites, storage sites, and the State-maintained Umiat Airport, plus another 10 miles of access to water supply lakes. Up to approximately 38 miles of access route on federal lands outside the NPR-A. Also proposed are eight new drill sites, with three wells co-located at one drill site, and temporary use of 13 new water supply lakes on federal land in the NPR-A and seven water supply lakes on federal land outside the NPR-A. Specific locations are identified in the project plans. The proposed drilling pad locations are:

- T1N, R1W, Sec. 34, Umiat Meridian (Well 12)
- T1S, R1W, Sec. 2, Umiat Meridian (Wells 13, 21, and 22)
- T1S, R1W, Sec. 10, Umiat Meridian (Well 14)
- T1N, R1W, Sec. 36, Umiat Meridian (Well 15)
- T1N, R1W, Sec. 31, Umiat Meridian (Well 16)
- T1S, R1W, Sec. 5, Umiat Meridian (Well 17)
- T1S, R1W, Sec. 3, Umiat Meridian (Well 18)
- T1S, R1W, Sec. 2, Umiat Meridian (Well 19)

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

This EA is the most recent in a series of NEPA assessments prepared by the BLM in evaluating potential and proposed oil exploration and development in the NPR-A. Over the past 8 years, the BLM has evaluated the construction and drilling of 97 potential exploration drill sites, and access via approximately 1,150 miles of ice road/trail in the NPR-A. Impacts of these types of activities have also been evaluated in three Integrated Activity Plan (IAP)/Environmental Impact Statements (EIS) for the NPR-A and one EIS for development in the Northeast NPR-A and adjacent Colville River Delta. This EA is tiered off and incorporates relevant portions of these documents as well as previous NPR-A Exploration EAs described in more detail in this document.

TABLE OF CONTENTS

LIST OF ACRONYMS	<i>iv</i>
1 INTRODUCTION	1-1
1.1 HISTORY OF ACTIVITY IN THE NPR-A	1-1
1.2 PURPOSE OF AND NEED FOR THE PROJECT	1-2
1.3 RELATED STATUES, REGULATIONS, POLICIES, AND PROGRAMS	1-2
1.3.1 <i>Federal Laws and Regulations</i>	1-2
1.3.2 <i>Required Permits, Licenses, Authorizations, and Approvals</i>	1-2
1.3.3 <i>Related Environmental Analyses</i>	1-2
1.3.4 <i>Land Status</i>	1-2
1.4 PUBLIC INVOLVEMENT	1-4
1.5 BLM DECISION PROCESS	1-4
2 PROPOSED ACTION AND ALTERNATIVES.....	2-1
2.1 PROPOSED ACTION.....	2-1
2.1.1 <i>Access and Construction</i>	2-1
2.1.2 <i>Drilling Operations and Support</i>	2-3
2.1.3 <i>Waste Management</i>	2-3
2.1.4 <i>Air Emissions</i>	2-5
2.1.5 <i>Contingency Plans</i>	2-5
2.1.6 <i>Abandonment and Restoration</i>	2-6
2.1.7 <i>Community Relations</i>	2-6
2.2 POSSIBLE FUTURE ACTION	2-6
2.3 ALTERNATIVES.....	2-7
2.3.1 <i>Alternatives Considered but Eliminated from Detailed Analysis</i>	2-7
2.3.2 <i>Alternatives to the Proposed Action</i>	2-8
3 AFFECTED ENVIRONMENT	3-1
3.1 PHYSICAL CHARACTERISTICS	3-1
3.2 BIOLOGICAL RESOURCES	3-3
3.2.1 <i>Vegetation</i>	3-3
3.2.2 <i>Fish and Wildlife</i>	3-4
3.3 SOCIOECONOMIC RESOURCES.....	3-4
4 ENVIRONMENTAL IMPACTS.....	4-1
4.1 ASSUMPTIONS	4-1
4.2 CRITICAL ELEMENTS	4-2
4.3 ENVIRONMENTAL CONSEQUENCES.....	4-2
4.3.1 <i>Project-Specific Impacts</i>	4-2
4.3.2 <i>Unavoidable Adverse Impacts</i>	4-14
4.3.3 <i>Potential Impacts of Possible Future Permanent Facilities</i>	4-14
4.4 POTENTIAL CUMULATIVE IMPACTS FROM THE PROPOSED ACTION	4-15
4.4.1 <i>Framework of the Analysis</i>	4-15
4.4.2 <i>Cumulative Effects of Proposed Action</i>	4-16
4.4.3 <i>Cumulative Impact Conclusions</i>	4-20
4.5 MITIGATION AND MONITORING	4-20
4.6 SUMMARY OF ENVIRONMENTAL CONSEQUENCES.....	4-21
4.7 IMPACTS OF THE ALTERNATIVES	4-21
5 CONSULTATION AND COORDINATION.....	5-1
5.1 AGENCY COORDINATION.....	5-1

5.2 PUBLIC COORDINATION..... 5-1
5.3 LIST OF PREPARERS 5-1

FIGURES

Figure 1 Proposed Umiat Project Area Map 1-5
Figure 2 Proposed Drill Sites and Access 2-9
Figure 3 Existing/Proposed Oil & Gas Activities on the North Slope 3-7

TABLES

Table 1. Permits and Authorizations..... 1-3
Table 2. Staking and Field Inspection..... 2-1
Table 3. Summary of Proposed Project 2-1
Table 4. Drilling Locations (All Federal Land) 2-2
Table 5. Proposed New Water Sources..... 2-4
Table 6. Elements of this Environmental Assessment 4-2
Table 7. Lake Water Withdrawal..... 4-10

APPENDIX A Related Environmental Analyses, NPR-A Exploration

APPENDIX B General Stipulations (Federal Land outside the NPR-A)

APPENDIX C Map of Soil Contamination at Umiat Legacy Well 9

LIST OF ACRONYMS

AAC.....	Alaska Administrative Code
ACMP.....	Alaska Coastal Management Program
ADEC.....	Alaska Department of Environmental Conservation
ADOT&PF.....	Alaska Department of Transportation and Public Facilities
ADNR.....	Alaska Department of Natural Resources
ANILCA.....	Alaska National Interest Land Conservation Act
AO.....	(BLM) Authorized Officer
AOGCC.....	Alaska Oil and Gas Conservation Commission
ASD.....	Alpine Satellite Development
BLM.....	Bureau of Land Management
CEQ.....	Council of Environmental Quality
CFR.....	Code of Federal Regulations
DRO.....	Diesel Range Organics
DS.....	Drill Site
EA.....	Environmental Assessment
EFH.....	Essential Fish Habitat
EIS.....	Environmental Impact Statement
EO.....	Executive Order
EPA.....	U.S. Environmental Protection Agency
ESA.....	Endangered Species Act
FAA.....	Federal Aviation Administration
FEIS.....	Final Environmental Impact Statement
FLPMA.....	Federal Land Policy and Management Act of 1976
FONSI.....	Finding of No Significant Impact
IAP.....	Integrated Activity Plan
LPV.....	Low-Pressure Vehicle
LUEA.....	Land Use Emphasis Area
MP.....	Milepost
NE.....	Northeast
NEPA.....	National Environmental Policy Act
NHPA.....	National Historic Preservation Act
NOS.....	Notice of Staking
NPDES.....	National Pollutant Discharge Elimination System
NPR-A.....	National Petroleum Reserve – Alaska
NPRPA.....	Naval Petroleum Reserve Production Act
NSB.....	North Slope Borough
NW.....	Northwest
ODPCP.....	Oil Discharge Prevention and Contingency Plan
OHMP.....	(ADNR) Office of Habitat Management and Permitting
PCB.....	Polychlorinated Biphenyl
RMP.....	Resource Management Plan
ROD.....	Record of Decision
ROP.....	Required Operating Procedure
ROW.....	Right of Way
SAP.....	Subsistence Advisory Panel
SPCC.....	Spill Prevention, Control, and Countermeasures
TAPS.....	Trans Alaska Pipeline System
TLH.....	Teshukpuk Lake Caribou Herd
TWUP.....	Temporary Water Use Permit
UIC.....	Ukpeagvik Inupiat Corporation
USDOI.....	U.S. Department of Interior
USGS.....	U.S. Geological Survey
VRM.....	Visual Resource Management
WAH.....	Western Arctic Caribou Herd
WSR.....	Wild and Scenic River

1 INTRODUCTION

Renaissance Umiat, LLC (Renaissance) has applied for permits and/or posted notices to access and drill on valid oil and gas leases during a 2-year winter delineation program in the Northeast (NE) National Petroleum Reserve-Alaska (NPR-A). Renaissance (the Applicant) has submitted permit applications to Federal and State agencies and the North Slope Borough (NSB), including the Bureau of Land Management (BLM) Right-of-Way (ROW) application.

This Environmental Assessment (EA) has been prepared to satisfy the requirements of the National Environmental Policy Act (NEPA) in support of BLM decision-making. This EA considers previous NEPA analyses and findings in the NPR-A, with a focus on proposed exploration drilling activities with access across leases in the NPR-A, and across several small parcels of land under federal management outside the NPR-A. See **Figure 1**.

1.1 HISTORY OF ACTIVITY IN THE NPR-A

Following creation of the 23 million-acre Naval Petroleum Reserve Number 4 (now the NPR-A), the Federal government drilled at 123 sites¹, and private industry and the Arctic Slope Regional Corporation (ASRC) each drilled at one test site.² Early reconnaissance efforts (1943) included field inspection of reported oil seepages on the Colville River at the base of Umiat Mountain in the NE NPR-A.

From 1945 to 1952, 81 core tests and wells were completed, including 11 in the Umiat area (Legacy Wells³), resulting in the discovery of oil deposits and establishment of an operating base at Umiat. Results of delineation drilling led to estimates of 70 million barrels of recoverable oil in the Umiat field.⁴ The 1968 discovery of oil and gas at Prudhoe Bay, combined with the Arab oil embargo of 1974, led to further exploration

on the North Slope. From 1974 to 1982, 28 test wells were drilled, including the Seabee well near Umiat.⁵

In 1998, an Integrated Activity Plan (IAP), with an associated Environmental Impact Statement (EIS), for the NE NPR-A Planning Area was released,⁶ followed by a Record of Decision (ROD) adopting the IAP/EIS.⁷ The 1998 ROD includes 79 stipulations as prescriptive measures to ensure environmental protection from activities authorized in the NE Planning Area. In 2005, a new IAP/EIS evaluated a proposal to amend the 1998 NE IAP/EIS. A ROD was issued in early 2006, but was later vacated by the court – leaving the 1998 stipulations in force. A Supplement to the 2005 NE Amended IAP/EIS has been released for public review.⁸

In 2003, a final IAP/EIS for the Northwest (NW) NPR-A Planning Area was published,⁹ and in 2004, a ROD was issued, adopting the NW IAP/EIS.¹⁰ The 2004 ROD includes performance-based environmental protection measures set forth in 11 stipulations and 32 Required Operating Procedures (ROPs) that control activities authorized in the NW Planning Area. While specific environmental safeguards currently in place for the NE and NW NPR-A are different, the level of environmental protection provided is similar.

Renaissance is currently proposing to drill at up to eight new sites in the NE NPR-A, with access via packed snow trail and ice road as well as the existing gravel road system in the Umiat area. Use of existing gravel pads and facilities in the Umiat area is also proposed to minimize the footprint of ice construction. The proposed delineation program is intended to span two winter drilling seasons, beginning in late 2007, with the drilling schedule contingent upon permitting, weather, ongoing data analysis, and funding. Potential cumulative impacts of multiple exploration/delineation programs operating during the same season in the same general area will also be evaluated.

Activities proposed by Renaissance are similar to previously authorized exploration activities in the NPR-A. Since 1999, 12 winter exploration drilling programs in the NPR-A have been authorized. For this, the BLM

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

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

³ The Umiat Test Wells 1-11, drilled decades ago are now part of the BLM Legacy Well Program and, in this EA, will be called *Legacy Wells* to distinguish them from the proposed wells (W12 – W-22).

⁴ Kornbrath, R. W., M. D. Myers, D. L. Krouskop, J. F. Meyer, J.A. Houle, T. J. Ryherd, and K.N. Richter. Alaska Department of Natural Resources. Division of Oil and Gas. 1997. Petroleum Potential of the Eastern NPR-A. p. 8.

⁵ USGS Professional Paper 1240-C (1985), p. C14.

⁶ USDO. 1998. Northeast NPR-A /EIS, Vol. 1 and 2.

⁷ Secretary of the Interior. October 1998. Northeast NPR-A IAP/EIS Record of Decision (ROD), p.1.

⁸ Secretary of the Interior. August 2007 NE NPR-A Draft Supplemental IAP/EIS.

⁹ USDO. November 2003. Northwest NPR-A Final Integrated Activity Plan/Environmental Impact Statement (IAP/EIS), Vol. 1, 2, and 3.

¹⁰ Secretary of the Interior. January 2004. Northwest NPR-A IAP/EIS Record of Decision (ROD), p. 3.

evaluated access and exploratory drilling at 97 sites, although drilling has been completed at only 24. Drilling is limited to the most promising prospects, and only a portion of the total authorized program is actually completed.

1.2 PURPOSE OF AND NEED FOR THE PROJECT

The purpose of the proposed project is to determine whether lease holdings contain economically recoverable oil and gas in a 2-year delineation program. A primary need for the project is implicit in the worldwide demand for oil and gas that is accompanied by concern in the U.S. over dependence on foreign oil supplies and associated stability. The project is needed to supplement the diminishing North Slope oil supplies and maintain the efficiency of the Trans Alaska Pipeline System (TAPS). Revenues from production are needed to support local, State, and national economies.

The proposed project is composed of several elements and is designed to meet the Applicant's needs and objectives, including:

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

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

1.3 RELATED STATUTES, REGULATIONS, POLICIES, AND PROGRAMS

The 1998 IAP/EIS was completed to fulfill the BLM's responsibility to manage lands in the NE Planning Area under the authority of the: Naval Petroleum Reserve Production Act, as amended (NPRPA), Federal Land Policy and Management Act of 1976 (FLPMA), NEPA, Alaska National Interest Lands Conservation Act (ANILCA), and the Wild and Scenic Rivers Act. Findings in the IAP/EIS and decisions reflected in the 1998 ROD were based upon an open and collaborative public process, as well as experience with multiple exploration programs completed in the NPR-A.

1.3.1 Federal Laws and Regulations

The proposed action must comply with numerous Federal laws and Executive Orders (EOs) that apply to activities on public lands – including those listed above. Key Federal, State, and NSB controls associated with the proposed action were described in both the NW IAP/EIS and the 2005 NE Amended IAP/EIS.¹¹ The proposed action is consistent with the 2001 National Energy Policy and the Energy Policy Act of 2005, which address the need for exploration on BLM land, including the NPR-A.

1.3.2 Required Permits, Licenses, Authorizations, and Approvals

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

1.3.3 Related Environmental Analyses

The environmental analyses most closely related to the proposed action are listed in **Appendix A**. All exploration EAs and associated Findings of No Significant Impact (FONSIs) document findings that the project under review was: in compliance with ANILCA Title VIII provisions for protecting subsistence use and access; not likely to adversely affect Essential Fish Habitat (EFH); and not likely to adversely impact listed Threatened and Endangered Species.

Council of Environmental Quality (CEQ) Regulation 40 Code of Federal Regulations (CFR) 1502.20 encourages agencies to “tier off their environmental impact statements to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review.” This EA is tiered off the 1998 NE IAP/EIS and ROD, which are incorporated in their entirety by reference, and relevant portions of the 2005 NE Amended IAP/EIS, in accordance with CEQ Regulation 40 CFR 1502.21.

1.3.4 Land Status

The proposed drill sites are located on NPR-A lease tracts held by Renaissance, under BLM jurisdiction. Access requires approximately 17 miles of new ROW within the NPR-A, use of existing gravel roads and pads in the Umiat area, and approximately 1 mile of packed

¹¹ 2003 NW IAP/EIS, Vol. 1, Sec. IIF-1 through IIF-6; Vol. 3, Appendix 4. 2005 NE Amended IAP/EIS, Vol. 1 Chapters 1.7 – 1.9; Vol. 3, App. C.

Table 1. Permits and Authorizations for Proposed Project in the NPR-A^a

Federal Authorizations and Approvals	
Bureau of Land Management (BLM)	<ul style="list-style-type: none"> ▪ Right-of-Way (ROW) ▪ Application for Permit to Drill and Surface Use Plan ▪ Threatened and Endangered Species "No Effect" Determination ▪ Essential Fish Habitat Assessment (No consultation with National Marine Fisheries Service required) ▪ ANILCA 810 Evaluation and Findings ▪ Archaeological and Cultural Resources Clearance
Federal Aviation Administration ^b	<ul style="list-style-type: none"> ▪ Airspace and Airstrip Non-Objections
U.S. Fish and Wildlife Service (USFWS)	<ul style="list-style-type: none"> ▪ Concurrence on BLM Threatened and Endangered Species "No Effect" Determination
U.S. Environmental Protection Agency (EPA)	<ul style="list-style-type: none"> ▪ Domestic Wastewater Discharge, under National Pollutant Discharge Elimination System (NPDES) General Permit No. AKG-33-0000 (drilling/camp contractor) ▪ Spill Prevention, Control, and Countermeasures Plan (SPCC) (drilling/testing contractor)
State Authorizations and Approvals	
Alaska Department of Natural Resources (ADNR)	<p><u>Office of Project Management and Permitting (OPMP)</u></p> <ul style="list-style-type: none"> ▪ Office of Project Management and Program General Concurrence Determinations under the Alaska Coastal Management Plan (ACMP) (e.g., General Concurrence Determination 5, 8, 39) for related elements <p><u>Division of Mining, Land and Water (DMLW)</u></p> <ul style="list-style-type: none"> ▪ Temporary Water Use Permits (ice roads and ice pads construction and maintenance, drilling and human use) <p><u>Office of Habitat Management and Permitting (OHMP)</u></p> <ul style="list-style-type: none"> ▪ Fish Habitat Permits for water extraction/use, and stream crossings with fish habitat
Alaska Department of Transportation & Public Facilities (ADOT&PF)	<ul style="list-style-type: none"> ▪ Aviation Leasing: Well 14 (if drilled) ▪ Aviation Leasing: Husky Pad (if used)
Alaska Oil and Gas Conservation Commission (AOGCC)	<ul style="list-style-type: none"> ▪ Authorization to Drill ▪ Annular Disposal Approval (optional)
Alaska Department of Environmental Conservation (ADEC)	<ul style="list-style-type: none"> ▪ Temporary Storage of Drilling Wastes ▪ Air Quality Minor Source General Permit (MGP-1) ▪ Oil Discharge Prevention and Contingency Plan (ODPCP) and Certificate of Financial Responsibility ▪ Wastewater and Water Treatment System Approval (drilling/camp contractor)
North Slope Borough (NSB) Authorizations and Approvals	
North Slope Borough (NSB)	<ul style="list-style-type: none"> ▪ Development Permits (for related elements)

^a Inside the NPR-A, the Applicant has asked the ADOT&PF for a lease to use State surface lands (with Federal subsurface).

Outside the NPR-A, a BLM ROW permit is required for packed snow trails/ice roads crossing federal lands, and an ADNR Land Use Permit is required for packed trail/ice road crossing State Lands. Crossing private or selected lands requires concurrence of the landowner.

Road and pad repair with material other than ice (e.g., gravel or soils), as well any follow-up summer studies, will require additional permitting not considered in this assessment.

^b FAA also required Renaissance to get a construction permit for W-14 because the drill rig would extend through the imaginary surface north of the runway.

snow trail and/or ice road on State of Alaska land (i.e. Umiat Airport, 1,500 acres). Proposed drill site (DS) W-14 is also on surface estate owned by the State of Alaska. The proposed project lies within the NE NPR-A and parcels of federal land to the east of the Colville River, inside the boundaries of the NSB. Traditional land use sites (e.g., cabins and campsites) are avoided. The BLM does not authorize use of private property; access over private lands requires authorization of the land owner.

Depending on the final route selected, a total of approximately 38 miles along the three proposed winter access routes outside the NPR-A may cross federal land managed by the BLM, subject to provisions of FLPMA.

1.4 PUBLIC INVOLVEMENT

Development of the 1998 NE IAP/EIS, the 2005 NE Amended IAP/EIS, and the 2007 NE Supplemental IAP/EIS involved extensive input from other Federal agencies, the State, the NSB, thousands of individuals, and many institutions.¹² The BLM consulted with Federally-recognized tribes, and drafted measures to protect tribal interests. All recent NPR-A exploration/delineation drilling programs have been public-noticed by the BLM, with comments considered. Federal, State, and local permits have been issued – some with stipulations to mitigate specific issues of concern, including meeting with local communities.

A number of meetings and consultations have been held at Nuiqsut, Barrow, Anaktuvuk Pass, Atqasuk, Point Lay and Wainwright to discuss NPR-A exploration plans. There was also extensive public involvement in the 2004 Alpine Satellites Development Plan (ASDP) Final EIS associated with development in the NE NPR-A and adjacent Colville River Delta.¹³ The Applicant has held community open houses in Nuiqsut and Anaktuvuk Pass and met with community leaders in Barrow to discuss issues of public interest. The Applicant has also implemented a Stakeholder Engagement Plan to provide ongoing opportunities for public involvement as the project proceeds.

1.5 BLM DECISION PROCESS

The BLM's decision on the proposed action will be based on statutory and regulatory authority. Prior to authorizing the proposed project, the BLM must conduct a project-specific NEPA analysis and determine whether

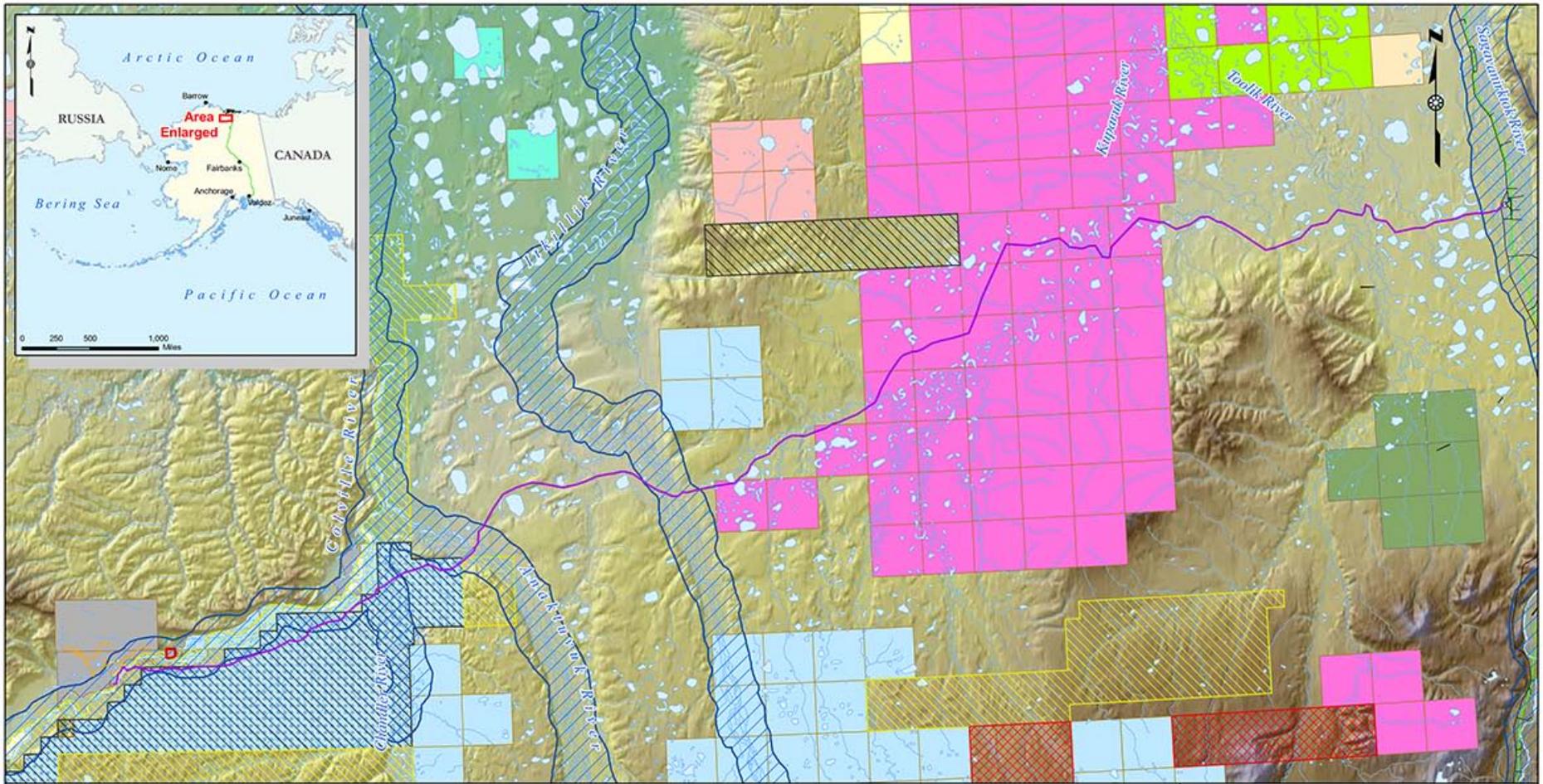
the proposed project should be approved, rejected, or modified, and if additional mitigation is needed. This EA will be based on management controls and protective measures of relevant stipulations in the 1998 ROD and General Stipulations for overland travel outside the NPR-A, as well as actual experience with exploration activity in the NPR-A and related activities on other federal lands on the North Slope.

Winter exploration programs completed in the NPR-A over the past 8 years have been based on similar plans and methods of operations. Expected effects of associated activities (i.e., overland transport, water use, ice road/pad construction, drilling, other operations and maintenance, and abandonment and restoration) are known. There have been no significant direct, indirect, or cumulative adverse impacts associated with the winter exploration programs recently authorized in the NPR-A. Results of BLM field inspections confirmed there were no significant impacts resulting from the 2006-2007 winter drilling programs. As a result, the current analysis will focus primarily on differences in proposed activities and locations that might result in impacts different from those evaluated in previous NEPA analyses, including cumulative impacts.

¹² 1998 NE IAP/EIS, Vol. 2, Section V; 2005 NE Amended IAP/EIS, Vol. 2, Chapters 5 and 6.

¹³ 2004 Alpine Satellites Development Plan (ASDP) FEIS Vol. 2, Sec. 5.

Figure 1 Proposed Renaissance Umiat, LLC Project Area Map



<ul style="list-style-type: none"> Infield Route Umiat Access Road Native Allotment Coastal Zone 	<ul style="list-style-type: none"> Road Pipeline Facility 	North Slope Operator: <ul style="list-style-type: none"> APC BROOKS RANGE PETROLEUM GROUP CHEVRON CONOCOPHILLIPS 	<ul style="list-style-type: none"> ENI FEX RENAISSANCE UNOCAL OTHER OPERATORS APC (see footnote) 	ASRC Land Holdings: <ul style="list-style-type: none"> ASRC Surface & Subsurface ASRC Subsurface Selections ASRC Surface & Subsurface Selections 	<h2>RENAISSANCE UMIAT, LLC</h2> <p>ACCESS ROUTE AND LEASE HOLDINGS FRANKLIN BLUFFS TO UMIAT 2007/2008 Winter Delineation Drilling Program Northeast NPR-A, North Slope, Alaska</p>
<p>NAD83, UTM Zone 05N APC has announced that APC & partners were granted exploration rights by ASRC within certain lands & patented "interim conveyed" & selected status by ASRC. ASRC Land Holdings data provided by ASRC.</p>				<p>ASRC Energy Services A Subsidiary of Arctic Slope Regional Corporation REGULATORY AND TECHNICAL SERVICES</p>	<p>SCALE: 0 3 6 12 Miles</p> <p>FIGURE: 1.0-2</p>

2 PROPOSED ACTION AND ALTERNATIVES

The proposed project includes delineation drilling at any of eight drill sites, during a 2-year winter program in the NE NPR-A. Renaissance filed Notices of Staking for 10 potential wells, which were staked and field inspected, as required by the BLM (see **Table 2**). One well was staked on Umiat Airport land (state surface; federal subsurface lease). Three wells will be co-located on one drill pad. Access routes and stream crossings have been identified and field examined. Locations of the drill sites and local access routes are depicted on **Figure 2**.

Table 2. Staking and Field Inspection

Drill Site	Notice of Staking date	Field Inspection date
Umiat Well 12	08/23/07	08/27/07
Umiat Well 13*	08/23/07	08/27/07
Umiat Well 14	08/23/07	08/27/07
Umiat Well 15	08/23/07	08/27/07
Umiat Well 16	08/23/07	08/27/07
Umiat Well 17	08/23/07	08/27/07
Umiat Well 18	08/23/07	08/27/07
Umiat Well 19	08/23/07	08/27/07
Umiat Well 21*	08/23/07	08/27/07
Umiat Well 22*	08/23/07	08/27/07

* Co-located

2.1 PROPOSED ACTION

The proposed project is described below, with main project components summarized in **Table 3**. Details are provided in the Applicant’s Plan of Operations, submitted to multiple agencies including the BLM, Alaska Department of Natural Resources (ADNR), and the NSB.¹⁴

The proposed project is similar to previous exploration/delineation programs that were described in the NE IAP/EISs and completed in the NPR-A during the past eight winter seasons (1999/2000 – 2006/2007). The discussion provided below is tiered off the 1998 NE IAP/EIS and the 2005 NE Amended IAP/EIS for further description of major project components.¹⁵

Table 3. Summary of Proposed Project

Project Component	Program Total ^a
Ice Drill Pads and Wells	Up to eight drill pads; totaling approximately 16 acres (one pad is on state surface land). Construction estimate of up to eight pads a season. Eight vertical and two horizontal wells are planned to be drilled; two horizontal wells will be co-located with a single vertical well on one pad.
Construction/drilling support facilities	Drilling camp (approximately 60 people), staging and storage established on existing Seabee pad. The existing Pad 2 and, possibly, Husky pad (State land) also used for staging and storage. Snow construction camp (approximately 25 people) located at DS-2P, Franklin Bluffs, or MP 359, depending on access route. The commercial UIC camp will be used for maintenance, storage, and personnel overflow housing. Construction of 500 foot x 500 foot ice staging pad at DS-2P and Dalton Highway MP 359 associated with that access route.
Access	Approximately 78 miles of new access corridor from DS-2P or 100 miles from either Franklin Bluffs or the vicinity of MP 359 to drill pads and water supply lakes in the NPR-A. All three access options cross small parcels of federal land outside the NPR-A. Use of existing gravel roads and approximately 17 miles of ice road (50 acres) in the NPR-A. Air access via the State-managed gravel airstrip at Umiat.
Water requirement	Approximately 120 MG total estimated water needs for all project activities, including 55 MG for ice road from DS-2P, if required.

Key:

^a Quantities estimated for comparative impact analysis.
 DS = Drill site
 UIC = Ukpeagvik Inupiat Corporation
 MG = Million Gallons
 MP = Milepost

2.1.1 Access and Construction

The proposed schedule calls for mobilization and ice construction to begin as soon as required authorizations and weather conditions allow in winter 2007/2008, with drilling expected to begin in January 2008.

The drill sites are located at Umiat, approximately 70 miles southwest of Nuiqsut and 106 miles southwest of Deadhorse. Drill site locations are listed in **Table 4**. These sites are in the same general area as drill sites constructed during previous federal exploration programs at Umiat. Approval to drill at any of the

¹⁴ On file with the BLM, Northern Field Office.

¹⁵ 1998 NE IAP/EIS, Vol. 1, Sec. IV.A.1.b ; 2005 NE Amended IAP/EIS, Vol. 1, Sec. 4.21.

proposed sites during the 2-year period was requested to accommodate changes in drilling strategy and funding priorities as new data become available.

Table 4. Drilling Locations

Name	BLM Lease Number	Section Location (Umiat Meridian)
Well 12	AA-084141	T1N, R1W, Sec. 34
Well 13*	AA-081726	T1S, R1W, Sec. 02
Well 14	AA-081726	T1S, R1W, Sec. 10
Well 15	AA-084141	T1N, R1W, Sec. 36
Well 16	AA-084141	T1N, R1W, Sec. 31
Well 17	AA-081726	T1S, R1W, Sec. 05
Well 18	AA-081726	T1S, R1W, Sec. 03
Well 19	AA-081726	T1S, R1W, Sec. 02
Well 21*	AA-081726	T1S, R1W, Sec. 02
Well 22*	AA-081726	T1S, R1W, Sec. 02

Key:

* = co-located

BLM = Bureau of Land Management

Access for aircraft ranging up to a C-130 Hercules will be provided via the 5,000-foot gravel airstrip at Umiat, managed by the Alaska Department of Transportation and Public Facilities.

Primary ground access to the drilling areas will be through a combination of packed snow trails and ice roads from DS-2P, Franklin Bluffs, or in the vicinity of Milepost (MP) 359 of the Dalton Highway (which is MP 52 of the TAPS ROW going south from Prudhoe Bay). Pre-packing will be used to prepare a trail to the NPR-A boundary. The packed snow trail will be constructed from DS-2P, Franklin Bluffs, or MP 359 to the project area and connect with gravel roads and ice roads to gravel pads, drill sites, and the airstrip at Umiat within the NPR-A. The third route, from MP 359, follows the Hickel Highway¹⁶ and allows access to the project area from the east when insufficient snow restricts overland transport on the Franklin Bluffs route. (See **Figure 1**).

Low-pressure ground vehicles (LPVs – e.g., Rolligons, Steiger tractors, and Tundra Bears) will be used to transport equipment and personnel to construct ice roads/pads/airstrips during each year’s winter exploration program. The final routes will be within an approximately 0.5-mile corridor along the alignment depicted on **Figure 1**. This flexibility is needed to accommodate minor rerouting due to field conditions, animal dens, changes in creek crossing characteristics, or other field conditions.

¹⁶ The Hickel Highway is an unpaved, winter access route created in 1968, and used for one year to support oil and gas development on the North Slope.

Renaissance proposes a total of approximately 250 miles (a total of three routes, only one of which would likely be used in any one year) of potential access corridor (packed snow trail/ice road) from State-owned developed areas (DS-2P, Franklin Bluffs, or MP 359) to Umiat. Of this, a total of approximately 38 miles crosses federal land east of the NPR-A. Equipment may be flown into Umiat so snow road construction can start concurrently at that western terminus, decreasing total time necessary to construct the snow trail. The route from DS-2P may require an ice road, depending on snow and weather conditions.

Gravel roads currently connect the Colville River access with existing facilities at/near the airstrip at Umiat. Renaissance has identified the need to repair gravel roads between Seabee Pad and the Umiat airstrip; existing gravel pads may also require repair before use. Winter repairs may be made with ice chips. For summer repairs, locally-available gravel or remediated soil (stockpiled at the Seabee Pad) will be used (use requires additional BLM approval). Summer work will require additional permitting for fill in wetlands and waterbodies.

Ice spur roads will form a system connecting drill pads and permitted water sources. Some segments will follow old winter trails existing in the area. Authorized vehicles may be used to pre-pack the access route from DS-2P, Franklin Bluffs, or MP 359. Packed snow trails will be approximately 24 feet wide. Rig mats, if used, will be removed prior to the end of the operating season.

The maximum length of ice roads will be up to approximately 17 miles long and up to 24 feet wide (located between ice pads and water supply lakes; no shoulders) with a minimum thickness of 4 inches. Maintenance will generally be accepted North Slope practices that have been developed over time to protect the tundra and support safe operations.

The proposed new ROW segments cross channels and tributaries of several creeks (e.g., Seabee, Bearpaw) and unnamed streams in the NPR-A. On federal land outside the NPR-A, proposed access crosses the Toolik River and Anaktuvuk River drainages. Crossings fish streams must comply with the ADNR Office of Habitat Management and Permitting (OHMP) requirements for fish protection.

A work camp and staging area will be established on the Seabee Pad to facilitate construction and support drilling operations. This camp will remain at Seabee pad throughout drilling operations. Ice road and pad construction may be concurrent. The ice pads will be

constructed to approximately 300 feet by 300 feet. The rig will be placed on rig pads and the ice pad under the rig footprint will be a minimum 12 inches thick. Pad thickness may be greater, with pad dimension varying depending on irregularity and slope of the underlying terrain. The minimum ice pad thickness will be 4 inches, with the estimated average ice pad thickness ranging from 1.5 feet to 20.9 feet. The thicker pads are required for well sites on the steeper gradients – to create a level work surface. An ice berm, approximately 12 inches high, will be constructed at the outside edge of the pad to provide for spill containment.

The freshwater requirements for constructing the project features (ice road/pads construction, maintenance, drilling operations, and camp use) are approximately 120 MG including a 10 percent (%) contingency. Renaissance plans to utilize water from lakes for this exploration program. The proposed lakes are listed in **Table 5**.

Renaissance has requested approval to harvest ice aggregate from lakes shown on **Table 5**. The topographical conditions will require a large volume of water and ice for infield ice road and drill pad construction and maintenance and for drilling operations. Approximately 65 MG is required for infield use (e.g., ice construction and maintenance, drilling, camp use), with an additional 55 MG required if an ice road is required for access from DS-2P.

Potable water will be hauled from an approved source, or taken from local lakes. One or more lakes will be evaluated for use as a potable water source. Potential potable water sources will be analyzed to ensure drinking water standards are met before water is introduced into the camp's potable water treatment system.

2.1.2 Drilling Operations and Support

Auxiliary facilities include camps to support drilling and ice construction, pump houses on lakes used as water sources, and light plants near pump houses and along ice roads. Storage and maintenance facilities will be provided by Ukpeagvik Inupiat Corporation (UIC) at their existing (commercial) camp at Umiat. The Applicant may also use other existing pads (i.e., Seabee, Pad 2, and the Husky pad) for staging and storage of equipment and materials.

Drilling camps will accommodate approximately 60 people. Small camps (housing up to about 25 people) may be located at DS-2P, Franklin Bluffs, or MP 359 to support trail/ice road construction. Fuel will be purchased from the tank farm operated by UIC at the

State airstrip. Approximately 8,000 gallons of diesel fuel will be stored on the drill rig and approximately 5,000 gallons of fuel will be stored at the camp site. The proposed program includes up to 10 wells (eight vertical and two horizontal). The well plan designs will be similar to previous North Slope exploration wells. The actual well designs are included in the Drilling Permits issued by the BLM and the Alaska Oil and Gas Conservation Commission (AOGCC).

The proposed drilling and testing operations will be used to determine future drilling plans. Testing may include extended flow periods to determine productivity of a well. Produced fluids will pass through an adequately sized separator system to prevent oil carryover into the gas stream. Drilled wells will be temporarily suspended (capped in place with "Christmas Tree"), or plugged and abandoned prior to end of the 2007-2008 winter drilling season.¹⁷

For drilling a second season, the rig may be stored over the summer at the Seabee Pad or transported back to Deadhorse. Data for vertical seismic profiles may be collected in the vicinity of the well.

2.1.3 Waste Management

Used oil may be burned for heat recovery by Renaissance, or transferred to UIC for use in heat recovery burners. UIC will be contracted for disposal of solid, non-burnable waste and municipal waste – including food waste. Solid, non-burnable wastes will be temporarily deposited in large dumpsters, or other suitable containers.

No incineration of waste on site is planned.¹⁸ However, Renaissance has submitted notification to operate under 40 CFR Subpart CCCC- Standards of Performance for commercial and industrial solid waste incineration units, in the event the existing camp incinerator is used.¹⁹ Food waste will be stored in enclosed containment pending periodic hauling, or will be hauled regularly to UIC for disposal at an approved disposal site.

Camp wastewater (approximately 5,000 gallons per day) will be discharged to tundra in accordance with the National Pollutant Discharge Elimination System (NPDES) General Permit. Other wastes will be handled according to the approved Renaissance waste management plan required by BLM under Stipulation 1.

¹⁷ Drilling process described in 2005 NE Amended IAP/EIS, pp. 4-25 and 4-26.

¹⁸ Pers. Comm., M. Turner, ASRC, RTS. Nov. 12, 2007.

¹⁹ Pers. Comm., M. Turner, ASRC, RTS. Dec. 18, 2007.

Table 5. Proposed New Water Sources

Lake ID ^a	Town-Ship	Range	Sections	Surface Area (acres)	Max. Depth (feet)	Calculated Total Lake Volume (MG)	Fish Present ^b	Proposed Water Withdrawal (MG) ^c	Proposed Ice Removal (MG)	Total Proposed Water + Ice Withdrawal (MG)	Proposed Withdrawal Relationship to Total Lake Volume
RTS07118	1S	1 W	4	16.84	10.00	23.02	Yes-R	0.91	3.69	4.60	20% total lake volume as water + ice
RTS07119 ^d	1S	1 W	3	39.98	8.00	42.84	No	2.95	18.47	21.42	50% total lake volume as water + ice
RTS07121	1S	1 W	3	14.41	4.50	14.37	No	none	7.18	7.18	50% total lake volume as water + ice
RTS07123	1S	1 W	8	9.83	2.00	6.40	Too shallow	none	3.2	3.20	50% total lake volume as water + ice
RTS07124	1S	1 W	5	9.06	5.00	10.75	No	2.44	2.93	5.37	50% total lake volume as water + ice
RTS07125	1S	2 W	12	19.91	5.50	19.31	No	none	9.65	9.65	50% total lake volume as water + ice
RTS07126	1S	2 W	14	22.72	12.00	25.26	Yes-S	0.09	4.96	5.05	20% total lake volume as water + ice
RTS07127	1S	2 W	13	16.86	5.50	10.37	Yes-S	2.07	none	2.07	Water withdrawal being recalculated
RTS07128	1S	2 W	13	9.77	9.00	12.35	No	2.69	3.48	6.18	50% total lake volume as water + ice
RTS07129	1S	1 W	7	19.35	10.50	17.08	Yes-S	0.01	3.40	3.42	20% total lake volume as water + ice
RTS07130	1S	2 W	14	7.12	3.50	5.19	Too shallow	none	2.59	2.59	50% total lake volume as water + ice
RTS07131	1S	1 W	9	1.05	2.00	0.69	Too shallow	none	0.34	0.34	50% total lake volume as water + ice
RTS07132	1S	1W	9	2.54	9.50	4.47	Yes-R	0.28	0.43	0.71	20% total lake volume as water + ice
On federal land, outside the NPR-A											
RTS07168	4N	4E	19	703.66	7.50	1,197.79	No	239.56	none	239.56	20% total lake volume as water
RTS07209	4N	4E	31	394.04	8.50	597.87	Yes-R	19.26	79.49	98.75	17% total lake volume as water + ice
RTS07183	2N	3E	9	67.41	9.50	67.16	No	13.43	none	13.43	20% total lake volume as water
RTS07185	3N	3E	33	23.45	8.50	31.21	Yes-R	1.03	5.21	6.24	20% total lake volume as water + ice
RTS07192	2N	3E	32	9.79	7.50	11.13	No	2.23	none	2.23	20% total lake volume as water
RTS07240	1N	1E	35	6.18	11.00	9.24	No	2.98	1.64	4.62	50% total lake volume as water + ice
RTS07235	1S	1E	3	10.30	10.50	12.67	No	2.22	4.12	6.34	50% total lake volume as water + ice

Key:

- a. Source: Temporary Water Use Permit (TWUP) applications and October 2007 (Rev 2) Plan of Operations
- b. No = No fish caught; Yes = fish present during survey; S = Sensitive fish species; R = Resistant fish species only
- c. Not more than 15% of the unfrozen water below 7 feet is requested from lakes with sensitive fish. Not more than 30 percent of the unfrozen water below 5 feet is requested from some lakes with sensitive and non-sensitive (i.e., resistant) fish. Ice aggregate removal in areas of naturally grounded ice in excess of those amounts -- up to 20% of the total lake volume -- has been requested in lakes with fish and up to 50% of the total lake volume in lakes with no fish.
- d. Umiat Lake
- MG = million gallons
- % = percent

Drilling wastes include drilling mud and cuttings which will be separated on the pad. Excess drilling mud (about 250 barrels from each well) will be temporarily stored on site and will be transported to an appropriate disposal site/well. After separating from drilling mud, drill cuttings will be temporarily stored in an ice-bermed storage cell for freezing.²⁰

Frozen drill cuttings will be hauled off site to an approved disposal location, or used for road and pad maintenance under a Drill Cutting Beneficial Reuse Plan. Both the cuttings storage plan and drill cuttings reuse plan must be approved by the Alaska Department of Environmental Conservation (ADEC).

Produced fluids from testing will be held in tanks until testing is completed. After testing, fluids will be disposed of into the formation from which they were produced. Produced gas will be flared.

2.1.4 Air Emissions

Renaissance will operate under the ADEC Minor General Permit 1 for Drilling Rigs and Associated Equipment under 18 Alaska Administrative Code (AAC) 50.502. This includes implementing a public access control plan approved by BLM to restrict entry by unauthorized personnel during the project period, if required due to sulfur content of the fuel used on site. Evaluation of the potential for hydrogen sulfide (H₂S) release indicates that significant quantities are not expected at any drilling location. Measures and precautions associated with hydrogen sulfide are addressed in the Application for Permit to Drill filed with the BLM.

2.1.5 Contingency Plans

Contingency plans are described below.

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

The Applicant is required to have approved oil spill response measures in place to meet Federal and State requirements. Renaissance must have a site-specific ODPCP approved by ADEC that is considered sufficient to meet BLM requirements.²¹

The ODPCP will contain information on immediate response actions, receiving environments, spill cleanup, mobilization response times, and well control. The

ODPCP encompasses standard response methodology and resources for the response. Additionally, the BLM inspects the wells and pads during construction and drilling.

The Applicant's approved ODPCP, along with approved spill control equipment and supplies, will be kept on site. Phone service will be available 24-hours a day at the drilling camp. Renaissance will conduct a drill of the ODPCP to ensure that project personnel are knowledgeable of roles, responsibilities, and response strategies. The ODPCP will be amended, as necessary, to reflect any changes in the program that would have a bearing on spill responses.

A worst case release (i.e., blowout) is considered to be exceedingly unlikely. The worst case response planning standard for this project is a blowout of 50 barrels of oil per day lasting 15 days, based on a site-specific evaluation of the Umiat field by AOGCC and approval by ADEC. This represents a substantial decrease in the default release of 5,500 barrels of oil per day for 15 days. Based on required modeling, which considers prevailing wind direction, a blowout would distribute oil in any of three triangular plumes extending from each well in the direction of the wind. Most of the oil discharged would fall on or close to the drill pad.

The modeled blowout plume footprint associated each drill site has been examined to identify sensitive areas that could be affected in the unlikely event of such a blowout. Wells 13, 21, and 22 lie approximately 500 feet from the Colville River, although the modeled trajectories do not intercept the river. Well 14 lies approximately 450 feet from the State airstrip, and approximately 500 feet from Seabee Creek, a fish stream, which flows into the Colville River. The modeled blowout plume trajectories from Well 14 do not intercept either the airstrip or Seabee Creek.

No drilling will begin until the well pad is fully constructed and accessible by packed snow trail or ice road; the period of active drilling is subject to seasonal restrictions set in the ODPCP. Renaissance will cease drilling operations prior to the onset of spring breakup to ensure snow cover provides adequate tundra protection.

Spill Prevention Control and Countermeasures (SPCC) Plans

An SPCC Plan provides guidelines for pollution prevention and addresses secondary containment where fuel and hazardous materials are stored in quantities of 1,320 gallons or more. The drilling contractor and the camp operator will have an SPCC Plan for fuel storage

²⁰ Pers. Comm., M. Turner, ASRC, RTS. Dec. 18, 2007.

²¹ Renaissance ODPCP Plan No. 07-CP-2234 is available for review at ADEC.

facilities, and the well testing contractor will have an SPCC Plan for its testing tanks, where needed.

Wildlife Protection and Encounter Plans

Renaissance has a Bear Avoidance and Human Encounter/Interaction Plan. An approved orientation program is required for all personnel working in the NPR-A, to increase awareness of related environmental, social, and cultural concerns. These actions, along with the required Subsistence Plan, provide wildlife protection measures.

Other Plans

Renaissance has developed an Emergency Action Plan specific to the proposed project. Contractors will prepare a Health, Safety and Environmental Plan, and generally, contractors and employees are required to complete an 8-hour North Slope environmental and safety training program, in addition to specialized training as required.

2.1.6 Abandonment and Restoration

Upon completion of drilling operations, all equipment and supplies will be removed and ice surfaces cleaned. Debris will be hauled to an approved disposal site. Dirty ice will be hauled to an approved disposal well. Ice road and pad sites will be inspected to ensure proper cleanup. When operations are completed, all wells will be plugged and abandoned in compliance with AOGCC and BLM regulations, and the drill rig will be transported out of the project area to Deadhorse, Canada, or some other final destination. Final site closure will be approved by appropriate agencies.

2.1.7 Community Relations

Renaissance has prepared a Stakeholder Engagement Plan to assist in the identification of potential issues and response actions. Prior to issuing development permits, the NSB solicits public review including State and Federal agencies, local officials, residents, and private property owners in the affected area.

Renaissance conducted community meetings in Barrow, Nuiqsut and Anaktuvuk Pass to discuss summer field studies, seismic activities, and exploratory drilling. In addition, Renaissance representatives have attended meetings of the Subsistence Advisory Panel (SAP) to hear resident concerns about potential impacts to subsistence. Renaissance will continue to keep the public informed about project development in a variety of ways, including open houses, management briefings, and reports from local subsistence observers.

To date, Renaissance has addressed key community issues as described below.

Cultural and Paleontological Resources. New road and pad locations were selected to avoid known archaeological and cultural resources and traditional land use sites. Renaissance conducted a cultural and paleontological resources survey at pad locations and along new access corridors. A letter report of survey findings was submitted to the BLM.

Subsistence. The project area is recognized as a subsistence use area for Nuiqsut and Barrow, with Anaktuvuk Pass subsistence use historically ranging to the Colville River. Public meetings and consultations included subsistence discussions. The Applicant plans to continue consultation with subsistence users and implement mitigation measures, as necessary. A Subsistence Plan and Orientation program will be implemented, as required.

Economic Opportunity. Renaissance has worked with the NSB and nearby communities to identify local economic opportunities. The Applicant will employ Subsistence Advisors, and puts a priority on obtaining local goods and services (e.g., use of UIC facilities and services).

2.2 POSSIBLE FUTURE ACTION

BLM regulations provide the option of deferring plans for proposed facilities. Based on the uncertainties associated with wells to be drilled in the proposed program, Renaissance deferred planning for future facilities. Each phase of decision-making requires additional, site-specific environmental review and potential mitigation and additional environmental protection measures. Potential field development in and around the NPR-A has been discussed in previous evaluations and is incorporated by reference.²²

The area likely would be developed and operated in a manner similar to that recently approved for the ASD Project, incorporating relevant design and environmental protection measures required by the 1998 NE IAP/EIS and the associated ROD, or subsequent decision documents for this area.

²² 1998 IAP/EIS, Vol. I. Section IV.A; 2003 NE Amended IAP/EIS, Vol. 1, Sec. 4.2.1.2; and ASDP FEIS, Vol. 1, Sec. 2.2.2 and Sec. 2.2.3 and Vol. 2, Sec. 4.G.4.4.

2.3 ALTERNATIVES

This EA is tiered from the broader alternatives analyzed in both the 1998 NE IAP/EIS and 2005 NE IAP/EIS, as well as to more specific alternatives evaluated in exploration EAs, as discussed below.²³

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

Alternatives to the proposed project are evaluated at several levels: alternatives considered, but eliminated from detailed analysis; functional alternatives; and the no action alternative.

2.3.1 Alternatives Considered but Eliminated from Detailed Analysis

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

Discussion of other alternatives previously considered, but rejected from detailed consideration (e.g., primary access only by air, packed snow trail, or ice road), is incorporated by reference.²⁵ One option considered was access that avoids crossing federal land outside the NPR-A, to avoid potential impacts on willows on federal land along the Anaktuvuk River. This option was rejected because resultant routes would need to be longer, and would still cross the river on State or private lands, perhaps resulting in greater impacts.

Another option would be to require shared use of the Anadarko access trail/ice road from DS-2P or partial use of the Chevron route from Franklin Bluffs to the White Hills exploration area (approximately the first 30 miles). However, these routes are primarily on state and private lands, outside the jurisdiction of the BLM, and were eliminated from detailed analysis. Other options considered are use of Umiat Lake as part of the ice road system, similar to previous exploration programs and

more recent plugging and abandonment projects in the area, and use of an Arctic platform (similar to the Anadarko/U.S. Department of Energy's Hot Ice platform) to reduce water requirements for ice pads. Umiat Lake is a proposed water source and may not be suitable for overland transport in this project. Use of an Arctic platform requires availability and further study for use at the proposed locations. As a result, neither option is carried forward in the analysis.

For flexibility, the proposed project includes a combination of access via air, packed snow trail, ice road, and existing gravel road. Previous winter exploration EAs have evaluated these alternatives and found that none of them would result in significant adverse direct, indirect, or cumulative effects.²⁶ Additionally, none of these typically offer a distinct environmental advantage over the others, except existing gravel roads, which cannot meet all project access needs. The alternative for local over-summer storage to minimize access impacts was previously evaluated,²⁷ and has also been incorporated into the proposed project.

One factor is present (i.e., proximity to existing gravel airstrip) that might make primary access via aircraft an alternative for detailed evaluation. Primary access by aircraft would substantially decrease potential impacts to tundra and possibly to some wildlife from ground traffic, but would substantially increase the number of required flights, with the associated noise and visual impacts. There are also aircraft restrictions in the Colville River Raptor, Moose, and Passerine Land Use Emphasis Area (LUEA), and other users of the public airport that would be affected by substantially increased air traffic from the proposed project. Only a small number of drill rigs can be transported by air, and they are not always available to any one company. Emergency response would depend primarily on the availability of aircraft and flight conditions (e.g., weather). From a safety perspective, non-exclusive route and modes of transportation will yield a higher contingency level for access and egress in the event of an emergency.

There are no unusual factors that would make exclusive use of air, ice road, or packed snow trail environmentally more viable for the delineation project plan, which already incorporates all of the transportation modes.

²³ 1998 IAP/EIS, Vol.1, Section II.C.1-6; 2005 NE Amended IAP/EIS, Vol. 1, Chapter 2.1 – 2.4; and EAs cited in Table 2, Sec. II.C/2.3, Alternatives.

²⁴ EA: AK-023-02-005, p. IV-27.

²⁵ EA: AK-023-00-011, p. II-12; EA: AK-023-07-001, p. 2-7.

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

²⁷ EA: AK-023-07-006, p 2-7.

In summary, these action alternatives to the proposed project were eliminated because of the following: they do not meet the purpose of the proposed action; are outside the jurisdiction of the BLM; are technically infeasible, unreliable, or unavailable; or fail to reduce environmental impact or provide an environmental advantage.

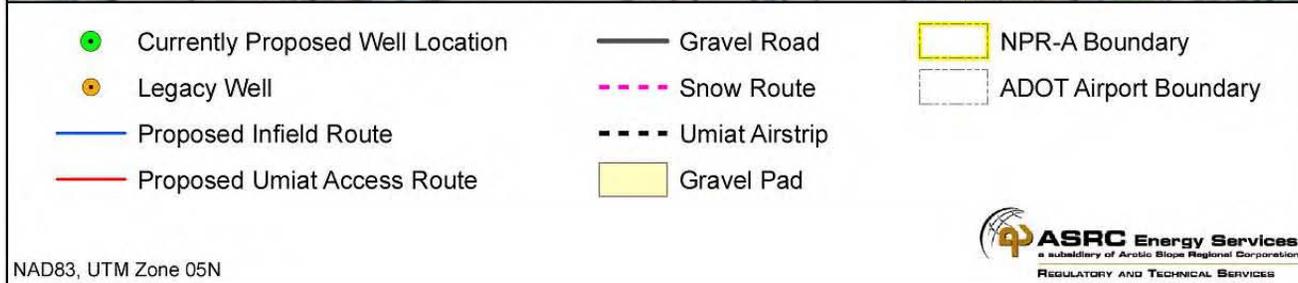
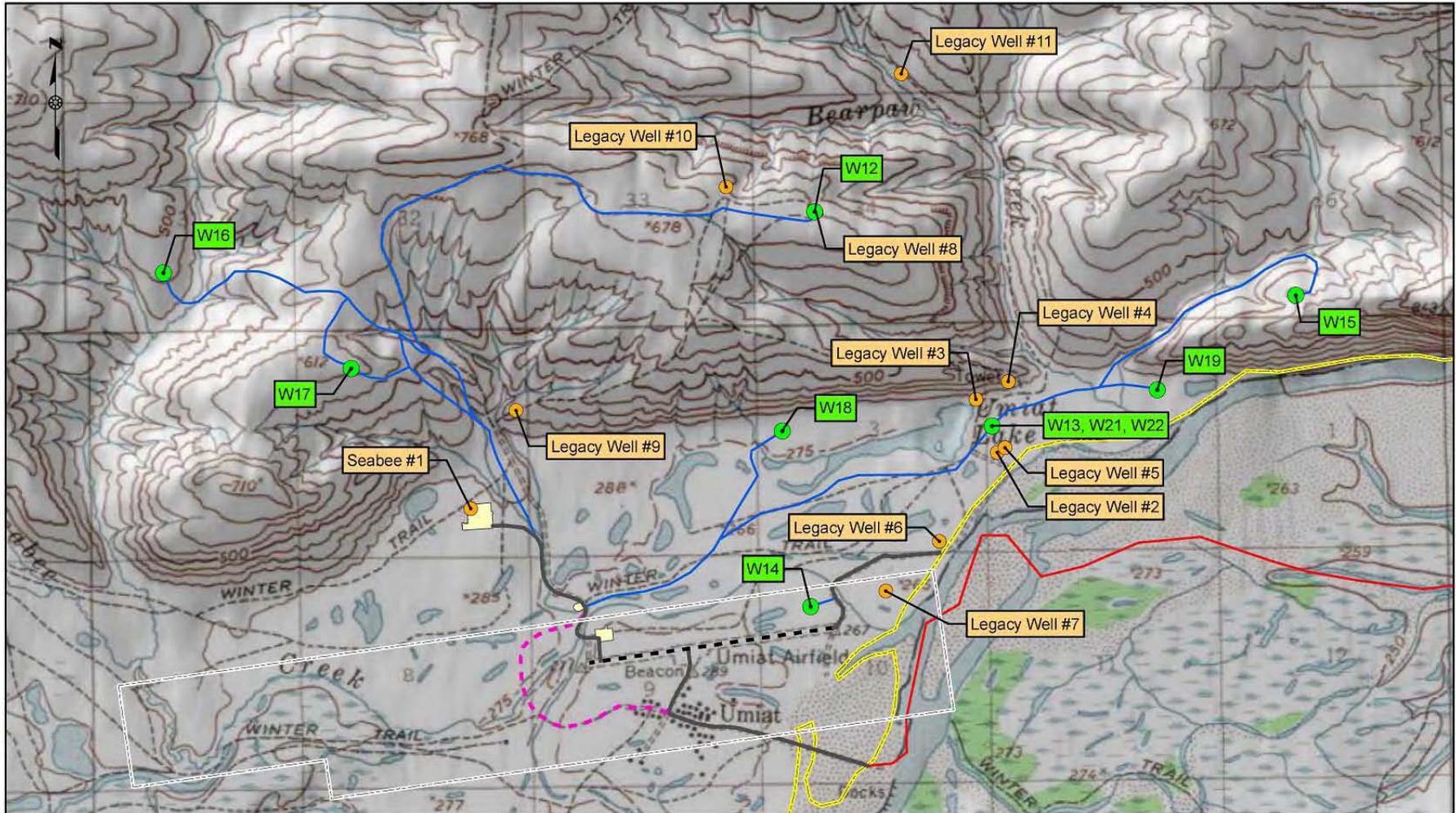
2.3.2 Alternatives to the Proposed Action

Based on limitations imposed by stipulations and the flexibility included in the proposed project, only one alternative is considered for detailed evaluation at this time: “no action.”

No Action Alternative

With the no-action alternative, exploratory drilling under existing valid oil and gas lease would not be allowed as proposed. Permit applications to the BLM would be denied, and no access, drilling, or drilling support activities on Federal lands in the NE NPR-A would be allowed. While this alternative is contrary to the current Administration’s policy, it is required by NEPA.

Figure 2 Proposed Drill Sites and Access



NAD83, UTM Zone 05N



PROPOSED DRILL SITES AND ACCESS
BLM EA: AK-023-08-002

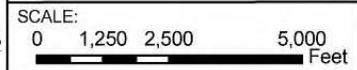


FIGURE:
2

3 AFFECTED ENVIRONMENT

The proposed Renaissance delineation drilling operations, ice roads, access corridors, and water supply lakes are near Umiat in the NE NPR-A Planning Area. Environmental characteristics of the general project area have been extensively described in the 1998 NE IAP/EIS (Vol. 1, Section III) and the 2005 NE Amended IAP/EIS (Vol. 1, Chapter 3), which are incorporated by reference, with some site-specific features summarized below.

All drill sites are on Federal oil and gas leases in or close to the Umiat Oil Field that also is within the Colville River Special Area, which also includes the: Raptor, Passerine, and Moose LUEA; Colville River Fish Habitat LUEA; Potential Colville Wild and Scenic River LUEA; Scenic Area LUEA; and Umiat Recreation Site LUEA. The general relation of the project area to existing oil and gas fields on the North Slope and TAPS is shown on **Figure 3**.

Most of the NPR-A project area is federally-owned; however, the State of Alaska owns the tract of land on which the Proposed Well-14 is located. Resources on federal land outside the NPR-A are also considered in this assessment. Small parcels of federal land outside the NPR-A would be crossed by proposed access to the project area from DS-2P, Franklin Bluffs, or MP 359; all three corridors primarily cross State and private land east of the Colville River.

3.1 PHYSICAL CHARACTERISTICS

Proposed activities will take place in the northern foothills of the Brooks Range, where temperatures average below freezing for 8 months of the year. A dramatic change to higher temperatures and longer day length occurs during the other 4 months. Annual precipitation is low, averaging 5.5 inches per year, and annual snowfall averages 34 inches. Snow cover is typically established in late September/October and disappears late May/mid-June. North Slope air quality meets the National Ambient Air Quality Standards and State of Alaska air quality regulations.²⁸

Umiat lies at an elevation of about 260 feet along the north bank of the Colville River. Originating in the Brooks Range, the Colville River is the largest river on the North Slope, with steep cut bank cliffs, deep pools, and large gravel bars. Due to its extreme length and range of elevation, breakup and freezeup are more

complex, and flow generally persists later than on most other North Slope rivers.²⁹

Most of the project area has been mapped as inactive floodplain, with intermediate magnitude/intermediate frequency flooding mapped at several sites southeast and northeast of the runway approximately in the areas where the existing gravel road system connects with the Colville River channel.³⁰ Of the eight proposed drill pads, four are located on the inactive floodplain of the Colville River (as mapped), and four are planned in uplands adjacent to the north.

The U.S. Army Corps of Engineers (USACE) flood hazard data for Umiat reports that the water level of the Colville River reached the top of the airstrip in August of 1994, which was reported as not uncommon. It was estimated that the 100-year flood event would inundate the airstrip and flood the buildings.³¹ However, a 1995 report for the Federal Aviation Administration (FAA) notes that the airway support facility at Umiat has no history of flooding.³² The elevation at Runway 23 (eastern end) is reported to be 265 feet.³³

Topography in the project area is of two distinct variations: the Colville River valley and the adjacent uplands. The Colville River valley is generally flat to gently rolling with occasional pingos. The uplands are characterized by tundra covered rolling hills and low east-west trending ridges.³⁴ Permafrost is continuous, with a generally shallow annual depth of thaw in the upland areas and somewhat deeper annual thawing when close to the Colville River.

There are two primary soil associations in the project area. The rolling hills in the northern part of the project area are covered by loamy colluvial sediments with more gravelly weathered bed rock on hillsides and ridges. The Colville River valley has very gravelly stream deposits.³⁵

²⁸ 1998 NE IAP/EIS, Vol. 1, p. III-A-53; 2003 NW IAP/EIS, Vol. 1, p. III-43.

²⁹ 2005 NE Amended IAP/EIS, Vol. 1, p. 3-23.

³⁰ Cannon, Dr. P. J. and T. W. Mortensen, Mineral Industries Research Lab, UAF. 1982. "Flood Hazard Potential of Five Selected Arctic Rivers, Arctic Coastal Plain, Alaska. February, 1982. Map 5c.

³¹ USACE Flood Hazard data, which can be accessed at http://www.poa.usace.army.mil/en/cw/fld_haz/umiat.htm.

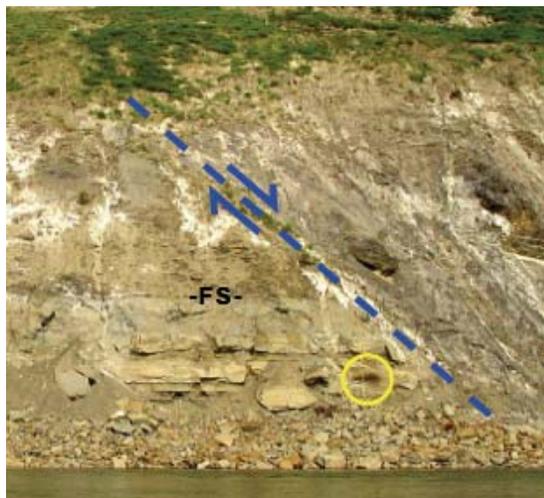
³² Cowan, J. R. 1995. Environmental Overview and Hydrogeologic Conditions at Umiat, Alaska. Prepared in cooperation with the Federal Aviation Administration (FAA). USGS. Open File Report 95-350. p. 1.

³³ AirNav. 2007. FAA information effective October 25, 2007, which can be accessed at <http://airnav.com/airport/PAUM>.

³⁴ Gallant, A., E. Binnian, J. Omernikand, and M. Shasby. 1995. *Ecoregions of Alaska*, USGS Professional Paper 1567.

³⁵ 2005 NE Amended IAP/EIS. Vol. 3. Figure 3-06.

Natural oil seeps are known to occur in the Umiat area, and have been documented since the early 1940s, when nearby drilling led to the discovery of the Umiat Oil field.³⁶ As recently as 2001, a natural oil seep was observed percolating from the Colville Riverbed, a few miles downstream from Umiat.³⁷ A 2004 paper by the U.S. Geological Survey (USGS) included a photograph (following) of an oil seep along the Colville River.³⁸



The dark stain inside the circle is oil seeping from sandstone on the east flank of Umiat Mountain. [The arrows mark a normal fault in the hillside]. Colville River is in the foreground.

The old test wells in the Umiat area are part of the current BLM “Legacy Well” closure program, and are identified as such in this EA.

Legacy Wells 1-11, the airstrip complex, and the landfill from previous federal activity are listed on the ADEC Contaminated Sites Database; many are also Formerly Used Defense Sites (FUDS). Eleven groundwater monitoring wells are located in the vicinity of the project. At a minimum, Legacy Wells 1 and 9 will require some type of action prior to closure per ADEC.³⁹ The Legacy Well 1 site is located 4.5 miles west and 2.5 miles north of the airstrip, and not in the immediate project area.

Legacy Well 9 is located 1.5 miles northwest of Umiat, along the proposed ice road route to the proposed W-12 site and approximately 0.75 miles upgradient from two water supply lakes (RTS07131 and RTS 07118). The site has been described to contain surface and subsurface diesel range organics (DRO) and polychlorinated biphenyl (PCB) contamination. An old burn area, approximately 250 feet west of the wellhead, was sampled and determined to contain DRO, residual range organics (RRO), and PCB contamination, with the possible presence of dioxins and furans, based on the presence of chlorinated compounds found at the site.⁴⁰ A map of this area is provided in **Appendix C**.

Legacy Wells 2 and 5 shared a common pad in the immediate vicinity of Renaissance W-13. Proposed ice road access to proposed drill sites W-15 and W-19 also crosses through this general area. Approximately 16,000 cubic yards of contaminated soil has been removed (by the USACE) from the sites of Legacy Wells 2 and 5.⁴¹

The project plan is designed to avoid disturbance of soils adjacent to the wells. Additionally, ADEC has defined a zone where no dredging of sediments should occur. ADEC has requested that the proposed delineation program avoid disturbing soils within 150 feet from the old wellhead (Legacy Well 9) and around the old burn area. Legacy Well 8 is generally included in this zone, and ADEC requests no soil disturbance; however the proposed adjacent drilling is acceptable to the BLM and ADEC.⁴²

The Umiat landfill, associated with early drilling and Department of Defense activity, lies along both sides of the gravel road, mid-way between the main gravel pad leased to UIC and the Colville River. The landfill, located on BLM land, has been noted to contain petroleum, oils, lubricants, PCBs, and pesticides (specifically DDT).⁴³

Renaissance has identified 13 lakes on federal land in the NE NPR-A that would be used to construct ice roads and pads and for drilling operations (see **Table 5**). In addition, the Applicant has identified seven lakes that are at least partially within BLM land outside NPR-A that would be used if an ice road was constructed to the project area from DS-2P. The volume of water withdrawal authorized is based on depth and habitat value for fish.

³⁶ Gryc, G. 1985. USGS Professional Paper 1240-C., p. C-14.

³⁷ AP. 2001. *Probe Finds Oil Sheen on North Slope Was Natural Seep*. Petroleum News Vo. 6, No.7, July 30,2001.

³⁸ Houseknecht, D. W. and C. Schenk. 2004. USGS Professional Paper 1709-B, p. 7.

³⁹ Pers. Comm. Tamar Stephens, ADEC. Sep 17, 2007.

⁴⁰ 1999. Final 1998 Field Investigation Report, Former Umiat Air Force Station, Umiat Alaska. Prepared for the US Army Engineer District, Alaska by Ecology and Environment, Inc., October 1999.

⁴¹ 2005 NE Amended IAP/EIS, Vol. 1. Chapter 3.2.10.2.

⁴² Pers. Comm. Tamar Stephens, ADEC, and Donna Wixon, BLM. November 2007.

⁴³ 2005 NE Amended IAP/EIS, Vol. 1. Chapter 3.2.10.2.

Based on available data, water quality of potential sources for this project appear to be within the general ranges of water quality discussed in the 1998 NE IAP/EIS (Vol. 1, Section A.2.) and the 2005 NE Amended IAP/EIS. (Vol 1, Chapter 3.2.9).

The Umiat area has fewer and generally smaller lakes than those previously evaluated by the BLM for similar winter exploration drilling operations in the northern portions of the NE and NW Planning Areas. Umiat Lake is the largest single source of water proposed for use in this project. Umiat Lake is currently included in the ADEC contaminated sites database.⁴⁴

During previous federal exploration programs in the area, Umiat Lake was used as a staging area. Due to its size and location, it also served as an ice road. Old fuel drums were left to sink into the lake as the ice melted.⁴⁵ None of the remaining 12 potential water sources in the project area, or the seven lakes on BLM land outside the NPR-A, are known to have been utilized in the same fashion.

Water quality data collected from Umiat Lake in 1998 indicated that some contamination still existed in the lake.⁴⁶ Three lake water samples were collected by the Applicant in 2007. Only five analytes were detected, and all at levels below ADEC groundwater cleanup levels listed in 18 AAC 75. The BLM has consulted with ADEC over use of Umiat Lake water, and the only ADEC request was that lake bottom sediments not be disturbed.⁴⁷

Within the NPR-A, concentrations of indicator hydrocarbons from multiple sources (e.g., tundra fires) can be high and chemically similar to those found in petroleum, making it difficult to detect or distinguish anthropogenic contamination from natural background.⁴⁸

Recharge of lakes in the NPR-A occurs through melting snow, stream overbank flooding, and rainfall. To evaluate local impacts, the Applicant prepared preliminary estimates of likely average annual recharge of lakes near Umiat. Results indicated it

would take 1 to 3 years for a lake to fully recharge if the requested 50% of the total volume is approved for withdrawal, with the difference in recharge rates based on different site-specific conditions.⁴⁹

3.2 BIOLOGICAL RESOURCES

Biological resources in the project area within the NPR-A are described in both the 1998 NE IAP/EIS and 2005 NE Amended IAP/EIS.⁵⁰ Key elements are discussed in more site-specific detail below.

3.2.1 Vegetation

The project area is located in the Arctic Foothills, which is generally characterized by a wide swath of rolling hills and plateaus that grades from the coastal plain on the north to the Brooks Range on the south. Vegetation over most of the project area consists of dwarf and low shrub, with tall shrub in better drained soils along the Colville and Anaktuvuk rivers.

Within the entire NE Planning Area, dwarf shrub comprises only about 15% of the total vegetation cover, with low shrub slightly less than 2% and tall shrub approximately 0.1%.⁵¹ Overall, dwarf shrub and low shrub are more commonly found in the foothills area. Tall shrubs are primarily found along major tributaries of the Colville River. For the purposes of this EA, it is assumed that all of the proposed project area is classified as wetlands.⁵²

Within the project area, surface disturbance from previous activity in the Umiat area is apparent. In addition to construction of gravel pads and an airstrip, a network of access roads have been created, which currently exist as gravel roads and sandy trails, with grassy areas and brush on the side. Some of these trails provide access to the vicinity of proposed drill sites.

There are no known, Federally-designated threatened or endangered plants in the project area. Several plant species considered to be rare or sensitive have been documented near Umiat (*Mertensia drummondii* and *Potentilla stipularis*).⁵³ No further vegetation survey was required for the proposed project, because no ground

⁴⁴ ADEC Contaminated Sites Program database, http://www.dec.state.ak.us/spar/csp/search/csites_report.asp?Hazard_ID=3084.

⁴⁵ Pers. Comm. T. Stephens, ADEC September 17, 2007.

⁴⁶ Ecology and Environment, Inc. 1999. Final 1998 Field Investigation Report, Former Umiat Air Force Station, Umiat, Alaska. Prepared for the US Army Engineer District, Alaska, October 1999.

⁴⁷ Pers. Comm. T. Stephens, ADEC September 17, 2007.

⁴⁸ 2005 NE Amended IAP/EIS, Vol. 1. p 3-26.

⁴⁹ Renaissance. 2007. Recharge of Lakes Near Umiat, Memo submitted to BLM in support of permit application.

⁵⁰ 1998 NE IAP/EIS, Vol. 1, Sec. III.B and 2005 NE Amended IAP/EIS, Vol 1, Chapter 3.3.

⁵¹ 2005 NE Amended IAP/EIS, Vol. 1. Chapter 3.3.2.

⁵² 2005 NE Amended IAP/EIS, Vol. 1. Chapter 3.3.3.

⁵³ Carlson, M., H. Cortes-Burns, L. Flagstad, and R. Lipkin 2006. Rare Vascular Plant Species of the North Slope. Alaska Natural Heritage Program, ENRI/UAA. February 2, 2006.

disturbing activity is expected, except for the *de minimis* disturbance (approximately 0.0006-acre footprint for 6-foot diameter cellar) at each completed well cellar.

3.2.2 Fish and Wildlife

Fish are found within streams, rivers, and lakes within the proposed project area. The most common local species include: chum salmon; pink salmon; Dolly Varden; broad, round, and humpback whitefish; least cisco; northern pike; burbot; Arctic grayling; longnose sucker; Alaska blackfish; and ninespine stickleback. Lake fish are further classified according to their susceptibility to winter water withdrawal. Alaska blackfish and stickleback species (and potentially slimy sculpin and Arctic lamprey) are considered “resistant” due to their greater tolerance to low dissolved oxygen concentrations. Other species are considered “sensitive.” More specific details on the life history and distribution of fish are available in the 1998 NE IAP/EIS and the 2005 NE Amended IAP/EIS.⁵⁴

The avian species that maybe present during winter include owls, ravens, ptarmigan, and gyrfalcon. During March through May, birds of special interest in the project area are peregrine falcon, gyrfalcon, and rough-legged hawk, with nesting and activity sites along the Colville River bluffs.⁵⁵

Terrestrial mammals of particular interest in the project area are moose and caribou. Other mammals that might be present during winter include: Arctic fox, red fox, rodents, weasels, wolverine, and possibly musk ox. A pack of seven wolves was observed in spring 2007 about 1 mile downstream from Umiat.⁵⁶ Wolves and wolverines are reported to be hunted during the winter.⁵⁷ Grizzly bears have been increasing in number on the North Slope, with more bears especially where humans are present.⁵⁸ Typically, these bears hibernate in dens throughout winter, although individuals occasionally could be encountered during early or late phases of project activity. Polar bears are not reasonably expected to be this far inland from the coast.

Moose and caribou are important to subsistence. The Colville River valley provides important habitat for

moose. The area adjoining the river is classified by the BLM as high density moose. High density moose habitat on the North Slope is only found along the Colville River and a few major north-flowing drainages from the Brooks Range.⁵⁹ Over the past 30 years, the moose population has cycled, reaching a peak in about 1990, dropping to a low in 1996, with population increases noted after that. The population is currently stable, but still below the peak of 1990.⁶⁰

Members of the Teshekpuk Lake Caribou Herd (TLH) might be present in the drilling area during the winter. The Western Arctic Caribou Herd (WAH) also may pass through the Umiat area.⁶¹ Actual timing of spring migration varies from year-to-year. Neither the TLH nor the WAH have calving areas in the project area or the three winter access routes to the project area.

3.3 SOCIOECONOMIC RESOURCES

Related socioeconomic resources are described in detail in the 1998 NE IAP/EIS and the 2005 NE Amended IAP/EIS.⁶² Tiered BLM assessments have focused on additional issues relevant to proposed exploration activity in the NPR-A.⁶³

National energy needs and U.S. dependence on foreign oil are key issues in authorizing exploration. The increasing reliance on foreign-produced oil is a challenge to U.S. security. Damage to Gulf of Mexico production platforms caused by Hurricanes Katrina and Rita in 2005 demonstrated the vulnerability of the Nation’s major source of domestic oil and gas.

The current political climate in the world is a continuing issue as other nations increase their own use of oil and gas, which in turn impacts the availability of imported oil and gas resources needed to supplement the domestic supplies of oil and gas.

The proposed drilling sites are located in a region considered to have a “medium probability” for occurrence of economic oil and gas fields.⁶⁴ It should be noted that the proposed project is closely associated with the Umiat Oil Field, which has been estimated at 70 million barrels

⁵⁴ 1998 NE IAP/EIS, Vol. 1, Section III.B.6 2005 Amended NE IAP/EIS, Vol. 1, Chapter 3.3.5.2.

⁵⁵ 2005 NE Amended IAP/EIS, Vol. 3, Map 3-20.

⁵⁶ Pers. Comm. G. Carroll, ADF&G. November 5, 2007.

⁵⁷ Pers. Comm. M. Turner, ASRC, RTS. Dec. 18, 2007.

⁵⁸ 2005 NE Amended IAP/EIS, Vol. 1. Chapter 3.3.7.1.

⁵⁹ 2005 NE Amended IAP/EIS, Vol. 3, Map3-27.

⁶⁰ Carroll, G. 2004. Unit 26-A Moose management report of survey and inventory activities 1 July 2001 – 30 June 2003 in C. Brown, editor. ADF&G. Project 1.0, Juneau, Alaska. pp. 597-612.

⁶¹ 2005 NE Amended IAP/EIS. Vol. 3, Maps 3-21 and 3-23.

⁶² 1998 NE IAP/EIS, Vol. 1, Chapter III.C, the 2005 Amended NE IAP/EIS, Vol. 1, Chapters 3.4.

⁶³ EA: AK-023-07-002, Sec 3.3; EA: AK-023-07-006, Sec 3.3.

⁶⁴ 2005 NE Amended IAP/EIS, Vol. 3. Map 3-04.

of oil.⁶⁵ The Umiat Oil Field is also located on a conceptual pipeline route that would connect to TAPS approximately 80 miles to the east.⁶⁶ The proposed action would authorize exploratory drilling on Federal leases issued in this area.

The economies of the State and NSB are heavily dependent on oil and gas revenues. Economic resources include lease bonuses and rentals, production royalties, corporate income taxes, NSB property taxes, and employment, as previously described and incorporated by reference.⁶⁷

Although located some distance from local communities, residents of Nuiqsut, Barrow, and Anaktuvuk Pass use the Umiat area to harvest subsistence resources. These include moose, caribou, fish, and berries.⁶⁸ Subsistence activities, particularly hunting and fishing, are exceedingly important to local residents, who are primarily Iñupiat – the Native people of Alaska’s North Slope. These activities are central to the ages-old Iñupiat cultural system, providing critical sustenance for people who reside off Alaska’s road network and are not connected to the nation’s food-distribution system.⁶⁹

Nuiqsut and Anaktuvuk Pass have substantial subsistence economies, supplemented by employment in local construction and energy production jobs. Barrow is a regional center and the seat of local government, but also supports a subsistence economy.

There are cultural and historic sites in the area, primarily associated with early oil exploration activities by the federal government. Applicant surveys in 2007 found no new sites. The BLM has reviewed the results of the Applicant’s archaeological and cultural survey for the required cultural resource clearance.

Surface and subsurface estates of affected federal lands within the NPR-A are under the jurisdiction of the BLM. The State of Alaska owns surface rights at the Umiat Airport (see Figure 2). The BLM has retained oil and gas subsurface interests. Outside the NPR-A, the BLM still retains jurisdiction over several isolated tracts of land that would be crossed by access

routes into the NPR-A from DS-2P, Franklin Bluffs, or MP 359. The State of Alaska and the Arctic Slope Regional Corporation are the majority landowners along these routes. Renaissance has oil and gas leases on non-federal lands adjoining the NPR-A land in the Umiat area.

The 1998 ROD assigned Visual Resource Management (VRM) classes to the Colville River Scenic Area LUEA, which is to be managed for VRM Class I upstream of Umiat and VRM Class II below Umiat, with exceptions allowed for subsistence structures and essential pipeline crossings and for the Umiat airport.⁷⁰ VRM Class I is the most protected level, with only a low level of change allowed. VRM Class II is not as restrictive.

The project area is in an area with previous oil and gas exploration, including construction of gravel roads, drill pads, and staging areas, as well as the state-owned airfield at Umiat and associated support facilities. The isolated BLM tracts outside the NPR-A in the Colville and Anaktuvuk river valleys, except for old trails to the Umiat area, have largely maintained their natural viewshed. These isolated BLM lands have not been assigned a VRM classification.

The project is not associated with a designated Wilderness Area, a designated Wilderness Study Area, or an area under consideration for wilderness recommendations.⁷¹ No affected rivers are included in the National Wild and Scenic Rivers System. The Colville River was nominated for inclusion in the Wild and Scenic River (WSR) System in 1980, but no Congressional action was taken. In 1998, it was determined that though the physical characteristics and associated resource values make the River “eligible” for designation, the River has been determined not “suitable” because other land owners within the potential WSR corridor do not support this action, and without their cooperation, management as a WSR would be ineffective.⁷²

There are no known commercial recreation businesses and no developed commercial or public recreation facilities in the project area, although in the past, the State has authorized commercial recreation use of the Umiat Airport lands. However, the 1998 NE ROD identified recreation as a potential use in the Umiat area when it designated the Umiat Recreation Site LUEA. The emphasis of the LUEA is to support public health and safety. There are no current BLM plans to develop recreation facilities in the Umiat area.

⁶⁵ 1998 IAP/EIS, Vol. 1. Figures III.A.1.a(3)-1 through III.A.1.a(3)-6.

⁶⁶ 2003 NW IAP/EIS, Vol. 3. Map 108.

⁶⁷ EA: AK-023-02-005, Sec. III.C.3; 2003 NW IAP/EIS, Vol. 1, Sec. III.C.11; EA: AK-023-06-003, Section 3.3.

⁶⁸ 2005 NE Amended IAP/EIS, Vol 3, Maps 3-1 through 3-3, 3-7 through 3-14, 3-36 and 3-37, 3-40, 3-42.

⁶⁹ 2004 NW ROD, p. 4.

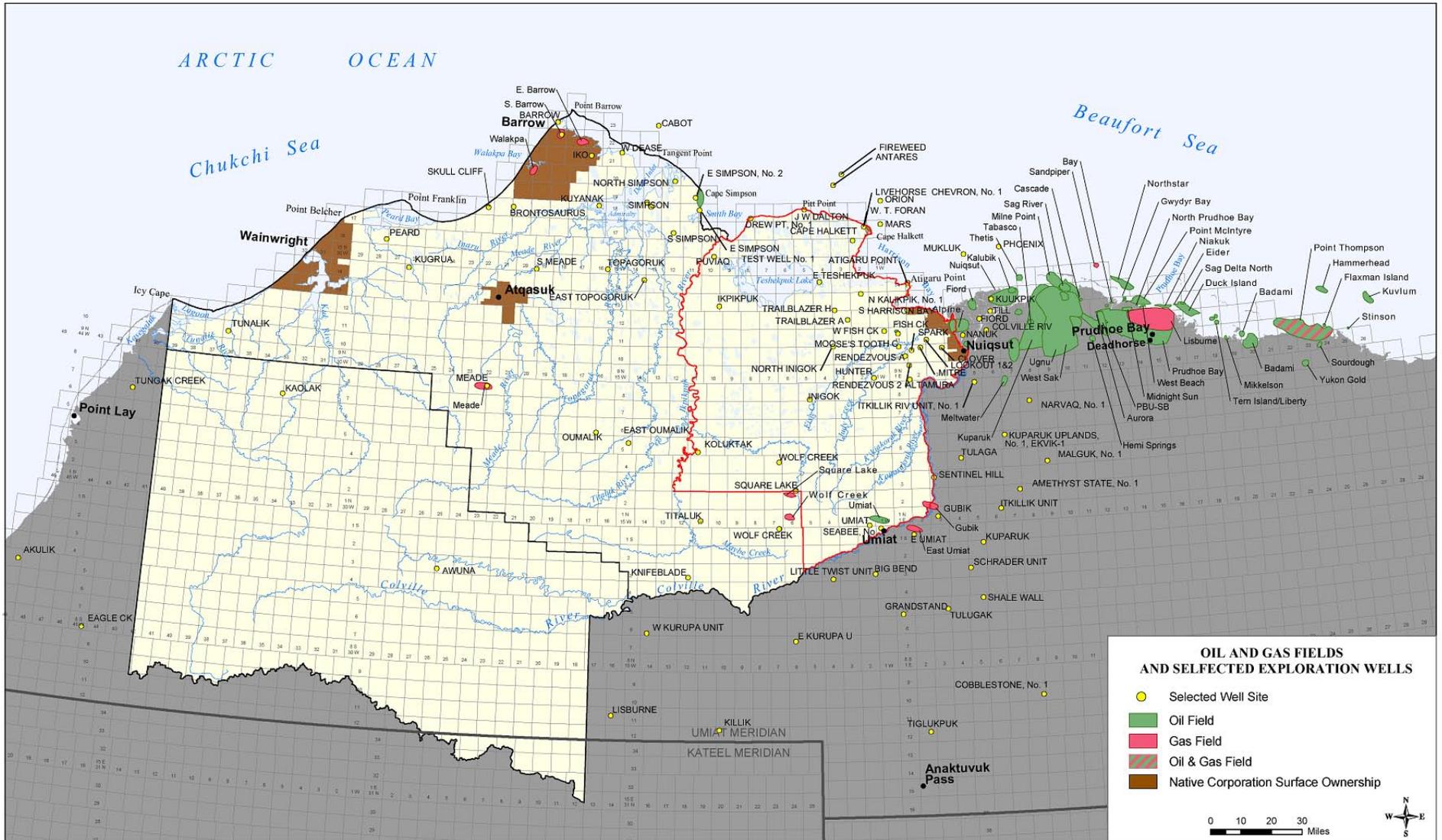
⁷⁰ 1998 NE ROD, p. 5.

⁷¹ 1998 IAP/EIS, Vol. 1, p. III-C-54 and pp. II-51 and 52. 2003; NW IAP/EIS, Vol. 3, Map 12.

⁷² 1998 IAP/EIS. p.II-3; 1998 NE ROD, Decision, p. 5.

There is limited use of this area for primitive recreation due to the expense and demands of travel to and in the area. Extremely minor-to-no winter recreational use by other than local residents is documented or expected, due to harsh weather, limited daylight, and limited access. The Colville River is conducive to recreational boating. The Umiat Airport makes a logical staging point for river floaters that wish to travel down stream, and a convenient take-out for recreational boaters that started their trip on a stretch of the Colville River upstream from Umiat or that started in the Brooks Range on a north flowing river – such as the Anaktuvuk River that joins the Colville River.

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



Source: USDOI BLM 2005 NE NPR-A Amended IAP/EIS, Map 3-5

FIGURE 3 Oil and Gas Fields and Selected Exploration Wells and Recent Exploratory Wells in the National Petroleum Reserve-Alaska and Prudhoe Bay

BLM EA: AK-023-08-002

4 ENVIRONMENTAL IMPACTS

If authorized, the proposed project would be the 13th winter exploration drilling program in the NPR-A since the 1999-2000 winter drilling season; all but three drilling programs have been in the NE Planning Area. Several other programs involving summer storage or alternative overland access also have been evaluated.

All of these programs have been approved and monitored on the basis of full implementation of relevant restrictions, protective measures, and the mitigation set forth in the applicable ROD, as well as state and local permits, and compliance with enforceable standards of the NSB Coastal Management Program, where applicable.

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

The winter exploration drilling programs recently authorized in the NPR-A have used similar technologies and equipment in the Arctic Coastal Plain. The proposed project is the first exploration program in the NPR-A foothills in over 25 years.

The proposed winter exploration program:

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

A total of 12 Legacy Wells exist within the vicinity of the proposed drill sites, all which have been drilled in past government exploration programs. Existing infrastructure at Umiat includes an all season airstrip, gravel roads, and gravel pads.

Because proposed activities are not substantially different from those previously evaluated (Appendix A), and because no significant new scientific information or analyses have been developed since the

most recent related evaluation (i.e., August 2007), this NEPA analysis will focus on impacts due to the project-specific/site-specific differences of the proposed action.

4.1 ASSUMPTIONS

Three assumptions were made in evaluating potential impacts of the proposed action:

***Assumption 1:** When applied to the proposed action, management decisions and stipulations of the 1998 ROD for activity in the NE NPR-A provide significant protections to surface resources and human uses in the NPR-A. The BLM may also require that project-specific environmental protection be attached to an authorization for surface use activities in the NPR-A, which may include stipulations and/or ROPs developed as part of subsequent NPR-A plans and impact assessments.⁷³*

Through careful planning and significant public involvement, resources in the NE NPR-A have been protected, and environmental impacts have been effectively minimized by prohibitions, restrictions, and stipulations applicable to oil and gas exploration activities, and through positive, protective management measures (e.g., Special Areas, LUEAs, and sensitive area designations) described in the 1998 NE ROD. In this decision, and in the 2004 NW ROD, the Secretary of the Interior concluded that all practical means to avoid or minimize environmental harm had been adopted.⁷⁴

***Assumption 2:** General stipulation (GS) based on the BLM Utility Corridor Proposed Resource Management Plan (RMP) and Final EIS⁷⁵ will apply to the ROW as protective measures for overland travel on federal lands outside NPR-A. (See Appendix B)*

Activities outside the NPR-A are governed by different federal regulations. The BLM has authorized similar activity outside the NPR-A, with environmental protections specified as needed to mitigate potential impacts.

Despite the multiple controls in place on federal lands, winter exploration has resulted in several minor impacts during the past 8 years (e.g., tundra scuffing or minor tundra damage, and willow damage in a few specific locations). These impacts can be mitigated, meaning they can be made less severe, but not always eliminated

⁷³ BLM Permitting and Compliance Guidelines for Proposed Activities in the NPR-A. September 2007. p. iii.

⁷⁴ 1998 ROD, P. 21. 2004 ROD, pp. 20 and 25.

⁷⁵ BLM. 1989. Utility Corridor Resource Management Plan/Environmental Impact Statement; and Utility Corridor RMP/EIS ROD, January 11, 1991.

entirely. Under BLM guidance, information has been shared, operating procedures refined, and new studies initiated to prevent recurrence of these problems. Most of the early problems have been resolved, and ongoing monitoring and reporting requirements support these assumptions.

Assumption 3 – No significant impacts are expected from use of permanent facilities in the Umiat area.

Use of permanent facilities in the Umiat area was suggested as a potential staging option for exploration because gravel pads, roads, and an airstrip are still in place, and it was a major staging area for previous exploration in the NPR-A. Much of the area reflects disturbance from previous oil exploration and military activity. Use of Umiat and other existing facilities for staging was discussed in the 1998 NE IAP/EIS.⁷⁶

4.2 CRITICAL ELEMENTS

BLM guidelines for environmental assessment include “Critical Elements” to consider in evaluating project impacts. This EA is not limited to only those strictly described elements and will address other elements specific to the proposed action, as shown in **Table 6** and incorporated in the discussion of project-specific impacts.

4.3 ENVIRONMENTAL CONSEQUENCES

The proposed action is built on experience gained from decades of similar operations on the North Slope. This EA is tiered off the 1998 NE Planning Area IAP/EIS and its ROD, as well as resource information described the 2005 NE Amended IAP/EIS and the draft NE Supplemental IAP/EIS dated August 2007.

4.3.1 Project-Specific Impacts

This analysis evaluates the potential direct and indirect impacts associated with affected critical elements and other issues of concern specific to the proposed project, as defined and discussed in this section of the EA. Potential environmental consequences of those portions of the proposed action outside the NPR-A (i.e., overland travel on federal land) are included in this analysis. BLM EA: AK-023-08-006 documents the assessment of impacts of overland travel by Anadarko on federal land outside the NPR-A.

Table 6. Elements of this Environmental Assessment

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

Key:

- ^a Listed animals are not present during the period of the proposed activity
- LUEA – Land Use Emphasis Area
- None – Element not present in project area; therefore, no related impacts will result from proposed action.
- NA – Not applicable to the proposed action.

Project-specific issues have been grouped as follows:

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

⁷⁶ 1998 IAP/EIS, pp. IV-A12 through IV-A-15.

Relevant stipulations in the 1998 ROD that eliminate, reduce, or otherwise mitigate winter exploration related impacts are cited in the following analyses. Also considered are the stipulations and ROPs evaluated in the 2005 NE Amended IAP/EIS, which will be considered and may be incorporated as a special term or condition attached to an authorization for surface use activity in the NPR-A, on site-specific basis.⁷⁷ For the ROW authorization for overland winter travel outside the NPR-A, terms and conditions associated with the Utility Corridor RMP will be incorporated as applicable.⁷⁸ Additionally, the analysis considers the results of 12 winter exploration programs completed over the past 8 years in the NPR-A that confirm the effectiveness of the environmental protection measures applicable to the proposed action.

Environmental Controls and Mitigation:			
	Stipulation	ROP	Other
			ADEC Permit
1998 NE ROD	None	NA	
ROW outside NPR-A	None	NA	

NA = Not Applicable

Air quality impacts are derived from emissions associated with drilling and camp operations and transportation. The Applicant will operate under ADEC Minor General Permit MGP-1 for oil or gas drilling rigs. Emissions from exploration drilling operations under an approved ADEC air quality permit should not cause significant deterioration of air quality. As a contingency, the Applicant has filed a notice to operate under 40 CFR 60 subpart CCCC, which controls air quality associated with possible use of the on-site camp incinerator.

Other potential impacts include accidental emissions, damage to vegetation, acidification of rain and water resources, visibility effects, and contribution to global climate change. Related discussions on air quality issues and potential impacts are provided in the 1998

IAP/EIS, Volume I, Section IV.G.5 and 2005 NE Amended IAP/EIS, Vol. 1, Chapter 4.6.1.

The proposed winter exploration operations are similar to those previously evaluated, which were determined to have no long-term or significant effects on air quality. Accordingly, it is determined that effects on air quality associated with the proposed action are not expected to be more than minor and short-term.

Environmental Controls and Mitigation:			
	Stipulation	ROP	Other
			43 CFR 3160 ; Onshore Order 1; Orientation and Subsistence Protection Plans; ODPCP and SPCC Plan
1998 NE ROD	1 – 17; 24; 28; 63; 65; 70; 71	NA	
ROW outside NPR-A	GS-10; GS-11; GS-14; GS-16– 18	NA	ODPCP and SPCC Plan

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

The tundra and all waterbody surfaces should be frozen throughout the project area during the delineation activities. Sensitive land and water surfaces are afforded protection from spills by snow and ice cover. In most cases, spills on snow and ice can be effectively cleaned up. Spilled product thawing through the ice/snow, or cleanup procedures could result in impacts to water quality and aquatic habitat. Tundra impacts might include soil contamination, vegetation damage, wildlife injury, or surface disturbance from traffic and cleanup activity. Related discussion is provided in the 1998 IAP/EIS, Volume I, Sections IV.A.2 – IV.A.4 and the 2005 NE Amended IAP/EIS, Vol. 1, Chapters 4.2.1.1 and 4.2.2.

Renaissance will have an ODPCP approved by ADEC, demonstrating the capability to control, contain, and cleanup any expected release. SPCC Plans will be required for fuel storage (camps), drilling, and testing operations. The ODPCP and SPCC Plans are accepted by the BLM as meeting the stipulation for spill planning.

⁷⁷ BLM. 2007. Permitting and Compliance Guidelines for Proposed Activities in the NPR-A. Field Test Edition September 2007. p. iii.

⁷⁸ Utility Corridor RMP/EIS ROD, January 11, 1991.

Potential spill sources associated with drilling activities include: minor operational spills, major tank failures, and well blowouts. Renaissance will obtain fuel from the tank farm operated and maintained by UIC at the ADOT&PF airstrip. Approximately 8,000 gallons of fuel will be stored at the drill rig, and approximately 5,000 gallons of fuel will be available at the camp site. Fuel will be stored in tanks within secondary containment providing 110% the volume of the largest fuel storage tank, as required under the SPCC Plan.

Another potential threat would be from a blowout that continued into breakup, which is considered a very low probability event. Modeling for the ODPCP worst-case response planning standard (i.e., blowout) indicates that such an event is not likely to affect sensitive areas. Plume modeling is based on prevailing winds, and indicates that a blowout plume would extend 262 feet from the well. Based on the planning standard and modeled trajectories for the Umiat field it is unlikely that appreciable discharge would reach the Colville River. A blowout or subsequent response at W-14 (approximately 450 feet from the State airstrip), could possibly interrupt air service. Drilling at each site is short-term and the ODPCP limits the drilling period to better ensure that spill cleanup activities are largely confined to winter conditions.⁷⁹

Documentation from the USACE exists indicating that fuel, hazardous waste spills, or contamination have been identified within the proposed operations area. The waters and sediments of Umiat Lake have been documented to have natural oil seeps; also, numerous drums have been found at the bottom of the lake. Possible associated contamination include petroleum products, and persistent organic pollutants (in particular, pesticides and/or PCBs).

There is a remote possibility that contaminants from a natural oil and gas seep, and/or from drums sunken in the lake could be contained in the under ice water column. If sediment is disturbed during water pumping, it is possible that heavy metals such as barium and arsenic, as well as contaminants such as PCBs, could be added to the ice road. Mitigation can eliminate the possibility of utilizing compromised waters for ice road construction, creating the potential for impacts the following summer (see Section 4.5).

Recent sampling by Renaissance and consultation with ADEC, indicate that water quality is acceptable for water use to construct ice roads, pads, and support drilling operations. No sediment was sampled during

the 2007 study. ADEC's concern over sediment uptake can be addressed through monitoring water quality.

Surface soils and drilling muds contaminated with PCBs are known to impact an area approximately 150 feet to 200 feet radius distance from the Legacy Well 9. Petroleum contamination associated with Legacy Wells 3 and 8 have also been recorded by the USACE. Complete avoidance of the PCB-contaminated surface soils at and down gradient of Legacy Well 9 is needed in order to prevent contamination of personnel and equipment, and to prevent further contamination of the environment. Precautions should be employed to minimize disturbance of existing petroleum-stained soils at all of the 11 Legacy Well sites. Restricting activity in areas around Umiat Legacy Wells 8 and 9, as requested by ADEC, will minimize potential for cross contamination from vehicle traffic (see Section 4.5).

Based on concerns expressed by ADEC and the BLM, Renaissance has relocated the infield ice road route to avoid Legacy Well 9. The new alignment has been used during previous programs, including recent use by the BLM. The new alignment is shown on Figure 2.

The only proposed ground disturbing activity is construction of well cellars. The Applicant conducted soil sampling at each of the proposed well sites and found petroleum hydrocarbons present in concentrations greater than the ADEC clean up level⁸⁰ at a number of sites. Proper management of soil excavated during well cellar construction should minimize potential cross contamination (see Section 4.5). Access across contaminated sites (i.e., gravel road, ice road, packed trail) is not expected to result in new impacts of this nature.

The BLM has field checked all potential drill sites and determined that impacts would be minimal due to protective environmental stipulations. Based on the Applicant's operation plan, protective measures of the 1998 ROD, mitigation proposed by BLM, the General Stipulations derived from the Utility Corridor RMP, and stringent ADEC and U.S. Environmental Protection Agency (EPA) requirements, no significant impact from potential spills during the proposed project is expected.

⁷⁹ Renaissance ODPCP Plan No. 07-CP-2234

⁸⁰ ADEC. January 2007. 18 AAC 75. *Oil and Other Hazardous Substances Pollution Control as Amended through December 30, 2006*, Table A2 – Method 1 Petroleum Hydrocarbon Soil Cleanup Levels in the Arctic Zone.

Environmental Controls and Mitigation:			
	Stipulation	ROP	Other
			NHPA; EO 13007, <i>Indian Sacred Sites</i>
1998 NE ROD	24; 26; 62 – 65; 74	None	
ROW outside NPR-A	GS-7	NA	

Previous analyses concluded that, during winter when the ground was frozen and there were no surface disturbing activities, subsurface cultural resources were usually safe from disturbance, with little chance that a significant impact to archaeological deposits could occur. Paleontological resources, usually protected by deep burial in permafrost, would also be protected by adequate snow cover. However, there is a somewhat greater risk of damage to cultural resources on the surface if there is inadequate snow cover (e.g., stream bank exposure). Related discussion on this subject is provided in the 1998 IAP/EIS Volume I, Sections IV.A.6.b, IV.G.2, and IV.G.12; and the 2005 Amended NE IAP/EIS Volume 1, Chapters 4.6.2 and 4.6.11.

Preliminary cultural surveys (air and ground) at proposed drill sites and along access corridors were completed by a qualified professional archaeologist, who also noted the paleontological resources. Preliminary findings have been reviewed by the BLM, but are not identified in this EA due to the sensitive nature of the information. Results of the survey indicate that project activities are not expected to encounter paleontological or cultural resources, including sacred sites.

The proposed action is very similar to previously approved exploration programs in the NPR-A, which had no significant impacts under similar environmental and operating conditions. Based on the Applicant’s operations plan, protective measures of the 1998 ROD, General Stipulations derived from the Utility Corridor RMP, results of cultural resources surveys, proposed use of ice construction and LPVs, and avoidance of sensitive areas, collectively support the conclusion that cultural and paleontological resources have been provided adequate protection, and that no adverse impacts are expected from the proposed action. The proposed action will fully comply with requirements of the National Historic Preservation Act (NHPA) of 1966.

Environmental Controls and Mitigation:			
	Stipulation	ROP	Other
			Subsistence Protection; Orientation; EOs 11988 and 11990
1998 NE ROD	1; 3 –16; 18 – 22; 24 – 28; 61 – 63; 65; 67; 70	None	
ROW outside NPR-A	GS-5, GS-6, GS-16		EOs 11988 and 11990

Applicable stipulations restrict construction of new permanent facilities and use of gravel for oil and gas exploration in the NPR-A. Existing permanent facilities are available for staging and storage, and the long period of below freezing temperatures makes ice construction a feasible alternative.

The 1998 IAP/EIS and the 2005 NE Amended IAP/EIS⁸¹ describe reasonably-expected ground disturbance from overland winter travel, ice roads, ice pads, and well cellars as relatively minor and often temporary. Both the 2003 NW IAP/EIS and the 2005 Amended NE IAP/EIS incorporate results and observations from exploration in the NPR-A since 2000.

Experience from the past 8 years of winter exploration in the NPR-A has shown that ice pads, ice roads, and hardened trails create few lasting impacts to tundra vegetation, wetlands, floodplains, and riparian zones – while minimizing potential impacts from exploration activity and spills. Ice structures exist only when soils, wetlands, floodplains, and riparian habitat are frozen, resulting in impacts that are typically minor and short-term (i.e., a few to several years).

The 2004 NW ROD (p. 19), which includes foothills habitat similar to the proposed project, found that oil and gas exploratory drilling, overland moves, and other winter related-winter exploration activities would have “minimal to negligible impacts on the function and values [of floodplains and wetlands].”

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

⁸¹ 1998 IAP/EIS, Vol.1, Sections IV.A.1, IV.G.3, and IV.G.6; 2005 NE Amended IAP/EIS Vol. 1, Chapters 4.2.1, 4.6.5, and 4.6.6.

activity expected is *de minimis* acreage lost to construction of well cellars (approximately 6-foot diameter collar; 0.0006 acre footprint per well).

There is substantial disturbance to the natural vegetation as a result of previous activity in the area. The proposed action involves use of existing facilities where no new impacts from winter overland travel are expected. To the extent that the proposed ice road construction follows existing disturbed trails, effects are expected to be minimal. Winter access through undisturbed areas (inside and outside the NPR-A) is expected to result in minor, short-term, and site-specific impacts from ice construction and LPV travel (e.g., limited extent of scuffing, compaction, crushing, or breakage). Studies on the North Slope have shown that willows recover quickly from 1 to 2 years of this type of impact.⁸² Ice roads are typically constructed to accommodate the load they will bear.

The project area is predominantly classified as wetlands and associated floodplains, and there are no practicable upland alternatives. Some impacts to floodplains, riparian zones, wetlands, and vegetation are expected to occur despite existing stipulations, and further mitigation is not currently practicable. Based on air photos, it appears that the Colville River bank adjacent to the old gravel drill pad (Legacy Wells 2 and 5) eroded inland a distance of approximately 300 feet between 1974 and 1998. Proposed drill site W-13 is the closest to the river in this area. With the well properly closed, no significant impact would be expected from future erosion along this cut bank. Additionally, although the likelihood of flooding is remote for the planned drill sites, a minimum design elevation of 267 feet would protect installed wellheads from inundation in the unlikely event of a flood.

For portions of ice pads that are thicker than 6 feet, it is expected that the ice cover will remain well into the growing season. At the thickest pad sections (11 to 20 feet), ice cover may remain throughout the summer. Impacts on vegetation at those sites are expected to be similar to those previously described for an over-summer ice storage pad.⁸³ In that case, it was determined that multi-season ice structures may have more severe and longer-term impacts on the tundra.

⁸² McKendrick, J.D. 2003. *Report on Condition of Willows at Four Streams Crossed by the 2002 Grizzly Ice Road*, Prepared for ConocoPhillips Alaska, Inc. February 15, 2003. p.3; and Yokel, D., D. Huebner, R. Myers, D Nigro, and J. Verhoef. 2007. *Offsetting vs. Overlapping Ice Road routes from Year to Year: Impacts to Tundra Vegetation*. BLM, Alaska. Open File 112. Anchorage, AK.

⁸³ EA: AK-023-04-004, p. 4-6.

The level of impact would depend on the length of ice cover and the type of underlying vegetation (see Section 4.5).

Ice melting from thickened pads has the potential for extended discharge that could cause soil erosion. The extent of this impact would depend on the rate of melt, total volume of ice melt, and the surrounding soil types and gradient. None of the thicker pads appear to lie within a defined drainage and are unlikely to disrupt or concentrate breakup flows around the melting pad.

Mitigation of potential impacts to vegetation and soils may be provided by decreasing the thickness and extent of ice pad when the pad is no longer needed for drilling activities. Ice aggregate removed from the pad may have the potential for reuse in other ice pad/road construction or maintenance of existing gravel roads and pads for winter use (see Section 4.5).

There is a small potential for seeds of invasive/non-native plants to be introduced to the Umiat area by land vehicles or aircraft, becoming established in disturbed areas along gravel roads and the airstrip.

The proposed action incorporates all of the applicable protective stipulations of the 1998 NE ROD, inside the NPR-A and the BLM General Stipulations (outside the NPR-A) to avoid and minimize impacts to wetlands and floodplains. BLM personnel will perform regular inspections throughout implementation of the proposed project, including abandonment of the sites to ensure standards are met.

Drill pads (total of approximately 16 acres for eight pads) will be constructed of ice. One drill pad will be constructed on State airport land. Ice pad construction is expected to result in only short-term, minimal impacts to vegetation – as documented above and observed by the BLM following recent exploration activities in the NPR-A.

The proposed new ice road system within the NPR-A will total up to a maximum 17 miles each year (2-year program will total up to approximately 100 acres). Ice roads are expected to result in short-term, minimal impacts to vegetation, as described above. The proposed 4-inch ice road is thinner than those previously evaluated for winter exploration programs in the NE NPR-A. To ensure ground protection, the BLM will require a monitoring program (see Section 4.5).

A short segment of packed snow trail connecting portions of the existing gravel road system will cross airport lands, with a similar impact expected. BLM observations of recent exploration activities in the NPR-A, involving

similar types of vegetation, have confirmed that the standards provide adequate protection.

Recently, use of more advanced methods for determining conditions that support winter tundra travel (e.g., prepacking to expedite freeze down, with ground temperature and hardness monitoring) have extended the season by up to 60 days, depending on snow and temperature conditions each year.⁸⁴ Prepacking in the NE NPR-A currently requires an exception under the 1998 ROD. The BLM has previously evaluated prepacking for winter exploration in the NW NPR-A, with no significant impacts projected or observed. Similarly, only minor, short-term impacts are expected from prepacking on federal lands outside the NPR-A.

Observations by the BLM include visible impacts from previous activity in the Umiat area. Based on the proposed action (including use of existing gravel roads and pads and trails created by previous overland travel), associated regulatory authorizations, and the requirements and protective measures of the ROD, site-specific impacts of proposed activities on wetlands are expected to be short-term and minimal.

Habitat associated with rare and sensitive plant species may occur in the project area. Except for the *de minimis* impact of well cellars, the project involves no ground disturbing activities. All proposed operations in the NPR-A occur when the ground (and water) is frozen and snow covered. Most tundra plants survive winter travel activities without harm. Impacts to rare or sensitive plants, if present, are expected to be localized and minor.

None of the drilling operations in the NPR-A are in active floodplains.⁸⁵ Depending on final alignment each year, short segments of winter trail on federal land inside and outside the NPR-A may cross active floodplains, when the ground and river and streams are frozen. Based on associated regulatory authorizations, requirements for tundra opening (e.g., ADNR tundra travel/opening criteria)⁸⁶, protective measures of the ROD, and BLM field examinations, site-specific impacts of proposed activities in floodplains are expected to be short-term and minimal. No feasible or prudent locations to avoid active floodplains or wetlands are available.

In consideration of future activities evaluated in both the 2003 NW IAP/EIS and the 2005 NE Amended IAP/EIS, the BLM completed impact analysis and made findings contemplated by both EO 11988 (floodplain management) and 11990 (protection of wetlands). The 2004 NW ROD concluded that the long-term effects of exploration and development activities, both direct and cumulative in nature, on wetlands and floodplains are expected to be insignificant.⁸⁷ A further evaluation of EO 11988 and EO 11990 will be included in the decision record for this action.

THREATENED AND ENDANGERED SPECIES AND OTHER SENSITIVE WILDLIFE			
Environmental Controls and Mitigation:			
	Stipulation	ROP	Other
Optional-2005 NE Amended IAP/EIS	J-1	A-4; A-6; A-8; C-1; E-9; F-1; I-1	ESA Sec. 7 Evaluation
1998 NE ROD	24; 25; 50 – 57; 62; 63; 75; 76; 77	None	Raptor, Passerine and Moose Area LUEA
ROW outside NPR-A	GS-1; GS-2; GS-3	NA	

No species listed or proposed for listing under the Endangered Species Act (ESA) are typically found in the project area. Several other animals are not protected under the ESA, but are considered to be of special interest or concern – raptors, moose, and caribou.

Three raptor species (gyrfalcon, peregrine falcon, and rough legged hawk) all nest in the area. Based on BLM data, DS W-15 appears to be within 0.5 to 1.0 miles of documented sites of nesting/activity of peregrine falcons and hawks.⁸⁸ Stipulation 24.b should provide adequate protection from significant impact to these species.

There would be few potential direct impacts on other bird species, because there are few bird species present in the proposed project area during the winter operation period. Birds that do remain in the winter (e.g., ptarmigan, ravens, and owls) might be displaced by exploration activity. However, no long-term, adverse potential direct impacts are expected. Indirect impacts may occur through loss of habitat.

Much of the project area is high density moose habitat and caribou may be present. Construction of ice roads

⁸⁴ ADNR, Division of Mining, Land and Water. 2005, *Ice Roads & Winter Travel: DNR Winter North Slope Management*. AOGA presentation, October 19, 2005.

⁸⁵ Cannon and Mortensen. 1982. Map 5c.

⁸⁶ ADNR. 2005. Tundra Travel Modeling Project, available at <http://www.dnr.state.ak.us/mlw/tundra>.

⁸⁷ 2004 NW ROD, pp. 16 -19.

⁸⁸ 2005 NE Amended IAP.EIS, Volume 3, Map 3-20.

and pads could result in temporary minor loss of willow shrubs, but due to the presence and resilience of willows, this is not expected to have a measurable impact on moose. Caribou are likely to be present in the project area, subject to disturbance by drilling, vehicle traffic, aircraft, and human activity. The construction of ice roads, and pads can cause caribou to avoid using habitat in close proximity to the areas where construction is underway.

Drilling activities, including setting up and taking down the drilling rig, typically last for 30 days, although for shallow wells, this time may be reduced. During that period, caribou and moose would tend to avoid using winter habitat in close proximity to the drill site and roads/trails. At the end of drilling on one site, the rig could be moved to the next drill site and the drilling process repeated. Impact to caribou or moose that are avoiding the immediate vicinity of these activities is not expected to be more than minimal and short-term, but may have an additive effect on winter mortality. In most cases, these activities are expected to cause short-term, minor displacement and/or disturbance. Camp and drilling activity can cause localized disturbance and/or displacement for several weeks to months.

Traffic on trails and ice roads would traverse areas used by moose and caribou (TLH and WAH). Related discussion is provided in the 1998 NE IAP/EIS, Volume 1, Sections G.8 and G.9.a and the 2005 NE Amended IAP/EIS Volume 1, Chapters 4.6.9. Impacts to wildlife include loss or damage of habitat and altered patterns of habitat use (e.g., noise and traffic disturbance), and possibly a negative effect on their energy balance (intake versus expenditure).

The second drilling season would involve similar activities in the project area, with similar short-term, minor impacts. Renaissance proposes to store the drilling rig, related facilities, and remaining supplies on the SeaBee Pad at the end of the first drilling season. However, Renaissance has proposed the option to return the drilling rig, related facilities, and remaining supplies to Deadhorse or Canada at the end of the first season and, in any case, at the end of the 2-year program.

Impacts from transportation via air and road/trail to moose and caribou are expected to be minor and short-term. Because animals are mobile and operations are seasonal and affect only a very small proportion of available winter habitat, no lasting adverse impacts to caribou – as well as to moose, muskoxen, and furbearers – are expected. However, this assumption has not been tested, and conditions for winter survival vary from year to year; it is possible that this

disturbance could have an additive effect on natural winter mortality. As an additional measure, local subsistence advisors will be hired by Renaissance for the winter exploration program to monitor activities to ensure the objectives of protecting subsistence resources are met.

The proposed action incorporates applicable protective stipulations of the 1998 NE ROD and the General Stipulations derived from the Utility Corridor RMP to avoid and minimize impacts to wetlands and floodplains. Accordingly, 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).

Direct or indirect adverse impacts on the habitats of these populations are expected to be negligible. This assessment is consistent with results of compliance monitoring from previous exploration activities in the NPR-A and other federal lands on the North Slope. However, conditions for winter survival of caribou or moose vary from year-to-year, and it is possible that this disturbance could have some degree of additive effect on winter mortality. If so, this impact would likely be insignificant at the population level. Additionally, the Applicant will have plans in place to minimize harassment, displacement, or injury to wildlife.

Environmental Controls and Mitigation:			
	Stipulation	ROP	Other
			ADNR Temporary Water Use Permit;
1998 NE ROD	1; 3 – 5; 7 – 16; 19; 20; 22; 24; 28; 62; 63; 67; 70; 71	None	ADNR/OHMP Fish Habitat permit; EFH, NPDES General Permit; Alaska Coastal
ROW outside NPR-A	GS-5; GS- 8; GS-10; GS-12; GS- 14; GS18	NA	Management Plan (ACMP) Consistency

Water quality can be negatively affected due to water withdrawal, runoff from melting ice, and modification of local hydrology by ice roads/pads. (See discussion above for potential impacts associated with Umiat Lake water withdrawal.) Wastewater may be treated and discharged under the NPDES permit. Related effects are expected to be minor, localized, and short-term, typically lasting only one season – with mitigation provided by existing stipulations, as well as regulatory requirements for water use and discharge. Related discussion is incorporated

from the 1998 NE IAP/EIS. Additional discussion is provided in the 2005 NE Amended IAP/EIS.⁸⁹

Water quality can also be impacted by spills. Fuel and material handling practices generally protect lakes from potential pollution. Projected blowout plumes do not directly encounter fish lakes or streams; however, the flat, frozen terrain could allow some flow to waterbodies. Impacts of spills on water quality and fish depend on type, size, location, and duration of the discharge, but are expected to be minor and short-term. An approved ODP/CP, including the mandated “end date” for drilling, will help ensure that required cleanup would occur under winter conditions to the extent practicable.

Impacts to fish would most likely be from water withdrawal, stream crossings, and/or degraded water quality. Protective stipulations limit water withdrawal from lakes, prohibit winter water withdrawal from streams, and limit stream crossing operations in the NPR-A – substantially limiting potential impact on fish and fish habitat. Previous winter exploration drilling activities in the NPR-A have not produced evidence of adverse effects to fish due to water quantity or water quality changes.

For three proposed lakes with fish present (RTS07118, RTS07127, and RTS07132), Renaissance has obtained a water withdrawal permit from ADNOR OHMP to remove a volume of unfrozen water that exceeds what is authorized by Stipulation 20 in the 1998 NE NPR-A IAP/EIS ROD. Prior to the signing of the 1998 ROD, little science existed to guide decisions regarding winter water withdrawals from lakes. Since then, a number of investigations in Arctic Alaska and Canada were initiated to examine water levels and water chemistry in relation to pumping activities.

In the existing areas of oil exploration and development, pumped lakes have recharged in the spring to prior-year levels.⁹⁰ Although there is some

indication that winter water withdrawals can reduce the amount of dissolved oxygen available for fish,⁹¹ changes are not apparent at current levels of withdrawal on the North Slope.⁹²

The current levels of water withdrawal permitted by ADNOR are based on the general guideline of 30% of the under-ice water volume below 5 feet for lakes with only “tolerant” or “resistant” fish (ninespine stickleback, Alaska blackfish) and 15% of under-ice water volume below 7 feet for lakes with “sensitive” fish (species other than stickleback and blackfish). These are also the BLM’s established guidelines in the NW NPR-A. All of the most recent scientific information and management standards justify winter water withdrawals of unfrozen water from fish-bearing lakes at levels permitted by the State as an exception to what is stated in Stipulation 20. Removal of more than 15% of the free-water volume from the other water source lakes in the NPR-A is in line with Stipulation 20, because the proponent demonstrated the absence of fish.

Until recently, lake water removed as ice chips was included in the total volume permitted by the State for a given lake (i.e., included in the 15% or 30%), although this is not clearly addressed in Stipulation 20 of the 1998 ROD. In 2006, the State permitted removal of ice chips from select lakes in addition to the free-water volume under the condition that a study be conducted. This study documented full recharge of these lakes in the Colville River delta.⁹³ As this practice is still under evaluation, and because the lakes around Umiat are in a different hydrologic setting, Renaissance will be required to conduct a recharge study as a stipulation to removing ice chips in addition to 15% or 30% of permitted unfrozen water. Future water permitting will depend upon the results of this study (see Section 4.5).

In issuing the TWUPs and Title 41 permits, including the stipulations noted above, the State (ADNOR) has determined that fish populations and habitat should be adequately protected by the authorized limits (see **Table 7**). The BLM concurs with the State determinations that fish will not be adversely impacted by water and ice

⁸⁹ 1998 NE IAP/EIS, Volume. 1, Section IV.G.4 and IV.G.7. 2005 NE Amended IAP/EIS, Volume. 1, Chapters 4.6.4 and 4.6.7.

⁹⁰ Baker (Michael Baker, Jr.). 2002. Alpine Facility and Vicinity 2002 Lake Monitoring and Recharge Study. Report prepared for ConocoPhillips Alaska, Anchorage. Baker (Michael Baker, Jr.). 2007 Colville River Delta Lakes Recharge Monitoring and Analysis. Report 110919-MBJ-RPT-001, prepared for ConocoPhillips Alaska, Anchorage. Streever, B., S. Bendewald, A. McCusker, and B. Shaftel. 2001. Winter Measurements of Water Quality and Water Levels: The Effects of Water Withdrawal for Ice Road Construction on Lakes of the NPR-A. Report by BP Exploration, Oasis Environmental, Inc., and Hoefler Consulting Group, Anchorage, Alaska. URS. 2001 Lake Monitoring Study, National Petroleum Reserve - Alaska. Final Report Prepared

for Phillips, Alaska, Anchorage.

⁹¹ Cott, P.A., P.K. Sibley, A.M. Gordon, R.A. Bodaly, K.H. Mills, W.M. Somers, and G.A. Fillatre. 2006. The Effects of Water Withdrawal from Ice-Covered Lakes on Oxygen, Temperature

⁹² Hinzman, L.D., M.R. Lilly, D.L. Kane, D.D. Miller, B.K. Galloway, K.M. Hilton, and D.M. White. 2006. Physical and Chemical Implications of Mid-Winter Pumping of Tundra Lakes – North Slope, Alaska. December 2006, University of Alaska Fairbanks, Water and Environmental Research Center, Report INE/WERC 06.15, Fairbanks, Alaska

⁹³ Baker. (Michael Baker, Jr.). 2007. Colville River Delta Lakes Recharge Monitoring and Analysis.

aggregate removal as authorized. Renaissance will be required to submit copies of the recharge studies to the BLM (see Section 4.5).

BLM stipulations are in place to reduce the risk of degrading water quality in streams.

Fish Habitat Permits are also required for stream crossings that can impact fish. OHMP makes decisions on fish stream crossings specifically to protect fish that might be present. OHMP has issued permits to Renaissance for fish stream crossings along the packed snow trail and ice road from DS-2P and Franklin Bluffs, as proposed. Permitting for stream crossings along the MP 359 route is in process.

Table 7. Lake Water Withdrawal

Lake Identification ^a	Fish Present ^b	Requested Volume of Water (% total lake volume) (MG) ^c	Volume Authorized by ADNR (% total lake volume) (MG)	MG Authorized by ADNR TWUP (water under ice + ice) = total removal authorized (MG)	Recharge Study Required for use more than 1 year ^d	Requires Exception to Stipulation 20
Lakes on federal land within the NPR-A						
RTS07118	Yes-R	20%	20%	(0.91 + 3.69) = 4.6	Yes	Yes
RTS07119	No	50%	35%	14.99	Yes	No
RTS07121	No	50%	35%	5.03	Yes	No
RTS07123	Too shallow	50%	35%	2.24	Yes	No
RTS07124	No	50%	35%	3.76	Yes	No
RTS07125	No	50%	35%	6.76	Yes	No
RTS07126	Yes-S	20%	20%	(.09 + 4.96) = 5.05	Yes	No
RTS07127 ^d	Yes-S	20%	20%	(.05 + 2.02) = 2.07	Yes	Yes
RTS07128	No	50%	35%	4.32	Yes	No
RTS07129	Yes-S	20%	20%	(0.01 + 3.42) = 3.43	Yes	No
RTS07130	Too shallow	50%	35%	1.82	Yes	No
RTS07131	Too shallow	50%	35%	0.24	Yes	No
RTS07132	Yes-R	20%	16%	(0.28 + 0.43) = 0.71	Yes	Yes
Lakes on federal land outside the NPR-A						
RTS07168	No	20%	20%	239.56 ^e	No	NA
RTS07209	Yes-R	17%	Withdrawal limited to 30% under 5 ft of ice	Withdrawal limited to 30% under 5 ft of ice	No	NA
RTS07183	No	20%	20%	13.43 ^e	No	NA
RTS07185	Yes-R	20%	20% ^f	6.24 ^f	Yes	NA
RTS07192	No	20%	20%	2.23 ^e	No	NA
RTS07240	No	50%	20%	1.85 ^e	No	NA
RTS07235	No	50%	20%	2.35 ^e	No	NA

Key:

- Source: Temporary Water Use Permit (TWUP) applications and October 2007 (Rev 2) Plan of Operations
- No = No fish caught; Yes = fish present during survey; S = Sensitive fish species; R = Resistant fish species only
- No more than 15% of the unfrozen water below 7 feet was requested from lakes with sensitive fish. Not more than 30 percent of the unfrozen water below 5 feet was requested from some lakes with non-sensitive (i.e. resistant) fish. Ice aggregate removal in areas of naturally grounded ice in excess of those amounts -- up to 20% of the total lake volume -- has been requested in lakes with fish, and up to 50% of the total lake volume in lakes with no fish.
- 5.5 feet (< 7 feet) deep with sensitive fish. OHMP Title 41 permits do not authorize removal of any free water.
- 20% volume calculated from total volume for this table.
- ADNR TWUP No. A2007-82 Appendix A not provided. Volume shown as authorized extracted from ADNR Title 41 Permit FH07-III-0378 for Lake RTS07185.

ADNR = Alaska Department of Natural Resources

MG = million gallons

On federal land outside the NPR-A, there are no federal stipulations on lake water withdrawal and only limited requirements for stream crossings. The BLM concurs with the State determinations that fish will not be adversely impacted by water and fish stream crossings as authorized in permits issued by ADNDR.

The BLM completed an EFH assessment for salmon resources regarding the proposed action, as required by the National Marine Fisheries. The finding is “ *not likely to adversely affect, and no EFH consultation is required.*”

Site inspections and oversight by the Renaissance local Subsistence Advisors and field environmental coordinators will help identify and mitigate potential impacts to water quality and fish habitat. As described above, fuel and materials handling practices, along with spill response and containment measures, will also protect against potential pollution. In summary, impacts of ice structures, access, and water/ice aggregated withdrawal to water quality, fish, or wildlife are expected to be minor, localized, and temporary, resulting in no significant impacts.

Environmental Controls and Mitigation:			
	Stipulation	ROP	Other
			NPRPA
1998 NE ROD	9;14; 15; 16; 18-20; 22; 24; 28; 51; 56; 57; 61; 62 – 64; 67; 70; 72 – 74	None	
ROW outside NPR-A	NA	NA	

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

The Colville River Special Area, along the west bank of the Colville River, was designated under NPRPA as an area for protection of the peregrine falcon, which at one time was an endangered species, and is still subject to

monitoring studies to ensure continued population growth.. Through a combination of setbacks, timing restrictions, air flight restrictions, and guidances that are present in the stipulations, maximum protection is provided to the peregrine falcon and its habitat.

The 1998 ROD designated several LUEAs within the Colville River Special Area that are associated with the proposed project: These are: Fish Habitat LUEA⁹⁴, Colville River Raptor, Passerine, and Moose LUEA⁹⁵, Scenic Area LUEA⁹⁶, and Potential Colville Wild & Scenic River LUEA.⁹⁷ These LUEA designations within the Colville River Special Area start at the west bank of the Colville River and involve set-backs for permanent facilities extending westward from the Colville River into NPR-A.

A number of stipulations provide protection in the Special Area and LUEAs (e.g., subsistence, spill protection, aircraft use, and winter overland moves). In addition, applicants for oil and gas related activities are required to consult with the NSB, the NPR-A SAP, and directly affected subsistence communities to prevent unreasonable conflicts between subsistence uses and oil and gas activities. The BLM also makes onsite examinations of proposed drill sites, ice road and packed snow trail routes (including stream crossings) to ensure maximum environmental protection – as envisioned in the stipulations. Related discussion is incorporated from the 1998 NE IAP/EIS, Volume 1, Sections IV.G.4, IV.G .7, and IV.G .8, and Volume 2, Appendix E. Additional discussion is provided in the 2005 NE Amended IAP/EIS.

The proposed project is in an area of previous exploration leading to the 1946 discovery of the Umiat Oil Field. Impacts associated with that earlier exploration activity are not expected from the proposed action. Over the past 60 years, technology, equipment, and practices have evolved to the extent that only minor, short term impacts are expected from winter exploration drilling.

In the NE NPR-A, the BLM has previously considered and evaluated proposals for winter exploration programs, including drilling, construction of ice roads and packed snow trails, and lake water withdrawal in the Colville River Special Area. These evaluations have all concluded that those winter exploration activities would have no significant impact to the resources in the Special Area and associated LUEAs.⁹⁸ Application of BLM protective

⁹⁴ 1998NE NPR-A Final IAP/EIS, Vol. 1, Figure II.B.5, p. II-8.

⁹⁵ 1998NE NPR-A Final IAP/EIS, Vol. I, Figure II.B.6, p. II-9.

⁹⁶ 1998NE NPR-A Final IAP/EIS Vol. 1, Figure II.B.9, p. II-12.

⁹⁷ 1998 NE NPR-A final IAP/EIS, Vol.1, Figure II.B.14, p. II-17.

⁹⁸ EA: AK-023-02-004. p. IV-11 and EA: AK-023-02-005, pp. IV-10 and IV-11.

measures from the 1998 ROD is expected to result in similarly minor, short-term and site-specific impacts from the proposed action.

Environmental Controls and Mitigation:			
	Stipulation	ROP	Other
			NSB Permits, and ANILCA 810 Evaluation and Findings.
1998 NE ROD	19 – 22; 24 – 28; 50 – 55; 57; 59 – 65; 73	None	
ROW outside NPR-A	GS-1; GS-2; GS-4; GS-5	None	

The proposed action is consistent with land uses identified in the 1998 IAP/EIS. The access routes crossing federal lands to the east are also consistent with the Utility Corridor RMP.

The Applicant has located project elements to avoid impacting subsistence resources, cultural resources, historic/prehistoric sites, and cabins/camp sites in the project area. Renaissance and the BLM have consulted with local residents, the NSB, and the NPR-A SAP to ensure that the proposed project does not unreasonably restrict access to subsistence resources and protects cultural and historical sites.

Effects on subsistence from winter exploration generally result from ground-impacting activity, construction and drilling activity, vehicle and aircraft traffic, and spills. Subsistence activities that occur during the winter, and thus could be impacted by the proposed exploratory drilling program, include moose and caribou hunting, and furbearer hunting and trapping. These activities are frequently based from subsistence cabin or camp locales, which are accessed during the winter by snow machine. Ice fishing may also occur, although this activity usually takes place in relatively close proximity to the harvester’s community.

The proposed exploratory drilling sites, as well as the associated access route segments, are located in an area utilized by subsistence harvesters from Barrow and Nuiqsut. While not supported by hypothesis-based scientific data, local knowledge, as elicited through public testimony at NPR-A SAP meetings, indicates that exploratory activity both displaces resources from the area of effect, and may serve as a barrier to caribou.

A major goal of the protective measures of the stipulations noted above is to ensure continuing access to, and use of, subsistence resources in the NPR-A, and to avoid a significant restriction on subsistence use of: moose, caribou, small mammals, fish, and plants. These measures include continuing consultation with local residents and government entities (see Section 5, Consultation and Coordination) and BLM monitoring. Renaissance has met with affected communities and developed a Subsistence Plan that includes local subsistence advisors to identify and help mitigate potential impacts of the proposed project on subsistence.

The previous NEPA evaluations summarized in Appendix A have concluded that winter exploration programs in the NPR-A would have no significant restriction on subsistence use or access to subsistence resources. BLM monitoring has confirmed the findings made under ANILCA 810. Related discussion is incorporated from the 1998 NE IAP/EIS and the 1998 ROD. Additional discussion is provided in the 2005 Amended IAP/EIS.⁹⁹

Prior to issuing permits for the project, the NSB solicits public review, including State and Federal agencies, local officials, residents, and private property owners.

It is expected that the proposed 2-year winter delineation drilling program will not substantially impact subsistence resources or restrict the use of, or access to, subsistence resources reflected in the ANILCA 810 finding. The proposed project will utilize existing facilities, occupying the smallest practicable amount of land determined necessary, and on only a temporary basis. Stipulations in effect will help mitigate impacts on subsistence. Impacts will be re-evaluated based on the subsistence reports filed after each season of proposed winter activity.

Based on protective measures of the 1998 ROD, and experience during the past eight winter drilling seasons in the NPR-A, impacts are expected to be minor and short-term. Subsistence resources may be potentially affected periodically, but no resource is expected to become unavailable or undesirable for use. Similarly, any restricted access is expected to be minor and short-term and affecting only very limited areas. No significant restriction on subsistence is expected to result from this winter exploration plan.

⁹⁹ 1998 NE IAP/EIS, Vol. 1, Sec. IV.G.11 and IV.G 13; Vol II, Appendices D, F, and I; 1998 ROD, pp 17-19; and the 2005 Amended IAP/EIS, Vol 1, Cpt. 4.6.12 and Vol. 3, Appendix J.

SCENERY / WILDERNESS / PRIMITIVE RECREATION OPPORTUNITIES			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
Optional-2005 Amended NE IAP/EIS	D-1; D-2	A-1 – A-5; C-2; C-3; F-1; I-1	None
1998 NE ROD	1; 6; 18; 22; 24; 26 – 28; 52 – 57; 62 – 65; 67; 73; 76	None	
ROW outside NPR-A	GS-1; GS-2; GS-3; GS-4; GS-5; GS-6		

In the general project area, there has been considerable past military and exploration activity. An active airfield and industrial facilities have been part of the landscape for decades. The project area is characterized by low terraces, dotted with small lakes, separating the Colville River flood plain from the foothills of the Brooks Range. Steep bluffs border the river where it impinges against hillsides, as at Umiat Mountain.¹⁰⁰ No designated Wilderness Area or designated Wilderness Study Area is involved.

Proposed exploratory drilling operations are located in an area where there have been a large number of oil and gas activities in the past. Proposed new access corridors in the NPR-A, likewise, are in areas where transportation corridors have been established for a variety of reasons. Due to the existing infrastructure, Umiat has been identified as a staging area for exploration activities.

Umiat represents a transition between VRM Class I upstream and VRM Class II below Umiat.¹⁰¹ The entire NPR-A offers primitive recreation opportunities, but access typically limits use. The BLM has no record of commercial recreation services using the general vicinity during the winter. Related discussion is incorporated from the 1998 NE IAP/EIS and two recent EAs completed by the BLM. Additional discussion is provided in the 2005 NE Amended IAP/EIS.¹⁰²

¹⁰⁰ USGS. 1970. *A Review of Water Resources of the Umiat Area, Northern Alaska.* USGS Circular 636

¹⁰¹ 2005 NE Amended IAP/EIS, Vol.1, p. 3-109.

¹⁰² 1998 NE IAP/EIS, Vol. 1, Sec. IV.G.16 and III.C.6; EA: AK-023-06-003, pp. 4-13 and 4-14; and EA: AK-023-05-005, p. 4-10. 2005 NE IAP/EIS, Vol. 1, Cpt 4.6.16 and 4.6.17.

The project within the NPR-A is limited to areas of both previous disturbance and current/recent activity (e.g., airport; 2004 Umiat well plugging). Additional visual impacts from the proposed exploration program are expected to be minor and short-term. These ice roads/pads and LPV trails may cause some temporary greening or browning of the tundra, which would be most visible from the air. Potential effects lasting longer might include crushing drier and taller woody vegetation (e.g., willows), which may take several years to recover completely – both inside and outside the NPR-A. Sites where up to 20 feet of ice pad are left in place may lose all or part of the growing season, requiring several years for the vegetation to recover.

The proposed project does not provide new long-term access, which could impact the naturalness, wilderness values/attributes, or scenic resources. The project area is not being considered for a Wilderness Recommendation. The proposed project is in the vicinity of a public airport and industrial staging areas, which limits the baseline value of the area for scenic, wilderness, or primitive recreation opportunities.

Some localized noise, air pollution, and visibility of industrial activity during the winter will adversely affect values of solitude, quietude, and natural appearance of the winter landscape at the more remote sites. Impacts to scenery, appearance, and other aesthetic values are expected to be temporary and localized, and are not expected to degrade primitive recreation to any notable degree. However, some equipment (e.g., wellhead) remaining onsite has the potential to be visible from the river (see section 4.5).

No existing or planned public recreation facilities are known to be associated with the project area. The Umiat Airport provides access for primitive recreation opportunities (e.g., floating the Colville River), but this is not expected to be affected by the proposed project.

ENVIRONMENTAL JUSTICE			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
Optional-2005 Amended NE IAP/EIS	D-1; D-2	A1– A7; B-1; B-2; F-1; H-1; H-2; I-1	EO 12898; ANILCA; EO 13175
1998 NE ROD	1 – 16; 20; 25; 28; 51 – 57; 59 – 65; 73	None	
ROW outside NPR-A	GS-1; GS-2; GS-4; GS-5	None	

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. Numerous stipulations, as well as in-place and on-going BLM initiatives and consultation with subsistence users, will help mitigate impacts on local landowners and residents.¹⁰³

Alaska Native landowners and residents could be directly affected by impacts of the proposed action on subsistence activities. Subsistence resources provide an important source of food and sustain the cultural heritage of North Slope residents. Consequently, impacts to subsistence have a direct relationship to the analysis of impacts that may have a disproportionately adverse effect on minority and low income populations.

The previous discussion on Subsistence concludes that the proposed 2-year winter exploratory drilling program is not expected to substantially impact subsistence resources or restrict the use of, or access to, subsistence resources. Therefore, environmental justice impacts will be insignificant.

ADVERSE ENERGY IMPACTS			
<i>Environmental Controls and Mitigation:</i>			
	Stipulation	ROP	Other
Optional-2005 Amended NE IAP/EIS	None	None	EO 13212, Energy Policy Act of 2005
1998 NE ROD	None	None	
ROW outside NPR-A	None	None	

The BLM considers whether an official decision will have an adverse energy impact (i.e., impact on energy development, production, supply, and/or distribution). For delineation, there would only be a potential adverse energy impact if the proposed project is denied or substantially reduced. If the proposed project is approved, there will be no adverse energy impact.

4.3.2 Unavoidable Adverse Impacts

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

They include:

- Temporary surface disturbance by winter drilling at well sites.
- Temporary increase in industrial activity affecting wintertime local tranquility and solitude.
- Temporary minor impacts to tundra from ice roads and pads. Longer-term, but relatively minor, visual impacts from multiple green and/or brown trails along portions of the spur routes to ice pads and water supply lakes.
- Short-term visual and noise impacts of drill rig, camp, traffic, etc.
- Temporary disturbance, with possible displacement of some wildlife, in the area while exploration activities are underway. Possible additive effect on winter wildlife mortality.
- Possible minor, temporary impact on subsistence resources and activities if caribou or other animal movements shift away from places where winter activity occurs.
- Possible loss of some small mammals (e.g., lemmings, voles, and ground squirrels) due to ice road/pad construction and the hardened overland trail. This would be an adverse impact to those individuals lost, but not to any local wildlife population.
- Temporary, localized, minor degradation of air quality and, possibly, water quality (oxygen depletion, wastewater disposal, and spills).
- Possible temporary restriction of public access to land around drill sites during active drilling activities to meet air quality requirements and increase safety.

Unavoidable adverse effects have been broadly evaluated for those areas considered for leasing, leased, and subsequently explored.¹⁰⁴ With the additional mitigation measures described in Section 4.5, 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 2-year program.

4.3.3 Potential Impacts of Possible Future Permanent Facilities

Construction of permanent facilities are prohibited during exploration. In addition to stipulations associated with exploration and other activities, the 1998 ROD contains

¹⁰³ 2003 NW IAP/EIS, Vol. 2, Sec. V.B.16.a-g.

¹⁰⁴ 2003 NW IAP/EIS, Vol. 1, Section IV-G.

20 stipulations that are specific to future permanent facilities. Potential impacts of possible future permanent facilities were evaluated in the 1998 NE IAP/EIS, 2003 NW IAP/EIS, and throughout the 2004 ASDP Final EIS (FEIS).¹⁰⁵

If the proposed project results in a commercially producible resource, 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.

4.4 POTENTIAL CUMULATIVE IMPACTS FROM THE PROPOSED ACTION

The BLM has evaluated the cumulative effects of past, present, and reasonably foreseeable oil and gas activities in and around the NPR-A in a series of recent NEPA analyses, which are summarized in Appendix A,

Cumulative impacts were discussed in the 1998 NE IAP/EIS (Tables IV.A.1.b-5 and IV.A.1.b-7). More recently, cumulative effects were discussed in the 2003 NW IAP/EIS, the 2004 ASDP FEIS, and the 2005 NE Amended IAP/EIS.¹⁰⁶

Previous BLM evaluations of Effects of the Cumulative Case have been based on multiple scenarios of leasing, oil price, exploration, and production activities, including:

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

One recent cumulative effects evaluation noted that at least five of the exploration wells drilled in the NPR-A since 1999 have discovered oil and/or gas reserves (NE Amended IAP/EIS, p. 4-436). The size of these recent discoveries has not been made public, but the operators have indicated that the oil reserves are at least equal to those of the Alpine field.

Over the past 8 years, the BLM has also evaluated 12 winter exploration drilling programs and associated activities proposed in the NPR-A (Appendix A). The direct, indirect, and cumulative effects for proposed facilities were predicted to be insignificant, and a FONSI and Decision Record were issued in each case. On-the-ground monitoring during and following winter exploration activities affirmed the fact that impacts were as predicted; no significant effects have been observed. This EA incorporates, by reference, discussion of cumulative impacts from the most recent of these evaluations, completed in early 2007.¹⁰⁷

To date, none of the recent exploration activities authorized by BLM in the NPR-A, individually or in combination, have caused significant direct, indirect, or cumulative adverse impacts to the environment, including access to and use of subsistence resources. There have been some minor, short-term, local adverse impacts as a direct result of activities associated with approved winter exploration programs. The small number and minimal severity of the impacts occurring from 1999 to 2007 demonstrates the overall effectiveness of the present environmental protections that are applied to winter oil and gas exploration activities in the NPR-A.

4.4.1 Framework of the Analysis

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

- Other exploration and delineation activities in the NPR-A and near the NPR-A on land owned by the State and private interests. These include the Anadarko exploration program with access from DS-2P to 11 proposed drill sites in the Gubik and Chandler prospects on State land southeast and northeast of Umiat, and into the NPR-A for use of the existing gravel staging pad south of the Umiat Airport.
- Production activity in the NPR-A and near the NPR-A on land owned by the State and private interests, including continued development of the Alpine and Alpine Satellites fields.

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

¹⁰⁵ 1998 NE IAP/EIS, Vol. 1, Section IV.B – IV.G; 2003 NW IAP/EIS, Vol. 1, Section IV.A.1.b; 2004 ASDP FEIS, Vol. 1, Section 4, 4A-4D and 4F.

¹⁰⁶ 2003 NW IAP/EIS, Vol. 1, Cpt. IV.F; ASDP, Vol. 2, Section 4.G.; 2005 NE Amended IAP/EIS, Vol. 2, Cpt. 4.7.

¹⁰⁷ AK: EA-023-07-006, Section 4.4.

cumulative impacts analysis will focus on the following issues:

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

The potential impacts of global warming were recently discussed in the 2003 NW IAP/EIS and the 2005 NE Amended IAP/EIS.¹⁰⁸ Production facilities associated with any commercial development in the NPR-A are not expected to approach the size of activity at Prudhoe Bay. Even under the most extensive management actions considered, air quality in the NPR-A as a result of development would be expected to show no significant deterioration. Due to the scale and limited timeframe of activity, the proposed project is not expected to significantly deteriorate air quality or contribute to global climate change.

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

- Higher than normal prices of oil and gas.
- Continued decrease in levels of U.S. production of oil and gas, with increasing dependence on foreign oil and gas.
- Continued threat to national and international security and the relative safety of domestic production.
- Potential construction of a large diameter natural gas pipeline to transport North Slope gas to markets in the Lower-48 states.
- The Energy Policy Act of 2005.
- Extended use of Alpine and TAPS transportation facilities.
- Demonstrated vulnerability of production, refining, and transportation facilities to natural disaster.
- Concern about potential cumulative impacts of summer studies/activities.

This EA will consider the cumulative impacts of past and ongoing activities in addition to the proposed Renaissance delineation drilling plan and other

reasonably foreseeable future activities, as well as potential cumulative impacts of the proposed action, within the framework described above.

For this evaluation, it is assumed that stipulations and ROPs evaluated in the 2005 NE Amended IAP/EIS provide environmental protection similar to those of the stipulations in the 1998 ROD. It is also assumed that Anadarko will be bound by stipulations in effect in the NPR-A because they are required to have a ROW permit to cross federal lands in the NPR-A. The General Stipulations currently applied to federal lands outside the NPR-A have minimized direct, indirect, and cumulative effects and no different cumulative impacts of the proposed project are expected on federal land outside the NPR-A.

4.4.2 Cumulative Effects of Proposed Action

The proposed BLM action is to authorize Renaissance to access up to eight drill sites and drill up to 10 wells in the NE Planning Area and access to cross federal lands outside the NPR-A. Associated actions having potential cumulative impacts are: construction of packed snow trails; ice roads and pads; water withdrawals from fresh water lakes; and transport of materials, equipment, and personnel by aircraft, LPV, and conventional vehicles.

The cumulative effects analysis assumes that any continuing use of existing permanent facilities, incorporating environmental protective measures, are expected to be no different, individually or collectively, than those considered by the BLM for the original authorizations of these facilities or in recent NEPA analyses of such use.

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

Issue 1 – Impacts to Fish and Wildlife: BLM protective measures have been applied in the NPR-A for the last eight winter drilling seasons without any individual or collective direct, indirect, or cumulative impacts to fish habitats or to fish populations.¹⁰⁹ These protective measures include setbacks from water bodies and limitations on the amount of water that can be withdrawn from a lake, based on the depth of the lake,

¹⁰⁸ 2005 NE Amended IAP/EIS, Vol. 2, Cpt. 4.7.4.5; 2003 NW IAP/EIS, Vol. 1, pp. IV-418 and 419.

¹⁰⁹ See Section 4.3.1, *Water Resources and Potential Impacts to Water Quality, Fish, and Waterfowl*, for a discussion of these protective measures.

presence or absence of fish, the type of fish (if present), and restriction of activities that could cause freeze-down (i.e., thicker ice results in less unfrozen water available for fish). The proposed winter exploration drilling program is similar to other recent winter drilling programs conducted in the NW and NE NPR-A Planning Areas under the BLM and other Federal, State, NSB, and local authorizations.

For 3 years, the BLM required exploration companies to monitor selected lakes to identify any recharge problems following winter water withdrawals for ice road/pad construction. During this monitoring program, no significant adverse effects from water withdrawal were found, and the requirement was suspended.

The proposed winter exploration drilling program is in the foothills, within approximately 5 to 18 miles of an area where an exploration drilling program has been proposed by Anadarko, including water withdrawal from lakes in the Colville River watershed. There are fewer and smaller lakes in the foothills than on the coastal plain, and there could be a cumulative impacts if the lakes do not recharge. To prevent this impact, both ADNR and the BLM restrict water withdrawal and require recharge studies when authorized withdrawals exceed the historical limits of 15% or 30% under ice on the North Slope. Due to these regulatory requirements, no significant cumulative impact to fish is expected.

BLM protective measures have been applied in the NPR-A for the last eight winter drilling seasons without any individual or collective direct, indirect, or cumulative impacts to wildlife habitats or to wildlife populations. These protective measures include seasonal restriction activities, height and frequency restrictions for aircraft flights, and prohibitions in certain special areas.¹¹⁰ The proposed winter drilling program is essentially the same as the authorized previous winter exploration programs in the NE Planning Area, which have been in more sensitive habitat areas than the proposed project, except for moose and raptors

Moose and caribou are of special importance for subsistence purposes. Therefore, this cumulative effects analysis focuses on potential cumulative impacts to these two large mammals. Only minimal impact to moose or caribou habitat is expected, even with multiple exploration programs in the same general area.

Potential cumulative impacts from the multiple projects operating in the same general time frames would be similar to the direct, indirect, and cumulative effects to wildlife evaluated for periods when two operators (i.e., ConocoPhillips Alaska, Inc with Anadarko or TOTAL E&P USA, Inc.) had concurrent winter exploration programs in the NE NPR-A in relatively close proximity to one another.¹¹¹ There is, however, additional potential for cumulative impacts in the event: (a) drilling operations operate *concurrently* within 3 miles of each other, with associated aircraft support; or (b) two or more drill rigs are moved *concurrently* via the same or nearby overland route.

Known winter drilling operations are more than 3 miles apart. However, concurrent overland movement of several exploration drill rigs and associated equipment would have the potential to cause localized, short-term deflection of moose or caribou. This possible cumulative impact from overland traffic is expected to be short-term, localized, and not significant.

Concurrent use of the airstrip at Umiat by Renaissance and Anadarko, with associated ground traffic, can reasonably be expected to cause a wider, but localized, displacement of moose and caribou around the operations (than either operation alone). Conditions vary from year-to-year, and it is possible that continuing disturbances to caribou or moose could have an additive effect on natural winter mortality. Aircraft are to maintain an altitude of at least 1,000 feet above ground level from October 1 through May 15 over caribou winter ranges (Stipulation 55).

In addition, it is possible that Renaissance and Anadarko, and/or others, could be moving equipment overland through the same areas during the same general time frame. Overland travel in the Colville River Raptor, Passerine, and Moose LUEA must be minimized by April 15th. In the vicinity of gyrfalcon nests, activity must be minimized by March 15th (Stipulation 24.b.). To the extent practicable, aircraft are to maintain an altitude of at least 1,500 feet above ground level within 0.5 miles of cliffs identified as raptor nesting sites beginning April 15th (Stipulation 56), unless an exception is granted.

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

¹¹⁰ See Section 4.3.1, *Threatened and Endangered Species, and Other Sensitive Wildlife*, for a discussion of these protective measures.

¹¹¹ EA: AK-023-02-004, and EA: AK-023-02-005, Section D.3; EA: AK-023-04-004, and EA: AK-023-04-005, Section 4.5.

BLM protective measures have been applied in the NPR-A for the last eight winter drilling seasons without any significant individual or collective direct, indirect, or cumulative impacts to subsistence resources in more sensitive areas.¹¹² Activity levels are expected to be similar in the future, such that cumulative impacts are expected to remain insignificant. In addition, a series of stipulations (and ROPs) have been developed to avoid the potential for significant restriction of subsistence uses or access to subsistence resources.¹¹³

Multi-year winter exploration drilling projects and the potential for concurrent operations by Renaissance and Anadarko within and adjacent to the NPR-A, have been discussed with local residents through meetings with the local communities, NSB, regulatory and resource agencies, and, where appropriate, the NPR-A SAP to minimize project-specific and cumulative effects to subsistence resources or access.

Winter seismic work is conducted in the NPR-A on a regular basis. In general, winter seismic programs are transitory, being in a general area only a few days or weeks. Subsistence hunters have stated at NPR-A SAP meetings that seismic exploration results in the displacement of caribou from the area of seismic activity. Additionally, they state that when seismic exploration and exploratory drilling occur within 20 miles of each other, caribou are displaced from the area and will not use the area as a travel corridor.¹¹⁴ To the extent this impact may occur, it is expected to be limited to the duration of concurrent operations in the same locale. No long-term adverse cumulative impacts for access to or use of subsistence resources are expected.

Seismic work currently envisioned would be similar to other recent winter seismic activities in the NPR-A. The BLM protective measures that apply to winter seismic activity avoid significant adverse impacts to tundra, fish, wildlife, and subsistence. Therefore, no significant cumulative effect on subsistence is expected from the proposed action, in combination with other reasonably foreseeable seismic or other drilling projects.

In addition to winter activities, summer activities including studies, monitoring, and recreational use in the NPR-A occur. These include aircraft support for

fish and wildlife studies, as well as inspections of proposed drilling sites and abandonment inspections. Helicopters are frequently used as the basic means of air support. Helicopter activity can result in deflection of wildlife and disturbance of people engaged in subsistence activities. Fixed wing aircraft are used for local passenger and freight transportation, subsistence, and recreation. Although every effort is made to minimize the effects of aircraft activity, aircraft transportation is crucial to many activities. Summer activities in the NPR-A require separate BLM authorization(s), with associated assessment of potential environmental impact.

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

The ANILCA 810 Analysis in the 1998 ROD found that the cumulative case of development would result in a reasonably foreseeable and significant restriction of subsistence use.¹¹⁵ The cumulative case for the more recent ASDP ANILCA 810 Finding concluded that the distribution of caribou would be adversely affected by development. If a major oil spill occurs in the future, it could significantly affect both populations and distributions of fish, whales, and other marine mammals, causing significant restriction to subsistence resources.¹¹⁶

Issue 3 – Impacts to Tundra: A 2003 report by the National Research Council¹¹⁷ notes that seismic trails, off-road vehicle trails, ice roads, and ice pads are a cause for concern because they can damage vegetation and because they can be seen from the air. Since 1999, the effects of packed snow trails and ice road and pad construction in the NPR-A have been field checked during construction, operation, and succeeding summers to determine if there were significant adverse environmental impacts. During that period, no cumulatively significant impacts to tundra vegetation have been noted from winter exploration activities, including seismic work. Field inspections at the conclusion of the 2006-2007 winter exploration season had similar findings. Future cumulative impacts are expected to remain at an insignificant level.

¹¹² See Issue 1 for additional discussion of reasonably foreseeable cumulative impacts to fish and wildlife.

¹¹³ See Section 4.3.1, *Land Use and Subsistence*, or a discussion of these protective measures.

¹¹⁴ NPR-A SAP meeting minutes March 23, 2006, Barrow, AK.

¹¹⁵ 1998 NE ROD and 2004 NW ROD, ANILCA 810 Summary.

¹¹⁶ ASDP FEIS, Vol. 3, Appendix B, pp. 15-16.

¹¹⁷ National Research Council. *Cumulative Environmental Effects of Oil and Gas Activities on Alaska's North Slope*. 2003. Summary, pp. 19-20.

BLM protective measures include requirements for offsetting ice roads from year-to-year, opening and closing conditions for winter tundra travel, avoiding willow patches to the extent practicable, and prescribing the type of vehicles that may be used off road. See Section 4.3.1 for a discussion of related protective measures. As a result, the cumulative effects of winter exploration activities on tundra are expected to be minimal and localized, with visual effects most notable from the air, with no cumulatively significant effects. Since road and trail routes may be visible for more than one summer, the number of visible routes accumulates over multi-winter operations. However, these cumulative effects are not environmentally significant.

It is noted that Renaissance would likely share approximately 30 miles of the Chevron route west from Franklin Bluffs the Dalton Highway, if this route was selected. The Franklin Bluffs route would not be used if the MP 359 route was selected. All three potential access routes share a portion of Anadarko route from near the Anaktuvuk River into the NPR-A. Route sharing reduces impacts expected from multiple separate overland routes and may also reduce potential impact on federal land outside the NPR-A.

Issue 4 – Impacts of Oil and Gas Industrial Development: The proposed project does not include a request to construct permanent facilities. However, because the proposed action is in an area of medium oil potential, and an oil field has been discovered at Umiat, the cumulative effects analysis addresses development as a possible future action. Higher than normal oil prices suggest that the exploration and development of energy resources will continue in the foreseeable future. In addition, Congress recently enacted economic incentives to construct a large diameter natural gas pipeline from the North Slope to domestic markets in the Lower 48 States. The National Energy Policy Act also includes requirements to streamline permitting and decisions needed to develop energy resources.

The nearest permanent petroleum production facilities are at the Alpine Production Area (approximately 75 miles northeast of the project area), production from which connects to TAPS, and is either used in Alaska or exported to the conterminous States via tanker from Valdez. There is currently no production from the Umiat Oil Field. Future production could connect directly to TAPS, approximately 85 miles to the east. A hypothetical pipeline route through Umiat due east to connect with TAPS was evaluated.¹¹⁸

¹¹⁸ 2003 NW IAP/EIS, Vol. 3, Map 108.

No new or different development impacts are expected beyond those already evaluated in detail in previous EIS analyses.¹¹⁹ In addition, impacts associated with production facilities, such as roads and pipelines, must be reevaluated through a separate NEPA process prior to any Federal authorizations, including a cumulative effects analysis and a new ANILCA Section 810 analysis and finding.

Should additional reserves that make the Umiat Field commercially viable be identified in the project area as a result of this or other winter exploration programs, new production would likely extend the life of the Alpine and TAPS transportation facilities. While recent events have shown that there is increasing potential for accidental spills from the aging production facilities at Prudhoe Bay, new discoveries in the NPR-A would not likely utilize those facilities.

Issue 5 – Economic potential for Alaska Native Village and Regional Corporations and the NSB; increase in State and Federal Revenues: The project area is considered to have a medium probability for the occurrence of economic oil and gas resources, although, the proposed project is in the vicinity of the undeveloped Umiat Oil Field.

A critical issue facing the NSB is the growing shortfall in revenues due to the decline in assessed value resulting from depreciation of petroleum-production related facilities. Fifty percent of federal oil and gas lease sale revenues and rents in the NPR-A are made available to the State. These monies (over \$94 million to 2006) may be used for a variety of purposes. These include: NPR-A Impact Mitigation Grants, to assist affected communities in dealing with related impacts; the Public School Trust Fund; the Power Cost Equalization and Rural Electric Capitalization Fund; the Alaska Permanent Fund; and the General Fund.¹²⁰

Local economies are based on subsistence, as well as cash. The ANILCA 810 Analysis in the 2005 NE IAP/EIS found that the cumulative case of development would result in a reasonably foreseeable and significant restriction of subsistence use for local communities as a result of a decrease in resource abundance, significant

¹¹⁹ 2003 NW IAP/EIS, Vol. 1, Section 1V.F; ASDP FEIS, Vol. 2, Section 4G; 1998 IAP/EIS, Vol. 1, Section IV.H.

¹²⁰ NPR-A Impact Mitigation Program History and Overview Department of Commerce Community and Economic Development, Division of Community Advocacy 2006 Annual Report. <http://www.commerce.state.ak.us/dca/pub/AnnualReport06/NPRA.pdf>

alteration in the distribution of resources, and a significant restriction of access by subsistence users.¹²¹

In summary, a beneficial cumulative effect of exploration and delineation on local employment opportunities and business revenues is expected. If development is proposed in the future, the potential for adverse cumulative effects would be re-evaluated under NEPA and ANILCA Section 810.

4.4.3 Cumulative Impact Conclusions

Considering the protective stipulations in the 1998 NE ROD, and the demonstrated effectiveness of the same winter exploration technologies in the NPR-A since 1999, no significant direct or indirect or cumulative impacts are expected from the proposed winter exploration drilling program when added to other past, present, and reasonably foreseeable activities.

4.5 MITIGATION AND MONITORING

North Slope operators have actively worked to develop winter exploration technologies that create minimal impact to the environment and to local residents. Operators, regulators, and local officials have participated in a series of workshops to review the results of winter exploration, with a special emphasis on identifying ways that future operations can be modified to provide enhanced protection of the environment. Many of these enhancements, such as ways to reduce damage to tundra, have been incorporated into the operational plans, including the proposed project.

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

- Access to subsistence use areas and winter caribou movements.
- Cultural resources.
- Tundra/vegetation.
- Fish habitat.
- Lake Recharge.
- Colville River Special Area and associated LUEAs.

Monitoring measures will involve: 1) the drilling operation, including the drill rig and ancillary facilities, and 2) other surface activities. The former involves geotechnical and engineering considerations such as the presence of hydrogen sulfide gas. The latter includes

the movement of equipment, supplies, and personnel to and from the drilling operations and the continuing protection of vegetation, fish, and wildlife habitat, as well as subsistence activities.

The objective of this monitoring program is to ensure that all terms and conditions in the Federal oil and gas leases and the 1998 ROD for the NE NPR-A are met – as previously described and incorporated by reference. In addition, BLM Stipulations and/or required operating procedures developed as part of the 2005 NE NPR-A Plan Amendment will also be considered as appropriate for the proposed action.

Additional Mitigation

The BLM will incorporate the following mitigation measures into approvals for the Renaissance Applications to Drill and the ROW permit:

1. Avoid disturbing PCB-contaminated surface soils at and down-gradient of Legacy Well 9. To guard against any accidental tundra disturbance during ice road construction or overland transport, the BLM will restrict all activity within a 200-foot radius around the old wellhead (Legacy Well 9)
2. Avoid disturbing contaminated surface soils around the old burn area shown in Appendix C and around Legacy Well 8.
3. Develop a plan for managing soils excavated during well cellar construction to avoid cross contamination. Submit plan for approval by the BLM Authorized Officer (AO) prior to soil disturbing activity.
4. Confer with the BLM to develop a plan to reduce ice thickness of ice drill pads left in place where underlying vegetation is likely to remain covered during the growing season.
5. Cover well heads left in place to prevent use by ravens, raptors, and foxes (adopted from the 2005 NE Amended IAP/EIS, ROP E-9).
6. Secure wellhead covering to maintain function and prevent littering.
7. Use contrast-reducing tools and methods to manage wellheads left on site that may be visible from the Colville River.
8. Coordinate with other overland transportation programs to avoid impacting willows in the Anaktuvuk River valley.
9. Monitor condition of the ice roads and terminate use if environmental degradation is observed, and immediately report degradation to the BLM AO.

¹²¹ 2005 NE Amended IAP/EIS, Vol. 3, Appendix B, p. B-16.

10. Slot, breach, or weaken ice road crossings of definable streams prior to spring breakup to minimize potential adverse impacts to stream banks.
11. Remove snow/ice used as fill for ramps from stream banks in a manner that does not disturb the natural stream bank.
12. Confer with the BLM AO prior to initiating water removal from Umiat Lake to develop a monitoring program acceptable to the BLM, with the objective of avoiding disturbance and uptake of bottom sediments. At a minimum, this plan will include analysis of background water quality (under ice) and analysis of water quality (under ice) upon completion of water withdrawal, and a quality assurance plan to ensure that lake sediments are not disturbed and that state when additional associated sampling should occur. In addition to turbidity and other parameters, samples will be analyzed for DRO by Alaska Method 102, and for polynuclear aromatic hydrocarbons (PAH) or for BETX (benzene, ethylbenzene, toluene, and xylene by EPA Method 624) to quantify concentrations of lighter petroleum fractions.
13. Maintain a daily record of where water from Umiat Lake was used, and submit to the BLM AO at the end of the drilling season.
14. Provide the BLM AO with copies of the lake recharge monitoring reports required by ADNR and BLM. Future use of the lake water depends on the results of the recharge studies.

4.6 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

This analysis has considered, and incorporated by reference, previous studies and findings on oil and gas winter exploration activities on the North Slope and, specifically, in the NPR-A, including the stipulations in the 1998 NE ROD and . Based on this analysis, it is concluded that direct, indirect, and cumulative impacts from the proposed action should be relatively minor and short-term.

Cumulative effects have been found to be as described in the NE and NW NPR-A IAP/EISs. Also considered were the requirements and restrictions for water withdrawals and fish stream crossings included in authorizations issued by the ADNR OHMP.

4.7 IMPACTS OF THE ALTERNATIVES

This EA considers the proposed action to authorize a 2-year winter delineation program involving drilling up to 10 wells at up to eight drill sites in one winter. All drill sites have been staked and field verified by the BLM for use in the drilling program.

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

Future Federal lease offerings in this area or in the NPR-A might not be pursued due to the precedent of not approving a winter drilling program that has been determined to have no significant or long-term site-specific or cumulative adverse impacts. Ultimately, the Federal government might have to buy back the Federal leases associated with the proposed project and other Federal leases in the area. The Applicant would have the option of canceling or redesigning the project, or otherwise seeking a change in the decision by the BLM to deny the proposed project. Finally the “No Action” alternative might shift some on-shore exploration work to offshore areas of the North Slope.

5 CONSULTATION AND COORDINATION

5.1 AGENCY COORDINATION

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

- U.S. Army Corps of Engineers
- ADNR
 - DMLW
 - OHMP
- ADEC
- ADOT&PF
- NSB
- NPR-A SAP

In preparing its plan of operations, Renaissance conducted a series of meetings with resource agencies, regulatory agencies, and local governments. The proposed project has recently undergone review by the NSB, State and Federal agencies, and the general public. Renaissance has consulted with community leaders in Anaktuvuk Pass and Barrow, as well as the Kuukpik Subsistence Oversight Panel (KSOP) and the NSB Community Planning Commission in developing the proposed project.

Renaissance provided the BLM with permit applications and support documentation that summarize the proposed project and compliance with applicable stipulations. The BLM has inspected the proposed drill sites and access routes. The BLM and Renaissance discussed the proposed action as the proposed program was being developed. These discussions will continue as the project progresses.

5.2 PUBLIC COORDINATION

In preparing its plan of operations, Renaissance conducted meetings with affected North Slope communities, as described in Section 2.1.7. Local residents provided Traditional Knowledge at these meetings, which was considered in the project plan and in this EA.

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

5.3 LIST OF PREPARERS

This EA was prepared by the BLM, with technical assistance from MWH, a third-party EA contractor. Following is a list of BLM staff and MWH team members involved in preparation of this EA.

BLM

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

MWH Team

- Sandra Hamann, Project Manager
- Sarah Callahan, Environmental Scientist
- Gwen Turner, Technical Editor
- Jules Tileston, Tileston & Associates
- Don Meares, Plover Associates

APPENDIX A

RELATED ENVIRONMENTAL ANALYSES, NPR-A EXPLORATION

APPENDIX A

**Related Environmental Analyses
NPR-A Exploration**

Environmental Analysis^a	Decision Document	Related Activity^b <i>(proposed exploration drilling sites, access route corridors, and water supply associated with the total program, unless otherwise noted)</i>	Special Areas and Other Designated Land Use Areas Evaluated
Northeast National Petroleum Reserve-Alaska Integrated Activity Plan/Environmental Impact Statement. USDO I BLM. August 1998.	Record of Decision, Northeast National Petroleum Reserve-Alaska Integrated Activity Plan/Environmental Impact Statement. BLM, October 1998	Multi-use management of the Northeast NPR-A, including oil and gas leasing, exploration and development	All within the NE Planning Area
EA: AK-020-00-011. Environmental Assessment, 1999-2000 Winter Exploration Drilling Program in the National Petroleum Reserve-Alaska (NPR-A). USDO I BLM, Alaska, Northern Field Office and Anchorage Field Office. January 2000. [ARCO]	Finding of No Significant Impact and Decision Record AA-081794. Application for Permit to Drill and Right-of-Way. BLM. January 2000	Spark 1, Lookout A, Clover A, Clover B, Moose's Tooth A, Moose's Tooth C, Rendezvous A, and Rendezvous B. 30-mi ice road corridor; 20-mi packed snow trail corridor; 1 ice airstrip/yr; 137 MG water (23 lakes in NPR-A). 3-year program over 5 years	Colville River Special Area; Fish Creek, Judy Creek and Colville River Fish Habitat LUEAs, Colville River Raptor, Passerine and Moose LUEA
EA: AK-023-01-001. Environmental Assessment, Trailblazer Exploration Drilling Program, 2000-2005, National Petroleum Reserve-Alaska (NPR-A). USDO I BLM, Alaska, Northern Field Office and Anchorage Field Office. November 2000 (minor revision January 2001). [BPX]	Finding of No Significant Impact and Decision Record AA-081752. Application for Permit to Drill and Right-of-Way. BLM. January 2001	Trailblazer A-H. 34-mi ice road corridor; 18-mi packed snow trail corridor; 1 ice airstrip/yr; 525 MG water (52 lakes in NPR-A); 54-mi non-federal offshore ice road. 5-year program	Teshekpuk Lake Special Area; Teshekpuk Lake Watershed LUEA; Teshekpuk Lake Caribou Habitat LUEA; No Surface Activity Area
EA: AK 023-01-003. Environmental Assessment, National Petroleum Reserve-Alaska (NPR-A) Exploration Program, Winter Drilling 2000-2006. USDO I BLM, Alaska, Northern Field Office and Anchorage Field Office. December 2000 (minor revision March 2001). [Phillips]	Finding of No Significant Impact and Decision Record AA-081780. Application for Permit to Drill and Right-of-Way. BLM. March 2001	Spark 2, Spark 3, Spark 4, Spark 5, Rendezvous 1, Rendezvous 2, Outlook 1, Oxbow 1, Hunter 1, and Sunrise 2. Up to 5 temporary camp/storage ice pads; 56-mi ice road corridor (+20 mi existing ROW); 0-mi packed snow trail corridor (+20 mi existing ROW); 1 ice airstrip/yr; 500 MG water (83 lakes in NPR-A). 5-year program	Colville River Special Area; Fish Creek, Judy Creek, and Colville River Fish Habitat LUEAs; Colville River Raptor, Passerine and Moose LUEA
EA: AK-023-02-004. Environmental Assessment, National Petroleum Reserve-Alaska (NPR-A) Altamura Prospect Exploration Program. December 2001 (Minor revision January 2002). [Anadarko]	Finding of No Significant Impact and Decision Record AA-081736. Application for Permit to Drill. BLM. January 2002.	Altamura 1 and Altamura 2. 7-mi ice road corridor; 4-mi packed snow trail corridor (+15 mi existing ROW); 1 ice airstrip/yr; 19 MG water (9 lakes in NPR-A). 2-year program	Colville River Special Area; Colville River Raptor, Passerine, and Moose LUEA; Colville River Fish Habitat LUEA
EA: AK-023-02-005. Environmental Assessment, National Petroleum Reserve-Alaska (NPR-A) 2001-2006 Exploration Drilling Program. USDO I BLM, Alaska, Northern Field Office and Anchorage Field Office. December 2001 (Minor revision January 2002). [Phillips]	Finding of No Significant Impact and Decision Record AA-081780. Application for Permit to Drill and Right-of-Way. BLM. January 2002.	Spark 6, Spark 7, Spark 8, Hunter A, Hunter 2, Lookout 2, Mitre 1, Rendezvous 3, Nova 1, Nova 2, Pioneer 1, Grandview 1, Tuvaq 1, Tuvaq 2, and Tuvaq 3. 30-mi ice road (+40 mi existing ROW); 100-mi packed snow trail (+31 mi existing ROW); 2 ice airstrip sites; 120 MG water (14 lakes in NPR-A). 5-year program	Colville River Special Area; Fish Creek and Judy Creek and Colville River Fish Habitat LUEAs; Colville River Raptor, Passerine, and Moose LUEA
EA: AK-023-02-033. Environmental Assessment, Puviaq Storage Site Project, National Petroleum Reserve-Alaska. USDO I BLM, Northern Field Office, Arctic Management Team. March 2002. [CPAI]	Finding of No Significant Impact and Decision Record FF-093572. BLM NPR-A Permit 298401. March 28, 2002.	Access to and rig storage near Puviaq; 1 over-summer ice storage pad; 80-mi packed snow trail corridor. 1-year program	Teshekpuk Lake Special Area; Teshekpuk Lake Watershed LUEA; Spectacled Eider Breeding Range LUEA; Teshekpuk Lake Caribou Habitat LUEA

APPENDIX A

**Related Environmental Analyses
NPR-A Exploration**

Environmental Analysis^a	Decision Document	Related Activity^b <i>(proposed exploration drilling sites, access route corridors, and water supply associated with the total program, unless otherwise noted)</i>	Special Areas and Other Designated Land Use Areas Evaluated
EA: AK-023-03-008. Environmental Assessment. National Petroleum Reserve-Alaska (NPR-A) Exploration Drilling Program, Puviaq #1 and #2 Exploration Wells. USDO I BLM, Alaska, Northern Field Office and Anchorage Field Office. December 2002. [CPAI]	Finding of No Significant Impact and Decision Record AA-081854. Application for Permit to Drill and Right-of-Way. BLM. December 2002.	Puviaq 1 and Puviaq 2. 76-mi ice road corridor; 168 mi packed snow trail corridor (+107 mi existing ROW); one over-summer ice storage pad, 2 ice airstrip sites; 124 MG water (28 lakes in the NPR-A). 2-year program	Teshekpuk Lake Special Area; Teshekpuk Lake Watershed LUEA, Spectacled Eider Breeding Range LUEA, Teshekpuk Lake Caribou Habitat LUEA; Goose Molting Habitat LUEA Ikipkuk River Paleontological Sites LUEA; Teshekpuk Lake and Miguakiak River Fish Habitat LUEAs; No Permanent Facility Use Area
EA: AK-023-03-027. Environmental Assessment, Storage Ice Pads, USDO I BLM, Northern Field Office, Arctic Management Team. February 2003. [CPAI]	Finding of No Significant Impact and Decision Record FF-093905. Permit 298401. February 2003.	Alternate trail access to and rig storage near Kokoda/Carbon. 11-mi packed snow trail corridor; over-summer ice storage pad. 1-year program	Teshekpuk Lake Special Area; Teshekpuk Lake Watershed LUEA, Spectacled Eider Breeding Range LUEA, Teshekpuk Lake Caribou Habitat LUEA; Fish Habitat LUEAs
EA: AK-023-03-032. Environmental Assessment, Access To and Drill Stacking at Inigok. USDO I BLM, Northern Field Office, Arctic Management Team. February 2003. [TOTAL E&P USA, Inc.]	Finding of No Significant Impact and Decision Record FF-093906. BLM NPR-A Permit 281001. February 2003.	Access to and rig storage at existing facility at Inigok; 30-mi packed snow trail corridor (+27 mi existing ROW). Access to lease; 6-mi hardened trail corridor. 1-year program	No Permanent Facility Use Area
Northwest National Petroleum Reserve-Alaska Final Integrated Activity Plan/Environmental Impact Statement. USDO I BLM. November 2003.	Record of Decision, Northwest National Petroleum Reserve-Alaska Integrated Activity Plan/ Environmental Impact Statement. BLM. January 2004.	Multi-use management of the Northwest NPR-A, including oil and gas leasing, exploration and development	All within the NW Planning Area
EA: AK-023-04-005. Environmental Assessment, National Petroleum Reserve-Alaska (NPR-A) 2003-2008 Exploration Drilling. USDO I BLM, Alaska, Northern Field Office and Anchorage Field Office. November 2003 (Minor revision December 2003). [CPAI]	Finding of No Significant Impact and Decision Record AA-084161. Application for Permit to Drill and Right-of-Way. BLM. December 2003.	Caribou 07-16, Caribou 09-11, Caribou 14-12, Caribou 18-08, Caribou 23-14, Caribou 26-11, Caribou 35-05, and Caribou 35-14. One temporary staging ice pad; 60-mi ice road corridor (+22 mi existing ROW); 31-mi packed snow trail corridor (+ 27 mi existing ROW); corridor; 170 MG water (35 lakes in NPR-A). 5-year program	Teshekpuk Lake and Colville River Special Areas; Teshekpuk Lake Watershed LUEA, Pik Dunes LUEA; Fish Creek, Judy Creek and Colville River Fish Habitat LUEAs; Colville River Raptor, Passerine, and Moose LUEA; Permanent Facility Use Area
EA: AK-023-04-004. Environmental Assessment National Petroleum Reserve-Alaska (NPR-A) 2003-2008 Exploration Drilling Program, USDO I BLM, Alaska, Northern Field Office and Anchorage Field Office. November 2003 (Minor revision December 2003). [CPAI]	Finding of No Significant Impact and Decision Record AA-084129. Application for Permit to Drill and Right-of-Way. BLM. December 2003.	Kokoda 1, Kokoda 2, Powerline 1, Grandview 2, Carbon 1, Summit 2, and Scout 1. 62-mi ice road corridor (+ 22 mi existing ROW); 5 ice airstrip sites; 92 MG water (12 lakes in NPR-A). 5-year program	Teshekpuk Lake Special Area; Colville River Special Area; Teshekpuk Lake Watershed LUEA; Fish Creek and Colville River Fish Habitat LUEAs; Colville River Raptor, Passerine, and Moose LUEA
Final Environmental Impact Statement. Alpine Satellite Development Plan. USDO I BLM, Alaska State Office, in cooperation with U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Coast Guard, and the State of Alaska Anchorage, Alaska. September 2004.	Record of Decision, Final Environmental Impact Statement, Alpine Satellite Development Plan. Prepared by BLM, October 2004.	Production Development	Teshekpuk Lake and Colville River Special Areas

APPENDIX A

**Related Environmental Analyses
NPR-A Exploration**

Environmental Analysis^a	Decision Document	Related Activity^b <i>(proposed exploration drilling sites, access route corridors, and water supply associated with the total program, unless otherwise noted)</i>	Special Areas and Other Designated Land Use Areas Evaluated
EA: AK-023-05-005. Environmental Assessment National Petroleum Reserve-Alaska (NPR-A) Northeast Planning Area, Winter Exploration Drilling Program. USDO I BLM, Alaska, Northern Field Office and Anchorage Field Office. December 2004 [CPAI]	Finding of No Significant Impact and Decision Record AA-081727. Application for Permit to Drill and Right-of-Way. BLM. December 2004.	Kokoda 3, Kokoda 4, Kokoda 5, Noatak 1, Bounty 1, Defiance 1; up to 10 temporary camp/storage ice pads; 26-mi ice road corridor (+84 mi existing ROW); 8-mi packed snow trail corridor (+88 mi existing ROW); 2 ice air strips/yr; 80 MG water (58 lakes in NPR-A). 5-year program	Teshekpuk Lake Special Area; Colville River Special Area; Teshekpuk Lake Watershed LUEA; Pik Dunes LUEA; Teshekpuk Lake Caribou Habitat LUEA, Fish Creek, Judy Creek, Kealok Creek and Colville River Fish Habitat LUEAs; Colville River Raptor, Passerine and Moose LUEA
Final Northeast National Petroleum Reserve-Alaska Amended Integrated Activity Plan/Environmental Impact Statement. USDO I BLM. January 2005 – remanded for further action	ROD – vacated by federal court	Multi-use management of the Northeast NPR-A, including oil and gas leasing, exploration and development	
EA: AK-023-06-003. Environmental Assessment National Petroleum Reserve-Alaska (NPR-A) Northwest Planning Area, Winter Exploration Drilling Program 2005-2007. USDO I BLM, Alaska, Fairbanks District Office, Arctic Field Office. December 2005 [FEX]	Finding of No Significant Impact and Decision Record AA-085574. Application for Permit to Drill, 3100.00 and Right-of-Way, 2884.01. BLM. December 2005.	Aklaq 1, Aklaq 1A, Aklaq 2, Aklaq 2A, Aklaq 2B, Aklaqyaaq 1, Amaguq 1; 31-mi ice road corridor; 78-mi packed snow trail corridor (+399 mi existing ROW); 2 ice air strips/year; up to 4 temporary camp/storage ice pads, 85 MG water (28 lakes in NPR-A). 2-year program	Teshekpuk Lake and Colville River Special Areas, Deep Water Lakes, Ipkipuk, Chipp, Alaktak Inaru, Meade, Topogoruk, Oumalik, Miguakiak, and Titaluk rivers; Teshekpuk Lake Caribou Habitat LUEA; Fish Creek and Judy Creek and Colville River Fish Habitat LUEAs; Colville River Raptor, Passerine and Moose LUEA
EA: AK-023-07-001. Environmental Assessment National Petroleum Reserve-Alaska (NPR-A) Northwest Planning Area, Winter Exploration Drilling Program 2006-2008. USDO I BLM, Alaska, Fairbanks District Office, Arctic Field Office. December 2006 [FEX]	Finding of No Significant Impact and Decision Record AA-085574. Application for Permit to Drill, 3100.00 and Right-of-Way, 2884.01. BLM. December 2006.	Aklaq 3, Aklaq 4, Aklaq 5, Aklaq 6, Aklaq 7, Aklaq 7A, Aklaqyaaq 2, Amaguq 2; Uugaq 1; 62 -mi new access corridor, 2ice air strips/year; 113 MG water (34 lakes in NPR-A). 2-year program	Teshekpuk Lake Special Areas, Deep Water Lakes, Caribou Study Area, kpikpuk, Chipp, Topogoruk, and Alaktak rivers.
EA: AK-023-07-002. Environmental Assessment National Petroleum Reserve-Alaska (NPR-A) Northeast Planning Area, Winter Exploration Drilling Program 2006-2011. USDO I BLM, Alaska, Fairbanks District Office, Arctic Field Office. December 2006. [CPAI]	Finding of No Significant Impact and Decision Record AA-081840. Application for Permit to Drill, and ROWs, FF-092931 and FF-093835. BLM. December 2006.	Noatak-2, Noatak-3, Nugget-1, Nugget-2, Cassin-1, Cassin-2, Cassin-3, Spark DD 9-12; 110-mi new access corridor; 3 ice air strips/year; 201.5 MG water (9 new lakes in NPR-A). 5-year program	Colville River Special Area: Colville River Fish Habitat LUEA: Potential Colville Wild & Scenic River LUEA: Deep Water Lakes Fish Habitat LUEA; Teshekpuk Lake Special Area; Teshekpuk Lake Caribou Habitat LUEA/Special Caribou Stipulations Area, Brant Survey Area, and Caribou Study Area
EA: AK-023-07-006. Environmental Assessment National Petroleum Reserve-Alaska (NPR-A) Northwest Planning Area, Petro-Canada (Alaska), Inc. Winter Exploration Drilling Program 2007-2009. USDO I BLM, Alaska, Fairbanks District Office, Arctic Field Office. April 2007. [PCA]	Finding of No Significant Impact and Decision Record AA-085497. Application for Permit to Drill, and ROWs, FF-095123. BLM. April 2007.	Alaqtatq2 1, Tupaagrak 1, Tupaagrak 2, Tupaagrak 3. 43 miles of new access corridor; 2 ice airstrips/year; 58.8 MG water (22 new lakes in NPR-A). 2-year program	Teshekpuk Lake Special Area; Teshekpuk Lake Caribou Habitat LUEA/Special Caribou Stipulations Area; Deep Water Lakes, Topogoruk, Chipp, and Alaktak rivers

APPENDIX A

Related Environmental Analyses NPR-A Exploration

Key:

- ^a Documents are available for review at the Fairbanks District Office, BLM, 1150 University Avenue, Fairbanks, Alaska 99709.
- ^b All mileage and water volumes are approximate for comparative impact analysis purposes. NOTE: Distance and volume values were updated in 2006, based on a standardized approach to estimate new elements of the proposed program (i.e., maximum program total new length of ice roads and trails and volumes of water potentially used); also estimated existing ice road and snow trail corridor ROWs proposed for possible use).

ARCO – Arco Alaska Incorporated

BLM – Bureau of Land Management

BPXA – BP Exploration (Alaska) Incorporated

CPAI – ConocoPhillips Alaska, Incorporated

EA – Environmental Assessment

FEX – FEX L.P. Incorporated

LUEA – Land Use Emphasis Area

MG – Million gallon(s)

Mi – Mile(s)

NE – Northeast

NPR-A – National Petroleum Reserve – Alaska

NW – Northwest

PCA – Petro-Canada (Alaska), Inc.

ROD – Record of Decision

ROW – Right-of-Way

USDOI – U.S. Department of the Interior

yr – year(s)

APPENDIX B

GENERAL STIPULATIONS FOR OVERLAND TRAVEL OUTSIDE THE NPR-A
(Adapted from the BLM Utility Corridor Resource Management Plan)

APPENDIX B

GENERAL STIPULATIONS

(ACTIVITY ON FEDERAL LAND OUTSIDE THE NPR-A)

1. All operations will be conducted in such a manner as not to cause damage or disturbance to any fish or wildlife and subsistence resources.
2. No chasing by vehicles or buzzing by aircraft of any wildlife. Particular attention will be given to not disturbing caribou.
3. Holder shall prohibit the feeding of wildlife. Garbage or other potentially edible items which would attract wildlife shall be kept in covered containers while awaiting incineration.
4. Aircraft shall maintain 1,000 foot above ground level (AGL) (except for take off and landings) over designated caribou concentration areas (i.e., winter and summer ranges, insect relief areas, etc.) during the specific time period designated (winter - October 1st through May 15th, summer - May 15th through September 30th) unless doing so would endanger human life or safe flying practices.
5. All operations shall be conducted with due regard for good resource management and in such a manner as not to block any stream, or drainage system, or change the character or course of a stream, or cause the pollution or siltation of any stream or lake.
6. All activities shall be conducted so as to avoid or minimize disturbance to vegetation.
7. Cultural and Paleontological Resources. Any cultural or Paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the AO. An evaluation of the discovery will be made by the AO to determine appropriate actions to prevent the loss of significant cultural or scientific values. The Holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the AO after consulting with the Holder.
8. Crossing of waterway courses shall be made using a low angle approach in order not to disrupt the naturally occurring stream or lake banks.
9. Camps will be situated on gravel bars, sand, or other durable lands. Where leveling of trailers or modules is required and the surface has a vegetative mat, leveling will be accomplished with blocking rather than leveling with a bulldozer.
10. Black water shall be kept separate from grey wash and kitchen waste water. Grey wash water and kitchen waste water may be filtered to remove the solids and the liquid discharged to the land surface. All solids and sludges shall be incinerated.
11. All solid wastes shall be removed from the public lands to Alaska State DEC approved solid waste disposal facilities. Solid waste combustibles may be incinerated. All non-combustible solid waste, including ash from incineration and fuel drums, shall be removed for approved disposal. There will be no burial of garbage or human wastes.
12. All fuel spills will be cleaned up immediately, taking precedence over all other matters, except the health and safety of personnel. Spills will be cleaned up utilizing absorbent pads or other Alaska State DEC approved methods.

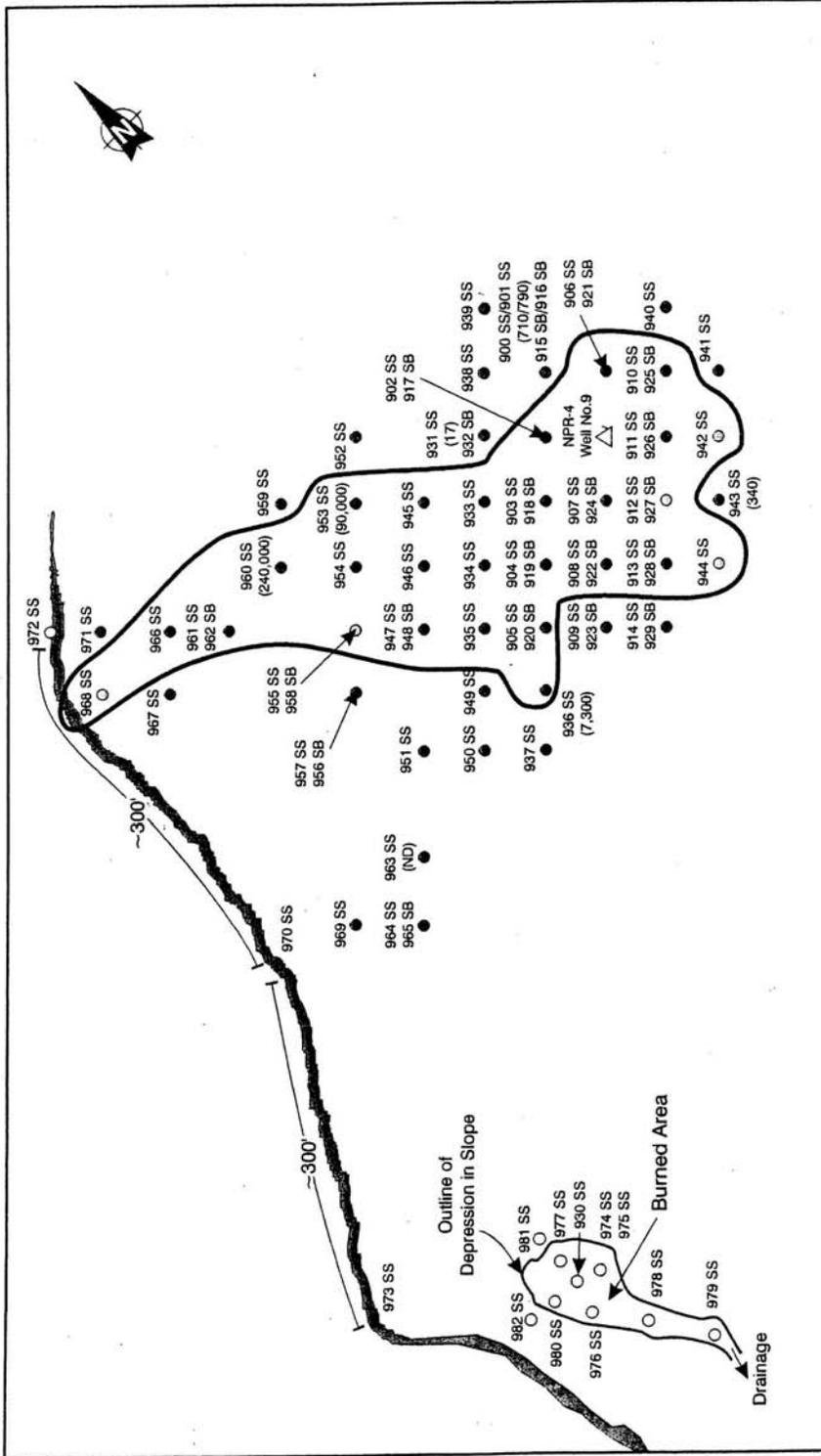
13. As soon as possible, but not later than 24 hours, notice of any such discharge of oil or hazardous substance as defined in AS 46.03.755, 18 AAC 75.300-.307, will be given to the Authorized Officer and any other Federal and State officials as are required by law.
14. DEC approved oil spill cleanup materials (absorbents) will be carried by each field crew and stored at all fueling points and vehicle maintenance areas.
15. State and Federal safety standards for fuel handling will be followed.
16. No fuel storage or refueling of equipment will be allowed within the flood plain of a river or lake.
17. Drip basins or absorbent diapers will be placed under all non dry-disconnect-type fuel line couplings and valves.
18. Fuel and other petroleum products storage of 55 gallons or greater must have secondary containment with 110% of the capacity of the primary storage. The secondary containment, such as lined and bermed systems, must meet local, State and federal codes and regulations. Above ground storage of fuels or other petroleum products in excess of 660 gallons, or an aggregate above ground storage capacity of greater than 1320 gallons; or any facility which, due to location, could reasonably expect spilled fuels to reach waters of the United States or adjoining shorelines must prepare and maintain a Spill Prevention Control and Countermeasure (SPCC) Plan in accordance with 40 CFR 112 regulations.
19. All fuel containers, including barrels and propane tanks, shall be marked with Permittee's name, product type, and year filled or purchased (e.g., Company Name, Hydraulic Fluid, 1994).

(Note: numbering of stipulations added to facilitate reference in this document)

APPENDIX C

Map of Soil Contamination at Umiat Legacy Well 9

(Figure 3-16. Surface Soil PCB Contamination NPR-4 Well No. 9, from *Final 1998 Field Investigation Report Former Umiat Air Force Station, Umiat, Alaska*. p. 3-87. October 1999. Prepared by Ecology and Environment for the US Army Engineer District, Alaska)



 International Specialists in the Environment		U.S. ARMY ENGINEER DISTRICT, ALASKA ANCHORAGE, ALASKA	
Figure 3-16 SURFACE SOIL PCB CONTAMINATION NPR-4 WELL No. 9			
Umiat Former Umiat Air Force Station Alaska		FILE NO. Fig 3-11 CDR	DATE 99FEB02
JOB NO. 000887_JR07_00_90_03-A780	SIZE A		
KEY: <ul style="list-style-type: none"> ○ Sample locations △ Test Well Location — Surface soil PCB contamination (340) Project laboratory analytical results for PCBs in ppb ● Sample location with field laboratory analytical result less than 6,000 ppb PCB ○ Sample location with field laboratory analytical result between 6,000 ppb and 24,000 ppb PCB ● Sample location with field laboratory analytical result greater than 24,000 ppb 			
APPROXIMATE SCALE 0 50 100 Feet			

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