Environmental Assessment

for Shell Gulf of Mexico Inc.
EA# DOI-BLM-LLAK010-2012-0009-EA

Preparing Office: Arctic Field Office

Project Title/Type of Action: **Environmental Baseline Studies/NPR-A Permit**

Serial/Lease/Case File Number: **FF096067**

Land Use Plans/Acts:

Northwest National Petroleum Reserve-Alaska Integrated Activity Plan/Environmental Impact Statement (2003)
Northeast National Petroleum Reserve-Alaska Supplemental Integrated Activity Plan/Environmental Impact Statement (2008)
Colville River Special Area Management Plan and EA (2008)
Final Environmental Impact Statement on Oil and Gas Leasing in The National Petroleum Reserve in Alaska and Record of Decision approved 5/1983
The National Petroleum Reserves Production Act of 1976

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Date: **June 6, 2012**

Land Description (See Appendix B for complete description, and figure 1)

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Glossary/Acronyms

AAC……...……..Alaska Administrative Code
ACEC……...…….……..Area of Critical Environmental Concern
ACP……..……..…….Arctic Coastal Plain
ADFG/ADF&G ……..……...….Alaska Department of Fish and Game
AFO……..……Arctic Field Office
AGL……..…….Above Ground Level
AKMAP……...Alaska Monitoring and Assessment Program
ANILCA…….. The Alaska National Interest Lands Conservation Act passed in 1980, modified and established designation of federal lands in Alaska for conservation and wilderness. These lands are managed by the National Park Service, US Fish and Wildlife Service, and US Forest Service.
BLM…….…Bureau of Land Management
BO……...…...……..Biological Opinion
CBS……..……...……..Chukchi/Bering Seas
CI……..……..Confidence Interval
EA……..……...……..Environmental Assessment
EFH…….……...…….Essential Fish Habitat
EIS…….……Environmental Impact Statement
EO……Executive Order
ESA……..……..…….Endangered Species Act
FLPMA……...The Federal Land Policy And Management Act of 1976 is a Public Law 94-579 passed by Congress October 21, 1976 that gave direction to the way in which the public lands administered by the Bureau of Land Management are managed.
GPS…….Global Positioning System
IAP…….….Integrated Activity Plan
ITRs……..……Incidental Take Regulations
IUCN……International Union for the Conservation of Nature
LIDAR……..…….….Light Detection and Ranging
LOA……..…….……..Letter of Authorization
MMPA…….……..…Marine Mammal Protection Act of 1972
NEPA…….National Environmental Policy Act. This law, passed in 1969, went into effect on January 1, 1970. It requires all Federal Agencies to disclose the environmental effects of their actions.
NHPA…….……National Historic Preservation Act of 1966
NPR-A……National Petroleum Reserve Alaska, formally named The Naval Petroleum Reserve #4(NPR-4) is an area of more than 23 million acres in the northernmost part of Alaska, and was established by executive order on February 27, 1923.
NPRPA…….The Naval Petroleum Reserves Production Act of 1976 (PL 94-258), dated April 5, 1976, transferred jurisdiction of NPR-4 to the Secretary of the Interior and renamed it the NPR-A. This act authorized the Secretary to begin further petroleum exploration and closed the NPR-A to all forms of appropriation under the public land laws, including mining and mineral leasing laws.

NPR-4…….The Naval Petroleum Reserve No. 4 was established by Executive Order 3797, dated February 27, 1923.
NSB……..…….North Slope Borough
NWT…….…….……Northwest Territories
PBSG……..……Polar Bear Specialist Group
ROD……..……Record of Decision
ROP……...……. Required Operating Procedure
SBS…….Southern Beaufort Sea
USFWS (FWS) ……..……United States Fish & Wildlife Service
USGS…….…….United States Geological Survey
UTVs…….……..All-Terrain Utility Vehicles
VFR…….…….……Visual Flight Rules
Y-K Delta…….…….……Yukon-Kuskokwim Delta

Environmental Assessment
Shell Gulf of Mexico Inc. Summer Studies

EA# DOI-BLM-LLAK010-2012-0009-EA

Chapter 1 Introduction

Shell Gulf of Mexico Inc. (Shell) has applied for a permit to conduct a 2012 Coastal Marine and Onshore Environmental Baseline Study Program. Bureau of Land Management (BLM) issued Shell National Petroleum Reserve in Alaska (NPR-A) Permit in 2010 and 2011 for similar activity.

The study program includes surveys and assessments to gather baseline data at selected study locales just offshore of, and on the Chukchi Sea coastline, adjacent onshore lands. The general objective of the 2012 study program is to gather additional data to further develop understanding of the physical, biological, and social environment in areas where potential onshore infrastructure may be necessary for future development of oil and gas resources at Shell's Outer Continental Shelf (OCS) prospects in the Chukchi Sea. Characterizing the baseline conditions is necessary to support impact assessment, development planning, and permitting. The 2012 program extends further inland than previous years (see Figure 1) to obtain information for a possible future pipeline across the NPR-A.

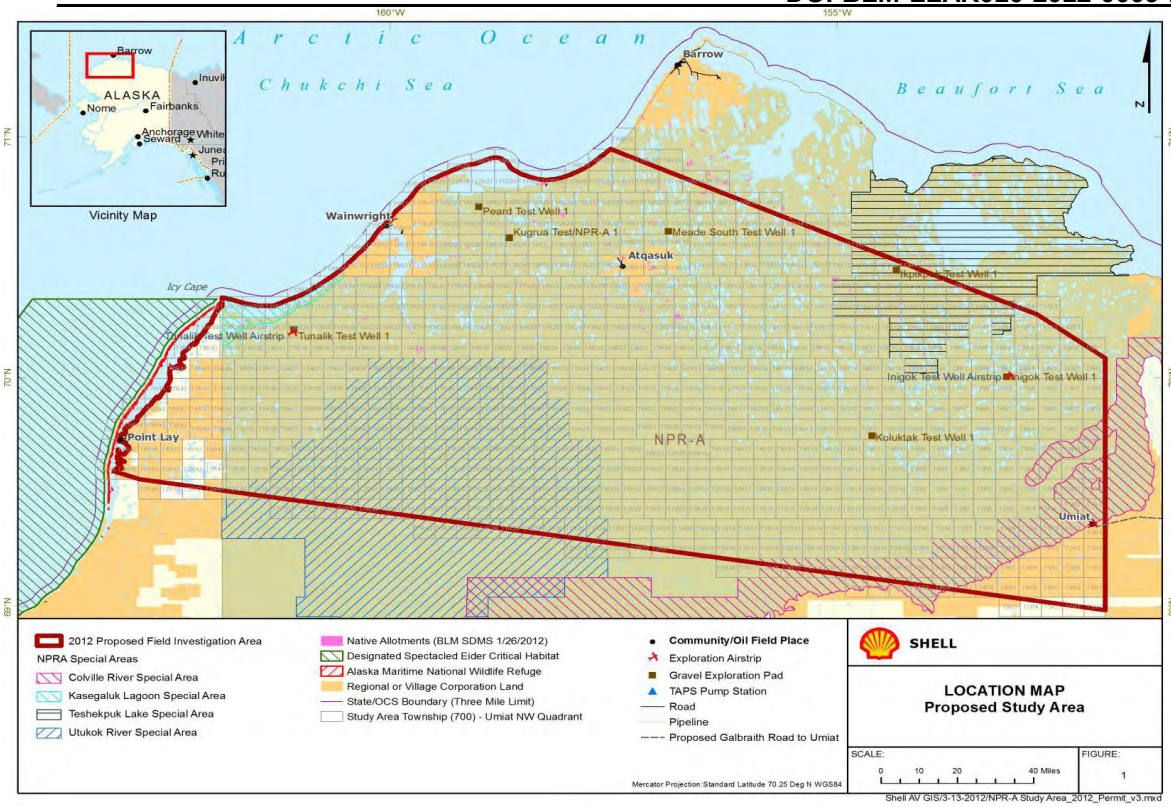

Figure 1. Applicant map.

1.1 Need for Action

The need for action is established by the Federal Land Policy and Management Act of FLPMA of 1976 (FLPMA) direction to respond to requests for authorizations and to grant authorizations to qualified individuals or agencies. The applicant's need is to collect baseline environmental data in the NPR-A which would be used for potential future projects and decision-making.

1.2 Purpose of Action

The purpose for action is for BLM to provide access to and use of public lands within the NPR-A in a manner that protects the natural resources of public lands and prevents unnecessary or undue degradation. The objective of the proposed action is to allow the applicant access for environmental studies on BLM managed lands in 2012.

1.3 Laws, regulations, other EAs that influence this EA

This EA will be based on the findings, management controls, and protective measures of the 2003 Northwest NPR-A Integrated Activity Plan/Environmental Impact Statement (IAP/EIS) and the 2004 Northwest NPR-A IAP/EIS ROD, the 2008 Northeast NPR-A Supplemental Integrated Activity Plan/Environmental Impact Statement (SIAP/EIS), the 2008 Northeast NPR-A SIAP/EIS ROD, Colville River Special Area Management Plan and EA (2008), and the National Petroleum Reserve-Alaska Leasing EIS (1983) as well as other laws and

regulations. The action, as proposed, is consistent with the objectives outlined in these documents and not in conflict with other resources in the area. The proposed use is in conformance with current policy of the Arctic Field Office, BLM.

The proposed action is in conformance with the Northwest NPR-A IAP/EIS (2003), Northeast SIAP/EIS (2008), National Petroleum Reserve Production Act (NPRPA), Federal Land Policy Management Act (FLPMA), Alaska National Interest Lands Conservation Act (ANILCA) Endangered Species Act, Sustainable Fisheries Act, Executive Order (EO) 11988, and EO 11990.

1.4 Decision to be made

The BLM must conduct a project-specific NEPA analysis and determine whether the proposed project should be approved, rejected, or approved with modifications, and if additional mitigation is needed. This EA will be based on the findings, management controls, and protective measures from the RODs/NEPA documents and other laws and regulations. The scope of this EA includes analysis that enables the BLM to select among alternatives that meet the purpose and need, and are within the BLM's jurisdiction (40 Code of Federal Regulations 1506.1(a) (2)). The scope and timing of potential summer monitoring and mitigation are currently undefined, and are subject to future BLM evaluation.

1.5 Scoping and Issues

Public notification of the Environmental Analysis was announced on March 1, 2012 in the NEPA Register on file at the Arctic Field Office Environmental Assessment web site. No public comments have been received through June 5, 2012. Development of the 2003 NW IAP/EIS and 2008 NE IAP/EIS involved extensive input from other Federal agencies, the State, the NSB, thousands of individuals, and many institutions. BLM guidelines include a list of issues that are addressed, where applicable, in NEPA assessments, (BLM, 2003, BLM 2008). Some elements are not present in the project area and are, therefore, not discussed further. A summary listing of related issues considered by AFO Field Staff is provided in Table 1.1.

Table 1.1 Issues Considered in Evaluating Impacts

Resources/Environmental Considerations for Issues and Analysis	Determination	Basis of Determination (See Note)
ACEC's	Not Present	
Air Quality	Minimally Impacted	Protection provided by: Protection provided by: State of Alaska Air Non-Point and Mobile Program and regulations (18 AAC 50);
Cultural and Paleontological Resources	Minimally Impacted	Protection provided by: Permit Stipulations V A, B & C; Section 106 NHPA

Table 1.1 Issues Considered in Evaluating Impacts

Resources/Environmental Considerations for Issues and Analysis	Determination	Basis of Determination (See Note)
Environmental Justice	Minimally Impacted	Protection provided by: EO 12898
Fish	Minimally Impacted	Protection provided by: Permit Stipulations II.A, II.B, VIII.A, XI.C and ADF&G Fish Habitat Permits and Fish Resource Permits.
Flood Plains/Wetlands and Riparian Zones	Minimally Impacted	Protection provided by: Permit Stipulations II, X-A, XI-C EO 11988 and EO11990
Invasive, Non-native species	Not present	
Native American Religious Concerns	Not Present	
Recreation	Minimally Impacted	Protection provided by: Permit Stipulations IIB, III, VIIIA, X, XI
Socialcultural Systems	Minimally Impacted	Protection provided by: Required Operating Procedure H-1
Subsistence	Potentially Impacted	Protection provided by: ANILCA; ROP H-1
Threatened & Endangered Species Steller's eider	Minimally impacted	Protection provided by: ESA Consultation and associated Terms and Conditions. Permit Stipulations III.A,B,E; XI.B.1&3; XII.A,B,G
Threatened & Endangered Species Spectacled eider	Potentially Affected	Protection provided by: ESA Consultation and associated Terms and Conditions. Permit Stipulations III.A,B,E; XI.B.1&3; XII.A,B,G
Threatened & Endangered Species Polar Bear	Potentially Affected	Protection provided by: ESA Consultation and associated Terms and Conditions. Permit Stipulations III.A,B,E; XI.B.1&3; XII.A,B,G
Critical Habitat for Spectacled eiders and Polar Bear	Minimally Impacted	Protection provided by: ESA Consultation and associated Terms and Conditions. Permit Stipulations III.A,B,E; XI.B.1&3; XII.A,B,G
Non threatened and endangered birds	Minimally impacted	Protection provided by: Permit Stipulations III.A,B,E; XI.B.1&3; XII.A,B,G
Non threatened and endangered mammals	Minimally impacted	Protection provided by: Permit Stipulations III.A, E, F, G; XII.A, B, G.
Vegetation	Minimally impacted	Protection provided by: Permit Stipulations X.A,B.
Visual Resource Management	Minimally impacted	Protection provided by: Permit Stipulations IIB, III, VIIIA, X, XI
Water Resources	Minimally	Protection provided by: Permit Stipulation II.

Table 1.1 Issues Considered in Evaluating Impacts

Resources/Environmental Considerations for Issues and Analysis	Determination	Basis of Determination (See Note)
	Impacted	
Waste (Hazardous/Solid)	Minimally impacted	Protection provided by: State of Alaska regulations 18 AAC 30, 60, 62, 63, 72, and 75; and by permit Stipulations
Wild & Scenic Rivers	Not Present	
Wilderness Characteristics and Wild Lands	Minimally impacted	Protection provided by: Permit Stipulations IIB, III, VIIIA, X, XI

Key to Table 1.1:
AAC- Alaska Administrative Code
EO- Executive Order
ACEC- Area of Critical Environmental Concern
ADFG- Alaska Department of Fish and Game
ESA- Endangered Species Act
ANILCA- Alaska National Interest Lands Conservation Act
BLM – Bureau of Land Management
ROP- Required Operating Procedure
EFH – Essential Fish Habitat
Potentially Affected: The proposed action or alternative could result in potential impacts to resource or issues to the level that additional mitigation may be required, or there is a need to evaluate potentially significant issues.

Minimally Impacted: Resources or issues would not be affected to a degree requiring further analysis because either the expected impacts from the proposed action and alternative would be minimal, or standard protections (e.g., ROPs and Stipulations from overriding BLM plans or other legal protections) would reduce impacts. Minimally impacted resources or issues will not be analyzed further in this EA.

Not Present: Resources or issues are not expected to be affected by the proposed action or alternatives because activities would occur at a different time or place. Resource or issues not present will not be analyzed further in the EA.

Note: Determination tiered from: 2003 NW IAP/EIS and 2004 ROD, 2008 NE IAP/EIS; and 2008 NE ROD, and laws and regulations as noted.

In summary, BLM resource specialists have identified the following issue for further evaluation in this EA: Subsistence Activities, Spectacled Eiders and Polar Bears.

1.6 Public Involvement

Public notification of the Environmental analysis was announced on March 1, 2012 in the NEPA register on file at the Arctic Field Office Environmental Assessment web site (http://www.blm.gov/ak/st/en/info/nepa/fdo_nepa_register.html).

Shell's 2011 application stated that all activities would be conducted under the conditions determined through consultation with representatives from the villages of Wainwright and Pt. Lay. This consultation was anticipated to occur prior to the start of field work as well as during field work. According to the application, consultation with village representatives would also occur following the field work.

The applicant provided informational flyers to Anaktuvuk Pass for a community meeting on April 27, 2012 and Wainwright for a community meeting on April 23, 2012. Shell held public meetings in the following North Slope Borough communities: Pt. Lay (March 28, 2012), Atqasuk (April 3, 2012), Nuiqsut (April 5, 2012), Barrow (March 26, 2012), and Kaktovik (March 27, 2012). Representatives from Shell are scheduled to present at the next BLM Subsistence Advisory Panel meeting on June 5, 2012, in Point Lay.

Chapter 2 Alternatives Including the Proposed Action

2.1 Introduction

This chapter both describes the alternatives (potential actions) and compares the alternatives in terms of their environmental impacts (from Section 1.5) and their achievement of objectives (from Section 1.2).

2.2 Description of Alternatives

2.2.1 Alternative A: No Action

Under No Action, the BLM would not issue an authorization to Shell for research on public land within the NPR-A, and west. The current land management situation and activities would continue but access and activities related to those requested by the proponent would not occur.

2.2.2 Alternative B: Proposed Action

The proposed project is similar to the projects that Shell has conducted under BLM authorization for the past two years, however more lands are proposed for use and a larger amount of activity. This year's research would include lands further inland (See figure 1). This project is proposed to commence in June and continue through October depending on weather conditions. The maximum program duration is 120 days.

Shell and its contractors would conduct studies on hydrology and hydraulics, terrestrial habitat, fish and wildlife resources, and cultural resources. They have also conducted and would continue to conduct literature research on these topics. Field crews, consisting of biologists, hydrologists, cultural resources specialists, and other environmental scientists, would conduct the surveys. Up to two Bell 412 (or similar) helicopters, one coastal marine vessel (M/V *Tukpuk* or similar vessel) and all-terrain utility vehicles (UTVs) would be the primary modes of transportation used to access survey sites or stations (see Table 1 for summary of helicopter take offs and landings). The UTVs would only be used on lands not managed by the BLM. Shell reports that they have engaged with various researchers to

coordinate activities during 2012 and beyond. Shell proposes helicopter traffic flight restrictions to prohibit aircraft from flying within 1,000 ft. of marine mammals or below 1,500 ft altitude (except during low-level aerial surveys, takeoffs and landings, or in emergency situations) while over land or sea. Helicopters would avoid areas where species that are sensitive to noise or movement are concentrated. Concentrations may be seasonal or year-round and may be due to behavior or limited habitat (e.g., haulouts). Horizontal and vertical buffers would be required by Shell where appropriate.

Table 2.2.2. Takeoffs /Landings (per BLM criteria - entire project study area).

Study	Period	Total Field Survey Days	Estimated Flying Days*	Base	Takeoffs /Day	Landings /Day	Total Takeoffs	Total Landings
Hydrology Phase 1	June 15 to July 10	25	23	Atqasuk	8	8	180	180
Hydrology Phase 2	Aug. 16 to Sept. 18	33	30	Umiat	8	8	238	238
Habitat Team 1	July 12 to Aug. 14	34	31	Atqasuk	8	8	245	245
Habitat Team 2	July 12 to Aug. 14	34	31	Umiat	8	8	245	245
Cultural	Jun. 15 to Aug 5	28	25	Atqasuk and Umiat	3	3	76	76
Program Total							983	983

Survey sites would be distributed throughout a larger proposed study area than previous years (see Figure 1). In addition, these surveys would occur during various periods of the summer season. Field crews and helicopters would be based out of previously established commercial base camps at Wainwright, Atqasuk and Umiat. Field crews would depart and return to base camps daily.

Up to 78,000 gallons of Jet A fuel would be used. Fuel may be stored on lands not managed by BLM at Wainwright, Pt. Lay, Atqasuk, Umiat, and Barrow, in coordination with the appropriate authorities. Fuel would be stored in portable fuel storage tanks and/or 55 gallon fuel drums. Fuel may also be stored in existing fuel tanks at locations where such tanks are available. All fuel storage would utilize secondary containment. Locations with an airstrip will typically have fuel supplied by fixed-wing aircraft.

Flight following would be via satellite tracking systems by the aircraft operators. Shell also would use a secondary satellite tracking system (Bluesky) that would be accessible through an online Shell user code and serves as a redundant tracking system. A flight dispatcher would be based in the field and responsible for both helicopters. The dispatcher would send a message with the manifest and takeoff/land times to the Shell Aviation Manger. Shell's

minimum VFR weather for operations are 600 ft ceilings and 3 miles of visibility. Shell transit flights will be flown at 1,500 ft (AGL) when this altitude can be flown safely.

Hydrology and Hydraulics

Surface Hydrology

Reconnaissance-level stream and lake data collection efforts would be dispersed within the proposed study area from up to 50 river and stream sites and up to 50 lake sites. Field crews are not expected to visit any site more than once or twice. Hydrologists would use manual measuring tools and global positioning system (GPS) instrumentation to collect information on stream width/depth ratios, stream slope/cross sections, and to document stream bank stability. Small GPS and depth sounder-equipped remote-controlled boats would also be used to measure lake bathymetry.

Transportation would be by helicopter and small inflatable boats with a gas powered outboard engine for water travel. Two to three field crews of three to four persons each (including bear guards) would be deployed in the field. These surveys would occur primarily from mid-June to mid-July and mid-August through September.

Coastal Processes

The four person coastal processes field team would be located in Wainwright and deploy two or three time-lapse cameras and one LIDAR camera (Light Detection and Ranging) to record erosion and flooding events along the Chukchi Sea coast. Instruments would be deployed in mid- to late June depending on ice conditions somewhere along a 42 mile tretch of the Chukchi Sea coastline at two or three stations. Deployment would occur in coordination with subsistence hunting activities. Retrieval of cameras would occur in late September or early October. The coastal processes field crew would be transported to survey stations using the M/V *Tukpuk* or similar vessel or all-terrain UTV. After deployment local residents from Wainwright may maintain instruments and retrieve data when necessary by UTV traveling along the Chukchi coast beaches and established connecting trails. UTV travel would be limited to Olgoonik Corporation lands, if permission is granted, and not occur on BLM lands. Helicopter transportation may be necessary on occasion if access by these other means is not possible.

Habitat Assessment

The habitat assessment would include data collection to describe the types and coverage of terrestrial, onshore aquatic, and coastal habitats occurring in the proposed study area, including information on vegetation, soils, and areas of special ecological importance. Habitat assessment field sampling would be conducted using intensive plots located subjectively along 0.61 mile (approximately 150) transects navigated on foot. Data would be collected describing soils, hydrology, surface form, electrical conductivity, pH, depth to permafrost, vegetation composition, and surficial geomorphology. Transect locations would be distributed to sample ecological variation within ecologically distinct physiographic districts (e.g. coastal plain, floodplains, thaw basins) and would be oriented perpendicular to topographic gradients to maximize evaluation of a range of environmental gradients. Ground-

truthing for remote sensing validation will follow similar protocols and will complement the intensive habitat mapping plots.

Up to six field crews of three persons each (including bear guards) will be deployed in the field. Habitat assessment activities would be conducted from early-July to late-August. Up to two project helicopters may be used to transport field crews to transect locations. It is not anticipated that habitat assessment field crews would visit any site more than once or twice.

Wildlife and Fisheries

Fish Surveys

Fish surveys to evaluate species richness, distribution, and movement would focus on sampling in the coastal and nearshore zone within an area 10 nautical miles north and south of Wainwright. Coastal fish data would be collected using beach seine and/or fyke nets (or similar gear type) and hand-held computers. Collected fish would be identified, measured, and released. Water quality instruments would be used to collect information on water quality.

Nearshore (up to 16.5 ft depth from shoreline) fish data would be collected using beam trawls (3.3-6.6 ft beam width) and pelagic trawls (<10 ft^2 opening) in the very nearshore marine environment. Trawls would be conducted from the *M/V Tukpuk* or similar vessel. Near-surface water temperature and salinity would be recorded using a portable thermosalinograph deployed from the vessel. Beach seines would be conducted from skiffs or small inflatable boats operating very close to shore. The fish survey crew would consist of 4-5 technicians and scientists.

Biologists would be based in Wainwright during 2 sampling events in 2012. The first event would take place tentatively 10 days in early July, with the second event 10 days in mid-to-late August. Sampling would occur nearshore, north and south of Kuk Lagoon up to 10 miles in either direction, and possibly the mouth of the Kuk Lagoon.

Bird Surveys

Bird surveys to document the presence of coastal and marine birds would evaluate bird migration and habitat use along portions of the Chukchi Sea. The methodology and approach would be consistent with efforts conducted in the nearshore in 2010 and 2011 (through the AKMAP program) and in the offshore region in previous years (through the Chukchi Sea Environmental Studies Program). Coastal and marine bird surveys would be done via the M/V Tukpuk. Boat-based surveys would be conducted between Point Franklin and Icy Cape.

Survey transects would be laid out in a sawtooth pattern between a nearshore boundary that follows the 20 ft isobath and a second boundary located 2.7 nm offshore from the 20 ft isobath, totaling 90 miles of transects per survey. This survey design may be modified to account for navigational hazards, subsistence activities, and any other restrictions.

The vessel would maintain a buffer of at least 1/2 mile distance from any marine mammal haulout areas. The survey vessel may land (approximately four to five occasions) on the seaward side of barrier islands north of Icy Cape and in the vicinity of Peard Bay. Scientists would walk across these islands in order to observe and document bird densities within these shallow lagoon systems.

The initial survey would be in late June with subsequent surveys conducted in late July and late August. During surveys, two to four observers would be stationed in the bridge of the vessel and use binoculars to identify birds. Observers would record species, count, distance, and behavior of birds digitally using a program which provides a time stamp and geo-reference for each observation. Near-surface water temperature and salinity would be recorded using a portable thermosalinograph deployed from the vessel.

Cultural Resources

Cultural resource surveys to establish accurate site locations and to asses current conditions for sites identified in State of Alaska or North Slope Borough databases. The survey would use a combination of low-level helicopter flights (200 to 300 feet altitude) and on-the-ground inspection. Low altitudes flights would acquire aerial photography of the sites. On-the-ground inspections would only be conducted on land for which access has been granted (e.g., village corporation land); no inspections would be conducted on privately held native allotments. The location of cultural sites would be recorded by GPS and no other sampling will be involved.

Between mid-June and early-August, cultural resource surveys would be conducted from a helicopter during a short period of time each day – after other field crews have been deployed and before those same crews need to be picked up. This work would be conducted by a single project archaeologist. During on-the-ground inspections, the helicopter would remain with the archaeologist at all times.

2.3 Conformance

The proposed action is in conformance with the: Northeast and Northwest NPR-A IAP/EISs and associated RODs, Federal Land Policy Management Act (FLPMA), Alaska National Interest Lands Conservation Act (ANILCA), Endangered Species Act, Executive Order (EO) 11988, and EO 11990.

In the respective EISs, the BLM evaluated the direct, indirect, and cumulative effects of summer research in the NPR-A. These analyses concluded that the stipulations and ROPs provided adequate protection for surface resources and subsistence activities in both planning areas. In each of the associated RODs, several changes were made to those protective measures to address new data, new regulations, and new public concerns.

This proposed action potentially qualifies *CX 1.6 of 516 DM 2, Appendix 1* "Nondestructive data collection, inventory (including field, aerial, and satellite surveying and mapping), study, research, and monitoring activities." However, due to factors relating to the extent and nature of the proposed action, the Arctic Field Office decided to prepare an EA to analyze for the

potential of any significant impacts (40 CFR 1501.3, 516 DM3.2 (B), BLM NEPA Handbook H-1790-1 (Chapter 4)).

Chapter 3 Affected Environment

Environmental characteristics of the general project area have been extensively described in the 2004 NW NPR-A IAP/EIS, the 2008 NE NPR-A IAP/EIS (Vol. 1, Chapter 3), to which this analysis is tiered, with some site-specific features described below.

Based on the proposed project and the issues analysis in Section 1.5, the following discussion of the affected environment covers Subsistence Activities, Spectacled Eider and Polar Bear.

3.1 Issue A: Subsistence Activities

For the North Slope Iñupiat--the primary subsistence users of the planning area-- subsistence hunting and other features of the subsistence way of life embody cultural, social, and spiritual values, constituting the essence of Alaska Native culture. Subsistence resources are nutritionally critical because they constitute a mainstay of the diet and are commonly fresher and healthier than store-bought food. They are also economically critical and can be viewed as import substitution because, due to high transportation costs and relatively small market sizes, food costs in northern Alaska communities are much higher than in Alaska's major urban population centers. Subsistence systems encompass all phases of harvesting, processing, sharing, and consumption of food and are therefore important social and cultural systems. Complete descriptions of the cultural, nutritional, and economic aspects of subsistence are included in the BLM's 2003 Northwest NPR-A IAP/EIS, 2008 Northeast Supplemental NPR-A IAP/EIS, and the 2012 Draft NPR-A IAP/EIS, and these sources are incorporated by reference here.

The pursuit of subsistence resources is increasingly constrained by time because primary hunters may be away working during the best times for harvesting certain resources. During midwinter, this time window is further limited by limited daylight. In summer, extensive hunting and fishing activities can be pursued after work or on weekends without any light limitation, but travel is limited to raised ground and waterways because of the difficultly in traveling on wet tundra. The seasonal rounds for all communities within or adjacent to the NPR-A include a concentrated push for caribou hunting in August and September – after the worst mosquito season and before the caribou go into rut and become undesirable.

3.2 Issue B: Spectacled Eider

Spectacled eiders were listed as threatened throughout their range on May 10, 1993 (USFWS 1993) based on indications of steep declines in the two Alaska-breeding populations. There are three primary spectacled eider populations, each corresponding to breeding grounds on Alaska's North Slope, the Yukon–Kuskokwim Delta (Y-K Delta), and northern Russia. The Y-K Delta population declined 96% between the early 1970s and 1992 (Stehn et al. 1993). Data from the Prudhoe Bay oil fields (Warnock and Troy 1992) and information from Native elders at Wainwright, Alaska (USFWS 2012) suggested concurrent localized declines on the

North Slope, although data for the entire North Slope breeding population were not available. Spectacled eiders molt in several discrete areas during late summer and fall, with birds from the different populations and genders apparently favoring different molting areas (Petersen et al. 1999). All three spectacled eider populations overwinter in openings in pack ice of the central Bering Sea, south and southwest of St. Lawrence Island (Petersen et al. 1999; USFWS 2012), where they remain until March–April (Lovvorn et al. 2003).

The North Slope-breeding population of spectacled eiders (approximately 12,916 breeding birds) occupies terrestrial and marine parts of the action area for significant portions of their life history. Spectacled eiders have undergone significant, unexplained declines in their Alaska-breeding populations, however they breed, molt, and migrate within the action area, and nest throughout much of the NPR-A.

Breeding – In Alaska, spectacled eiders breed primarily on the Arctic Coastal Plain (ACP) of the North Slope and the Y-K Delta. On the ACP, spectacled eiders breed north of a line connecting the mouth of the Utukok River to a point on the Shaviovik River about 24 km (15 miles) inland from its mouth. Breeding density varies across the ACP. Although spectacled eiders historically occurred throughout the coastal zone of the Y-K Delta, they currently breed primarily in the central coast zone within about 15 km (~9 miles) of the coast from Kigigak Island north to Kokechik Bay (USFWS 1996). However, a number of sightings on the Y-K Delta have also occurred both north and south of this area during the breeding season (USFWS 2012).

Spectacled eiders arrive on the ACP breeding grounds in late May to early June. Numbers of breeding pairs peak in mid-June and decline four to five days later when males begin to depart from the breeding grounds (Smith et al. 1994, Anderson and Cooper 1994, Anderson et al. 1995, Bart and Earnst 2005). Mean clutch size reported from studies on the Colville River Delta was 4.3 (Bart and Earnst 2005). Spectacled eider clutch size near Barrow has averaged 3.2–4.1, with clutches of up to eight eggs reported (Quakenbush et al. 1995, Safine 2011). Incubation lasts 20–25 days (Kondratev and Zadorina 1992, Harwood and Moran 1993, Moran and Harwood 1994, Moran 1995), and hatching occurs from mid- to late July (Warnock and Troy 1992).

Fall migration and molting – As with many other sea ducks, spectacled eiders spend the eight to ten month non-breeding season at sea, but until recently much about the species' life in the marine environment was unknown. Satellite telemetry and aerial surveys led to the discovery of spectacled eider migrating, molting, and wintering areas. These studies are summarized in Petersen et al. (1995), Larned et al. (1995), and Petersen at al. (1999). Results of recent satellite telemetry research (2008–2011) are consistent with earlier studies (USFWS 2012). Phenology spring migration and breeding, including arrival, nest initiation, hatch, and fledging, is three to four weeks earlier in western Alaska (Y-K Delta) compared to northern Alaska (ACP); however, phenology of fall migration is similar between areas. Individuals depart breeding areas July–September, depending on their breeding status and molt in September–October (USFWS 2012).

Males generally depart breeding areas on the North Slope (ACP) when females begin incubation in late June (Anderson and Cooper 1994, Bart and Earnst 2005). Use of the Beaufort Sea by departing males is variable. Some appear to move directly to the Chukchi Sea over land, while the majority move rapidly (average travel of 1.75 days) over near-shore waters from breeding grounds to the Chukchi Sea (TERA 2002). Of 14 males implanted with satellite transmitters, only four spent an extended period of time (11–30 days), in the Beaufort Sea (TERA 2002). Preferred areas for males appeared to be near large river deltas such as the Colville River where open water is more prevalent in early summer when much of the Beaufort Sea is still frozen. Most adult males marked in northern and western Alaska in a recent satellite telemetry study migrated to northern Russia to molt (USFWS 2012) Results from this study also suggest that male eiders likely follow coast lines but also migrate straight across the northern Bering and Chukchi seas in route to northern Russia (USFWS 2012).

Females generally depart the breeding grounds later, when much more of the Beaufort Sea is ice-free, allowing for more extensive use of the area. Females spent an average of two weeks in the Beaufort Sea (range 6-30 days) with the western Beaufort Sea used most heavily (TERA 2002). Females also appeared to migrate through the Beaufort Sea an average of 6.2 miles further offshore than the males (Petersen et al. 1999). Greater use of the Beaufort Sea and offshore areas by females was attributed to the greater availability of open water when females depart the area (Petersen et al. 1999, TERA 2002). Recent telemetry data indicates that molt migration of failed/non-breeding females from the Colville River Delta through the Beaufort Sea is relatively rapid, two weeks, compared to two to three months spent in the Chukchi Sea (USFWS 2012).

Wintering – Spectacled eiders generally depart all molting sites in late October/early November (USFWS 2012), migrating offshore in the Chukchi and Bering Seas to a single wintering area in openings in pack ice of the central Bering Sea south/southwest of St. Lawrence Island (USFWS 2012). In this relatively shallow area, > 300,000 spectacled eiders (Petersen et al. 1999) rest and feed, diving up to 230 ft to eat bivalves, other mollusks, and crustaceans (Cottam 1939, Petersen et al. 1998, Lovvorn et al. 2003, Petersen and Douglas 2004).

Spring migration – Recent information about spectacled and other eiders indicates they probably make extensive use of the eastern Chukchi spring lead system between departure from the wintering area in March and April and arrival on the North Slope in mid-May or early June. Limited spring aerial observations in the eastern Chukchi have documented dozens to several hundred common eiders (*Somateria mollissima)* and spectacled eiders in spring leads and several miles offshore in relatively small openings in rotting sea ice (USFWS 2012, Woodby and Divoky (1982) documented large numbers of king eiders (*Somateria spectabilis*) and common eiders using the eastern Chukchi lead system, advancing in pulses during days of following winds, and concluded that an open lead is probably requisite for the spring eider passage in this region. Preliminary results from an ongoing

satellite telemetry study conducted by the USGS Alaska Science Center (USFWS 2012) suggest that spectacled eiders also use the lead system during spring migration.

Population indices for North Slope-breeding spectacled eiders are unavailable prior to 1992. However, Warnock and Troy (1992) documented an 80% decline in spectacled eider abundance from 1981 to 1991 in the Prudhoe Bay area. Since 1992, the Service has conducted annual aerial surveys for breeding spectacled eiders on the ACP. The 2010 population index based on these aerial surveys was 6,286 birds (95% CI, 4,877–7,695; unadjusted for detection probability), which is 4% lower than the 18-year mean (Larned et al 2011). In 2010, the index growth rate was significantly negative for both the long-term (0.987; 95% CI, 0.974–0.999) and most recent ten years (0.974; 95% CI, 0.950–0.999; Larned et al. 2011). Stehn et al. (2006) developed a North Slope-breeding population estimate of 12,916 based on the 2002–2006 ACP aerial index for spectacled eiders and relationships between ground and aerial surveys on the Y-K Delta. If the same methods are applied to the 2007–2010 ACP aerial index reported in Larned et al (2011), the resulting population estimate for North Slope-breeding spectacled eiders is 11,254 (8,338–14,167, 95% CI).

3.3 Issue C: Polar Bear

Polar Bear

The Service listed the polar bear as threatened throughout its range on May 15, 2008 (USFWS 2008). Polar bears are widely distributed throughout the Arctic where the sea is ice-covered for large portions of the year. Sea ice provides a platform for hunting and feeding, for seeking mates and breeding, for denning, for resting, and for long-distance movement. Polar bears primarily hunt ringed seals, which also depend on sea ice for their survival, but they also consume other marine mammals (USFWS 2008). Because the principal habitat of polar bears is sea ice, it is considered a marine mammal, and is therefore protected under the Marine Mammal Protection Act of 1972 (MMPA).

Polar bears can occur in the action area. Polar bears generally do not occur inland during the summer, but a slight possibility exists that field crews may encounter transient polar bears when working within a few miles of the coast. In summer and fall, polar bears can be found with a frequently on barrier islands and along the mainland coast. There is also a slight possibility that swimming polar bears could be encountered in near-shore waters.

Distribution and status

Polar bears are distributed throughout regions of arctic and subarctic waters where the sea is ice-covered for large portions of the year. The total number of polar bears worldwide is estimated to be 20,000–25,000 bears (Schliebe et al. 2006). Although movements of individual polar bears overlap extensively, telemetry studies have demonstrated spatial segregation among groups or stocks of polar bears in different regions of their circumpolar range (Schweinsburg and Lee 1982, Amstrup 2000, Garner et al. 1990 and 1994, Messier et al. 1992, Amstrup and Gardner 1994, Ferguson et al. 1999, Carmack and Chapman 2003).

Patterns in spatial segregation suggested by telemetry data, along with information from surveys, marking studies, and traditional knowledge, resulted in recognition of 19 partially discrete polar bear groups by the International Union for the Conservation of Nature (IUCN) Polar Bear Specialist Group (PBSG). These 19 groups have been described as management subpopulations (or stocks) in the scientific literature and regulatory actions (IUCN 2006).

Two stocks of polar bears occur in Alaska: the Chukchi/Bering seas (CBS) and Southern Beaufort Sea (SBS) stocks (Figure 5.4). Unlike polar bears in eastern Canada, the Alaskan stocks do not currently spend extended periods of time on land (Garner et al. 1990), with the exception of females that choose to den on land rather than pack ice.

Movement patterns

Telemetry studies indicate polar bear movements are not random, nor do they passively follow ocean currents on the ice as previously thought (Mauritzen et al. 2003) Movement data come almost exclusively from adult female polar bears because male anatomy (their neck is larger than their skull) will not accommodate radio collars. The movements of seven male polar bears surgically implanted with transmitters in 1996 and 1997 were compared to movements of 104 females between 1985 and 1995 (Amstrup et al. 2001). The data indicated males and females had similar activity areas on a monthly basis, but males traveled farther each month (Amstrup et al. 2000). Activity areas have not been determined for many populations, and available information reflects movement data collected prior to recent changes wrought by retreating ice conditions. In the Beaufort Sea, annual activity areas for individually monitored female bears averaged 57,514 miles^2 (range 5,018–230,442 miles^2, Amstrup et al. 2000). Total annual movements by female bears in the Beaufort Sea averaged 1,318 miles and ranged up to 2,393 miles, with a movement rate of > 2.5 miles/hr sometimes sustained for long periods, and movements of > 31 miles/day observed (Amstrup et al. 2000). Mean activity area in the Chukchi Sea, which is characterized by highly dynamic ice conditions, was 94,363 miles^2 (Garner et al. 1990). Average annual distance moved by CBS female bears was 2,139 km.

Radio-collared females indicate some individuals occupy home ranges (multi-annual activity areas), which they seldom leave (Amstrup 2003). The size of a polar bear's home range is determined, in part, by the annual pattern of freeze-up and break-up of sea ice, and therefore by the distance a bear must travel to access prey (Stirling 1988, Durner et al. 2004). A bear with consistent access to ice, leads, and seals may have a relatively small home range, while bears in areas such as the Barents, Greenland, Chukchi, Bering or Baffin seas may have to move many hundreds of miles each year to remain in contact with sea ice from which to hunt (Born et al. 1997, Mauritzen et al. 2001, Ferguson et al. 2001, Amstrup 2003, Wiig et al. 2003).

The CBS population is widely distributed on the pack ice of the northern Bering, Chukchi, and eastern portions of the Eastern Siberian seas (Garner et al. 1990, Garner et al. 1994, Garner et al. 1995). Polar bears are seasonally abundant in the Chukchi Sea and their distribution is influenced by the movement of seasonal pack ice. Polar bears in the Chukchi

and Bering seas move south with advancing ice during fall and winter, and move north in advance of receding ice in late spring and early summer (Garner et al. 1990). Polar bears are dependent upon sea ice for foraging and the most productive areas are near ice edges, leads, or polynyas where ocean depth is minimal (Durner et al. 2004). Polar bears can be present along the Alaskan shoreline as they opportunistically scavenge on marine mammal carcasses.

The SBS population occurs between Icy Cape, Alaska on the western boundary and Pearce Point, Northwest Territories (NWT; Amstrup et al. 1986, Amstrup and DeMaster 1988, Stirling et al. 1988). It is thought that nearly all bears in the central coastal region of the Beaufort Sea are from the SBS population, and that proportional representation of SBS bears decreases to both the west and east. For example, only 50% of polar bears occurring in Barrow, Alaska and Tuktoyaktuk, NWT are SBS bears, with the remainder being from the CBS and Northern Beaufort Sea populations.

Feeding

Polar bears derive essentially all their sustenance from marine mammal prey and have evolved a strategy that utilizes the high fat content of marine mammals (Best 1985, Amstrup et al. 2007). Over half the caloric content of a seal carcass occurs in the layer of fat between the skin and underlying muscle (Stirling and McEwan 1975) and polar bears quickly remove the fat layer from beneath the skin after they catch a seal. High fat intake from specializing on marine mammal prey allows polar bears to thrive in the harsh Arctic environment (Stirling and Derocher 1990, Amstrup 2003).

Over much of their range, polar bears are dependent on one species of seal, the ringed seal (*Phoca hispida*) (Smith and Stirling 1975, Smith 1980). The relationship between ringed seals and polar bears is so close that the abundance of ringed seals in some areas appears to regulate the density of polar bears, while polar bear predation in turn regulates density and reproductive success of ringed seals (Hammill and Smith 1991, Stirling and Øritsland 1995). Polar bears also occasionally catch belugas (*Delphinapterus leucas*), narwhals (*Monodon monoceros*), walrus (*Odobenus rosmarus divirgens*), and harbor seals (*P. vitulina*) (Smith 1985, Calvert and Stirling 1990, Smith and Sjare 1990, Stirling and Øritsland 1995, Derocher et al. 2002). Where common, bearded seals (*Erignathus barbatus*) can be a large part of polar bear diets, and are probably the second most common prey item (Derocher et al. 2002). The walrus can also be seasonally important in some parts of the polar bear's range (Ovsyanikov 1996).

Polar bears rarely catch seals on land or in open water (Furnell and Oolooyuc 1980); rather they catch seals and other marine mammals at the air-ice-water interface, where aquatic mammals come to breathe (Amstrup et al. 2007). Although there are local exceptions (e.g. Bentzen et al. 2007, Schliebe et al. 2008), it appears that polar bears gain little overall benefit from alternate foods (Amstrup et al. 2007). Therefore, maintenance of polar bear populations is dependent upon marine prey, largely seals, and polar bears are tied to the surface of the ice for effective access to that prey (Amstrup et al. 2007).

Reproduction

Polar bears have an intrinsically low reproductive rate characterized by late age of sexual maturity, small litter sizes, and extended maternal investment in raising young. Female polar bears enter a prolonged estrus between March and June, when breeding occurs. Ovulation is thought to be induced by mating (Wimsatt 1963, Ramsay and Dunbrack 1986, Derocher and Stirling 1992). Implantation is delayed until autumn, and gestation is 195–265 days (Uspenski 1977), with active development of the fetus suspended for most of that time. The timing of implantation, and hence birth, is likely dependent upon body condition of the female, which in turn is dependent upon a variety of environmental factors (Schliebe et al. 2006).

Throughout their range, most pregnant female polar bears excavate dens in snow located on land during September–November after drifts large enough to excavate a snow cave have formed (Harington 1968, Lentfer and Hensel 1980, Ramsay and Stirling 1990, Amstrup and Gardner 1994). In the southern Beaufort Sea, a portion of the population dens in snow caves located on pack- and shore-fast ice. Successful denning by polar bears requires an accumulation of sufficient snow combined with winds to cause snow accumulation leeward of topographic features that create denning habitat (Harington 1968). The common characteristic of all denning habitat is topographic features that catch snow in the autumn and early winter (Durner et al. 2003). Polar bear denning habitat in Alaska includes areas of low relief topography characterized by tundra with riverine banks within approximately 50 km of the coast (Amstrup 1993; Amstrup and Garner 1994; Durner et al. 2001, 2003), and offshore pack ice pressure ridge habitat. Although the northern Alaskan coast gets minimal snow fall, because the landscape is flat the snow is blown continuously throughout the winter creating drifts in areas of relief.

Fidelity to denning habitat was investigated by Amstrup and Gardner (1994), who located 27 females at up to four successive maternity dens. Bears that denned once on pack ice were more likely to den on pack-ice than on land in subsequent years. Similarly, bears were faithful to general geographic areas – those that denned once in the eastern half of the Alaska coast were more likely to den there than to the west in subsequent years. Annual variations in weather, ice conditions, prey availability, and the long-distance movements of polar bears (Amstrup et al. 1986, Garner et al. 1990) make recurrence of exact denning locations unlikely.

Satellite telemetry studies determined mean dates of den entry in the Beaufort Sea were 11 and 22 November for land (n = 20) and pack ice (n = 16), respectively; however, many pregnant females did not enter dens until late November or early December (Amstrup and Gardner 1994). Female bears foraged until den entry. Mean date of emergence was 26 March for pack-ice dens (n = 10) and 5 April for land dens (n = 18). Messier et al. (1994) reported mean date of den entry and exit varied among years depending upon sea-ice, snow and weather conditions. For bears denning on sea-ice or moving from sea-ice to land denning habitat, time of sea-ice consolidation can alter the onset of denning. Sea-ice dens must be in

ice stable enough to stay intact for up to 164 days while possibly moving hundreds of kilometers by currents (Amstrup 2003, Wiig 1998).

Data suggests that an increasing number of SBS females are denning on land. Sixty percent of radio-collared females denned on land from 1996–2006, compared to forty percent in the previous 15 years (Fishbach et al. 2007). The geographic distribution of terrestrial dens also appears to have shifted to the west (USFWS 2006).

Insufficient data exist to accurately quantify polar bear denning locations along the Alaskan Chukchi Sea coast; however, dens in the area are less concentrated than for other areas in the Arctic. The majority of denning of Chukchi Sea polar bears occurs on Wrangel Island, Herald Island, and other locations on the northern Chukotka coast of Russia.

Polar bears give birth in dens during mid-winter (Harington 1968, Ramsay and Dunbrack 1986). Survival and growth of the cubs depends on the warmth and stable environment within the maternal den (Blix and Lentfer 1979). Family groups emerge from dens in March and April when cubs are about three months old and able to survive outside weather conditions (Blix and Lentfer 1979, Amstrup 1995).

Newborn polar bears are very small, weighing approximately 0.6 kg (Blix and Lentfer 1979), and nurse from their hibernating mothers. Cubs grow quickly and may weigh 10-12 kg by the time they emerge from the den about three months later. Young bears stay with their mothers until weaned, which occurs most commonly in early spring when the cubs are 2.3 years of age. Female polar bears are available to breed again after cubs are weaned. Therefore, in most areas, the minimum successful reproductive interval for polar bears is 3 years (Schliebe et al. 2006).

Age of maturation of mammals is often associated with a threshold body mass (Sadleir 1969), and in polar bear populations it appears to be largely dependent on numbers and productivity of ringed seals. In the Beaufort Sea, ringed seal densities are lower in some areas of the Canadian High Arctic and Hudson Bay. As a possible consequence, female polar bears in the Beaufort Sea usually do not breed for the first time until they are five years of age (Lentfer and Hensel 1980), giving birth for the first time at six years of age.

Litter size and reproduction rates vary by geographic area and may change in response to hunting pressure, environmental factors, and other population perturbations. Litters of two cubs are common (Schliebe et al. 2006), with litters of three cubs occurring sporadically across the Arctic and most commonly reported in the Hudson Bay region (Stirling et al. 1977, Ramsay and Stirling 1988, Derocher and Stirling 1992). Average litter size across the species' range varied from 1.4 to 1.8 cubs (Schliebe et al. 2006), and several studies have linked reproduction to availability of seal prey, especially in the northern portion of their range. Body weights of mother polar bears and their cubs decreased markedly in the mid-1970s in the Beaufort Sea following a decline in ringed and bearded seal pup production (Stirling et al. 1976, 1977, Kingsley 1979, DeMaster et al. 1980, Stirling et al. 1982, Amstrup

et al. 1986). Declines in reproductive parameters varied by region and year with ice conditions and the corresponding reduction in numbers and productivity of seals (Amstrup et al. 1986). In the Beaufort Sea, female polar bears produce a litter of cubs at an annual rate of 0.25 litters per adult female (Amstrup 1995).

Polar bear reproduction lends itself to early termination without extensive energetic investment by the female (Ramsay and Dunbrack 1986, Derocher and Stirling 1992). Female polar bears may defer reproduction in favor of survival when foraging conditions are difficult (Derocher et al. 1992). Repeated deferral of reproduction could cause a decline in populations with an intrinsically low rate of growth (Schliebe et al. 2006).

Life span and survivorship
Polar bears are long-lived animals; the oldest known female polar bear in the wild was 32 years and the oldest known male was 28, although few bears in the wild live beyond 20 years (Stirling 1990). Taylor and colleagues (unpublished data) described survival rates that generally increased by age class up to approximately 20 years of age (cubs-of-the-year, 35–75%; subadults 1–4 years, 63–98%; adults 5–20 years, 95–99%; and adults > 20 years 72–99%).

Survival of cubs is dependent upon their weight when they exit maternity dens (Derocher and Stirling 1992), and most cub mortality occurred early in the period immediately following emergence from the den (Amstrup and Durner 1995, Derocher and Stirling 1996), with early mortality generally associated with starvation (Derocher and Stirling 1996). Survival of cubs to the weaning stage (generally 27–28 months) is estimated to range from 15% to 56% of births (Schliebe et al. 2006). Subadult survival rates are poorly understood because telemetry collars cannot be used on rapidly growing individuals. Population age structure indicates subadults 2–5 years survive at lower rates than adults (Amstrup 1995), probably because their hunting and survival skills are not fully developed (Stirling and Latour 1978).

Eberhardt (1985) hypothesized adult survival rates must be in the upper 90% range to sustain polar bear populations. Studies using telemetry monitoring of individual animals (Amstrup and Durner 1995) estimated adult female survival in prime age groups may exceed 96%, and survival estimates are a reflection of the characteristics and qualities of an ecosystem to maintain the health of individual bears (Schliebe et al. 2006).

Abundance and Trends – Alaska Stocks
A reliable population estimate for the CBS stock currently does not exist (USFWS 2010b); however, the best available information at this time suggests a minimum population estimate of 2,000 (USFWS 2010b), based on extrapolation from multiple years of denning data for Wrangel Island in Russia and an assumed population denning rate (IUCN 2006 in USFWS 2010a). Reliable estimates of population size based upon mark and recapture studies are not available for this region. The combined Alaska–Chukotka polar bear harvest is currently believed to exceed sustainable levels, and the status of the CBS polar bear population is considered uncertain or declining (Schliebe et al. 2006).

Estimates of the population size of the SBS were 1,778 from 1972 to 1983 (Amstrup et al. 1986), 1,480 in 1992 (Amstrup 1995), and 2,272 in 2001 (Amstrup, USGS unpublished data). Most recently, Regehr et al. (2006) estimated the SBS to be 1,526 (95% CI = 1,211–1,841), the most current and valid estimate of the SBS population (USFWS 2010c). Declining survival, recruitment, and body size (Regehr et al. 2006, 2007), low growth rates during years of reduced summer and fall sea ice (2004 and 2005), and an overall declining growth rate of 3% per year from 2001–2005 (Hunter et al. 2007), indicate the SBS stock population is declining (USFWS 2010c).

Declines in sea ice have occurred in optimal polar bear habitat in the southern Beaufort and Chukchi seas between 1985 to 1995 and 1996 to 2006, and the greatest declines in 21st century optimal polar bear habitat are predicted to occur in these areas (Durner et al. 2009). These stocks are vulnerable to large-scale dramatic seasonal fluctuations in ice movements which result in decreased abundance and access to prey, and increased energetic costs of hunting. The CBS and the SBS stocks are currently experiencing the initial effects of changes in sea ice conditions (Rode et al. 2010, Regehr et al. 2010, and Hunter et al. 2007). Regehr et al. (2010) found that the vital rates of polar bear survival, breeding rates, and cub survival declined with an increasing number of ice-free days/year over the continental shelf, and suggested that declining sea ice affects these vital rates via increased nutritional stress.

Chapter 4 Environmental Impacts

Because the proposed activities are not substantially different from those previously evaluated, and because no significant new scientific information or analyses have been developed since the most recent related evaluation (i.e., May 2008), this NEPA analysis will focus on impacts due to the project-specific/site-specific differences of the proposed action.

Issues specifically identified in Section 1.5 for further analysis in this EA are discussed below.

4.1.1 Issue A: Subsistence Activities Proposed Action Alternative

Activities typically associated with environmental baseline studies, recreation, and management of the NPR-A include: aircraft and watercraft use; research activities (including remote camps associated with research), and recreation. All of these activities have the potential to affect subsistence use. Of all non-oil and gas activities, aircraft use, especially the use of helicopters, has the most potential to disrupt subsistence use in the planning area. The No Action Alternative would result in approximately 2,000 aircraft take offs and landings in the NPR-A during the summer/fall season. As noted in the terrestrial mammals section of the 2012 Draft NPR-A IAP/EIS (section 4.3.9.1), caribou show a definite response to low-flying aircraft, resulting in displacement away from the aircraft activity. Under certain conditions (e.g. insect harassment, hard or deep snow cover), aircraft activity could increase stress in these animals, possibly leading to failed breeding or even death of animals. Fixed-

wing flights that would occur in the planning area would usually be conducted at a sufficient altitude to minimize impacts to wildlife.

Helicopters are commonly used in support of most field activities in the NPR-A as a result of the limited amount of adequate landing areas for fixed-wing aircraft and the lack of road or trail systems. Statements from local hunters, including direct complaints to BLM and the North Slope Borough Department of Wildlife Management, indicate that helicopters frequently disrupt hunting parties by scattering and displacing caribou or other game. This can also result in a missed harvest because hunters are reluctant to take a "spooked" animal because the meat has a bad flavor (US DOI BLM SAP 2002, 2004, 2005, 2006a, 2006b). This type of disrupted harvest directly impacts the hunter in terms of lost time, effort, and resources (primarily fuel). It also creates often extreme stress at the time of the attempted hunt and can create longer term anxiety if it leads to an insufficient supply of meat throughout the winter.

4.1.2 Issue A: Subsistence Activities Proposed Action Alternative

The primary impact to subsistence that is regularly noted by hunters is disturbance by aircraft traffic, and it is during the two critical months of August and September that hunters are particularly concerned about their hunts being disturbed. Aircraft can divert migrating or insect-avoiding caribou from subsistence use areas. Subsistence users have repeatedly stated during scoping and Subsistence Advisory Panel meetings that aircraft traffic reduces harvest access and success. Disrupted harvests directly impact hunters in terms of lost time, effort, and resources (primarily fuel). In particular, low-flying aircraft tend to startle caribou and cause the small groups or herds to run in an unpredictable direction and commonly beyond the reach of hunters. Subsistence harvesters describe the stress they experience when they are out hunting, hear a helicopter operating nearby, and worry that the helicopter will approach and disrupt the hunt. If the harvest is unsuccessful, then the hunters and the community can experience the anxiety that results from not having enough meat throughout the winter or until they are able to harvest.

The proposed action would include the normal activities associated with baseline environmental research but would involve a particularly high amount of helicopter traffic. The proposed action is currently scheduled to result in approximately 1,966 helicopter take offs and landings, double the summer/fall total that the BLM tracks in the NPR-A.

Some of the helicopter traffic would be during times and in areas where it will not likely present a serious disturbance to hunters. However, from early July to late August up to six field crews will conduct habitat assessment activities using up to two helicopters and visiting hundreds of sites throughout the project area. Habitat Team 1, based out of Atqasuk, will be responsible for almost 500 take offs and landings from July 12-August 14. . Habitat Team 2, based out of Umiat, will require almost 500 take offs and landings from July 12 to August 14. Hydrologic studies in mid-June to mid-July (based at Atqasuk) and mid-August through September (based at Umiat) will require similar traffic at 100 sites dispersed throughout the

project area. Because there are no specific locations provided for these studies, it is not possible to know whether and when they will overlap with subsistence uses areas. It is most likely that Phase 1 of the hydrological studies and Habitat Team1 could impact subsistence activities in the Wainwright, Point Lay, Barrow, and Atqasuk use areas and Phase 2 of the hydrological studies and Habitat Team 2 could impact Barrow and Nuiqsut subsistence users.

On March 30, 2012, the NSB planning commission elevated Shell's application for further consideration due to the planning commission's concerns that the proposed activities would be disruptive to subsistence activities. In light of these issues and the fact that proposed activities for 2012 constitute a doubling of the number of helicopter take offs and landings that are normally tracked in the NPR-A, the Arctic Field Office decided to include Required Operating Procedure H-1 in its stipulation package for Shell's proposed activities in 2012. However, the Arctic Field Office gave Shell an exemption from that part of H-1 that requires companies to present their plans to the SAP prior to submitting an application to the BLM. Shell representatives are currently scheduled to present at a SAP meeting June 5, 2012 in Point Lay.

4.2.1 Issue B: Spectacled Eider No Action Alternative A

Under the no action alternative Shell would not be granted a permit for summer work and there would be no disturbance of nests or displacement of Spectacled Eider from their activity.

4.2.2 Issue B: Spectacled Eider Proposed Action Alternative B

The proposed activities may result in disturbance of nesting females and young broods. The severity of disturbance and displacement effects depends upon duration, frequency, and timing of the disturbing activity. Disturbance that results in agitated behavior, flushing, or other movements in response to a stimulus can increase energy costs, especially for birds that are already energetically stressed from cold, lack of food, or physiologically demanding life cycle stages such as reproduction. Birds may be displaced from preferred habitats to areas where resources are less abundant or are of lower quality. Furthermore, eggs exposed by flushed hens or ducklings separated from their brood become more vulnerable to predation. For the proposed Action, we expect the majority of disturbance events would be attributed to aircraft landings and on-tundra activities.

Aircraft landings and on-tundra activities
It is difficult to assess the area within which listed eiders would be flushed by an aircraft landing, however we use the best available data to calculate disturbance. We anticipate a gradient of effect centered on the landing site. A landing close to a nest would likely flush a female and prevent her from returning for as long as the aircraft, and the associated human activity, remains near the nest. The likelihood of a hen flushing and her reluctance to return to the nest likely decreases as distance from the landing site increases. For the purposes of

calculating incidental take it is assumed that all hens within a 1,970 ft radius of a landing site would be flushed, and hence their nests would be at risk from abandonment or depredation.

After landing, field crews would conduct work over an unspecified area. Some of the proposed studies involve searching a plot, and it would be likely some nesting eiders on the plot would be disturbed. Other work would be conducted along transects, potentially disturbing birds over a narrower linear area. Based on activity descriptions provided by Shell, we do not anticipate these on-tundra activities would disturb birds in an area significantly larger than that impacted by the landing. Therefore, disturbance from landings and on-tundra activities at study locations have been combined for the purposes of estimating incidental take.

Shell estimates that aircraft landings and on-tundra activities would occur at 984 sites during the eider nesting season (between June 5 and August 15) in 2012. The number of aircraft landings at each site would vary from one to several throughout the season, and duration of activities at each site varies from < 1 hour to 8-10 hours.

The estimated average density of spectacled eiders within the combined North Slope Eider Strata of the ACP Survey in 2010 was 0.3 spectacled eiders/mile^2 (0.1157/km^2) and hence we assume 0.0.151 nests/ mile^2 (0.058/km^2) (Larned et al. 2011). This average density was used to estimate incidental take, as described below.

The number of hens that may be flushed in a radius 1,970 ft. from a landing site was calculated multiplying the area (0.436 miles^2) by the number of estimated landing sites in 2012, and the average nest density for each species, resulting in an estimate of 64.5 spectacled eider flush events as follows:

984 landing sites x 0.436 miles^2 = 429.2 miles^2 affected

0.151 spectacled eider nests/km^2 x 429.2 miles^2 = approximately 64.49 spectacled eider flush events

Not all flushes would result in a nest being abandoned or depredated. The likelihood of nest abandonment or depredation resulting from aircraft landings and on-tundra activities probably varies among sites based on the number of aircraft landings during the nesting season and the intensity and duration of activities at each site. For example, a site visit that includes one helicopter landing of 15 minutes may result in a lower likelihood of nest abandonment than a site visit requiring several landings and 8-10 hours of on-tundra activity; however, the difference is difficult to quantify. Data from the Y-K Delta indicates that nest disturbance from human activity decreases spectacled eider nest survival rate by 4% (Bowman and Stehn 2003)**,** and 14% (Grand and Flint 1997). For the purposes of estimating effects, we estimate that on average 9% (mean of 4 and 14%) of flushes would result in a nest loss. Hence, the estimated 64.5 flush events would result in the loss of **6 spectacled eider nests** (64.49 x 0.09 = 5.8).

Loss of nests would result in loss of eggs. Loss of eggs is of much lower significance for survival and recovery of the species than the death of an adult bird. For example, spectacled eider nest success recorded on the Y-K Delta ranged from 18-73% (Grand and Flint 1997). From the nests that survived to hatch, spectacled eider duckling survival to 30-days on the Y-K Delta ranged from 25-47% (Flint et al. 2000). Over-winter survival of one-year old spectacled eiders was estimated at 25% (USFWS 2012), and annual survival of 2-year old birds (which may enter the breeding population) 80% (Grand et al. 1998). Using these data we estimate for every 100 spectacled eider eggs laid on the Y-K Delta, at most between 1 and 7 may survive to enter the breeding population. Similarly, we expect that only a small proportion of spectacled eider eggs or ducklings on the North Slope would eventually survive to maturity.

Using methods and logic explained above and an average clutch size of 3.9 eggs for spectacled eiders, we estimate loss of production of up to 2 adult spectacled eiders from egg loss due to nest abandonment.

3.9 eggs x 6 nests = 23.4 eggs lost

23.4 eggs lost x 0.09 survival = 2.1 adults lost

Although the loss of 6 nests containing **approximately 24 eggs** may adversely affect spectacled eiders, the Service expects this level of incidental take, and the estimated loss of two adults, would not cause population-level declines.

4.3.1 Issue C: Polar Bear No Action Alternative A

Under the no action alternative Shell would not be granted a permit for summer work and there would be no disturbance of polar bears from their activity.

4.3.2 Issue C: Polar Bear Proposed Action Alternative B

Because the Service consulted on the effects of authorizing incidental take on polar bears in the Chukchi and Beaufort Sea ITRs BOs, no further consultation on issuing LOAs for incidental take of polar bears is necessary. Therefore, the effects analysis below analyzes effects of issuing LOAs for the intentional take of polar bears

Polar bears may need to be intentionally hazed if they approach terrestrial survey areas. In a separate consultation, the Service concluded that acoustical and vehicular deterrence methods (starting a vehicle or revving an engine) that anyone can perform are not likely to adversely affect polar bears (75 FR 61631), and these methods would not require authorization via LOAs. Intentional take LOAs would allow trained individuals to use mechanisms (e.g., chemical repellants, electric fences, and projectiles such as bean bags projected from a shotgun) to intentionally harass or deter polar bears away from personnel, and would allow

the Service to require mitigation measures and ensure minimum standardized training in the use of deterrence methods. Polar bears could experience temporary disturbance and stress from some deterrence activities (e.g., from acoustic devices, or aircraft) and may walk, run or swim away. For healthy bears, any stress they experience from this activity would likely be short term; bears that have walked or swam long distances may experience longer periods of stress and may have to rest elsewhere prior to resuming normal activities such as feeding. Bears that are deterred using more aggressive methods (e.g., projectiles such as bean bags and rubber bullets), would likely experience stress, short-term pain, and could be bruised. In extremely rare circumstances if performed incorrectly, a polar bear may be severely injured or die.

Polar bears occasionally use coastal margins of the action area in summer and fall, and aircraft, vessels and ground crews associated with the proposed Action may encounter transient bears. These but encounters would likely be infrequent and affect few individuals, particularly for activities occurring inland. If field crews in transit via aircraft encounter polar bears, aircraft noise may cause minor behavioral changes in bears (e.g., may run a short distance). However, as stipulated in the LOA for incidental take, in order to minimize effects if field crews detect a polar bear (per the human – polar bear guidelines) they will divert their flight path to a minimum of 1,500 feet above ground level or ½ mile horizontal distance away from the observed bear(s) unless, in the rare event, human safety dictates otherwise. Furthermore, any disturbance by humans on the ground would likely be minor and temporary, especially because field crews would follow a human-polar bear interaction plan. Additionally, given the low density of polar bears in the action area, we expect that only a few polar bear interactions would result in intentional take.

Although Shell would have authorization to use projectiles to deter bears away from ground crews, the majority of deterrence events would not involve contact with the bear, and most of these events would cause only minor, temporary, behavioral changes (e.g., a bear runs or swims away). Very few deterrence events would likely use techniques that would contact an individual bear, such as projectiles. For example, from 2006 through 2010, the oil and gas industry reported sightings of 1,414 polar bears, of which 209 (15%) were intentionally harassed, or deterred (USFWS 2012). During those previous events 0-5 polar bears were deterred via bean bags and between 0-1were deterred via rubber bullets annually. Therefore, we expect instances of intentional take involving projectiles during the proposed Action would be very rare and although a few individual bears may experience pain, bruising, or stress, we would not expect bears to die. Because the chance of encountering a polar bear in the action area is low, instances of intentional take would be very rare, and those instances are unlikely to result in the death of a bear, the USFWS concludes adverse effects of the proposed action are not likely to cause worldwide population declines in polar bears (USFWS 2012).

4.3.3 Cumulative Effects

Cumulative impacts result from the incremental addition of past, present, and reasonably foreseeable actions. Each action may be individually minor by itself, but when added to others could become significant over a period of time. Shell Gulf of Mexico Inc. has applied for a permit to conduct summer studies. If in the future they have an oil and gas development off-shore they would need a pipeline across the NPR-A

The time frame for the proposed action for the project area is 1977 (designation of NPR-A) to 10 years into the future, assuming that the relatively low level of activity and management would remain at about the same level as present. Due to the large scope and intensity of the proposed action the geographic area would be within 5 miles of the proposed use area on land. Additional past, present, and future activities in the area include oil and gas exploration, recreation, subsistence, and research and monitoring. While the level of such activities may increase slightly within the next 10 years, there are no development proposals that would substantially add to the current levels. The incremental addition of the proposed action would result in short term cumulative impacts to the area due to the amount of helicopter use.

Past impacts have occurred from non-oil and gas and oil and gas activities and development. Future activities and development are expected to expand, although these events are projected to occur in subsequent years. Any cumulative effect from the proposed action is not expected to contribute to future activity and development. Due to the ephemeral and dispersed nature of helicopter landings in NPR-A through a single summer field season would likely increase short-term disturbance levels at some sites and groups of animals or subsistence hunters.

4.3.3.1 Subsistence Activities:Issue A

The time frame for the proposed action is one year. Potential disturbance by helicopter is short-term and localized (usually within two or three miles of a flight path), however if a hunt is disturbed then a harvest shortage could have effects that last for up to one year.

Cumulative impacts to subsistence use areas and activities are detailed in the Northwest NPR-A IAP/EIS (2003) and Northeast SIAP/EIS (2008) which are here incorporated by reference. In summary, the Inupiat's concerns about the cumulative effects of industrial activities in their traditional subsistence use areas include: decreased ability to pass on knowledge of subsistence resources; a decline of fish populations caused by seismic activities; the diversion of caribou from traditional migration routes and calving areas caused by an increased number of low flying aircraft; the disruption of caribou movements by low pipelines; the decreased use of traditional harvest areas due to the avoidance of industrial areas by hunters; and the fear of the consequences of oil spills on subsistence resources. The proposed action, combined with projected take offs and landings for other land management and research programs, would result in a doubling for the 2012 summer/fall season, to approximately 4,000 helicopter take offs and landings throughout NPR-A. The proposed activity therefore adds to existing concerns regarding aircraft traffic.

4.3.3.2 Spectacled Eider Issue B

Cumulative impacts to spectacled eiders are detailed in the Draft NPR-A IAP/EIS, Northwest NPR-A IAP/EIS (2003) and Northeast SIAP/EIS (2008).

4.3.3.3 Polar Bear Issue C

Cumulative impacts to polar bears are detailed in the Draft NPR-A IAP/EIS, Northwest NPR-A IAP/EIS (2003) and Northeast SIAP/EIS (2008).

4.4 Mitigation and Monitoring

Along with the Arctic Field Office standard stipulations (Appendix A) entitled "ARCTIC FIELD OFFICE NON OIL AND GAS PERMIT STIPULATIONS." BLM will incorporate the following additional mitigation measures into approval for the Shell authorization.

Project Specific Stipulations:

1. Required Operating Procedure H-1 (Northwest NPR-A IAP/EIS ROD & 2008 Northeast NPR-A SIAP/EIS ROD)

2. The Authorized Office may require the applicant to conform to additional mitigation measures if any are recommended by the Subsistence Advisory Panel at the SAP meeting scheduled for June 5, 2012.

3. Permittee must maintain an aircraft log of the following information for each take-off and landing (which shall be turned in to BLM in electronic format in an excel spreadsheet with each item below listed in a separate column no later than 1 November 2012):

Type of Aircraft
Aircraft N number
Date
Time
Decimal Degree Format – latitude of takeoff location
Decimal Degree Format – longtitude of takeoff location
Date
Time
Decimal Degree Format – latitude of landing location
Decimal Degree Format – longtitude of landing location

4. Permitte must use "bear-resistant" containers that are approved and certified by the Interagency Grizzly Bear Committee as 'bear-resistant." Information about certified containers can be found at http://www.igbconline.org/html/container.html.

5. The permittee will abide by the following documents: Required Conduct near Possible Nests of Raptors (Eagles, Hawks and Falcons) in the National Petroleum Reserve-Alaska and

Polar Bear Interaction Guidelines.

6`. Aircraft altitude flight restrictions (Stipulations IIIB, IIIE, IIIF and IIIG) are suspended in conjunction with Cultural resource surveys that require low-level helicopter reconnaissance flying.

4.5 Summary of Environmental Consequences

The potential issue(s) identified in the evaluation of the proposed action for this EA was subsistence activities, Spectacled Eider and Polar Bear. The analysis found that impacts would be short term and localized and that mitigation measures in section 4.4 and in Appendix A would adequately reduce any adverse effects to subsistence activities, Spectacled Eider and Polar Bear in the area. Likewise, the analysis also found that mitigation measures would adequately reduce any adverse effects to subsistence activities, Spectacled Eider and Polar Bear which would also be short term and localized. The proposed action would not contribute to significant cumulative effects to subsistence activities, Spectacled Eider and Polar Bear in the proposed project areas.

Chapter 5 Consultation and Coordination

5.1 Agencies, Organization, Persons Consulted

US Fish and Wildlife
USGS

Public notification of the Environmental analysis will be on file at the Arctic Field Office and available on the Arctic Field Office Environmental Assessment web site.

5.2 List of Preparers

Dave Yokel, Wildlife Biologist
Michael Kunz, Archaeologist
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Richard Kemnitz, Hydrologist
Donna Wixon, Natural Resource Specialist
Debbie Nigro, Wildlife Biologist
Matthew Whitman, Fish Biologist
Stacey Fritz, Anthropologist/Subsistence Specialist
Roger Sayre, NEPA Specialist

ANILCA Requirements

Section 810 Subsistence Evaluation

Subsistence is considered an issue and is discussed at length in the Environmental Analysis. This proposed action will not significantly restrict subsistence uses. No reasonably foreseeable and significant decrease in the abundance of harvestable resources or in the distribution of harvestable resources, and no reasonably foreseeable limitations on harvester access will result from the proposed action. (see ANILCA section 810 Evaluation within the permit case file).

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APPENDIX A

ARCTIC FIELD OFFICE NON OIL AND GAS PERMIT STIPULATIONS

[This is a subset of the Northeast National Petroleum Reserve-Alaska Supplemental Integrated Activity Plan/ Final Environmental Impact Statement Record of Decision Required Operating Procedures, the Northwest National Petroleum Reserve-Alaska Integrated Activity Plan/ Final Environmental Impact Statement Record of Decision Required Operating Procedures, Utility Corridor Resource Management Plan/Final Environmental Impact Statement, The Colville River Special Area Management Plan, and the Final Environmental Impact Statement on Oil and Gas Leasing in The National Petroleum Reserve in Alaska and Record of Decision approved 5/1983. Special Recreation Permit holders meet most requirements by following the guidelines in Leave No Trace, Alaskan Tundra.]

I. AUTHORIZED OFFICER

The Authorized Officer (AO) is the Manager, Arctic Field Office.

II. AIR & WATER

A. All operations shall comply with applicable Air and Water Quality Standards of the State of Alaska.

B. Grey wash water and kitchen waste water may be filtered to remove the solids and the liquid discharged to the land surface, provided the disposal area is a minimum of 100 feet from any water body or stream.

III. AIRCRAFT

A. Hazing of wildlife by aircraft is prohibited. Pursuit of running wildlife is hazing. If wildlife begin to run as an aircraft approaches, the aircraft is too close and must break away.

B. Aircraft shall maintain an altitude of at least 1,500 above ground level (AGL) when within ½ mile of cliffs identified as raptor nesting sites from April 15 through August 15 and within ½ mile of known gyrfalcon nest sites from March 15 to August 15, unless doing so would endanger human life or violate safe flying practices. Permittees shall obtain information from BLM necessary to plan flight routes when routes may go near falcon nests.

D. Use of aircraft, especially rotary wing aircraft, near known subsistence camps and cabins or during sensitive subsistence hunting periods (spring goose hunting and fall caribou and moose hunting) should be kept to a minimum.

E. NORTHEAST SPECIFIC

Aircraft used for permitted activities shall maintain an altitude of at least 2,000 feet AGL (except for takeoffs and landings) over the Teshekpuk Lake Caribou Habitat Area (Map 1) from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices. Aircraft use (including fixed wing and helicopter) in the Goose Molting Area (Map 2) should be minimized from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices.

F. NORTHWEST SPECIFIC

1. Aircraft used for permitted activities shall maintain an altitude of at least 2,000 ft AGL (except for takeoffs and landings) over the Caribou Study Area (Map 91) from June 15 through July 31, unless doing so would endanger human life or violate safe flying practices.

2. Aircraft shall maintain an altitude of at least 2,000 ft AGL (except for takeoffs and landings) over the Caribou Coastal Insect-Relief Areas (Map 91) from June 15 through July 31, unless doing so would endanger human life or violate safe flying practices.

G. SOUTH SPECIFIC

Aircraft shall maintain an altitude of at least 2,000 ft AGL (except for takeoffs and landings) over groups of caribou from May 20 through August 20, unless doing so would endanger human life or violate safe flying practices.

V. CULTURAL/PALEONTOLOGICAL RESOURCES

A. In accordance with the Archaeological Resources Protection Act (16 U.S.C. 470aa), the removal or disturbance of archeological or historic artifacts is prohibited. The excavation, disturbance, collection, or purchase of historical, recent, ethnological, or archaeological specimens or artifacts is prohibited.. Such items include both prehistoric stone tools and sites, as well as historic log cabins, remnants of such structures, refuse dumps, and other such features. The disturbance, excavation and collection of vertebrate paleontological (fossil) remains is also prohibited.

B. Any cultural or Paleontological resource discovered by the holder, or any person working on his behalf, situated on lands owned or controlled by the United States shall be

promptly reported to the AO. Discoveries must be left in place allowing an examination by BLM cultural or paleontological specialists.

C. Prior to any ground-disturbing activity the permittee shall conduct a cultural and paleontological resources survey.

VI. FIRE

A. The BLM, through the AO, reserves the right to impose closure of any area to operators in periods when fire danger or other dangers to natural resources are severe.

B. The authorized user shall be financially responsible for any damage done by a wildfire caused by its operations. Costs associated with wildfires include but are not limited to; Damage to natural resources and costs associated with any suppression action taken on the fire.

VI. OPERATIONS

A. It is the responsibility of the authorized user to ensure that all individuals brought to the project area under its auspices adhere to these stipulations. Authorized users of the planning area shall provide all employees, contractors, subcontractors, and clients with a briefing regarding stipulations applicable to the lease and/or permit.

B. A copy of applicable stipulations will be posted in a conspicuous place in each work site and campsite.

C. The provisions of this permit do not relieve the Permittee of any responsibilities or obligations required by the laws or regulations of the State of Alaska Department of Fish and Game or the U.S. Fish and Wildlife Service, or other applicable regulations related to this permit

D. The authorized user shall protect all survey monuments and be responsible for survey costs if remonumentation is required as a result of the user's actions.

E. Survey monuments include, but are not limited to, General Land Office and Bureau of Land Management Cadastral Survey Corners, reference corners, witness points, U.S. Coast and Geodetic benchmarks and triangulation stations, military control monuments, and recognizable civil (both public and private) survey monuments.

F. In the event of obliteration or disturbance of any of the above, the Permittee shall promptly report the incident, in writing, to the Authorized Officer and the respective installing agency, if known. Where General Land Office or Bureau of Land Management right-of-way monuments or references are obliterated during operations, the Permittee shall secure the services of a registered land surveyor or a Bureau Cadastral surveyor to

restore the disturbed monuments and references using surveying procedures found in the Manual of Surveying Instructions for the Survey of Public Lands of the United States, latest edition. If the Bureau cadastral surveyors or other Federal surveyors are used to restore the disturbed survey monuments, the Permittee shall be responsible for survey costs.

VII. STREAMS

A. 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.

VIII. SUBSISTENCE

A. The permittee will take no action that interferes with subsistence activities of rural users or restricts the reasonable access of subsistence users to public lands. This may include but is not limited to disturbance of wildlife and their movements near subsistence hunters, and damage to cabins, trails, traditional campsites or caches used by subsistence users.

B. Permittee shall fill out and return to BLM the Community Notice flyer template at least three weeks prior to the start of their activity in order for BLM to notify potentially affected local communities about the nature and extent of proposed activities. Permittee will respond to questions and any reasonable requests for consultation that the community may have.

IX. VEGETATION

A. All activities shall be conducted to avoid or minimize disturbance to vegetation. The clearing of vegetation for camps or aircraft landing areas is prohibited.

B. On a case-by-case basis, BLM may permit low ground- pressure vehicles to travel off of gravel pads and roads. Permission for such use would only be granted after an applicant has:

1. Submitted studies satisfactory to the AO of the impacts on soils and vegetation of the specific low-ground-pressure vehicles to be used. These studies should reflect use of such vehicles under conditions similar to those of the route proposed for use and should demonstrate that the proposed use would have no more than minimal impacts to soils and vegetation.

2. Submitted surveys satisfactory to the AO of subsistence uses of the area as well as of the soils, vegetation, hydrology, wildlife and fish (and their habitats), paleontological and archaeological resources, and other resources as required by the AO.

X. WASTE

A. HUMAN WASTES

1. Toilet paper: Toilet paper must be packed out or a natural alternative used. Natural options for toilet paper include snow, smooth stones or sticks, leaves and moss. Natural TP options should be disposed of the same as the human waste. Feminine hygiene products and diapers must also be packed out.

2. Urine: Urine can attract animals seeking salt: avoid urinating on plants that can be defoliated by animals attracted to the salt residue. Urinate 200 feet away from camps and trails on rock or bare ground.

3. Recommended human excreta disposal in riparian areas: Packing out human wastes is the most eco-friendly means of disposal and the toilet can be located wherever is most appropriate. This method helps areas that receive high-levels of use retain their naturalness, and preserves pristine areas. Disadvantages include: it incurs cost and requires logistical considerations. The WAG (Waste Alleviation and Gelling) Bag has become the overall term for any pack-it-out bag system. It generally involves one bag with which holds the excrement and another sturdier, sealable bag. Commercial vendors of waste bag kits, powders and supplies include ReStop, Biffy Bags, and Cleanwaste.

B. GARBAGE

1. Attracting wildlife to food and garbage is prohibited.

2. Burial of garbage is prohibited. Burial of human waste is prohibited except as authorized by the AO. *[Special Recreation Permit holders meet all requirements by following the guidelines in Leave No Trace, Alaska Tundra.]*

3. Areas of operation shall be left clean of all debris.

C. FUEL

1. Notice of any spill shall be given to the AO as soon as possible or to the BLM Arctic Field Office Hazmat Coordinator, Susan Flora (work/message 907-474-2303). Other Federal, State, and NSB entities shall be notified as required by law.

2. All spills shall be cleaned up immediately and to the satisfaction of the AO and all agencies with regulatory authority over spills, including the Alaska Department of Environmental Concerns (ADEC),(1800-478-9300) (Alaska Statute Title 18, Chapter 75, Article 2).

3. State and Federal safety standards for fuel handling will be followed.

D. PESTICIDES

Use of pesticides without the specific authority of the AO is prohibited.

XI. WILDLIFE

A. Chasing wildlife with ground vehicles is prohibited. Particular attention will be given to avoid disturbing caribou.

B. The feeding of wildlife is prohibited.

G. With the exception of authorized guide hunting trips, hunting and trapping by permittees is prohibited.

Appendix B Legal Description of project

Township	Range	Comments	Township	Range	Comments	Township	Range	Comments
T1N	R1W		T4N	R32W		T9N	R30W	Excluding Private Lands
T1N	R2W		T4N	R33W		T9N	R31W	Excluding Private Lands
T1N	R3W		T4N	R34W		T9N	R32W	
T1N	R4W		T4N	R35W		T9N	R33W	
T1N	R5W		T4N	R36W		T9N	R34W	
T1N	R6W		T4N	R37W		T9N	R35W	
T1N	R7W		T4N	R38W		T9N	R36W	Excluding Private Lands
T1N	R8W		T4N	R39W		T9N	R37W	
T1N	R9W		T4N	R40W		T9N	R38W	
T1N	R10W		T4N	R41W	NPR-A only BLM	T9N	R39W	NPR-A only BLM
T1N	R11W		T4N	R42W	No BLM Lands	T9N	R40W	No BLM Lands
T1N	R12W		T4N	R43W	No BLM Lands	T9N	R41W	No BLM Lands
T1N	R13W		T4N	R44W	No BLM Lands	T10N	R2W	
T1N	R14W		T4N	R45W	No BLM Lands	T10N	R3W	
T1N	R15W		T4S	R1W	No BLM Lands	T10N	R4W	
T1N	R16W		T4S	R2W	No BLM Lands	T10N	R5W	
T1N	R17W		T4S	R3W	No BLM Lands	T10N	R6W	
T1N	R18W		T4S	R4W	No BLM Lands	T10N	R7W	
T1N	R19W		T4S	R5W	No BLM Lands	T10N	R8W	
T1N	R20W		T4S	R6W	NPR-A only BLM	T10N	R9W	
T1N	R21W		T4S	R7W	NPR-A only BLM	T10N	R10W	
T1N	R22W		T4S	R8W	Excluding Private Lands	T10N	R11W	

T1N	R23W		T4S	R9W		T10N	R12W	
T1N	R24W		T4S	R10W	Excluding Private Lands	T10N	R13W	
T1N	R25W		T4S	R11W	Excluding Private Lands	T10N	R14W	
T1N	R26W		T4S	R12W	Excluding Private Lands	T10N	R15W	
T1N	R27W		T5N	R1W		T10N	R16W	
T1N	R28W		T5N	R2W		T10N	R17W	
T1N	R29W		T5N	R3W		T10N	R18W	
T1N	R30W		T5N	R4W		T10N	R19W	Excluding Private Lands
T1N	R31W		T5N	R5W		T10N	R20W	Excluding Private Lands
T1N	R32W		T5N	R6W		T10N	R21W	Excluding Private Lands
T1N	R33W		T5N	R7W		T10N	R22W	
T1N	R34W		T5N	R8W		T10N	R23W	
T1N	R35W		T5N	R9W		T10N	R24W	
T1N	R36W		T5N	R10W		T10N	R25W	
T1N	R37W		T5N	R11W	Excluding Private Lands	T10N	R26W	
T1N	R38W		T5N	R12W		T10N	R27W	
T1S	R1W	NPR-A only BLM Excluding Private	T5N	R13W		T10N	R28W	
T1S	R2W	NPR-A only BLM	T5N	R14W		T10N	R29W	
T1S	R3W		T5N	R15W		T10N	R30W	
T1S	R4W		T5N	R16W		T10N	R31W	Excluding Private Lands
T1S	R5W		T5N	R17W		T10N	R32W	Excluding Private Lands
T1S	R6W		T5N	R18W		T10N	R33W	Excluding Private Lands
T1S	R7W		T5N	R19W		T10N	R34W	
T1S	R8W		T5N	R20W		T10N	R35W	
T1S	R9W		T5N	R21W		T10N	R36W	Excluding Private Lands

T1S	R10W		T5N	R22W		T10N	R37W	Excluding Private Lands
T1S	R11W		T5N	R23W		T10N	R38W	Excluding Private Lands
T1S	R12W		T5N	R24W		T10N	R39W	NPR-A only BLM Excluding Private
T1S	R13W		T5N	R25W		T10N	R40W	No BLM Lands
T1S	R14W		T5N	R26W		T11N	R3W	
T1S	R15W		T5N	R27W		T11N	R4W	Excluding Private Lands
T1S	R16W		T5N	R28W		T11N	R5W	
T1S	R17W		T5N	R29W		T11N	R6W	
T1S	R18W		T5N	R30W		T11N	R7W	
T1S	R19W		T5N	R31W		T11N	R8W	
T1S	R20W		T5N	R32W		T11N	R9W	
T1S	R21W		T5N	R33W		T11N	R10W	Excluding Private Lands
T1S	R22W		T5N	R34W		T11N	R11W	Excluding Private Lands
T1S	R23W		T5N	R35W		T11N	R12W	Excluding Private Lands
T1S	R24W		T5N	R36W		T11N	R13W	
T1S	R25W		T5N	R37W		T11N	R14W	Excluding Private Lands
T1S	R26W		T5N	R38W		T11N	R15W	
T1S	R27W		T5N	R39W		T11N	R16W	
T1S	R28W		T5N	R40W	NPR-A only BLM	T11N	R17W	
T1S	R29W		T5N	R41W	No BLM Lands	T11N	R18W	
T1S	R30W		T5N	R42W	No BLM Lands	T11N	R19W	Excluding Private Lands
T1S	R31W		T5N	R43W	No BLM Lands	T11N	R20W	Excluding Private Lands
T1S	R32W		T5N	R44W	No BLM Lands	T11N	R21W	Excluding Private Lands
T2N	R1W		T5N	R45W	No BLM Lands	T11N	R22W	
T2N	R2W		T5S	R1W	No BLM Lands	T11N	R23W	
T2N	R3W		T5S	R2W	No BLM Lands	T11N	R24W	
T2N	R4W		T5S	R3W	No BLM Lands	T11N	R25W	
T2N	R5W		T5S	R4W	No BLM Lands	T11N	R26W	
T2N	R6W		T5S	R5W	No BLM Lands	T11N	R27W	

T2N	R7W		T6N	R1W		T11N	R28W	
T2N	R8W		T6N	R2W		T11N	R29W	
T2N	R9W		T6N	R3W		T11N	R30W	
T2N	R10W		T6N	R4W		T11N	R31W	Excluding Private Lands
T2N	R11W		T6N	R5W		T11N	R32W	Excluding Private Lands
T2N	R12W		T6N	R6W		T11N	R33W	Excluding Private Lands
T2N	R13W		T6N	R7W		T11N	R34W	
T2N	R14W		T6N	R8W		T11N	R35W	
T2N	R15W		T6N	R9W		T11N	R36W	Excluding Private Lands
T2N	R16W		T6N	R10W		T11N	R37W	Excluding Private Lands
T2N	R17W		T6N	R11W		T11N	R38W	
T2N	R18W		T6N	R12W		T11N	R39W	NPR-A only BLM
T2N	R19W		T6N	R13W		T11N	R40W	No BLM Lands
T2N	R20W		T6N	R14W		T12N	R6W	
T2N	R21W		T6N	R15W		T12N	R7W	
T2N	R22W		T6N	R16W		T12N	R8W	
T2N	R23W		T6N	R17W		T12N	R9W	
T2N	R24W		T6N	R18W		T12N	R10W	
T2N	R25W		T6N	R19W		T12N	R11W	
T2N	R26W		T6N	R20W		T12N	R12W	Excluding Private Lands
T2N	R27W		T6N	R21W		T12N	R13W	Excluding Private Lands
T2N	R28W		T6N	R22W		T12N	R14W	
T2N	R29W		T6N	R23W		T12N	R15W	
T2N	R30W		T6N	R24W		T12N	R16W	
T2N	R31W		T6N	R25W		T12N	R17W	
T2N	R32W		T6N	R26W		T12N	R18W	
T2N	R33W		T6N	R27W		T12N	R19W	Excluding Private Lands
T2N	R34W		T6N	R28W		T12N	R20W	Excluding Private Lands
T2N	R35W		T6N	R29W		T12N	R21W	Excluding Private Lands

T2N	R36W		T6N	R30W		T12N	R22W	
T2N	R37W		T6N	R31W		T12N	R23W	
T2N	R38W		T6N	R32W		T12N	R24W	
T2N	R39W		T6N	R33W		T12N	R25W	
T2N	R40W		T6N	R34W		T12N	R26W	
T2N	R41W	NPR-A only BLM	T6N	R35W		T12N	R27W	
T2N	R42W	No BLM Lands	T6N	R36W		T12N	R28W	
T2N	R43W	No BLM Lands	T6N	R37W		T12N	R29W	
T2N	R44W	No BLM Lands	T6N	R38W		T12N	R30W	Excluding Private Lands
T2S	R1W	No BLM Lands	T6N	R39W		T12N	R31W	
T2S	R2W	No BLM Lands	T6N	R40W	NPR-A only BLM	T12N	R32W	
T2S	R3W	NPR-A only BLM	T6N	R41W	No BLM Lands	T12N	R33W	
T2S	R4W	NPR-A only BLM	T6N	R42W	No BLM Lands	T12N	R34W	Excluding Private Lands
T2S	R5W	NPR-A only BLM	T6N	R43W	No BLM Lands	T12N	R35W	Excluding Private Lands
T2S	R6W		T6N	R44W	No BLM Lands	T12N	R36W	
T2S	R7W		T7N	R1W		T13N	R8W	
T2S	R8W		T7N	R2W		T13N	R9W	
T2S	R9W		T7N	R3W		T13N	R10W	Excluding Private Lands
T2S	R10W		T7N	R4W		T13N	R11W	
T2S	R11W		T7N	R5W		T13N	R12W	Excluding Private Lands
T2S	R12W		T7N	R6W		T13N	R13W	
T2S	R13W		T7N	R7W		T13N	R14W	
T2S	R14W		T7N	R8W		T13N	R15W	
T2S	R15W		T7N	R9W		T13N	R16W	
T2S	R16W		T7N	R10W		T13N	R17W	
T2S	R17W		T7N	R11W	Excluding Private Lands	T13N	R18W	

T2S	R18W		T7N	R12W		T13N	R19W	Excluding Private Lands
T2S	R19W		T7N	R13W		T13N	R20W	Excluding Private Lands
T2S	R20W		T7N	R14W		T13N	R21W	Excluding Private Lands
T2S	R21W		T7N	R15W		T13N	R22W	Excluding Private Lands
T2S	R22W		T7N	R16W		T13N	R23W	
T2S	R23W		T7N	R17W		T13N	R24W	
T2S	R24W		T7N	R18W		T13N	R25W	
T2S	R25W		T7N	R19W		T13N	R26W	
T3N	R1W		T7N	R20W		T13N	R27W	
T3N	R2W		T7N	R21W		T13N	R28W	
T3N	R3W		T7N	R22W		T13N	R29W	Excluding Private Lands
T3N	R4W		T7N	R23W		T13N	R30W	No BLM Lands
T3N	R5W		T7N	R24W		T13N	R31W	No BLM Lands
T3N	R6W		T7N	R25W		T13N	R32W	No BLM Lands
T3N	R7W		T7N	R26W		T13N	R33W	No BLM Lands
T3N	R8W		T7N	R27W		T13N	R34W	No BLM Lands
T3N	R9W		T7N	R28W		T14N	R10W	
T3N	R10W		T7N	R29W		T14N	R11W	
T3N	R11W		T7N	R30W		T14N	R12W	
T3N	R12W		T7N	R31W		T14N	R13W	Excluding Private Lands
T3N	R13W		T7N	R32W		T14N	R14W	
T3N	R14W		T7N	R33W		T14N	R15W	
T3N	R15W		T7N	R34W		T14N	R16W	
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T3N	R17W		T7N	R36W		T14N	R18W	
T3N	R18W		T7N	R37W		T14N	R19W	Excluding Private Lands
T3N	R19W		T7N	R38W		T14N	R20W	Excluding Private Lands
T3N	R20W		T7N	R39W		T14N	R21W	
T3N	R21W		T7N	R40W	NPR-A only BLM	T14N	R22W	Excluding Private Lands

T3N	R22W		T7N	R41W	No BLM Lands	T14N	R23W	
T3N	R23W		T7N	R42W	No BLM Lands	T14N	R24W	
T3N	R24W		T7N	R43W	No BLM Lands	T14N	R25W	
T3N	R25W		T8N	R1W		T14N	R26W	Excluding Private Lands
T3N	R26W		T8N	R2W		T14N	R27W	
T3N	R27W		T8N	R3W		T14N	R28W	Excluding Private Lands
T3N	R28W		T8N	R4W		T14N	R29W	Excluding Private Lands
T3N	R29W		T8N	R5W		T14N	R30W	NPR-A only BLM
T3N	R30W		T8N	R6W		T14N	R31W	NPR-A only BLM
T3N	R31W		T8N	R7W		T14N	R32W	NPR-A only BLM
T3N	R32W		T8N	R8W		T14N	R33W	NPR-A only BLM
T3N	R33W		T8N	R9W		T15N	R12W	
T3N	R34W	Excluding Private Lands	T8N	R10W		T15N	R13W	Excluding Private Lands
T3N	R35W		T8N	R11W		T15N	R14W	Excluding Private Lands
T3N	R36W	Excluding Private Lands	T8N	R12W		T15N	R15W	Excluding Private Lands
T3N	R37W		T8N	R13W		T15N	R16W	
T3N	R38W		T8N	R14W		T15N	R17W	
T3N	R39W		T8N	R15W		T15N	R18W	
T3N	R40W		T8N	R16W		T15N	R19W	Excluding Private Lands
T3N	R41W	NPR-A only BLM	T8N	R17W		T15N	R20W	Excluding Private Lands
T3N	R42W	No BLM Lands	T8N	R18W		T15N	R21W	Excluding Private Lands
T3N	R43W	No BLM Lands	T8N	R19W		T15N	R22W	Excluding Private Lands
T3N	R44W	No BLM Lands	T8N	R20W		T15N	R23W	Excluding Private Lands
T3N	R45W	No BLM Lands	T8N	R21W		T15N	R24W	Excluding Private Lands
T3N	R46W	No BLM Lands	T8N	R22W		T15N	R25W	Excluding Private Lands
T3S	R1W	No BLM Lands	T8N	R23W		T15N	R26W	Excluding Private Lands
T3S	R2W	No BLM Lands	T8N	R24W		T15N	R27W	

T3S	R3W	No BLM Lands	T8N	R25W		T15N	R28W	
T3S	R4W	No BLM Lands	T8N	R26W		T15N	R29W	
T3S	R5W	NPR-A only BLM	T8N	R27W		T15N	R30W	No BLM Lands
T3S	R6W	NPR-A only BLM	T8N	R28W		T15N	R31W	Excluding Private Lands
T3S	R7W		T8N	R29W		T15N	R32W	Excluding Private Lands
T3S	R8W		T8N	R30W		T16N	R15W	Excluding Private Lands
T3S	R9W		T8N	R31W	Excluding Private Lands	T16N	R16W	
T3S	R10W		T8N	R32W	Excluding Private Lands	T16N	R17W	
T3S	R11W		T8N	R33W		T16N	R18W	Excluding Private Lands
T3S	R12W		T8N	R34W		T16N	R19W	Excluding Private Lands
T3S	R13W		T8N	R35W		T16N	R20W	
T3S	R14W		T8N	R36W		T16N	R21W	
T3S	R15W		T8N	R37W		T16N	R22W	
T3S	R16W		T8N	R38W		T16N	R23W	Excluding Private Lands
T3S	R17W		T8N	R39W	Excluding Private Lands	T16N	R24W	Excluding Private Lands
T3S	R18W		T8N	R40W	NPR-A only BLM	T16N	R25W	
T4N	R1W		T8N	R41W	No BLM Lands	T16N	R26W	
T4N	R2W		T8N	R42W	No BLM Lands	T16N	R27W	
T4N	R3W		T9N	R1W		T16N	R28W	Excluding Private Lands
T4N	R4W		T9N	R2W		T16N	R29W	Excluding Private Lands
T4N	R5W		T9N	R3W		T16N	R30W	No BLM Lands
T4N	R6W		T9N	R4W		T16N	R31W	No BLM Lands
T4N	R7W		T9N	R5W		T17N	R17W	Excluding Private Lands
T4N	R8W		T9N	R6W		T17N	R18W	
T4N	R9W		T9N	R7W		T17N	R19W	
T4N	R10W		T9N	R8W		T17N	R20W	Excluding Private Lands

T4N	R11W		T9N	R9W		T17N	R21W	
T4N	R12W		T9N	R10W		T17N	R22W	
T4N	R13W		T9N	R11W	Excluding Private Lands	T17N	R23W	
T4N	R14W		T9N	R12W		T17N	R24W	Excluding Private Lands
T4N	R15W		T9N	R13W		T17N	R25W	Excluding Private Lands
T4N	R16W		T9N	R14W		T17N	R26W	
T4N	R17W		T9N	R15W		T17N	R27W	
T4N	R18W		T9N	R16W		T17N	R28W	Excluding Private Lands
T4N	R19W		T9N	R17W		T17N	R29W	Excluding Private Lands
T4N	R20W		T9N	R18W		T17N	R30W	No BLM Lands
T4N	R21W		T9N	R19W	Excluding Private Lands	T18N	R19W	
T4N	R22W		T9N	R20W	Excluding Private Lands	T18N	R20W	
T4N	R23W		T9N	R21W		T18N	R21W	
T4N	R24W		T9N	R22W		T18N	R22W	
T4N	R25W		T9N	R23W		T18N	R23W	
T4N	R26W		T9N	R24W		T18N	R26W	
T4N	R27W		T9N	R25W		T18N	R27W	
T4N	R28W		T9N	R26W		T18N	R28W	Excluding Private Lands
T4N	R29W		T9N	R27W		T19N	R21W	
T4N	R30W		T9N	R28W				
T4N	R31W		T9N	R29W	Excluding Private Lands			

FF096067
2984.01

Finding of No Significant Impact

Type of Action: NPR-A Permit

Serial Number: FF096067

Environmental Assessment Number: DOI-BLM-AK-F010-2012-0009-EA

Applicant: Shell Gulf of Mexico Inc.

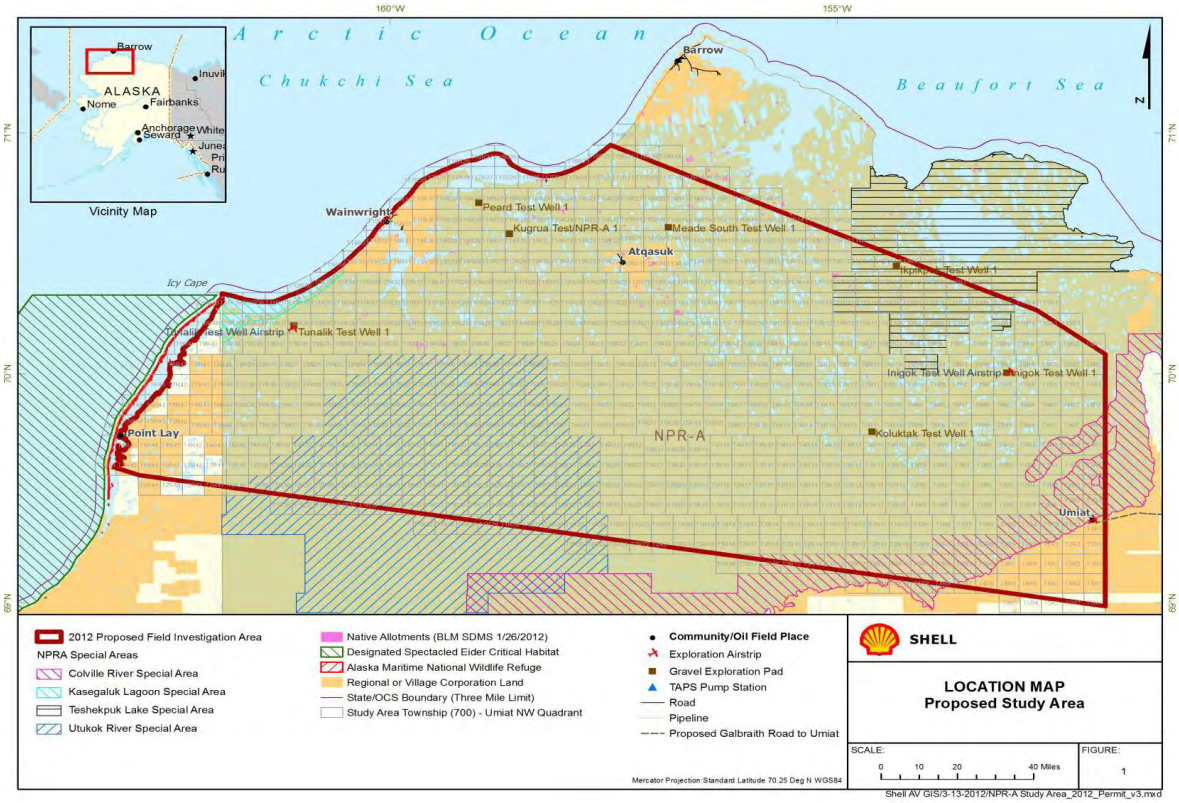
Address: 3601 C Street, Suite 1000
Anchorage, Alaska 99503

District: Arctic Field Office

Planning Units:

Northeast National Petroleum Reserve in Alaska (NPR-A) Supplemental Integrated Activity Plan/Environmental Impact Statement (IAP/EIS) dated 2008
Northwest National Petroleum Reserve-Alaska Integrated Activity Plan/Environmental Impact Statement (IAP/EIS) dated 2003
Colville River Special Area Management Plan and EA dated 2008
Final Environmental Impact Statement on Oil and Gas Leasing in The National Petroleum Reserve in Alaska and Record of Decision approved 1983
The National Petroleum Reserves Production Act of 1976

Lands Involved:



Context and Intensity of Environmental Impacts

Based upon a review of the EA prepared by the Arctic Field Office and the supporting documents, I have determined that the proposed action will not have a significant effect on the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance as defined at 40 CFR 1508.27. Therefore, an environmental impact statement is not required. We reviewed the context of the proposed action and found that it would not result in any significant effects to resources and values in NPR-A. The mitigation measures and environmental protections would ensure that the Proposed Action would not add significantly to adverse direct, indirect, or cumulative environmental impacts.

The need for this project is to allow Shell to collect baseline environmental data in the NPR-A which would be used for potential future projects and decision-making on lands managed by the Bureau of Land Management.

The following factors were considered in the EA to evaluate the significance this proposal (40 CFR 1508.27): Beneficial and adverse impacts; effects on public health and safety;

unique cultural or ecological areas within or near the project area: potentially controversial or uncertain effects; whether the action may establish a precedent for future actions with significant effect; cumulative effects; adverse impacts to important scientific, cultural or historical resources; effects to endangered or threatened species or habitat; or whether the action threatens a violation of federal, state, local or tribal law, regulation or policy imposed for the protection of the environment, where non-federal requirements are consistent with federal requirements:

Monitoring and Mitigation

BLM will monitor on the ground activities periodically. Mitigation measures will be implemented as described in the authorization stipulations within the Environmental Assessment.

APPROVED:

June 6, 2012

/s/Lon Kelly
Arctic Field Office Manager

Date