



Hilcorp Alaska, LLC

Kathryn Kaufman
Liberty Development Permitting
Lead

Post Office Box 244027
Anchorage, AK 99524

3800 Centerpoint Dr.
Suite 1400
Anchorage, AK 99503

Phone: 907/777-8329
Email: kkaufman@hilcorp.com

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APR 02 2015

Regional Director, Alaska OCS
Bureau of Ocean Energy Management
Anchorage, Alaska

April 2, 2015

Dr. Bill Ingersoll
Chief, Plans Section
Bureau of Ocean Energy Management
Alaska OCS Region
3801 Centerpoint Drive, Suite #500
Anchorage, Alaska 99503-5823

RECEIVED
APR 02 2015
Regional Director, Alaska OCS
Bureau of Ocean Energy Management
Anchorage, Alaska

**RE: Notice to Conduct Ancillary Activities
Liberty 2015 Shallow Hazard and Strudel Scour Survey, Beaufort Sea**

Dear Dr. Ingersoll:

Hilcorp Alaska, LLC proposes to conduct a shallow hazard and strudel scour investigation in support of the Liberty Resource Development. The project scope includes two areas of investigation: state and federal waters of the Beaufort Sea. The first phase consists of aerial reconnaissance of river overflow and strudel drainage features. The second phase will investigate the pipeline route from the Liberty reservoir located in federal waters in Foggy Island Bay south to the Badami pipeline. A sonar survey is proposed over the Liberty subsea pipeline corridor area. The purpose of this proposed survey is to evaluate the existence and location of archaeological resources, potential geologic hazards and to investigate strudel scours and ice gouges on the seafloor and in the shallow subsurface.

This Ancillary Activity notice is submitted in accordance with 30 CFR 550.202 (a), (b), (d), and (e). In support of this request, the following is attached:

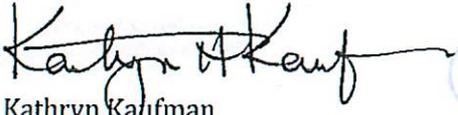
- Shallow Hazards/Strudel Scour Work Plan, including Figures
- U.S. Fish and Wildlife Service Letters of Authorization
- Hilcorp Polar Bear and Pacific Walrus Interaction Plan

Hilcorp has approval or is currently seeking approval from the following agencies:

- U.S. Fish and Wildlife Service
- North Slope Borough Planning and Community Services Department
- National Marine Fisheries Service
- Alaska Eskimo Whaling Commission – Conflict Avoidance Agreement

If you have any question or need additional information regarding this project, please contact me at (907) 777-8329 or via email at kkaufman@hilcorp.com.

Sincerely,



Kathryn Kaufman
Liberty Development Permitting Lead

RECEIVED

APR 02 2015

Regional Director, Alaska OCS
Bureau of Ocean Energy Management
Anchorage, Alaska

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APR 02 2015

Regional Director, Alaska OCS
Bureau of Ocean Energy Management
Anchorage, Alaska

Liberty Development: 2015 Summer Shallow Hazards and Strudel Scour Bathymetry Work Plan

Introduction

Hilcorp Alaska (Hilcorp) plans to conduct a shallow geohazard survey and strudel scour survey in federal and state waters of Foggy Island Bay in the Beaufort Sea during the spring break up and open water season of 2015. The 2015 study area lies partially within the Liberty Unit (Liberty), (Figure 1). This document provides operational details of the strudel scour and shallow geohazard survey.

Purpose

Hilcorp is evaluating the proposed route for a pipeline from the Liberty field. The Liberty reservoir is located in federal waters in Foggy Island Bay approximately 8 miles (mi) east of the Endicott Satellite Drilling Island (SDI). The pipeline route to be investigated will extend south from the proposed Liberty Island to tie into the Badami pipeline NW of the West KAD Valve. An aerial reconnaissance of river overflow and strudel drainage features will be conducted during spring break up. The purpose of the strudel scour survey is to map strudel drains on the ice surface in the vicinity of the proposed pipeline route. Strudel scouring can occur when the overflow water drains through a hole or discontinuity in the sea ice, creating a vortex that can erode the seabed.

A sonar survey, using single-beam and multibeam echosounder, side scan sonar, sub-bottom profilers, and magnetometer is planned over the subsea pipeline corridor area. The purpose of this proposed survey is to evaluate the existence and location of archaeological resources, potential geologic hazards and to investigate strudel scours on the seafloor and in the shallow subsurface.

Strudel Scour Survey

A field survey program will be conducted to obtain site specific information on river overflow and strudel scours. The objective is to map and characterize newly formed and relic strudel scours within a 10,000 ft. corridor centered on the proposed pipeline alignment. The survey program will consist of the following components:

- Spring aerial reconnaissance of river overflow and strudel drainage features
- Bathymetric survey at strudel drain locations (to be combined with Summer Shallow Hazards Sonar Survey)
- Bathymetric survey along the proposed pipeline route to locate relic scours (to be combined with Summer Shallow Hazards Sonar Survey)

Spring 2015 Aerial Reconnaissance

Coastal Frontiers Corporation has performed more than forty helicopter-based river overflow and strudel drainage feature mapping projects in the Alaskan Beaufort Sea during the past two decades, including nine on behalf of the Liberty Development. The methods developed and

refined during these surveys will be used for the 2015 mapping effort.

The work will be conducted from a helicopter based in Deadhorse. Due to fuel limitations, several flights may be required to map all of the features. Operations are anticipated to occur between 0600 and 1800, with the exact timing of the flights dependent on aircraft availability and weather conditions. The helicopter will depart the base of operation with a scientific team of two persons in addition to the aircraft crew, and transit over land to the vicinity of the Endicott Main Production Island (MPI) guided by Global Positioning System (GPS) navigation. The exact route and altitude will be selected by the aircraft crew based on safety, meteorological conditions, wildlife avoidance, and any flying restrictions at the time of operations.

Mapping will be performed using a survey-grade GPS unit operated from the helicopter. To improve the accuracy of the GPS position data, differential corrections broadcast in real time via satellite by the U.S. Government's Wide Area Augmentation System (WAAS) will be received by the GPS unit. To assist with navigation, the GPS will be interfaced to a laptop computer using the Hypack Max survey software package.

The overflow limit on the sea ice will be delineated by recording successive positions while flying over the observed boundary at an approximate altitude of 200 ft. and speed of 60 knots. The overflow boundary will be mapped from the Endicott causeway to Tigvariak Island, to allow direct comparison with historical overflow events in the project area.

A search for strudel drainage features located within a 10,000 ft. wide monitoring corridor centered on the proposed pipeline route (Figure 2) will be performed by flying a reconnaissance pattern at an altitude of 200 to 500 ft. at speeds of 30 to 50 knots. Individual strudel holes in the ice sheet will be mapped by hovering over each feature at an altitude of about 50 ft. for approximately 15 seconds while recording GPS position fixes.

Schedule

The mapping program will be conducted at the time of spring break-up, which typically occurs in late May or early June. To ensure that the maximum extent of the flood is documented, the mapping will be conducted at or near the end of the overflow period rather than at its peak.

The aerial portion of the strudel scour surveys are expected to be conducted between May 15 and June 15 and will be complete by mid-June.

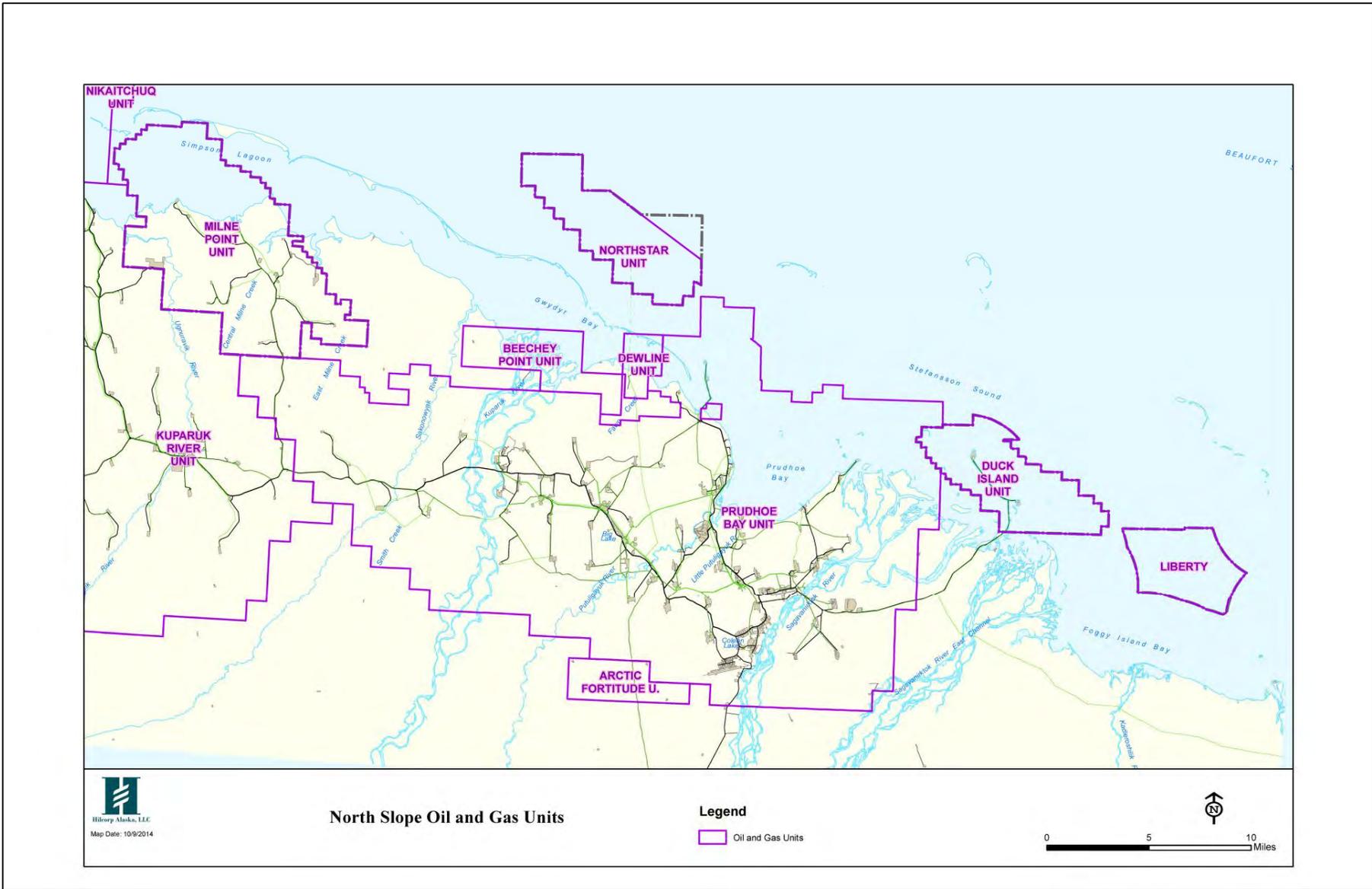


Figure 1. Overview of the eastern Beaufort Sea with the outline of the Liberty Unit.

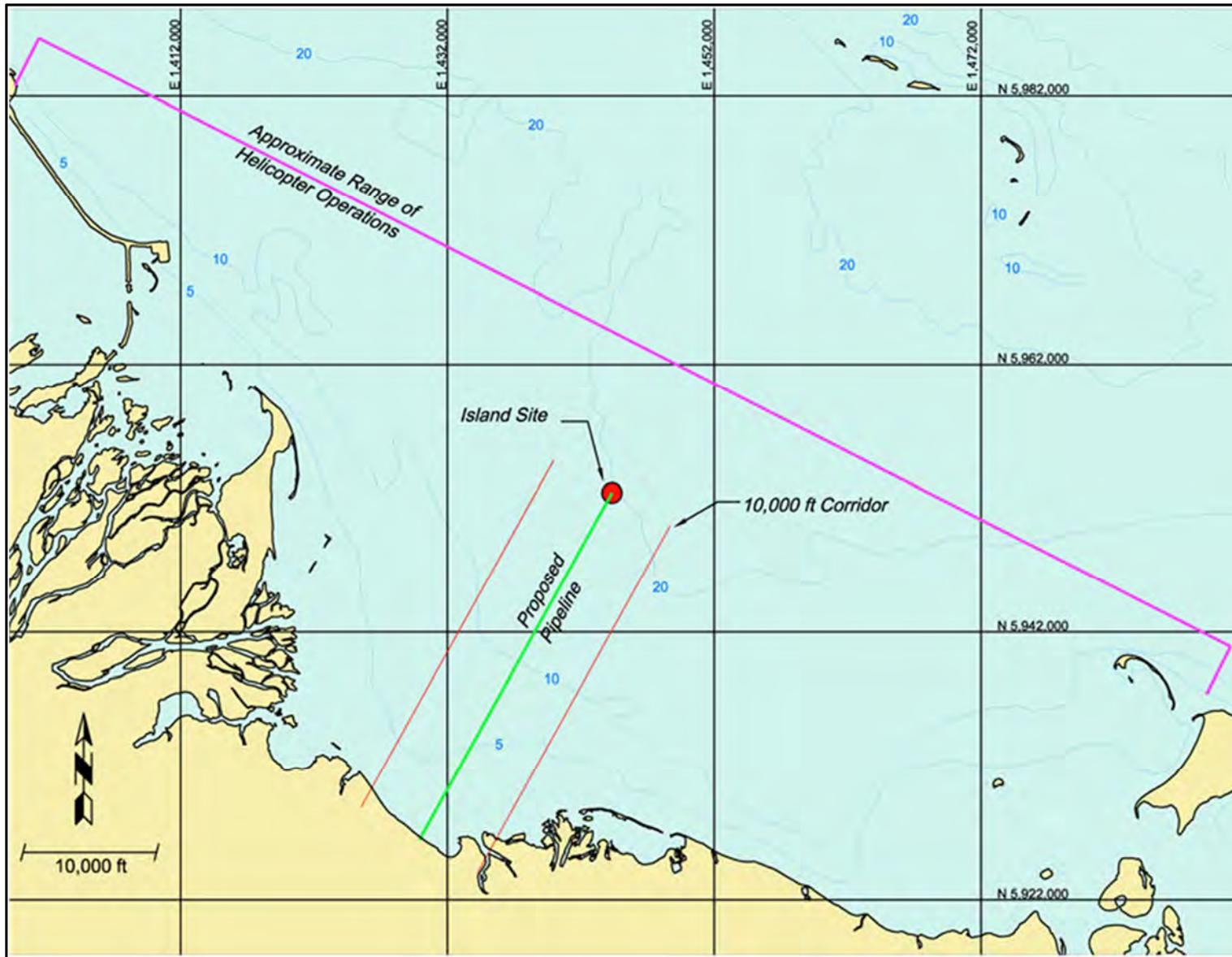


Figure 2. Strudel Scour Survey Operations Location Map

Open Water Shallow Hazard Survey

The pipeline route geohazard survey will consist of the shallow geohazard and bathymetric strudel scour / ice gouge surveys. Data will be acquired along the subsea pipeline corridor area (Figure 3) using the single-beam or multibeam echosounder, side scan sonar, sub-bottom profilers, and the magnetometer as described below. The Liberty shallow geohazard survey will comply with NTL No. 05-A02 pursuant to regulations at 30 CFR 250.201, 30 CFR 250.1007(a), and 30 CFR 250.1010.

Vessel Mobilization

One main vessel will be used for the geohazard survey. The proposed survey vessel (M/V Sidewinder or equivalent) is about 40 x 14 feet in size. This vessel is currently stationed on the North Slope and will be prepared and launched at West Dock or Endicott. Vessel preparation includes the assembly and installation of navigation, acoustic, and safety equipment. Once assembled, the navigation and acoustic systems will be tested and calibrated at West Dock or at the project site.

Because of the extremely shallow project area, additional small vessel may be utilized to safely extend survey operations. This will most likely be a small skiff or inflatable craft with limited crew and range. Small craft operations will be supported by the larger vessel.

Navigation and Data Management

The vessel will be equipped with a Global Positioning System receiving differential corrections from a variety of possible sources, including a shore-based kinematic base station.

Tidal corrections will be determined through GPS computation, comparison with any local tide gauges, or, if available, with tide gauges operated by other projects.

A navigation software package will display known obstructions, islands, and identified areas of sensitivity. The software will also show the pre-determined line plans. The information will be updated as necessary to ensure required data coverage. The navigation software will also record all measured equipment offsets and corrections and vessel and equipment position at a frequency of no less than once per second during acoustic equipment operation.

Housing and Logistics

Approximately 10 people will be involved in the operation. Most of the crew will be accommodated at existing camps and some crew will be housed on the vessel. Support activities, such as crew transfers and vessel re-supply are primarily planned to occur at Endicott and West Dock. However, support activities may also occur at other nearby vessel-accessible locations if needed (e.g. East Dock). Equipment staging and onshore support will primarily occur at West Dock, but may also take place at other existing road-accessible pads within the Prudhoe Bay Unit area as necessary. For protection from weather, the vessel may anchor near West Dock, near the barrier islands, or other near shore locations.

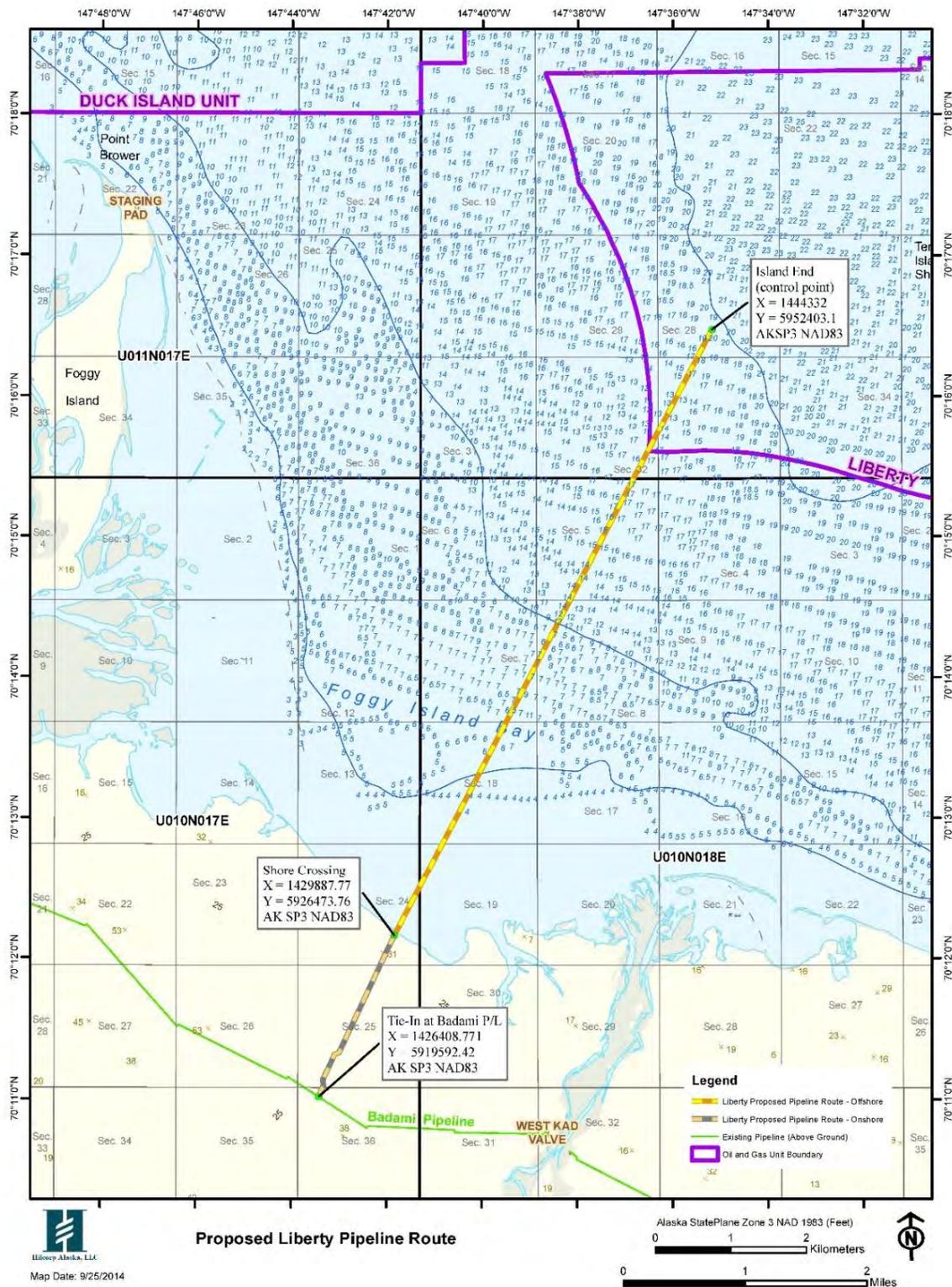


Figure 3. Project Area and Proposed Pipeline Route

Data Acquisition

Equipment that will be used for the proposed shallow geohazard survey includes single-beam or multibeam echosounder, side scan sonar, sub-bottom profilers, and magnetometer. Details related to data acquisition are summarized below. Any substitution of the equipment will be in accordance with permit requirements.

Equipment that will be used for the strudel scour and ice gouge survey will include multi-beam sonar (to obtain detailed bathymetric data in deep water), single-beam sonar (to obtain bathymetric data in shallow water and serve as a back-up to the multi-beam system in deep water), and side scan sonar (to locate ice gouges, strudel scours, and hard-bottom targets).

Survey Design

One vessel will be used for the proposed survey. The proposed vessel (M/V Sidewinder or equivalent) is about 40 x 14 feet in size. The sub-bottom profilers and magnetometer will be deployed from the vessel. The echosounder and side scan sonar will be hull-mounted. No equipment will be placed on the sea floor as part of survey activities.

Data will be acquired along the subsea pipeline corridor area (Figure 3) using the single-beam or multibeam echosounder, side scan sonar, sub-bottom profilers, and the magnetometer. Because of the shallow nature of the project area and small size of the vessel, systems will be towed in optimal groupings that best facilitate safe operations and data quality. As necessary, a small vessel may be used to extend data collection into shallow waters. Survey planned lines will be designed to acquire 150% side scan sonar data coverage, with line spacing dependent upon water depth. A 300 m corridor around the proposed pipeline area will be covered.

The single-beam or multibeam echosounder and side scan sonar will be used to obtain high accuracy information regarding bathymetry of the seafloor. For accurate object detection, a side scan sonar survey is required to complement a multibeam echosounder survey.

The sub-bottom profiler will be used to generate high resolution images of the sub-bottom stratigraphy.

A marine magnetometer will be used for the detection of magnetic deflection generated by geologic features and buried or exposed ferrous objects which may be related to archaeological artifacts or modern man-made debris. The magnetometer will be towed at a sufficient distance behind the vessel to avoid data pollution by the vessel's magnetic properties. Magnetometers passively measure changes in magnetic fields over the seabed and do not impact marine mammals.

The sound characteristics of the proposed shallow geohazard survey equipment are listed in Table 1 below.

EQUIPMENT	Sample Equipment Model Type	OPERATING FREQUENCY	FREQUENCY BANDWIDTH	ALONG TRACK BEAM WIDTH	ACROSS TRACK BEAM WIDTH	RMS SOURCE PRESSURE LEVEL (Directional) Re 1 μ Pa @1m
Multibeam echosounder	Reson 7101 SV ^a	240 kHz	(AWAITING RESPONSE)	1.5°	1.8°	220 dB
Alternative Multibeam echosounder	Norbit iWBMS ^b	360 - 400 kHz	80kHz	1.9°	0.9°	220 dB
Single-beam echosounder	Odom ^c	210 kHz	30kHz	3°	3°	220 dB
Side scan sonar	Edgetech 4125 ^d	400 kHz/900 kHz	40kHz/90kHz	0.5°	50°	215 dB
High resolution (CHIRP) sub-bottom profiler	Edgetech 3200 ^e	2 to 24 kHz	n/a	15° to 24°	15° to 24°	210 dB
Low resolution sub-bottom profiler	Applied Acoustics AA251 ^f	1 to 4 kHz	n/a	n/a	n/a	212 dB

Table 1. Source characteristics of the proposed geophysical survey equipment.

Schedule

The survey will commence with mobilization of equipment to Deadhorse by truck. The survey is expected to take approximately 45 days to complete, which includes contingency time for weather delays or mechanical downtime, and is planned between July 1 and August 25. Demobilization of equipment is planned to be complete before the end of September.

To limit potential impacts to the bowhead whale migration and the subsistence hunting, sonar survey and strudel scour operations dates will be in accordance with the dates agreed in the Conflict Avoidance Agreement (CAA), historically ending August 25.

Wildlife Considerations

Hilcorp has submitted an application to the National Marine Fisheries Service (NMFS) for an Incidental Harassment Authorization (IHA) for the shallow geohazard survey. Disturbance of marine mammals from the proposed sonar activities described above can occur due to:

- Exposure to sonar sounds used for data acquisition;
- Physical presence of vessels in the area, i.e., close approach between marine mammals and vessels

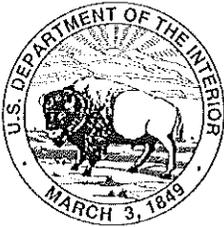
Hilcorp does not expect that the proposed project activities will adversely affect marine mammals or subsistence hunting activities. The activities of the proposed sonar survey are not expected to result in any permanent impact on habitats or food resources that are of importance to marine mammals. None

of the project activities have the ability to damage or otherwise destruct marine mammal habitat that would result in habitat loss or modification.

As part of Hilcorp's IHA application, a combination of active monitoring and mitigation measures will be implemented to minimize project impacts to marine resources. If marine mammals are observed within or about to enter specific safety radii around the proposed survey activities, mitigation will be initiated by vessel-based protected species observers (PSOs). Additionally, avoidance guidelines and mitigation measures are developed in a formal agreement with the AEWC, individual community Whaling Captain's Associations, Hilcorp, and other Industry Participants in the form of the Conflict Avoidance Agreement (CAA).

Passive acoustic monitoring will be conducted to document ambient noise conditions, to examine the spatial and temporal distribution of marine mammals based on acoustic detections of their vocalizations, and to characterize the long-range propagation of sounds produced during the geohazard survey.

The project will be covered under a Letter of Authorization (LOA) from the U.S. Fish and Wildlife Service (USFWS) for conducting activities in polar bear habitat and appropriate migration efforts will be taken to avoid impacts to polar bears and Pacific walrus.



IN REPLY REFER TO:

United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
1011 East Tudor Road
Anchorage, Alaska 99503-6199



AFES/MMM

JAN 29 2015

LETTER OF AUTHORIZATION Incidental Take (15-08)

ISSUED: February 1, 2015
EXPIRES: February 1, 2016

Hilcorp Alaska, LLC (Hilcorp) is hereby authorized to take small numbers of polar bears (*Ursus maritimus*) and Pacific walrus (*Odobenus rosmarus divergens*) incidental to activities occurring during the 2015 Liberty Development Geotechnical and Shallow Hazard Survey on the North Slope of Alaska.

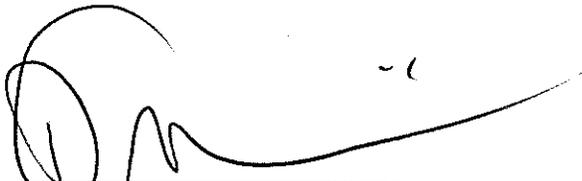
Hilcorp proposes to conduct a geotechnical investigation, shallow hazard sonar survey and strudel scour survey with a transition zone component on state lands, and in federal and state waters of Foggy Island Bay in the Beaufort Sea during the winter, spring break-up and open water seasons of 2015. A detailed description of the proposed activities is provided in Hilcorp's *Request for Letter of Authorization (LOA) for the Incidental Take of Polar Bears and Pacific Walrus, Intentional Take of Polar Bears by Harassment; Liberty Development Geotechnical and Shallow Hazard Survey, North Slope, Alaska dated November 25, 2014.*

This Letter of Authorization (LOA) and the required conditions below apply to all Hilcorp employees, contractors and personnel performing Hilcorp-approved work under the scope of operations to be conducted. This authorization is subject to the following conditions.

1. Only incidental take is authorized under this LOA.
2. Hilcorp's *ATTACHMENT V, Polar Bear and Walrus Interaction and Mitigation Plan* is approved and all provisions must be complied with unless specifically noted otherwise in this LOA.
3. A copy of this LOA and the approved interaction plan listed above must be posted and available for all personnel and in the possession of the operators of all vessels and aircraft engaging in the activities approved under the authority of this LOA.
4. Hilcorp Operations Managers, or designates, must be fully aware, understand, and be capable of implementing the conditions of this LOA.

5. At the discretion of the U.S. Fish and Wildlife service (Service), Hilcorp must allow the Service to place an observer on site, including any facilities, vessels, aircraft, or vehicles, to monitor the impacts of the activity on marine mammals, when requested.
6. Monitoring, mitigation, and reporting activities will be conducted in accordance with 50 CFR § 18.128 and must comply with the following requirements:
 - Hilcorp must cooperate with the Service, and other designated Federal, State, or local agencies to monitor the impacts of oil and gas exploration activities on polar bears and walrus.
 - If any changes develop in the project during the period approved under this LOA, such as activities, location, or methods, Hilcorp must notify the Service, Marine Mammals Management Office (MMM) prior to the implementation of such changes.
 - A polar bear den detection survey will be required each year in the areas of potential denning habitat where Hilcorp proposes to operate. Hilcorp completed a den detection survey in December, 2014.
 - Hilcorp must not conduct activities that operate nor pass within one mile (1.6 kilometers) of known polar bear dens, and all observed dens must be reported to the Service, MMM within 12 hours of discovery. If occupied dens are identified within one mile of activities, work within the immediate area will cease and the Service must be contacted for guidance. The Service will evaluate these instances on a case-by-case basis to determine the appropriate action. Potential actions may range from cessation or modification of work to conducting additional monitoring. Hilcorp must comply with any additional measures specified.
 - Operators of support aircraft should, at all times, conduct their activities at the maximum distance possible from concentrations of walrus or polar bears.
 - Under no circumstances, other than an emergency, should fixed wing aircraft operate at an altitude lower than 457 m (1,500 feet [ft]) within 805 m (0.5 mi) of walrus groups observed on ice, or within 1,610 m (1 mi) of walrus groups observed on land. Under no circumstances, other than an emergency, should rotary winged aircraft (helicopters) operate at an altitude lower than 914 m (3,000 ft) within 1,610 m (1 mi) of walrus groups observed on land. Under no circumstances, other than an emergency, should aircraft operate at an altitude lower than 457 m (1,500 ft) within 805 m (0.5 mi) of polar bears observed on ice or land. Helicopters may not hover or circle above such areas or within 805 m (0.5 mi) of such areas. When weather conditions do not allow a 457-m (1,500-ft) flying altitude, such as during severe storms or when cloud cover is low, aircraft may be operated below the required altitudes stipulated above. However, when aircraft are operated at altitudes below 457 m (1,500 ft) because of weather conditions, the operator must avoid areas of known walrus and polar bear concentrations and should take precautions to avoid flying directly over or within 805 m (0.5 mi) of these areas.

- Hilcorp must designate a qualified individual or individuals to observe, record, and report the effects of the activity on polar bears and walrus to the Service within 24 hours of visual observation.
- Hilcorp must submit an annual monitoring report to the Service, MMM as required under 50 CFR § 18.128, which will be received no later than 90 days after the expiration date of the LOA.



Chief, Marine Mammals Management

11/29/15

Date



IN REPLY REFER TO:

United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
1011 East Tudor Road
Anchorage, Alaska 99503-6199



AFES/MMM

JAN 29 2015

LETTER OF AUTHORIZATION Intentional Take (15-INT-05)

ISSUED: February 1, 2015
EXPIRES: February 1, 2016

Hilcorp Alaska, LLC (Hilcorp) is hereby authorized to intentionally take by Level B non-lethal harassment, or deterrence, small numbers of polar bears (*Ursus maritimus*) associated with activities occurring during the 2015 Liberty Development Geotechnical and Shallow Hazard Survey on the North Slope of Alaska in accordance with sections 101(a)(4)(A), 109(h) and 112(c) of the Marine Mammal Protection Act of 1972 (MMPA), as amended.

Hilcorp proposes to conduct a geotechnical investigation, shallow hazard sonar survey and strudel scour survey with a transition zone component on state lands, and in federal and state waters of Foggy Island Bay in the Beaufort Sea during the winter, spring break-up and open water seasons of 2015. A detailed description of the proposed activities is provided in Hilcorp's *Request for Letter of Authorization (LOA) for the Incidental Take of Polar Bears and Pacific Walrus, Intentional Take of Polar Bears by Harassment; Liberty Development Geotechnical and Shallow Hazard Survey, North Slope, Alaska dated November 25, 2014.*

Section 101(a)(4)(A) of the MMPA states that, "Except as provided in subparagraphs (B) and (C), the provisions of this chapter shall not apply to the use of measures-

- i. by the owner of fishing gear or catch, or an employee or agent of such owner, to deter a marine mammal from damaging the gear or catch;
- ii. by the owner of other private property, or an agent, bailee, or employee of such owner, to deter a marine mammal from damaging private property;
- iii. by any person, to deter a marine mammal from endangering personal safety; or
- iv. by a government employee, to deter a marine mammal from damaging public property, so long as such measures do not result in the death or serious injury of a marine mammal."

Section 112(c) allows for the transfer of Federal authority "... as may be necessary to carry out the purposes of this title (Conservation and Protection of Marine Mammals)... and on such terms

as he deems appropriate with any Federal or State agency, public or private institution, or other person.”

Section 109(h)(1) states that, “nothing in this title [Conservation and Protection of Marine Mammals]... shall prevent a Federal, State, or local government official or employee or a person designated under section 112(c) from taking, in the course of his or her duties as an official, employee, or designee, a marine mammal in a humane manner (including euthanasia) if such taking is for-

- A. the protection or welfare of the mammal,
- B. the protection of the public health and welfare, or
- C. the non-lethal removal of nuisance animals.”

The purpose of authorizing taking by Level B non-lethal harassment, or deterrence, is to maintain human and bear safety and welfare in polar bear habitat. Authorizing Level B harassment take reduces the likelihood of death or injury of polar bears. This is accomplished by the following objectives:

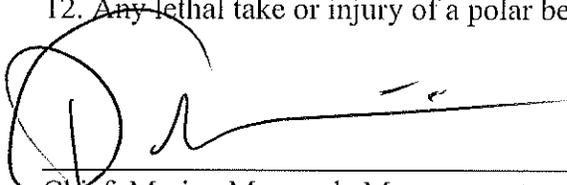
- Prevent bears from associating food with humans and facilities.
- “Teach” bears to avoid people.
- Allow bears to use travel routes (natural and human made) to move along the coast.
- Prevent bears from extended use of areas around facilities.

This Letter of Authorization (LOA) is subject to the following conditions:

1. This LOA is restricted to Level B non-lethal harassment or deterrent activities.
2. Hilcorp’s *ATTACHMENT V, Polar Bear and Walrus Interaction and Mitigation Plan* is approved and all provisions must be complied with unless specifically noted otherwise in this LOA. A copy of this interaction plan must be available on site for all personnel.
3. Hilcorp operations managers, or designates, must be fully aware, understand, and be capable of implementing the conditions of this authorization.
4. This LOA is issued specifically to Hilcorp who is responsible for ensuring **trained and qualified** personnel are assigned the task to harass (deter) polar bears. A list of trained personnel responsible for deterrence will be on file prior to initiation of activities with the Service Incidental Take Coordinator.
5. Hilcorp is solely responsible for ensuring that personnel operating under this authorization meet all Federal and State laws and regulations regarding the use and carry of firearms should firearms be used for bear deterrence.

6. Hilcorp, or its designated agent, is responsible for documenting and reporting to the U.S. Fish and Wildlife Service (Service), Marine Mammals Management Office (MMM) all instances involving harassment activities as soon as possible and no later than 24 hours after the occurrence.
7. Harassment or deterrence techniques must not cause injury or death of a bear. Types of harassment or deterrence techniques may include, but are not limited to:
 - Bear monitors.
 - Air horns.
 - Electric fences.
 - Chemical repellents.
 - Acoustic recordings.
 - Vehicles.
 - Projectiles, such as, cracker shells, bean bags, rubber bullets, and screamers.
8. Prior to conducting a harassment activity, operators must:
 - Make a reasonable effort to reduce or eliminate attractants.
 - Secure site, notify supervisor and move personnel to safety.
 - Ensure bear has escape route(s).
 - Ensure communication with all personnel.
9. When conducting a harassment activity, operators must:
 - Keep in mind that the safety and welfare of the bear is second only to the safety and welfare of humans in a harassment or deterrence situation.
 - Chose the method that will have the least effect on the bear and increase the intensity of the method or use additional methods only if necessary.
 - Shout at the bear before using projectiles or other methods.
 - Move bear in proper direction; continue with minimally necessary deterrents to receive desired result.
10. After a harassment event has occurred, operators must:
 - Monitor bears movement (to ensure no return).
 - Notify supervisor and personnel when it is safe to resume work.
 - Fill out report to be sent to the Service as required above (within 24 hours).
11. A final report of all encounters and harassment or deterrence events will be submitted to the Service, MMM no later than 60 days from the expiration date of this authorization.

12. Any lethal take or injury of a polar bear must be reported to the Service immediately.



Chief, Marine Mammals Management

1/29/15

Date



ATTACHMENT V

Polar Bear and Walrus Interaction and Mitigation Plan

Purpose

The purpose of this Polar Bear and Walrus Interaction Plan is to standardize protocols and reporting efforts within Hilcorp Alaska, LLC (Hilcorp) operations fields on the North Slope, so that when a walrus or polar bear encounters industry or industry-related activity, it is detected quickly and responded to appropriately through avoidance, monitoring, reporting, or active deterrence by appropriate trained personnel under the guidance of the USFWS.

Those working in walrus or polar bear habitat must be familiar with all of the issues associated with polar bears and working safely in bear country. To insure this familiarity, each employee working at any Hilcorp facility, either employee or contractor will receive polar bear and walrus awareness training as described in the training section of this Plan. The Plan is designed to ensure the safety of people, walrus and bears and work areas on the North Slope. Although it is possible to generalize about good work practices in walrus and bear habitat, each area and work site has its own unique layout, and as such, not all of the procedures discussed here may be relevant.

Hilcorp has adopted this Polar Bear and Walrus Interaction Plan in order to apply for Letters of Authorization (LOA) for the incidental take of polar bears and Pacific walrus for the Liberty Unit geotechnical investigation, shallow hazard sonar survey and strudel scour survey on the North Slope of Alaska. In accordance with ESA Section 7, issuance of the LOA and compliance with this document fulfill the requirement for Tier 2 Consultation of the existing Programmatic Biological Opinion for activities in Hilcorp operated fields. In addition, Hilcorp is also requesting authorization for the intentional take of polar bears by harassment (deterrent activities) pursuant to section 101 (a)(4)(A), 109(h), and 112(c) of the Marine Mammal Protection Act (MMPA) for the protection of both human life and polar bears while conducting activities for the Liberty Unit geotechnical investigation, shallow hazard sonar survey and strudel scour survey on the North Slope of Alaska.

The occurrence of walrus in Hilcorp operating areas is rare; therefore this plan focuses mainly on Polar Bear interaction guidance.

Pacific Walrus Interaction and Reporting

Pacific Walrus Background

Walrus distribution varies seasonally; most of the population inhabits the Bering Sea during winter and the Chukchi Sea during summer. During the summer, males congregate at haul-outs in the Bristol Bay region, while females with young and subadults migrate through the Bering Strait to the pack ice edge in the Chukchi Sea. Small herds of walrus occasionally range east of Point Barrow into the Beaufort Sea in late summer. Walrus utilize pack ice, ice floes, and coastal haul outs for resting and calving. Walrus generally occur in shallow waters of 300 feet or less, though they are capable of diving deeper. Primarily juvenile walrus have been sighted in fields to be operated by Hilcorp, most recently near the Endicott Causeway in July 2013.

The Pacific walrus is a large pinniped (the group that contains seals, sea lions, and fur seals) and their skin color ranges from brown to pinkish red. Adult walrus, both males and females, have ivory tusks. Adult males can reach up to 12 feet long and can weigh up to two tons; females are smaller and can weigh one ton. Juvenile walrus may be confused with seals or sea lions, they are smaller, brown, and they may or may not have small tusks. Walrus generally flee when



they are approached or are startled; females with calves and groups of walruses are most sensitive to disturbance, solitary individuals and especially males are least sensitive. Research conducted in 2006 estimated the Pacific walrus population to be between 55,000 and 507,000 individuals. There is not enough available population data to estimate a population trend at this time.

The Pacific walrus is protected under the Marine Mammal Protection Act of 1972, but is not currently listed as threatened or endangered. In 2008, the USFWS found that the listing of the Pacific walrus as threatened was warranted, and is currently considered a Candidate species for listing. The MMPA protects walruses from commercial harvest and limits harvest to Alaska Natives for subsistence purposes.

Walrus Interaction Plan

If a walrus is sighted (alive or dead), do not approach the animal. Walruses cannot be hazed. Notify Security and the Hilcorp Wildlife Advisor immediately. Security or the wildlife Advisor will notify USFWS and fill out a Pacific Walrus Sighting Report for the encounter. Hilcorp is required to report all walrus sightings and interactions to the USFWS within 24 hours. Walrus identification and reporting requirements will be discussed during training for personnel working at Hilcorp's facilities (see the Training section of this plan).

Note that walrus females will leave their pups alone for periods of time; the pups can be highly vocal during these times, but that does not necessarily mean that they are in distress or injured.

Operational Support Vessels

The captain or a designated crew member of vessels used as part of regular oilfield operations shall maintain a watch for marine mammals during vessel operations and will alert the vessel crew of the presence of walruses or other marine mammals. Vessels will maintain the maximum distance possible from concentrations of walruses. Other than an emergency, vessels will not approach within an 805-m (0.5-mi) radius of walruses observed on land or ice. Vessel operators will take every precaution to avoid harassment of concentrations of feeding walruses when a vessel is operating near these animals. Vessels should reduce speed and maintain a minimum 805-m (0.5- mi) operational exclusion zone around feeding walrus groups. Vessels may not be operated in such a way as to separate members of a group of walruses from other members of the group. Vessels adjust speed according to weather conditions to avoid the likelihood of contact with marine mammals. Situations as described above are unlikely to occur in Hilcorp operated fields, but are noted in the outside chance of such an occurrence.

Operating Conditions for Aircraft

Operators of support aircraft shall, at all times, conduct their activities at the maximum distance possible from concentrations of walruses. Other than in an emergency, aircraft shall not be operated at an altitude lower than 457 m (1,500 ft) within 805 m (0.5 mi) of walruses observed on ice, observed in the water or land. Helicopters may not hover or circle above such areas or within 805 m (0.5 mile) of such areas. When weather conditions do not allow a 457-m (1,500-ft) flying altitude, such as during storms or when cloud cover is low, aircraft may be operated below the 457-m (1,500-ft) altitude stipulated above. However, when aircraft are operated at altitudes below 457 m (1,500 ft) because of weather conditions, the operator must avoid areas of known walrus concentrations and should take precautions to avoid flying directly over or within 805 m (0.5 mile) of these areas. Conditions such as these are unlikely to occur in Hilcorp operated fields, but are noted in the outside chance of such an occurrence.



Monitoring and Record Keeping

Record keeping is required to assist in oil field safety and to supplement USFWS data collection. The walrus sighting reports serve the purpose of monitoring the short-term direct effects oil field activities may have on individual walrus, by assessing localized changes in movements, behavior, and habitat use of walrus in response to industry activities.

Whenever a walrus is sighted, a record must be made of the observations and any action taken by filling in a walrus interaction form. All blanks on the form must be completed before sending the form to the USFWS. This is critical for a complete record and must be done. All records will be compiled by Security and forwarded to the USFWS and the Hilcorp Wildlife Advisor. The most readily accepted method to submit the form is through e-mail, however fax is also acceptable. Contact numbers and fax numbers are attached in Appendix 4. Hilcorp will maintain records of all walrus sightings, and will compile annual summary reports required by the USFWS. The walrus Sighting Form is attached to this document.

Polar Bear Interaction and Mitigation Plan

Polar Bear Background

Polar bears can be found anywhere on the North Slope; however, they are concentrated near the coast and are most frequently sighted near facilities, roads and pads along the shoreline (particularly at Endicott, Northstar and Milne Point). Both single animals and females with cubs may be sighted. Although polar bears are encountered throughout the year, they are most often seen during summer, fall and winter.

Polar bears can weigh over 1,500 pounds and measure 5 feet tall at the shoulder, or 12 feet when standing on their hind legs. They are excellent swimmers and can run 25 miles per hour. Because of their size, speed, and curious nature, any encounter with these large carnivores is potentially dangerous. Recent studies show there are approximately 1,500 polar bears in the Alaskan Southern Beaufort Sea Population.

Polar bears are protected under the Marine Mammal Protection Act (MMPA) of 1972 and are listed as threatened under the Endangered Species Act (ESA) of 1973 as amended in 2008. In accordance with the MMPA and ESA, it is illegal to “take” polar bears, meaning to “hunt, harass or kill, or to attempt to hunt, harass, or kill” a polar bear. On the North Slope, the USFWS is the regulatory authority tasked with oversight, management and conservation of polar bears. Other agencies including the United States Geological Service Biological Resource Division (USGS-BRD) have staff involved with polar bear management and research.

The MMPA further defines harassment as “any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing a disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild [Level B harassment].”

Section 101(c) of the MMPA allows, without specific authorization, the take (including lethal take) of a polar bear if such a taking is imminently necessary in self-defense or to save the life of a person in immediate danger, and such taking is reported to USFWS within 24 hours.



Hilcorp's Polar Bear Policy

Bear Safety Personnel

Hilcorp will continue working with Purcell Security at Milne Point and Endicott and ACS at Northstar to manage bear interactions. Hilcorp will rely upon and follow the guidelines and procedures Purcell has in place for hazing polar bears. Several of these guidelines are attached to this Plan (Appendix 5). Purcell and ACS employees have provided bear hazing and reporting services to BPXA for years at these facilities. Hilcorp has retained Purcell and ACS to provide the same services and will require these contractors to continue to work with the USFWS to maintain their credentials to provide polar bear hazing training, monitoring and reporting.

Safety of Operations

Hilcorp's Polar Bear Interaction Plan is designed to minimize human/polar bear interactions, to ensure the safety of all personnel and mitigate any potential impacts to polar bear well-being and survival. The following list is a quick reference to general interaction plan policies as outlined in this interaction plan. Those working in polar bear habitat must be familiar with issues associated with polar bears and working safely in bear country. Employees will be trained according to their field responsibilities as discussed in the Training Section of this Plan. Personnel working in polar bear habitat must abide by the following:

- **Be aware of polar bear activity in your work area.** When Security becomes aware of a polar bear (either by direct observation or reporting), they will notify group supervisors of the presence of the bear in the area. Radio transmission may also be used to notify workers in the vicinity. If you are starting work outside in an area with the potential for polar bears, make sure you discuss how the presence of polar bears will be communicated to you and your crew.
- **Check your work area before leaving the safety of a vehicle or building.** If a polar bear was recently sighted in or around your work area or operating unit, take additional precautions, such as posting a bear guard, to look for polar bears while working.
- **Handle food and dispose of food waste properly** so that you do not intentionally or unintentionally feed bears or other wildlife. Do not leave food or food waste outside. Never leave food or food waste in the bed of a truck. Never leave food or food waste inside an unattended vehicle for more than half a day. For example, it is permissible to leave the vehicle with your lunch inside as long as the entire lunch is consumed that day. Do not store chips, candy or other foods in the vehicle. Dispose of food and food waste in provided bear-proof dumpsters.
- **Do not approach, move towards or stop to photograph or record video of a polar bear or maternal polar bear den.** Photographing or videoing a polar bear or maternal polar bear den is authorized only for those persons needing to and are trained (as outlined in the training section) to document bear condition, behavior, and/or location for regulatory or scientific purposes. Unless authorized, anyone who deliberately stops to observe or photograph, or approaches a polar bear puts themselves and others in danger.
- **Immediately report all polar bear sightings and/or interactions and all known or suspected maternal polar bear dens or bears associated with a maternal den to Security or other designated personnel.** If a bear or den is sighted, move to a safe location and immediately notify Security. Assist Security if necessary in completing a Polar Bear Sighting Report. Also notify the on-site supervisor as soon as a bear is seen.



- **Supervisors shall notify other workers and work groups** (including other contractors) of the presence of recently sighted polar bears as necessary via radio, alarms and other methods, or via Security.
- **Do not take any action to deter a polar bear's activities**; only designated and trained personnel are authorized to take any action to influence polar bear activities (i.e., haze).
- **Hilcorp Security personnel (or ACS personnel at Northstar) are required to report all polar bear sightings and interactions to the USFWS within 24 hours.** All instances involving harassment activities are reported as soon as possible and not later than 24 hours after the occurrence.

Hilcorp Security personnel will notify the USFWS of known or suspected maternal dens or bears associated with maternal dens as soon as practicable but no longer than **12 hours** after discovery.

Reporting

ALL POLAR BEAR SIGHTINGS AND INTERACTIONS MUST BE REPORTED TO SECURITY PERSONNEL IMMEDIATELY. Hilcorp will report all polar bear sightings and interactions to the USFWS within 24 hours (Polar Bear Sighting Form in Appendix 6). Sightings are defined as observed animals and any observations of tracks or scat. Tracks and scat are reported that are new and were not observed in prior days. All instances involving harassment activities (e.g., use of cracker shells, vehicle horns, or other auditory devices; using vehicles or equipment to deter bears from an area; taking direct action to harass bears out of an area) must be reported "as soon as possible and **not later than 24 hours** after the occurrence". Only qualified and trained personnel approved by Hilcorp can haze polar bears.

IN ADDITION, ALL KNOWN OR SUSPECTED MATERNAL POLAR BEAR DENS OR BEARS ASSOCIATED WITH A MATERNAL DEN MUST BE REPORTED TO SECURITY PERSONNEL IMMEDIATELY. Security personnel will notify the USFWS as soon as practicable but not longer than 12 hours after discovery.

Avoidance and Encounter Procedures

The main strategy for avoiding bear/human interactions is to minimize the attractiveness of work sites. The continual presence of active machinery and vehicles tends to discourage bears from approaching work sites, and vehicle operators are generally able to detect bears nearby. If a bear should remain on-site for an extended period or if personnel are at risk, active deterrence, authorized under Sections 109(h)(1) and 112(c) of the Marine Mammal Protection Act, may be necessary. Only Security personnel or other authorized individuals, such as ACS personnel at Northstar, are permitted to engage in active deterrence (i.e., hazing) polar bears.

Hilcorp personnel will limit encounters of polar bears by being observant of approaching animals (i.e., the use of polar bear guards) and breaking off interactions, if practicable, by allowing the animals to continue their travel.

To further reduce the risk of an encounter, all personnel will monitor radio transmissions and/or maintain open lines of communications with area operators to enable quick notification of the presence of polar bears in the work vicinity. All personnel will check their work area before leaving the safety of a vehicle or building. If a polar bear was recently sighted in or around the work area or operating unit, personnel shall take additional precautions (e.g., posting a bear guard) to look for polar bears while working.



Hilcorp Alaska, LLC

If workers are required to be in a remote area (or off-pad), Security will be informed; Security or other assigned personnel with the appropriate level of training (see training section) may accompany workers if the bear risk is believed to be high. All operations conducted during hours of darkness will be appropriately and adequately lit to see areas surrounding work location (e.g., use of light towers and light plants). Other on-going operations, such as aerial photography and pipeline inspections, will note the presence of any bears in the area and will forward that information to Security.