United States Department of the Interior

FISH AND WILDLIFE SERVICE
1011 E. Tudor Road
Anchorage, Alaska 99503-6199

IN REPLY REFER TO:

AFES/MMM

OCT 17 2012

Mr. Ed Nelson
ION Geophysical
2105 CityWest Boulevard
Building III, Suite 900
Houston, Texas 77042

Dear Mr. Nelson:

We have received your request dated February 29, 2012, for a Letter of Authorization (LOA) for the incidental take of polar bears and Pacific walrus in regards to the ION Geophysical (ION) 2D seismic survey in the Beaufort and Chukchi seas from October to December 2012.

In response, enclosed is LOA 12-19 that will allow ION to take small numbers of polar bears and Pacific walrus incidental to 2D seismic survey activities at the locations identified in your LOA request. The proposed start date for this project is early October 2012, with operations completed in December 2012. All provisions contained within ION's "*Request by ION Geophysical for a Letter of Authorization to Allow the Incidental Take of Polar Bears and Pacific Walruses During a Marine Seismic Survey in the Arctic Ocean, October-December 2012,*" "*Marine Mammal Monitoring and Mitigation Plan for Marine Seismic Surveys in the Arctic Ocean, 2012 (February 2012),*" and "*ION Responses to BOEMRE and USFWS Questions – 12 July 2010*" are incorporated by reference into this LOA.

This LOA requires ION to provide observational data of polar bears and Pacific walruses throughout the project and a complete report of all observations at the conclusion of the project to document take. The final report will be provided to the U.S. Fish and Wildlife Service (Service) Marine Mammals Management Office (MMM) no later than 90 days after the completion of the project. The final report meets the tracking and reporting requirements relative to the documentation of take as required by the Marine Mammals Protection Act (MMPA) and the Endangered Species Act (ESA).

Polar bear and Pacific walrus conservation has benefited from monitoring programs associated with the Incidental Take program since 1993. Monitoring serves to assess the effect of industrial activities on polar bears and Pacific walruses by evaluating bear encounter rates, take frequency, as well as the location and timing of encounters. If questions or concerns arise during the project period, MMM biologists are available for consultation at the phone numbers listed below and noted in your Interaction Plan.

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The Service has completed intra-Service consultation under the Endangered Species Act of 1973, as amended (ESA), on the issuance of this LOA and has determined that the issuance this LOA to ION is not likely to jeopardize the continuing existence of the polar bear or the Pacific walrus and is not likely to destroy or adversely modify polar bear critical habitat. Issuance of this LOA also completes ESA requirements for authorization of incidental take of the polar bear. Compliance with the terms and conditions of this LOA ensures that the LOA holder is also in compliance with the ESA. No additional authorization under the ESA is required.

If any changes develop in your project, such as activities or location, the MMM must be notified prior to the implementation of such changes. This will allow us to evaluate the change in planned activity and, if appropriate, amend the LOA.

If you should have any further question, please contact Mr. Craig Perham, at (907) 786-3810, or Mr. Christopher Putnam, at (907) 786-3844, of our Marine Mammals Management Office.

Sincerely,

Deborah Pierce Williams
Chief, Marine Mammals Management

Enclosure

cc: Ms. Sue Banet, Bureau of Ocean Energy Management
Mr. Scott Blackburn, Bureau of Ocean Energy Management
Ms. Mary Cody, Bureau of Ocean Energy Management
U.S. Fish and Wildlife Service, Fairbanks Fish and Wildlife Field Office
U.S. Fish and Wildlife Service, Office of Law Enforcement
North Slope Borough, Department of Law

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U.S. Fish and Wildlife Service

LETTER OF AUTHORIZATION
(12-19)

ISSUED: October 17, 2012
EXPIRES: December 31, 2012

ION Geophysical (ION) is hereby authorized to take small numbers of polar bears and Pacific walruses (walruses) incidental to activities occurring during ION's 2D seismic survey in the Beaufort and Chukchi seas from October to December 2012. ION proposes to collect 2D seismic reflection data of the sub-bottom seafloor to assess the geologic origin and potential for petroleum reserves. The survey will be conducted from the seismic source vessel *Geo Arctic* with assistance from the icebreaker *Polar Prince*.

This U.S. Fish & Wildlife Service (Service) authorization and the required conditions below apply to all employees, contractors, and personnel performing ION approved work under the scope of operations to be conducted. This Letter of Authorization (LOA) stipulates the following conditions:

1. Intentional take of polar bears and walruses is prohibited under this LOA.

2. The ION "*Request by ION Geophysical for a Letter of Authorization to Allow the Incidental Take of Polar Bears and Pacific Walruses During a Marine Seismic Survey in the Arctic Ocean, October-December 2012,*" "*Marine Mammal Monitoring and Mitigation Plan for Marine Seismic Surveys in the Arctic Ocean, 2012 (February 2012),*" and "*ION Responses to BOEMRE and USFWS Questions – 12 July 2010*"are 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 and avoidance plans 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. ION operations managers, or designates, must be fully aware, understand and be capable of implementing the conditions of this LOA.

TAKE PRIDE IN AMERICA

5. This authorization is valid only for those activities and locations identified in the request for an LOA dated February 29, 2012.

6. Polar bear and walrus mitigation, monitoring, and reporting must be conducted in accordance with 50 CFR sections 18.118 and 18.128 and must comply with the following monitoring, mitigation, and reporting requirements:

   a. ION 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 walruses.

   b. If any changes develop in the project during the period approved under this LOA, such as activities, location or methods, notify the Service, Marine Mammals Management Office (MMM) prior to the implementation of such changes.

   c. Avoid walruses and polar bears hauled out onto land or ice by all vessels under the management of ION. Operators of vessels should, at all times, conduct their activities at the maximum distance possible from known or observed concentrations of marine mammals. Under no circumstances, other than an emergency, should vessels operate within 800 meters (½ mile) of walruses or polar bears observed on land or ice.

   d. Every precaution must be taken to avoid encroachment upon or harassment of walruses or polar bears in water when a vessel is operated near these animals. Maintain an 800 meter (½ mile) distance, when practicable. Vessels must reduce speed and steer around walruses or polar bears observed in water when able to do so. Vessels may not be operated in such a way as to separate members of a group of walruses or polar bears from other members of the group. Vessels will avoid multiple changes in direction and speed when walruses or polar bears are present.

   e. Power-down procedures will be initiated if any walruses are observed on ice in the walrus disturbance zone of less than or equal to 180 decibles to limit impact to walruses in the water associated with the walruses on the ice.

   f. Restricting or affecting walrus or polar bear movements, by any means, in sea, on land or on ice, is prohibited. Separation distances will be enforced until animals have left the area of their own volition.

   g. ION must designate a qualified individual or individuals as Marine Mammal Observers (MMO) or Protected Species Observers (PSO) to observe, record, and report the effects of project activities on polar bears and walruses to the Service, MMM within 24 hours of visual observation.

   h. Prior to beginning operations, ION must provide the Service's, MMM with a final MMO/PSO watch duty schedule, as described in "*ION Responses to BOEMRE*

and USFWS Questions – 12 July 2010," for each vessel conducting operations associated with this authorization.

i. In addition the MMO/PSO watch duty schedule mentioned above, subsequent to any power-down or shut-down mitigation events, a MMO/PSO will be on watch during ramp-up procedures as described in 50 CFR sections 18.118 and 18.128.

j. For each walrus or polar bear sighting, a designated person will record, as a minimum, the following:

   i. a unique sighting identification number;
   ii. LOA number, company name and vessel name;
   iii. MMO/PSO name and contact information (phone, email, etc.);
   iv. time, location (with latitude, longitude, and datum), heading, speed, activity and identity of the observation vessel;
   v. action taken by vessel operator in response to sighting (describe);
   vi. for all other vessels visible within five kilometers (km) (approximately three miles [mi]) of the observation vessel, when polar bears or walruses are sighted, record the, identification, bearing, distance, heading, speed and activity of the other vessel(s);
   vii. species (polar bear or walrus);
   viii. group size (approximate number of individuals);
   ix. age/size/sex categories (if determinable);
   x. behavior or activity of animals sighted (describe);
   xi. reaction of animal(s) while they are in sight of any vessel(s) (describe);
   xii. substrate (water, ice and/or land);
   xiii. heading (if determinable), bearing and distance from vessel of animal(s);
   xiv. sighting cue (what caught MMOs attention);
   xv. environmental conditions including:
      - weather;
      - air temperature;
      - visibility, provide: 1) distance (km, mi, or nautical miles [nm]), 2) light/dark/twilight and 3) glare (none, little, moderate, severe);
      - water depth (meters [m], feet, or fathoms);
      - sea state (Beaufort scale);
      - ice condition, provide: 1) estimated percent of ice cover in vicinity of sighting (10 percent increments), 2) estimated distance to pack ice (km, mi, or nm);
   xvi. estimated range (m, km, mi, or nm) at first sighting, estimated range (m, km, mi, or nm) at closest approach;
   xvii. MMO/PSO comments or notes.

7. Any incidental lethal take or injury of a polar bears or walruses must be reported to the Service immediately.

8. All evidence of polar bears and walruses, such as tracks, carcasses, dens or haul out sites, if applicable, will also be reported Within 24 hours.

9. At the discretion of the Service, ION 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. Planning can occur prior to initiation of operations.

10. ION must submit an annual monitoring report to the Service, MMM as required under 50 CFR 18.118 and 18.128, a draft of which will be received by MMM no later than 90 days after completion of the project. The draft report will be subject to review and comment by the Service. Any recommendations made by the Service must be addressed in the final report prior to acceptance by the Service. The draft report will be considered the final report for this activity under this LOA if the Service has not provided comments and recommendations within 90 days of receipt of the report. The report will describe in detail:

    a. The operations that were conducted.

    b. The methods, results, and interpretation pertaining to all monitoring tasks.

    c. The results of the 2011 shipboard marine mammal monitoring.

    d. Marine mammal sightings (species, numbers, dates, times and locations, age/size/gender, environmental correlates, activities, associated survey activities).

    e. Estimates of the amount and type of potential take (exposure) of walruses and polar bears (by species) to project activities.

    f. An analysis of the effects of operations (e.g., on sighting rates, sighting distances, behaviors, movement patterns of walruses and polar bears).

    g. An analysis of factors influencing detectability of walruses and polar bears during project operations.

    h. Summaries of communications with hunters and potential effects on subsistence uses.

11. Activities related to the monitoring described in this LOA do not require a separate scientific research permit issued under section 104 of the Marine Mammal Protection Act.

12. This Letter of Authorization is valid for the period indicated on this authorization, unless extended or terminated in writing by the U.S. Fish and Wildlife Service, Marine Mammals Management Office.

Chief, Marine Mammals Management

10/17/12
Date