



United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT

Alaska OCS Region

3801 Centerpoint Drive, Suite 500

Anchorage, Alaska 99503-5823

OCT 12 2012

Mr. Edward Nelson
Project Manager
ION Geophysical Corporation
2105 City West Boulevard, Suite 900
Houston, Texas 77042

Dear Mr. Nelson:

On March 9, 2012, ION submitted an application to the Bureau of Ocean Energy Management (BOEM) to obtain a Geological and Geophysical (G&G) permit under the 30 CFR 551 regulations to conduct geophysical exploration operations on certain Outer Continental Shelf (OCS) lands. The activity is in the Beaufort and Chukchi Seas as shown on the map accompanying your application. Operations are proposed to begin on or after October 15, 2012, and will be completed on or before December 15, 2012. The proposed survey program consists of 2D marine seismic acquisition using airguns with concurrent magnetic and gravity data collection.

Your application submittal states that ION Geophysical Corporation has requested an Incidental Harassment Authorization (IHA) from National Marine Fisheries Service (NMFS) for whales and pinnipeds (excluding walrus), and a Letter of Authorization (LOA) from US Fish and Wildlife Service (USFWS) for polar bears and walrus. BOEM requires a copy of the IHA and LOA authorizations and the associated Incidental Take Statements (ITS) prior to ION conducting seismic operations. The IHA from NMFS and the LOA from USFWS are in place to resolve subsistence-related concerns and to ensure that impacts to marine mammals are not significant. The procedures outlined in these authorizations are required to avoid conflict with subsistence activities which may be conducted during a portion of the time proposed for this seismic operation.

OCS Permit 12-01 is hereby granted to conduct geophysical exploration operations on the OCS in the area and manner described in the application. A detailed track map of planned operations must be submitted to this office prior to the start of seismic operations. All operations are subject to the enclosed stipulations (see enclosure 1) and approved Permit for Geophysical Exploration for Mineral Resources on the OCS. The specific mitigating measures identified in the NMFS IHA and USFWS LOA will apply and will take precedence over any BOEM requirements, where applicable, including protocols for monitoring programs as proposed in the ION Marine Mammal Monitoring and Mitigation Plan, and follow the prescribed monitoring

protocol stipulated in the IHA and LOA. Information related to compliance with the provisions in the IHA and LOA and penalties of the ESA and the MMPA may be obtained from the

U.S. Fish and Wildlife Service
Alaska Region
1011E.Tudor Road
Anchorage, Alaska 99503
Telephone (907) 786-3467

And from the

National Marine Fisheries Service
222 West 7th Avenue, Box 43
Anchorage, Alaska 99513
Telephone (907) 271-5006

This permit is effective from October 12 until December 15, 2012, or the completion of the survey, whichever occurs earlier. Please be advised that this office requires a weekly report of daily operations (see enclosure 2 for reporting requirements) and a copy of any environmental compliance reports required by the Services. We will require a completion report as detailed in the permit within 30 days following cessation of field operations.

BOEM requests that ION provide us with a copy of the 90 Day Report when it becomes available.

Sincerely,



Rance R. Wall
Regional Supervisor
Resource Evaluation

4 Enclosures
Stipulations for Permit 12-01
Reporting Requirements
Application Form BOEM-327
Permit Form BOEM-328

Bureau of Ocean Energy Management (BOEM)
Alaska OCS Region
Seismic Survey G&G Permit Stipulations for Permit 12-01

- No solid or liquid explosives shall be used without specific approval.
- Permittee operations shall be conducted in a manner to ensure that they will not cause pollution, cause undue harm to aquatic life, create hazardous or unsafe conditions, or unreasonably interfere with other uses of the area. If any difficulties are encountered with other uses of the area or any of the above mentioned scenarios occur during operations under this permit, they shall be reported to the Regional Supervisor, Resource Evaluation. Serious or emergency conditions shall be reported without delay.
- The Permittee shall maintain a minimum spacing of 15 miles between their deep penetration seismic-source vessels and any other concurrently operating deep penetration seismic-source vessel. If there is not 15 miles between seismic-source vessels, one source vessel must cease operations. The BOEM must be notified by means of the weekly report whenever a shutdown of operations occurs in order to maintain this minimum distance.
- Permittee operators shall use the lowest sound levels feasible to accomplish their data-collection needs.
- Vessels and aircraft shall avoid concentrations or groups of whales. Permittee operators shall, at all times, conduct their activities at a maximum distance from such concentrations of whales. Under no circumstances, other than an emergency, shall aircraft be operated at an altitude lower than 1,000 feet above sea level (ASL) when within 1,500 lateral feet of groups of whales. Helicopters shall not hover or circle above such areas or within 1,500 lateral feet of such areas.
- When weather conditions do not allow a 1,000-foot ASL flying altitude, such as during severe storms or when cloud cover is low, aircraft may be operated below the 1,000-foot ASL altitude stipulated above. However, when aircraft are operated at altitudes below 1,000 feet ASL because of weather conditions, the operator must avoid known whale-concentration areas and should take precautions to avoid flying directly over or within 1,500 yards of groups of whales.
- When the Permittee operates a vessel near a concentration of whales, every effort and precaution shall be taken to avoid harassment of these animals. Therefore, vessels shall reduce speed when within 900 feet of whales and those vessels capable of steering around such groups should do so. Vessels shall not be operated in such a way as to separate members of a group of whales from other members of the group.
- Vessel operators shall avoid multiple changes in direction and speed when within 900 feet of whales. In addition, operators shall check the waters immediately adjacent to a vessel to ensure that no whales will be injured when the vessel's propellers (or screws) are engaged.

- Small boats shall not be operated at such a speed as to make collisions with whales likely. When weather conditions require, such as when visibility drops, vessels shall adjust speed accordingly to avoid the likelihood of injury to whales.
- When any operator becomes aware of the potentially harassing effects of operations on whales, or when any operator is unsure of the best course of action to avoid harassment of whales, every measure to avoid further harassment shall be taken until the National Marine Fisheries Service (NMFS) is consulted for instructions or directions. However, human safety shall take precedence at all times over the guidelines and distances recommended herein for the avoidance of disturbance and harassment of whales.
- The Permittee shall notify BOEM, NMFS, and U.S. Fish and Wildlife Service (USFWS) in the event of any loss of cable, streamer, or other equipment that could pose a danger to marine mammals and other wildlife resources.
- To help avoid causing bird collisions with seismic survey and support vessels, seismic and surface support vessels will minimize the use of high-intensity work lights, especially within the 20-meter-bathymetric contour. High-intensity lights will be used only as necessary to illuminate active, on-deck work areas during periods of darkness or inclement weather (such as rain or fog), otherwise they shall be turned off. Deck lights, interior lights, and lights used during navigation could remain on for safety.¹
- All bird collisions (with vessels and aircraft) shall be documented and reported within 3 days to BOEM. Minimum information shall include species, date, time, location and weather, identification of the vessel or aircraft involved, and its operational status when the strike occurred. Bird photographs are not required, but would be helpful in verifying species. Permittees/operators are advised that the USFWS does not recommend recovery or transport of dead or injured birds due to avian influenza concerns.

The following monitoring and mitigation measures are related to the requirements of the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA). NMFS is the Federal agency having MMPA management authority for cetaceans and pinnipeds, less Pacific walrus. USFWS is the Federal agency having MMPA management authority for Pacific walrus, polar bear, and sea otter. Any mitigation and monitoring requirements defined in an Incidental Take Authorization (ITA) and/or Letters of Authorization (LOA) obtained by the seismic survey operator will have precedence over any related measures listed below.

- **Exclusion Zone** – Any exclusion zones specified in ITAs and/or LOAs for protection of marine mammals from harassment will be enforced by the BOEM. The exclusion zones shall be free of marine mammals before the survey can begin and must remain free of marine mammals during the survey. The next four mitigation measures pertain to enforcement of an exclusion zone.

¹ Nothing in this mitigation measure is intended to reduce personnel safety or prevent compliance with other regulatory requirements (e.g., U.S. Coast Guard or Occupational Safety and Health Administration) for marking or lighting of equipment and work areas.

- **Monitoring of the Exclusion Zone** – Individuals (marine mammal biologists and/or trained observers as designated by the regulating agencies) shall monitor the area around the survey for the presence of marine mammals to maintain a marine mammal-free exclusion zone and monitor for avoidance or take behaviors. Visual observers monitor the exclusion zone to ensure that marine mammals do not enter the exclusion zone for at least 30 minutes prior to ramp up, during the conduct of the survey, or before resuming seismic-survey work after shut down. The NMFS will set specific requirements for the marine mammal monitoring program and observers.
- **Shut Down/Power Down** – A seismic survey shall be suspended until the exclusion zone is free of marine mammals. Whenever a marine mammal is seen within the exclusion zone, all observers shall have the authority to, and will, instruct the vessel operators to power down to a sound level where the marine mammal is no longer in the exclusion zone or immediately shut down the airgun array if the marine mammal is within the mitigation gun exclusion zone. If the airgun array is completely shut down for any reason during nighttime or poor sighting conditions, it shall not be re-energized until daylight or whenever sighting conditions allow for the exclusion zone to be effectively monitored from the source vessel and/or through other passive acoustic, aerial, or vessel-based monitoring.
- **Ramp Up** – Ramp up is the gradual introduction of sound to deter marine mammals from approaching the exclusion zone and the potentially damaging sound intensities. This technique involves the gradual increase (usually 5-6 dB per 5-minute increment) in emitted sound levels, beginning with firing a single airgun and gradually adding airguns over a period of 20 to 40 minutes, until the desired operating level of the full array is obtained. Ramp-up procedures from a complete shutdown may begin after observers ensure the absence of marine mammals for at least 30 minutes. A single, mitigation airgun operating at a minimum source level can be maintained for routine activities, such as making a turn between line transects, for maintenance needs or during periods of impaired visibility (e.g., darkness, fog, high sea states), and does not require a 30 minute clearance of the exclusion zone before the airgun array is again ramped up to full output.
- **Reporting Requirements** – Operators must report immediately any shut downs/power downs due to a marine mammal entering the exclusion zones and provide the regulating agencies and BOEM with information on the frequency of occurrence and the types and behaviors of marine mammals (if possible to ascertain) entering the exclusion zones.
- **Ledyard Bay Critical Habitat Unit (Unit)** – Except for emergencies or human/navigation safety, surface vessels associated with seismic survey operations shall avoid travel within the Unit between July 1 and November 15. To the maximum extent practicable, aircraft supporting seismic survey operations shall avoid operating below 1,500 feet ASL over the Unit between July 1 and November 15. Vessel travel within the Unit and altitude deviations by aircraft

over the Unit for emergencies or human safety shall be reported within 24 hours to BOEM.

- **Walrus-** Vessels and aircraft should avoid concentrations or groups of walruses. Operators should, at all times, conduct their activities at a maximum distance from such aggregations. Seismic-survey and associated support vessels shall observe a 0.5-mile safety radius around Pacific walrus groups hauled out onto land or ice. Under no circumstances, other than an emergency, should aircraft be operated at an altitude lower than 1,500 feet ASL when within 0.5-mile of walrus groups. Helicopters may not hover or circle above such areas or within 2,500 lateral feet of such areas.
- **Polar Bear** – Seismic survey operators shall adhere to any mitigation measures identified by the USFWS to protect polar bears from being harassed and/or injured.

The BOEM EA analysis resulted in identification of one additional mitigation measure required to protect the fall subsistence whale hunt.

- The vessels must remain at least 30 miles from whaling activities when transiting the West Survey Area to begin operations in the East Survey Area except in the case of a human health and safety issue. Vessels shall maintain communication with the Alaska Eskimo Whaling Commission and the Barrow Whaling Captains' Association during the eastward transit around Pt. Barrow.

Weekly Operations Report for submittal to BOEM

- Weekly Summary Report
 - Map showing data collected to date
 - Shape files of the vessel track-lines with operational status of the airguns included as attribute data
 - Summary of operating time by categories listed below
 - Compilation of line Kms (or miles) collected
 - Daily record of weather – seas, winds, ice coverage

- Daily operation records will include:
 - All dates and times in AK local time
 - Latitude and longitude in decimal degrees
 - Survey name
 - Track line # that data were collected on
 - Start and end time plus total time in that mode for the following categories:
 - Ramp-up
 - Full array on
 - Mitigation gun only
 - Power down; record output in cubic inches if possible
 - Shut down (no guns operating)
 - Reason for shutdowns/power downs – marine mammals (include species if possible), weather, ice, equipment failure, etc.

- Safety Incident Report (if applicable) for same time period

- PSO Report for same time period

Send to Susan Banet, G&G Permitting Coordinator, Alaska Region, BOEM
Susan.Banet@boem.gov or call 907-334-5323 (office) or 907-351-5792 (cell),
And to
Pete Sloan, G&G Permitting Coordinator, Alaska Region, BOEM,
Pete.Sloan@boem.gov or call 907-382-1134 (cell)