



United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT

Alaska OCS Region

3801 Centerpoint Drive, Suite 500

Anchorage, Alaska 99503-5823

AUG - 5 2013

Mr. Troy Nelson
Arcis Seismic Solutions
A TGS company
250 5th Street SW, Suite 2100
Calgary, Alberta T2P 0R4, Canada

Dear Mr. Nelson:

On February 12, 2013, TGS submitted an application to BOEM to obtain a Geological and Geophysical (G&G) permit under the 30 CFR 551 regulations to conduct geophysical exploration operations on certain in Outer Continental Shelf (OCS) lands. The activity is in the Chukchi Sea area shown on the map accompanying your application. TGS will conduct the subject operations using the vessels described in the Operation Plan. Operations are proposed to begin on or after July 15, 2013, and will be completed on or before October 31, 2013. The proposed program is a 2D marine seismic acquisition using airguns as an energy source.

Your application submittal states that TGS has requested an Incidental Harassment Authorization (IHA) from National Marine Fisheries Service (NMFS) for whales and pinnipeds, 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 and the Incidental Take Statements (ITS) prior to conducting seismic operations. The IHA and the LOA are in place to resolve subsistence-related concerns and to insure 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 13-02 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 attachment 1) and approved Permit for Geophysical Exploration for Mineral Resources on the OCS. In all cases, the specific mitigating measures identified in the NMFS IHA and USFWS LOA will apply and shall supersede any differing BOEM requirements related to marine mammals, including protocols for monitoring programs. Information related to compliance with the provisions in the IHA and LOA and of the Endangered Species Act and the Marine Mammal Protection Act 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
Federal Building, Room C-554
Anchorage, Alaska 99513
Telephone (907) 271-5006

Regulation 30 CFR 551.6(a)1 requires that your G&G operations must not interfere with or endanger operations being conducted under any lease, right-of-way, easement, right-of-use, Notice, or permit issued or maintained under the OCS Lands Act.

This permit is effective from the date of approval until October 31 2013, or the completion of the survey, whichever occurs earlier. Please be advised that this office requires a weekly report of daily operations (see attachment 2). We will require a completion report as detailed in the permit within 30 days following cessation of field operations.

Sincerely,

A handwritten signature in black ink that reads "Rance R. Wall". The signature is written in a cursive, slightly slanted style.

Rance R. Wall
Regional Supervisor
Resource Evaluation

Attachment 1

Stipulations

Attachment 2

Weekly Operations Report

Attachment 3

Guidance on Bird Encounter Reporting

Attachment 4

Forms BOEM-0327 and BOEM-0328 Permit

**Bureau of Ocean Energy Management
Alaska OCS Region
Seismic Survey G&G Permit Stipulations for Permit 13-02**

- 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 (24.1 km) between their seismic-source vessels and any other concurrently operating seismic-source vessel to prevent sound interference between surveys. If there is not 15 miles (24.1 km) between seismic-source vessels, one source vessel must cease operations. The BOEM must be notified by means of the weekly report whenever a shut down 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 marine mammals. Permittee operators shall, at all times, conduct their activities at a maximum distance from such concentrations of marine mammals. Under no circumstances, other than an emergency, shall aircraft be operated at an altitude lower than 1,500 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 1,500-foot ASL flying altitude, such as during severe storms or when cloud cover is low, aircraft may be operated below the 1,500-foot ASL altitude stipulated above. However, when aircraft are operated at altitudes below 1,500 feet ASL because of weather conditions, the operator must avoid known marine mammal concentration areas and should take precautions to avoid flying directly over or within 500 yards of groups of marine mammals.
- When the Permittee operates a vessel near a concentration of marine mammals, every effort and precaution shall be taken to avoid harassment of these animals. Therefore, vessels shall reduce speed when within 900 feet (274 m) of marine mammals 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 marine mammals from other members of the group. This stipulation applies to normal vessel operation while the airguns are not operational.
- Vessel operators shall avoid multiple changes in direction and speed when within 900 feet (274 m) of marine mammals. In addition, operators shall check the waters immediately adjacent to a vessel to ensure that no marine

mammals 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 marine mammals likely. When weather conditions require, such as when visibility drops, vessels shall adjust speed accordingly to avoid the likelihood of injury to marine mammals.
- When any operator becomes aware of the potentially harassing effects of operations on marine mammals, or when any operator is unsure of the best course of action to avoid harassment of marine mammals, every measure to avoid further harassment shall be taken until the National Marine Fisheries Service (NMFS) or U.S. Fish and Wildlife Service (USFWS) 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 marine mammals.
- The Permittee shall notify BOEM, NMFS, and 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 and BSEE EED (see attachment 3). Each report shall include:
 - Date and time the bird was first observed
 - Location of vessel in decimal degrees
 - Species, identified to lowest possible taxonomic level using standardized AOU codes
 - Weather (at time bird was first observed): wind speed, fog, rain/snow
 - General weather 24 hours prior to bird observation
 - Photographs of each bird labeled according to each record, if practicable. For dead birds, clear images of wing spread, top and bottom, and head views should be provided
 - Vessel operational status: at anchor/adrift or underway/in transit
 - Any indications that lighting may have factored into attracting birds to the vessel (e.g. was extra lighting on because it was dark or a specific activity was ongoing?)
 - Any additional comments on bird behavior, physical description, injury or fate

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.

The following monitoring and mitigation measures are related to the requirements of the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA). The mitigation and monitoring requirements defined in any NMFS (the Federal agency having MMPA jurisdiction for cetaceans and pinnipeds, less Pacific walrus) and USFWS (the Federal agency having MMPA jurisdiction for Pacific walrus, polar bear, and sea otter) Incidental Take Authorization (ITA) obtained by the seismic survey operator shall replace and supersede any differing provisions concerning marine mammal measures listed below.

- **Exclusion Zone** – Any exclusion zones specified in ITAs for protection of marine mammals from harassment will be enforced by the BOEM and BSEE EED. 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.
 - **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. All observers shall have the authority to, and will, instruct the vessel operators to immediately shut down the airgun array whenever a marine mammal is seen within the exclusion zone or to power down to a sound level where the marine mammal is no longer in the exclusion zone. If the airgun array is 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 potentially damaging sound intensities and from approaching the exclusion zone. This technique involves the gradual increase 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 may begin after observers ensure the absence of marine mammals for at least 30 minutes. Ramp-up procedures shall not be initiated when monitoring the exclusion zone is not possible. A single 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 within 24 hours any shut downs/power downs due to a marine mammal entering the exclusion zones and provide the regulating agencies and BOEM and BSEE EED with information on the frequency of occurrence and the types and behaviors of marine mammals (if possible to ascertain) entering the exclusion zones.
- **Spring Lead System** – In order to provide bowhead whale and walrus cow/calf pairs additional protection, and unless authorized under the MMPA by NMFS and FWS, seismic surveys shall not occur in the Chukchi Sea spring lead system before July 1.
- **Ledyard Bay Critical Habitat Unit (LBCHU)** – Except for emergencies or human/navigation safety, surface vessels associated with seismic survey operations or transits 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 and BSEE EED.
- **Walrus** – Seismic survey operators shall adhere to any mitigation measures identified by the USFWS to protect walruses from being harassed and/or injured.
- **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.

Weekly Operations Report for submittal to BOEM

- Weekly Summary Report
 - Map showing data collected to date
 - Summary of operating time by categories listed below
 - Compilation of line Kms or miles and/or sq Kms or sq miles collected
 - Daily record of weather – seas, winds, ice

- Daily operation records will include
 - All dates and times in AK local time
 - 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.
 - Also provide shape files of the track lines collected during the reporting period including all of the daily information listed above as metadata on a weekly basis.

- Safety Incident Report including any spillage of petroleum products (if applicable) for same time period
- PSO Report for same time period

Send to Pete Sloan, G&G Permitting Coordinator, Alaska Region, BOEM,
Pete.Sloan@boem.gov or call 907-334-5328 (office) or 907-382-1134 (cell)

**Bureau of Ocean Energy Management
Alaska OCS Region
Guidance on Bird Encounter Reporting**

A bird encounter includes any bird found dead or alive on a vessel or those observed contacting the vessel and flying off. A bird perching on ship structures is considered an encounter. Complete a Bird Encounter Form for each of these birds and relay it within 3 days to BOEM.

Routine deck searches for dead or injured birds should be performed, especially during or following periods of darkness or inclement weather (strong winds, rain, fog, etc.) because most vessel:bird encounters occur during periods of darkness and/or inclement weather.

Additional considerations regarding bird handling:

If a bird is on the vessel and remains alive, leave the bird to recover if it is in an area that does not interfere with operations. Make sure the bird can leave the vessel if it wants to or will not move into harm's way. Birds perching on ship structures (such as antennas or rigging) should be allowed to rest and depart on their own.

If a bird needs to be moved, gently place it in a sheltered area (or a cardboard box set on its side) and let the bird depart on its own; about 8 hours should be sufficient. Make sure the bird is in a place where it can depart if it wants to. If the bird does not depart after about 8 hours but is still alive, give it more time if it is not interfering with operations. Eventually, if still alive, gently return a seabird (marine species) to the sea surface. Don't intentionally kill any birds.

Be advised, however, the FWS has asked (not required) that any dead seaducks, especially spectacled eiders, Steller's eiders, or yellow-billed loons, be labeled with collision data, packaged, frozen and shipped (usually via GoldStreak – with instructions on the outside of the box to be kept chilled when it arrives in Fairbanks) to:

Chris Latty or Angela Matz
U.S. Fish and Wildlife Service
Fairbanks Field Office
101 12th Ave., Room 110
Fairbanks, AK 99701
907-456-0291 or 907-456-0499

It is fine to wait until the end of the survey to ship the frozen birds. Prior to shipping, call one of the numbers listed above to notify someone that a shipment is coming or if there are any questions.