



United States Department of the Interior



MINERALS MANAGEMENT SERVICE
Alaska Outer Continental Shelf Region
3801 Centerpoint Drive, Suite 500
Anchorage, Alaska 99503-5823

AUG 28 2007

Ms. Susan Childs
Shell Offshore Inc.
3601 C Street, Suite 1334
Anchorage, Alaska 99503

Dear Ms. Childs:

Your August 20, 2007, request to extend OCS Permit 07-03 for 3D geophysical operations in the Chukchi Sea through November 30, 2007, is granted. All provisions and requirements of the permit will be applicable to the extension.

Sincerely,

Rance R. Wall
Regional Supervisor
Resource Evaluation



United States Department of the Interior



MINERALS MANAGEMENT SERVICE
Alaska Outer Continental Shelf Region
3801 Centerpoint Drive, Suite 500
Anchorage, Alaska 99503-5823

JUL 13 2007

Ms. Susan Childs
Shell Offshore Inc.
3601 C Street, Suite 1334
Anchorage, Alaska 99503

Dear Ms. Childs:

Your application dated November 22, 2006, requests a Federal permit to conduct geophysical operations on certain Outer Continental Shelf (OCS) lands. The activity is in the Chukchi Sea area as shown on the map accompanying your application. Your application specified WesternGeco will be your service providing company, and will conduct the subject operations using the vessels described in the Operation Plan. Operations are proposed to begin on or after July 13, 2007 and will be completed on or before October 31, 2007. The proposed program is a 3D marine seismic acquisition using airguns as an energy source.

Your application states that Shell Offshore Inc. has requested an Incidental Harassment Authorization (IHA) from National Marine Fisheries Service (NMFS) for whales and pinnipeds, and an IHA from U.S. Fish and Wildlife Service (USFWS) for polar bears and walrus. The MMS will require a copy of the IHA permits prior to conducting seismic operations. The IHA's from NMFS and USFWS are in place to resolve subsistence-related concerns and to insure that impacts to marine mammals are not significant. The procedures outlined in this authorization represent a good faith effort on the part of Shell Offshore Inc. to avoid conflict with subsistence activities which may be conducted during a portion of the time proposed for this seismic operation.

OCS Permit 07-03 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) and approved Permit for Geophysical Exploration for Mineral Resources on the OCS. In all cases, the specific mitigating measures identified in the NMFS and USFWS IHA's will apply and will take precedence over any MMS requirements, where applicable, including protocols for monitoring programs.

The information contained in the following paragraphs should be evaluated before initiating operations and appropriate action taken:

Endangered bowhead whales may occur in the Chukchi Sea during operations. Bowhead whales pass through the area on their fall migration back to the Bering Sea. They begin to leave

TAKE PRIDE
IN AMERICA 

Canadian Beaufort Sea waters in August and September and travel west through the southern Beaufort Sea into the Chukchi Sea. Other marine mammals that may appear in the project vicinity include beluga whales, spotted, bearded and ring seals, gray whales, polar bears, and walrus.

The Endangered Species Act (ESA) states there shall be no activity conducted which might jeopardize the continued existence of an endangered species or result in the destruction or adverse change of habitat of such species. In addition, the Marine Mammal Protection Act (MMPA) provides there shall be no unauthorized take of marine mammals. "Take" means to harass, hunt, capture, collect, kill, or attempt to harass, hunt, capture, collect or kill any marine mammals. Whenever whales or marine mammals are encountered in the project vicinity, Shell Offshore Inc. and its contractors should exercise precautions to assure that activities are not in violation of the provisions of the MMPA or the ESA.

Further information on the identification and occurrence of endangered whales or marine mammals in the proposed area of operations and the provisions and penalties of the ESA and the MMPA are available. This information may be obtained from the

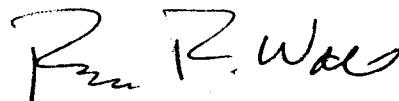
U.S. Fish and Wildlife Service
Alaska Region
1011E.Tudor Road
Anchorage, AK 99503
Telephone (907) 786-3467

And from the

National Marine Fisheries Service
Federal Building, Room C-554
Anchorage, AK 99513
Telephone (907) 271-5006

This permit is effective from the date of approval until October 31, 2007, or the completion of the survey, whichever occurs earlier. Please be advised that this office requires a weekly report of daily operations. Daily reports may be substituted for this requirement. We will require a completion report within 30 days following cessation of field operations.

Sincerely,



Rance R. Wall
Regional Supervisor
Resource Evaluation

**Minerals Management Service (MMS), Alaska OCS Region
Seismic Survey G&G Permit Stipulations for Permit 07-03**

- No solid or liquid explosives shall be used without specific approval.
- 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. Any difficulty encountered with other uses of the area or any conditions that cause undue harm to aquatic life, pollution, or could create a hazardous or unsafe condition as a result of the operations under this permit shall be reported to the Regional Supervisor/Resource Evaluation. Serious or emergency conditions shall be reported without delay.
- Operators must maintain a minimum spacing of 15 miles between the seismic-source vessels for separate operations. The MMS must be notified by means of the weekly report whenever a shut down of operations occurs in order to maintain this minimum distance.
- Permit applicants shall use the lowest sound levels feasible to accomplish their data-collection needs.
- Vessels and aircraft should avoid concentrations or groups of whales. At all times, operators should conduct their activities at a maximum distance from such concentrations of whales. Under no circumstances, other than an emergency, should aircraft be operated at an altitude lower than 1,000 feet when within 500 lateral yards of groups of whales. Helicopters may not hover or circle above such areas or within 500 lateral yards of such areas.
- When weather conditions do not allow a 1,000-foot flying altitude, such as during severe storms or when cloud cover is low, aircraft may be operated below the 1,000-foot altitude stipulated above. However, when aircraft are operated at altitudes below 1,000 feet because of weather conditions, the operator must avoid known whale-concentration areas and should take precautions to avoid flying directly over or within 500 yards of groups of whales.
- When a vessel is operated near a concentration of whales, the operator must take every precaution to avoid harassment of these animals. Therefore, vessels should reduce speed when within 300 yards of whales and those vessels capable of steering around such groups should do so. Vessels may not be operated in such a way as to separate members of a group of whales from other members of the group.
- Vessel operators should avoid multiple changes in direction and speed when within 300 yards of whales. In addition, operators should 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 should not be operated at such a speed as to make collisions with whales likely. When weather conditions require, such as when visibility drops, vessels should adjust speed accordingly to avoid the likelihood of injury to whales.
- When any Permittee becomes aware of the potentially harassing effects of operations on endangered whales, or when any Permittee is unsure of the best course of action to avoid harassment of endangered whales, every measure to avoid further harassment should be taken until the National Marine Fisheries Service (NMFS) is consulted for instructions or directions. However, human safety will take precedence at all times over the guidelines and distances recommended herein for the avoidance of disturbance and harassment of endangered whales.
- Seismic-survey operators shall notify MMS, NMFS, and U.S. Fish and Wildlife Service (FWS) in the event of any loss of cable, streamer, or other equipment that could pose a danger to marine mammals and other wildlife resources.
- Seismic cables and airgun arrays must not be towed in the vicinity of fragile biocenoses (e.g., the Boulder Patch, kelp beds), unless MMS determines the proposed operations can be conducted without damage to the fragile biocenoses. Seismic-survey and support vessels shall not anchor in the vicinity of fragile biocenoses as identified by MMS or may be discovered by the operator during the course of their operations, unless there is an emergency situation involving human safety and there are no other feasible sites in which to anchor at the time. Permittees must report to MMS any damage to fragile biocenoses as a result of their operations.
- To help avoid causing bird collisions with seismic survey and support vessels, all vessels will minimize operations that require high-intensity work lights, especially within the 20-m-bathymetric contour. High-intensity lights will be turned off in inclement weather when the seismic vessel is not actively conducting surveys to minimize the potential for adverse impacts to marine birds; however, navigation lights, deck lights, and interior lights could remain on for safety.
- All bird-vessel collisions shall be documented. Minimum information will include species, date/time, location, weather, and operational status of the survey vessel when the strike occurred. Photographs would be helpful to confirm species identification. The FWS does not recommend the treatment/transport of injured or dead birds due to the concerns about avian influenza. Bird collision information will be sent to MMS within 72 hours.

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

- **Exclusion Zone** – A 160/170 dB isopleth exclusion zone from the seismic-survey sound source shall be free of marine mammals before the survey can begin and must remain free of marine mammals during the survey. The purpose of the exclusion zone is to protect marine mammals from Level B harassment (behavioral change). The 160 dB (Level B Harassment-behavioral change) applies to cetaceans and the Pacific walrus and the 170 dB (Level B Harassment-behavioral change) applies to pinnipeds, other than Pacific walrus. This exclusion zone applies in all cases where ITA's and/or LOA's are not issued; however, if they are issued, the exclusion zone specified in them will take precedence over the MMS-identified exclusion zone. The ITA-designated exclusion zone is designed to protect marine mammals from Level A harassment (injury). Typically, the 180 dB (Level A Harassment-injury) applies to cetaceans and the Pacific walrus and the 190 dB (Level A Harassment-injury) applies to pinnipeds, other than Pacific walrus.
- **Monitoring of the Exclusion Zone** – Individuals (marine mammal biologists or trained observers) 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 monitoring programs and observers.
- **Shut Down/Power Down** – The 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 stop or de-energize 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 completely powered 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 (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 at least 20-40 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 at night or 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.
- **Field Verification** – Before conducting the survey, the operator shall verify the radii of the exclusion zones within real-time conditions in the field. This provides for more accurate exclusion-zone radii rather than relying on modeling techniques before entering

the field. Field-verification techniques must be consistent with NMFS-approved guidelines and procedures. When moving a seismic-survey operation into a new area, the operator shall verify the new radii of the exclusion zones by applying a sound-propagation series. No field verification requirement is necessary for SOI's 2007 operation in the Chukchi as SOI will be using the same equipment used in 2006 and will operate in the same areas as in 2006.

- **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 MMS 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** - Seismic survey must not occur in the Chukchi Sea spring lead system before July 1, unless authorized by NMFS, to provide bowhead cow/calf pairs additional protection.
- **Ledyard Bay Critical Habitat Unit (Unit)** - Surface entry by vessels is not permitted within the Ledyard Bay spectacled eider Unit, unless approved by FWS. Surface entry is permitted for health and safety reasons. MMS must be notified within 24 hours of any unauthorized surface entry. Seismic-survey support aircraft must avoid overflights of the Ledyard Bay Unit after July 1; unless aircraft are at an altitude in excess of 1,500 feet or human safety requires deviation (e.g., a medical emergency). If seismic survey-related vessels (for purposes of vessel safety during bad weather or ice conditions) enter in, or an airplane flies below an altitude of 1,500 feet over the Ledyard Bay Unit, the following information should be provided to the MMS (who in turn will provide it to the FWS): (a) date, time, and where possible, route of vessel entering the Unit, and (b) date, time, altitude, and route of any airplanes traveling below 1,500 feet above the Unit.
- **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 (~800-meter) 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 when within 0.5-mile (800 meters) of walrus groups. Helicopters may not hover or circle above such areas or within 800 lateral meters of such areas.

**Federal Emergency Contact Information
2007 Open Water Seismic Programs**

MMS: Pete Sloan is the contact for MMS. Rance Wall is the alternate.

Pete Sloan: Work 907-334-5328
Home 907-337-9705
Cell 907-382-1134

Rance Wall: Work 907-334-5321
Home 907-622-2414
Cell 907-250-1840

NMFS: Brad Smith is the contact for NMFS.

Brad Smith Work 907-271-3023
Home 907-248-4211
Cell 907-830-0220

USFWS: Craig Perham is the contact for FWS

Craig Perham: Work 907-786-3810
Fax 907-786-3816

Please note: MMS must be notified of all instances as well as the agency having regulatory responsibility.