



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

Ms. Susan Childs
Manager, Regulatory Affairs Coordinator,
Alaska
Shell Exploration and Production Company
3601 C Street, Suite 1334
Anchorage, AK 99503

AUG 19 2009

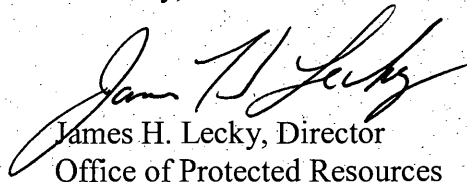
Dear Ms. Childs:

Enclosed is an Incidental Harassment Authorization (IHA) issued to Shell Offshore, Inc. and Shell Gulf of Mexico Inc., a legal entity of Shell Exploration and Production Company, pursuant to Section 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1361 *et seq.*), to take, by Level B harassment only, marine mammals incidental to conducting an open-water marine survey program in the Chukchi Sea, Alaska, during 2009-2010. Shell is required to comply with the conditions contained in the IHA. In addition, Shell must cooperate with any Federal, state, or local agency monitoring the impacts of your activities, and submit a draft report to the National Marine Fisheries Service's (NMFS) Office of Protected Resources, within 90 days after completion of the work authorized herein. Along with other mitigation measures to be incorporated, the IHA requires monitoring for the presence and behavior of marine mammals.

NMFS provided you with copies of the comment letters submitted during the 30-day public comment period on your MMPA application and NMFS' proposed IHA notice. Many of the comments were specific to the application itself. NMFS recommends that Shell consider these comments when submitting future MMPA authorization applications.

If you have any questions concerning the IHA or its requirements, please contact Candace Nachman, Office of Protected Resources, NMFS, at (301) 713-2289 ext. 156.

Sincerely,


James H. Lecky, Director
Office of Protected Resources

Enclosure





Incidental Harassment Authorization

Shell Offshore Inc. and Shell Gulf of Mexico Inc. (Shell), 3601 C Street, Suite 1314, Anchorage, Alaska, 99503, are hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1371(a)(5)(D)) and 50 CFR 216.107 to take, by Level B harassment only, small numbers of marine mammals incidental to conducting an open-water marine survey program in the Chukchi Sea in Arctic Ocean waters under the jurisdiction of the United States, contingent upon the following conditions:

1. This Authorization is valid from August 19, 2009, through August 18, 2010.

2. This Authorization is valid only for activities (including support vessels and aircraft) associated with the *R/V Mt. Mitchell* (or equivalent vessel) site clearance and shallow hazards surveys in the Minerals Management Service's Lease Sale 193 located in the Chukchi Sea. The specific areas where Shell's shallow hazard and site clearance surveys would occur are located approximately 113 km (70 mi) off the Alaska coast, generally west from the village of Wainwright in the Chukchi Sea.

3. (a). The species authorized for incidental harassment takings are: beluga whales (*Delphinapterus leucas*); killer whales (*Orcinus orca*); harbor porpoise (*Phocoena phocoena*); bowhead whales (*Balaena mysticetus*); gray whales (*Eschrichtius robustus*); minke whales (*Balaenoptera acutorostrata*); fin whales (*Balaenoptera physalus*); humpback whales (*Megaptera novaeangliae*); bearded seals (*Erignathus barbatus*); spotted seals (*Phoca largha*); ringed seals (*Phoca hispida*); and ribbon seals (*Histiophoca fasciata*).

(b). The authorization for taking by harassment is limited to vessel noise and to the following acoustic sources (or sources with comparable frequency and intensity) without an amendment to this Authorization:

- (i). Dual frequency subbottom profiler (2-7 kHz or 8-23 kHz);
- (ii). Single beam Echo Sounder (33-210 kHz);
- (iii). Multi-beam Echo Sounder (200 kHz);
- (iv). High resolution multi-channel 2D system, consisting of 40 in³ (4 x 10) airgun array (0-150 Hz);
- (v). Shallow subbottom profiler (1-12 kHz); and
- (vi). Medium penetration subbottom profiler (400-800 Hz).

(c). The taking of any marine mammal in a manner prohibited under this Authorization must be reported within 24 hours of the taking to the Alaska Regional Administrator (907-586-7221) or his designee in Anchorage (907-271-3023), National

Marine Fisheries Service (NMFS) and the Chief of the Permits, Conservation and Education Division, Office of Protected Resources, NMFS, at (301) 713-2289, ext. 110, or his designee (301-713-2289 ext. 156).

4. The holder of this Authorization is required to cooperate with NMFS and any other Federal, state or local agency with authority to monitor the impacts of the activity on marine animals. The holder must notify the Chief of the Permits, Conservation and Education Division, Office of Protected Resources, at least 48 hours prior to the start of collecting seismic data (unless constrained by the date of issuance of this Authorization in which case notification shall be made as soon as possible).

5. Prohibitions

(a). The taking, by incidental harassment only, is limited to the species listed under condition 3(a) above. The taking by Level A harassment, injury or death of these species or the taking by harassment, injury or death of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this Authorization.

(b). The taking of any marine mammal is prohibited whenever the required source vessel marine mammal observers (MMOs), required by condition 7(a)(i), are not onboard in conformance with condition 7(a)(i) of this Authorization or the passive acoustic monitoring program described in condition 8 is not fully implemented.

(c.) The taking of any marine mammals by seismic sounds when the seismic vessel is within 15 miles of another operating seismic vessel, which is being used for a separate operation, is prohibited.

6. Mitigation

(a.) General Mitigation: The holder of this Authorization is required to:

(i): Avoid concentrations or groups of whales by all vessels under the direction of Shell. Operators of support vessels should, at all times, conduct their activities at the maximum distance possible from such concentrations of whales.

(ii). Reduce vessel 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.

(iii). 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.

(iv). Not operate support vessels (including small boats), to the extent that they are being used, at a speed that would make collisions with whales likely.

(v). When weather conditions require, such as when visibility drops, adjust vessel speed accordingly to avoid the likelihood of injury to whales.

(vi). Fully implement the following measures, consistent with the 2009 Conflict Avoidance Agreement, in order to avoid having an unmitigable adverse impact on the availability of marine mammal species or stocks for taking for subsistence uses:

(A). For the purposes of reducing or eliminating conflicts between subsistence whaling activities and Shell's survey program, the holder of this Authorization will participate with other operators in the Communication Center (Com-Center) Program that is currently operating in the Chukchi Sea by Inupiat operators. The Com-Centers will be operated 24 hours/day during the 2009 fall subsistence bowhead whale hunt.

(B). Plan all vessel routes to minimize any potential conflict with subsistence whaling and sealing activities. All vessels shall avoid areas of active or anticipated whaling activity.

(C). All geophysical activity in the Chukchi Sea shall be restricted from conducting seismic survey and related work as set forth below:

(I). Vessels should remain as far offshore as weather and ice conditions allow and, at all times, at least five (5) miles offshore during transit.

(II). Geophysical activity shall not be conducted within 60 miles of any point on the Chukchi Sea coast.

(D). Upon notification by a Com-Center operator of an at-sea emergency, the holder of this Authorization shall provide such assistance as necessary to prevent the loss of life, if conditions allow the holder of this Authorization to safely do so.

(E). Upon request for emergency assistance made by a subsistence whale hunting organization, or by a member of such an organization, in order to prevent the loss of a whale, the holder of this Authorization shall assist towing of a whale taken in a traditional subsistence whale hunt, if conditions allow the holder of this Authorization to safely do so.

(F). Post-season Review: Following completion of 2009 Chukchi Sea geophysical activities, and prior to the 2010 Pre-Season Introduction Meetings, the Holder of this Authorization and other Chukchi Sea Industry Participants, if requested by the Alaska Eskimo Whaling Commission (AEWC) or the Whaling Captain's Association of each village, will host a meeting in each of the following villages: Wainwright, Point Lay, Point Hope, and Barrow (or a joint meeting of the whaling captains from all these villages if the whaling captains agree to a joint meeting) to review the results of the 2009 operations and to discuss any concerns residents of those villages might have regarding the operations. The meetings will include the MMOs/Inupiat Communicators stationed on the Authorization holder's vessels in the

Chukchi Sea. The Chairman and Executive Director of the AEWG will be invited to attend the meeting(s).

(b). Seismic Vessel Mitigation: The holder of this Authorization is required to:

(i). Reduce the volume of the airgun array during vessel turns while running seismic lines to one airgun or to a reduced number of airguns (unless seismic data collection will continue during line turns).

(ii). Whenever a marine mammal is detected outside the exclusion zone radius and based on its position and motion relative to the ship track is likely to enter the safety radius, calculate and implement an alternative ship speed or track or de-energize the airgun array, as described in condition 6(b)(iv)(A) below.

(iii). Exclusion and Monitoring-Safety Zones:

(A). Establish and monitor with trained MMOs a preliminary exclusion zone for cetaceans surrounding the airgun array on the source vessel where the received level would be 180 dB re 1 μ Pa rms. For purposes of the field verification test, described in condition 7(b), this radius is estimated to be 160 m (525 ft) from the seismic source.

(B). Establish and monitor with trained observers a preliminary exclusion zone for pinnipeds surrounding the airgun array on the source vessel where the received level would be 190 dB re 1 μ Pa rms. For purposes of the field verification test described in condition 7(b), this radius is estimated to be 50 m (164 ft) from the seismic source.

(C). Whenever the vessel monitoring program described in condition 7(a) below detects an aggregation of 12 or more mysticete whales within an acoustically verified 160-dB rms zone ahead of, or perpendicular to, the seismic vessel track, the holder of this Authorization must: (I) shutdown the seismic airgun array and/or other acoustic sources; and (II) not proceed with powering up the airgun array until the lead MMO on-board confirms that no mysticete whale aggregations are likely to occur within the 160-dB zone based upon ship course, direction and distance from last sighting and the last aggregation sighting appropriate safety zones. For purposes of the field verification test described in condition 7(b), this radius is estimated to be 1,400 m (0.87 mi) from the seismic source.

(D). Immediately upon completion of data analysis of the field verification measurements required under condition 7(b) below, establish and monitor the new 160-dB, 180-dB, and 190-dB marine mammal exclusion zones.

(iv). Power-down/Shutdown:

(A). Immediately power-down the seismic airgun array and/or other acoustic sources, whenever any cetaceans are sighted approaching close to or within the area delineated by the 180 dB re 1 μ Pa (rms), or pinnipeds are sighted approaching close to or within the area delineated by the 190 dB re 1 μ Pa (rms) isopleth as established under condition 6(b)(iii) for the authorized seismic airgun array. If the power-down operation cannot reduce the received sound pressure level at the cetacean or pinniped to 180 dB or 190 dB, whichever is appropriate, the holder of this Authorization must immediately shutdown the seismic airgun array and/or other acoustic sources.

(B). Not proceed with powering up the seismic airgun array unless the marine mammal exclusion zones described in conditions 6(b)(iii)(A), (B), and (C) are visible and no marine mammals are detected within the appropriate safety zones; or until 15 minutes (for small odontocetes, pinnipeds) or a minimum of 30 minutes (for mysticetes) after there has been no further visual detection of the animal(s) within the safety zone and the trained MMOs on duty are confident that no marine mammals remain within the appropriate safety zone.

(C). In the unanticipated event that an injured or dead marine mammal is sighted within an area where the holder of this Authorization deployed and utilized seismic airguns within the past 24 hours, immediately shutdown the seismic airgun array and notify the Marine Mammal Stranding Network (telephone: 1-800-853-1964).

(I). In the event that the marine mammal has been determined to have been deceased for at least 72 hours, as certified by the lead MMO onboard the source vessel, and no other marine mammals have been reported injured or dead during that same 72 hour period, the airgun array may be restarted (by conducting the necessary ramp-up procedures described in condition 6(b)(v) below) upon completion of a written certification, including supporting documents (e.g., photographs or other evidence to support the certification) by the MMO. Within 24 hours after the event specified herein, the holder of this Authorization must notify the designated staff person (see III below) by telephone or email of the event and ensure that the written certification and supporting documents are provided to the NMFS staff person.

(II). In the event that the marine mammal injury resulted from something other than seismic airgun operations (e.g., gunshot wound, polar bear attack), as certified by the lead MMO onboard the seismic vessel, the airgun array may be restarted (by conducting the necessary ramp-up procedures described in condition 6(b)(v) below) upon completion of a written certification, including supporting documents (e.g., photographs or other evidence to support the certification) by the MMO. Within 24 hours after the event specified herein, the holder of this Authorization must notify the designated staff person (see III below) by telephone or email of the event and ensure that the written certification and supporting documents are provided to the NMFS staff person.

(III). In the event the animal has not been dead for a period greater than 72 hours or the cause of the injury or death cannot be immediately

determined by the lead MMO, the holder shall immediately report the incident to either the NMFS staff person designated by the Director, Office of Protected Resources (Candace Nachman, Office of Protected Resources, NMFS, 301-713-2289 ext. 156 or Candace.Nachman@noaa.gov) or to the staff person designated by the Alaska Regional Administrator (Brad Smith, Alaska Regional Office, NMFS, 907-271-3023 or Brad.Smith@noaa.gov).

(1) The seismic airgun array shall not be restarted until NMFS is able to review the circumstances of the take, make determinations as to whether modifications to the activities are appropriate and necessary, and has notified the holder that activities may be resumed.

(2) NMFS approval to resume operations may be given by the Director, Office of Protected Resources, NMFS, or his designee or by the Alaska Regional Administrator, NMFS, or his designee. NMFS approval may be provided in writing via a letter or an email or via the telephone.

(v) Ramp-up:

(A). Conduct a 30-minute period of marine mammal observations by at least two trained MMOs prior to commencing ramp-up described in condition 6(b)(v)(C): (I) at the commencement of seismic operations and (II) at any time electrical power to the airgun array has been discontinued for a period of 10 minutes or more and the MMO watch has been suspended;

(B). Not commence ramp-up if the complete safety radii are not visible for at least 30 minutes prior to ramp-up in either daylight or nighttime and not commence ramp-up at night unless the seismic source has maintained a sound source pressure level at the source of at least 180 dB re 1 μ Pa rms during the interruption of seismic survey operations. If a sound source of at least 180 dB re 1 μ Pa rms has been maintained during the interruption of seismic operations, then the 30 minute pre-ramp-up visual survey is waived; and

(C). Ramp-up the airgun arrays at no greater than 6 dB per 5-minute period starting with the smallest airgun in the array and then adding additional guns in sequence until the full array is firing, if no marine mammals are observed while undertaking conditions 6(v)(A) and (B): (I) at the commencement of seismic operations and (II) anytime after the airgun array has been powered down for more than 10 minutes.

7. Monitoring:

(a) Vessel Monitoring:

(i). The holder of this Authorization must designate biologically-trained, on-site individuals (MMOs) to be onboard the source vessel approved in advance by NMFS, to conduct the visual monitoring programs required under this Authorization and to record the effects of seismic surveys and the resulting noise on marine mammals.

There must be at least five (5) MMOs onboard the source vessel at any one time during all seismic operations.

(ii). To the extent possible, MMOs should be on duty for four (4) consecutive hours or less, although more than one four-hour shift per day is acceptable. MMOs will not work more than three (3) shifts in a 24-hour period (i.e., 12 hours total per day).

(iii). Monitoring is to be conducted by the MMOs described in condition 7(a)(i) above, onboard the active seismic vessel, to (A) ensure that no marine mammals enter the appropriate safety zone whenever the seismic acoustic sources are on, and (B) to record marine mammal activity as described in condition 7(a)(vi) below, at least two observers must be on watch during ramp ups and the 30 minutes prior to full ramp ups, and for as large a fraction of the other operating hours as possible. At all other times, at least one observer must be on active watch whenever the seismic acoustic sources is operating during all daytime airgun operations, during any nighttime power-ups of the airguns and at night, whenever daytime monitoring resulted in one or more power-down situations due to marine mammal presence.

(iv). At all times, the crew must be instructed to keep watch for marine mammals. If any are sighted, the bridge watch-stander must immediately notify the MMO(s) on-watch. If a marine mammal is within or closely approaching its designated exclusion (safety) zone, the seismic acoustic sources must be immediately powered down or shutdown (in accordance with condition 6(b)(iv)(A) above).

(v). Observations by the MMOs described in condition 7(a)(i) above on marine mammal presence and activity will begin a minimum of 30 minutes prior to the estimated time that the seismic source is to be turned on and/or ramped-up.

(vi). Monitoring will consist of recording: (A) the species, group size, age/size/sex categories (if determinable), the general behavioral activity, heading (if consistent), bearing and distance from seismic vessel, sighting cue, behavioral pace, and apparent reaction of all marine mammals seen near the seismic vessel and/or its airgun array (e.g., none, avoidance, approach, paralleling, etc); (B) the time, location, heading, speed, and activity of the vessel (shooting or not), along with sea state, visibility, cloud cover and sun glare at (I) any time a marine mammal is sighted, (II) at the start and end of each watch, and (III) during a watch (whenever there is a change in one or more variable); and, (C) the identification of all vessels that are visible within 5 km of the seismic vessel whenever a marine mammal is sighted, and the time observed, bearing, distance, heading, speed and activity of the other vessel(s).

(vii). All MMOs must be provided with and use appropriate night-vision devices, Big Eyes, and reticulated and/or laser range finding binoculars in order to detect marine mammals within the Exclusion Zone.

(b). Field Source Verification: Using a hydrophone system, the holder of this Authorization is required to conduct sound source verification tests for all seismic sources and source vessel not previously measured and, at a minimum, report the following results within 5 days of completing the test:

(i). The empirical distances from the airgun array and other acoustic sources utilized during the effectiveness of this Authorization to broadband received levels of 190, 180, 160, and 120 dB re 1 μ Pa (rms), and the radiated sounds vs. distance from the source vessel.

(ii). Measurements are to be made at the beginning of the survey for locations not previously modeled in the Chukchi Sea.

8. Research: The holder of the Authorization, in cooperation with other oil company participants, must conduct all monitoring described in the “*Marine Mammal Monitoring and Mitigation Plan for Site Clearance and Shallow Hazards Data Acquisition in the Alaskan Chukchi Sea, 2009.*” Research will include establishment of: (i). an acoustic program to measure sounds produced by the source vessel (required under condition 7(b) above); and (ii) deployment, and later analysis of data from, bottom-founded autonomous acoustic recorder arrays along the coast of the Chukchi Sea to record ambient sound levels, vocalizations of marine mammals, and received levels of seismic operations should they be detectable.

9. Reporting:

(a). Field Source Verification and the distances to the various isopleths are to be reported to NMFS within five (5) days of completing the measurements. In addition to reporting the radii of specific regulatory concern, distances to other sound isopleths down to 120 dB rms (if measurable) will be reported in increments of 10 dB.

(b). Seismic Vessel Monitoring Program: A draft report will be submitted to the Director, Office of Protected Resources, NMFS, within 90 days after the end of Shell’s 2009 survey program in the Chukchi Sea. The report will describe in detail: (i) the operations that were conducted; (ii) the results of the acoustical measurements to verify the safety radii; (iii) the methods, results, and interpretation pertaining to all monitoring tasks; (iv) the results of the 2009 shipboard marine mammal monitoring; (v) a summary of the dates and locations of seismic operations, including summaries of power-downs, shutdowns, and ramp-up delays; (vi) marine mammal sightings (species, numbers, dates, times and locations; age/size/gender, environmental correlates, activities, associated seismic survey activities); (vii) estimates of the amount and nature of potential take (exposure) of marine mammals (by species) by harassment or in other ways to industry sounds; (viii) an analysis of the effects of seismic operations (e.g., on sighting rates, sighting distances, behaviors, movement patterns of marine mammals); (ix) an analysis of factors influencing detectability of marine mammals; and (x) summaries on communications with hunters and potential effects on subsistence uses.

(c). The draft report will be subject to review and comment by NMFS. Any recommendations made by NMFS must be addressed in the final report prior to acceptance by NMFS. The draft report will be considered the final report for this activity under this Authorization if NMFS has not provided comments and recommendations within 90 days of receipt of the draft report.

(d). A draft comprehensive report describing the acoustic and vessel-based monitoring programs will be prepared and submitted within 240 days of the date of this Authorization. The comprehensive report will describe the methods, results, conclusions and limitations of each of the individual data sets in detail. The report will also integrate (to the extent possible) the studies into a broad based assessment of all industry activities and their impacts on marine mammals in the Arctic Ocean during 2009.

(e). The draft comprehensive report will be subject to review and comment by NMFS, the AEWC, and the North Slope Borough Department of Wildlife Management. The draft comprehensive report will be accepted by NMFS as the final comprehensive report upon incorporation of comments and recommendations.

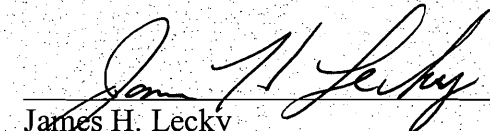
10. Activities related to the monitoring described in this Authorization do not require a separate scientific research permit issued under section 104 of the Marine Mammal Protection Act.

11. The Plan of Cooperation and that portion of any Conflict Avoidance Agreement outlining the steps that will be taken to cooperate and communicate with the native communities to ensure the availability of marine mammals for subsistence uses, must be implemented.

12. This Authorization may be modified, suspended or withdrawn if the holder fails to abide by the conditions prescribed herein or if the authorized taking is having more than a negligible impact on the species or stock of affected marine mammals, or if there is an unmitigable adverse impact on the availability of such species or stocks for subsistence uses.

13. A copy of this Authorization must be in the possession of each seismic vessel operator taking marine mammals under the authority of this Incidental Harassment Authorization.

14. Shell is required to comply with the Terms and Conditions of the Incidental Take Statement corresponding to NMFS' Biological Opinion.



James H. Lecky
Director, Office of Protected Resources
National Marine Fisheries Service

AUG 19 2009

Date