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

JUN 25 2014

Christina May
Wildlife Compliance Officer
BP Exploration (Alaska), Inc.
900 E. Benson Boulevard
Anchorage, Alaska 99519-6612

Dear Ms. May:

Enclosed is an Incidental Harassment Authorization (IHA) issued to BP Exploration (Alaska) Inc., under the authority of section 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1361 *et seq.*), to harass small numbers of marine mammals, by Level B harassment, incidental to the shallow geohazard survey in Foggy Island Bay, Beaufort Sea, Alaska, from July 1, through September 30, 2014.

You are required to comply with the conditions contained in the IHA. In addition, you must submit a draft technical report to the National Marine Fisheries Service's (NMFS) Office of Protected Resources within 90 days of survey completion. The IHA requires monitoring of marine mammals by qualified individuals before, during, and after survey activities and reporting of marine mammal observations, including species, numbers, and behavioral modifications potentially resulting from this activity.

If you have any questions concerning the IHA or its requirements, please contact Candace Nachman, Office of Protected Resources, NMFS, at 301-427-8429.

Sincerely,

Perry Gayaldo

for Donna S. Wieting
Director
Office of Protected Resources

Enclosures

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

Incidental Harassment Authorization

BP Exploration (Alaska) Inc. (BP), 900 E. Benson Boulevard, Anchorage, Alaska 99519, is hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1371(a)(5)(D)), to harass small numbers of marine mammals incidental to specified activities associated with a shallow geohazard survey in the Foggy Island Bay area in the Beaufort Sea, Alaska, contingent upon the following conditions:

1. This Incidental Harassment Authorization (Authorization) is valid from July 1, 2014, through September 30, 2014.

2. This Authorization is valid only for activities associated with an open-water shallow geohazard survey and related activities in the Beaufort Sea. The specific areas where BP's surveys will be conducted are within the Foggy Island Bay Area, Beaufort Sea, Alaska, as shown in Figure 1 of BP's February 2014 Authorization application.

3. Species Authorized and Level of Take

a. The incidental taking of marine mammals, by Level B harassment only, is limited to the following species in the waters of the Beaufort Sea:

i. Odontocetes: see Table 1 (attached) for authorized species and take numbers.

ii. Mysticetes: see Table 1 (attached) for authorized species and take numbers.

iii. Pinnipeds: see Table 1 (attached) for authorized species and take numbers.

iv. If any marine mammal species not listed in Table 1 are encountered during seismic survey operations and are likely to be exposed to sound pressure levels (SPLs) greater than or equal to 160 dB re 1 μPa (rms) for impulse sources, then BP must shut-down the sound source to avoid take.

b. The taking by injury (Level A harassment) serious injury, or death of any of the species listed in Table 1 or the taking of any kind of any other species of marine mammal is prohibited and may result in the modification, suspension or revocation of this Authorization.

4. The authorization for taking by harassment is limited to the following acoustic sources (or sources with comparable frequency and intensity) and from the following activities:

a. 30 in^3 airgun arrays;
b. 10 in^3 and/or 5 in^3 mitigation airguns;
c. multibeam echosounder, sidescan sonar, and sub-bottom profiler; and
d. Vessel activities related to the shallow geohazard survey.

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5. 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 or his designee (907-586-7638) and the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, or her designee (301-427-8429).

6. The holder of this Authorization must notify the Chief of the Permits and Conservation 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) at 301-427-8429 or Candace.Nachman@noaa.gov.

7. Mitigation Requirements: The Holder of this Authorization is required to implement the following mitigation requirements when conducting the specified activities to achieve the least practicable impact on affected marine mammal species or stocks:

a. General Vessel and Aircraft Mitigation:

i. Avoid groups of five or more whales by all vessels under the direction of BP. Operators of support vessels should, at all times, conduct their activities at the maximum distance possible from such groups of whales.

ii. The vessel shall be operated at speeds necessary to ensure no physical contact with whales occurs. If the vessel approaches within 1.6 km (1 mi) of observed whales, except when providing emergency assistance to whalers or in other emergency situations, the vessel operator will take reasonable precautions to avoid potential interaction with the whales by taking one or more of the following actions, as appropriate:

A. Reducing vessel speed to less than 5 knots within 300 yards (900 feet or 274 m) of the whale(s);

B. Steering around the whale(s) if possible;

C. Operating the vessel(s) in such a way as to avoid separating members of a group or concentration of whales from other individuals of the group;

D. Operating the vessel(s) to avoid causing a whale to make multiple changes in direction;

E. Checking the waters immediately adjacent to the vessel(s) to ensure that no whales will be injured when the propellers are engaged; and

F. Reducing vessel speed to 9 knots or less when weather conditions reduce visibility to avoid the likelihood of injury to whales.

iii. In the event that any aircraft (such as helicopters) are used to support the planned survey, the mitigation measures below would apply:

A. Under no circumstances, other than an emergency, shall aircraft be operated at an altitude lower than 1,000 feet above sea level when within 0.3 mile (0.5 km) of groups of whales.

B. Helicopters shall not hover or circle above or within 0.3 mile (0.5 km) of groups of whales.

C. At all other times, aircraft should attempt not to fly below 1,000 ft except during emergencies and take-offs and landings.

b. Seismic Airgun Mitigation:

i. 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 exclusion radius, calculate and implement an alternative ship speed or track or de-energize the airgun array, as described in condition 7(b)(iv) below.

ii. Exclusion Zones:

A. Establish and monitor with trained Protected Species Observers (PSOs) an exclusion zone for cetaceans surrounding the airgun array on the source vessel where the received level would be 180 dB re 1 µPa rms. This radius is estimated to be 200 m from the seismic source for the 30 in^3 airgun array and 50 m for a single 5 in^3 airgun.

B. Establish and monitor with trained PSOs an exclusion zone for pinnipeds surrounding the airgun array on the source vessel where the received level would be 190 dB re 1 µPa rms. This radius is estimated to be 70 m from the seismic source for the 30 in^3 airgun array and 20 m for a single 5 in^3 airgun.

iii. Ramp-up:

A. A ramp-up, following a cold start, can be applied if the 180 dB re 1 µPa rms exclusion zone has been free of marine mammals for a consecutive 30-minute period. The entire exclusion zone must have been visible during these 30 minutes. If the entire exclusion zone is not visible, then ramp-up from a cold start cannot begin.

B. Ramp-up procedures from a cold start shall be delayed if a marine mammal is sighted within the exclusion zone during the 30-minute period prior to the ramp up. The delay shall last until the marine mammal(s) has been observed to leave the exclusion zone or until the animal(s) is not sighted for at least 15 or 30 minutes. The 15 minutes applies to pinnipeds, while a 30 minute observation period applies to cetaceans.

C. A ramp-up, following a shutdown, can be applied if the marine mammal(s) for which the shutdown occurred has been observed to leave the exclusion zone or until the animal(s) is not sighted for at least 15 minutes (pinnipeds) or 30 minutes (cetaceans).

D. If, for any reason, electrical power to the airgun array has been discontinued for a period of 10 minutes or more, ramp-up procedures shall be implemented. Only if the PSO watch has been suspended, a 30-minute clearance of the exclusion zone is required prior to commencing ramp-up. Discontinuation of airgun activity for less than 10 minutes does not require a ramp-up.

E. The seismic operator and PSOs shall maintain records of the times when ramp-ups start and when the airgun array reaches full power.

F. The ramp-up will be conducted by doubling the number of operating airguns at 5-minute intervals, starting with the smallest gun in the array.

iv. Power-down/Shutdown:

A. The airgun array shall be immediately powered down (reduction in the number of operating airguns such that the radii of exclusion zones are decreased) whenever a marine mammal is sighted approaching close to or within the applicable exclusion zone of the full array, but is outside the applicable exclusion zone of the single mitigation airgun.

B. If a marine mammal is already within the exclusion zone when first detected, the airguns shall be powered down immediately.

C. Following a power-down, ramp-up to the full airgun array shall not resume until the marine mammal has cleared the exclusion zone. The animal will be considered to have cleared the exclusion zone if it is visually observed to have left the exclusion zone of the full array, or has not been seen within the zone for 15 minutes (pinnipeds) or 30 minutes (cetaceans).

D. If a marine mammal is sighted within or about to enter the 190 or 180 dB (rms) applicable exclusion zone of the single mitigation airgun, the airgun array shall be shutdown immediately.

E. Airgun activity after a complete shutdown shall not resume until the marine mammal has cleared the exclusion zone of the full array. The animal will be considered to have cleared the exclusion zone as described in Condition 7(b)(iii) above under ramp-up procedures.

v. Poor Visibility Conditions:

A. If during foggy conditions, heavy snow or rain, or darkness, the full 180 dB exclusion zone is not visible, the airguns cannot commence a ramp-up procedure from a full shut-down.

B. If one or more airguns have been operational before nightfall or before the onset of poor visibility conditions, they can remain operational throughout the night or poor visibility conditions. In this case ramp-up procedures can be initiated, even though the exclusion zone may not be visible, on the assumption that marine mammals will be alerted by the sounds from the single airgun and have moved away.

C. The mitigation airgun will be operated at approximately one shot per minute and will not be operated for longer than three hours in duration during daylight hours and good visibility. In cases when the next start-up after the turn is expected to be during lowlight or low visibility, use of the mitigation airgun may be initiated 30 minutes before darkness or low visibility conditions occur and may be operated until the start of the next seismic acquisition line. The mitigation gun must still be operated at approximately one shot per minute.

c. Subsistence Mitigation Measures:

i. Airgun and echosounder, sonar, and sub-bottom profiler operations must conclude by midnight on August 25, 2014;

ii. BP will participate in the Communications Center that is operated annually during the bowhead subsistence hunt; and

iii. Inupiat communicators will work on the source vessel.

8. Monitoring

a. BP must designate biologically-trained, on-site individuals (PSOs) to be onboard the source vessel, who are approved in advance by NMFS, to conduct the visual monitoring programs required under this Authorization and to record the effects of shallow geohazard surveys and the resulting sound on marine mammals.

i. PSO teams shall consist of Inupiat observers and experienced field biologists. An experienced field crew leader will supervise the PSO team onboard the survey vessel. New observers shall be paired with experienced observers to avoid situations where lack of experience impairs the quality of observations.

ii. Crew leaders and most other biologists serving as observers will be individuals with experience as observers during recent seismic or shallow hazards monitoring projects in Alaska, the Canadian Beaufort, or other offshore areas in recent years.

iii. PSOs shall complete a training session on marine mammal monitoring, to be conducted shortly before the anticipated start of the 2014 open-water season. The training session(s) will be conducted by qualified marine mammalogists with extensive crew-leader experience during previous vessel-based monitoring programs. An observers' handbook, adapted for the specifics of the planned survey program will be reviewed as part of the training.

iv. If there are Alaska Native PSOs, the PSO training that is conducted prior to the start of the survey activities shall be conducted with both Alaska Native PSOs and biologist PSOs being trained at the same time in the same room. There shall not be separate training courses for the different PSOs.

v. Crew members should not be used as primary PSOs because they have other duties and generally do not have the same level of expertise, experience, or training as PSOs, but they could be stationed on the fantail of the vessel to observe the near field, especially the area around the airgun array and implement a power-down or shutdown if a marine mammal enters the exclusion zone.

vi. If crew members are to be used as PSOs, they shall go through some basic training consistent with the functions they will be asked to perform. The best approach would be for crew members and PSOs to go through the same training together.

vii. PSOs shall be trained using visual aids (e.g., videos, photos), to help them identify the species that they are likely to encounter in the conditions under which the animals will likely be seen.

viii. BP shall train its PSOs to follow a scanning schedule that consistently distributes scanning effort according to the purpose and need for observations. For example, the schedule might call for 60% of scanning effort to be directed toward the near field and 40% at the far field. All PSOs should follow the same schedule to ensure consistency in their scanning efforts.

ix. PSOs shall be trained in documenting the behaviors of marine mammals. PSOs should simply record the primary behavioral state (i.e., traveling, socializing, feeding, resting, approaching or moving away from vessels) and relative location of the observed marine mammals.

b. To the extent possible, PSOs should be on duty for four (4) consecutive hours or less, although more than one four-hour shift per day is acceptable; however, an observer shall not be on duty for more than 12 hours in a 24-hour period.

c. Monitoring is to be conducted by the PSOs onboard the vessel to ensure that no marine mammals enter the appropriate exclusion zone whenever the seismic acoustic sources are on and to record marine mammal activity as described in Condition 8(f) below. Two PSOs will be present on the source vessel. At least one PSO shall monitor for marine mammals at any time during daylight hours.

d. 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 PSO(s) on-watch. If a marine mammal is within or closely approaching its designated exclusion zone, the seismic acoustic sources must be immediately powered down or shutdown (in accordance with condition 7(b)(iv) above).

e. Observations by the PSOs 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. PSOs will remain on duty during the seismic airgun activity and for 30 minutes after the use of the seismic airguns.

f. All marine mammal observations and any airgun power-down, shut-down and ramp-up will be recorded in a standardized format. Data will be entered into a custom database. The accuracy of the data entry will be verified daily through QA/QC procedures. These procedures will allow initial summaries of data to be prepared during and shortly after the field program, and will facilitate transfer of the data to other programs for further processing and archiving.

g. Monitoring shall consist of recording:

i. 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);

ii. The time, location, heading, speed, and activity of the vessel (shooting or not), along with sea state, visibility, cloud cover and sun glare at:

A. Any time a marine mammal is sighted (including pinnipeds hauled out on land),

B. At the start and end of each watch, and

C. During a watch (whenever there is a change in one or more variable);

iii. The identification of all vessels that are visible within 5 km of the source vessel whenever a marine mammal is sighted, and the time observed, bearing, distance, heading, speed and activity of the other vessel(s);

iv. Any identifiable marine mammal behavioral response (sighting data should be collected in a manner that will not detract from the PSO's ability to detect marine mammals);

v. Any adjustments made to operating procedures; and

iv. Visibility during observation periods so that total estimates of take can be corrected accordingly.

h. BP shall work with its observers to develop a means for recording data that does not reduce observation time significantly.

i. PSOs shall use the best possible positions for observing (e.g., outside and as high on the vessel as possible), taking into account weather and other working conditions. PSOs shall carefully document visibility during observation periods so that total estimates of take can be corrected accordingly.

j. PSOs shall scan systematically with the unaided eye and reticle binoculars, and other devices.

k. PSOs shall attempt to maximize the time spent looking at the water and guarding the exclusion radii. They shall avoid the tendency to spend too much time evaluating animal behavior or entering data on forms, both of which detract from their primary purpose of monitoring the exclusion zone.

l. Night-vision equipment (Generation 3 binocular image intensifiers, or equivalent units) must be made available for use during low light hours and used as necessary, and BP shall continue to research methods of detecting marine mammals during periods of low visibility.

m. PSOs shall understand the importance of classifying marine mammals as "unknown" or "unidentified" if they cannot identify the animals to species with confidence. In those cases, they shall note any information that might aid in the identification of the marine mammal sighted. For example, for an unidentified mysticete whale, the observers should record whether the animal had a dorsal fin.

n. Additional details about unidentified marine mammal sightings, such as "blow only", mysticete with (or without) a dorsal fin, "seal splash", etc., shall be recorded.

o. BP shall conduct a fish and airgun sound monitoring program as described in the Authorization application and further refined in consultation with an expert panel.

9. <u>Data Analysis and Presentation in Reports</u>:

a. Estimation of potential takes or exposures shall be improved for times with low visibility (such as during fog or darkness) through interpolation or possibly using a probability approach. Those data could be used to interpolate possible takes during periods of restricted visibility.

b. Water depth should be continuously recorded by the vessel and for each marine mammal sighting. Water depth should be accounted for in the analysis of take estimates.

c. BP shall be very clear in their report about what periods are considered "non-seismic" for analyses.

d. BP shall examine data from the Aerial Surveys for Arctic Marine Mammals and other such programs to assess possible impacts from their geohazard survey.

e. To better assess impacts to marine mammals, data analysis shall be separated into periods when a seismic airgun array (or a single mitigation airgun) is operating and when it is not. Final and comprehensive reports to NMFS should summarize and plot:

i. Data for periods when a seismic array is active and when it is not; and

ii. The respective predicted received sound conditions over fairly large areas (tens of km) around operations.

f. To help evaluate the effectiveness of PSOs and more effectively estimate take, if appropriate data are available, BP shall perform analysis of sightability curves (detection functions) for distance-based analyses.

g. BP should improve take estimates and statistical inference into effects of the activities by incorporating the following measures:

i. Reported results from all hypothesis tests should include estimates of the associated statistical power when practicable.

ii. Estimate and report uncertainty in all take estimates. Uncertainty could be expressed by the presentation of confidence limits, a minimum-maximum, posterior probability distribution, etc.; the exact approach would be selected based on the sampling method and data available.

10. <u>Reporting Requirements:</u>

a. BP is required to submit a report to NMFS within 90 days after the end of the shallow geohazard survey. The report will summarize all activities and monitoring results conducted during in-water surveys. The Technical Report shall include the following:

i. Summary of project start and end dates, airgun or other active sound source activity, number of guns, and the number and circumstances of implementing ramp-up, power down, shutdown, and other mitigation actions;

ii. Summaries of monitoring effort (e.g., total hours, total distances, and marine mammal distribution through the study period, accounting for sea state and other factors

affecting visibility and detectability of marine mammals);

iii. Analyses of the effects of various factors influencing detectability of marine mammals (e.g., sea state, number of observers, and fog/glare);

iv. Species composition, occurrence, and distribution of marine mammal sightings, including date, water depth, numbers, age/size/gender categories (if determinable), and group sizes;

v. Analyses of the effects of survey operations; and

vi. Sighting rates of marine mammals during periods with and without survey activities (and other variables that could affect detectability), such as:

A. Initial sighting distances versus survey activity state;
B. Closest point of approach versus survey activity state;
C. Observed behaviors and types of movements versus survey activity state;
D. Numbers of sightings/individuals seen versus survey activity state;
E. Distribution around the source vessels versus survey activity state; and
F. Estimates of exposures of marine mammals to Level B harassment thresholds based on presence in the 160 dB harassment zone.

b. 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.

c. BP will present the results of the fish and airgun sound study to NMFS in a detailed report.

11. Notification of Dead or Injured Marine Mammals:

a. In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by this Authorization, such as an injury (Level A harassment), serious injury or mortality (e.g., ship-strike, gear interaction, and/or entanglement), BP would immediately cease the specified activities and immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, or her designee by phone or email (telephone: 301-427-8401 or Candace.Nachman@noaa.gov), and the Alaska Regional Stranding Coordinators (telephone: 907-586-7248 or Aleria.Jensen@noaa.gov or Barbara.Mahoney@noaa.gov). The report would include the following information:

i. Time, date, and location (latitude/longitude) of the incident;
ii. Name and type of vessel involved;
iii. Vessel's speed during and leading up to the incident;
iv. Description of the incident;

v. Status of all sound source use in the 24 hours preceding the incident;
vi. Water depth;
vii. Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);
viii. Description of all marine mammal observations in the 24 hours preceding the incident;
ix. Species identification or description of the animal(s) involved;
x. Fate of the animal(s); and
xi. Photographs or video footage of the animal(s) (if equipment is available).

Activities would not resume until NMFS is able to review the circumstances of the prohibited take. NMFS would work with BP to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. BP would not be able to resume their activities until notified by NMFS via letter, email, or telephone.

b. In the event that BP discovers an injured or dead marine mammal, and the lead PSO determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition as described in the next paragraph), BP would immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the NMFS Alaska Stranding Hotline (1-877-925-7773) and/or by email to the Alaska Regional Stranding Coordinators. The report would include the same information identified in Condition 9(a) above. Activities would be able to continue while NMFS reviews the circumstances of the incident. NMFS would work with BP to determine whether modifications in the activities are appropriate.

c. In the event that BP discovers an injured or dead marine mammal, and the lead PSO determines that the injury or death is not associated with or related to the activities authorized in this Authorization (e.g., carcass with moderate to advanced decomposition, or scavenger damage), BP would report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the NMFS Alaska Stranding Hotline and/or by email to the Alaska Regional Stranding Coordinators, within 24 hours of the discovery. BP would provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network. Activities would be able to continue while NMFS reviews the circumstances of the incident.

12. Activities related to the monitoring described in this Authorization do not require a separate scientific research permit issued under section 104 of the MMPA.

13. BP is required to comply with the Reasonable and Prudent Measures and Terms and Conditions of the Incidental Take Statement corresponding to NMFS' Biological Opinion.

14. A copy of this Authorization and the Incidental Take Statement must be in the possession of all contractors and PSOs operating under the authority of this Authorization.

15. Penalties and Permit Sanctions: Any person who violates any provision of this Authorization is subject to civil and criminal penalties, permit sanctions, and forfeiture as authorized under the MMPA.

16. 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.

PERRY GAYACDO

for Donna S. Wieting
Director, Office of Protected Resources
National Marine Fisheries Service

JUN 25 2014

Date

Attachment

Attachment

Table 1. Species authorized for taking by Level B harassment and the maximum authorized amount of take per species.

Species	Authorized Amount of Take
Beluga Whale	75
Killer Whale	1
Harbor Porpoise	1
Bowhead Whale	1
Gray Whale	1
Bearded Seal	19
Ringed Seal	71
Spotted Seal	23
Ribbon Seal	1