



Letter of Authorization

Hilcorp Alaska LLC (Hilcorp), is hereby authorized to take marine mammals incidental to those oil and gas activities in Cook Inlet, Alaska, in accordance with 50 CFR 217, Subpart Q-- Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to Oil and Gas Activities in Cook Inlet, Alaska, subject to the provisions of the Marine Mammal Protection Act (16 U.S.C. 1361 *et seq.*; MMPA) and the following conditions:

1. This Letter of Authorization (LOA) is valid for one year from the date signed.
2. This Authorization is valid only for oil and gas activities in Cook Inlet, Alaska.
3. General Conditions
 - (a) A copy of this LOA must be in the possession of Hilcorp, its designees, and personnel operating under the authority of this LOA.
 - (b) The species authorized for taking by incidental harassment are: gray whale (*Eschrichtius robustus*); fin whale (*Balaenoptera physalus*); minke whale (*Balaenoptera acutorostrata*); humpback whale (*Megaptera novaeangliae*); beluga whale (*Delphinapterus leucas*); killer whale (*Orcinus orca*); harbor porpoise (*Phocoena phocoena*); Dall's porpoise (*Phocoenoides dalli*); Steller sea lion (*Eumetopias jubatus*); California sea lion (*Zalophus californianus*); and harbor seal (*Phoca vitulina*).
 - (c) The taking, by Level A and Level B harassment only, is limited to the species listed in condition 3(b). See Table 1 (attached) for numbers of take authorized.
 - (d) The taking by serious injury, or death of any of the species listed in condition 3(b) of the Authorization or any taking of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this LOA.
4. The following activities are authorized to take, by incidental harassment only, the species of marine mammals identified in condition 3(b) above and will take place in Cook Inlet, Alaska:
 - (a) Outer continental shelf 3D seismic survey;
 - (b) Outer continental shelf geohazard survey; and
 - (c) Platform and pipeline maintenance;

5. Mitigation Measures. Unless constrained by human safety or national security the holder of this Authorization is required to implement the following mitigation measures:

- (a) Hilcorp must conduct a sound source verification (SSV) for 3D seismic and sub-bottom profiler use. Results of this SSV must be sent to NMFS and mitigation and monitoring zones may be adjusted based on the results of the SSV.
- (b) If any marine mammal species for which take is not authorized are sighted within or entering the relevant zones within which they are be exposed to sound above the 120 dB re 1 μ Pa (rms) threshold for continuous (e.g., vibratory pile-driving, drilling) sources or the 160 dB re 1 μ Pa (rms) threshold for non-explosive impulsive (e.g., seismic airguns) or intermittent (e.g., scientific sonar) sources, Hilcorp must take appropriate action to avoid such exposure (e.g., by altering speed or course or by shutdown of the sound source).
- (c) If the allowable number of takes in an LOA listed for any marine mammal species is met or exceeded, Hilcorp must immediately cease survey operations involving the use of active sound source(s), record the observation, and notify the National Marine Fisheries Service (NMFS) Office of Protected Resources (OPR).
- (d) Hilcorp must notify NMFS Office of Protected Resources at least 48 hours prior to the start of oil and gas activities each year.
- (e) Hilcorp must conduct briefings as necessary between vessel crews, marine mammal monitoring team, and other relevant personnel prior to the start of all survey activity, and when new personnel join the work, in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.
- (f) Hilcorp must limit seismic ramp up at night and during low-visibility conditions to situations in which operational planning cannot reasonably avoid such circumstances.
- (g) Establishment of monitoring and exclusion zones.
 - 1. For all relevant in-water construction and demolition activity, Hilcorp must implement shutdown zones/ exclusion zones (EZs) with radial distances as identified in any LOA issued under §§ 216.106 of this chapter and 217.166. If a marine mammal is sighted within or entering the EZ, such operations must cease.
 - 2. For all relevant in-water construction and demolition activity, Hilcorp must designate safety zones for monitoring (SZ) with radial distances as identified in any LOA issued under §§ 216.106 of this chapter and

217.166 and record and report occurrence of marine mammals within these zones.

3. For all relevant in-water construction and demolition activity, Hilcorp must implement a minimum EZ of a 10 m radius around the source.

(h) Implementation of shutdown measures

1. Hilcorp must deploy protected species observers (PSOs) and PSOs must be posted to monitor marine mammals within the monitoring zones during use of active acoustic sources and pile driving in water.
2. Monitoring must begin 15 minutes prior to initiation of stationary source activity and 30 minutes prior to initiation of mobile source activity, occur throughout the time required to complete the activity, and continue through 30 minutes post-completion of the activity. Pre-activity monitoring must be conducted to ensure that the EZ is clear of marine mammals during daylight hours, and activities may only commence once observers have declared the EZ clear of marine mammals. In the event of a delay or shutdown of activity resulting from marine mammals in the EZ, the marine mammals' behavior must be monitored and documented.
3. For all activities besides 3D seismic surveying, a determination that the EZ is clear must be made during a period of good visibility (i.e., the entire EZ must be visible to the naked eye).
4. If a marine mammal is observed within or entering the EZ, Hilcorp must halt all noise producing activities for which take is authorized at that location. If activity is delayed due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily left and been visually confirmed outside the EZ or the required amount of time (15 for porpoises and pinnipeds, 30 minutes for cetaceans) have passed without re-detection of the animal.
5. Monitoring must be conducted by trained observers, who must have no other assigned tasks during monitoring periods. Trained observers must be placed at the best vantage point(s) practicable to monitor for marine mammals and implement shutdown or delay procedures when applicable through communication with the equipment operator. Hilcorp must adhere to the following additional observer qualifications:
 - i. Hilcorp must use independent, dedicated, trained visual PSOs, meaning that the PSOs must be employed by a third-party observer provider, must not have tasks other than to conduct observational effort, collect data, and communicate with and instruct relevant vessel crew with regard to the presence of protected species and

mitigation requirements (including brief alerts regarding maritime hazards), and must have successfully completed an approved PSO training course appropriate for their designated task.

- ii. Hilcorp must submit PSO resumes for NMFS review and approval. Resumes must be accompanied by a relevant training course information packet that includes the name and qualifications (i.e., experience, training completed, or educational background) of the instructor(s), the course outline or syllabus, and course reference material as well as a document stating successful completion of the course. NMFS will approve or disapprove PSOs within one week from the time that the necessary information is received by NMFS, after which PSOs meeting the minimum requirements will automatically be considered approved.
 - iii. To the maximum extent practicable, the lead PSO must devise the duty schedule such that experienced PSOs are on duty with those PSOs with appropriate training but who have not yet gained relevant experience.
6. Operations must shut down completely if a beluga whale is sighted within the relevant Level B harassment isopleth.
- (i) Airgun ramp up.
1. Ramp up must be used at the start of airgun operations, including after a shutdown, and after any period greater than 30 minutes in duration without airgun operations.
 2. The rate of ramp up must be no more than 6 dB per 5-minute period.
 3. Ramp up must begin with the smallest gun in the array that is being used for all airgun array configurations.
 4. During the ramp up, the EZ for the full airgun array must be implemented.
 5. During daylight hours, if the complete EZ has not been visible for at least 30 minutes prior to the start of operations, seismic ramp up must not commence. This means that it will not be permissible to ramp up an airgun array from a complete shut down in fog or at other times when the outer part of the EZ is not visible.
 6. For 3D seismic surveys, airgun operations may be conducted at night if ramp up procedures are conducted at the beginning of each new line and airguns are shutdown between shooting of lines.

7. Ramp up of the airguns must not be initiated if a marine mammal is sighted within or entering the EZ at any time.
- (j) Aircraft mitigation.
 1. Hilcorp must use aircraft daily to survey the planned seismic survey area prior to the start of seismic surveying. Surveying must not begin unless the aerial flights confirm the planned survey area for that day is clear of beluga whales. If weather conditions make flying before the start of seismic in daylight unsafe, Hilcorp may delay the aerial survey until weather conditions improve and it is safe to fly.
 2. If beluga whales are sighted during flights, start of seismic surveying must be delayed until it is confirmed the area is free of beluga whales.
 - (k) Beluga exclusion zone. Hilcorp must not operate with noise producing activity within 10 miles (16 km) of the mean higher high water (MHHW) line of the Susitna Delta (Beluga River to the Little Susitna River) between April 15 and October 15. Hilcorp must not conduct seismic activity within the Level B isopleth distance of the mouth of the Kasilof River between January 1 and May 31.
 - (l) Hilcorp must abide by all mitigation measures described in the Biological Opinion for Hilcorp Alaska and Harvest Alaska Oil and Gas Activities, Cook Inlet, Alaska.
6. Monitoring. The holder of this Authorization is required to conduct marine mammal monitoring and to conduct acoustic monitoring as described below:
- (a) Marine Mammal Monitoring Protocols. Hilcorp must conduct briefings between construction supervisors and crews and the observer team prior to the start of all pile driving and removal activities, and when new personnel join the work. Trained observers must receive a general environmental awareness briefing conducted by Hilcorp staff. At minimum, training must include identification of marine mammals that may occur in the project vicinity and relevant mitigation and monitoring requirements. All observers must have no other construction-related tasks while conducting monitoring.
 - (b) During nighttime seismic operations, PSOs must monitor the EZ to the greatest extent possible using night vision devices.
 - (c) Activities other than seismic must only commence when the entire EZ is visible to the naked eye and can be adequately monitored. If conditions (e.g., fog) prevent the visual detection of marine mammals, activities must not be initiated. For activities other than seismic surveying, activity must be halted in low visibility

but vibratory pile driving or removal will be allowed to continue if started in good visibility.

- (d) Monitoring must begin 15 minutes prior to initiation of stationary source activity and 30 minutes prior to initiation of mobile source activity, occur throughout the time required to complete the activity, and continue through 30 minutes post-completion of the activity. Pre-activity monitoring must be conducted to ensure that the EZ is clear of marine mammals, and activities may only commence once observers have declared the EZ clear of marine mammals. In the event of a delay or shutdown of activity resulting from marine mammals in the EZ, the animals' behavior must be monitored and documented.
- (e) Placement of PSOs
 - 1. At least one on-duty PSO must be placed on the source vessel (for seismic and geohazard surveys) or drill rig (for pipe driving and vertical seismic profiling).
 - 2. During daytime seismic surveys a mitigation vessel must be used with at least one on-duty PSO aboard the vessel monitoring for marine mammal occurrence.

7. Reporting. The holder of this Authorization is required to:

- (a) Contact NMFS when they have reached the limit of authorized takes of beluga whale within a year.
- (b) Monthly reports. Monthly reports must be submitted to NMFS for all months during which in-water seismic activities take place. The monthly report must contain and summarize the following information: Dates, times, locations, heading, speed, weather, sea conditions (including Beaufort sea state and wind force), and associated activities during all seismic operations and marine mammal sightings; Species, number, location, distance from the vessel, and behavior of any sighted marine mammals, as well as associated seismic activity (number of power-downs and shutdowns), observed throughout all monitoring activities; An estimate of the number (by species) exposed to the seismic activity (based on visual observation) at received levels greater than or equal to the NMFS thresholds discussed above with a discussion of any specific behaviors those individuals exhibited; A description of the implementation and effectiveness of the terms and conditions of the Biological Opinion's Incidental Take Statement (ITS) and mitigation measures of the LOA.

(c) Annual Reports.

1. Hilcorp must submit an annual report within 90 days after each activity year, starting from the date when the LOA is issued (for the first annual report) or from the date when the previous annual report ended.
2. Annual reports will detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed during the period of the report.
3. NMFS will provide comments within 30 days after receiving annual reports, and Hilcorp must address the comments and submit revisions within 30 days after receiving NMFS comments. If no comment is received from the NMFS within 30 days, the annual report will be considered completed.

(d) Final report.

1. Hilcorp must submit a comprehensive summary report to NMFS not later than 90 days following the conclusion of marine mammal monitoring efforts described in this subpart.
2. The final report must synthesize all data recorded during marine mammal monitoring, and estimate the number of marine mammals that may have been harassed through the entire project.
3. NMFS will provide comments within 30 days after receiving this report, and Hilcorp must address the comments and submit revisions within 30 days after receiving NMFS comments. If no comment is received from the NMFS within 30 days, the final report will be considered as final.

(e) Reporting of injured or dead marine mammals.

1. In the event that personnel involved in the survey activities discover an injured or dead marine mammal, Hilcorp must report the incident to NMFS OPR, (301-427-8401) and to regional stranding network (877- 925-7773) as soon as feasible. The report must include the following information:
 - a. Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
 - b. Species identification (if known) or description of the animal(s) involved;
 - c. Condition of the animal(s) (including carcass condition if the animal is dead);
 - d. Observed behaviors of the animal(s), if alive;

- e. If available, photographs or video footage of the animal(s); and
 - f. General circumstances under which the animal was discovered.
2. In the event of a ship strike of a marine mammal by any vessel involved in the survey activities, Hilcorp must report the incident to NMFS OPR and to regional stranding networks as soon as feasible. The report must include the following information:
- a. Time, date, and location (latitude/longitude) of the incident;
 - b. Species identification (if known) or description of the animal(s) involved;
 - c. Vessel's speed during and leading up to the incident;
 - d. Vessel's course/heading and what operations were being conducted (if applicable);
 - e. Status of all sound sources in use;
 - f. Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;
 - g. Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;
 - h. Estimated size and length of animal that was struck;
 - i. Description of the behavior of the marine mammal immediately preceding and following the strike;
 - j. If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;
 - k. Estimated fate of the animal (e.g., dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and
 - l. To the extent practicable, photographs or video footage of the animal(s).

3. In the event of a live stranding (or near-shore atypical milling) event within 50 km of the survey operations, where the NMFS stranding network is engaged in herding or other interventions to return animals to the water, the Director of NMFS OPR (or designee) will advise Hilcorp of the need to implement shutdown procedures for all active acoustic sources operating within 50 km of the stranding. Shutdown procedures for live stranding or milling marine mammals include the following:
 - a. If at any time, the marine mammal(s) die or are euthanized, or if herding/intervention efforts are stopped, the Director of NMFS OPR (or designee) will advise Hilcorp that the shutdown around the animals' location is no longer needed.
 - b. Otherwise, shutdown procedures must remain in effect until the Director of NMFS OPR (or designee) determines and advises Hilcorp that all live animals involved have left the area (either of their own volition or following an intervention).
 - c. If further observations of the marine mammals indicate the potential for re-stranding, additional coordination with Hilcorp must occur to determine what measures are necessary to minimize that likelihood (e.g., extending the shutdown or moving operations farther away) and Hilcorp must implement those measures as appropriate.

4. If NMFS determines that the circumstances of any marine mammal stranding found in the vicinity of the activity suggest investigation of the association with survey activities is warranted, and an investigation into the stranding is being pursued, NMFS will submit a written request to Hilcorp indicating that the following initial available information must be provided as soon as possible, but no later than 7 business days after the request for information.
 - a. Status of all sound source use in the 48 hours preceding the estimated time of stranding and within 50 km of the discovery/notification of the stranding by NMFS; and
 - b. If available, description of the behavior of any marine mammal(s) observed preceding (i.e., within 48 hours and 50 km) and immediately after the discovery of the stranding.
 - c. In the event that the investigation is still inconclusive, the investigation of the association of the survey activities is still warranted, and the investigation is still being pursued,

NMFS may provide additional information requests, in writing, regarding the nature and location of survey operations prior to the time period above.

8. This Authorization may be modified, suspended or withdrawn if the Hilcorp 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.

Donna S. Wieting, Director
Office of Protected Resources

Date

Table 1. Maximum number of takes authorized in Year 1.

Species	Level A Takes Authorized	Level B Takes Authorized
Humpback whale	7	90
Minke whale	0	5
Gray whale	0	5
Fin whale	1	15
Killer whale (resident)	0	20
Killer whale (transient)	0	20
Beluga whale (NMFS)	0	35
Beluga whale (Goetz)	0	35
Dall's porpoise	1	10
Harbor porpoise	38	216
Harbor seal	288	6,847
Steller sea lion	1	375
California sea lion	0	5

Table 2. Radii of exclusion zone (EZ) and safety zone (SZ) for Hilcorp's activities.

Activity	Exclusion Zone (EZ) Radius	Safety Zone (SZ) Radius
2D/3D seismic survey	500 m	1,500 m
Sub-bottom profilers	100 m	1,500 m
Pipe driving	100 m	1,500 m
VSP	500 m	1,500 m
Sheet pile driving	100 m	1,500 m
Water jet	15 m	1,000 m
Hydraulic grinder*	N/A	500
Pinger*	N/A	500
Drilling*	N/A	500
Well construction activities*	N/A	500
Tug towing rig	N/A	1,500
Dynamic Positioning thrusters*	N/A	1,500
Aircraft in route*	N/A	500
Aircraft at rig*	N/A	500

* Indicates activities which we do not think results in take and therefore take is not proposed to be authorized. These mitigation measures are required under the Biological Opinion and have been included in this table for clarity of the applicant.