28 July 2014

Ms. Jolie Harrison, Chief
Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, Maryland 20910-3226

Dear Ms. Harrison:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application from SAExploration, Inc. (SAE), seeking an incidental harassment authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA). SAE is seeking authorization to take small numbers of marine mammals by harassment incidental to a 3-dimensional (3D) ocean-bottom node seismic survey program in the Alaskan Beaufort Sea during the 2014 Arctic open-water season. The Commission also has reviewed the National Marine Fisheries Service's (NMFS) 10 July 2014 notice (79 Fed. Reg. 39914) announcing receipt of the application and proposing to issue the authorization subject to certain conditions. The Commission reviewed a similar application from SAE in 2013 for an incidental harassment authorization associated with a smaller 3D seismic survey in the Beaufort Sea, but that survey was not conducted as planned.

BACKGROUND

SAE, in partnership with Kuukpik Corporation, plans to conduct a 3D ocean-bottom node seismic survey in the nearshore waters of the Colville River Delta in the Beaufort Sea during the 2014 open-water season (15 August to 15 October). SAE plans to conduct its survey in a 1,882-km^2 area. The survey would involve deploying and retrieving nodal sensor recorders (nodes) on the ocean floor at various depths from 0 to > 15 m. SAE would use two source vessels that would alternate their use of 880- and 1,760-in^3 sleeve airgun arrays for deeper waters and a 440-in^3 array for shallower waters (<1.5 m). The survey also would involve deploying and retrieving nodal sensor recorders (nodes) on the ocean floor using pingers and transducers to position and interpolate the location of the nodes.

NMFS's preliminary determination is that the proposed seismic survey would result in a temporary modification in the behavior of small numbers of up to five species of marine mammals, but that the total taking would have a negligible impact on the affected species or stocks. NMFS does not anticipate any take of marine mammals by death or serious injury. NMFS also believes that the potential for temporary or permanent hearing impairment from SAE's proposed seismic survey would be at the least practicable level because of the proposed mitigation and monitoring measures. Those measures include—

(1) conducting in-situ sound source and sound propagation measurements for the airgun arrays (including the full arrays and the mitigation airgun) and adjusting the exclusion zones (i.e.,

based on Level A harassment thresholds of 180 and 190 dB re 1 μPa for cetaceans and pinnipeds, respectively) and the disturbance zone (i.e., based on Level B harassment threshold of 160 dB re 1 μPa for all marine mammals), as necessary;

(2) using trained protected species observers on both survey vessels and also on the mitigation vessel to monitor the exclusion and disturbance zones for at least 30 minutes before and during seismic activities that occur during daylight hours;

(3) using ramp-up, delay, power-down, and shut-down procedures;

(4) restricting ramping up from a full shutdown at night or in periods of poor visibility (e.g., fog, heavy snow or rain) if the entire exclusion zone is not visible;

(5) firing a single airgun approximately once per minute for not longer than three hours during turns or brief transits to avoid implementation of ramp-up procedures;

(6) using avoidance measures and speed restrictions in proximity to whales and in poor sighting conditions;

(7) monitoring spotted seal haul-out sites before, during, and after the seismic survey and imposing additional mitigation measures, as needed;

(8) using passive acoustic monitoring to supplement visual monitoring;

(9) making all visual and acoustic monitoring data available on the website for the Ocean Biogeographic Information System-Spatial Ecological Analysis of Megavertebrate Populations (OBIS-SEAMAP) to facilitate analyses of impacts and the efficacy of mitigation measures;

(10) reporting injured and dead marine mammals to the NMFS Office of Protected Resources and the Alaska regional stranding coordinator using NMFS's phased approach and suspending seismic activities, if appropriate; and

(11) submitting field and technical reports and a final comprehensive report to NMFS.

RATIONALE AND RECOMMENDATIONS

Availability of marine mammals for subsistence

SAE has signed a conflict avoidance agreement with the Alaska whaling communities outlining measures that it would implement to minimize impacts on bowhead whale hunts, including not conducting seismic surveys 1) prior to 25 July inside the barrier islands from Pt. Storkerson to Thetis Island and 2) from 25 August 25 to the close of fall bowhead whale hunting outside the barrier island in Nuiqsut. SAE has also prepared a plan of cooperation to address potential impacts on subsistence activities. Based on the project design, the timing and location of the proposed seismic survey, and the proposed mitigation measures, NMFS has preliminarily determined that the proposed taking would not have an unmitigable adverse impact on the availability of marine mammals for subsistence use by Alaska Natives.

The Commission commends SAE for signing a conflict avoidance agreement in support of its 2014 proposed seismic survey in the Beaufort Sea but believes that such agreements should cover all communities that take marine mammals for subsistence in the affected area and include all marine mammals that might be affected by the proposed seismic survey. Therefore, the Commission recommends that NMFS encourage the development of conflict avoidance agreements that reflect the interests of all potentially affected communities and co-management organizations and account for potential adverse impacts on all marine mammal species taken for subsistence.

Sound source verification

Accurate characterization of the sizes of the exclusion and disturbance zones is critical for implementing mitigation measures and estimating the numbers of animals taken. In the past, the Commission has recommended a rapid turnaround of the in-situ sound source verification analysis as a precautionary measure to ensure that exclusion zones are the appropriate size. However, in at least one instance, rapid turnaround has resulted in errors, as occurred with ION's measurements of source levels during its 2012 in-ice seismic survey. In that case, the size of the exclusion zone was decreased from that modeled on the basis of erroneous field-report results. The error was not discovered until the end of the field season, when it was determined that the in-season adjustments resulted in unauthorized Level A harassment takes of bowhead whales. Since the purpose of verification is to ensure protection of marine mammals, one way to reduce risk to marine mammals would be to allow only for expansion, but not contraction, of the exclusion and/or disturbance zones after in-situ measurements have been made. Therefore, the Commission recommends that NMFS only authorize an in-season adjustment in the size of the exclusion and/or disturbance zones if the size(s) of the estimated zones are determined to be too small.

Mitigation measures for aggregations of whales and female-calf pairs

In the past, NMFS has proposed that seismic companies operating in the Arctic implement measures to ensure that aggregations of whales and bowhead cow-calf pairs are protected from disturbance from seismic activities (75 Fed. Reg. 27708). In that notice, NMFS defined aggregations of whales as 12 or more whales of any age/sex class that appear to be engaged in a non-migratory, significant biological behavior (e.g., feeding, socializing). In the Beaufort Sea, those requirements applied to activities occurring after 25 August. To ensure those same protections are in place for the proposed authorization, the Commission recommends that NMFS require that after 25 August, SAE (1) refrain from initiating or cease seismic activities if an aggregation of bowhead or gray whales (i.e., 12 or more whales of any age/sex class that appear to be engaged in a non-migratory, significant biological behavior (e.g., feeding, socializing)) is observed within the 160-dB re 1 μPa zone.

Monitoring after survey activities

NMFS proposed that SAE monitor for marine mammals for 30 minutes before and during the proposed seismic activities. No post-activity monitoring requirement was specified. However, post-activity monitoring is needed to ensure that marine mammals are not taken in unexpected or unauthorized ways or in unanticipated numbers. Some types of taking (e.g., taking by death or serious injury) may not be observed until after the activity has ceased. Post-activity monitoring is the best way, and in some situations may be the only reliable way, to detect certain impacts. Accordingly, the Commission recommends that NMFS require SAE to monitor for marine mammals for 30 minutes before, during, and 30 minutes after the proposed activities. This is a standard monitoring measure that NMFS should incorporate in all incidental harassment authorizations involving seismic surveys.

Peer review panel recommendations

The peer review panel convened by NMFS to review SAE's mitigation and monitoring plan made several recommendations to ensure that Level A harassment takes would not occur and to

enhance monitoring for marine mammals. The peer review panel's recommendations from 2013 and 2014 included—

- incorporating the most recent sightings, abundance, and density information in SAE's application;
- conducting additional visual monitoring from the mitigation vessel;
- documenting marine mammal occurrence, density, and behavior during periods when airguns are not operating;
- conducting passive acoustic monitoring to supplement visual monitoring;
- conducting biweekly vessel-based pinniped surveys (rather than aerial surveys) before, during, and after survey activities to monitor pinniped use of the survey area, identify spotted seal haulouts, and implement additional mitigation measures as necessary;
- assessing the efficacy of mitigation measures, in addition to reporting instances when mitigation measures were implemented and final estimates of marine mammals taken during the survey;
- providing a complete characterization of the acoustic footprint of all seismic arrays;
- consulting on and coordinating monitoring and data collection activities with other oil and gas companies and with federal, state, and borough agencies; and
- making the data it collects publicly available on the OBIS-SEAMAP website to facilitate integration and synthesis of monitoring results, consistent with practice followed by other researchers collecting visual and acoustic information on marine mammals.

The Commission commends NMFS for working with SAE to implement the peer review panel's recommendations. However, the *Federal Register* notice did not indicate when passive acoustic monitoring would begin or end. For consistency with the 2013 peer review panel's recommendation, the Commission recommends that NMFS verify that SAE will conduct passive acoustic monitoring before, during, and after seismic activities.

I trust these comments will be helpful. Please let me know if you or your staff have questions with regard to this letter.

Sincerely,

Rebecca J. Lent, Ph.D.
Executive Director

Cc: Jon Kurland, National Marine Fisheries Service Alaska Regional Office