OMB Control Number: 1010-0151
OMB Expiration Date: xx/xx/xx

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT, REGULATION AND ENFORCEMENT
GULF OF MEXICO (GOM) OCS REGION

NTL No. _____ Effective Date: xx/xx/xxxx

NOTICE TO LESSEES AND OPERATORS (NTL) OF FEDERAL OIL, GAS, AND SULPHUR LEASES IN THE OUTER CONTINENTAL SHELF, GULF OF MEXICO OCS REGION

Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program

This NTL supersedes and replaces NTL No. 2007-G02. It does not introduce any new types of mitigation measures; however, it clarifies how you should implement seismic survey mitigation measures, including ramp-up procedures, the use of a minimum sound source, airgun testing and protected species observation and reporting. The measures contained herein apply to all on-lease surveys you conduct under 30 CFR 250 and all off-lease surveys you conduct under 30 CFR 251.

Background

The use of an airgun or airgun arrays while conducting seismic operations may have an impact on marine wildlife, including marine mammals and sea turtles. Some marine mammals, such as the sperm whale (*Physeter macrocephalus*), and all sea turtles that inhabit the GOM are protected under the Endangered Species Act (ESA). All marine mammals are protected under the Marine Mammal Protection Act (MMPA).

In order to protect marine mammals and sea turtles during seismic operations, the National Marine Fisheries Service (NMFS) requires seismic operators to use ramp-up and visual observation procedures when conducting seismic surveys. Procedures for ramp-up, protected species observer training, visual monitoring and reporting are described in detail in this NTL. These mitigation measures apply to geophysical activities conducted under lease terms, for all seismic survey operations conducted in waters deeper than 200 meters (656 feet) throughout the GOM and, in the GOM waters east of 88.0° W. longitude, for all seismic survey operations conducted regardless of water depth. Performance of these mitigation measures is also a condition of the approval of applications for geophysical permits. You must demonstrate your compliance with these mitigation measures by submitting to BOEMRE certain reports detailed in this NTL.

Definitions

Terms used in this NTL have the following meanings:

1. Airgun means a device that releases compressed air into the water column, creating an acoustical energy pulse with the purpose of penetrating the seafloor.
2. Ramp-up means the gradual increase in emitted sound levels from an airgun array by systematically turning on the full complement of an array's airguns over a period of time.
3. Visual monitoring means the use of trained observers to scan the ocean surface visually for the presence of marine mammals and sea turtles. These observers must have successfully completed a visual observer training program as described below. The area to be scanned visually includes, but is not limited to, the exclusion zone. Visual monitoring of an exclusion zone and adjacent waters is intended to establish and, when visual conditions allow, maintain a zone around the sound source and seismic vessel that is clear of marine mammals and sea turtles, thereby reducing or eliminating the potential for injury.
4. Exclusion zone means the area at and below the sea surface within a radius of 500 meters surrounding the center of an airgun array and the area within the immediate vicinity of the survey vessel. Each survey vessel must maintain its own unique exclusion zone.
5. Whales mean all marine mammals in the GOM except dolphins (see definition below) and manatees. This includes all species of baleen whales (Suborder *Mysticeti*), all species of beaked whales (*Ziphius cavirostris* and *Mesoplodon sp*.), sperm whales (*Physeter macrocepahalus*), and pygmy and dwarf sperm whales (*Kogia sp*.). Of the baleen whales, only the Bryde's whale (*Balaenoptera edeni*) is expected to be present in the northern GOM and is considered uncommon. This species has primarily been sighted in water depths less than 200 m in the eastern GOM. Sightings of other baleen whale species are highly unlikely.
6. Dolphins mean all marine mammal species in the Family *Delphinidae*. In the GOM, this includes, among others, killer whales, pilot whales, and all of the "dolphin" species.

Ramp-up Procedures

The intent of ramp-up is to warn marine mammals and sea turtles of pending seismic operations and to allow sufficient time for those animals to leave the immediate vicinity. Under normal conditions, animals sensitive to these activities are expected to move out of the area. For all seismic surveys, including airgun testing, use the ramp-up procedures described below to allow whales, other marine mammals, and sea turtles to depart the exclusion zone before seismic surveying begins.

Measures to conduct ramp-up procedures during all seismic survey, including airgun testing, operations are as follows:

1. Visually monitor the exclusion zone and adjacent waters for the absence of marine mammals and sea turtles for at least 30 minutes before initiating ramp-up procedures. If none are detected, you may initiate ramp-up procedures. Do not initiate ramp-up procedures at night or when you cannot visually monitor the exclusion zone for marine mammals and sea turtles if your minimum source level drops below 160 dB re 1 μPa-m (rms) (see measure 5). Altering the vessel's course to shallower water depths (< 200m in the Central and Western Planning Areas) to circumvent ramp-up requirements of the 200 meter isobath will be considered noncompliant.
2. Initiate ramp-up procedures by firing a single airgun. The preferred airgun to begin with should be the smallest airgun, in terms of energy output (dB) and volume (in^3).

3. Continue ramp-up by gradually activating additional airguns over a period of at least 20 minutes, but no longer than 40 minutes, until the desired operating level of the airgun array is obtained.
4. Immediately shut down all airguns ceasing seismic operations at any time a whale is detected entering or within the exclusion zone. You may recommence seismic operations and ramp-up of airguns only when the exclusion zone has been visually inspected for at least 30 minutes to ensure the absence of marine mammals and sea turtles.
5. You may reduce the source level of the airgun array, using the same shot interval as the seismic survey, to maintain a minimum source level of 160 dB re 1 μPa-m (rms) for the duration of certain activities. By maintaining the minimum source level, you will not be required to conduct the 30-minute visual clearance of the exclusion zone before ramping back up to full output. Activities that are appropriate for maintaining the minimum source level are: (1) all turns between transect lines, when a survey using the full array is being conducted immediately prior to the turn and will be resumed immediately after the turn; and (2) unscheduled, unavoidable maintenance of the airgun array that requires the interruption of a survey to shut down the array. The survey should be resumed immediately after the repairs are completed. There may be other occasions when this practice is appropriate, but use of the minimum source level to avoid the 30-minute visual clearance of the exclusion zone is only for events that occur during a survey using the full power array. The minimum sound source level is not to be used to allow a later ramp-up after dark or in conditions when ramp-up would not otherwise be allowed.

Protected Species Observer Program

Visual Observers

Visual observers who have completed a protected species observer training program as described below are required on all seismic vessels conducting operations in water depths greater than 200 meters (656 ft) throughout the GOM. Visual observers are required on all seismic vessels conducting operations in OCS water depths less than 200 meters (656 ft.) in the GOM waters east of 88.0° W. longitude. At least two protected species visual observers will be required on watch aboard seismic vessels at all times during daylight hours (dawn to dusk) when seismic operations are being conducted, unless conditions (fog, rain, darkness) make sea surface observations impossible. If conditions deteriorate during daylight hours such that the sea surface observations are halted, visual observations must resume as soon as conditions permit. Operators may engage trained third party observers, may utilize crew members after training as observers, or may use a combination of both third party and crew observers. During these observations, the following guidelines shall be followed: (1) other than brief alerts to bridge personnel of maritime hazards, no additional duties may be assigned to the observer during his/her visual observation watch (if conditions warrant more vigilant look-outs when navigating around or near maritime hazards, additional personnel must be used to ensure that watching for protected species remains the primary focus of the on-watch observers), (2) no observer will be allowed more than 4 consecutive hours on watch as a visual observer, (3) a “break” time of no less than 2 hours must be allowed before an observer begins another visual monitoring watch rotation (break time means no assigned observational duties), and (4) no person (crew or third party) on watch as a visual observer will be assigned a combined watch schedule of more than 12 hours in a 24-hour period. Due to the concentration and diligence required during visual observation watches, operators who choose to use trained crew members in these positions may

select only those crew members who demonstrate willingness as well as ability to perform these duties.

Training

All visual observers must have completed a protected species observer training course. BOEMRE will not sanction particular trainers or training programs. However, basic training criteria have been established and must be adhered to by any entity that offers observer training. Operators may utilize observers trained by third parties, may send crew for training conducted by third parties, or may develop their own training program. All training programs offering to fulfill the observer training requirement must: (1) furnish to BOEMRE, at the address listed in this NTL, a 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; (2) furnish each trainee with a document stating successful completion of the course; and (3) provide BOEMRE with names, affiliations, and dates of course completion of trainees.

The training course must include the following elements:

I. Brief overview of the MMPA and the ESA as they relate to seismic acquisition and protection of marine mammals and sea turtles in the GOM,

II. Brief overview of seismic acquisition operations in the GOM,

III. Overview of seismic mitigation measures (NTLs) and the protected species observer program in the GOM,

IV. Discussion of the role and responsibilities of the protected species observer in the GOM, including:
   a) Legal requirements (why you are here and what you do),
   b) Professional behavior (code of conduct),
   c) Integrity,
   d) Authority of protected species observer to call for shut-down of seismic acquisition operations,
   e) Assigned duties,
      1) What can be asked of the observer,
      2) What cannot be asked of the observer,
   f) Reporting of violations and coercion,

V. Identification of GOM marine mammals and sea turtles, with emphasis on whales,

VI. Cues and search methods for locating marine mammals, especially whales, and sea turtles,

VII. Data collection and reporting requirements:
   a) Forms and reports to BOEMRE via email at **protectedspecies@boemre.gov** on the 1st and 15th of each month,
   b) Whale in exclusion zone/shut-down report within 24 hours.

Visual Monitoring Methods

The observers on duty will look for whales, other marine mammals, and sea turtles using the naked eye and hand-held binoculars provided by the seismic vessel operator. The observers will stand watch in a suitable location that will not interfere with navigation or operation of the vessel and that affords the observers an optimal view of the sea surface. The observers will provide 360° coverage surrounding the seismic vessel and will adjust their positions appropriately to ensure adequate coverage of the entire area. These observations must be consistent, diligent, and free of distractions for the duration of the watch.

Visual monitoring will begin no less than 30 minutes prior to the beginning of ramp-up and continue until seismic operations cease or sighting conditions do not allow observation of the sea surface (e.g., fog, rain, darkness). If a marine mammal or sea turtle is observed, the observer should note and monitor the position (including lat./long. of vessel and relative bearing and estimated distance to the animal) until the animal dives or moves out of visual range of the observer. Make sure you continue to observe for additional animals that may surface in the area, as often there are numerous animals that may surface at varying time intervals. At <u>any</u> time a whale is observed within an estimated 500 meters (1,640 feet) of the sound source array ("exclusion zone"), whether due to the whale's movement, the vessel's movement, or because the whale surfaced inside the exclusion zone, the observer will call for the immediate shut-down of the seismic operation, including airgun firing (the vessel may continue on its course but all airgun discharges must cease). The vessel operator must comply immediately with such a call by an on-watch visual observer. Any disagreement or discussion should occur only after shut-down. When no marine mammals or sea turtles are sighted for at least a 30-minute period, ramp-up of the source array may begin. Ramp-up cannot begin unless conditions allow the sea surface to be visually inspected for marine mammals and sea turtles for 30 minutes prior to commencement of ramp-up (unless the method described in the section entitled "Experimental Passive Acoustic Monitoring" is used). Thus, ramp-up cannot begin after dark or in conditions that prohibit visual inspection (fog, rain, etc.) of the exclusion zone. Any shut-down due to a whale(s) sighting within the exclusion zone must be followed by a 30-minute all-clear period and then a standard, full ramp-up. Any shut-down for other reasons, including, but not limited to, mechanical or electronic failure, resulting in the cessation of the sound source for a period greater than 20 minutes, must also be followed by full ramp-up procedures. In recognition of occasional, short periods of the cessation of airgun firing for a variety of reasons, periods of airgun silence **not exceeding 20 minutes** in duration will not require ramp-up for the resumption of seismic operations if: (1) visual surveys are continued diligently throughout the silent period (requiring daylight and reasonable sighting conditions), and (2) no whales, other marine mammals, or sea turtles are observed in the exclusion zone. If whales, other marine mammals, or sea turtles are observed in the exclusion zone during the short silent period, resumption of seismic survey operations must be preceded by ramp-up.

Reporting

The importance of accurate and complete reporting of the results of the mitigation measures cannot be overstated. Only through diligent and careful reporting can BOEMRE, and subsequently NOAA Fisheries, determine the need for and effectiveness of mitigation measures. Information on observer effort and seismic operations are as important as animal sighting and behavior data. In order to accommodate various vessels' bridge practices and preferences, vessel operators and observers may design data reporting forms in whatever format they deem

convenient and appropriate. Alternatively, observers or vessel operators may adopt the United Kingdom's Joint Nature Conservation Committee forms (available at their website www.jncc.gov.uk). At a minimum, the following items should be recorded and included in reports to the BOEMRE:

Observer Effort Report: Prepared for each day during which seismic acquisition operations are conducted. Furnish an observer effort report to BOEMRE on the 1st and the 15th of each month that includes:

- Vessel name,
- Observers' names and affiliations,
- Survey type (e.g., site, 3D, 4D),
- BOEMRE Permit Number (for "off-lease seismic surveys") or OCS Lease Number (for "on-lease seismic surveys"),
- Date,
- Time and lat./long. when daily visual survey began,
- Time and lat./long. when daily visual survey ended,
- Average environmental conditions while on visual survey, including
  - Wind speed and direction,
  - Sea state (glassy, slight, choppy, rough or Beaufort scale),
  - Swell (low, medium, high or swell height in meters),
  - Overall visibility (poor, moderate, good).

Survey Report: Prepared for each day during which seismic acquisition operations are conducted and the airguns are being discharged. Furnish a survey report to BOEMRE on the 1st and the 15th of each month during which operations are being conducted that includes:

- Vessel name,
- Survey type (e.g., site, 3D, 4D),
- BOEMRE Permit Number (for "off-lease seismic surveys") or OCS Lease Number (for "on-lease seismic surveys"),
- Date,
- Time pre-ramp-up survey begins,
- What marine mammals and sea turtles were seen during pre-ramp-up survey?
- Time ramp-up begins,
- Were whales seen during ramp-up?
- Time airgun array is operating at the desired intensity,
- What marine mammals and sea turtles were seen during survey?
- If whales were seen, was any action taken (i.e., survey delayed, guns shut down)?
- Reason that whales might not have been seen (e.g., swell, glare, fog),
- Time airgun array stops firing.

Sighting Report: Prepared for each sighting of a marine mammal (whale or dolphin) or sea turtle made during seismic acquisition operations. Furnish a sighting report to BOEMRE on the 1st and the 15th of each month during which operations are being conducted that includes:

- Vessel name,
- Survey type (e.g., site, 3D, 4D),

- BOEMRE Permit Number (for "off-lease seismic surveys") or OCS Lease Number (for "on-lease seismic surveys"),
- Date,
- Time,
- Watch status (Were you on watch or was this sighting made opportunistically by you or someone else?),
- Observer or person who made the sighting,
- Lat./long. of vessel,
- Bearing of vessel,
- Bearing and estimated range to animal(s) at first sighting,
- Water depth (meters),
- Species (or identification to lowest possible taxonomic level),
- Certainty of identification (sure, most likely, best guess),
- Total number of animals,
- Number of juveniles,
- Description (as many distinguishing features as possible of each individual seen, including length, shape, color and pattern, scars or marks, shape and size of dorsal fin, shape of head, and blow characteristics),
- Direction of animal's travel – compass direction,
- Direction of animal's travel – related to the vessel (drawing preferably),
- Behavior (as explicit and detailed as possible; note any observed changes in behavior,)
- Activity of vessel,
- Airguns firing? (yes or no),
- Closest distance (meters) to animals from center of airgun or airgun array (whether firing or not).

Note: If this sighting was of a whale(s) within the exclusion zone that resulted in a shut-down of the airguns, include in the sighting report the observed behavior of the whale(s) before shut-down, the observed behavior following shut-down (specifically noting any change in behavior), and the length of time between shut-down and subsequent ramp-up to resume the seismic survey (note if seismic survey was not resumed as soon as possible following shut-down). Send this report to BOEMRE **within 24 hours of the shut-down**. These sightings should also be included in the first regular semi-monthly report following the incident.

Additional information, important points, and comments are encouraged. All reports will be submitted to BOEMRE on the 1st and the 15th of each month (with one exception noted above). Forms should be scanned (or data typed) and sent via email to protectedspecies@boemre.gov**.**

Borehole Seismic Surveys

Borehole seismic surveys differ from surface seismic surveys in a number of ways, including the use of much smaller airgun arrays, having an average survey time of 12-24 hours, utilizing a sound source that is not usually moving at 4-5 knots, and requiring the capability of moving the receiver in the borehole between shots. Due to these differences, the following altered mitigations apply only to borehole seismic surveys:

- During daylight hours, when visual observations of the exclusion zone are being performed as required in this NTL, borehole seismic operations will not be

required to ramp-up for shutdowns of 30 minutes or less in duration, as long as no whales, other marine mammals, or sea turtles are observed in the exclusion zone during the shutdown. If a whale, other marine mammal, or sea turtle is sighted in the exclusion zone, ramp-up is required and may begin only after visual surveys confirm that the exclusion zone has been clear for 30 minutes.

- During nighttime or when conditions prohibit visual observation of the exclusion zone, ramp-up will not be required for shutdowns of 20 minutes or less in duration. For borehole seismic surveys that utilize passive acoustics during nighttime and periods of poor visibility, ramp-up is not required for shutdowns of 30 minutes or less.

- Nighttime or poor visibility ramp-up is allowed only when passive acoustics are used to ensure that no whales are present in the exclusion zone (as for all other seismic surveys). Operators are strongly encouraged to acquire the survey in daylight hours when possible.

- Protected species observers must be used during daylight hours, as required in this NTL, and may be stationed either on the source boat or on the associated drilling rig or platform if a clear view of the sea surface in the exclusion zone and adjacent waters is available.

- All other mitigations and provisions for seismic surveys as set forth in this NTL will apply to borehole seismic surveys.

- Reports should reference OCS Lease Number, Area/Block and Borehole Number.

Experimental Passive Acoustic Monitoring

Whales, especially sperm whales, are very vocal marine mammals, and periods of silence are usually short and most often occur when these animals are at the surface and may be detected using visual observers. However, sperm whales are at the greatest risk of potential injury from seismic airguns when they are submerged and under the airgun array. Passive acoustic monitoring appears to be very effective at detecting submerged and diving sperm whales, and some other marine mammal species, when they are not detectable by visual observation. BOEMRE strongly encourages operators to participate in an experimental program by including passive acoustic monitoring as part of the protected species observer program. Inclusion of passive acoustic monitoring does **not** relieve an operator of any of the mitigations (including visual observations) in this NTL **with the following exception**: Monitoring for whales with a passive acoustic array by an observer proficient in its use will allow ramp-up and the subsequent start of a seismic survey during times of reduced visibility (darkness, fog, rain, etc.) when such ramp-up otherwise would not be permitted using only visual observers. If you use passive acoustic monitoring, include an assessment of the usefulness, effectiveness, and problems encountered with the use of that method of marine mammal detection in the reports described in this NTL. A description of the passive acoustic system, the software used, and the monitoring plan should also be reported to BOEMRE at the beginning of its use.

Paperwork Reduction Act

The PRA (44 U.S.C. 3501) requires us to inform you that we collect the information described in this NTL to ensure that you conduct operations in a manner that will not jeopardize threatened or endangered species or destroy or adversely modify critical habitat that has been designated for those species. We protect all proprietary information submitted according to the Freedom of Information Act and 30 CFR 250.197. An agency may not conduct or sponsor a collection of information unless it displays a currently valid Office of Management and Budget (OMB) control number. You are not obligated to respond until the OMB has approved this collection of information. We estimate the total burden to be 4,012 hours, and the total non-hour cost burden to be $1,822,080. Direct comments regarding the burden, or any other aspect of this information collection, to the Information Collection Clearance Officer, Bureau of Ocean Energy Management, Regulation and Enforcement, 381 Elden Street, Herndon, VA 20170.

In addition, this NTL refers to information collection requirements under 30 CFR 250, subpart B. The OMB has approved all of the information collection requirements in these regulations and assigned OMB Control Number 1010-0151.

Contact

Any questions regarding this NTL should be submitted in writing to: protectedspecies@boemre.gov. Submittals by mail may be directed to:

Bureau of Ocean Energy Management, Regulation and Enforcement
Gulf of Mexico OCS Region
Attention: Environmental Sciences Unit (MS 5430)
1201 Elmwood Park Blvd.
New Orleans, LA 70123-2394

Lars Herbst
Regional Director