CONSISTENCY CERTIFICATION FOR

SPECTRUM GEO INC.
ATLANTIC 2D GEOPHYSICAL SURVEY
(BOEM APPLICATION E14-006 AND E14-009)

SUBMITTED TO:

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

January 2015
CONSISTENCY CERTIFICATION FOR SPECTRUM GEO INC.
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Document No. CSA-Spectrum-FL-14-2611-05-REP-05-VER01

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<td>01</td>
<td>01/05/2015</td>
<td>Initial draft for review</td>
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APPENDIX: NORTH CAROLINA COASTAL MANAGEMENT PROGRAM FEDERAL
CONSISTENCY CERTIFICATION FOR SPECTRUM GEO INC. ATLANTIC 2D
GEOPHYSICAL SURVEY........................................................................................................ A-1
Spectrum Geo Inc. (Spectrum) has determined that the proposed project complies with North Carolina’s approved Coastal Management Program (CMP) and will be conducted in a manner consistent with the CMP. The following contains Spectrum’s analysis of the proposed project’s consistency with the specific enforceable policies of the North Carolina’s CMP. First, Spectrum provides the necessary data and information as required in 15 CFR 930.58. Second, Spectrum responds to the enforceable policies in the state’s CMP as required in 15 CFR 930.57. Last, Spectrum’s responses to the enforceable policies are in response only to the resources that the National Oceanic and Atmospheric Administration’s (NOAA’s) Office for Coastal Management (OCM) identified as having “reasonable and foreseeable effects,” consistent with 15 CFR 930.11(g).

Section 1.0 provides additional information about Spectrum’s proposed survey. Sections 2.0 and 3.0 provide the mitigation measures required by the Record of Decision (ROD) issued for the Atlantic Programmatic Environmental Impact Statement (Programmatic EIS) as well as Spectrum’s proposed additional mitigation measures that have been implemented. Section 4.0 provides an analysis of the project’s potential effects on the resources identified by NOAA’s OCM as having reasonable and foreseeable effects. The Appendix provides a response to each of the state’s enforceable policies as they pertain to the resources identified by NOAA’s OCM as having reasonable and foreseeable effects and an executed Consistency Certification that Spectrum’s proposed activities will be conducted in a manner consistent with this program and its enforceable policies.

1.0 OVERVIEW

1.1 Purpose and Need

The purpose of the proposed survey is to collect regional and detailed two-dimensional (2D) geophysical seismic data offshore of portions of the U.S. Atlantic coast. The proposed survey is needed to gather updated, state-of-the-practice data about the Atlantic Ocean seafloor and subsurface characteristics. Oil and gas resources in the Outer Continental Shelf (OCS) Mid- and South Atlantic Planning Areas are currently not well known as the existing geological and geophysical survey data were collected in the 1970s and 1980s. More up-to-date data will reduce the risk involved with all leasing, drilling, and development of OCS lands and help to evaluate the environmental impacts of these future potential activities. The updated survey information also will be used to make more informed business decisions regarding oil and gas reserves, ensure the proper use and conservation of OCS energy resources, and help establish fair market values for the leasing of public lands.

1.2 Survey Extent Offshore North Carolina

The survey transects were carefully developed to ensure that the minimum number of line miles are surveyed while meeting the goals of the survey. The project does not propose any active surveying in the state’s coastal zone (state waters). Vessels may, as necessary, utilize established shipping channels and ports for service. All proposed survey activities will occur outside of the state’s coastal zone. Figure 1 depicts the extent of proposed survey transects offshore the state’s coastal zone. The regional survey grid will be conducted in an approximately 25 × 25 km (13.5 × 13.5 nautical mile [nmi]) grid. The detailed survey grid will be conducted in a grid that is subdivided by approximately 4 × 4 km (2.2 × 2.2 nmi) and 8 × 8 km (4.3 × 4.3 nmi) blocks to avoid re-surveying areas that are covered by the regional survey grid. The proposed survey transects include 55,656.78 km (30,031.66 nmi) offshore North Carolina’s coastal zone, representing 65% of the entire proposed survey area.

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Two survey vessels, starting on opposite ends of the survey area, will collect data simultaneously to complete the proposed regional and detailed survey grids. It is estimated that two additional chase or support vessels (one per survey vessel) would be used for the proposed survey; however, if vessel traffic or fishing activity is high, additional support vessels may be necessary to ensure safety of all vessels. The 2D seismic survey will be conducted 24 hours per day, 7 days per week in a manner consistent with industry best practices. Survey activities are planned for the second quarter of 2015.
Figure 1. Proposed survey transects offshore North Carolina’s coastal zone.
1.3 Additional Factors to Reduce Effects in Survey Design

The 2D survey data will be collected using towed seismic airgun arrays, and the survey will not involve sampling or bottom disturbing activities. Spectrum’s proposed survey meets or exceeds the mitigation measures required by the ROD issued for the Programmatic EIS. In accordance with the ROD, the proposed survey includes avoidance of time-area closures for North Atlantic right whales (NARWs) and sea turtles (Figure 2); the utilization of passive acoustic monitoring (PAM) as part of the Seismic Airgun Survey Protocol (Section 3.0); and, for nighttime operations or operations during periods of reduced visibility, effective monitoring technologies that could include PAM.

To further mitigate environmental effects, Spectrum has included survey design constraints (beyond those issued in the ROD), including:

- Exclusion of state waters from the survey area;
- Exclusion of the Monitor and Gray’s Reef National Marine Sanctuaries (NMSs) plus a 500-m buffer from the survey area; and
- Increased separation distance of 60 km when one vessel is operating on the continental shelf. When both vessels are operating in deeper water, the minimum separation distance is 40 km.

Implementation of the additional design constraints results in additional mitigation and protection for protected species and NMS resources. Exclusion of state waters from the survey area will provide additional protection for NARWs, sea turtles, coastal birds, fisheries resources (including threatened and endangered species), and nearshore archeological resources. Exclusion of state waters from the survey area also will mitigate interactions with nearshore commercial and recreational fisheries, other nearshore marine uses (e.g., sand and gravel borrow areas and offshore disposal sites), and nearshore human resources.

Exclusion of the Monitor NMS and Gray’s Reef NMS from the survey area will provide additional protection for archeological and benthic resources within the Monitor NMS (site of the USS Monitor) and will protect sensitive benthic communities within Gray’s Reef NMS. As an added precaution, the NMSs will have a 500-m (1,640-ft) buffer zone and the entire area will be excluded from survey activities. The proposed survey activities do not involve bottom-founded equipment or structures and will not directly impact archaeological sites or benthic resources.

Increasing the minimum separation distance between simultaneously operated survey vessels associated with this proposed survey to more than 60 km (37 mi) when at least one vessel is operating on the continental shelf and 40 km (25 mi) when both vessels are operating in deeper water improves upon the 40-km separation requirement. The additional separation between vessels will provide an animal movement corridor through which animals may pass to avoid airgun noise in shallower water. The 40-km (25-mi) separation is determined to be sufficient to provide an animal movement corridor in deeper water.
Figure 2. Time-area closures for North Atlantic right whales (NARWs) and sea turtles.
2.0 MITIGATION MEASURES

The proposed survey will include impact-reducing mitigation conditions defined in the Atlantic Programmatic EIS, Chapter 2.2.2 and Appendix C, listed under the preferred Alternative (in the Programmatic EIS), which includes mitigation measures to minimize potential impacts to sea turtles and NARWs. Mitigation measures and survey protocols applicable to these proposed survey activities are listed and described in the subsequent sections. Those that are not applicable include measures for surveys that involve seafloor-disturbing activities or for high-resolution geophysical (HRG) surveys (i.e., avoidance and reporting requirements for historic and prehistoric sites; avoidance of sensitive benthic communities, and HRG survey protocol). The applicable mitigation measures and survey protocols are as follows:

- Vessel strike avoidance;
- Marine debris avoidance;
- Military and National Aeronautics and Space Administration (NASA) coordination;
- Seismic airgun survey protocol with required use of PAM;
- Time-area closures for seismic surveys:
  - an expanded airgun time-area closure for NARWs, and
  - a time-area closure for nesting sea turtles offshore Brevard County, Florida;
- Activities in or near NMSs; and
- Geographic separation of concurrent seismic surveys.

2.1 Vessel Strike Avoidance

Vessel strike avoidance measures will be implemented for all survey vessels involved in the proposed survey and will include measures outlined in the Joint Bureau of Ocean Energy Management-Bureau of Safety and Environmental Enforcement Notice to Lessees 2012-G01 (Joint BOEM-BSEE NTL 2012-G01; “Vessel Strike Avoidance and Injured/Dead Protected Species Reporting”) (U.S. Department of the Interior [USDOI], BOEM and BSEE, 2012a), which includes the National Marine Fisheries Service (NMFS) “Vessel Strike Avoidance Measures and Reporting for Mariners,” addressing protected species identification, vessel strike avoidance, and injured/dead protected species reporting. Vessel strike avoidance measures will include eight key elements:

1. Vessel operators and crews will maintain a vigilant watch for all marine mammals and sea turtles and slow down or stop the vessel, regardless of vessel size, to avoid striking protected species. A third-party protected species observer (PSO) (see Section 3.5) will be placed aboard all survey vessels to monitor an area around a transiting survey vessel (the vessel strike exclusion zone) according to the parameters stated in items 2 through 8 and ensure it is free of all marine mammals and sea turtles.

2. In accordance with NMFS Compliance Guide for the Right Whale Ship Strike Reduction Rule (50 CFR § 224.105), when safety allows, vessels, regardless of vessel size, shall transit within the 10 kn (18.5 km/h) speed restriction in Dynamic Management Areas (DMAs), the Mid-Atlantic U.S. Seasonal Management Area (SMA) from 1 November through 30 April, and critical habitat and the Southeast U.S. SMA from 15 November through 15 April.

3. When safety permits, vessel speeds will be reduced to 10 kn (18.5 km/h) or less when mother/calf pairs, pods, or large assemblages of cetaceans are observed near a transiting vessel. A single cetacean at the surface may indicate the presence of submerged animals in the vicinity of the vessel; therefore, precautionary measures must be exercised when an animal is observed.

4. When NARWs are sighted at any time during the year, all vessels, regardless of size, will maintain a minimum separation distance of 500 m (1,640 ft). The following avoidance measures must be taken if a vessel comes within 500 m (1,640 ft) of an NARW:
a) While underway, the vessel operator shall steer a course away from the NARW at 10 kn (18.5 km/h) or less until the minimum separation distance has been established.

b) If an NARW is spotted in the path of a vessel or within 100 m (328 ft) of a vessel underway, the operator shall reduce speed and shift engines to neutral. The operator shall re-engage engines only after the NARW has moved out of the path of the vessel and is more than 100 m (328 ft) away. If the NARW is still within 500 m (1,640 ft) of the vessel, the vessel shall select a course away from the whale’s course at a speed of 10 kn (18.5 km/h) or less. This procedure shall also be followed if an NARW is spotted while a vessel is stationary. Whenever possible, a vessel should remain parallel to the whale’s course while maintaining the 500-m distance as it transits, avoiding abrupt changes in direction until it has left the area.

5. Year-round, when whales listed in the Endangered Species Act (ESA) other than NARWs are sighted, vessels, regardless of size, will maintain a minimum separation distance of 100 m (328 ft). The lessee and/or operator will ensure that the following avoidance measures are taken if a vessel comes within 100 m (328 ft) of an ESA-listed whale(s) species:
   a) The vessel underway will reduce speed and shift the engine to neutral; the engines must not be engaged until the whale has moved out of the vessel’s path and the minimum separation distance has been established.
   b) If a vessel is stationary, the vessel will not engage the engines until the ESA-listed whale(s) has moved out of the vessel’s path and is beyond 100 m (328 ft).

6. Year-round, survey vessels, will maintain a distance of 50 m (164 ft) or more from all other marine mammals (cetaceans, pinnipeds, and manatees). If an animal is encountered during transit, a vessel will attempt to remain parallel to the animal’s course, avoiding excessive speed or abrupt changes in course.

7. Year-round, when sea turtles are sighted, the survey vessels will maintain a distance of 50 m (164 ft) or more whenever possible.

8. Vessel crews will report sightings of any injured or dead marine mammals or sea turtles to BOEM, BSEE, and NMFS within 24 hours, regardless of whether the injury or death was caused by their vessel.

Survey vessel operators will comply with NMFS marine mammal and sea turtle viewing guidelines for the Northeast Region (U.S. Department of Commerce [USDOC], NMFS [2011a] for surveys offshore Delaware, Maryland, or Virginia), the Southeast Region (USDOC, NMFS [2011b] for surveys offshore North Carolina, South Carolina, Georgia, or Florida), or combined guidance if recommended by NMFS. These measures are meant to reduce the potential for vessel harassment or collision with marine mammals and sea turtles, regardless of what activity a vessel is engaged in.

2.2 Marine Debris Awareness

All survey vessel operators, employees, and contractors actively engaged in the surveys will be briefed on marine trash and debris awareness and elimination as described in BSEE’s NTL 2012-G01 (“Marine Trash and Debris Awareness and Elimination”) (USDOI, BSEE, 2012). The awareness training will ensure that all employees and contractors are made aware of the environmental and socioeconomic impacts associated with marine trash and debris and their responsibilities for ensuring that trash and debris are not intentionally or accidentally discharged into the marine environment where it could affect protected species.

2.3 Military and NASA Coordination

The proposed survey will include areas within military range complexes and within the Wallops Flight Facility use areas. Spectrum, in coordination with and directed by BOEM, will contact and coordinate with the appropriate military range complex or command headquarters or NASA point of contact.
regarding the proposed project’s location, density, and planned periods of operation for any structures or surface uses in order to maximize exploration while avoiding or minimizing conflicts with potentially hazardous military operations. As prescribed in the Programmatic EIS, Spectrum, in coordination with and directed by BOEM, will discuss the proposed project activities with the Department of Defense (DoD)/BOEM Interagency Working Groups: the DoD/BOEM Interagency Working Group for Spatial Conflict Minimization and the DoD/BOEM Interagency Working Group on PAM.

2.4 Seismic Airgun Survey Protocol with Required Use of PAM

The purpose of the Seismic Airgun Survey Protocol is to minimize potential injury to marine mammals and sea turtles and avoid most Level A harassment of marine mammals. Section 3.0 provides the Seismic Airgun Survey Protocol, which specifies mitigation measures for protected species.

2.5 Time-Area Closures for Seismic Surveys

The time-area closures developed in the Atlantic Programmatic EIS Chapter 2.2.2 include an expanded airgun time-area closure for NARWs and a time-area closure for nesting sea turtles offshore Brevard County, Florida. The NARW time-area closure for airgun surveys, a continuous 37-km (20-nmi) wide zone extending from Delaware Bay to the southern limit of the project area will be avoided to prevent impacts to NARWs along their entire migration route and calving and nursery grounds (Section 3.2). Survey activities will ensure that sound from surveys outside of the NARW critical habitat, SMAs, or DMAs does not exceed 160 dB at the boundaries of these areas during closure times. Based on the acoustic propagation and animal acoustic exposure modeling conducted for the proposed survey, the average of the 95th percentile distance to the 160-dB isopleths is 9,775 m (5.28 nmi).

The time-area closure in nearshore waters offshore Brevard County, Florida will be avoided by survey activities during sea turtle nesting season (May 1 through October 31). Complete information regarding time-area closure adherence is described in Section 3.0.

2.6 Activities in or near National Marine Sanctuaries

The proposed survey activities do not involve bottom-founded equipment or structures and will not disturb the seafloor, as such no additional permit is needed from the Office of National Marine Sanctuaries under 15 CFR part 922. Gray’s Reef NMS and Monitor NMS are within the survey area, but will be surrounded by a 500-m (1,640-ft) buffer zone and excluded from survey activities as an added mitigation measure considered during Spectrum’s survey design.

2.7 Geographic Separation of Concurrent Seismic Surveys

Increasing the minimum separation distance between simultaneously operated survey vessels associated with Spectrum’s proposed survey to more than 60 km (37 mi) when at least one vessel is operating on the continental shelf is greater than the 40 km (25 mi) separation requirement. The additional separation between vessels will provide an animal movement corridor through which animals may pass through to avoid airgun noise in shallower water. The 40-km (25-mi) separation is determined to be sufficient to provide an animal movement corridor in deeper water.
3.0 SEISMIC AIRGUN SURVEY PROTOCOL AS MITIGATION

The purpose of the Seismic Airgun Survey Protocol is to minimize the potential injury to marine mammals and sea turtles and avoid most Level A harassment of marine mammals. Mitigation measures and design constraints presented in Section 2.0 are part of the survey protocols and will be implemented as described. The following is adapted from the Atlantic Programmatic EIS Appendix C, Attachment 1, which was developed for the Mid- and South Atlantic Planning Areas. The foundation of the protocol is similar to the Joint BOEM-BSEE NTL 2012-G02 (“Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program”) (USDOI, BOEM and BSEE, 2012b) used in the Gulf of Mexico. The ecosystems and diversity of species present within the Mid- and South Atlantic Planning Areas are unique to the area; therefore, the protocols presented may be similar to the types of operational procedures used in the Gulf of Mexico, but there are differences, including the following exceptions:

- The protocol would apply to all seismic surveys in the proposed survey area regardless of water depth. Joint BOEM-BSEE NTL 2012-G02 does not apply to water depths less than 200 m (656 ft) in the Gulf of Mexico west of 88° W.
- The protocol includes a time-area closure for airgun surveys in NARW critical habitat, Mid-Atlantic and Southeast U.S. SMAs, and DMAs.
- The radius of the acoustic exclusion zone would be based on the predicted range at which animals could be exposed to a received sound pressure level of 180 dB re 1 µPa, which is the current NMFS criterion for Level A harassment of cetaceans. The radius will be calculated for this survey but will not be less than 500 m (1,640 ft). In contrast, Joint BOEM-BSEE NTL 2012-G02 specifies a single, fixed radius of 500 m (1,640 ft).
- Shutdown of the airgun array is required any time a marine mammal or sea turtle is observed within the acoustic exclusion zone, whether due to the animal’s movement, the vessel’s movement, or because the animal surfaced inside the acoustic exclusion zone. There is an exception for delphinids approaching the vessel or towed equipment at a speed and vector that indicates voluntary approach to bow-ride or chase towed equipment. In contrast, Joint BOEM-BSEE NTL 2012-G02 requires the exclusion zone to be clear of all marine mammals and sea turtles for start-up, but shutdown is required only for whales entering the exclusion zone.
- The “all clear” period to help ensure the absence of any marine mammal or sea turtle within the acoustic exclusion zone has been changed from 30 to 60 minutes.

3.1 Background

The use of an airgun or airgun array while conducting seismic operations may have an impact on marine wildlife, including marine mammals and sea turtles. Some marine mammals, such as the North Atlantic right whale (Eubalaena glacialis), blue whale (Balaenoptera musculus), fin whale (Balaenoptera physalus), sei whale (Balaenoptera borealis), humpback whale (Megaptera novaeangliae), sperm whale ( Physeter macrocephalus), and Florida manatee (Trichechus manatus latirostris), that inhabit the proposed survey area are protected under the ESA, and all marine mammals are protected under the Marine Mammal Protection Act (MMPA). All five sea turtle species inhabiting the proposed survey area are protected under the ESA. They are the loggerhead turtle (Caretta caretta), green turtle (Chelonia mydas), hawksbill turtle (Eretmochelys imbricata), Kemp’s ridley turtle (Lepidochelys kempii), and leatherback turtle (Dermochelys coriacea).

In order to protect marine mammals and sea turtles during seismic operations, NMFS requires seismic operators to use ramp-up and visual observation procedures when conducting seismic surveys. Procedures for ramp-up, PSO training, visual monitoring, and reporting are described in detail in this
protocol. These mitigation measures apply to all seismic survey operations conducted regardless of water depth. Performance of these mitigation measures is a condition of the approval of applications for geophysical permits. Compliance with these mitigation measures will be demonstrated by submitting to BOEM certain reports detailed in this protocol. The measures contained herein will apply to all on-lease surveys conducted under 30 CFR part 550 and all off-lease surveys conducted under 30 CFR part 551 in the proposed survey area.

3.2 Time-Area Closures

Although most of the proposed survey area is outside of NARW migratory, calving, and nursery grounds, portions of the survey area occur within those NARW restricted grounds. In those portions, time-area closures will be implemented to avoid vessel strikes and ensonification in the water column.

No surveying will take place during the time-area closures within the NARW migratory route critical habitat area, within 37 km (20 nmi) from shore, from November 15 to April 15, within the Mid-Atlantic and Southeast U.S. SMAs from November 1 to April 30. In addition, surveying will not be conducted in active DMAs. Surveying conducted outside these critical habitat areas will remain at sufficient distance from the boundaries such that received acoustic levels at the boundaries are no more than Level B harassment levels as determined by the acoustic modeling.

Surveying activities will not occur within the time-area closure for nesting sea turtles offshore Brevard County, Florida from May 1 to October 31 to avoid disturbing the large numbers of loggerhead turtles (and hatchlings) that are likely to be present in nearshore waters of Brevard County during turtle nesting and hatching season. The Brevard County time-area closure would include the portion of Brevard County that is within the proposed survey area and would extend 11 km (5.9 nmi) offshore. The southern border of Brevard County is beyond the southern boundary of the project area, as such the closure also extends radially from the northern county boundary at the shoreline.

3.3 Acoustic Exclusion Zone

Visual monitoring and PAM protocols are based on noise exposure criteria for physical injuries and behavioral harassment (Level A harassment), and the characteristics of project-specific sound propagation. To minimize the potential for injury and Level A harassment to marine mammals and sea turtles to the maximum extent practical, an acoustic exclusion zone will be established centered on the sound source (airguns). The radius of the exclusion zone is based on the predicted range at which animals could be exposed to a received sound pressure level of 180 dB re 1 μPa, which is the current NMFS criterion for Level A harassment of cetaceans. The radius of the exclusion zone has been calculated on a survey-specific basis.

The acoustic exclusion zone determined by the modeling have a radius of 1,360 m and will be used as a monitoring zone and pre-ramp-up clearance zone. The exclusion zone requiring shutdown of an active acoustic source will be 500 m. This two-tiered approach allows for having a monitoring zone (1,360 m) that can be cleared visually and acoustically during the time allowed to monitor these zones (60 minutes) and making the critical shutdown zone (500 m) very manageable for these mitigation actions that can be well documented and highly accurate. Clearance of the larger zone (1,360 m) prior to start-up provides greater protection of species that may be startled by the initiation of the sound source. Having a larger monitoring zone where data regarding species and behavior are included provides valuable information for adaptive management and allows a full assessment of potential monitoring/exclusion zones.
While there are no noise exposure criteria for sea turtles, the protocol is expected to similarly reduce the risk of injury in sea turtles. With these measures in place, no mortalities or injuries of marine mammals or sea turtles are expected.

3.4 Ramp-Up Procedures

Ramp-up procedures will be employed where the gradual increase in airgun array intensity will occur over at least 20 minutes until maximum source levels are reached. The intent of ramp-up is to warn marine mammals and sea turtles of pending seismic operations and allow sufficient time for those animals to leave the vicinity. Under normal conditions, animals sensitive to these activities are expected to move out of the area. For all seismic surveys, including airgun testing, ramp-up procedures should be used to allow marine mammals and sea turtles to leave the exclusion zone before seismic surveying begins. Measures to conduct ramp-up procedures during all seismic survey operations, including airgun testing, are as follows:

1. Visually monitor the acoustic exclusion zone and adjacent waters for marine mammals and sea turtles for at least 60 minutes before initiating ramp-up procedures. If none are detected, ramp-up procedures may be initiated. Because these protocols require the use of a PAM array, ramp-up and the subsequent start of a seismic survey will be allowed during times of reduced visibility (darkness, fog, rain, etc.) if your minimum source level drops below 160 dB re 1 μPa-m (rms) (see item 5 and Section 3.6). Normally, ramp-up during these conditions would not be permitted using only PSOs.
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 (in³).
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 shutdown all airguns, if any marine mammals or sea turtles are detected entering the exclusion zone. However, shutdown is not required for dolphins approaching the vessel (or vessel’s towed equipment) that indicates a “voluntary approach” on behalf of the dolphin. A “voluntary approach” is defined as a clear and purposeful approach toward the vessel by the dolphin(s) with a speed and vector that indicates that the dolphin(s) is approaching the vessel. The intent of the dolphin(s) will be subject to the determination of the PSO. If the PSO determines that the dolphin is actively trying to avoid the vessel or the towed equipment, the acoustic sources must be immediately shut down. The PSO must record the details of any non-shutdowns in the presence of a dolphin, including the distance of the dolphin(s) from the vessel at the first sighting of the dolphin(s), their heading, where the dolphins position themselves relative to the vessel, how long they stay near the vessel, and any identifiable behaviors. After a shutdown, you may recommence seismic operations with a ramp-up of airguns after the exclusion zone has been visually inspected for at least 60 minutes to ensure the absence of all 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 60-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 60-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.
3.5  Protected Species Observer Program

3.5.1  Basic Requirements

PSOs will be on board seismic survey vessels to visually monitor the acoustic exclusion zone around the sound source to ensure it is free of all marine mammals and sea turtles during operation of the survey equipment. All PSOs will be third-party observers and will have completed a PSO training program, described in the following section. The following guidelines will be followed by PSOs on seismic survey vessels:

1. At least two PSOs will be on duty 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 will resume as soon as conditions permit.
2. Other than brief alerts to bridge personnel of maritime hazards, no additional duties will be assigned to PSOs during their watch.
3. No PSO will be allowed to be on watch for more than 4 consecutive hours.
4. A break of at least 2 hours will occur between 4-hour watches, and no other duties will be assigned during this period.
5. A PSO’s combined watch schedule will not exceed 12 hours during a 24-hour period.

3.5.2  Training

All PSOs will have completed a PSO training program. The training program will be in accordance with the recommendations described in the NOAA Fisheries Service 2012 National Standards for a Protected Species Observer and Data Management Program: A Model for Seismic Surveys (Baker et al., 2013). All training programs offering to fulfill the PSO training requirement must 1) provide to BOEM 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) provide each trainee with a document stating successful completion of the course; and 3) provide BOEM 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 Atlantic Ocean;
II. Brief overview of seismic acquisition operations;
III. Overview of seismic mitigation measures and the PSO program;
IV. Discussion of the role and responsibilities of the PSO, including:
   a) Legal requirements (why you are here and what you do),
   b) Professional behavior (code of conduct),
   c) Integrity,
   d) Authority of PSO to call for shutdown of seismic acquisition operations,
   e) Assigned duties:
      1) What can be asked of the PSO,
      2) What cannot be asked of the PSO, and
   f) Reporting of violations and coercion;
V. Identification of Atlantic marine mammals and sea turtles;
VI. Cues and search methods for locating marine mammals and sea turtles; and
VII. Data collection and reporting requirements:
   a) Forms and reports to BOEM via email on the 1st and 15th of each month, and
   b) Marine mammal or sea turtle in exclusion zone/shutdown report within 24 hours.
Basic training criteria have been established and must be adhered to by any entity that offers PSO training. BOEM will not sanction particular trainers or training programs.

All seismic survey vessels will comply with separate guidance for vessel strike avoidance issued by BOEM and BSEE. PSOs monitoring solely for vessel strike avoidance (e.g., during transit or other times when airguns are not operating) can be crew members, trained third-party observers, or a combination of both. They do not have specific training requirements nor will they need to be approved by BOEM or BSEE.

### 3.5.3 Visual Monitoring Methods

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

Visual monitoring will begin no less than 60 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 any marine mammal or sea turtle is observed, the PSO will note and monitor the position (including latitude/longitude of the vessel and relative bearing and estimated distance to the animal) until the animal dives or moves out of visual range of the PSO. PSOs will continue to monitor for additional animals that may surface in the area, as often there are numerous animals that may surface at varying intervals. Any time a marine mammal (except for dolphins voluntarily approaching the vessel or towed equipment) or sea turtle is observed within the exclusion zone, whether due to the animal’s movement, the vessel’s movement, or because the animal surfaced inside the exclusion zone, the PSO will call for the immediate shutdown 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 PSO. Any disagreement or discussion should occur only after shutdown. After a shutdown, when no marine mammals or sea turtles are sighted for at least 60 minutes, 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 60 minutes prior to commencement of ramp-up (unless the method described in Section 3.6 is used). Because these protocols require the use of a PAM array, ramp-up and the subsequent start of a seismic survey will be allowed during times of reduced visibility (darkness, fog, rain, etc.) if the minimum source level drops below 160 dB re 1 μPa-m (rms) (Section 3.6). Normally, ramp-up during these conditions would not be permitted using only PSOs.

Any shutdown due to a marine mammal or sea turtle sighting within the exclusion zone must be followed by a 60-minute all-clear period and then a standard, full ramp-up. Any shutdown for other reasons, including mechanical or electronic failure resulting in the cessation of the sound source for a period longer than 20 minutes must be followed by full ramp-up procedures also. 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 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 marine mammals or sea turtles are observed in the exclusion zone. If 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 procedures.
3.5.4 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 BOEM, and subsequently NMFS, determine the need for and effectiveness of mitigation measures. Information on observer effort and seismic operations is as important as animal sighting and behavior data. In order to accommodate various vessels’ bridge practices and preferences, vessel operators and PSOs may design data reporting forms in whatever format they deem convenient and appropriate. Alternatively, PSOs or vessel operators may adopt the United Kingdom’s Joint Nature Conservation Committee (JNCC) forms (available at www.jncc.gov.uk). At a minimum, the following items should be recorded and included in reports to BOEM:

Observer Effort Report: BOEM requires the submission of PSO effort reports to BSEE on the 1st and 15th of each month for each day seismic acquisition operations are conducted. These reports will include the following:

1. Vessel name;
2. PSOs’ names and affiliations;
3. Survey type (e.g., site, 3D, 4D);
4. BOEM permit number (for “off-lease seismic surveys”) or OCS lease number (for “on-lease seismic surveys”);
5. Date;
6. Time and latitude/longitude when daily visual survey began;
7. Time and latitude/longitude when daily visual survey ended; and
8. Average environmental conditions while on each visual survey rotation and session as well as when any conditions change during the rotation, each session, including:
   a) Wind speed and direction,
   b) Sea state (glassy, slight, choppy, rough, or Beaufort scale),
   c) Swell (low, medium, high, or swell height in meters), and
   d) Overall visibility (poor, moderate, good).

Survey Report: BOEM requires the submission of survey reports to BSEE on the 1st and 15th of each month for each day seismic acquisition operations are conducted and airguns are discharged. These reports will include the following:

1. Vessel name;
2. Survey type (e.g., site, 3D, 4D);
3. BOEM permit number (for “off-lease seismic surveys”) or OCS lease number (for “on-lease seismic surveys”), if applicable;
4. Date;
5. Time pre-ramp-up survey begins;
6. Observations of marine mammals and sea turtles seen during pre-ramp-up surveys;
7. Time ramp-up begins;
8. Observations of marine mammals and sea turtles seen during ramp-up;
9. Time sound source (i.e., airguns or HRG equipment) is operating at the desired intensity;
10. Observations of marine mammals and sea turtles seen during surveys;
11. Action taken if marine mammals or sea turtles were seen (i.e., survey delayed, airguns shut down);
12. Reason that marine mammals and sea turtles might not have been observed (e.g., swell, glare, fog); and
13. Time sound source (i.e., airgun array or HRG equipment) stopped firing.
**Sighting Report:** BOEM requires the submission of reports to BSEE for marine mammals and sea turtles sighted during seismic and HRG surveys on the 1st and 15th of each month. These reports are in addition to any reports required as a condition of the geophysical permit and must include the following:

1. Vessel name;
2. Survey type (e.g., site, 3D, 4D);
3. BOEM permit number (for “off-lease seismic surveys”) or OCS lease number (for “on-lease seismic surveys”);
4. Date;
5. Time;
6. Watch status (Were you on watch or was this sighting made opportunistically by you or someone else?);
7. Name of PSO or person who made the sighting;
8. Latitude/longitude of vessel;
9. Bearing of vessel (true compass direction);
10. Bearing (true compass direction) and estimated range to animal(s) at first sighting;
11. Water depth (meters);
12. Species (or identification to lowest possible taxonomic level);
13. Certainty of identification (sure, most likely, best guess);
14. Total number of animals;
15. Number of juveniles;
16. 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);
17. Direction of animal’s travel – compass direction;
18. Direction of animal’s travel – relative to the vessel (drawing preferably);
19. Behavior (as explicit and detailed as possible; note any observed changes in behavior);
20. Activity of vessel;
21. Airguns firing? (yes or no); and
22. Closest distance (meters) to animals from center of airgun or airgun array (whether firing or not).

**Note:** If this sighting was of a marine mammal or sea turtle within the exclusion zone that resulted in a shutdown of the airguns, include in the sighting report the observed behavior of the animal(s) before shutdown, the observed behavior following shutdown (specifically noting any change in behavior), and the length of time between shutdown and subsequent ramp-up to resume the seismic survey (note if seismic survey was not resumed as soon as possible following shutdown). Send this report to BOEM within 24 hours of the shutdown. These sightings also should 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 BOEM on the 1st and 15th of each month (except in the event of the occurrence described in the previous paragraph). Forms should be scanned (or typed) and sent via email to BOEM. Please note that these marine mammal and sea turtle reports are in addition to any reports required as a condition of the geophysical permit.

### 3.6 Passive Acoustic Monitoring

Whales, dolphins, and porpoises are very vocal marine mammals; periods of silence usually are short and most often occur when the animals are at the surface and thus detectable by PSOs. However, marine mammals are at the greatest risk of potential injury from seismic airguns when they are submerged and beneath the airgun array. PAM has been shown 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. The use of PAM is required as part of the Seismic Airgun Survey Protocol. Inclusion of PAM does not relieve an operator of any of the mitigation measures (including visual observations) in this protocol, with the following exception: monitoring for marine mammals with a PAM 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 ramp-up otherwise would not be permitted using only PSOs.

An assessment of PAM must be included regarding the usefulness, effectiveness, and problems encountered with that method of marine mammal detection in the reports described in this protocol. A description of the PAM system, software used, and monitoring plan must be reported to BOEM at the beginning of its use.

4.0 ANALYSIS OF THE PROJECT’S POTENTIAL EFFECTS

This section provides an analysis of the project’s potential impacts on the resources identified by NOAA’s OCM as having reasonable and foreseeable effects. The Atlantic Programmatic EIS is referenced herein and was consulted during the preparation of this analysis.

4.1 Commercial and Recreational Fisheries

Spectrum’s proposed survey is short-term, localized, and transitory, as would be the potential effects to commercial and recreational fisheries. The proposed survey utilizes two survey vessels, two chase vessels, and occasional support vessels throughout the entire survey area, not just offshore state waters. Several areas offshore of North Carolina are designated as Essential Fish Habitat (EFH) and a subset of these areas as Habitat Areas of Particular Concern (HAPCs). Offshore natural habitats and artificial reefs such as The Point near Cape Hatteras, are used for both recreational and commercial fishing with as many as 43 annual fishing tournaments. The state’s analysis identifies specific areas where it has an interest in regards to commercial and recreational fishing. These include The Point; Ten Fathom Ledge; Big Rock; and the shoals of Cape Lookout, Cape Fear, and Cape Hatteras (Figure 3). The noted areas are primarily within the regional grid, with greater line spacing, so it is anticipated that effects and interaction with fishing activities would be minimal. The proposed transects shown in Figure 3 are intended to provide the maximum coverage possible for the survey; however, the survey team and vessel captain may reduce the number or length of transects in the eastern portion of the regional grid due to water depths or oceanographic conditions. In North Carolina, much of the diving and fishing activities occur more than 3 miles offshore, primarily from north of Oregon Inlet to the South Carolina state line. Offshore natural habitats and artificial reefs are the most heavily used areas for these activities, both recreationally and commercially. For example, the area off Cape Hatteras known as The Point is heavily used year-round for commercial longlining and recreational fishing charters and tournaments.
Figure 3. Proposed survey transects relative to commercial and recreational fishing use areas identified by the state.
4.1.1 Potential Catch Total Effects

Fish hearing and sensitivity to acoustic effects are summarized in Appendix J of the Atlantic Programmatic EIS, and a detailed discussion of direct effects of sound on fishes is presented in Chapter 4.2.5.2 of the Atlantic Programmatic EIS. In general, sound produced from anthropogenic sources (e.g., airguns, depth sounders) can affect fishes in a variety of ways, including changes in behavior, which can affect the catchability of commercial and recreational fish stocks. The effects of seismic sounds are discussed in Chapter 4.2.7.2.2 of the Atlantic Programmatic EIS as well.

Based on information provided in the Atlantic Programmatic EIS, it is possible that anthropogenic noise associated with the use of seismic equipment could temporarily affect the behavior of pelagic fish or their prey and thereby affect pelagic longline fisheries within the proposed project area, although studies conducted to date fail to universally support this hypothesis. Wardle et al. (2001) observed the behavior of fishes exposed to airgun noise in Scotland, noting that several fish species showed virtually no response to the airgun firing beyond an initial, transient startle response that did not change their pattern of movement.

Based on the short-term, localized, and transitory nature of the proposed surveys, impacts to benthic, demersal, and coastal pelagic commercial and recreational fisheries (fisheries within 32 km [17.3 nmi] of shore) off the coasts of the adjacent states are not anticipated. In addition, the limited information available on the effects of active acoustic sounds generated by the proposed survey activities on economically important invertebrates suggests that behavioral changes would be minimal (Chapter 4.2.1.2.2 of the Atlantic Programmatic EIS). Accordingly, it is highly unlikely that commercial fisheries that use pots/traps, dredges, and otter trawls to target invertebrates would be affected. However, commercial fisheries that use longlines, gillnets, and purse seines could be negatively affected by active acoustic sound from seismic equipment.

Studies discussed in Appendix J of the Atlantic Programmatic EIS have shown that high energy seismic surveys can startle fish and drive them away from preferred habitat for short periods (days). The spatial scale of the influence can extend 9.2 to 18.5 km (5 to 10 nmi) from the source, and some studies showed possible response up to 50 km away. In the proposed survey areas, coastal migratory pelagic and highly migratory pelagic species would likely avoid working survey vessels. Demersal species in the path of a survey vessel also would be expected to temporarily move from preferred substrata during surveys. Thus, commercially exploited pelagic and demersal fish stocks would be temporarily affected.

Given the spatial and temporal characteristics of active acoustic sound source used under the proposed survey and the results of limited seismic sound exposure studies on fishes, it is likely that potential effects to commercial and recreational fisheries resources would be minimal, with no population-level effects. Effects, including behavioral changes and avoidance, are expected at a few locations, with likely impacts being intermittent, temporary, and short term. Furthermore, the proposed survey is not expected to adversely affect aggregate commercial fishery landings.

4.1.2 Potential Space-Use Conflict Effects

Spectrum’s proposed survey will utilize two survey vessels, two chase vessels, and occasional support vessels throughout the entire survey area, not just offshore state waters, which is minimal relative to existing vessel traffic. Thus, there would be a negligible increase in the potential for interference with commercial fishing operations. Spectrum is agreeable to coordinating and communicating closely with commercial and recreational fishing organizations, as well as diving operations, through a consolidated point of contact to avoid (to the extent practicable) areas and/or times when known activity levels are expected to be high. Spectrum’s best management practices will further mitigate interactions by issuance of a Local Notice to Mariners through the U.S. Coast Guard, constant monitoring of Channel 16,
utilization of chase boats to liaise with other vessels, and pre-survey meetings and coordination with fisheries’ stakeholders. Spectrum’s extensive worldwide experience and establishment of standard corporate procedures to mitigate user conflicts ensures the safety of all ocean users and associated equipment.

The proposed surveys would attempt to maintain a vessel exclusion zone to protect airgun arrays and towed streamers from other vessel traffic. The size of the vessel exclusion zone is dependent upon the equipment being employed and the extent of the streamers (12 km). The typical vessel exclusion zone has been estimated to be 17.3 km (10.8 mi) in length, beginning 5 km (3.1 mi) ahead of the vessel to ensure safe navigation and extending 2 km (1.2 mi) behind the tail buoy. The shape of the exclusion zone would be oval and would vary in shape based on environmental conditions (e.g., currents, surface winds). With the source vessel moving at approximately 4.5 kn (8.3 km/h), the length of time that any particular point would be within the vessel exclusion zone would be approximately 2 hours. A Local Notice to Mariners would be issued specifying the survey dates and locations and the recommended avoidance requirements.

Several commercial fishery gear types are classified as passive gear. These gear types (e.g., pots/traps, gillnets, and longlines) usually are set and then unattended for hours or days. Therefore, any increase in vessel traffic and towed survey gear (e.g., streamers) could increase the chances that fishing gear would be disturbed or accidently hit (buoys and lines cut) by seismic vessels conducting surveys, especially those operating at night.

The primary direct effect of a vessel exclusion zone is the short-term, temporary loss of access to fishing/diving grounds and lost fishing/diving time. Given the small area occupied by the vessel exclusion zone for the two proposed vessels and the short duration of the impact at any given location, there is only a limited potential for space-use conflicts between proposed survey activities and commercial and recreational fishing/diving operations within the proposed survey area. Vessel exclusion zones associated with the proposed survey activities may require commercial fishing entities to retrieve nets or lines earlier than usual to avoid seismic vessels conducting surveys, or cause them to stand off until the seismic vessel and its associated safety zone have moved past the fishing grounds. If commercial and recreational fishers temporarily lose access to fishing grounds or are required to terminate or change their fishing techniques, this may reduce catch and affect quality of catch. Proposed survey activities and associated vessel exclusion zones would not be expected to have any indirect effects on commercial or recreational fishery operations.

Based on the predicted activity levels in proposed survey area and the short-term, localized, and transitory nature of the activity, the effects of space-use conflicts are expected to produce minimal effects to commercial and recreational fisheries.
5.0 REFERENCES


Appendix

North Carolina Coastal Management Program
Consistency Certification
for
Spectrum Geo Inc.
Atlantic 2D Geophysical Survey
STATE OF NORTH CAROLINA COASTAL ZONE MANAGEMENT PROGRAM

The Coastal Zone Management Program federal consistency review process is described at 15 CFR 930: Federal Consistency with Approved Coastal Management Programs Regulation, as amended. Federal consistency is the Coastal Zone Management Act provision requiring that federal agency activities that have reasonably foreseeable effects on any land or water use or natural resource of the coastal zone be consistent with the enforceable policies of a coastal state’s federally approved coastal management program.

The proposed survey will occur in federal waters adjacent to the state’s coastal zone; no active surveying will occur in state waters. This federal consistency certification describes the project’s compliance with the state’s enforceable policies as they pertain to the resources identified by the National Oceanic and Atmospheric Administration’s (NOAA’s) Office for Coastal Management (OCM) as having reasonable and foreseeable effects (Table A-1). A description and summary of each policy is provided in the following pages as well as a response to support the consistency certification. Based on this analysis, Spectrum has determined that the proposed action is consistent with the Coastal Zone Act Program of North Carolina.

Table A-1. Enforceable policies relevant to resources determined by National Oceanic and Atmospheric Administration’s (NOAA’s) Office for Coastal Management (OCM) to have reasonable and foreseeable effects.

<table>
<thead>
<tr>
<th>North Carolina Authority</th>
<th>Subject</th>
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<tbody>
<tr>
<td>Title 15A: Chapter 7, Subchapter 7H</td>
<td>State Guidelines for Areas of Environmental Concern</td>
</tr>
<tr>
<td>Title 15A: Chapter 7, Subchapter 7K</td>
<td>Activities in Areas of Environmental Concern Which do not Require a Coastal Area Management Act Permit</td>
</tr>
<tr>
<td>Title 15A: Chapter 7, Subchapter 7M</td>
<td>General Policy Guidelines for the Coastal Area</td>
</tr>
<tr>
<td>Title 15A: Chapter 7, Subchapter 7O</td>
<td>North Carolina Coastal Reserve</td>
</tr>
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**Title 15A: Chapter 7, Subchapter 7H—State Guidelines for Areas of Environmental Concern**

Section .0100 provides the introduction and general comments for subchapter 7H, N.C.S. The introduction gives the policy purposes behind establishing the Coastal Area Management Act (CAMA) plan and discusses the benefits CAMA provides. Areas of environmental concern (AECs) are given special attention under CAMA. The permit program implementation responsibilities are divided between local governments and the Coastal Resources Commission (CRC). The CRC is given the responsibility of identifying AECs and establishing what activities are appropriate in these areas. Section .0103 details how AECs were chosen. Sections .0104 to .0106 discuss erosion factors, rule amendment dates, and general definitions for the chapter.

Section .0200 regulates and details the estuarine and ocean systems. These systems are broken down into AEC categories. The categories are listed in Section .0201. A definitive policy interest is shown in protecting the systems listed as AECs by ensuring that any development that occurs in these areas will not adversely affect the characteristics of these systems. Sections .0205 to .0209 thoroughly describe each of the AECs by detailing their description, significance, management objective, and use standards. This categorization allows the reader to understand the multi-faceted importance of these areas. Section .0208 goes into a further analysis of the use standards by breaking them down into general use standards and specific use standards. Various examples of each type are listed.
Section .0300 regulates ocean hazard areas. This section categorizes these areas into smaller groups, and then discusses their significance, management objective, and use standards. Various AECs located within ocean hazard areas are detailed in Section .0304, and Section .0305 describes natural and man-made landforms found within ocean hazard areas of environmental concern. The use standards in Section .0306 demonstrate that proper focus is being placed on shoreline development to ensure structures built in these areas are done in a proper manner. Nevertheless, there are exceptions to the ocean hazard area use standards, and these are displayed in Section .0309. Sections .0310 to .0312 discuss use standards for inlet hazard areas, sand fencing installation, and beach fill project standards.

Section .0500 regulates natural and cultural resource areas. Sections .0501 and .0502 give general background and state the significance of these areas. Section .0503 discusses the nomination and designation procedures. Certain areas fall into the special designation process. Nominations can be made by any person or group at any time for CRC consideration. Nomination requirements are listed. The rest of the section details the designation process, which occurs in the following order: Preliminary evaluation, CRC endorsement, detailed review, and public hearing. Each part of the process is explained in full. Sections .0504 and .0505 denote the AECs within this category. Sections .0505 to .0507 discuss the description, significance, and management objective of coastal areas that sustain remnant species, coastal complex natural areas, and unique coastal geologic formations. Section .0508 denotes the use standards that must be met in order for permits for development to be approved. Sections .0509 and .0510 discuss the description, significance, and management objective of significant coastal archaeological resources and significant coastal historic architectural resources.

Section .0600 regulates the development standards applicable to all AECs. This section is broken down into when no violation occurs, pollution of waters, minimum altitudes, and noise pollution.

Sections .0700 to .1000 provide technical appendixes for public trust areas, ocean hazard areas, inlet lands and public water supplies.

Response:

Spectrum’s proposed survey does not include any coastal, estuarine, inland, or onshore component or activities that would affect AECs, public beaches, or shorelines. Because no active surveying is planned in state waters, public use of state submerged lands would not be affected by the proposed survey. Any interaction with other ocean users (e.g., fishers, divers, boaters, commercial vessels) would be mitigated by ensuring a Notice to Mariners is issued by the U.S. Coast Guard (USCG) and the use of support and chase vessels to liaise with other vessels. Natural and cultural resources, including coastal archaeological resources and significant coastal historic architectural resources, are not expected to be affected. Mitigation measures are described in Sections 2.0 and 3.0 will mitigate effects to animal life. Potential effects are described in Section 4.0 for commercial and recreational fisheries and space-use conflict. Survey activities adjacent to state waters are short term, localized, and transitory, and may only slightly affect submerged land use. Based on the above rationale, the proposed survey is consistent with Title 15A: Chapter 7, Subchapter 7H—State Guidelines for Areas of Environmental Concern.

**Title 15A: Chapter 7, Subchapter 7K—Activities in Areas of Environmental Concern which do not Require a Coastal Area Management Act Permit**

Section .0100 breaks down activities not considered development. There are statutory exceptions that are listed in G.S 113A-103(5)(b)(1)-(9). Maintenance and repair are two exceptions that are singled out in Section .0103. Structures that are immediately threatened fall into these exceptions, and the criteria for “immediately threatened” is listed in this section. Additionally, beach bulldozing is recognized as an exception subject to certain limitations. Section .0200 regulates classes of minor maintenance and
improvements which shall be exempted from the CAMA Major Development Permit Requirement. Classes listed in Sections .0202 to .0205 are exempted. The exemption only applies to the CAMA permit, not other applicable permits. Section .0202 lists classes of minor maintenance and improvement exempted from the permit requirement. Certain projects requiring air quality permit, National Pollutant Discharge Elimination System, small ditches, structural accessways over frontal dunes, single family residences, accessory buildings, Jockey’s Ride AEC, sand fence installation and maintenance, and single family residences within the High Hazard AEC are exempted if certain requirements are met. These requirements are listed in Sections .0204 to .0213. The exemption does not apply to certain areas listed in Section .0210. Section .0300 has been repealed. Section .0400 regulates classes of federal agency activities exempted from the permit requirement, which includes all federal agency development activities in areas of environmental concern.

Response:

Spectrum’s proposed survey does not include any surveying in state waters or any bottom-disturbing activities, and has no permanent components to the project. The proposed survey does not include any coastal, inland, beach, or onshore component or maintenance or repair activities. The proposed survey is therefore consistent with Title 15A: Chapter 7, Subchapter 7K—Activities in Areas of Environmental Concern which do not Require a Coastal Area Management Act Permit.

Title 15A: Chapter 7, Subchapter 7M—General Policy Guidelines for the Coastal Area

The policy interests of this section are to ensure that development along ocean and estuarine shorelines occurs in a manner that avoids loss of life, property, and amenities. Planning and developing in these areas should be done in a coordinated manner to minimize the likelihood of these losses occurring. A particular interest is shown in protecting the public right to use and enjoy ocean beaches. Circumstances where beach restoration is allowed are given. In order for the state to be involved in beach restoration and sand renourishment endeavors, two requirements must be met. First, the entire restored portion of the beach shall be under permanent public ownership. Second, it shall be local government’s responsibility to provide adequate parking, public access, and services for recreational use of the restored beach. The state realizes the value of its beaches to the public, and clearly has taken an interest in protecting the public’s ability to enjoy these lands through the Public Beach and Coastal Waterfront Access program. Any local government in the twenty coastal county region having beaches or estuarine or public trust waters in its jurisdiction may apply for access funds for the development of beach or coastal waterfront access facilities. Eligible projects and the criteria used to select projects are listed in Section .0307.

Coastal energy policies are detailed in Section .0401. The state government declares that the general welfare and public interest require reliable sources of energy be made available to the citizens of North Carolina. The state also recognizes that development of onshore and offshore resources and facilities could serve important regional and national interests. However, a clear policy interest is shown in ensuring that the development of energy resources does not conflict with the public interest in conserving and protecting the land and water resources of the state. In order for development to occur, it must happen in a manner that avoids significant adverse impact upon vital coastal resources or uses, public trust areas, and public access rights. Outer Continental Shelf energy resources are particularly detailed. Any federal leasing actions of these resources have to be consistent with the policies of the federally approved North Carolina Coastal Management Program. Definitions are listed in Section .0402. Any proposals, plans, and permit applications for major energy facilities located in or affecting any land or water use or coastal resources of the North Carolina coastal area must disclose all costs and benefits associated with the project. This disclosure must be done at the earliest possible stage in planning for the project. A clear policy interest is shown in ensuring local governments do not restrict the development of
necessary energy facilities. However, they are allowed to develop siting measures to minimize impacts of these facilities. Shoreline siting of energy facilities is only allowed under certain circumstances listed in subsection (d). Criteria for energy facilities siting and operation are listed in subsection (f).

North Carolina has shown a clear willingness to develop its energy resources. However, it will not do so at the expense of its lands and waters, in particular its coastal areas. Any development that is to occur must be balanced with significant public interest.

Post-disaster policies are discussed in Section .0500. Coordination is emphasized in pre-disaster planning to reduce the damage of coastal disasters. A definition for disaster planning activities is given. The division of responsibility for preparing for and responding to disasters as well as guidelines for mitigating effects of natural disasters are listed in Section .0503. Section .0600 covers floating structure regulations, and states that floating structures used for residential or commercial purposes cannot infringe upon the public trust rights nor discharge into the public trust waters of the coastal area of North Carolina.

Mitigation policy and candidacy are detailed in Section .0700. Forms of mitigation are ranked in order of preference and listed in Section .0704. Various policy interests are listed throughout the rest of the section. Coastal water policy dictates that no land or water use shall cause the degradation of water quality so as to impair traditional uses of coastal waters. This policy is designed to protect traditional water uses including fishing, hunting, and swimming. The use of aircraft by state, federal, and local government agencies for protecting coastal resources, among other listed purposes, are listed in as a policy interest of the state. Military training use of water and wetland-based targets is permissible if it does not infringe of public trust rights, or other listed adverse effects. A policy concern also includes ensuring that material resulting from the excavation or maintenance of navigation channels be used in a beneficial way whenever practicable. Finally, mining activity is discussed. It is permissible, but policy dictates that every avenue and opportunity to protect the physical ocean environment and its resources as an integrated and interrelated system is utilized. Adverse effects of mining activities must be identified and minimized.

Response:

Spectrum’s proposed survey does not include any activities in state waters and would not affect state-owned submerged areas for coastal recreation and conservation. The proposed activity does not include any development activities along the shoreline. Mitigation measures to minimize effects to animal life are described in Sections 2.0 and 3.0. Section 4.0 provides an analysis of the potential effects to commercial and recreational fishing and diving operations. The proposed survey is planned primarily in areas outside the areas identified as heavily fished (Figures 3 and 4).

Any interaction with the public’s right to ocean-related activities (e.g., traditional water users such as fishers, boaters, hunters, swimmers, and commercial vessels) would be mitigated by ensuring a Notice to Mariners is issued by the USCG and the use of support and chase vessels to liaise with other vessels. Survey activities adjacent to state waters are short term, localized, and transitory, and may only slightly affect submerged land use beyond the 3-nmi boundary. The proposed activity will not impact the public’s use or access to beaches.

The proposed survey will have no direct effects on oil and gas resources or offshore mineral resources. It also will not impact reliable sources of energy being available to the citizens of North Carolina. There are no permanent components to the project and no permits are being requested. Based on the above rationale, the proposed survey is consistent with Title 15A: Chapter 7, Subchapter 7M—General Policy Guidelines for the Coastal Area.
Title 15A: Chapter 7, Subchapter 7O—North Carolina Coastal Reserve

The principal purposes and definitions are listed in Sections .0101 and .0202. Responsibilities of the Coastal Reserve Program include managing and protecting the North Carolina Coastal Reserve among other listed responsibilities. Advisory committees are established for each individual Reserve component. The Reserve components are listed in Section .0105. The management plan for the Reserve is prepared by the Division of Coastal Management. Reserve use requirements are listed in Section .0202.

Response:

Spectrum’s proposed survey does not include any inland or onshore component or activities. Coastal reserves would not be affected by the proposed survey, therefore the proposed survey is consistent with Title 15A: Chapter 7, Subchapter 7O—North Carolina Coastal Reserve.
COASTAL ZONE MANAGEMENT
CONSISTENCY CERTIFICATION

FOR

SPECTRUM GEO INC.
ATLANTIC 2D GEOPHYSICAL SURVEY
(BOEM APPLICATION E14-006)

LOCATION

The proposed survey transects include 55,656.78 km (30,031.66nmi) offshore North Carolina’s coastal zone. No active surveying is proposed within the state’s coastal zone (state waters).

Spectrum Geo Inc. has determined that the proposed Atlantic 2D Geophysical Survey (BOEM Application E14-006 and E14-009) complies with North Carolina’s approved coastal management program and will be conducted in a manner consistent with such program.

Spectrum Geo Inc.
OPERATOR

Richie Miller, President
CERTIFYING OFFICIAL

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North Carolina Department of Environment and Natural Resources
CERTIFYING OFFICIAL

DATE