UNITED STATES GOVERNMENT MEMORANDUM

Structural Removal 2019-019

To: Regional Environmental Officer, GOMR, Office of Environmental Compliance, Bureau of Safety and Environmental Enforcement (MS GE466 MS G)

From: Chief, Environmental Operations Section, Office of Environment, GOM OCS Region (MS GM881A)

Subject: National Environmental Policy Act Review of Energy XXI GOM, LLC's Structural Removal Application Number 2019-019

Our National Environmental Policy Act (NEPA) review of the subject action is complete and results in a recommendation that the proposed action be approved with a Finding of No Significant Impact (FONSI), conditioned as indicated below.

The Bureau of Ocean Energy Management (BOEM) has prepared a Site-Specific Environmental Assessment (SEA) (No. 2019-019) complying with the NEPA regulations under the Council on Environmental Quality (40 CFR § 1501.3 and § 1508.9), the United States Department of the Interior, NEPA implementing regulations (43 CFR § 46), and BOEM policy, which require an evaluation of proposed major federal actions, which under BOEM jurisdiction includes structure removal activity on the Outer Continental Shelf (OCS). We make the following recommendation to the Bureau of Safety and Environmental Enforcement (BSEE) in concordance with the Memorandum of Agreement between BOEM and BSEE regarding "*NEPA and Environmental Compliance*," dated October 1, 2018.

The Proposed Action: Energy XXI GOM, LLC (EXXI) proposes to remove Platform C in South Marsh Block 61, Lease OCS-G 01196, Complex ID No. 21883-1, using explosive severance methods. Abrasives or mechanical cutting will be used as back-up. The structure is located at a water depth of 126 feet (ft) (38.4 meters (m)) and lies approximately 55 miles (88.5 kilometers) from the nearest Louisiana shoreline. Operations will be conducted from an onshore support base in Intracoastal City, Louisiana. The operator will remove all casing wellhead equipment, and piling to a depth of at least 15 ft (4.6 m) below mud line. The piles and conductors will be severed using 80-200 lb. explosive charges. The maximum anchor radius employed by the lift vessel/derrick barge will be 3,000 ft (914.4 m). According to the operator, the structure will be removed because the lease is terminated (EXXI, 2019). EXXI proposes to conduct site clearance trawling over a survey grid designed to cover an area with a radius of 1,320 ft (402 m) from the center of the structure for site clearance verification.

Factors Considered in this Determination: The impact analysis for the proposed activity focused on the decommissioning activities, the site clearance activities, and the resources that may be potentially impacted. The impact producing factors (IPFs) include: (1) noise/pressure-waves from explosive-severance charges; (2) emissions from decommissioning vessels/equipment; (3) vessel discharges and turbidity; (4) seafloor disturbances from mooring and trawling activities; and (5) habitat loss (via removal of the facilities from the OCS).

In this SEA BOEM has considered three alternatives: (1) no action, (2) proposed action as submitted; and (3) the proposed action with additional conditions of approval. BOEM has assessed the impacts of the proposed action on the following significant resources:

1) Marine mammals;
2) Sea turtles;
3) Fish resources and essential fish habitat;
4) Benthic resources; and
5) Archaeological resources.

Resources on the sea bottom could be disturbed if they were present; such as benthic biological communities and shipwrecks. Because direct contact is potentially the most disruptive potential impact for resources fixed or lying on the sea bottom, it is weighted most heavily out of all other potential impact

factors. Impact significance levels are explained in **Chapter 3.1** of SEA 2019-019. Potential impacts from the proposed activities to archaeological resources, marine mammals and sea turtles have been mitigated to non-significance. Potential impacts to fish resources and essential fish habitat, and benthic resources from the proposed activities were determined to be insignificant.

Alternatives and Conditions of Approval: In the SEA No. 2019-019 BOEM has considered three alternatives: (1) no action; (2) proposed action as submitted; and (3) proposed action with conditions of approval. Our evaluation in this SEA recommends Alternative 3 and serves as the basis for approving the proposed action. BOEM concludes that no significant impacts are expected to occur to any affected resource by allowing the proposed action to proceed, provided that the specific conditions of approval identified below are met by the operator.

- **LARGE EXPLOSIVE-SEVERANCE SCENARIO D1—MITIGATION PACKAGE:** The operator is proposing explosive-severance activities that are covered under Large Blasting Category D1. Detailed pre- and post-detonation mitigation(s) requirements can be found in Appendix A of this SEA.

- **FISH (STRUCTURE REMOVALS USING EXPLOSIVES):** Under the Magnuson-Stevens Fisheries Conservation and Management Act, 50 CFR § 600.725 prohibits the use of explosives to take reef fish in the Exclusive Economic Zone. Consequently, those involved in explosive structure removals must not take such stunned or killed fish on board their vessels. Should this happen, they could be charged by the National Marine Fisheries Service (NMFS) with violation of the Act. If you have questions, contact NMFS at (727) 824-5344.

- **VESSEL-STRIKE AVOIDANCE/REPORTING:** Follow the guidance provided under Notice to Lessees and Operators (NTL) No. 2016-G01 (*Vessel Strike Avoidance and Injured/Dead Protected Species Reporting*). The NTL's guidance can be accessed on BOEM's internet website at http://www.boem.gov/BOEM-NTL-No-2016-G01/.

- **SITE-CLEARANCE TRAWLING REPORTING**: If trawling is used to comply with the site-clearance verification requirements under 30 CFR §§ 250.1740-1743, which mandates that turtle excluder devices (TED) be removed from the trawl nets to facilitate the collection of seabed debris, you must abide by maximum trawl times of 30 minutes, allowing for the removal of any captured sea turtles. If during your trawling activities, you capture a sea turtle in your nets, you must:

  1. Contact BSEE's Office of Environmental Compliance (OEC) at protectedspecies@bsee.gov and NMFS' Southeast Regional Office (SERO) at takereport.nmfsser@noaa.gov immediately;

  2. Resuscitate and release any captured sea turtles as per NMFS' guidelines found online at https://www.sefsc.noaa.gov/turtles/TM_NMFS_SEFSC_580_2010.pdf (see page 3-6; Plate 3-1); and

  3. Photograph the turtle, and complete a sea turtle stranding form for each sea turtle caught in your nets. The form can be found at: https://www.sefsc.noaa.gov/species/turtles/strandings.htm and submit to NMFS and BSEE (to the email addresses noted above).

- **POST APPROVAL NOTIFICATION (STRUCTURE REMOVAL):** Per 30 CFR § 250.194(c) and clarified in NTL No. 2005-G07, if during site clearance operations you discover any object of potential archaeological significance you are required to immediately halt operations. In addition, you must immediately report this discovery to BSEE Office of Environmental Compliance (Env-Compliance-Arc@bsee.gov) and contact Dr. Christopher Horrell at (504) 736-2796. Additional guidance will be provided to the operator as to what steps will be needed to protect any potential submerged archaeological resources. Additionally, as specified under 30 CFR § 250.1743:

  - You are required to provide the trawling logs for both heavy-duty nets and verification nets with descriptions of each item recovered. Should you only pull site clearance

verification nets, please clearly state this within the body of the Site Clearance Report. In addition, provide ALL vessel logs related to vessels that were used to recover items during site clearance operations (e.g. anchor handling vessels, lift boats, dive support vessels, tug boats, etc.). If you did not use any vessels to recover items, please clearly state this within the body of the Site Clearance Report.

- With your Site Clearance Report you are also required to provide a CD or DVD of all digital photographs of the items recovered during the use of the heavy-duty trawl nets, site clearance verification trawl nets, diver recovery, and any other vessels used. Each photograph must be of appropriate scale and size so that individual items can be identified. All photographs of recovered items must also correspond with the items recovered and listed on individual lines within the logs. In addition, when you submit your photographs, you should label each photograph file name so that it represents the individual trawl line from which the items were recovered.

- **PROGRESSIVE-TRANSPORT NOTIFICATION:** In accordance with OCSLA requirements (30 CFR § 250.1727(g)), if at any point in your decommissioning schedule progressive-transport/"hopping" activities are required to section your jacket assembly or support material barge loading, a prior written request must be submitted and approval must be obtained from the Regional Supervisor/Field Operations. Your request to use progressive-transport must include a detailed procedural narrative and separate location plat for each "set-down" site, showing pipelines, anchor patterns for the derrick barge, and any known archaeological and/or potentially sensitive biological features. The diagram/map of the route to be taken from the initial structure location along the transport path to each site must also be submitted with your request. If the block(s) that you intend to use as "set-down" sites have not been surveyed as per NTL No. 2009-G39 and NTL No. 2005-G07, you may be required to conduct the necessary surveys/reporting prior to mobilizing on site and conducting any seafloor-disturbing activities.

- **PROTECTION OF POTENTIAL ARCHAEOLOGICAL RESOURCES:** Our review indicates that your proposed activities are in the vicinity of the unidentified magnetic anomalies listed under separate letter, features that may represent significant archaeological resources. In accordance with 30 CFR § 250.194(c), you must either (1) conduct an underwater archaeological investigation (diver and/or ROV investigations) prior to commencing activities to determine whether these features represent archaeological resources, or (2) ensure that all anchoring operations (anchors, anchor chains, wire ropes, cables, etc.) avoid the unidentified features by a distance greater than that listed under separate letter. If you plan to conduct an underwater archaeological investigation prior to commencing operations, contact Dr. Christopher Horrell at (504) 736-2796 to obtain the investigation methodology at least two weeks prior to performing operations and send a confirmation email to archaeology@boem.gov. If you choose to avoid the features, include in your Post-removal Report as-built plats, at a scale of 1-in. = 1,000-ft. with DGPS accuracy, showing the position of anchors, anchor chains, wire ropes and cables deployed during the structure removal relative to these features. In addition, supply a copy of ALL vessel logs related to the removal operations (e.g. anchor handling vessels, lift boats, dive vessels, tug boats).

Conclusion: BOEM has evaluated the potential environmental impacts of the proposed action. Based on the SEA No. 2019-019, we conclude that the proposed action would have no significant impact on the environment provided that the avoidance measures required by the specific conditions of approval are met by the operator. An Environmental Impact Statement is not required.

PERRY BOUDREAUX

Digitally signed by PERRY BOUDREAUX
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Chief, Environmental Operations Section
BOEM Office of Environment, GOM OCS Region

July 16, 2019
Date

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT
GULF OF MEXICO OCS REGION
NEW ORLEANS, LOUISIANA

SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT

OF

STRUCTURE-REMOVAL APPLICATION ES/SR NO. 19-019

FOR

Energy XXI GOM, LLC

IN

South Marsh Block 61
Lease OCS-G 01196
Complex ID No.21883-1

Date Submitted: May 06, 2019
Commencement Date: July 2019

RELATED ENVIRONMENTAL DOCUMENTS

Programmatic Environmental Assessment for Structure-Removal Operations
on the Gulf of Mexico Outer Continental Shelf (OCS EIS/EA MMS 2005-013)

Final Environmental Impact Statement for Gulf of Mexico OCS Oil and Gas Lease Sales: 2017-2022;
Gulf of Mexico Lease Sales 249, 250, 251, 252, 253, 254, 256, 257, 259, and 261;
(OCS EIS/EA BOEM 2017-009)

Gulf of Mexico OCS Lease Sale
Final Supplemental Environmental Impact Statement 2018
(OCS EIS/EA BOEM 2017-074)

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1. PROPOSED ACTION

The purpose of this Site-Specific Environmental Assessment (SEA) is to assess if the specific impacts associated with proposed decommissioning activities, outlined in ES/SR 19-019 initially submitted by Energy XXI GOM, LLC (EXXI) on May 6, 2019, will significantly affect the quality of the human, coastal, and marine environments within the meaning of Section 102(2)(c) of the National Environmental Policy Act (NEPA) and whether an Environmental Impact Statement (EIS) must be prepared. EXXI proposes to remove Platform C from South Marsh Block 61 in the Central Planning Area safely and with minimal degradation to the environment while adhering to the Outer Continental Shelf Lands Act (OCSLA) regulations, binding lease agreements, and other enforceable OCS-related laws.

This SEA tiers from several National Environmental Policy Act (NEPA) documents which evaluated a broad spectrum of potential impacts resulting from decommissioning activities across the Eastern, Central, and Western Planning Areas of the Gulf of Mexico (GOM) Outer Continental Shelf (OCS):

- Structure-Removal Operations on the Gulf of Mexico Outer Continental Shelf: Final Programmatic Environmental Assessment (PEA) (USDOI, MMS, 2005);
- Gulf of Mexico OCS Oil and Gas Lease Sales: 2017-2022; Gulf of Mexico Lease Sales 249, 250, 251, 252, 253, 254, 256, 257, 259, and 261; Final Environmental Impact Statement (Multisale EIS) (USDOI, BOEM, 2017a); and
- Gulf of Mexico OCS Lease Sale Final Supplemental Environmental Impact Statement 2018 (2018 SEIS) (USDOI, BOEM, 2017b).

"Tiering" provided for in the NEPA implementing regulations (40 CFR 1502.20 and 1508.28) is designed to reduce and simplify the scope of subsequent environmental analyses. Tiering is also subject to additional guidance under the United States Department of the Interior (DOI) regulations at 43 CFR § 46.140. Under the DOI regulation the site-specific analysis must note the conditions and effects addressed in the programmatic document that remain valid and which conditions and effects require additional review.

Chapter 3 of this SEA will focus on information including a brief discussion of the known effects on analyzed resources related to the environmental effects of this action. Where applicable, relevant affected environment discussions and impact analyses from the PEA, the Multisale EIS, and 2018 SEIS are summarized and utilized for this site-specific analyses, and are incorporated by reference into this SEA. Relevant conditions of approval identified in the PEA, Multisale EIS, and 2018 SEIS have been considered in the evaluation of the proposed action.

1.1. BACKGROUND

BOEM and the Bureau of Safety and Environmental Enforcement (BSEE) are mandated to manage the orderly leasing, exploration, and development of OCS oil, gas, and mineral resources while ensuring safe operations and the protection of the human, coastal, and marine environments. One purpose of BOEM's regulatory program is to ensure adequate environmental reviews are conducted on all decommissioning proposals that would help support health and safety while simultaneously protecting the sensitive marine environment.

During every stage of exploration, development, and production of oil, gas, and mineral (sulfur) operations, structures are set on or into the seafloor to:

- Aid with and/or facilitate well operations and protection;
- Emplace drilling and production platforms and vessel moorings;
- Install pipelines; and
- Deploy subsea equipment.

To satisfy the regulatory requirements and lease agreements for the eventual removal of these structures, decommissioning operations employ a wide range of activities that oversee any topsides removal (decking and structure above the waterline), seafloor severing, component lifting and loading, site-clearance verification work, and final transportation of the structure back to shore for salvage or to an alternate OCS site for reuse or reefing.

The scope of the effects on GOM resources from activities proposed in EXXI's ES/SR application, 19-019, were fully discussed and analyzed in the PEA. Neither the specific location, equipment, nor the

duration of this proposal will result in impacts different from those discussed in the PEA, the Multisale EIS, and 2018 SEIS prepared since that time.

1.2. Purpose and Need for the Proposed Action

The purpose of the proposed action is to sever and remove all objects from the seafloor safely and with minimal degradation to the environment while adhering to the decommissioning guidelines of the OCSLA regulations, binding lease agreements, and other enforceable OCS-related laws. The proposed action also serves a secondary purpose for BOEM by providing measures to ensure that nothing will be exposed on the seafloor after a decommissioning that could interfere with navigation, commercial fisheries, or future oil and gas operations in the area.

The proposed action is needed to allow EXXI to comply with OCSLA regulations (30 CFR § 250.1703 and § 250.1725); wherein, operators are required to remove their facilities and associated seafloor obstructions from their leases within one year of lease termination or after a structure has been deemed obsolete or unusable. These regulations also require the operator to sever bottom-founded objects and their related components at least 15 feet (ft) (4.6 meters (m)) below the mudline (BML) (30 § 250.1728(a)). A discussion of the other legal and regulatory mandates to remove abandoned oil and gas structures from Federal waters can be found in the PEA.

In response to the proposed action in EXXI's application, BOEM has regulatory responsibility, consistent with the OCSLA and other applicable laws, to recommend to BSEE to approve, approve with modifications or conditions of approval, or deny the application. BOEM's regulations provide criteria that BOEM will apply in reaching a decision and providing for any applicable conditions of approval.

1.3. Description of the Proposed Action

EXXI proposes to remove Platform C in South Marsh Block 61, Lease OCS-G 01196, Complex ID No. 21883-1, using explosive severance methods. Abrasive or mechanical cutting will be used as back up. The structure is located at a water depth of 126 ft (38.4 m) and lies approximately 55 miles (88.5 kilometers) from the nearest Louisiana shoreline. Operations will be conducted from an onshore support base in Intracoastal City, Louisiana. The operator will remove all casing wellhead equipment, and piling to a depth of at least 15 ft (4.6 m) BML. The piles and conductors will be severed using 80-200 lb. explosive charges. The maximum anchor radius employed by the lift vessel/derrick barge will be 3,000 ft (914.4 m). EXXI's decommissioning permit application includes additional information about the proposed activities and is incorporated herein by reference. According to the operator, the structure will be removed because the lease is terminated (EXXI, 2019). EXXI also proposes to conduct site clearance trawling over a survey grid designed to cover an area with a radius of 1,320 ft (402 m) from the center of the structure for site clearance verification.

2. ALTERNATIVES CONSIDERED

2.1. The No Action Alternative

Alternative 1— If selected, the operator would not undertake the proposed activities. If the proposed activities are not undertaken, all environmental impacts, including routine and accidental would not occur, and there would be no contribution to cumulative impacts to the environmental and cultural resources described in the PEA, Multisale EIS, 2018 SEIS, and this SEA would not occur.

2.2. The Proposed Action as Submitted

Alternative 2— If selected, the operator would undertake the proposed activities as requested in their plan. This alternative assumes that the operator will conduct their operations in accordance with their lease stipulations, the OCSLA and all applicable regulations (as per 30 CFR § 550.101(a)), and guidance provided in all appropriate NTLs (as per 30 CFR § 550.103). However, no additional, site-specific conditions of approval would be required by BOEM.

2.3. The Proposed Action with Additional Condition(s) of Approval

Alternative 3—This is BOEM's *Preferred Alternative* — If selected, the operator would undertake the proposed activity, as requested and conditioned by stipulations, regulations, and guidance (similar to

Alternative 2); however, BOEM would require the operator to undertake additional conditions of approval as identified by BOEM (listed in **Chapter 2.4** below and described in the effects analyses) in order to fully address the potential site and project specific impacts of the proposed action.

2.4. SUMMARY AND COMPARISON OF THE ALTERNATIVES

Alternative 1, the no action alternative, would prevent the timely removal of obsolete or abandoned structures within a period of one year after termination of the lease or upon termination of a right-of-use and easement. Alternative 1 would not result in any impacts to the environmental resources analyzed in **Chapter 3**, but it does not meet the underlying purpose and need.

Alternative 2 would allow for the removal of obsolete or abandoned structures, but would not include any conditions of approval or monitoring beyond what was stated in the application. However, BOEM has determined that additional conditions of approval are needed to minimize or negate possible environmental impacts.

Alternative 3 is the preferred alternative, based on the analysis of potential impacts to resources described in **Chapter 3**, because it meets the underlying purpose and need and also implements conditions of approval and monitoring requirements (described directly below) that adequately limit or negate potential impacts.

Protective Measures Required under the Preferred Alternative

The need for, and utility of, the following protective measures are discussed in the relevant impact analysis chapters of this SEA. The following protective measures and reporting requirements were identified to ensure adequate environmental protection:

- **LARGE EXPLOSIVE-SEVERANCE SCENARIO D1—MITIGATION PACKAGE:** The operator is proposing explosive-severance activities that are covered under Large Blasting Category D1. Detailed pre- and post-detonation mitigation(s) requirements can be found in Appendix A of this SEA.
- **FISH (STRUCTURE REMOVALS USING EXPLOSIVES):** Under the Magnuson-Stevens Fisheries Conservation and Management Act, 50 CFR § 600.725 prohibits the use of explosives to take reef fish in the Exclusive Economic Zone. Consequently, those involved in removal operations must not take such stunned or killed fish on board their vessels. Should this happen, they could be charged by the National Marine Fisheries Service (NMFS) with violation of the Act.
- **VESSEL-STRIKE AVOIDANCE/REPORTING:** Follow the guidance provided under Notice to Lessees and Operators (NTL) No. 2016-G01 (*Vessel Strike Avoidance and Injured/Dead Protected Species Reporting*). The NTL's guidance can be accessed on BOEM's internet website at http://www.boem.gov/BOEM-NTL-No-2016-G01/.
- **SITE-CLEARANCE TRAWLING REPORTING**: If trawling is used to comply with the site-clearance verification requirements under 30 CFR §§ 250.1740-1743, which mandates that turtle excluder devices (TED) be removed from the trawl nets to facilitate the collection of seabed debris, you must abide by maximum trawl times of 30 minutes, allowing for the removal of any captured sea turtles. If during your trawling activities, you capture a sea turtle in your nets, you must:

  1. Contact BSEE's Office of Environmental Compliance (OEC) at protectedspecies@bsee.gov and NMFS' Southeast Regional Office (SERO) at takereport.nmfsser@noaa.gov immediately;
  2. Resuscitate and release any captured sea turtles as per NMFS' guidelines found online at https://www.sefsc.noaa.gov/turtles/TM_NMFS_SEFSC_580_2010.pdf (see page 3-6; Plate 3-1); and
  3. Photograph the turtle, and complete a sea turtle stranding form for each sea turtle caught in your nets. The form can be found at: https://www.sefsc.noaa.gov/species/turtles/strandings.htm and submit to NMFS and BSEE (to the email addresses noted above).

- **POST APPROVAL NOTIFICATION (STRUCTURE REMOVAL):** Per 30 CFR § 250.194(c) and clarified in NTL No. 2005-G07, if during site clearance operations you discover any object of potential archaeological significance you are required to immediately halt operations. In addition, you must immediately report this discovery to BSEE Office of Environmental Compliance (Env-Compliance-Arc@bsee.gov) and contact Dr. Christopher Horrell at (504) 736-2796. Additional guidance will be provided to the operator as to what steps will be needed to protect any potential submerged archaeological resources. Additionally, as specified under 30 CFR § 250.1743:

  - You are required to provide the trawling logs for both heavy-duty nets and verification nets with descriptions of each item recovered. Should you only pull site clearance verification nets, please clearly state this within the body of the Site Clearance Report. In addition, provide ALL vessel logs related to vessels that were used to recover items during site clearance operations (e.g. anchor handling vessels, lift boats, dive support vessels, tug boats, etc.). If you did not use any vessels to recover items, please clearly state this within the body of the Site Clearance Report.

  - With your Site Clearance Report you are also required to provide a CD or DVD of all digital photographs of the items recovered during the use of the heavy-duty trawl nets, site clearance verification trawl nets, diver recovery, and any other vessels used. Each photograph must be of appropriate scale and size so that individual items can be identified. All photographs of recovered items must also correspond with the items recovered and listed on individual lines within the logs. In addition, when you submit your photographs, you should label each photograph file name so that it represents the individual trawl line from which the items were recovered.

- **PROGRESSIVE-TRANSPORT NOTIFICATION:** In accordance with OCSLA requirements (30 CFR § 250.1727(g)), if at any point in your decommissioning schedule progressive-transport/"hopping" activities are required to section your jacket assembly or support material barge loading, a prior written request must be submitted and approval must be obtained from the Regional Supervisor/Field Operations. Your request to use progressive-transport must include a detailed procedural narrative and separate location plat for each "set-down" site, showing pipelines, anchor patterns for the derrick barge, and any known archaeological and/or potentially sensitive biological features. The diagram/map of the route to be taken from the initial structure location along the transport path to each site must also be submitted with your request. If the block(s) that you intend to use as "set-down" sites have not been surveyed as per NTL No. 2009-G39 and NTL No. 2005-G07, you may be required to conduct the necessary surveys/reporting prior to mobilizing on site and conducting any seafloor-disturbing activities.

- **PROTECTION OF POTENTIAL ARCHAEOLOGICAL RESOURCES:** Our review indicates that your proposed activities are in the vicinity of the unidentified magnetic anomalies listed under separate letter, features that may represent significant archaeological resources. In accordance with 30 CFR 250.194(c), you must either (1) conduct an underwater archaeological investigation (diver and/or ROV investigations) prior to commencing activities to determine whether these features represent archaeological resources, or (2) ensure that all anchoring operations (anchors, anchor chains, wire ropes, cables, etc.) avoid the unidentified features by a distance greater than that listed under separate letter. If you plan to conduct an underwater archaeological investigation prior to commencing operations, contact Dr. Christopher Horrell at (504) 736-2796 to obtain the investigation methodology at least two weeks prior to performing operations and send a confirmation email to archaeology@boem.gov. If you choose to avoid the features, include in your Post-removal Report as-built plats, at a scale of 1-in. = 1,000-ft. with DGPS accuracy, showing the position of anchors, anchor chains, wire ropes and cables deployed during the structure removal relative to these features. In addition, supply a copy of ALL vessel logs related to the removal operations (e.g. anchor handling vessels, lift boats, dive vessels, tug boats).

2.5. ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

Other alternatives considered but not analyzed in detail include:

- "In-situ" abandonments only (no decommissioning permitted).
- Decommissionings with "unlimited" severance options (no limit on explosive charge).
- Decommissionings with "seasonal' severance options (seasonal removal restrictions).

In-situ abandonments would require modifications to the OCSLA to allow for expired lease obstructions and increased navigation hazards. Abandoned structures would require continual maintenance and present space use conflicts with future leaseholders and other potential users of the GOM OCS. Employing unlimited severance options to remove a structure was not analyzed in detail because the potential impact zone for marine protected species is directly related to explosive charge size. Seasonal removal was not analyzed further because this option relied upon incomplete seasonal data and failed to account for intermittent decommissioning needs. EXXI's proposed action meets the objectives of the purpose and need while being feasible under the regulatory directives of the OCSLA and all other applicable guidance.

3. DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

3.1. INTRODUCTION

The discussion below will: (1) describe/summarize the pertinent potentially affected resources; (2) determine whether the proposed action and its impact-producing factors (IPFs) will have significant impacts on the human, coastal, or marine environments of the GOM; and (3) identify significant impacts, if any, that may require further NEPA analysis in an EIS. The description of the affected environment and impact analysis are presented together in this section for each resource.

For each potentially affected resource, BOEM staff reviewed and analyzed all currently available peer-reviewed literature and integrated these data and findings into the analyses below. The analyses cite the best available, relevant scientific literature. BOEM performed this analysis to determine whether EXXI's proposed activities will significantly impact the human, coastal, or marine environments of the GOM. Additionally, the analysis covered the area of the proposed anchor radius plus an additional 3,000 ft (914.4 m). For the impact analysis, resource-specific significant criteria were developed for each category of the affected environment and are described in Chapter 4 of the 2005 PEA. The criteria reflect consideration of both the context and intensity of the impact at issue (see 40 CFR § 1508.27). The criteria for impacts to environmental resources were classified as significant or not significant, while the impacts on marine mammals and sea turtles are generally classified into one of the three following impact levels:

- Significant Adverse Impact (including those that could be mitigated to no significance);
- Adverse but Not Significant Impact; or
- Negligible Impact.

Preliminary screening for this assessment was based on a review of this relevant literature; previous SEAs; the PEA (USDOI, MMS, 2005); the Multisale EIS (USDOI, BOEM, 2017a); the 2018 SEIS (USDOI, BOEM, 2017b); and relevant literature pertinent to historic and projected activities. BOEM initially considered the following resources for impact analysis:

- air quality;
- water quality (coastal and marine waters);
- marine mammals (including ESA-listed species and strategic stocks);
- sea turtles (all are ESA-listed species);
- fish resources, commercial and recreational fishing, and essential fish habitat (EFH);

- benthic resources (live-bottom [Pinnacle Trend] communities, topographic features, and potentially sensitive benthic features);
- archaeological resources;
- pipelines and cables;
- military use, warning, and test areas; and
- navigation and shipping.

In the PEA, the impact analysis focused on a broad group of decommissioning activities and resources with the potential for impacts. The IPFs include: (1) noise/pressure-waves from explosive-severance charges; (2) emissions from decommissioning vessels/equipment; (3) vessel discharges and turbidity; (4) seafloor disturbances from mooring and trawling activities; and (5) habitat loss (via removal of the facilities from the OCS). However, for the purposes of this SEA, BOEM has not included analyses of resource areas that were evaluated and considered under the PEA as having negligible impacts (see 40 CFR § 1508.27) from decommissioning activities. The most recent evaluation of the best available peer-reviewed scientific literature continues to support this conclusion for the following resource categories:

- air quality;
- water quality (coastal and marine waters);
- fish resources, commercial and recreational fishing, and EFH;
- benthic resources (live-bottom [Pinnacle Trend] communities and topographic features);
- pipelines and cables;
- military use, warning, and test areas; and
- navigation and shipping.

For this SEA BOEM evaluated the potential impacts from the applicant's proposed activities in the GOM on the following resource categories:

- marine mammals (including threatened/endangered and non-ESA-listed species);
- sea turtles (all are ESA-listed species);
- fish resources and EFH;
- benthic resources; and
- archaeological resources.

3.2. MARINE MAMMALS

The life history, population dynamics, status, distribution, behavior, and habitat use of baleen and toothed whales can be found in Chapter 3.2 of the PEA and Chapter 4.9 of the Multisale EIS and 2018 SEIS, and is incorporated by reference. The U.S. GOM marine mammal community is diverse and distributed throughout the northern Gulf waters with the greatest diversity and abundance of cetaceans found in the oceanic and OCS waters. Twenty-one species of cetaceans regularly occur in the GOM (Jefferson et al., 1992; Davis et al., 2000) and are identified in the NMFS GOM Stock Assessment Reports (SAR) (Waring et al., 2016) in addition to one species of Sirenian (USDOI, USFWS, 2014). The GOM's marine mammals are represented by members of the taxonomic order Cetacea, which is divided into the suborders Mysticeti (i.e., baleen whales) and Odontoceti (i.e., toothed whales), as well as the order Sirenia, which includes the manatee. There are marine mammal species that have been reported from Gulf waters, either by sighting or stranding, that are not considered because they are relatively rare (Wursig et al. 2000; Mullin and Fulling, 2004).

3.2.1. Impact Analysis

The IPFs for marine mammals from decommissioning and structural removal were discussed in Chapter 4.3 of the PEA (USDOI, MMS, 2005). Effects of oil and gas activity on marine mammals were also discussed in Chapter 4.9 of the Multisale EIS and 2018 SEIS. This SEA tiers from both of these documented analyses. Potential impacts to marine mammals from the detonation of explosives include lethal and injurious incidental take, as well as physical or acoustic harassment. Injury to the lungs and intestines and/or auditory system could occur. Harassment of marine mammals as a result of a noninjurious

physiological response to the explosion-generated shock wave as well as to the acoustic signature of the detonation is also possible.

BOEM concluded in the PEA that marine mammal injury is not expected from explosive structure-removal operations, provided that existing guidelines and conditions of approval requirements are followed. NTL No. 2018-G03 (*Decommissioning Guidance for Wells and Platforms*) requires that trained observers watch for protected species in the vicinity of the structures to be removed to ensure sensitive animals are clear of the area prior to detonations to minimize adverse effects on marine mammals from these activities.

OCS service vessels associated with the proposed activities also pose a hazard to marine mammals located near the surface that would be at risk of collision with the vessels. To minimize the potential for vessel strikes, operators should implement the guidance provided under NTL No. 2016-G01 (*Vessel Strike Avoidance and Injured/Dead Protected Species Reporting*) which contains vessel strike avoidance and injured/dead protected species reporting for sea turtles and other protected species. The NTL guidance can be accessed on BOEM's internet website at http://www.boem.gov/BOEM-NTL-No-2016-G01/.

3.2.1.1. Alternatives

Alternative 1: Non-approval of the proposed action would prevent applicants from conducting the proposed activities and the IPFs on marine mammals would not occur. No vessel traffic related to the operations eliminates a risk of collisions with marine mammals.

Alternative 2: Approval of the proposed action would allow the applicant to conduct the proposed activity with no additional conditions of approval implemented by BSEE. Examples of potential impacts to marine mammals without applying conditions of approval and monitoring include, but are not limited to: injury/take from pressure waves from use of explosives underwater; behavioral changes; frequency masking; or non-auditory effects on marine mammals. This alternative would likely not adequately limit or negate potential impacts on marine mammals.

Alternative 3: Approval of the proposed action with additional conditions of approval allows the applicant to conduct the proposed activity, but with conditions of approval and monitoring measures identified by BSEE in the NTL No. 2018-G03 (*Decommissioning Guidance for Wells and Platforms*), which includes the monitoring requirements as agreed to in the NMFS Biological Opinion. This NTL specifies conditions of approval requirements in the new ESA and MMPA guidance that requires trained observers to watch for protected species in the vicinity of the structures to be removed.

Conclusion: Although there could be impacts to marine mammals from the proposed action, proper adherence to the conditions of approval and monitoring measures would prevent or lessen the impacts of the proposed action on marine mammals. The impacts of the proposed action are expected to be potentially adverse by not significant. With conditions of approval in place, the potential impacts to marine mammals are expected to be negligible.

3.3. SEA TURTLES

The life history, population dynamics, status, distribution, behavior, and habitat use of sea turtles can be found in Chapter 3.2 of the PEA and Chapter 4.9 of the Multisale EIS and 2018 SEIS and is incorporated by reference into this SEA. Five highly migratory sea turtle species are known to inhabit the waters of the GOM (USDOI, BOEM, 2017a). All five species of sea turtles have been listed as endangered or threatened since the 1970's. Critical habitat has been designated for the Northwest Atlantic Ocean Loggerhead sea turtle population segment (DPS) in the GOM (*Federal Register*, 2014).

3.3.1. Impact Analyses

The IPFs for sea turtles from the proposed activities were discussed in the PEA (USDOI, MMS, 2005). The effects from oil and gas activity on the proposed action on sea turtles was also discussed in Chapter 4.9 of the Multisale EIS and 2018 SEIS. This SEA tiers from both of these analyses. Sea turtles can be impacted by the proposed activities by way of degradation of water quality and its associated short-term effects, vessel collision, site-clearance trawling, and the physical effects of underwater explosions.

The potential for lethal effects could occur from the detonations of explosive-severance tools (and associated pressure wave), chance collisions with OCS service vessels associated with the proposed activities, and potential capture in site-clearance trawls.

BOEM concluded in the PEA that sea turtle injury is not expected from explosive structure-removal operations, provided that existing guidelines and conditions of approval requirements are followed. NTL No. 2018-G03 stipulates that trained observers watch for protected species in the vicinity of the structures to be removed prior to detonations to ensure sensitive animals are clear of the area in order to minimize adverse effects onto marine mammals from these activities.

OCS service vessels associated with the proposed activities pose a hazard to sea turtles located near the surface that would be at risk of collision with the vessels. To minimize the potential for vessel strikes, operators should implement the guidance provided under NTL No. 2016-G01 which contains vessel strike avoidance and injured/dead protected species reporting for sea turtles and other protected species. The NTL guidance can be accessed on BOEM's internet website at http://www.boem.gov/BOEM-NTL-No-2016-G01/.

Under the guidelines provided in NTL No. 2019-G05 and site-clearance verification requirements under 30 CFR §§ 250.1740-1743, site-clearance trawling employing trawl nets which do not utilize turtle excluder devices can be a method to ensure the seafloor of the lease is returned to its prelease state. The trawls have the potential to capture and drown sea turtles in the vicinity of the trawl site. To reduce the risk of capture and possible drowning of sea turtles, reasonable mitigating measures are applied. These measures include: 1) use trawl nets with a minimum stretched mesh size of 4 inches at the cod end and 2 inches elsewhere. Trawl nets shall have a maximum stretched mesh size of 6 inches; 2) abide by maximum trawl times of 30 min, allowing for the removal of any captured sea turtles, and 3) in the event that a trawling contractor captures a sea turtle, the contractor must contact BSEE's Office of Environmental Compliance (OEC) at protectedspecies@bsee.gov and NMFS' Southeast Regional Office (SERO) at takereport.nmfsser@noaa.gov immediately. Additional measures would include the resuscitation and release of any captured sea turtles as per the NOAA guidelines in Appendix B of this SEA and photographic documentation and a complete sea turtle stranding form for each sea turtle caught in the trawl nets. The sea turtle stranding form can be found at https://www.sefsc.noaa.gov/species/turtles/strandings.htm and submitted to NMFS and BSEE (same addresses as above).

Most removal activities utilizing explosive severance methods are expected to have sublethal effects on marine turtles that are in the immediate area of activity (*e.g.*, behavioral flight response upon detonation of explosives). The impacts of the proposed action are expected to be negligible most of the time, with occasional impacts being potentially adverse but not significant. No significant adverse effects on the population size and recovery of any sea turtle species in the GOM are expected.

3.3.1.1. Alternatives

Alternative 1: Non-approval of the proposed action would prevent applicants from conducting the proposed activities. The IPFs to sea turtles would not occur. The chance for collisions with OCS service vessels associated with decommissioning activities, or potential capture in site-clearance trawls, would be eliminated.

Alternative 2: Approval of the proposed action would allow the applicant to conduct the proposed activity with no additional conditions of approval and monitoring measures required by BOEM. Examples of potential impacts to sea turtles would be degradation of water quality and its associated short-term effects, vessel collisions, site-clearance trawling, and the physical effects of underwater explosions. The potential for lethal effects could occur from the detonations of explosive-severance tools (and associated pressure wave), chance collisions with OCS service vessels associated with decommissioning activities, and potential capture in site-clearance trawls.

Alternative 3: Approval of the proposed action with additional conditions of approval allows the applicant to conduct the proposed activity, but with conditions of approval and monitoring measures identified by BSEE NTL No. 2018-G03 (*Decommissioning Guidance for Wells and Platforms*), which includes the monitoring requirements as agreed to in the NMFS Biological Opinion. This NTL specifies conditions of approval requirements in the ESA and MMPA guidance that requires trained observers to watch for protected species of sea turtles and marine mammals in the vicinity of the structures to be removed. Mitigative measures will be implemented by BSEE, in coordination with NMFS and in accordance with the NMFS ESA consultation requirements and the MMPA take-regulations.

Conclusion: Although there could be impacts to sea turtles from the proposed action, proper adherence to the conditions of approval and monitoring measures as outlined above would preclude or lessen the impacts of the proposed action on sea turtles. The impacts of the proposed action are expected to be negligible most of the time, with occasional impacts being potentially adverse but not significant. No

significant adverse effects from the proposed activities on the population size and recover of any sea turtle species in the GOM are expected.

3.4. Fish Resources

The distribution of fish resources and fish habitat can be found in Chapters 4.7 (Fish Resources), 4.6 (Live Bottom Habitats), and 4.5 (*Sargassum* and Associated Communities) of the Multisale EIS and 2018 SEIS and Chapter 3.2 of the PEA, and the information is incorporated by reference into this SEA.

Threatened or Endangered Species

Two GOM fish species, the Gulf sturgeon and the smalltooth sawfish, are protected under the ESA. The Gulf sturgeon is listed as threatened; the smalltooth sawfish is listed as endangered. The Gulf sturgeon is predominantly distributed in the nearshore waters of the northeastern GOM, and currently, the smalltooth sawfish is predominantly distributed in the nearshore waters of south Florida (USDOI, FWS and Gulf States Marine Fisheries Commission 1995; USDOC, NMFS, 2009).

Non-ESA-Listed Species

The distribution of fishes varies widely and species may be associated with different habitats at various life stages. This analysis highlights behaviors and habitat preferences, but it does not attempt to provide a comprehensive list of all potentially impacted fauna. For purposes of this analysis, habitat preferences can be divided into three broad categories: estuarine; coastal; and oceanic. Exposure to specific IPFs generated by OCS oil- and gas-related routine activities and accidental events can vary among these categories. Coastal and oceanic resources are further broken into benthic and pelagic zones to address differences in potential exposure to IPFs within a given habitat category.

3.4.1. Impact Analyses

The IPFs for fish resources from decommissioning and structural removal that could result in adverse impacts to fish resources are anthropogenic sound generation (i.e., acoustic shockwaves), bottom-disturbing activities resulting in the resuspension of sediments, and habitat modification.

For the purpose of this analysis, bottom-disturbing activities are distinguished from habitat modification by the relatively short period of time over which disturbances occur. Anchoring, drilling, trenching, pipe-laying, and structure emplacement are examples of OCS oil- and gas-related activities that disturb the seafloor. Additionally, the installation or removal of platforms and subsea systems are examples of habitat modification. Although installed facilities are temporary, the operational life is long term and may impact the distribution of species in an area (Carr and Hixon, 1997; Gallaway et al., 2009; Shipp and Bortone, 2009). The effects of artificial habitat loss through decommissioning activities are discussed in Chapter 4.7 in the Multisale EIS and 2018 SEIS (USDOI, BOEM, 2017a and b).

Fish mortality can occur as a result of decommissioning operations using explosive severance methods (Gitschlag et al., 2001). The resulting shockwaves are assumed to be lethal to fish in close proximity to the platform being removed (Gitschlag et al., 2001; Scarborough-Bull and Kendall, 1992; Young, 1991). A more detailed discussion of acoustic shockwave impacts is provided in Chapter 4.7 of the Multisale EIS and 2018 SEIS. Due to the localized nature of the effects, impacts to fish resources as a result of decommissioning activities using explosive severance are expected to range from negligible for most species to minor for species most commonly associated with OCS oil and gas platforms.

Therefore, it is expected that decommissioning activities would have a locally minor, but overall negligible effect on fish resources because the impacts of these activities would affect a limited geographic area (*i.e.,* only those fish that are in close proximity to the removal site and that do not leave the area) and would not rise to any population-level impacts across the GOM.

3.4.1.1. Alternatives

Alternative 1: Non-approval of the proposed action would prevent applicants from conducting the proposed activities. The IPFs on fish or essential fish habitat would not occur. Fish in proximity to explosive detonations would not experience concussive forces that may kill or injure individuals.

Alternative 2: Approval of the proposed action would allow the applicant to conduct the proposed activities with no additional conditions of approval and monitoring measures required by BOEM. As described in the analyses above, impacts on fish populations from the proposed action, such as alteration of local habitat due to structure removal, hearing impairment or loss, behavioral disruption, or fish mortality from underwater explosions, are expected to be short-term, localized and not lead to significant impacts. Fish in proximity to explosive detonations may experience concussive forces that lead to lethal effects. Although the conditions of approval outlined in **Chapter 2.4** would be included, their implementation will not increase or decrease the potential for effects to fish from the proposed action.

Alternative 3: Approval of the proposed action with additional conditions of approval would allow the applicant to undertake the proposed activities; however, the applicant must not take such stunned or killed reef fish on board their vessels. Impacts on fish from the proposed action (e.g., hearing loss or behavioral disruption from underwater explosions), are expected to be short-term, localized and not lead to significant impacts. Although the conditions of approval outlined in **Chapter 2.4** would be included, their implementation will decrease the potential for effects to fish from the proposed action.

Conclusion: Although the proposed action could impact fish resources, proper adherence to the conditions of approval and monitoring measures would prevent or lessen the impacts of the proposed action on fish resources. The impacts of the proposed action are not expected to be significant.

3.5. Benthic Biological Resources

A description of live bottom features (topographic and pinnacle) and potentially sensitive biologic features can be found in Chapters 4.4, 4.6, and 4.9 of the Multisale EIS and 2018 SEIS and in Chapter 4.3 of the PEA. These descriptions are incorporated by reference into this SEA. The vast majority of the GOM has a soft, muddy bottom in which burrowing infauna are the most abundant invertebrates; so-called soft-bottom communities. A small area of Gulf sea bottom contains hard/live bottom, particularly those having measurable vertical relief, which can serve as important habitat for a wide variety of marine organisms. Encrusting algae and sessile invertebrates such as corals, sponges, sea fans, sea whips, hydroids, anemones, ascidians, and bryozoans may attach to and cover hard substrates, thereby creating "live bottoms," a term first coined by Cummins et al. (1962).

3.5.1. Impact Analyses

The IPFs for benthic resources from decommissioning and structural removal were discussed in Chapter 3.2 of the PEA (USDOI, MMS, 2005). The effects of oil and gas activity on benthic resources were discussed in Chapters 4.4, 4.6, and 4.9 of the Multisale EIS and 2018 SEIS. This SEA tiers from both of these analyses. bThe term bottom-disturbing activity includes any activity that results in the disturbance of the seafloor during the exploration, production, or decommissioning phase of OCS operations. The IPFs associated with the proposed action are bottom-disturbing activities that could result in physical damage to hard-bottom features and include: direct physical contact from anchoring; damage or death to any organisms within the vicinity of the blast or associated sediment plume; progressive-transport (i.e., jacket-hopping); trawling activities associated with site clearance; increased turbidity, and covering or smothering of sensitive habitats with suspended sediments from other associated activities (*e.g.,* water-jetting the sediment from structure piles). Long-term turbidity is not expected from platform removal operations.

The Live Bottom (Pinnacle Trend) Stipulation and the Topographic Features Stipulation would minimize impacts in the vicinity of pinnacle trends and topographic features, both of which sustain sensitive offshore habitats. Both of these stipulations are now incorporated into NTL No. 2009-G39.

3.5.1.1. Alternatives

Alternative 1: Non-approval of the proposed action would prevent applicants from conducting the decommissioning activities. There would be no bottom impacts from vessel anchoring that would result in increased turbidity, and covering or smothering of sensitive habitats with suspended sediments.

Alternative 2: Approval of the proposed action would allow the applicant to conduct the proposed action with no additional conditions of approval and monitoring measures required by BOEM. This alternative includes adherence to BOEM NTL No. 2009-G39, which the operator agreed to as part of their lease stipulations. Examples of potential impacts to benthic resources without adherences to this NTL include, but are not limited to, damage to potential benthic resources from the proposed activity. More

details on the potential for impacts absent adherence to this NTL are described further in Chapter 4.3 of the PEA. The operator proposes decommissioning activities at sites that may be located near potential benthic resources which, without additional conditions of approval, may lead to potential impacts to those sites. This alternative would not adequately limit or negate potential impacts to benthic resources.

Alternative 3: Approval of the proposed action would allow the applicant to undertake the proposed activities with additional conditions of approval as identified by BOEM. The additional conditions of approval outlined in **Chapter 2.4** are not expected to decrease the potential effects to benthic resources from the proposed action. Alternative 3 does not differ from Alternative 2 because adherence to BOEM NTL No. 2009-G39 has already been agreed upon by the operator as part of their lease stipulations.

Conclusion: Although benthic resources could be impacted by the proposed action, proper adherence to the operator's lease stipulations would preclude or minimize significant impacts to these resources from the associated bottom-disturbing activities. The impacts of the proposed action are not expected to be significant.

3.6. Archaeological Resources

Archaeological resources are any material remains of human life or activities that are at least 50 years of age and that are of archaeological interest (30 CFR § 551.1). A description of archaeological resources (prehistoric and historic) can be found in Chapter 4.13 of the Multisale EIS and 2018 SEIS and Chapter 3.3 of the PEA, and is incorporated by reference into this SEA. As obligated under OCSLA regulations (30 CFR § 551.6 (a) (5)), applicants are not allowed to disturb archaeological resources while conducting their proposed activities.

Geographic features that have a high probability for associated prehistoric sites in the northwestern and north central Gulf (from Texas to Alabama) include barrier islands and back barrier embayments, river channels and associated floodplains and terraces, and salt dome features. Also, a high probability for prehistoric resources may be found landward of a line which roughly follows the 45 m bathymetric contour.

Historic archaeological resources on the OCS include shipwrecks and light houses. Investigations identified over 4,000 potential shipwreck locations in the Gulf, nearly 1,500 of which occur on the OCS (Garrison et al., 1989). Historic shipwrecks have, to date, been primarily discovered through oil industry sonar surveys in water depths up to 9,000 ft (2,743 m). In both 2005 and 2011, BOEM revised its guidelines for conducting archaeological surveys and expanded the list of blocks requiring a survey and assessment. The list of blocks is available on BOEM's website under NTL No. 2005-G07 and NTL No. 2011-JOINT-G01. Since 2005, over 30 possible historic shipwrecks have been reported in the expanded area. At present, some form of survey is required for all new bottom disturbing activities.

3.6.1. Impact Analyses

The IPFs on archaeological resources from proposed activities were discussed in Chapter 4.4 of the PEA (USDOI, MMS, 2005). The effects of oil and gas activity on archaeological resources were discussed in Chapter 4.13 of the Multisale EIS and 2018 SEIS and are incorporated here by reference. The IPFs associated with the proposed action that could affect archaeological resources include: direct physical contact from anchoring; progressive-transport (i.e., jacket-hopping); and trawling activities associated with site clearance.

3.6.1.1. Alternatives

Alternative 1: Non-approval of the proposed action would prevent applicants from conducting the decommissioning activities. There would be no bottom impacts from vessel anchoring progressive-transport (i.e., jacket-hopping); and trawling activities associated with site clearance that could result in potential loss of any known or unknown historic archaeological resource.

Alternative 2: Approval of the proposed action would allow the applicant to conduct the proposed action with no additional conditions of approval and monitoring measures required by BOEM. Examples of potential impacts to archaeological resources and the following analysis include, but are not limited to, damage to potential archaeological resources from the proposed activity. More details on the potential for impact absence that results from imposing the conditions of approval are described in Chapter 4.4 of the PEA. The operator proposes decommissioning activities at sites that may be located near potential archaeological resources which, without additional conditions of approval, may lead to potential impacts to

those sites. This alternative would not adequately limit or negate potential impacts to archaeological resources.

Alternative 3: Approval of the proposed action would allow the applicant to undertake the proposed activities with additional conditions of approval that BOEM would require the locations for new bottom-disturbing activities to be reviewed for any archaeological resources before action is taken. Alternative 3 limits or negates potential impacts on archaeological resources by avoiding known archaeological resources.

Conclusion: Although there could be impacts to known archaeological sites from the proposed action, proper adherence to the conditions of approval and existing requirements negates or minimizes the potential for significant impacts to these resources. The impacts of the proposed action are not expected to be significant.

3.7. CUMULATIVE IMPACTS

Cumulative impacts from the proposed action were discussed in the PEA (USDOI, MMS, 2005) for resources not directly considered in this SEA and for protected and non-protected species of marine mammals (Chapter 4.5), sea turtles (Chapter 4.5), protected and non-protected species of fish and essential fish habitat (Chapter 4.5), archaeological resources (Chapter 4.5), and benthic resources (Chapter 4.5). Based on the cumulative impact scenarios and assessments presented in the PEA, the Multisale EIS, 2018 SEIS and the potential effectiveness of protective NTLs and lease stipulations, we expect that potential cumulative impacts from decommissioning activities (i.e. vessel discharges, explosive severance, explosive/nonexplosive-severance products, habitat removal/salvage, vessel anchoring, progressive transport, site-clearance trawling, and sediment redistribution) would not be significant.

With respect to the cumulative practice of artificial reefing of decommissioned structures, the practice has the cumulative effect of degrading EFH in one area by removing hard ground surfaces that, over time, has formed the basis for a local ecosystem in what otherwise would have been soft, featureless bottom. When that structure is removed and reefed, it enhances the habitat in the area or site chosen to receive the structure. Reefed oil and gas structures tend to be moved somewhat inshore from where they may have originated because the point to the practice is to provide fishers ecologically richer environments to use and the closer to shore they are, the more they serve as a net benefit to fishers seeking the experience.

4. CONSULTATION AND COORDINATION

Consultation and interagency coordination efforts were undertaken during and subsequent to the preparation of the PEA. The NMFS concluded that this category of decommissioning activities will not likely jeopardize the continued existence of any threatened or endangered species under their purview. Additionally, they concluded that this type of "standard" decommissioning activity may result in injury or mortality of loggerhead, Kemp's ridley, green, hawksbill, and leatherback turtles. Therefore, they established a cumulative level of incidental take and discussed various measures necessary to monitor and minimize this impact. As a result of these efforts, a Biological Opinion (BO) and Incidental Take Statement (ITS) were issued in August of 2006. In accordance with the provisions of Section 7 of the Endangered Species Act (ESA), as amended, the proposed activity operations are covered by the BO and ITS, which address the explosive-severance categories and site-clearance trawling activities analyzed in the PEA (USDOC, NMFS, 2006).

BOEM and BSEE are currently in consultation with NMFS and FWS regarding the OCS oil and gas program in the GOM. BOEM is acting as the lead agency in the ongoing consultation, with BSEE's assistance and involvement. The programmatic consultation was expanded in scope after reinitiation of consultation by BOEM in 2010 following the *Deepwater Horizon* explosion and oil spill, and it will include both existing and future OCS oil and gas leases in the GOM over a 10-year period. This consultation also considers any changes in baseline environmental conditions following the *Deepwater Horizon* explosion, oil spill, and response. The programmatic consultation includes post-lease activities associated with OCS oil- and gas-related activities in the GOM, including decommissioning activities. While the programmatic BO is in development, BOEM and NMFS have agreed to interim consultations on post-lease approvals. BOEM has received a draft BO from FWS and is currently reviewing it. BOEM is awaiting a BO from NMFS.

A similar incidental-take rulemaking effort was conducted with NMFS under Subpart I of the Marine Mammal Protection Act (MMPA) to cover protected marine mammals that could be affected by

decommissioning operations. The Final Rule was published on June 19, 2008 (*Federal Register,* 2008). That rulemaking expired on July 19, 2013. On July 15, 2013, BSEE transmitted a letter to NMFS notifying the SE Regional Office and Office of Protected Resources of BSEE's intent to work with NMFS to develop a new MMPA rule for decommissioning. In the interim BOEM and BSEE are requiring operators/lessees performing decommissioning activities in the GOM following the mitigation and monitoring requirements outlined in the 2008 MMPA rule and the Terms and Conditions in the associated 2006 Biological Opinion issue by NMFS for decommissioning activities in the GOM. The decommissioning conditions of approval prescribed under the promulgated regulations are nearly identical to those proposed/analyzed in the 2005 PEA and are included as terms and conditions of the 2006 ESA BO and ITS. Similarly, the conditions of approval recommended and analyzed in this SEA were developed from the programmatic NEPA, ESA, and MMPA guidance.

In accordance with the National Historic Preservation Act (54 U.S.C. §§ 300101 *et seq.*), Federal agencies are required to consider the effects of their undertakings on historic properties. The implementing regulations for Section 106 of the National Historic Preservation Act, issued by the Advisory Council on Historic Preservation (36 CFR § 800), specify the required review process. In accordance with 36 CFR § 800.8(c), BOEM intends to use the NEPA substitution process and documentation for preparing an EIS/ROD or an EA/FONSI to comply with Section 106 of the National Historic Preservation Act in lieu of 36 CFR §§ 800.3-800.6.

BOEM completed consultation with NOAA's National Marine Fisheries Service (NMFS) regarding the Magnuson-Stevens Fisheries Conservation and Management Act on July 10, 2017, by the receipt of a comment letter from NMFS. The NMFS letter acknowledged their receipt of the Essential Fish Habitat (EFH) Assessment and the supporting 2017-2022 MultiSale Lease NEPA document, provided a determination that the Programmatic Consultation was an appropriate mechanism to evaluated EFH impacts and confirmed the adoption of the BOEM/BSEE mitigation measures outlined in the June 8, 2016, BOEM EFH Assessment to ensure adverse impacts are avoided, minimized, and offset. This consultation remains in effect for 2017-2022 activities or earlier, if modifications are made to the BOEM/BSEE programs that would result in changes to potential adverse effects on EFH which would trigger additional consultation.

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6. PREPARERS

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7. APPENDIX

Appendix A - Conditions of Approval Requirements
Appendix B - NOAA Sea Turtle Resuscitation Guide

APPENDIX A

CONDITIONS OF APPROVAL REQUIREMENTS

Mitigation Requirements

LARGE EXPLOSIVE-SEVERANCE SCENARIO D1—MITIGATION PACKAGE: The operator is proposing explosive-severance activities that are covered under Large Blasting Category D1. Detailed pre- and post-detonation mitigation(s) requirements can be found below.

FISH (STRUCTURE REMOVALS USING EXPLOSIVES): Under the Magnuson-Stevens Fisheries Conservation and Management Act, 50 CFR § 600.725 prohibits the use of explosives to take reef fish in the Exclusive Economic Zone. Consequently, those involved in removal operations must not take such stunned or killed fish on board their vessels. Should this happen, they could be charged by the National Marine Fisheries Service (NMFS) with violation of the Act. If you have questions, contact NMFS at (727) 824-5344.

VESSEL-STRIKE AVOIDANCE/REPORTING: Follow the guidance provided under Notice to Lessees and Operators (NTL) No. 2016-G01 (*Vessel Strike Avoidance and Injured/Dead Protected Species Reporting*). The NTL's guidance can be accessed on BOEM's internet website at http://www.boem.gov/BOEM-NTL-No-2016-G01/.

SITE-CLEARANCE TRAWLING REPORTING: If trawling is used to comply with the site-clearance verification requirements under 30 CFR §§250.1740-1743, which mandates that turtle excluder devices (TED) be removed from the trawl nets to facilitate the collection of seabed debris, you must abide by maximum trawl times of 30 minutes, allowing for the removal of any captured sea turtles. If during your trawling activities, you capture a sea turtle in your nets, you must:

1. Contact BSEE's Office of Environmental Compliance (OEC) at protectedspecies@bsee.gov and NMFS' Southeast Regional Office (SERO) at takereport.nmfsser@noaa.gov immediately;
2. Resuscitate and release any captured sea turtles as per NMFS' guidelines found online at https://www.sefsc.noaa.gov/turtles/TM_NMFS_SEFSC_580_2010.pdf (see page 3-6; Plate 3-1); and
3. Photograph the turtle, and complete a sea turtle stranding form for each sea turtle caught in your nets. The form can be found at: https://www.sefsc.noaa.gov/species/turtles/strandings.htm and submit to NMFS and BSEE (to the email addresses noted above).

POST APPROVAL NOTIFICATION (STRUCTURE REMOVAL): Per 30 CFR § 250.194(c) and clarified in NTL No. 2005-G07, if during site clearance operations you discover any object of potential archaeological significance you are required to immediately halt operations. In addition, you must immediately report this discovery to BSEE Office of Environmental Compliance (Env-Compliance-Arc@bsee.gov) and contact Dr. Christopher Horrell at (504) 736-2796. Additional guidance will be provided to the operator as to what steps will be needed to protect any potential submerged archaeological resources. Additionally, as specified under 30 CFR § 250.1743:

- You are required to provide the trawling logs for both heavy-duty nets and verification nets with descriptions of each item recovered. Should you only pull site clearance verification nets, please clearly state this within the body of the Site Clearance Report. In addition, provide ALL vessel logs related to vessels that were used to recover items during site clearance operations (e.g. anchor handling vessels, lift boats, dive support vessels, tug boats, etc.). If you did not use any vessels to recover items, please clearly state this within the body of the Site Clearance Report.

- With your Site Clearance Report you are also required to provide a CD or DVD of all digital photographs of the items recovered during the use of the heavy-duty trawl nets, site clearance verification trawl nets, diver recovery, and any other vessels used. Each photograph must be of appropriate scale and size so that individual items can be identified. All photographs of recovered items must also correspond with the items recovered and listed on individual lines within the logs. In addition, when you submit your photographs, you should label each photograph file name so that it represents the individual trawl line from which the items were recovered.

PROGRESSIVE-TRANSPORT NOTIFICATION: In accordance with OCSLA requirements (30 CFR § 250.1727(g)), if at any point in your decommissioning schedule progressive-transport/"hopping" activities are required to section your jacket assembly or support material barge loading, a prior written request must be submitted and approval must be obtained from the Regional Supervisor/Field Operations. Your request

to use progressive-transport must include a detailed procedural narrative and separate location plat for each "set-down" site, showing pipelines, anchor patterns for the derrick barge, and any known archaeological and/or potentially sensitive biological features. The diagram/map of the route to be taken from the initial structure location along the transport path to each site must also be submitted with your request. If the block(s) that you intend to use as "set-down" sites have not been surveyed as per NTL No. 2009-G39 and NTL No. 2005-G07, you may be required to conduct the necessary surveys/reporting prior to mobilizing on site and conducting any seafloor-disturbing activities.

PROTECTION OF POTENTIAL ARCHAEOLOGICAL RESOURCES: Our review indicates that your proposed activities are in the vicinity of the unidentified magnetic anomalies listed under separate letter, features that may represent significant archaeological resources. In accordance with 30 CFR 250 §194(c), you must either (1) conduct an underwater archaeological investigation (diver and/or ROV investigations) prior to commencing activities to determine whether these features represent archaeological resources, or (2) ensure that all anchoring operations (anchors, anchor chains, wire ropes, cables, etc.) avoid the unidentified features by a distance greater than that listed under separate letter. If you plan to conduct an underwater archaeological investigation prior to commencing operations, contact Dr. Christopher Horrell at (504) 736-2796 to obtain the investigation methodology at least two weeks prior to performing operations and send a confirmation email to archaeology@boem.gov. If you choose to avoid the features, include in your Post-removal Report as-built plats, at a scale of 1-in. = 1,000-ft. with DGPS accuracy, showing the position of anchors, anchor chains, wire ropes and cables deployed during the structure removal relative to these features. In addition, supply a copy of ALL vessel logs related to the removal operations (e.g. anchor handling vessels, lift boats, dive vessels, tug boats).

Large Blasting Category D1

An operator proposing shelf-based (<200 m), explosive-severance activities conducted under the Large blasting category will be limited to 80 to 200-lb charge sizes deployed below mudline (BML) and will be required to conduct all requisite monitoring during daylight hours out to the associated impact-zone radii of 941 m (3,086 ft).

Required Observers

Generally, two NMFS observers (Platform Removal Observer Program (PROP) or contracted personnel) are required to perform marine protected species (MPS) detection surveys for large-blasting, shelf scenarios D1 and D3. If necessary, the PROP Coordinator will determine if additional observers are required to compensate for the complexity of severance activities and or structure configuration. In addition to meeting all reporting requirements, the NMFS observers would:

- Brief affected crew and severance contractors of the monitoring efforts and notify topsides personnel to report any sighted MPS to the observer or company representative immediately;
- Establish an active line of communication (i.e., 2-way radio, visual signals, etc.) with company and blasting personnel; and
- Devote the entire, uninterrupted survey time to MPS monitoring.

Pre-Det Monitoring

Before severance charge detonation, both NMFS observers will conduct a 120 min **surface monitoring survey** of the impact zone. The monitoring will be conducted from the highest vantage point available from either the decommissioning target or proximal surface vessels. Once the surface monitoring is complete (i.e., the impact zone cleared of MPS), one of the NMFS observers will transfer to a helicopter to conduct a 45 min **aerial monitoring survey**. As per PROP-approved guidelines, the helicopter will transverse the impact zone at low speed/altitude in a specified grid pattern. If during the aerial survey a MPS is:

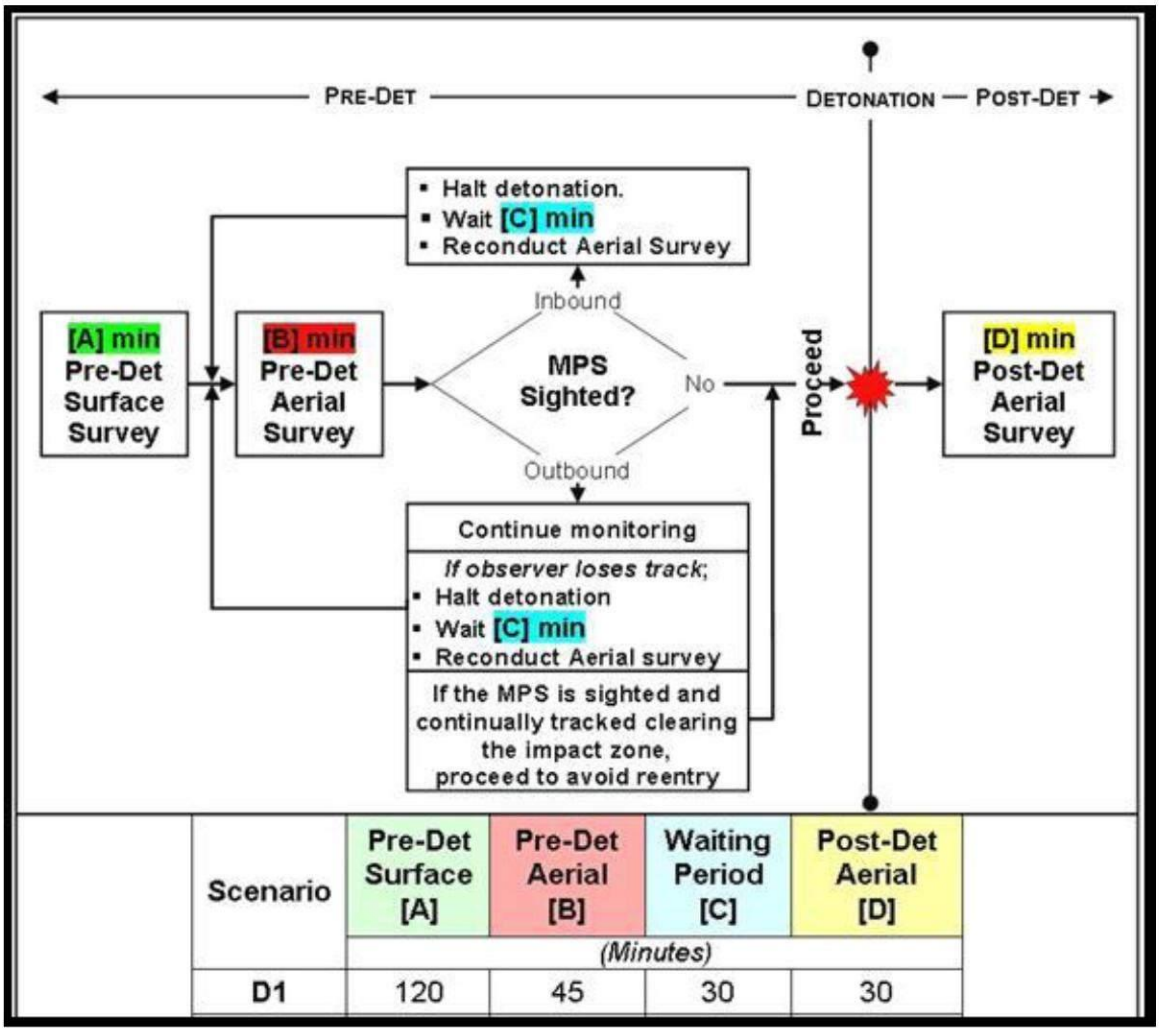
- Not sighted, proceed with the detonation;
- Sighted outbound and continuously tracked clearing the impact zone, proceed with the detonation after the monitoring time is complete to avoid reentry;
- Sighted outbound and the MPS track is lost (i.e., the animal dives below the surface),
  - Halt the detonation,
  - Wait 30 min, and
  - Reconduct the 45 min aerial monitoring survey; or
- Sighted inbound,
  - Halt the detonation,
  - Wait 30 min, and
  - Reconduct the 45 min aerial monitoring survey.

Post-Det Monitoring

After severance charge detonation, the NMFS observer will conduct a 30 min **aerial monitoring survey** of the impact zone to detect for impacted MPS. If a MPS is observed shocked, injured, or killed, the operations will cease, attempts will be made to collect/resuscitate the animal, and NMFS Southeast Regional Office will be contacted as per the take event procedures described on page F-9 of the Programmatic EA (USDOI, MMS, 2005). If no MPS are observed to be impacted by the detonation, the NMFS observer will record all of the necessary information as per the conditions detailed in BOEM's permit approval letter and PROP guidelines for the preparation of a trip report.

If unforeseen conditions or events occur during a large-blasting operation that necessitates monitoring requirements which fall outside of the applicable regulations, the NMFS observer will contact the PROP

coordinator and/or BOEM's GOM Region for additional guidance. A flowchart of the monitoring process and associated survey times for large-severance scenario D1 is below.



Scenario	Pre-Det Surface [A]	Pre-Det Aerial [B]	Waiting Period [C]	Post-Det Aerial [D]
	(Minutes)			
D1	120	45	30	30

APPENDIX B

NOAA SEA TURTLE RESUSCITATION GUIDELINES

Sea Turtle Resuscitation Guidelines

If a turtle appears to be unresponsive or comatose, attempt to revive it before release. Turtles can withstand lengthy periods without breathing; a comatose sea turtle will not move, breathe voluntarily, or show reflex responses or other signs of life. In other cases, an unresponsive turtle may show shallow breathing or reflexes such as eyelid or tail movement when touched. Use the following method of resuscitation in the field if veterinary attention is not immediately available:

- **Place the turtle on its plastron (lower shell) and elevate the hindquarters approximately 15 - 30 degrees to permit the lungs to drain off water for a period of 4 up to 24 hours. A board, tire or boat cushion, etc. can be used for elevation.**

- **Keep the turtle in the shade, at a temperature similar to water temperature at capture. Keep the skin (especially the eyes) moist while the turtle is on deck by covering the animal's body with a wet towel, periodically spraying it with water, or by applying petroleum jelly to its skin and carapace. Do not put the turtle into a container with water.**

- **Do not put the turtle on its carapace (top shell) and pump the plastron (breastplate) or try to compress the turtle to force water out, as this is dangerous to the turtle and may do more harm than good.**

- **Periodically, gently touch the corner of the eye or eyelid and pinch the tail near the vent (reflex tests) to monitor consciousness.**

- **Sea turtles may take some time to revive; do not give up too quickly. Turtles that are successfully resuscitated benefit from being held on deck as long as possible (up to 24 hours) to fully recover from the stress of accidental forced submergence.**

- **Release successfully resuscitated turtles over the stern of the boat, when fishing or scientific collection gear is not in use, the engine is in neutral, and in areas where they are unlikely to be recaptured or injured by vessels. A turtle that has shown no sign of life after 24 hours on deck may be considered dead and returned to the water in the same manner.**

NMFS/SEFSC Photos

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