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

SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT
OF
RIGHT OF WAY PIPELINE MODIFICATION
SEGMENT NUMBERS P-10560, P-10561, AND P-10562
FOR
KNOC EAGLE FORD CORPORATION
JULY 11, 2024

RELATED ENVIRONMENTAL DOCUMENTS

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 Multisale Environmental Impact Statement
(OCS EIS/EA BOEM 2017-009)

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

Gulf of Mexico 2023 Supplemental Environmental Impact Statement: Final Supplemental Environmental Impact Statement
(OCS EIS/EA BOEM 2023-001)

Biological Opinion Oil and Gas Leasing, Exploration, Development, Production, Decommissioning, and All Related Activities in the Gulf of Mexico Outer Continental Shelf
(FWS, April 20, 2018)

Biological Opinion of the Federally Regulated Oil and Gas Program Activities in the Gulf of Mexico
(NMFS, March 13, 2020)

Amended Incidental Take Statement and Revised Appendices
to the Programmatic Biological Opinion on the Gulf of Mexico Oil and Gas Program
(NMFS, April 26, 2021)

Gulf of Mexico Catastrophic Spill Event Analysis: High-Volume, Extended-Duration Oil Spill Resulting from Loss of Well Control on the Gulf of Mexico Outer Continental Shelf; 2nd Revision
(OCS Report BOEM 2021-007)

Biological Environmental Background Report for the Gulf of Mexico OCS Region
(OCS Report BOEM 2021-015)

Gulf of Mexico OCS Oil and Gas Leasing Greenhouse Gas Emissions and Social Cost Analysis
(Technical Report BOEM 2022-056)

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

The Bureau of Ocean Energy Management (BOEM) has prepared a Site-Specific Environmental Assessment (SEA) (No. P-15060, P-15061, and P-15062) complying with the National Environmental Policy Act (NEPA). NEPA regulations under the Council on Environmental Quality (40 Code of Federal Regulations (CFR) §§ 1501.3 and 1501.5), the United States Department of the Interior (DOI) NEPA implementing regulations (43 CFR part 46), and BOEM policy require an evaluation of proposed major Federal actions, which under BOEM jurisdiction includes approving a permit for oil and gas exploration or development activity on the Outer Continental Shelf (OCS).

Impacts caused by similar actions to that proposed were examined at a basin-wide scale in the Gulf of Mexico (GOM) in the following NEPA and relevant documents:

- *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 Multisale Environmental Impact Statement* (2017-2022 GOM Multisale EIS) (OCS EIS/EA BOEM 2017-009);
- *Gulf of Mexico OCS Lease Sale Final Supplemental Environmental Impact Statement 2018* (2018 GOM Supplemental EIS) (OCS EIS/EA BOEM 2017-074);
- *Gulf of Mexico 2023 Supplemental Environmental Impact Statement. Final Supplemental Environmental Impact Statement 2023 (2023 SEIS) (USDOI, BOEM 2023-001);*
- *Biological Opinion Oil and Gas Leasing, Exploration, Development, Production, Decommissioning, and All Related Activities in the Gulf of Mexico Outer Continental Shelf* (FWS 2018 BO) (Issued by United States Fish and Wildlife Service [FWS] on April 20, 2018);
- *Biological Opinion on the Federally Regulated Oil and Gas Program Activities in the Gulf of Mexico* (NMFS 2020 BiOp) (Issued by National Marine Fisheries Service on [NMFS] March 13, 2020);
- *Amended Incidental Take Statement and Revised Appendices to the Programmatic Biological Opinion on the Gulf of Mexico Oil and Gas Program* (Issued by NMFS on April 26, 2021);
- *Gulf of Mexico Catastrophic Spill Event Analysis: High-Volume, Extended-Duration Oil Spill Resulting from Loss of Well Control on the Gulf of Mexico Outer Continental Shelf; 2nd Revision* (*Gulf of Mexico Catastrophic Spill Event Analysis*) (OCS Report BOEM 2021-007);
- *Biological Environmental Background Report for the Gulf of Mexico OCS Region* (BEBR) (OCS Report BOEM 2021-015);

- *Programmatic Description of the Potential Effects from Gulf of Mexico OCS Oil- and Gas-Related Activities - A Supporting Information Document* (SID) (OCS Report BOEM 2023-053) and
- *Gulf of Mexico OCS Oil and Gas Leasing Greenhouse Gas Emissions and Social Cost Analysis* (Technical Report BOEM 2022-056).

Proposed Activities:

KNOC Eagle Ford Corporation (KNOC) has submitted right of way (ROW) pipeline modification applications to facilitate the decommissioning of Platform F located in South Pass (SP) Block 60 and to modify the infrastructure of Platform B located in Mississippi Canyon (MC) Block 21. A joint permit application for work within the Louisiana Coastal Zone has been filed with the Louisiana Department of Natural Resources Office of Coastal Management and the US Army Corps of Engineers (USACOE). The USACOE "Memorandum for Record" concerning environmental issues related to the onshore and offshore state waters portion of the proposed pipeline activities was completed on May 28, 2024 and is attached in Appendix D of the SEA. The proposed activities in Federal waters have been reviewed by BOEM Office of Environment for NEPA compliance. The Final Supplemental Environmental Impact Statement (BOEM, 2023a) from which this SEA tiers estimates 0-1 new pipeline corridors to shore per lease sale. The new pipeline corridors to shore proposed in these applications are the first since 2014. Applications for pipelines P-15060, P-15061, and P-15062 have been submitted. The modification of pipelines P-15060 and P-15062 create new pipeline corridors to shore in Plaquemines Parish Louisiana. The ROW Modification activities are as follows:

P-15060 is a 10-inch Natural Gas ROW pipeline running from Platform B in MC Block 21 to Platform F in SP Block 60. The proposed ROW Modification includes a partial removal, partial decommission in place, and an extension of new pipeline. The pipeline segment will be disconnected from Platform SP 60 F, and at a location east of the Platform in SP Block 60, a 10-inch to 2-inch subsea tie in (SSTI) will be installed. Unused pipeline will be decommissioned in place in SP Block 60. From the new SSTI located in SP 60, new 2-inch pipeline will be constructed and extended to the Federal/State line in SP Block 6. From the Federal/State location, the extended pipeline will continue in Louisiana State waters to the LLOX facility located onshore in Plaquemines Parish, Louisiana. Once completed, the modified ROW pipeline will run from the LLOX facility to Platform B located in MC Block 21. The modified pipeline will be utilized to supply gas from the onshore LLOX facility to the MC 21 B Platform.

P-15061 is an 8-inch Bulk Oil ROW pipeline running from Platform B in MC Block 21 to Platform F in SP Block 60. The proposed ROW Modification includes a partial removal and temporary abandonment. The pipeline segment will be disconnected from Platform SP 60 F and a portion of pipeline will be decommissioned by removal. The remaining length of pipeline will be filled with inhibited seawater and taken out of service for possible future utility.

P-15062 is a 4-inch Natural Gas, Oil, and Water ROW pipeline running from Platform B in MC Block 21 to Platform F in SP Block 60. The proposed ROW Modification includes a partial removal, partial decommission in place, and an extension of new pipeline. The pipeline segment will be disconnected from Platform SP 60 F, and at a location east of the Platform in SP Block 60, a 4-inch to 4-inch SSTI will be installed. Unused pipeline will be decommissioned in place in SP Block 60. From the new SSTI located in SP 60, new 4-inch pipeline will be constructed and extended to the Federal/State line in SP Block 6. From the Federal/State location, the extended pipeline will continue in Louisiana State waters to the LLOX facility located onshore in Plaquemines Parish, Louisiana. Once completed, the modified ROW pipeline will run from the LLOX facility to Platform B located in MC Block 21. The modified pipeline will be utilized as a multipurpose pipeline to send oil, gas, and water from the MC 21 B Platform to the onshore LLOX facility.

The proposed activities at the Federal/State line in South Pass Block 6 are located 3 miles (4.8 km) from the nearest shore in Plaquemines Parish, Louisiana. The water depths of the proposed activities range from approximately 72 feet (22 m) at the Federal/State line in SP Block 6 to 689 feet (210 m) at Platform B in MC Block 21. The maximum anchor radius for the dive support/decommissioning vessels at the SP Block 60 Platform F and SSTI locations is 5,000 feet (1,524 m). The maximum anchor radius for the pipeline lay barge for the pipeline extensions to the Federal/State line is 3,000 feet (914 m) on either side and perpendicular to the proposed pipeline routes. The proposed activities will begin in July 2024 and will take approximately 85 days to complete.

Resources and Impacts Considered: The impact analysis focused on the exploration activities and the resources that may be potentially impacted. The impact producing factors (IPF) include (1) bottom disturbances, (2) waste and discharges, (3) noise, (4) vessel traffic, (5) air emissions, (6) spill and spill response, and (7) marine trash and debris.

In the ROW Modifications, KNOC has included all required mitigation measures (e.g., lease stipulations, NMFS 2020 BiOp and 2021 Amended Incidental Take Statement (ITS) terms and conditions and reasonable and prudent measures, and FWS 2018 conservation recommendations) and regulatory guidance as part of its Proposed Action. BOEM has assessed the impacts of the Proposed Action on the following resources:

- air quality;
- offshore water quality;
- benthic communities;
- marine mammals;
- sea turtles;
- fish resources and essential fish habitat (EFH);
- marine and coastal birds;

- archaeological resources;
- human/socioecomic resources; and
- other marine uses.

Based on the site-specific analysis, the Proposed Action would result in negligible to minor impacts to archaeological resources, benthic resources, marine mammals, and sea turtles because the resources may be present at times or located near where activities will take place, or would be potentially impacted from proposed activities. With consideration of all required mitigation measures and regulatory guidance as part of the Proposed Action, the site-specific analysis determined that additional mitigation measures are necessary to further minimize potential impacts. As a result, in this SEA, BOEM has considered three alternatives: (1) No Action, (2) Proposed Action, and (3) Proposed Action with Additional Mitigation Measures.

In P-15060, P-15061, and P-15062 ROW Modifications, and in accordance with applicable regulations and guidance, KNOC has committed to employ required mitigation measures to address potential impacts to air quality, water quality, benthic communities, marine mammals, sea turtles, fish resources and EFH, and archaeological resources from the Proposed Action. After a site-specific evaluation of the proposed activities, it has been determined that there may be additional impacts; therefore, BOEM has selected Alternative 3, Proposed Action with Additional Mitigation, to minimize potential risk. The following mitigation and monitoring measures will be applied as conditions of approval (COAs):

- **COMPLIANCE WITH BIOLOGICAL OPINION TERMS AND CONDITIONS AND REASONABLE AND PRUDENT MEASURES:** This approval is conditioned upon compliance with the Reasonable and Prudent Measures and implementing Terms and Conditions of the Biological Opinion issued by the National Marine Fisheries Service on March 13, 2020, and the amendment issued on April 26, 2021. This includes mitigation, particularly any appendices to Terms and Conditions applicable to the plan, as well as record-keeping and reporting sufficient to allow BOEM and BSEE to comply with reporting and monitoring requirements under the BiOp; and any additional reporting required by BOEM or BSEE developed as a result of BiOp implementation. The NMFS Biological Opinion may be found here:

  https://www.fisheries.noaa.gov/resource/document/biological-opinion-federally-regulated-oil-and-gas-program-activities-gulf-mexico.

  The Appendices and protocols may be found in the amendment here:

  https://www.fisheries.noaa.gov/resource/document/appendices-biological-opinion-federally-regulated-oil-and-gas-program-gulf-mexico.

  The amendment provided updates to Appendices A, C, and I, which may be found here:

  https://repository.library.noaa.gov/view/noaa/29355.

- **NOTIFICATION OF INTENTION TO TRANSIT RICE'S WHALE AREA CONDITION OF APPROVAL (COA):** Operators or their recognized representative must notify the Bureau of Ocean Energy Management (BOEM) or Bureau of Safety and Environmental Enforcement (BSEE) as appropriate of their intention to transit through the Rice's (formerly Bryde's in 2020 Biological Opinion and subsequent amendment) whale area (from 100- to 400- meter isobaths

from 87.5° W to 27.5° N as described in the species' status review plus an additional 10 km around that area) (see figure below) when this transit is associated with either an initial plan/application or as part of a change to an existing plan/application when either vessel route and/or support base changes. If proposing to transit through any portion of the Rice's whale area, the BOEM Permit/Plan holder shall submit their notification to transit and concurrence to fulfil the reporting requirements as stated below to BOEM/BSEE (protectedspecies@boem.gov and protectedspecies@bsee.gov). In the case of a post-approval change in vessel route or change in a support base, your intention to transit through the Rice's whale area should be made by contacting the BOEM or BSEE Point of Contact for the most recent applicable permit or application. Please be advised that changes to the use of a support base may trigger a revised plan (e.g., 30 CFR § 550.283), revised application, or modified permit (for geological and geophysical [G&G] activities). You will be required to follow the requirements defined below as originally outlined (as Bryde's whale) in the 2020 Biological Opinion and April 2021 Amendment to the Incidental Take Statement and Revised Appendices issued by the National Marine Fisheries Service (NMFS). Note these conditions of approval refer to the species as the Rice's whale (*Balaenoptera ricei*). Until 2021, the species was known as Bryde's whale (*Balaenoptera edeni*).

1. Vessel operators and crews must maintain a vigilant watch for Rice's whales and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any Rice's whale. Visual observers monitoring the 500 m vessel strike avoidance zone for Rice's whales can be either third-party observers or crew members (e.g., captain), but crew members responsible for these duties must be provided sufficient training to distinguish aquatic protected species to broad taxonomic groups, as well as those specific species detailed further below. If the species is indistinguishable, then operators should assume it is a Rice's whale and act accordingly (see below).

2. If transiting within the Rice's whale area (figure below), operators must notify BOEM and/or BSEE of their plans prior to transit and include what port is used for mobilization and demobilization and explain why the transit is necessary. If an unavoidable emergency transit through this area occurs (i.e., safety of the vessel or crew is in doubt or the safety of life at sea is in question), it must be reported immediately after the emergency is over and must include all required information referenced herein. After completing transit through the Rice's whale area, you must prepare a report of transit describing the time the vessel entered and departed the Rice's whale area, any Rice's whale sightings or interactions (e.g., vessel avoidance) that occurred during transit, and any other marine mammal sightings or interactions. Minimum reporting information is described below:
    i. The plan, permit or other BOEM or BSEE number used to identify the activity;
    ii. Automatic Identification System (AIS), if available;
    iii. Time and date vessel entered and exited the Rice's whale area;
    iv. Time, date, water depth, and location (latitude/longitude) of the first sighting of the animal;
    v. Name, type, and call sign of the vessel in which the sighting occurred;
    vi. Species identification (if known) or description of the animal involved;

vii. Approximate size of animal (if known);

viii. Condition of the animal during the event and any observed injury / behavior (if known);

ix. Photographs or video footage of the animal, if available;

x. General narrative and timeline describing the events that took place;

xi. Time and date vessel departed Rice's whale area;

xii. Trackline (e.g., time, location, and speed) of vessel while within Rice's whale area; and

xiii. Environmental conditions, including Beaufort Sea State (BSS) and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon.

3. Upon conclusion of transit, operators must submit reports to protectedspecies@boem.gov and protectedspecies@bsee.gov within 24 hours of transit through the Rice's whale area. The title of the email should include "Transit through Rice's Whale Area."

4. All vessels, regardless of size, must observe a 10-knot, year-round speed restriction in the Rice's whale area during daylight hours. The only exception to the 10-knot vessel speed restriction would be when observing the speed restriction would cause the safety of the vessel or crew to be in doubt or the safety of life at sea to be in question.

5. All vessels must maintain a minimum separation distance of 500 m from Rice's whales. If a whale is observed but cannot be confirmed as a species other than a Rice's whale, the vessel operator must assume that it is a Rice's whale and take appropriate action.

6. All vessels 65 feet or greater associated with oil and gas activity (e.g., source vessels, chase vessels, supply vessels) must have a functioning Automatic Identification System (AIS) onboard and operating at all times as required by the U.S. Coast Guard. If the U.S. Coast Guard does not require AIS for the vessel, it is strongly encouraged. At minimum, the reporting (as specified within this COA) must be followed and include trackline (e.g., time, location, and speed) data.

7. No transit is permissible at nighttime or during low visibility conditions (e.g., BSS 4 or greater) except for emergencies (i.e., when the safety of the vessel or crew would otherwise be in doubt or the safety of life at sea is in question).

8. If an operator while operating within the Rice's whale area

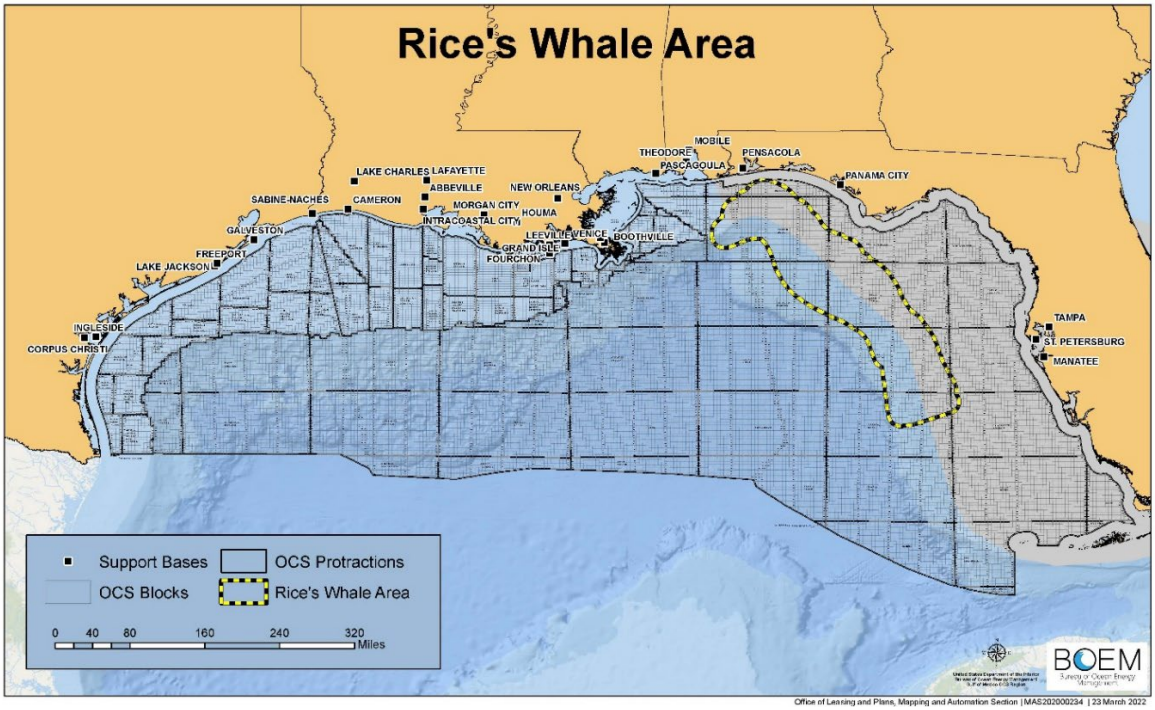
   i. Exceeds the 10-knot vessel speed,

   ii. Does not maintain a 500 m minimum separation distance from a Rice's whale, and/or

   iii. Conducts transit during nighttime or during low visibility conditions (e.g., BSS 4 or greater),

   the operator must notify BSEE and BOEM by emailing protectedspecies@bsee.gov and protectedspecies@boem.gov within 24 hours. The notification must be reported as a separate and distinct notification to the transit report with the title "Transit Deviation" in the subject line. The notification must provide a detailed explanation as to why the Transit Deviation occurred.

9. This COA does not remove or alter the need to comply with any other applicable regulatory or legal requirements with respect to vessel operations, including as outlined in the amended Appendix C - Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols.



- **SEISMIC SURVEY OPERATION, MONITORING, AND REPORTING GUIDELINES**: The applicant will follow the guidance provided under Appendix A: Seismic Survey Mitigation and Protected Species Observer Protocols found in the Biological Opinion issued by the National Marine Fisheries Service on April 26, 2021. The guidance can be accessed on NOAA Fisheries internet website at https://repository.library.noaa.gov/view/noaa/29355.
- **MARINE TRASH AND DEBRIS AWARENESS AND ELIMINATION**: The applicant will follow the protocols provided under Appendix B. Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols found in the Biological Opinion issued by the National Marine Fisheries Service on March 13, 2020. The guidance can be accessed on NOAA Fisheries internet website at https://www.fisheries.noaa.gov/resource/document/appendices-biological-opinion-federally-regulated-oil-and-gas-program-gulf-mexico.
- **VESSEL-STRIKE AVOIDANCE/REPORTING**: The applicant will follow the protocols provided under Appendix C. Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols found in the Biological Opinion issued by the National Marine Fisheries Service on April 26, 2021. The guidance can be accessed on the NOAA Fisheries internet site at https://repository.library.noaa.gov/view/noaa/29355.
- **SEA TURTLE RESUSCITATION GUIDELINES:** The applicant will follow the guidance provided under Appendix J. Sea Turtle Handling and Resuscitation Guidelines found in the Biological Opinion issued by the National Marine Fisheries Service on March 13, 2020. The guidance can be accessed on the NOAA Fisheries internet site at https://www.fisheries.noaa.gov/resource/document/appendices-biological-opinion-federally-regulated-oil-and-gas-program-gulf-mexico.
- **MOON POOL MONITORING CONDITION OF APPROVAL:** A moon pool has been identified during review of your plan submittal. The requirements below must be followed for any activities entailing use of the moon pool, except under circumstances when complying with these requirements would put the safety of the vessel or crew at risk. If any protected species (i.e. species protected under the Endangered Species Act [ESA] and/or Marine Mammal Protection Act [MMPA]) is detected in the moon pool, you are required to follow the appropriate

procedures described in the Reporting Requirements condition of approval (COA) in your plan approval.

Application of these measures includes, but is not limited to, dive support vessels, service vessels, pipelaying vessels, drillships, floating platforms (e.g., SPAR), mobile offshore drilling units, and other facilities with enclosed moon pools (e.g., well in the hull of a vessel, with or without a door).

General Requirements

- Where the moon pools have hull doors, the operator(s) should keep the doors closed as much as reasonably practicable when no activity is occurring within the moon pool, unless the safety of crew or vessel require otherwise. This will prevent protected species from entering the confined area during periods of non-activity.
- Use of a moon pool requires regular monitoring while open to the water column and if a vessel is not underway. Regular monitoring means 24-hour video monitoring with hourly recurring checks for at least five minutes of the video feed, or hourly recurring visual checks of the moon pool for at least five minutes by a dedicated crew observer with no other tasks during that short visual check.
- If water conditions are such that observers are unable to see within a meter of the surface, operations requiring the lowering or retrieval of equipment through the moon pool must be conducted at a rate that will minimize potential harm to protected species.

Closure of the Hull Door

- Should the moon pool have a hull door that can be closed, then prior to and following closure, the moon pool must be monitored continuously by a dedicated crew observer with no other tasks to ensure that no individual protected species is present in the moon pool area. If visibility is not clear to the hull door from above (e.g., turbidity or low light), 30 minutes of monitoring is required prior to hull door closure.
- If a protected species is observed in the moon pool prior to closure of the hull door, the hull door must not be closed, except for human safety considerations. Once the observed animal leaves the moon pool, the operator may commence closure. If the observed animal remains in the moon pool after closure, contact NMFS or BSEE prior to the closure of the hull doors according to reporting requirements (*see Reporting Requirements COA under Reporting of Observations of Protected Species within an Enclosed Moon Pool)*.

Movement of the Vessel (No Hull Door) and Equipment Deployment/Retrieval

- Prior to movement of the vessel and/or deployment/retrieval of equipment, the moon pool must be monitored continuously for a minimum of 30 minutes, by a dedicated crew observer with no other tasks, to ensure no individual protected species is present in the moon pool area.
- If a protected species is observed in the moon pool prior to movement of the vessel, the vessel must not be moved and equipment must not be deployed or retrieved, except for human safety considerations. If the observed animal leaves the moon pool, the operator may commence activities. If the observed animal remains in the moon pool contact BSEE prior to planned movement of the vessel according to reporting requirements (see *Reporting Requirements* COA under *Reporting of Observations of Protected Species within an Enclosed Moon Pool)*.
- Should a protected species be observed in a moon pool prior to activity commencement (including lowering or retrieval of equipment), recovery of the animal or other actions specific to the scenario may be required to prevent interaction with the animal. If protected

species are observed during activity, only reporting is required (see *Reporting Requirements* COA). Operators must not take such action except at the direction of, and after contact with, NMFS (see *Reporting Requirements* COA).

- **SLACK-LINE PRECAUTIONS CONDITION OF APPROVAL**: If operations require the use of flexible, small diameter (< 2 inch) lines to support operations (with or without divers), operators/contractors must reduce the slack in the lines, except for human safety considerations, to prevent accidental entanglement of protected species (i.e. species protected under the Endangered Species Act [ESA] and/or Marine Mammal Protection Act [MMPA]). This requirement includes tether lines attached to remotely operated equipment. The requirements below must be followed for any activities entailing use of flexible, small diameter lines that will not remain continuously taut, except when complying with these requirements would put the safety of divers, crew or the vessel at risk:
  - Operators must utilize tensioning tools and/or other appropriate procedures to reduce unnecessary looseness in the lines and/or potential looping;
  - The lines must remain taut, as long as additional safety risks are not created by this action;
  - A line tender must be present at all times during dive operations and must monitor the line(s) the entire time a diver is in the water; and
  - Should the line tender and/or diver become aware of an entanglement of an individual protected species, the reporting requirements described in the *Reporting Requirements* COA must be followed as soon as safety permits.
- **REPORTING REQUIREMENTS CONDITION OF APPROVAL:** Review of your proposed activities identified use of equipment that has the potential for entanglement and/or entrapment of protected species (i.e. species protected under the Endangered Species Act [ESA] and/or Marine Mammal Protection Act [MMPA]) that could be present during operations. In case of entrapment, procedures and measures for reporting are dependent upon the situation at hand. **These requirements replace those specific to dead and injured species reporting in respective sections of Appendix A (insofar as they relate to geophysical surveys) and Appendix C of the 2020 Biological Opinion on the Bureau of Ocean Energy Management's Oil and Gas Program Activities in the Gulf of Mexico**.

  Incidents Requiring Immediate Reporting

  Certain scenarios or incidents require immediate reporting to Federal agencies; these are described below:

  Should any of the following occur at any time, **immediate reporting** of the incident is required after personnel and/or diver safety is ensured:

  - Entanglement or entrapment of a protected species (i.e., an animal is entangled in a line or cannot or does not leave a moon pool of its own volition).
  - Injury of a protected species (e.g., the animal appears injured or lethargic).
  - Interaction, or contact with equipment by a protected species.
  - Any observation of a leatherback sea turtle within a moon pool (regardless of whether it appears injured, or an interaction with equipment or entanglement/entrapment is observed).

  1. As soon as personnel and/or diver safety is ensured, report the incident to National Marine Fisheries Service (NMFS) by contacting the appropriate expert for 24-hr response. If you do not receive an immediate response, you must keep trying until contact is made. Any failed attempts should be documented. Contact information for reporting is as follows:

a. **Marine mammals:** contact **Southeast Region's Marine Mammal Stranding Hotline at 1-877-433-8299.**

b. **Sea turtles**: contact **Brian Stacy, Veterinary Medical Officer at 352-283-3370**. If unable to reach Brian Stacy, contact Lyndsey Howell at 301-310-3061. This includes the immediate reporting of **any observation of a leatherback sea turtle within a moon pool**.

c. **Other protected species** (e.g., giant manta ray, oceanic whitetip shark, or Gulf sturgeon)**:** contact the **ESA Section 7 biologist at 301-427-8413** (**nmfs.psoreview@noaa.gov**) and report all incidents to takereport.nmfsser@noaa.gov.

d. Minimum reporting information is described below:

   i. Time, date, water depth, and location (latitude/longitude) of the first discovery of the animal;

   ii. Name, type, and call sign of the vessel in which the event occurred;

   iii. Equipment being utilized at time of observation;

   iv. Species identification (if known) or description of the animal involved;

   v. Approximate size of animal;

   vi. Condition of the animal during the event and any observed injury/behavior;

   vii. Photographs or video footage of the animal, only if able; and

   viii. General narrative and timeline describing the events that took place.

2. After the appropriate contact(s) have been made for guidance/assistance as described in 1 above, you may call BSEE at 985-722-7902 (24 hours/day) for questions or additional guidance on recovery assistance needs (if still required) and continued monitoring requirements. You may also contact this number if you do not receive a timely response from the appropriate contact(s) listed in 1. above.

   a. Minimum post-incident reporting includes all information described above (under 1.d.i-viii) in addition to the following:

      i. NMFS liaison or stranding hotline that was contacted for assistance;

      ii. For moon pool observations or interactions:

      - Size and location of moon pool within vessel (e.g., hull door or no hull door);
      - Whether activities in the moon pool were halted or changed upon observation of the animal; and
      - Whether the animal remains in the pool at the time of the report, or if not, the time/date the animal was last observed.

Reporting of Observations of Protected Species Within an Enclosed Moon Pool

If a protected species is observed within an enclosed moon pool and does not demonstrate any signs of distress or injury or an inability to leave the moon pool of its own volition, measures described in this section must be followed (only in cases where they do not jeopardize human safety). Although this particular situation may not require immediate assistance and reporting as described under Incidents Requiring Immediate Reporting (see above), a protected species could potentially become disoriented with their surroundings and may not be able to leave the enclosed moon pool of their own volition. In order for operations requiring use of a moon pool to continue, the following reporting measures must be followed:

Within 24 hours of any observation, and daily after that for as long as an individual protected species remains within a moon pool (i.e., in cases where an ESA listed species has entered a moon pool but entrapment or injury has not been observed), the following information must be reported to BSEE (protectedspecies@bsee.gov) and BOEM (protectedspecies@boem.gov):

1. For an initial report, all information described under 1.d.i-viii above should be included.
2. For subsequent daily reports:
    a. Describe the animal's status to include external body condition (e.g., note any injuries or noticeable features), behaviors (e.g., floating at surface, chasing fish, diving, lethargic, etc.), and movement (e.g., has the animal left the moon pool and returned on multiple occasions?);
    b. Description of current moon pool activities, if the animal is in the moon pool (e.g., drilling, preparation for demobilization, etc.);
    c. Description of planned activities in the immediate future related to vessel movement or deployment of equipment;
    d. Any additional photographs or video footage of the animal, if possible;
    e. Guidance received and followed from NMFS liaison or stranding hotline that was contacted for assistance;
    f. Whether activities in the moon pool were halted or changed upon observation of the animal; and
    g. Whether the animal remains in the pool at the time of the report, or if not, the time/date the animal was last observed.

- **Avoidance of Potential Benthic Resources -** Our review indicates that there are hard bottoms/pinnacles/potentially sensitive biological features (PSBFs) that likely provide habitat for biological assemblages located within the scope of the anchor array of the pipeline lay barge. Pipeline construction activities (including the use of anchors, chains, and wire ropes) must avoid these hard bottoms/pinnacles/PSBFs by a distance of at least 100-ft. The company will include lay barge anchor position plats, at a scale of 1-in. = 1,000-ft. with DGPS accuracy, with the pipeline construction report required by 30 CFR 250.1008(b), which depict the "as-placed" location of all anchors, anchor chains, and wire ropes on the seafloor and demonstrate that the features were not physically impacted by the construction activities.
- **Avoidance of Potential Archaeological Resources -** Our review indicates that your proposed activities are in the vicinity of the unidentified side-scan sonar targets listed under separate cover, features that may represent significant archaeological resources. In accordance with 30 CFR 250.1007(a)(5), 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 seafloor disturbing actions resulting from the proposed activities avoid the unidentified features by a distance greater than that listed under separate cover. If you conduct an underwater archaeological investigation prior to commencing operations, contact either the BOEM Regional Preservation Officer at archaeology@boem.gov or (504) 736-1742, or the BSEE Marine Archaeologists at Env-Compliance-Arc@bsee.gov, (504) 736-2416 and/or 504-736-2947 at least two weeks prior to performing operations to coordinate the investigation plan. If you choose to avoid the features, submit anchor position plats, at a scale of 1-in. = 1,000-ft. with DGPS accuracy, with your pipeline construction report required by 30 CFR 250.1008(b) or decommissioning report required by 30 CFR 250.1753(b), as appropriate. These plats must depict the "as-placed" location of all anchors, anchor chains, wire ropes and cables on the

seafloor (including sweep) and demonstrate that the features were not physically impacted by the construction/decommissioning activities. If you choose to avoid the features and no anchoring activities were conducted during pipeline construction/decommissioning, provide a statement to that effect in lieu of the required anchor position plats.

Conclusion: BOEM has evaluated the potential environmental impacts of the Proposed Action and, based on our evaluation in this SEA, BOEM has selected Alternative 3. Based on SEA No. P-15060, P-15061, and P-15062, a determination is made that the Proposed Action would have no significant impact on the human environment; therefore, preparation of an environmental impact statement is not required. Any new information relevant to resources was updated and analyzed in the attached SEA and the other documents listed above that were reviewed and considered by BOEM.

PERRY BOUDREAUX

Digitally signed by PERRY BOUDREAUX
DN: c=US, o=U.S. Government, ou=Department of the Interior, ou=Bureau of Ocean Energy Management, cn=PERRY BOUDREAUX, 0.9.2342.19200300.100.1.1=14001001318382
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Supervisor, Environmental Assessment Unit 2
Office of Environment
GOM OCS Region
Bureau of Ocean Energy Management

July 11, 2024
Date

TABLE OF CONTENTS

LIST OF TABLES

Site-Specific Environmental Assessment (SEA)

KNOC EAGLE FORD CORPORATION

RIGHT OF WAY PIPELINE MODIFICATION: P-15060, P-15061, AND P-15062

1 INTRODUCTION

This Site-Specific Environmental Assessment (SEA) has been prepared to determine whether the proposed activities outlined in the Right of Way (ROW) Pipeline Modification, P-15060, P-15061, and P-15062, initially submitted by KNOC Eagle Ford Corporation (KNOC) on December 22, 2023, will significantly affect the quality of the human environment within the meaning of Section 102(2)(c) of the National Environmental Policy Act (NEPA) and therefore require an environmental impact statement (EIS) to be prepared. KNOC's ROW Modification proposes to extend two pipeline segments to shore and remove one pipeline segment from service with work originating in South Pass Block 60 located in the Central Planning Area (CPA) of the Gulf of Mexico (GOM). The proposed action cannot be categorically excluded because it includes new pipeline corridors to shore (516 DM Chapter 6, Appendix 10, C.15); therefore a SEA has been prepared.

The Council on Environmental Quality (CEQ) and the United States Department of the Interior (DOI) regulations encourage the use of existing environmental analyses (i.e., tiering) to avoid unnecessary redundant analyses, reduce the size of new NEPA documents, and focus the NEPA analysis on the issues for decision at each level of environmental review (40 Code of Federal Regulations (CFR) §§ 1501.11 and 1508.1(ff); 43 CFR § 46.140). The regulations are designed to allow for the preparation of an SEA for an individual proposed action as long as any previously unanalyzed effects are not significant. As such, this SEA is tiered to the following Bureau of Ocean Energy Management (BOEM) NEPA and relevant documents, which evaluated the potential impacts resulting from exploration and development activities across the GOM Outer Continental Shelf (OCS):

- *Gulf of Mexico OCS Oil and Gas Lease Sales: 2017-2022 Gulf of Mexico Lease Sales 249, 250, 251, 252, 253, 256, 257, 259, and 261 – Final Multisale Environmental Impact Statement* (2017-2022 GOM Multisale EIS) (BOEM, 2017a);
- *Gulf of Mexico OCS Lease Sale: Final Supplemental Environmental Impact Statement 2018* (2018 GOM Supplemental EIS) (BOEM, 2017b);
- *Gulf of Mexico 2023 Supplemental Environmental Impact Statement. Final Supplemental Environmental Impact Statement 2023 (2023 SEIS) (USDOI, BOEM 2023-001);*
- *Biological Opinion Oil and Gas Leasing, Exploration, Development, Production, Decommissioning, and All Related Activities in the Gulf of Mexico Outer*

Continental Shelf (FWS 2018 BO) (Issued by United States Fish and Wildlife Service [FWS] on April 20, 2018);

- *Biological Opinion on the Federally Regulated Oil and Gas Program Activities in the Gulf of Mexico* (NMFS 2020 BiOp) (Issued by National Marine Fisheries Service [NMFS] on March 13, 2020);
- *Amended Incidental Take Statement and Revised Appendices to the Programmatic Biological Opinion on the Gulf of Mexico Oil and Gas Program* (NMFS 2021 Amended ITS) (Issued by NMFS on April 26, 2021) (NMFS, 2021a);
- *Gulf of Mexico Catastrophic Spill Event Analysis: High-Volume, Extended-Duration Oil Spill Resulting from Loss of Well Control on the Gulf of Mexico Outer Continental Shelf; 2nd Revision* (*Gulf of Mexico Catastrophic Spill Event Analysis*) (BOEM, 2021a);
- *Biological Environmental Background Report for the Gulf of Mexico OCS Region* (BEBR) (BOEM, 2021b);
- *Programmatic Description of the Potential Effects from Gulf of Mexico OCS Oil- and Gas-Related Activities - A Supporting Information Document* (SID) (BOEM, 2023) and
- *Gulf of Mexico OCS Oil and Gas Leasing Greenhouse Gas Emissions and Social Cost Analysis (Technical Report BOEM 2022-056).*

This SEA analyzes the potential impacts resulting from the proposed site-specific activities. Where applicable, relevant affected environment discussions and impact analyses from the 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS, and GOM Lease Sales 259 and 261 Supplemental EIS (2023 SEIS) are summarized and utilized for site-specific analysis and are incorporated by reference. The 2023 SEIS incorporates by reference all the relevant material in the *Outer Continental Shelf Oil and Gas Leasing Program: 2017-2022; Final Programmatic Environmental Impact Statement; Gulf of Mexico Lease Sales 249, 250, 251, 252, 253, 254, 256, 257, 259, and 261—Final Multisale Environmental Impact Statement* (2017-2022 GOM Multisale EIS; and *Gulf of Mexico OCS Lease Sale: Final Supplemental Environmental Impact Statement 2018* (2018 GOM Supplemental EIS). Relevant new information published after the above-referenced environmental analyses is included by citation. Lease stipulations, the Outer Continental Shelf Lands Act (OCSLA), all applicable Federal, State, and local regulations (as per 30 CFR § 550.101(a)); guidance provided in all applicable Notices to Lessees and Operators (NTLs) (as per 30 CFR § 550.103); and mitigation and monitoring measures identified in this SEA, 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS, the 2023 SEIS, FWS 2018 BO, NMFS 2020 BiOp, and NMFS 2021 Amended ITS have been considered in the evaluation of the Proposed Action.

1.1 BACKGROUND

BOEM and the Bureau of Safety and Environmental Enforcement (BSEE) have been delegated the authority under OCSLA to manage and oversee the exploration and development of

OCS oil, gas, and mineral resources while ensuring safe operations and the protection of the human environment. Working together, BOEM and BSEE manage oil and gas leases, permits, authorizations, and regulate exploration, development, production, and decommissioning. Prior to authorizing activities related to these phases, BOEM conducts the appropriate NEPA review. The BSEE Office Field Operations, Pipeline Section, oversees the submittal and permit approval process pursuant to 30 C.F.R. § 250 subpart J.

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 pipelines, installation and decommissioning operations employ a wide range of activities that oversee any installation or removal activities including 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.

1.2 Purpose of and Need for the Proposed Action

KNOC has submitted these pipeline permit applications as part of their production modification activities on the Outer Continental Shelf. The purpose of the proposed action as outlined by KNOC in their pipeline applications is to modify, operate, and maintain the proposed pipelines and associated infrastruture. Production and transportation of hydrocarbon resources on the OCS would help satisfy the Nation’s need for energy.

The need for this action is established by BOEM's responsibility under the Outer Continental Shelf Lands Act (OCSLA) to make OCS lands available for expeditious and orderly development, subject to environmental safeguards, in a manner that is consistent with the maintenance of competition and other national needs. Consistent with its ROW and lease term obligations, KNOC has submitted these pipeline applications. Permit applications are sumitted for various reasons as follows: (a) a lease term is limited to a minimum of 5 years and a maximum of 10 years, and failure to identify and develop resources could lead to loss of the investment costs to acquire the lease as well as yearly rentals to maintain access to the lease; (b) leaseholders are obligated via lease terms to diligently develop the resources; (c) commercial quantities of hydrocarbons have been encountered; and (d) leaseholders have a legal right to pursue the production and transportation of hydrocarbon resources and production related waste.

1.3 Description of Proposed Action

KNOC Eagle Ford Corporation (KNOC) has submitted right of way (ROW) pipeline modification applications to facilitate the decommissioning of Platform F located in South Pass (SP)

Block 60 and to modify the infrastructure of Platform B located in Mississippi Canyon (MC) Block 21. A joint permit application for work within the Louisiana Coastal Zone has been filed with the Louisiana Department of Natural Resources Office of Coastal Management and the US Army Corps of Engineers (USACOE). The USACOE "Memorandum for Record" concerning environmental issues related to the onshore and offshore state waters portion of the proposed pipeline activities was completed on May 28, 2024 and is attached in Appendix D. The proposed activities in Federal waters have been reviewed by BOEM Office of Environment for NEPA compliance. The Final Supplemental Environmental Impact Statement (BOEM, 2023a) from which this SEA tiers estimates 0-1 new pipeline corridors to shore per lease sale. The new pipeline corridors to shore proposed in these applications are the first since 2014. Applications for pipelines P-15060, P-15061, and P-15062 have been submitted. The modification of pipelines P-15060 and P-15062 create new pipeline corridors to shore in Plaquemines Parish Louisiana. The ROW Modification activities are as follows:

P-15060 is a 10-inch Natural Gas ROW pipeline running from Platform B in MC Block 21 to Platform F in SP Block 60. The proposed ROW Modification includes a partial removal, partial decommission in place, and an extension of new pipeline. The pipeline segment will be disconnected from Platform SP 60 F, and at a location east of the Platform in SP Block 60, a 10-inch to 2-inch subsea tie in (SSTI) will be installed. Unused pipeline will be decommissioned in place in SP Block 60. From the new SSTI located in SP 60, new 2-inch pipeline will be constructed and extended to the Federal/State line in SP Block 6. From the Federal/State location, the extended pipeline will continue in Louisiana State waters to the LLOX facility located onshore in Plaquemines Parish, Louisiana. Once completed, the modified ROW pipeline will run from the LLOX facility to Platform B located in MC Block 21. The modified pipeline will be utilized to supply gas from the onshore LLOX facility to the MC 21 B Platform.

P-15061 is an 8-inch Bulk Oil ROW pipeline running from Platform B in MC Block 21 to Platform F in SP Block 60. The proposed ROW Modification includes a partial removal and temporary abandonment. The pipeline segment will be disconnected from Platform SP 60 F and a portion of pipeline will be decommissioned by removal. The remaining length of pipeline will be filled with inhibited seawater and taken out of service for possible future utility.

P-15062 is a 4-inch Natural Gas, Oil, and Water ROW pipeline running from Platform B in MC Block 21 to Platform F in SP Block 60. The proposed ROW Modification includes a partial removal, partial decommission in place, and an extension of new pipeline. The pipeline segment will be disconnected from Platform SP 60 F, and at a location east of the Platform in SP Block 60, a 4-inch to 4-inch SSTI will be installed. Unused pipeline will be decommissioned in place in SP Block 60. From the new SSTI located in SP 60, new 4-inch pipeline will be constructed and extended to the Federal/State line in SP Block 6. From the Federal/State location, the extended pipeline will continue in Louisiana State waters to the LLOX facility located onshore in Plaquemines Parish, Louisiana. Once completed, the modified ROW pipeline will run from the LLOX facility to Platform B located in MC Block 21. The modified pipeline will be utilized as a multipurpose pipeline to send oil, gas, and water from the MC 21 B Platform to the onshore LLOX facility.

The proposed activities at the Federal/State line in South Pass Block 6 are located 3 miles (4.8 km) from the nearest shore in Plaquemines Parish, Louisiana. The water depths of the proposed activities range from approximately 72 feet (22 m) at the Federal/State line in SP Block 6 to 689 feet (210 m) at Platform B in MC Block 21. The maximum anchor radius for the dive support/decommissioning vessels at the SP Block 60 Platform F and SSTI locations is 5,000 feet (1,524 m). The maximum anchor radius for the pipeline lay barge for the pipeline extensions to the Federal/State line is 3,000 feet (914 m) on either side and perpendicular to the proposed pipeline routes. The proposed activities will begin in July 2024 and will take approximately 85 days to complete (KNOC, 2024). No new or unusual technology is proposed by KNOC.

1.4 IMPACT-PRODUCING FACTORS

For purposes of this analysis, an impact-producing factor (IPF) is the outcome of a proposed activity that may pose a vulnerability risk or potential impact to the human environment, such as noise (acoustic source), air emissions, discharges and waste (effluent), or offshore habitat modification (physical disturbance). The impact analysis evaluates the potentially affected environment[1] and the degree of the effects[2] of the action. Each phase of oil and gas operations typically have specific types of IPFs that may affect physical or environmental conditions and/or may affect one or more natural, cultural, or socioeconomic resource(s). The IPFs are categorized as routine activities, accidental events, and other effects that are reasonably foreseeable and have a close causal connection to the Proposed Action. Detailed descriptions of routine activities and accidental events considered in this SEA are provided in **Appendix A**, and the vulnerability (effects or impacts) of resources to IPFs is also available in the BEBR (BOEM, 2021b) and SID (BOEM, 2023b).

1.4.1 Routine Activities

Routine activities are generally sequential and occur on a regular basis during the lifetime of a lease (i.e., 50 years). Examples of routine activity include geological and geophysical (G&G) surveys[3], drilling wells, installing production structures and/or subsea infrastructure (platforms, wellheads, manifolds, subsea tie-ins, pipelines), ancillary activities, and decommissioning. Specific to the activities for ROW Pipeline Modification proposed by KNOC, the routine activities would result in the following:

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[1] In considering the potentially affected environment, agencies should consider, as appropriate to the specific action, the affected area (national, regional, or local) and its resources, such as listed species and designated critical habitat under the Endangered Species Act (ESA). Significance varies with the setting of the proposed action (40 CFR § 1501.3(b)(1)).

[2] The degree of the effects, as appropriate to the specific action; both short and long term, beneficial and adverse, public health and safety, and whether the effects would violate laws protecting the environment are to be considered (40 CFR § 1501.3(b)(2)(i-iv)).

[3] The G&G activities for oil and gas exploration and development are authorized on the basis of whether or not the proposed activities occur before leasing takes place (prelease) and are authorized by a permit or the G&G activity will occur on an existing lease (post-lease/ancillary). Postlease/ancillary activities are authorized by OCS plan approvals, plan revisions, requirement for notification, or a separate G&G permit if the survey will extend off the existing lease.

(1) bottom disturbance or offshore habitat modification;

(2) noise;

(3) discharges and wastes;

(4) space-use conflicts; and

(5) air emissions.

1.4.2 Accidental Events

Though not planned, intended, nor anticipated, BOEM recognizes that there is potential for accidental events. The impacts and complexity of an accidental event can vary greatly dependent upon the type, interrelated factors, type and amount of material, time of year, and resources impacted. The primary IPFs from potential accidents related to the proposed activities include the following:

(1) accidental releases (oil/chemical spills and oil spill response, emergency flaring/venting, or marine trash and debris);

(2) accidental collisions resulting in a spill (vessel to vessel or vessel to structure);

(3) accidental vessel strike (vessel to organism); and

(4) accidental entanglement/entrapment (equipment or facility and organism).

1.5 Accidental Spill Concerns

Based on experience and the operations proposed in KNOC's plan, the potential sources of spills from the proposed activity would include a storage tank accident producing a leak resulting form damage to the fuel tanks on pipeline lay vessels or pipeline construction vessels.

Potential Spills from Vessels/Transfer Operations

As indicated above, offshore spills from KNOC's proposed activities are possible if an accident were to damage a storage tank onboard the pipeline lay vessel or the pipeline support vessel. Historically, accidents of this nature have resulted from unintentional vessel collisions. A worst-case discharge (WCD) scenario[4] from a rupture or spill from the vessels and other support are provided in Table **1-1**.

[4] Information provided regarding the WCD totals and calculations is not required under NEPA regulations; however, the information is included as part of the review process and compliance with 30 CFR § 254.47; BOEM NTL 2015-N01, "Information Requirements for Exploration Plans, Development and Production Plans, and Development Operations Coordination Documents on the OCS for Worst Case Discharge and Blowout Scenarios"; and Frequency Asked Questions as part of every EP and development and production plan (DPP)/DOCD. In addition, the August 16, 2010, CEQ Report prepared following the *Deepwater Horizon* explosion, oil spill, and response in the GOM recommended that BOEM should "Ensure that NEPA document provide decisionmakers with a robust analysis of reasonably

Table 1-1. Worst-Case Discharges from Proposed Vessels

Vessel	Largest Main Tank Capacity*	Total Capacity*
Dive Support Vessel *Joanne*	N/A	60,000gal (1,429 bbl)
DP Dive Support Vessel	N/A	128,200 gal (3,052 bbl)
CM 15Pipeline Lay Barge	N/A	105,000 gal (2,500 bbl)
Supply Ship *Vision*	N/A	149,000 gal (3,648 bbl)
OSV Support	N/A	18,500 gal (440 bbl)
Anchor Tug for CM 15	N/A	34,000 gal (810 bbl)
Anchor Tug for SS Vision	N/A	75,000 gal (1,786 bbl)

bbl = barrel; gal = gallon; N/A = not applicable.

Oil-Spill Risk and Assessment

In the event of a spill, there is no single method of containing and removing the oil that would be 100 percent effective. Removal and containment efforts to respond to an ongoing spill would likely require multiple technologies, including mechanical cleanup, chemical dispersant application, and less frequently, in-situ burning of the slick. Even with the potential to deploy all of these technologies, it is likely that, with the operating limitations of today's spill response technology, not all of the oil could be contained and removed from the offshore environment. It is likely that larger spills in deep waters and under the right conditions would require the simultaneous use of all available cleanup methods (i.e., mechanical cleanup, dispersant application, and in-situ burning).

That being said, when considering the historical/statistical data, subsea containment improvements, BOEM and BSEE's enhanced oversight, and industry's heightened safety awareness since the *Deepwater Horizon*, it is reasonable to conclude that an accidental spill event is less likely to occur. Events that are statistically unexpected to occur, but would still be possible, such as a catastrophic discharge event are not considered a part of the proposed activities and, therefore, are not discussed in this document. For more information on a low-probability catastrophic event and the resulting analysis of potential effects, refer to BOEM's *Gulf of Mexico Catastrophic Spill Event Analysis* technical report (BOEM, 2021a).

Oil and Gas Production Safety Systems

On September 28, 2018, BSEE published revisions to the 2018 Oil and Gas Production Safety Systems Rule, which became effective on December 27, 2018 (Federal Register, 2018), and on May 2, 2019, BSEE published revisions for the 2019 Well Control and Blowout Preventer Rule, which became effective on July 15, 2019 (Federal Register, 2019b). BOEM has independently reviewed BSEE's Final Environmental Assessment and Finding of No Significant Impact (FONSI) for the 2019

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foreseeable impacts, including an analysis of reasonably foreseeable impacts associated with low-probability catastrophic spills for oil and gas activities on the OCS" (CEQ, 2010). BOEM's *Gulf of Mexico Catastrophic Spill Event Analysis* technical report is a robust analysis of the impacts from low-probability catastrophic spills and is included in this analysis to support decisionmaking purposes.

Well Control and Blowout Preventer Proposed Rule and the Final Environmental Assessment and FONSI for the 2018 Oil and Gas Production Safety Systems Rule (BSEE 2018a; 2018b; 2019a; 2019b). The analyses in those environmental assessments and FONSIs are incorporated by reference herein. For purposes of this site-specific analysis, BOEM agrees with BSEE's conclusions that the rule changes do not change or increase environmental risks from what they were under the 2016 rules. BOEM agrees with the conclusions because the changes to the rules carefully removed unnecessary burdens while leaving critical safety provisions intact and did not change the overall risks related to oil and gas activities on the OCS.

BOEM, therefore, concludes that the final changes to the rules do not change the conclusions of the 2017-2022 GOM Multisale EIS or 2018 GOM Supplemental EIS and do not alter the reasonably foreseeable impacts that may result from the proposed activities analyzed in this site-specific review.

2 ALTERNATIVES CONSIDERED

2.1 NO ACTION

Alternative 1 – If selected, KNOC would not be authorized to undertake the proposed activities. If the proposed activities are not undertaken, they would not cause activity-specific routine or accidental impacts. Activities related to other existing leases, authorizations, and permits associated with the overall OCS activities would not increase. The No Action Alternative would not significantly change the environmental impacts of overall OCS oil and gas exploration and development activities as described in the 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS, and 2023 SEIS, and routine and accidental impacts would continue to occur elsewhere in the GOM. However, these activities on this ROW would not occur.

2.2 PROPOSED ACTION

Alternative 2 – If selected, KNOC would be authorized to undertake the proposed activities as requested in ROW Modification Number P-15060, P-15061, and P-15062. The lessee/operator will conduct operations in accordance with the lease stipulations; OCSLA; and all applicable Federal, State, and local regulations (as per 30 CFR § 550.101(a)); guidance provided in all appropriate NTLs (as per 30 CFR § 550.103); and appropriate mitigation measures, terms and conditions, and reasonable and prudent measures set out in the FWS 2018 BO, NMFS 2020 BiOp (as amended), and NMFS 2021 Amended ITS, as applicable. These consist of the following:

- **COMPLIANCE WITH BIOLOGICAL OPINION TERMS AND CONDITIONS AND REASONABLE AND PRUDENT MEASURES:** This approval is conditioned upon compliance with the Reasonable and Prudent Measures and implementing Terms and Conditions of the Biological Opinion issued by the National Marine Fisheries Service on March 13, 2020, and the amendment issued on April 26, 2021. This includes mitigation, particularly any appendices to Terms and Conditions applicable to the plan, as well as record-keeping and reporting sufficient to allow BOEM and BSEE to comply with reporting and monitoring requirements under the BiOp; and any additional reporting required by BOEM or BSEE developed as a result of BiOp implementation. The NMFS Biological Opinion may be found here:

  https://www.fisheries.noaa.gov/resource/document/biological-opinion-federally-regulated-oil-and-gas-program-activities-gulf-mexico.

  The Appendices and protocols may be found in the amendment here:

  https://www.fisheries.noaa.gov/resource/document/appendices-biological-opinion-federally-regulated-oil-and-gas-program-gulf-mexico.

  The amendment provided updates to Appendices A, C, and I, which may be found here:

  https://repository.library.noaa.gov/view/noaa/29355.

- **NOTIFICATION OF INTENTION TO TRANSIT RICE'S WHALE AREA CONDITION OF APPROVAL (COA):** Operators or their recognized representative must notify the Bureau of Ocean Energy Management (BOEM) or Bureau of Safety and Environmental Enforcement (BSEE) as appropriate of their intention to transit through the Rice's (formerly Bryde's in 2020 Biological Opinion and subsequent amendment) whale area (from 100- to 400- meter isobaths from 87.5° W to 27.5° N as described in the species' status review plus an additional 10 km around that area) (see figure below) when this transit is associated with either an initial

plan/application or as part of a change to an existing plan/application when either vessel route and/or support base changes. If proposing to transit through any portion of the Rice's whale area, the BOEM Permit/Plan holder shall submit their notification to transit and concurrence to fulfil the reporting requirements as stated below to BOEM/BSEE (protectedspecies@boem.gov and protectedspecies@bsee.gov). In the case of a post-approval change in vessel route or change in a support base, your intention to transit through the Rice's whale area should be made by contacting the BOEM or BSEE Point of Contact for the most recent applicable permit or application. Please be advised that changes to the use of a support base may trigger a revised plan (e.g., 30 CFR § 550.283), revised application, or modified permit (for geological and geophysical [G&G] activities). You will be required to follow the requirements defined below as originally outlined (as Bryde's whale) in the 2020 Biological Opinion and April 2021 Amendment to the Incidental Take Statement and Revised Appendices issued by the National Marine Fisheries Service (NMFS). Note these conditions of approval refer to the species as the Rice's whale (*Balaenoptera ricei*). Until 2021, the species was known as Bryde's whale (*Balaenoptera edeni*).

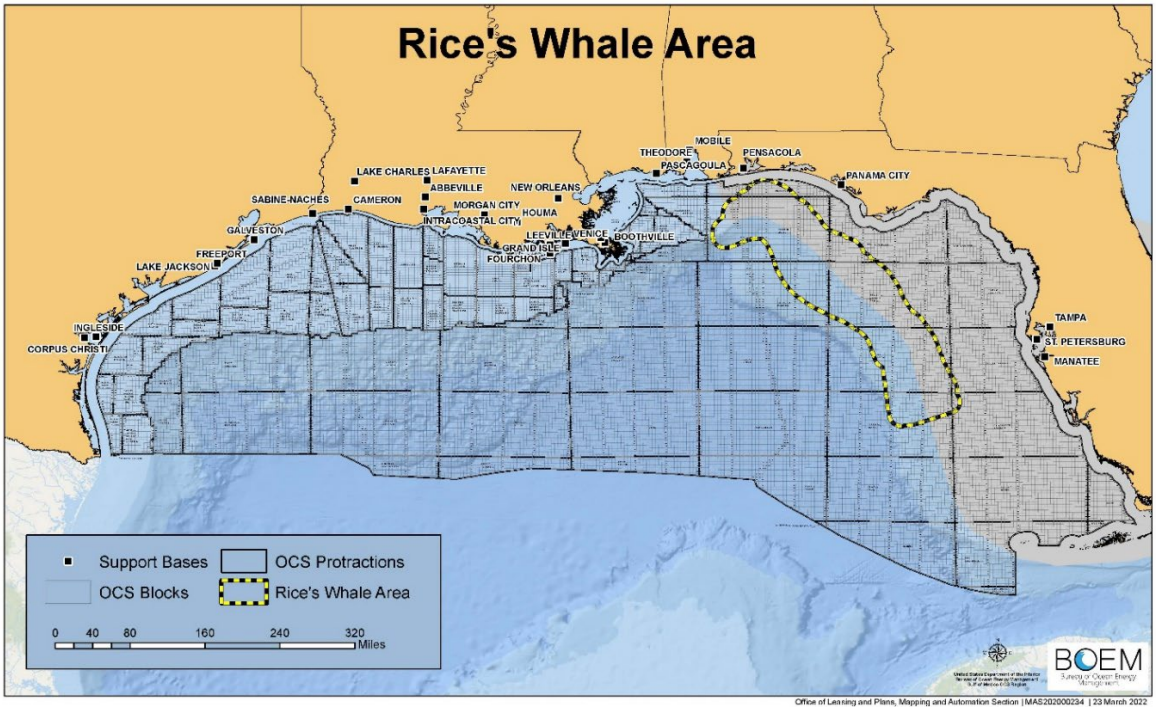
1. Vessel operators and crews must maintain a vigilant watch for Rice's whales and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any Rice's whale. Visual observers monitoring the 500 m vessel strike avoidance zone for Rice's whales can be either third-party observers or crew members (e.g., captain), but crew members responsible for these duties must be provided sufficient training to distinguish aquatic protected species to broad taxonomic groups, as well as those specific species detailed further below. If the species is indistinguishable, then operators should assume it is a Rice's whale and act accordingly (see below).

2. If transiting within the Rice's whale area (figure below), operators must notify BOEM and/or BSEE of their plans prior to transit and include what port is used for mobilization and demobilization and explain why the transit is necessary. If an unavoidable emergency transit through this area occurs (i.e., safety of the vessel or crew is in doubt or the safety of life at sea is in question), it must be reported immediately after the emergency is over and must include all required information referenced herein. After completing transit through the Rice's whale area, you must prepare a report of transit describing the time the vessel entered and departed the Rice's whale area, any Rice's whale sightings or interactions (e.g., vessel avoidance) that occurred during transit, and any other marine mammal sightings or interactions. Minimum reporting information is described below:
    i. The plan, permit or other BOEM or BSEE number used to identify the activity;
    ii. Automatic Identification System (AIS), if available;
    iii. Time and date vessel entered and exited the Rice's whale area;
    iv. Time, date, water depth, and location (latitude/longitude) of the first sighting of the animal;
    v. Name, type, and call sign of the vessel in which the sighting occurred;
    vi. Species identification (if known) or description of the animal involved;
    vii. Approximate size of animal (if known);
    viii. Condition of the animal during the event and any observed injury / behavior (if known);
    ix. Photographs or video footage of the animal, if available;
    x. General narrative and timeline describing the events that took place;

xi. Time and date vessel departed Rice's whale area;
xii. Trackline (e.g., time, location, and speed) of vessel while within Rice's whale area; and
xiii. Environmental conditions, including Beaufort Sea State (BSS) and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon.

3. Upon conclusion of transit, operators must submit reports to protectedspecies@boem.gov and protectedspecies@bsee.gov within 24 hours of transit through the Rice's whale area. The title of the email should include "Transit through Rice's Whale Area."
4. All vessels, regardless of size, must observe a 10-knot, year-round speed restriction in the Rice's whale area during daylight hours. The only exception to the 10-knot vessel speed restriction would be when observing the speed restriction would cause the safety of the vessel or crew to be in doubt or the safety of life at sea to be in question.
5. All vessels must maintain a minimum separation distance of 500 m from Rice's whales. If a whale is observed but cannot be confirmed as a species other than a Rice's whale, the vessel operator must assume that it is a Rice's whale and take appropriate action.
6. All vessels 65 feet or greater associated with oil and gas activity (e.g., source vessels, chase vessels, supply vessels) must have a functioning Automatic Identification System (AIS) onboard and operating at all times as required by the U.S. Coast Guard. If the U.S. Coast Guard does not require AIS for the vessel, it is strongly encouraged. At minimum, the reporting (as specified within this COA) must be followed and include trackline (e.g., time, location, and speed) data.
7. No transit is permissible at nighttime or during low visibility conditions (e.g., BSS 4 or greater) except for emergencies (i.e., when the safety of the vessel or crew would otherwise be in doubt or the safety of life at sea is in question).
8. If an operator while operating within the Rice's whale area
    i. Exceeds the 10-knot vessel speed,
    ii. Does not maintain a 500 m minimum separation distance from a Rice's whale, and/or
    iii. Conducts transit during nighttime or during low visibility conditions (e.g., BSS 4 or greater),

    the operator must notify BSEE and BOEM by emailing protectedspecies@bsee.gov and protectedspecies@boem.gov within 24 hours. The notification must be reported as a separate and distinct notification to the transit report with the title "Transit Deviation" in the subject line. The notification must provide a detailed explanation as to why the Transit Deviation occurred.
9. This COA does not remove or alter the need to comply with any other applicable regulatory or legal requirements with respect to vessel operations, including as outlined in the amended Appendix C - Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols.



- **SEISMIC SURVEY OPERATION, MONITORING, AND REPORTING GUIDELINES**: The applicant will follow the guidance provided under Appendix A: Seismic Survey Mitigation and Protected Species Observer Protocols found in the Biological Opinion issued by the National Marine Fisheries Service on April 26, 2021. The guidance can be accessed on NOAA Fisheries internet website at https://repository.library.noaa.gov/view/noaa/29355.
- **MARINE TRASH AND DEBRIS AWARENESS AND ELIMINATION**: The applicant will follow the protocols provided under Appendix B. Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols found in the Biological Opinion issued by the National Marine Fisheries Service on March 13, 2020. The guidance can be accessed on NOAA Fisheries internet website at https://www.fisheries.noaa.gov/resource/document/appendices-biological-opinion-federally-regulated-oil-and-gas-program-gulf-mexico.
- **VESSEL-STRIKE AVOIDANCE/REPORTING**: The applicant will follow the protocols provided under Appendix C. Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols found in the Biological Opinion issued by the National Marine Fisheries Service on April 26, 2021. The guidance can be accessed on the NOAA Fisheries internet site at https://repository.library.noaa.gov/view/noaa/29355.
- **SEA TURTLE RESUSCITATION GUIDELINES:** The applicant will follow the guidance provided under Appendix J. Sea Turtle Handling and Resuscitation Guidelines found in the Biological Opinion issued by the National Marine Fisheries Service on March 13, 2020. The guidance can be accessed on the NOAA Fisheries internet site at https://www.fisheries.noaa.gov/resource/document/appendices-biological-opinion-federally-regulated-oil-and-gas-program-gulf-mexico.
- **MOON POOL MONITORING CONDITION OF APPROVAL:** A moon pool has been identified during review of your plan submittal. The requirements below must be followed for any activities entailing use of the moon pool, except under circumstances when complying with these requirements would put the safety of the vessel or crew at risk. If any protected species (i.e. species protected under the Endangered Species Act [ESA] and/or Marine Mammal Protection Act [MMPA]) is detected in the moon pool, you are required to follow the appropriate

procedures described in the Reporting Requirements condition of approval (COA) in your plan approval.

Application of these measures includes, but is not limited to, dive support vessels, service vessels, pipelaying vessels, drillships, floating platforms (e.g., SPAR), mobile offshore drilling units, and other facilities with enclosed moon pools (e.g., well in the hull of a vessel, with or without a door).

General Requirements

- Where the moon pools have hull doors, the operator(s) should keep the doors closed as much as reasonably practicable when no activity is occurring within the moon pool, unless the safety of crew or vessel require otherwise. This will prevent protected species from entering the confined area during periods of non-activity.
- Use of a moon pool requires regular monitoring while open to the water column and if a vessel is not underway. Regular monitoring means 24-hour video monitoring with hourly recurring checks for at least five minutes of the video feed, or hourly recurring visual checks of the moon pool for at least five minutes by a dedicated crew observer with no other tasks during that short visual check.
- If water conditions are such that observers are unable to see within a meter of the surface, operations requiring the lowering or retrieval of equipment through the moon pool must be conducted at a rate that will minimize potential harm to protected species.

Closure of the Hull Door

- Should the moon pool have a hull door that can be closed, then prior to and following closure, the moon pool must be monitored continuously by a dedicated crew observer with no other tasks to ensure that no individual protected species is present in the moon pool area. If visibility is not clear to the hull door from above (e.g., turbidity or low light), 30 minutes of monitoring is required prior to hull door closure.
- If a protected species is observed in the moon pool prior to closure of the hull door, the hull door must not be closed, except for human safety considerations. Once the observed animal leaves the moon pool, the operator may commence closure. If the observed animal remains in the moon pool after closure, contact NMFS or BSEE prior to the closure of the hull doors according to reporting requirements (*see Reporting Requirements COA under Reporting of Observations of Protected Species within an Enclosed Moon Pool)*.

Movement of the Vessel (No Hull Door) and Equipment Deployment/Retrieval

- Prior to movement of the vessel and/or deployment/retrieval of equipment, the moon pool must be monitored continuously for a minimum of 30 minutes, by a dedicated crew observer with no other tasks, to ensure no individual protected species is present in the moon pool area.
- If a protected species is observed in the moon pool prior to movement of the vessel, the vessel must not be moved and equipment must not be deployed or retrieved, except for human safety considerations. If the observed animal leaves the moon pool, the operator may commence activities. If the observed animal remains in the moon pool contact BSEE prior to planned movement of the vessel according to reporting requirements (see *Reporting Requirements* COA under *Reporting of Observations of Protected Species within an Enclosed Moon Pool)*.
- Should a protected species be observed in a moon pool prior to activity commencement (including lowering or retrieval of equipment), recovery of the animal or other actions specific to the scenario may be required to prevent interaction with the animal. If protected

species are observed during activity, only reporting is required (see *Reporting Requirements* COA). Operators must not take such action except at the direction of, and after contact with, NMFS (see *Reporting Requirements* COA).

- **SLACK-LINE PRECAUTIONS CONDITION OF APPROVAL**: If operations require the use of flexible, small diameter (< 2 inch) lines to support operations (with or without divers), operators/contractors must reduce the slack in the lines, except for human safety considerations, to prevent accidental entanglement of protected species (i.e. species protected under the Endangered Species Act [ESA] and/or Marine Mammal Protection Act [MMPA]). This requirement includes tether lines attached to remotely operated equipment. The requirements below must be followed for any activities entailing use of flexible, small diameter lines that will not remain continuously taut, except when complying with these requirements would put the safety of divers, crew or the vessel at risk:
  - Operators must utilize tensioning tools and/or other appropriate procedures to reduce unnecessary looseness in the lines and/or potential looping;
  - The lines must remain taut, as long as additional safety risks are not created by this action;
  - A line tender must be present at all times during dive operations and must monitor the line(s) the entire time a diver is in the water; and
  - Should the line tender and/or diver become aware of an entanglement of an individual protected species, the reporting requirements described in the *Reporting Requirements* COA must be followed as soon as safety permits.
- **REPORTING REQUIREMENTS CONDITION OF APPROVAL:** Review of your proposed activities identified use of equipment that has the potential for entanglement and/or entrapment of protected species (i.e. species protected under the Endangered Species Act [ESA] and/or Marine Mammal Protection Act [MMPA]) that could be present during operations. In case of entrapment, procedures and measures for reporting are dependent upon the situation at hand. **These requirements replace those specific to dead and injured species reporting in respective sections of Appendix A (insofar as they relate to geophysical surveys) and Appendix C of the 2020 Biological Opinion on the Bureau of Ocean Energy Management's Oil and Gas Program Activities in the Gulf of Mexico**.

  Incidents Requiring Immediate Reporting

  Certain scenarios or incidents require immediate reporting to Federal agencies; these are described below:

  Should any of the following occur at any time, **immediate reporting** of the incident is required after personnel and/or diver safety is ensured:

  - Entanglement or entrapment of a protected species (i.e., an animal is entangled in a line or cannot or does not leave a moon pool of its own volition).
  - Injury of a protected species (e.g., the animal appears injured or lethargic).
  - Interaction, or contact with equipment by a protected species.
  - Any observation of a leatherback sea turtle within a moon pool (regardless of whether it appears injured, or an interaction with equipment or entanglement/entrapment is observed).

  1. As soon as personnel and/or diver safety is ensured, report the incident to National Marine Fisheries Service (NMFS) by contacting the appropriate expert for 24-hr response. If you do not receive an immediate response, you must keep trying until contact is made. Any failed attempts should be documented. Contact information for reporting is as follows:

a. **Marine mammals:** contact **Southeast Region's Marine Mammal Stranding Hotline at 1-877-433-8299.**

b. **Sea turtles**: contact **Brian Stacy, Veterinary Medical Officer at 352-283-3370**. If unable to reach Brian Stacy, contact Lyndsey Howell at 301-310-3061. This includes the immediate reporting of **any observation of a leatherback sea turtle within a moon pool**.

c. **Other protected species** (e.g., giant manta ray, oceanic whitetip shark, or Gulf sturgeon)**:** contact the **ESA Section 7 biologist at 301-427-8413** (**nmfs.psoreview@noaa.gov**) and report all incidents to takereport.nmfsser@noaa.gov.

d. Minimum reporting information is described below:

   i. Time, date, water depth, and location (latitude/longitude) of the first discovery of the animal;

   ii. Name, type, and call sign of the vessel in which the event occurred;

   iii. Equipment being utilized at time of observation;

   iv. Species identification (if known) or description of the animal involved;

   v. Approximate size of animal;

   vi. Condition of the animal during the event and any observed injury/behavior;

   vii. Photographs or video footage of the animal, only if able; and

   viii. General narrative and timeline describing the events that took place.

2. After the appropriate contact(s) have been made for guidance/assistance as described in 1 above, you may call BSEE at 985-722-7902 (24 hours/day) for questions or additional guidance on recovery assistance needs (if still required) and continued monitoring requirements. You may also contact this number if you do not receive a timely response from the appropriate contact(s) listed in 1. above.

   a. Minimum post-incident reporting includes all information described above (under 1.d.i-viii) in addition to the following:

      i. NMFS liaison or stranding hotline that was contacted for assistance;

      ii. For moon pool observations or interactions:

      - Size and location of moon pool within vessel (e.g., hull door or no hull door);
      - Whether activities in the moon pool were halted or changed upon observation of the animal; and
      - Whether the animal remains in the pool at the time of the report, or if not, the time/date the animal was last observed.

Reporting of Observations of Protected Species Within an Enclosed Moon Pool

If a protected species is observed within an enclosed moon pool and does not demonstrate any signs of distress or injury or an inability to leave the moon pool of its own volition, measures described in this section must be followed (only in cases where they do not jeopardize human safety). Although this particular situation may not require immediate assistance and reporting as described under Incidents Requiring Immediate Reporting (see above), a protected species could potentially become disoriented with their surroundings and may not be able to leave the enclosed moon pool of their own volition. In order for operations requiring use of a moon pool to continue, the following reporting measures must be followed:

Within 24 hours of any observation, and daily after that for as long as an individual protected species remains within a moon pool (i.e., in cases where an ESA listed species has entered a moon pool but entrapment or injury has not been observed), the following information must be reported to BSEE (protectedspecies@bsee.gov) and BOEM (protectedspecies@boem.gov):

1. For an initial report, all information described under 1.d.i-viii above should be included.
2. For subsequent daily reports:
    a. Describe the animal's status to include external body condition (e.g., note any injuries or noticeable features), behaviors (e.g., floating at surface, chasing fish, diving, lethargic, etc.), and movement (e.g., has the animal left the moon pool and returned on multiple occasions?);
    b. Description of current moon pool activities, if the animal is in the moon pool (e.g., drilling, preparation for demobilization, etc.);
    c. Description of planned activities in the immediate future related to vessel movement or deployment of equipment;
    d. Any additional photographs or video footage of the animal, if possible;
    e. Guidance received and followed from NMFS liaison or stranding hotline that was contacted for assistance;
    f. Whether activities in the moon pool were halted or changed upon observation of the animal; and
    g. Whether the animal remains in the pool at the time of the report, or if not, the time/date the animal was last observed.

2.3 PROPOSED ACTION WITH ADDITIONAL MITIGATION MEASURES

Alternative 3 – If selected, KNOC would be authorized to undertake the proposed activities as requested in ROW Modification Number P-15060, P-15061, and P-15062 and will conduct operations in accordance with the OCSLA; and all applicable Federal, State, and local regulations (as per 30 CFR § 550.101[a]); guidance provided in all appropriate NTLs (as per 30 CFR § 550.103); appropriate mitigation measures, terms and conditions, and reasonable and prudent measures set out in the FWS 2018 BO, NMFS 2020 BiOp (as amended), and NMFS 2021 Amended ITS, as applicable. Based on the activity-specific analysis, additional mitigation and monitoring measures are included to further protect Archaeological and Benthic resources. BOEM will require KNOC to undertake the following additional mitigation and monitoring measure to be applied as conditions of approval:

Avoidance of Potential Benthic Resources - Our review indicates that there are hard bottoms/pinnacles/potentially sensitive biological features (PSBFs) that likely provide habitat for biological assemblages located within the scope of the anchor array of the pipeline lay barge. Pipeline construction activities (including the use of anchors, chains, and wire ropes) must avoid these hard bottoms/pinnacles/PSBFs by a distance of at least 100-ft. The company will include lay barge anchor position plats, at a scale of 1-in. = 1,000-ft. with DGPS accuracy, with the pipeline construction report required by 30 CFR 250.1008(b), which depict the "as-placed" location of all anchors, anchor chains, and wire ropes on the seafloor and demonstrate that the features were not physically impacted by the construction activities.

Avoidance of Potential Archaeological Resources - Our review indicates that your proposed activities are in the vicinity of the unidentified side-scan sonar targets listed under separate cover, features that may represent significant archaeological resources. In accordance with 30 CFR 250.1007(a)(5), 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 seafloor disturbing actions resulting from the proposed activities avoid the unidentified features by a distance greater than that listed under separate cover. If you conduct an underwater archaeological investigation prior to commencing operations, contact either the BOEM Regional Preservation Officer at archaeology@boem.gov or (504) 736-1742, or the BSEE Marine Archaeologists at Env-Compliance-Arc@bsee.gov, (504) 736-2416 and/or 504-736-2947 at least two weeks prior to performing operations to coordinate the investigation plan. If you choose to avoid the features, submit anchor position plats, at a scale of 1-in. = 1,000-ft. with DGPS accuracy, with your pipeline construction report required by 30 CFR 250.1008(b) or decommissioning report required by 30 CFR 250.1753(b), as appropriate. These plats must depict the "as-placed" location of all anchors, anchor chains, wire ropes and cables on the seafloor (including sweep) and demonstrate that the features were not physically impacted by the construction/decommissioning activities. If you choose to avoid the features and no anchoring activities were conducted during pipeline construction/decommissioning, provide a statement to that effect in lieu of the required anchor position plats.

2.4 SUMMARY AND COMPARISON OF THE ALTERNATIVES

If selected, Alternative 1, No Action Alternative, would result in KNOC not exercising its rights and conducting the proposed activities. Alternative 1 would not result in any immediate activity-specific impacts to the human environment, and the operator may not develop or continue to develop the oil and gas resources of its ROW. Alternative 1 does not meet the underlying purpose and need as defined in **Chapter 1.2** because the potential oil and gas resources at this site would not be further modiifed and, thus, may not be developed.

Alternative 2 and Alternative 3 would result in the lessee/designated operator being authorized to conduct proposed activities. Alternative 3 is BOEM's preferred alternative because it allows the operator to achieve its pipeline modification objectives, incorporates mitigation and monitoring requirements (as components of project design), and provides for additional mitigation and monitoring measures to broaden protections for benthic and archaeological resources, further decreasing overall potential impacts. **Table 2-1** provides an overall summary of impacts to resources.

Table 2-1. Summary of Alternatives and Potential Impacts to Resources

Resource	Alternative 1: No Action	Alternative 2: Proposed Action	Alternative 3: Proposed Action with Additional Mitigation Measures
Air Quality	Negligible	Negligible to Minor	Negligible to Minor
Water Quality	None	Negligible to Minor	Negligible to Minor
Marine Mammals	None	Negligible	Negligible
Sea Turtles	None	Negligible	Negligible
Birds	None	Negligible	Negligible
Fish and EFH	None	Negligible to Minor	Negligible to Minor
Benthic Communities	None	Negligible to Minor	Negligible to Minor
Archaeology	None	Negligible to Major	Negligible

Negligible	No impact or impacts may or may not cause observable changes to natural conditions; does not reduce the integrity of a resource.
Minor	Impacts cause observable and short-term changes to natural conditions but does not reduce the integrity of a resource.
Moderate	Impacts cause observable and short-term changes to natural conditions and/or reduces the integrity of a resource.
Major	Impacts cause observable and long-term changes to natural conditions and reduces the integrity of a resource.

NOTE: The descriptions above are a general summary/definition of the overall impacts. Refer to each specific resource in **Chapter 3** for a more detailed definition of the impact levels used for our evaluation of the potential impacts to resources.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

3.1 INTRODUCTION

The discussion below will briefly describe/summarize the pertinent affected resources, discuss the site-specific review that was conducted, and provide the analysis of the proposed activities' potential impacts to the human environment. The description of the affected environment and impact analysis are presented together in this chapter for each resource. For the impact analysis, resource-specific significance criteria was developed for each resource category (refer to 40 CFR § 1508.1(g)).

A detailed description of resources in the GOM, along with a detailed impact analysis of the routine and accidental impacts of the proposed activities on these resources, can be found in the BEBR, SID, GOM Catastrophic Spill Event Analysis, and Chapter 4 of the 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS, and 2023 SEIS, and these documents are incorporated by reference for all resources discussed below. Throughout this SEA, where information was incomplete or unavailable, BOEM complied with its obligations under NEPA to determine if the information was relevant to reasonably foreseeable significant adverse impacts; if so, whether it was essential to a reasoned choice among alternatives and, if it was essential, whether it could be obtained and whether the cost of obtaining the information is exorbitant, as well as whether scientifically credible information using generally accepted scientific methodologies could be applied in its place (40 CFR § 1502.21).

The most notable incomplete or unavailable information relates to some aspects of the effects from the *Deepwater Horizon* explosion, oil spill, and response in 2010. Credible scientific data regarding the potential short-term and long-term impacts from the *Deepwater Horizon* explosion, oil spill, and response on some GOM resources have become available. However, some long-term effects continue to be studied and results remain incomplete at this time, and it could be many years before this information becomes available. BOEM will continue to monitor these resources for effects caused by the *Deepwater Horizon* explosion, oil spill, and response, and will ensure that future BOEM environmental reviews take into account any new information that may emerge.

While incomplete or unavailable information could conceivably result in potential shifts in baseline conditions of habitats that could affect BOEM's decision-making, BOEM has determined that it can make an informed decision at this time without this incomplete or unavailable information. BOEM's subject-matter experts have applied other scientifically credible information using accepted theoretical approaches and research methods, such as information on related or surrogate species.

3.1.1 Potentially Affected Resources

Preliminary screening for this assessment was based on a review of the relevant literature, previous SEAs, 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS, and 2023 SEIS, and statistics/data pertinent to historic and projected activities. For this SEA, BOEM evaluated the site-specific impacts that may result from the operator's proposed activities and identified the following potentially affected resources:

- air quality;
- offshore water quality;
- benthic communities;
- marine mammals (including ESA listed and non-listed species);
- sea turtles (all are ESA listed species);
- fisheries and essential fish habitat (EFH);
- marine and coastal birds;
- archaeological resources;
- human/socioeconomic resources; and
- other marine uses (military, significant sand source block [SSRA], artificial reef, etc.).

3.1.2 Resources Not Affected or Negligibly Impacted

Based on the site-specific review and impact conclusions reached, the following resources are scoped out of this SEA on the basis that the Proposed Action would not have an impact on the resource because the resource is not present within the proposed activity area and/or the proposed activities would have no impact/effect or no more than a negligible impact (**Table 3-1**).

Table 3-1. Resources Not Included for Further Analysis

Resource	Reason For No Further Analysis
Offshore Water Quality	
BOEM requires projected waste and discharge information for specific proposed activities to be submitted in an exploration plan, as outlined by NTL 2008-G04. The U.S. Environmental Protection Agency (USEPA) Regions 4 and 6 regulate the discharge of routine operational waste streams generated from offshore oil- and gas-related activities. Section 403 of the Clean Water Act (CWA) requires that National Pollutant Discharge Elimination System (NPDES) permits be issued for discharges to the ocean in compliance with USEPA's regulations for preventing unreasonable degradation of the receiving waters. The NPDES permits specify effluent limitations and monitoring requirements for discharges associated with offshore oil and gas extraction activities. There are two general NPDES permits that cover the GOM. Permit GMG290000, issued by USEPA Region 6, covers the Western Planning Area (WPA) and CPA; Permit GEG460000, issued by USEPA Region 4, covers the Eastern Planning Area (EPA) and a	The proposed ROW modification activities are located on Mississippi Canyon Block 21, Viosca Knoll Block 983, and South Pass Blocks 6, 17, 59, 60, 67, and 70, which are located approximately 3 mi (4.8 km) from the nearest coastline off Plaquemines Parish, Louisiana. These OCS Blocks are within USEPA Region 6 and fall under the requirements of NPDES Permit GMG290000. Discharges authorized under the NPDES permit would have no effect to negligible impact on the pH, temperature, dissolved oxygen content, salinity, oxidation-reduction potential, or turbidity of the water. Furthermore, any hydrocarbons present in discharges that meet the NPDES permit would be below concentrations that would produce physical or chemical changes to water quality. In addition to permitted discharges, unpermitted spills may occur. BOEM has previously estimated that most accidental spills will be less than 50 bbl in volume, based on historical spill rates and projected OCS activity. Potential impacts on resources from these small

Resource	Reason For No Further Analysis
small part of the CPA. BSEE has regulatory authority through 30 CFR § 250.300 to prevent and control water pollution. BSEE's Office of Environmental Compliance performs inspections to support the USEPA.	spills would be rendered negligible by natural processes such as weathering and dispersion that would degrade the spill products. Water quality is also degraded by trash and debris. Activities proposed will comply with Federal regulations and the requirements in NMFS 2020 BiOp Appendix B: "Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols" to reduce the potential for trash and marine debris from the proposed activities, which reduces the potential impacts to negligible.
Fish and Invertebrate Resources and Essential Fish Habitat	
Fish and invertebrate resources refers to all estuarine and marine fish and invertebrates endemic to the GOM, with a particular emphasis on species of ecological and economical significance. EFH refers to all waters and substrate necessary for spawning, breeding, feeding, and growth to maturity for federally managed fisheries species in the GOM (16 U.S.C. §§ 1801 *et seq.*).	The proposed anchoring activities in South Pass 6, 17, 59, 60, and 67 will occur within delineated EFH but will not occur within specified distances of topographic and live bottom features that would trigger a project-specific EFH consultation as described in NTL-2009-G39. Minimum distance requirements were cooperatively developed by BOEM and NMFS during past programmatic EFH consultations for bottom-disturbing activities occurring near sensitive benthic habitats. Overall, ROW Modification Number P-15060, P-15061, and P-15062 is expected to have negligible population-level impacts to fish and invertebrate resources in the OCS, as well as EFH due to the localized, short-term nature of the proposed activities. Therefore, no site-specific avoidances or mitigations are applied.
Marine and Coastal Birds	
Birds from six distinct taxonomic and ecological groups rely heavily on the marine (i.e., pelagic waters) and coastal habitats found in the GOM region. Species abundance in the GOM varies by season due to migration and breeding timings. Abundance can also be driven by mesoscale features, such as the Mississippi River freshwater plumes and oceanic fronts and eddies. As such, seabirds' population levels can be impacted by natural climate cycles and human activities. Currently, there are seven ESA-listed bird species in the GOM: Cape Sable seaside sparrow (*Federal Register,* 1967); Mississippi sandhill crane (*Federal Register,* 1973); piping plover (*Federal Register,* 1985); red knot (*Federal Register,* 2014a); roseate tern (*Federal Register,* 1987); whooping crane (*Federal Register,* 2011); and wood stork (*Federal Register,* 2012).	Impacts from routine activities to coastal, marine, and migratory birds include impacts from routine discharges and wastes and noise. Routine discharges and wastes affecting air and water quality are under the jurisdiction of USEPA (including NPDES) or BOEM, and existing regulations assure that impacts on birds are negligible. Birds are known to habituate to noises, including vessel traffic associated with routine commercial traffic in the Gulf of Mexico. Therefore, the impact of noise from OCS oil- and gas-related activities, such as helicopters and vessels, to birds is expected to be negligible. The FWS 2018 BO found that proposed oil and gas activities are not likely to adversely affect ESA-listed species because activities are either not expected to extend into suitable habitat, there would be no direct habitat loss, and/or the potential for an oil spill reaching specific habitat areas is low because a catastrophic spill is not reasonably certain to occur. For species that may be affected, sublethal impacts were considered discountable or insignificant effects. The FWS 2018 BO provided conservation

Resource	Reason For No Further Analysis
	recommendations, such as to follow altitude restrictions over National Wildlife Refuges (NWR) and parks and other ecologically sensitive areas, and to continue enforcement of regulations regarding marine trash and debris.
Human/Socioeconomic Resources	
The coastal zone of the GOM is not a physically, culturally, or economically homogenous unit. The counties and parishes along the Gulf Coast cover approximately 1,631 mi (2,625 km) and includes multiple uses for recreational activities (beaches), deepwater ports, oil and gas support industries, manufacturing, farming, ranching, and hundreds of thousands of acres of wetlands and protected habitat. Offshore oil and gas activities affect onshore areas because of the various industries involved and because of the complex supply chains for these industries. Many of these impacts occur in counties and parishes along the GOM region. Employment stability in the oil and gas industry and its support sectors correlates directly with fluctuations in OCS oil- and gas-related activity levels, which are, in turn, closely related to the changes in oil and gas commodity prices.	The potential impacts resulting from the industry's routine activities occur within the larger socioeconomic context of the GOM region. Given the existing, extensive, and widespread support system for the OCS oil- and gas-related industry and its associated labor force, the impacts of routine activities related to a single lease sale are expected to be negligible, widely distributed, and to have little impact. Routine activities related to a single Proposed Action would be incremental in nature, not expected to change existing conditions, and positive in their contribution to the sustainability of current industry, related support services, and associated employment. No new or expansion of existing shore bases or onshore support infrastructure and facilities is planned as part of the Proposed Action; therefore, potential impacts are negligible.
Other Marine Uses	
The marine environment is used for a variety of activities and overlaps or conflicts can occur with multiple uses and/or users. The GOM is very active with existing multiple users and designated uses, including oil and gas activities, fishing (commercial or recreational), shipping, military, SSRA blocks, and artificial reefs. Future activities may include renewable energy development, aquaculture, and other alternative uses.	The Proposed Action would have no to negligible impacts on other marine uses, and no additional mitigation or monitoring measures are applied.

3.2 MARINE MAMMALS

3.2.1 Affected Environment

The U.S. Gulf of Mexico marine mammal community is diverse and distributed throughout the northern GOM waters. The GOM's marine mammals are represented by members of the taxonomic order Cetacea, including suborders Mysticeti (i.e., baleen whales) and Odontoceti (i.e., toothed whales), as well as the order Sirenia (i.e., manatee). Twenty-one species of cetaceans and one species of Sirenia regularly occur in the GOM and are identified in the NMFS Stock Assessment Reports (Hayes et al., 2021, 2022, and 2023).

The proposed action is located in South Pass Blocks 6, 17, 59, 60, and 67, 3 mi (4.8 km) from the shore in water depths ranging from approximately 72 - 197 ft (22 – 60 m).

Threatened or Endangered Marine Mammal Species

Two cetacean species, the sperm whale (*Physeter macrocephalus*) and the GOM Rice's whale[5] (*Balaenoptera ricei*), regularly occur in the GOM and are listed as endangered under the ESA. The Final Rule to list the sperm whale as endangered throughout its range became effective on December 2, 1970 (*Federal Register*, 1970). The Final Rule to list the GOM Rice's whale as endangered was issued and became effective on May 15, 2019 (*Federal Register*, 2019a). Rice's whale critical habitat is currently proposed by NMFS (88 FR 47453) in the northern GOM from the 100-m (328-ft) to the 400-m (1,312-ft) isobath (88 FR 47453). The West Indian manatee is also listed as threatened under the ESA (*Federal Register*, 2017).

Non-ESA-Listed Marine Mammal Species

Nineteen toothed cetaceans (including beaked whales and dolphins) regularly occur in the GOM but are not ESA-listed (Hayes et al., 2023). Despite being non-listed, the Marine Mammal Protection Act of 1972 (MMPA) protects all marine mammals regardless of ESA status.

Unusual Mortality Event (UME)

Under the MMPA, an UME is defined as "a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response." There are currently no active UMEs in the GOM. A list of active and closed UMEs with updated information can be found

[5] On August 23, 2021, NMFS published a direct final rule in the *Federal Register* (86 FR 47022): Endangered and Threatened Wildlife and Plants; Technical Corrections for the Bryde's Whale (Gulf of Mexico Subspecies). NMFS revises the common name to the Rice's whale, the scientific name to *Balaenoptera ricei*, and the description of the listed entity to the entire species. The changes to the taxonomic classification and nomenclature do not affect the species' listing status under the ESA or any protections and requirements arising from its listing. This rule is effective October 22, 2021, without further action.

online (NMFS, 2021a or 2021b) https://www.fisheries.noaa.gov/national/marine-life-distress/active-and-closed-unusual-mortality-events.

3.2.2 Impact Analysis

The IPFs with the proposed activities in the project area South Pass Blocks 6, 17, 59, 60, and 67 that could affect marine mammals include (1) noise (vessel noise), (2) vessel strike, (3) entanglement and entrapment, (4) marine trash and debris, and (5) oil/chemical spills and oil spill response. For this SEA, impacts were evaluated and assigned levels of environmental impact caused by IPFs as listed below. **Table 3-2** provides a summary of the impact analysis for marine mammals.

- **Negligible** – An individual or group of animals would be subject to nominal to slight measurable impacts. No mortality or injury to any individual would occur, and no disruption of behavioral patterns would be expected. The disturbance would last only as long as the human-caused stimulus was perceptible to the individual or group.
- **Minor** – An individual or group of animals would be subject to a human-caused stimulus and would be disturbed, resulting in an acute behavioral change. No mortality or injury to an individual or group would occur.
- **Moderate** – An individual or group of animals would be subject to a human-caused stimulus and would be disturbed, resulting in a chronic behavioral change. Individuals may be impacted but at levels that do not affect the fitness of the population. Some impacts to individual animals may be irreversible.
- **Major** – An individual or group of animals would be subject to a human-caused stimulus, resulting in physical injury or mortality, and would include sufficient numbers that the continued viability of the population is diminished, including annual rates of recruitment or survival. Impacts would also include permanent disruption of behavioral patterns that would affect a species or stock.

Table 3-2. Summary of Impact Levels to Marine Mammals

Impact-Producing Factor	Magnitude of Potential Impact		
	Alternative 1	Alternative 2	Alternative 3
Routine Activities			
Noise	None	Negligible	Negligible
Accidental Events			
Vessel Strike	None	Negligible to Minor	Negligible to Minor
Marine Trash and Debris	None	Negligible	Negligible
Oil/Chemical Spills and Oil-Spill Response	None	Negligible	Negligible
Entanglement and Entrapment	None	Negligible	Negligible

3.2.2.1 Alternative 1

If selected, Alternative 1, No Action Alternative, would result in the operator not undertaking the proposed activities as described in the plan. Therefore, the direct or indirect activity-specific IPFs to marine mammals would not occur. Activities related to previously issued leases and permits (as well as those that may be issued in the future under a separate decision) related to OCS activities would not increase. The No Action Alternative would not contribute to the environmental impacts of overall OCS oil- and gas-related activity as described in the 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS, and 2023 SEIS, and routine and accidental impacts would still occur from other activities.

3.2.2.2 Alternative 2

If selected, Alternative 2, Proposed Action, would result in the operator undertaking the proposed activities as requested and conditioned in the plan. The operator will adhere to the NMFS 2020 BiOp (as amended) Appendix A: “Seismic Survey Mitigation and Protected Species Observer Protocols,” Appendix B: “Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols,” NMFS 2021 Amended ITS Appendix C: “Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols,” Slack-line Precautions COA, Moon Pool Monitoring COA, and Reporting Requirements COA (KNOC, 2023). Compliance with the regulations, applicable conditions of approval (COAs), NMFS 2020 BiOp (as amended), and 2021 Amended ITS Appendices should negate or lessen the chance of significant impacts on marine mammals under this alternative.

3.2.2.3 Alternative 3

Alternative 3, Proposed Action with Additional Mitigation Measures, does not differ from Alternative 2 because no additional resource specific mitigation measures were proposed (i.e., all assumptions, estimates, and conclusions are identical); see the analysis provided in Chapter 3.2.2.2 for Alternative 2 for this resource.

3.2.3 Routine Activities

Noise

The potential for noise impacts on marine mammals is highly variable and influenced by many factors (Southall et al. 2007, 2019, and 2021). Rice’s whales are classified within the low-frequency cetacean hearing group (7 Hz to 36 kHz), while sperm whales are classified within the high-frequency cetacean hearing group (150 Hz to 160 kHz) (NOAA NMFS, 2024). Vessel traffic primarily produces noise in the low-frequency bands between 10 and 100 hertz (Hz), which overlap with marine mammal hearing ranges and vocalizations (Erbe et al., 2019; Hildebrand, 2009). Vessel noise is transitory and generally does not propagate at great distances from the vessel. The intensity of noise from service vessels is roughly related to ship size and speed (Erbe et al., 2019). Vessel noise could interfere with

marine mammal communication either by masking sounds from conspecifics (a member of the same species), masking sounds from predators, or by forcing animals to alter their vocalizations (Tyack, 2008). There is the possibility of short-term disruption of movement patterns and/or behavior caused by vessel noise and disturbance. Based on the best available information, marine mammals are either not likely to respond to vessel noise or are not likely to measurably respond in ways that would significantly disrupt normal behavior patterns. Vessel noise from the proposed action is expected to be localized and short-term. The operator will adhere to the NMFS 2021 Amended ITS Appendix A: "Seismic Survey Mitigation and Protected Species Observer Protocols," which appreciably reduces the potential for noise effects on marine mammals.

Marine mammals are not expected to experience a disruption in behavioral patterns from noise associated with the Proposed Action and are unlikely to experience population--level impacts. Therefore, impacts to marine mammals from noise associated with the proposed activities are expected to be negligible.

3.2.4 Accidental Events

Vessel Strike

The proposed activities are expected to require several round-trip supply and crew vessel trips per week. Several factors affect the risk and severity of vessel strike to marine mammals, including species type, speed, health, and behavior of the animal; and the path, speed, size, and number of vessels (Martin et al., 2016; Vanderlaan and Taggart, 2007; Laist et al., 2001). All marine mammals are vulnerable to accidental vessel strike, though primarily slow-moving species or those that spend extended periods of time at the surface (e.g., Rices whale), and deep-diving species (e.g., sperm whale) while on the surface (Vanderlaan and Taggert 2007). The operator will comply with the NMFS 2021 Amended ITS Appendix C: "Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols," which appreciably reduces the likelihood of marine mammal vessel strikes associated with the proposed activity by requiring the use of visual observers, vessel speed restrictions, and vessel separation distances (KNOC, 2023). The accepted reasonable and prudent measures agreement (RPA) for the Rice's whale requires vessel restrictions in the event any service vessel transits the Rice's whale area to get to the lease block. Any BOEM/BSEE-authorized or -permitted activity occurring within the EPA is subject to a step-down review with NMFS per the 2020 BiOp. Thus, given operator adherence to the NMFS 2020 BiOp (as amended), NMFS 2021 Amended ITS Appendix C, and the RPA, acute and chronic effects on marine mammals from vessel strike are expected to be negligible to minor.

Marine Trash and Debris

Many types of plastic materials end up as solid waste during pipeline modification operations. Some of this material could accidentally be lost overboard. The incidental ingestion and entanglement of marine debris could adversely affect marine mammals (Gregory, 2009; Gall and Thompson, 2015). The operator will adhere to the NMFS 2020 BiOp (as amended) Appendix B: "Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols," which appreciably reduces the

likelihood of marine mammals encountering marine debris from the proposed activity (KNOC, 2023). Thus, effects on marine mammals from marine trash and debris are expected to be negligible.

Oil/Chemical Spills and Oil-Spill Response

The range of toxicity and degree of sensitivity to hydrocarbons and the effects of ongoing/post-response- activities on cetaceans are unknown. Oil from an oil spill can cause soft tissue irritation, fouling of baleen plates, respiratory stress from the inhalation of toxic fumes, food reduction or contamination, direct ingestion of oil and/or tar, and temporary displacement from preferred habitats (Geraci and St. Aubin, 1980 and 1990; Lee and Anderson, 2005; NOAA, 2010a and 2010b; Schwacke et al., 2014). Long-term impacts on marine mamm-al populations are poorly understood but could include decreased survival and lowered reproductive success. Dispersants may contain ingredients that are known to irritate sensitive tissues of marine mammals (NRC, 2005). Chemical dispersion of oil may considerably reduce the impacts on marine mammals, primarily by reducing their exposure to petroleum hydrocarbons (French-McCay, 2004; NRC, 2005). Because the potential occurrence of a spill and contact with species is low due to applicable regulatory requirements (refer to **Chapter 1.5**) in this plan submittal, the effects on marine mammals from oil/chemical spills and oil-spill response are expected to be negligible.

Entanglement and Entrapment

Entanglement and entrapment can result in death or injury of marine mammals (Moore et al., 2009; Gall and Thompson, 2015). Entangled marine mammals may drown or starve due to being restricted by gear, suffer physical trauma and systemic infections, and/or be hit by vessels due to an inability to avoid them. Entanglement can also cause injury that can lead to secondary infection, or cause death (Moore, 2014). Entanglement as a stressor is possibly created by seismic survey equipment such as ocean bottom nodes, hydrophones, geophones and other cables; other survey activities including sediment sampling and installation of mooring buoys; and marine debris generated from these activities. Moon pools are too small to allow a GOM marine mammal to enter and are therefore unlikely to entrap them. The operator will adhere to the NMFS 2020 BiOp (as amended) and 2021 Amended ITS Slack-line Precautions COA, Moon Pool Monitoring COA, and Reporting Requirements COA, which appreciably reduce the likelihood of marine mammals being entangled or entrapped in gear from the proposed activity (KNOC, 2023). With applicable required mitigation measures per the NMFS 2020 BiOp (as amended) and 2021 Amended ITS and other mitigation measures such as the protected species stipulation, marine mammal entanglement in hydrophone cables and streamers, geophones, bottom cables, and other associated gear is unlikely to occur. Thus, because the possibility of entanglement and entrapment is low and since the operator will adhere to the Slack-line Precautions, Moon Pool Monitoring, and Reporting Requirements mitigation measures, the effects on marine mammals are expected to be negligible.

Conclusion

Long-term or permanent displacement of the animals from preferred habitats and the destruction or adverse modification of any habitats are not expected to occur due to the scope, timing,

and the short-term nature of the proposed activities. Furthermore, the conditions of approval and monitoring requirements are expected to prevent vessel strikes from increasing to the level of significance. The noise related to the proposed pipeline modification operation is not expected to result in auditory effects, behavioral change, masking, or non-auditory effects to marine mammals that would rise to the population level. Based on the above analysis, BOEM finds that the potential for such effects from the Proposed Action is unlikely to rise to significant levels.

3.3 SEA TURTLES

3.3.1 Affected Environment

Five sea turtle species, all federally listed as threatened or endangered, are known to inhabit the waters of the GOM: leatherback (*Dermochelys coriacea*); green (*Chelonia mydas*); hawksbill (*Eretmochelys imbricata*); Kemp's ridley (*Lepidochelys kempii*); and loggerhead (*Carettra caretta*). These species are all highly migratory, and individual animals will migrate into nearshore waters as well as other areas of the North Atlantic Ocean, GOM, and Caribbean Sea. Critical habitat has been designated for the Northwest Atlantic Ocean Loggerhead sea turtle distinct population segment (DPS) in the GOM (*Federal Register*, 2014b). Critical habitat is currently proposed by the FWS (88 FR 46376) and NMFS (88 FR 46572) for the green sea turtle in the GOM. The NMFS proposed areas from the mean high water line to the 20-m (66-ft) depth in Florida and Texas and within *Sargassum* habitat in the EPA, CPA, and WPA (88 FR 46572). The FWS proposed nesting beaches in the Florida mainland, Boca Grande and Marquesas Keys, and the Dry Tortugas (88 FR 46376).

The proposed action is located in South Pass Blocks 6, 17, 59, and 60, 3 mi (4.8 km) from the shore in water depths ranging from approximately 72 - 197 ft (22 – 60 m)

3.3.2 Impact Analysis

Sea turtles are susceptible to many natural and human impacts, including impacts while on land, in the benthic environment, and in the pelagic environment due to their life history. The IPFs associated with the proposed activities in South Pass Blocks 6, 17, 59, 60, and 67 that could affect sea turtles include (1) noise (vessel noise), (2) vessel strike, (3) entanglement and entrapment, (4) marine trash and debris, and (5) oil/chemical spills and oil-spill response. For this SEA, impacts were evaluated and assigned levels of environmental impact caused by IPFs as listed below. **Table 3-3** provides a summary of impact to sea turtles.

- **Negligible** – An individual or group of animals would be subject to nominal to slight measurable impacts. No mortality or injury to any individual would occur, and no disruption of behavioral patterns would be expected. The disturbance would last only as long as the human-caused stimulus was perceptible to the individual or group.
- **Minor** – An individual or group of animals would be subject to a human-caused stimulus and would be disturbed, resulting in an acute behavioral change. No mortality or injury to an individual or group would occur.

- **Moderate** – An individual or group of animals would be subject to a human-caused stimulus and would be disturbed, resulting in a chronic behavioral change. Individuals may be impacted but at levels that do not affect the fitness of the population. Some impacts to individual animals may be irreversible.
- **Major** – An individual or group of animals would be subject to a human-caused stimulus, resulting in physical injury or mortality, and would include sufficient numbers that the continued viability of the population is diminished, including annual rates of recruitment or survival. Impacts would also include permanent disruption of behavioral patterns that would affect a species or stock.

Table 3-3. Summary of Impact Levels to Sea Turtles

Impact-Producing Factor	Magnitude of Potential Impact		
	Alternative 1	Alternative 2	Alternative 3
Routine Activities			
Noise	None	Negligible	Negligible
Accidental Events			
Vessel Strike	None	Negligible to Minor	Negligible to Minor
Marine Trash and Debris	None	Negligible	Negligible
Oil/Chemical Spills and Oil-Spill Response	None	Negligible	Negligible
Entanglement and Entrapment	None	Negligible	Negligible

3.3.2.1 Alternative 1

If selected, Alternative 1, No Action alternative, would result in the operator not undertaking the proposed activities as described in the plan. Therefore, direct or indirect activity-specific IPFs to sea turtles would not occur. Activities related to previously issued leases and permits (as well as those that may be issued in the future under a separate decision) related to the OCS activities would not increase. The No Action Alternative would not contribute to the environmental impacts of overall OCS oil- and gas-related activity as described in the 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS, and 2023 SEIS, and routine and accidental impacts would still occur from other activities.

3.3.2.2 Alternative 2

If selected, Alternative 2, Proposed Action, would result in the operator undertaking the proposed activities as requested and conditioned in the plan, and applicable regulations. The operator will adhere to NMFS 2020 BiOp (as amended) Appendix A: Seismic Survey Operation, Monitoring, and Reporting Guidelines; Appendix B: Marine Trash and Debris Awareness and Elimination; Appendix C: Vessel Strike Avoidance/Reporting; Appendix J: Sea Turtles Resuscitation Guidelines; Notification of Intention to Transit Rice's Whale Area Condition of Approval; Slack-Line Precautions

Condition of Approval; Moon Pool Monitoring Condition of Approval; and Reporting Requirements Condition of Approval. (KNOC, 2023). Compliance with the regulations, applicable COAs, NMFS 2020 BiOp (as amended), and NMFS 2021 Amended ITS Appendices should negate or lessen the chance of significant impacts on sea turtles under this alternative.

3.3.2.3 Alternative 3

Alternative 3, Proposed Action with Additional Mitigation Measures, does not differ from Alternative 2 because no additional resource specific mitigation measures were proposed (i.e., all assumptions, estimates, and conclusions are identical); see the analysis provided in Chapter 3.3.2.2 for Alternative 2 for this resource.

3.3.3 Routine Activities

Noise (Vessels and Equipment)

Vessel traffic in the low-frequency bands between 10 and 100 hertz (Hz) overlaps with sea turtle hearing ranges (Hildebrand 2009). Vessel noise is transitory and generally does not propagate at great distances from the vessel. Though there are few studies on sea turtle bioacoustics, available information indicates that sea turtles are in the low-frequency (100 Hz to 2 kHz) hearing range (Bartol and Musick, 2003; Popper et al., 2014). Reactions to vessel noise, such as avoidance behavior, may temporarily disrupt normal sea turtle activities. Based on the best available information, sea turtles are either not likely to respond to vessel noise or are not likely to measurably respond in ways that would significantly disrupt normal behavior patterns. Vessel noise from the proposed action is expected to be localized and short-term. The operator will adhere to the NMFS 2021 Amended ITS Appendix A: Seismic Survey Operation, Monitoring, and Reporting Guidelines which appreciably reduces the potential for noise effects on sea turtles. No disruption to sea turtle behavioral patterns is expected from noise associated with the proposed action. Thus, impacts to sea turtles from noise associated with the proposed activities are expected to be negligible.

3.3.4 Accidental Events

Vessel Strike

Sea turtles spend at least 3-6 percent of their time at the surface for respiration and perhaps as much as 26 percent of their time at the surface for basking, feeding, orientation, and mating (Lutcavage et al., 1997), which makes them vulnerable to accidental vessel strike. There have been no known documented sea turtle collisions with drilling and service vessels in the GOM (typical cruising speed is 10 knots [11.5 miles per hour]); however, collisions with small or submerged sea turtles may go undetected. The operator will adhere to the NMFS 2021 Amended ITS Appendix C: “Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols,” which minimizes the potential for vessel strikes by requiring the use of visual observer (e.g., captain), vessel speed restrictions, and separation distances. Thus, effects on sea turtles from vessel strike are expected to be negligible but might be minor for undetected sea turtles underwater (e.g., vessel displacing water inadvertently moving sea turtles in wake).

Marine Trash and Debris

Many types of plastic materials could end up as solid waste during pipeline modification operations. Some of this material could accidentally be lost overboard, where sea turtles could consume it or become entangled in it. The incidental ingestion or entanglement of marine debris could adversely affect sea turtles (Gall and Thompson, 2015; Schuyler et al., 2016). The operator will adhere to the NMFS 2020 BiOp (as amended) Appendix B: "Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols," which appreciably reduces the likelihood of sea turtles encountering marine debris from the proposed activity. Thus, effects on sea turtles from marine trash and debris are expected to be negligible.

Oil/Chemical Spills and Oil-Spill Response

The range of toxicity and degree of sensitivity to oil hydrocarbons and the effects of response activities on sea turtles are unknown. The oil from an oil spill can adversely affect sea turtles by causing soft tissue irritation, respiratory stress from inhalation of toxic fumes, food reduction or contamination, direct ingestion of oil and/or tar, and temporary displacement from preferred habitats (Lutz and Lutcavage, 1989; Milton et al., 2003; NOAA 2010a). The long-term impacts on sea turtle populations are poorly understood but could include decreased survival and lowered reproductive success. Impacts from the dispersants are unknown in the absence of direct testing but may have similar irritants to tissues and sensitive membranes (NRC, 2005; Shigenaka et al., 2010; NOAA, 2015). BOEM will continue to monitor these resources for effects caused by the use of dispersants and will ensure that future BOEM environmental reviews take into account any new information that may emerge. Because the potential for an oil spill and contact with species are low due to applicable regulatory requirements (refer to **Chapter 1.5**) in this plan submittal, the potential effects on sea turtles from oil/chemical spills and oil-spill response are expected to be negligible using applicable scientifically credible information.

Entanglement and Entrapment

Entanglement as a stressor is possibly created by seismic survey equipment such as diver lines, ocean bottom nodes, hydrophones, geophones and other cables; and other survey activities, including sediment sampling and installation of mooring buoys; and marine debris generated from these activities. Entanglement and entrapment can result in death or injury of sea turtles. Sea turtles have become entrapped in dredge equipment (NRC, 1990) and have the potential to become entrapped in any submerged structure that an individual is able to enter. Fish and other animals can enter moon pools and, in the case of sea turtles, surface within moon pools, potentially being entrapped. The operator will adhere to the NMFS 2020 BiOp (as amended) and 2021 Amended ITS Slack-line Precautions COA, Moon Pool Monitoring COA, and Reporting Requirements COA, which appreciably reduce the likelihood of sea turtles being entangled or entrapped in gear from the proposed activity (KNOC, 2023). With applicable required mitigation measures per the NMFS 2020 BiOp (as amended) and 2021 Amended ITS and other mitigation measures such as the protected species stipulation, sea turtle entanglement or entrapment, is unlikely to occur. Thus, because the possibility of entanglement and entrapment is low, and since the operator will adhere to the Slack-line

Precautions COA, Moon Pool Monitoring COA, and Reporting Requirements COA, the effects on sea turtles are expected to be negligible.

Conclusion

Long-term or permanent displacement of the animals from preferred habitats and the destruction or adverse modification of any habitats are not expected to occur due to the scope, timing, and short-term nature of the proposed activities. Furthermore, the conditions of approval and monitoring requirements are expected to prevent vessel strikes from increasing to a level that results in population-level effects. Further, the noise related to the proposed pipeline modification is not expected to result in auditory effects, behavioral change, masking, or non-auditory effects to sea turtles in the GOM that would rise to the population level. BOEM finds that the potential effects of the proposed activity on sea turtles would not rise to a level of significance.

3.4 AIR QUALITY

The 1990 amendments ot the Clean Air Act (CAA) (Pub. L. 101-549) included a new section 328(a) & (b) (42 U.S.C. §7627 (a) & (b)) which redefined the area subject to the DOI Secretary's jurisdiction to control air emission sources on the OCS. The revision limited the DOI Secretary's jurisdiction to only areas westward of longitude 87 degrees and 30 minutes (central and western Gulf of Mexico), where compliance management responsibilities rest with the BOEM Gulf of Mexico Region. Air emissions associated with OCS oil- and gas-related activities in the GOM contribute to ambient air pollutant levels in the surrounding onshore areas. The onshore areas include the States of Texas, Louisiana, Mississippi, Alabama, and Florida and special management areas.

The USEPA identified the following six common air pollutants of concern (referred to as criteria air pollutants): carbon monoxide (CO), lead (Pb), ozone (O_3), nitrogen dioxide (NO_2), particulate matter (PM), and sulfur dioxide (SO_2) (42 U.S.C. §§ 7401 *et seq*.). The CAA requires the USEPA to set the National Ambient Air Quality Standards (NAAQS) for the criteria air pollutants. The USEPA designates onshore areas as "unclassifiable/attainment" or "nonattainment" status depending on the criteria air pollutants levels and their comparison with the NAAQS. Areas designated as "nonattainment" exceed a NAAQS for that criteria air pollutant. Figure 4.1.1-1 of the SID shows the current areas in nonattainment status (BOEM 2023b). In addition to the NAAQS, air quality in special management areas designated as Class I, II, or III Areas are further protected by the maximum allowable concentration increases, also referred to as the Prevention of Significant Deterioration (PSD) increments. The protections on air quality in Class I Areas are more stringent than Class II and III Areas. Moreover, the Federal land managers of Federal Class I Areas are responsible to protect the air quality-related values (AQRVs).

3.4.1 Affected Environment

The proposed activities will cross into State Waters. The air emission-related activity covers water surface areas in South Pass Blocks 6, 17, 59, 60, and 67. The NAAQS do not apply over Federal

OCS water. Figure 4.1.1-1 of the SID displays the current nonattainment in the surrounding onshore areas; all other onshore areas are in unclassifiable/attainment status (BOEM 2023b).

The air quality in the GOM is impacted by emissions from many sources. These include emissions generated by the existing OCS oil and gas program, including emissions from support vessels that service the offshore program, commercial shipping, as well as other sources. Coastal areas may be affected by emissions generated within the onshore nonattainment areas that circulate offshore and back to shore with the sea breeze. The emissions related to the Proposed Action represent a small percentage of the total emissions occurring in the GOM from all sources.

The proposed activities will be located approximately 40 mi (64 km) from the nearest Class I Area of the Breton National Wildlife Refuge (NWR) and Wilderness Area. For sources within 31 mi (50 km) from a Class I Area, VISCREEN[6] modeling is an appropriate way of evaluating visibility (1 of 3 AQRVs) impacts. For sources within 124 mi (200 km) from a Class I Area with permanent annual emissions greater than 250 tons per year (tpy), the Q/D[7] concept is an appropriate way of evaluating visibility impacts. If the calculated Q/D is greater than 10, further AQRV analysis is appropriate. Air quality modeling will estimate impacts to the AQRVs of the Class I Area (Federal Land Managers Air Quality Working Group (FLAG) (USFS et al., 2010). The modeled values are compared to the AQRVs to determine if there may be adverse impacts to the Class I Area of the Breton NWR and Wilderness Area. Any modeled values above the air quality related-values (AQRVs) identified by the Federal land managers of Federal Class I Areas are defined as having an adverse impact to the Class I Area (USFS et al., 2010). If the Q/D is less than 10, no further AQRV impact analysis is needed.

A detailed discussion of the affected environment that could occur from the proposed activities is included in Chapter 4.1 of the 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS and the 2023 GOM Supplemental EIS, from which this document tiers.

3.4.2 Impact Analysis

The IPFs associated with the proposed activities in South Pass Blocks 6, 17, 59, 60, and 67 that could impact the air quality include (1) air emissions emitted from routine activities (vessels), and (2) air emissions emitted from an accidental oil spill. An air quality analysis was conducted on the air emission estimates presented in the plan to assess potential impacts to the surrounding onshore areas. For this SEA, impacts were evaluated and assigned levels of environmental impact caused by IPFs as listed below.

- **Negligible** – No measurable impact(s).

[6] A plume visual impact screening model (VISCREEN) is used to calculate the potential visual impact of a plume of specified emissions for specific transport and dispersion conditions.
[7] Maximum sum of annual TSP, SOx, and NOx emissions in tons per year divided by the distance in kilometers from the Class I Area.

- **Minor** – Most impacts on the affected resource could be avoided with proper mitigation; if impacts occur, the affected resource would recover completely without mitigation once the impacting stressor is eliminated.
- **Moderate** – Impacts on the affected resource are unavoidable. The viability of the affected resource is not threatened although some impacts may be irreversible, or the affected resource would recover completely if proper mitigation is applied or proper remedial action is taken once the impacting stressor is eliminated.
- **Major** – Impacts on the affected resource are unavoidable. The viability of the affected resource may be threatened although some impacts may be irreversible, and the affected resource would not fully recover even if proper mitigation is applied or remedial action is implemented once the impacting stressor is eliminated.

Table 3-5 lists the potential IPFs and associated impact levels for each alternative. Overall, routine and accidental impacts to air quality from the proposed activities are expected to be up to moderate considering the close proximity to the surrounding onshore areas.

Table 3-4. Summary of Impact Levels for Air Quality

Impact-Producing Factor	Magnitude of Potential Impact		
	Alternative 1	Alternative 2	Alternative 3
Routine Impacts			
Vessel Support during Drilling and Production	Minor	Minor to Moderate	Minor to Moderate
Accidental Impacts			
Oil Spills	Minor	Minor	Minor
Cumulative Impacts			
Incremental Contribution	Minor	Minor to Moderate	Minor to Moderate
OCS Oil and Gas	Moderate	Moderate	Moderate
Non-OCS Oil and Gas	Moderate	Moderate	Moderate

A detailed discussion of the analysis for the impact levels to air quality that could occur from the proposed activities is included in Chapter 4.1 of the 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS and the 2023 GOM Supplemental EIS, from which this document tiers.

3.4.2.1 Alternative 1

If selected, Alternative 1, No Action Alternative, would result in not undertaking the proposed activities as described in the plan. Therefore, the site-specific IPFs to air quality would not occur. Activities related to previously issued leases and permits (as well as those that may be issued in the future under a separate decision) related to OCS oil- and gas-related activities would continue. The

No Action Alternative would have no impact on the environmental impacts of OCS oil- and gas-related activity as described in the 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS and the 2023 GOM Supplemental EIS; however, any previously approved, facility-related activities would be ongoing, and routine, accidental, and previously authorized impacts could still occur.

3.4.2.2 Alternative 2

If selected, Alternative 2, Proposed Action, would result in the operator undertaking the proposed activities. As described in the analyses below, impacts to air quality from the Proposed Action would be temporary and would not be significant. Impacts to visibility at the Class I Area of the Breton NWR and Wilderness Area are also temporary and the impacts to the remaining AQRVs (deposition and ozone effects) are uncertain.

3.4.2.3 Alternative 3

If selected, Alternative 3, Proposed Action with Additional Mitigation Measures, would not change the potential impacts addressed in Alternative 2 because there are no additional mitigation measures for air quality.

3.4.3 Routine Activities

Air quality over Federal OCS water would be affected by the emissions from the proposed operations and supporting service vessels. The emissions for the proposed activities are not expected to significantly affect onshore air quality because they are temporary and short term (85 days or less). Table 3-6 shows the estimated amount of emissions for the proposed activities in both Federal and State Waters. Table 3-7 shows the estimated amount of emissions for the proposed activities in Federal Waters.

Table 3-5. Estimated Emission Amounts in Tons per Year (tpy) for Federal and State Waters

TSP	PM10	PM2.5	SO_x	NO_x	VOC	CO
4.30	2.59	2.52	0.06	102.98	2.96	16.15

Table 3-7. Estimated Emission Amounts in Tons per Year (tpy) for Federal Waters

TSP	PM10	PM2.5	SO_x	NO_x	VOC	CO
2.18	1.32	1.28	0.03	52.30	1.50	8.20

The proposed activities will be located within 124 mi (200 km) of Breton NWR and Wilderness Area, but the air emissions are of short duration (85 days or less). Therefore, a further AQRV impact analysis was not conducted for visibility for the Class I Area of the Breton NWR and Wilderness Area. The proposed activities are not expected to cause or contribute to a significant adverse effect on the visibility AQRV to the Breton NWR and Wilderness Area. The remaining AQRVs (deposition and ozone effects) are uncertain because there was no modeling performed for these impacts. However, BOEM believes that such modeling data specific to this particular Proposed Action are not essential to a reasoned choice among alternatives. BOEM considered the cumulative impact of many plan approvals

to deposition and ozone effects in Chapter 4.1 of the 2017-2022 GOM Multisale EIS and 2018 GOM Supplemental EIS, from which this document tiers. The 2018 GOM Supplemental EIS concluded that the impact on acid deposition from all the activities associated with a single lease sale would be minor to moderate and, while the 2018 GOM Supplemental EIS did not consider ozone effects as an AQRV, the impacts on ozone formation from this proposed activity are considered in the impact analyses of the IPFs shown in **Table 3-5**.

A detailed discussion of the routine activities that could occur from the proposed activities is included in Chapter 4.1 of the 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS and the 2023 GOM Supplemental EIS, from which this document tiers.

3.4.4 Accidental Events

Oil Spills

If an oil spill occurs, VOCs from the surface oil slick will vaporize into the atmosphere. Increases in O_3 concentrations could occur because VOCs are precursors to O_3 formation. Additionally, if a fire occurs, PM and combustion product emissions will be emitted. In general, accidental oil spill and gas release events related to the types of activities being analyzed in this SEA are infrequent and are usually contained within a few days. The majority of oil spills (>95%) that have historically occurred in the GOM have volumes 1 bbl or less (Anderson et al., 2012). The potential impacts from oil spills are expected to be minor.

A detailed discussion of the oil spills that could occur from the proposed activities is included in Chapter 4.1 of the 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS and the 2023 GOM Supplemental EIS, from which this document tiers.

Conclusion

The potential impacts of the projected emissions to the surrounding onshore areas are not expected to significantly affect air quality. Overall, routine and accidental impacts to air quality from the proposed activities are expected to be minor to moderate.

3.5 BENTHIC COMMUNITIES

For purposes of OCS activity impact analyses, BOEM defines “shallow water benthic communities,” in the GOM as those found in water depths of less than 984 ft (300 m). These communities include live bottoms (i.e., topographic features, pinnacle trend features, low relief features) and other PSBFs (BOEM, 2021b).

3.5.1 Affected Environment

A description of shallow water benthic communities in the GOM region can be found in Section 3.4.1 of the BEBR (BOEM, 2021b) and Section 4.3.2.1 of the SID (BOEM, 2023b). The following

information is a summary of the descriptions found in those documents which are incorporated by reference into this SEA.

In the GOM, the OCS extends from the low tide mark to the continental shelf edge. Approximately 90 percent of the OCS consists of soft bottom habitat with a seafloor of unconsolidated muddy and sandy sediments with some gravel and shell. The South Pass area where the proposed activity would occur is primarily soft bottom habitat in water depths ranging from approximately 84 – 270 ft (26 – 82 m). The benthic community of soft bottom habitat consists primarily of invertebrates (e.g., polychaetes, pericaridean crustaceans, decapod crustaceans, echinoderms, mollusks, nematodes) and demersal fishes. In contrast to the diverse benthic communities of hard bottom habitats, soft bottom communities generally have low species richness and high abundance. Species richness within OCS (marine) soft bottom habitat is also relatively low compared to estuarine areas.

In addition to soft bottom habitat, the GOM seafloor also contains small areas (patches) of hard bottom which can serve as important habitat for a wide variety of marine organisms. These areas include topographic features, pinnacles, and banks, as well as low relief areas. Encrusting algae and sessile invertebrates such as corals, sponges, sea fans, sea whips, hydroids, anemones, ascidians, and bryozoans may attach to and cover these hard substrates, creating “live bottom” as defined by Cummings et al. (1962). Corals and large sponges function as structural architects, adding complexity to the benthic habitat. This complex structure provides shelter to small fish and invertebrates, which in turn provide food for larger fishes, including many that form important commercial fisheries. NTL No. 2009-G39 (Biologically-Sensitive Underwater Features and Areas) provides guidance for avoidance and protection of biologically sensitive features and live bottom areas when conducting OCS operations in shallow water in the GOM. If the proposed activities in an operator’s application could cause bottom disturbances in the vicinity of live bottom, the NTL provides minimum separation (avoidance) distances and/or reporting requirements.

Defined topographic features within the GOM are a subset of live bottom habitats that are large enough to play an important ecological role in the GOM with high biomass, diversity, and abundance. They are created through bedrock uplift by underlying salt diapirs and the exposure of barrier islands. Alternatively, they may be formed from relict carbonate reef. There are 38 defined topographic features with special protection from offshore commercial activities in the GOM, with many associated with the Flower Gardens National Marine Sanctuary. None of these topographic features are located within the South Pass area where the proposed activity will occur, with the closest feature over 75 km (46 miles) away.

The Pinnacle Trend is a band of high-relief carbonate mound features along the Mississippi-Alabama continental shelf edge between 68- and 101-m (223- and 331-ft) water depth. Average relief height is 9 m (30 ft), with some pinnacles reaching over 15 m (49 ft). Overall, the Pinnacle Trend is dominated by octocorals such as *Swiftia* sp., *Thesea nivea*, and *Hypnogorgia* sp. The Pinnacle Trend does not extend into the main South Pass area where the proposed activity will occur and is located over 48 km (29 miles) away.

To map areas of probable live bottom habitat, high resolution geophysical data are collected and used to classify the seafloor. This includes identification of anomalous seafloor returns that likely indicate patches of hard bottom habitat that could provide substrate for live bottom communities. For the Proposed Action, a site-specific analysis was conducted for benthic communities. BOEM biologists reviewed and analyzed high-resolution geophysical (HRG) seafloor survey data and the BOEM database of 3D seismic water bottom anomalies[8] to characterize seafloor habitats in the area of interest and identify the presence of anomalies indicative of potentially sensitive habitat. The seafloor within South Pass Blocks 60 and 67 contains authigenic carbonate outcrops (i.e., hard bottom). These outcrops are described as being created by escaping hydrocarbons, mostly methane, from faults associated with shallow salt diapirs. They are also described as being extensive, with individual outcrops having a relief that can exceed 9.1 m (30 ft) and span 13.7-15.2 m (45-50 ft) in width (DoC Mapping, 2023). Therefore, the analysis identified habitat suitable for shallow water benthic communities within the area expected to be affected by the Proposed Action. Site-specific avoidances and mitigations measures will be applied.

3.5.2 Impact Analysis

The IPFs associated with the proposed activities (in South Pass Blocks 6, 17, 59, 60, and 67 that could affect shallow water benthic communities include physical impacts from (1) bottom disturbances, (2) offshore habitat modification, (3) waste and discharges, and (4) spills and spill response. For this SEA, impacts were evaluated and assigned levels of environmental impact caused by IPFs as listed below. **Table 3-7** provides a summary of the impact analysis for benthic communities.

- **Negligible** – Impacts to benthic communities are largely undetectable. There is some potential for even undetectable impacts to cause slight changes to a local community's species abundance and composition, community structure, and/or ecological functioning, but any such changes would be spatially localized, short term in duration, and would not alter the overall status of GOM benthic communities.
- **Minor** – Impacts to benthic communities are detectable but cannot be clearly distinguished from natural variation. Such impacts could result in changes to a local community's species abundance and composition, community structure, and/or ecological functioning, but would be spatially localized, short term in duration, and would not alter the overall status of GOM benthic communities.
- **Moderate** – Impacts to benthic communities cause substantial, population-level changes in species composition, community structure, and/or ecological functioning. These impacts would be expected to be spatially extensive but are expected to only temporarily alter the overall status of GOM benthic communities; long-term recovery to pre-impact levels is likely.

[8] Locations and descriptions of documented anomalies are on BOEM's website (https://www.boem.gov/Seismic-Water-Bottom-Anomalies-Map-Gallery/).

- **Major** – Impacts to benthic communities cause substantial, population-level changes in species composition, community structure, and/or ecological functioning. These impacts would be expected to be spatially extensive and noticeably alter the overall status of GOM benthic communities such that long-term recovery to pre-impact levels is unlikely.

Table 3-6. Summary of Impact Levels to Benthic Communities

Impact-Producing Factor	Magnitude of Potential Impact		
	Alternative 1	Alternative 2	Alternative 3
Routine Activities			
Bottom Disturbance	None	Negligible to Minor	Negigible to Minor
Offshore Habitat Modification	None	Negligible to Minor	Negligible to Minor
Discharges and Wastes	None	Negligible	Negligible
Accidental Events			
Oil/Chemical Spills and Oil-Spill Response	None	Negligible to Minor	Negligible to Minor
Marine Trash and Debris	None	Negligible	Negligible

3.5.2.1 Alternative 1

If selected, Alternative 1, No Action Alternative, would result in the operator not undertaking the proposed activities as described in the plan. Therefore, no direct or indirect activity-specific IPFs to benthic communities would occur. Activities related to previously issued leases and permits (as well as those that may be issued in the future under a separate decision) related to the OCS activities would not increase. The No Action Alternative would not contribute to the environmental impacts of overall OCS oil- and gas-related activities as described in the 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS, and 2023 SEIS, and routine accidental impacts may still occur from other activities.

3.5.2.2 Alternative 2

If selected, Alternative 2, Proposed Action, would result in the operator undertaking the proposed activities as requested and conditioned in the plan. Examples of potential impacts to possible shallow water benthic communities include, but are not limited to lethal (e.g., crushing) and sub-lethal (e.g., clogged feeding structures) effects through physical damage and increased turbidity from emplacement of subsea infrastructure, including pipeline burial, or accidental debris; smothering or reduced habitat suitability and recruitment through sedimentation from emplacement of subsea infrastructure, including pipeline burial; and lethal and sub-lethal effects (e.g., reduced reproduction and growth) from accidental releases. A complete analysis of vulnerabilities to benthic communities from potential impacts is available in the BEBR (BOEM, 2021) and SID (BOEM, 2023b). Because the operator is required to follow all existing lease stipulations as well as the applicable regulations as clarified by the NTLs (the operator reaffirmed compliance in its plan as cited above) (e.g., NTL No. 2009-G39: Biologically-Sensitive Underwater Features and Areas; NTL 2015-G03: Marine Trash and

Debris Awareness and Elimination), conditions outlined in the following analyses will result in reducing the probability of impacts to benthic communities.

3.5.2.3 Alternative 3

If selected, Alternative 3, Proposed Action with Additional Mitigation Measures, would result in the operator undertaking the proposed activities as requested and conditioned in the plan with the addition of mitigation measures to address potential shallow water live bottom communities within the proposed anchoring corridor. Examples of potential impacts to possible shallow water benthic communities include, but are not limited to lethal (e.g., crushing) and sub-lethal (e.g., clogged feeding structures) effects through physical damage and increased turbidity from emplacement of subsea infrastructure, including pipeline burial, or accidental debris; smothering or reduced habitat suitability and recruitment through sedimentation from emplacement of subsea infrastructure, including pipeline burial; and lethal and sub-lethal effects (e.g., reduced reproduction and growth) from accidental releases. A complete analysis of vulnerabilities to benthic communities from potential impacts is available in the BEBR (BOEM, 2021) and SID (BOEM, 2023b). Because the operator is required to follow the additional mitigation measures to address potential shallow water live bottom communities within the proposed anchoring corridor as well as all existing lease stipulations and applicable regulations as clarified by NTLs (the operator reaffirmed compliance in its plan as cited above) (e.g., NTL No. 2009-G39: Biologically-Sensitive Underwater Features and Areas; NTL 2015-G03: Marine Trash and Debris Awareness and Elimination), conditions outlined in the following analyses will result in reducing the potential impacts to benthic communities over those analyzed for Alternative 2.

3.5.3 Routine Activities

Bottom Disturbance

For this ROW Modification, bottom disturbance would occur while placing the pipe and associated infrastructure (e.g., SSTI) on the seafloor. Bottom disturbance would also occur during burial of the pipe within water depths of less than 200 feet. In addition, KNOC proposes to use an anchored laybarge and an anchored dive support vessel to conduct their modification activities. The associated bottom disturbance can cause lethal and sub-lethal effects to shallow water benthic communities through physical damage and increased turbidity and sedimentation. Physical damage may include crushing, compaction, scarring of the seafloor, and breaking of hard substrates and structure-forming organisms including corals and sponges. Live bottom communities would be particularly sensitive to impacts from bottom disturbance. Benthic communities associated with unconsolidated soft bottom sediments are anticipated to recover relatively quickly.

Bottom disturbance would also cause localized, temporary resuspension of sediments and increased turbidity. Suspended materials may clog invertebrate feeding structures, resulting in injury or mortality. Increased turbidity can also alter predation dynamics by either enhancing or decreasing predator feeding efficiency through changes in prey and/or predator detection. Sedimentation can smother benthic species which are not able to move to avoid sediment loads, including sessile invertebrates such as corals and sponges. Increased sedimentation can also reduce substrate suitability and affect larval settlement. Long-term turbidity and sedimentation are not expected from the proposed pipeline installation activities with baseline conditions returning once installation is complete.

Potential effects of the proposed pipeline decommissioning activities (e.g, turbidity) would be similar to those of pipeline installation but of a lesser extent. The majority of pipe to be decommissioned would be decommissioned-in-place. Bottom disturbance would primarily be limited to cutting of the pipeline ends, burying the cut locations, and covering them with concrete mattresses.

Direct or indirect impacts to benthic communities as a result of bottom disturbance from the Proposed Action are determined to be negligible to minor.

Offshore Habitat Modification

Pipe and associated infrastructure (e.g., SSTI) installed in water depths greater than 200 feet would not be buried. It would lie on the seafloor, removing access to the habitat below. The areas that would be affected do not contain unique habitat features. The loss of soft bottom habitat, which is ubiquitous in the GOM, would not be significant. Direct or indirect impacts to benthic communities as a result of habitat modification from the Proposed Action are determined to be negligible to minor.

Discharges and Wastes

Construction vessel discharges and waste could affect water quality. The dispersion and dilution of the discharges is influenced by a variety of factors, including the discharge composition, discharge rate, discharge point (e.g., depth, direction), and oceanographic conditions (e.g., currents,

winds, waves temperature, salinity). Discharges and wastes resulting from routine oil- and gas-related activities are regulated (e.g., EPA Vessel General Permit, MARPOL 73/78) and expected to dissipate quickly. Thus, any effects to water quality would be short-term and localized (meters). Discharges are not expected to come in contact with any benthic community or would be diluted to such an extent to not result in negative impacts to the community. Direct or indirect impacts to benthic communities as a result of discharges and waste from the Proposed Action are determined to be negligible.

3.5.4 Accidental Events

Oil/Chemical Spills and Oil-Spill Response

The vulnerability of benthic habitats to an accidental release of oil or other contaminants would depend on the combination of several components: oil location (surface or subsurface); use of dispersants; if the oil is adsorbed to sediment particles; and certain spill-response activities. Spills can cause a localized degradation in water quality, and residual compounds may become available for bioaccumulation within the food chain. Physical and chemical processes (i.e., weathering) would begin modifying the oil as soon as it is spilled and oils may sink, become entrained in the water column, or remain at the surface. Sublethal effects that may occur to benthic organisms exposed to oil or dispersants include reduced feeding, reduced reproduction and growth, physical tissue damage, changes in recruitment success, and altered behavior. Historical trends in the GOM show that the frequency of oil spills has decreased over time and most spills are small, less than 1,000 barrels. Small spills dissipate quickly and prolonged exposure for shallow water benthic communities would be unlikely unless the oil were to settle on the immediate seafloor as marine snow. Given distancing requirements, impacts resulting from a LWC without substantial oil are expected to be negligible to minor at the community or the population level.

Benthic organisms are also vulnerable to spill cleanup/response activities. During a response operation, the risk of accidental impacts is increased. There could be unplanned emergency anchoring or accidental losses of equipment from responding vessels. Response-related equipment (e.g., seafloor anchored booms) may also inadvertently contact live bottom. However, as noted above historical trends in the GOM show that most spills are small, requiring minimal response activities. Given distancing requirements, impacts resulting from spill response activities are expected to be negligible to minor.

Marine Trash and Debris

Discharge of marine debris from routine oil- and gas-related activities is subject to a number of laws and treaties (e.g., Marine Debris Research, Prevention, and Reduction Act, Marine Plastic Pollution Research and Control Act). However, trash and/or debris could be inadvertently introduced into the water column. Accidental loss of equipment could also occur during vessel transit, an “on deck” accident, or due to a severe storm event. The potential effects to benthic organisms from accidental deposition of trash, debris, or lost equipment are largely the same as the effects caused by bottom disturbance and habitat modification during pipeline installation (e.g., crushing, breaking,

compaction, smothering) but of a lesser extent. Thus, direct or indirect impacts to benthic communities as a result of marine trash and debris from the Proposed Action are determined to be negligible.

Cumulative Impacts

The proposed action would take place within an area of the OCS where there is existing oil and gas infrastructure present and oil- and gas-related routine activities occur. Further, a significant portion of the proposed action involves repurposing and decommissioning of existing infrastructure. Given the limited scope of the proposed action, minor potential for impacts to any sensitive shallow water benthic communities, and adherence to the avoidance criteria in NTL No. 2009-G39 (Biologically-Sensitive Underwater Features and Areas), when considered in the context of all other past, present, and reasonably foreseeable activities in the area, cumulative impacts of the proposed action are anticipated to be negligible.

Conclusion

In ROW Modification Number P-15060, P-15061, and P-15062, KNOC proposes to conduct pipeline installation and decommissioning activities. Potential shallow water live bottom communities occur in the vicinity of the proposed activities. A site-specific benthic community review of available survey information did not identify any sensitive communities or habitat within 100 feet of the proposed bottom disturbing activities associated with pipeline installation and decommissioning. However, there are hard bottom areas (outcrops) located within the proposed anchor corridor and Mitigation 9.01 (Hard bottoms/pinnacles/PSBFs (conventional lay barge) - P/L applications) is being applied. The pipeline construction activities (including the use of anchors, chains, and wire ropes) must avoid these hard bottoms/pinnacles/PSBFs (see Map, submitted with your survey which depict the areas) by a distance of at least 100-ft. The operator must include lay barge anchor position plats, at a scale of 1-in. = 1,000-ft. with DGPS accuracy, with their pipeline construction report required by 30 CFR 250.1008(b), which depict the "as-placed" location of all anchors, anchor chains, and wire ropes on the seafloor and demonstrate that the features were not physically impacted by the construction activities. With adherence to these measures, impacts to shallow water benthic communities are not expected to be significant. Therefore, the proposed activities are expected to have negligible to minor impacts on the ecological function, abundance, productivity, and/or distribution of benthic communities.

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. Archaeological interest means that it is capable of providing scientific or humanistic understanding of past human behavior, cultural adaptation, and related topics through the application of scientific or scholarly techniques, such as controlled observation, contextual measurement, controlled collection, analysis, interpretation, and explanation (30 CFR § 550.105). Archaeological resources on the OCS can be divided into two types: precontact and historic.

Precontact

Available evidence suggests that sea level in the northern GOM was at least 90 m (295 ft), and possibly as much as 130 m (427 ft), lower than present sea level during the period 20,000--7,000 years Before Present (B.P.) (Nelson and Bray, 1970). Sea level in the northern GOM reached its present elevation around 3,500 years B.P. (Pearson et al., 1986). During periods that the continental shelf was exposed above sea level, the area was open to habitation by the earliest humans to populate North America ca. 15,000 years ago.

Historic

Submerged historic archaeological resources in the OCS and along the Gulf Coast consist of historic shipwrecks, historic aircraft, and a single historic lighthouse, the Ship Shoal Light. A historic shipwreck is defined as a submerged or buried vessel or its associated components, at least 50 years old, that has foundered, stranded, or wrecked, and that is currently lying on or embedded in the seafloor.

A proprietary database of shipwrecks maintained by BOEM currently lists over 1,300 named shipwrecks in the GOM. Many of these reported shipwrecks may qualify for listing on the National Register of Historic Places. Although a number of shipwrecks have been identified based on historical documents, there are many others that have yet to be located and many more still for which no record of their loss survives and whose identity and location remains unknown.

3.6.1 Affected Environment

To assist in meeting BOEM's responsibilities under the National Historic Preservation Act (NHPA), BOEM requires an archaeological report in areas where the Regional Director has determined that there is a reason to believe that archaeological resources may exist. The information in this report will most likely be based upon a high-resolution geophysical (HRG) survey or ROV video inspection in order to determine where or if such resources exist. Where implemented, archaeological surveys are expected to be effective at identifying possible archaeological sites. The technical recommendations for acquiring the necessary information to include in an archaeological resource report are detailed in NTL 2005-G07, "Archaeological Resource Surveys and Reports." Under 30 CFR § 250.194(c) and 30 CFR § 250.1010(c), lessees are required to immediately notify BOEM's and BSEE's Regional Directors of the discovery of any potential archaeological resources.

For the Proposed Action, a site-specific analysis was conducted for archaeology resources. Targets that may represent significant archaeological resources were identified in the HRG survey near/within the area of KNOC's proposed activity.

3.6.2 Impact Analysis

A detailed impact analysis of the routine, accidental, and cumulative impacts of the proposed activities on historic archaeological resources can be found in Chapter 4.13 of the 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS, and 2023 SEIS, and is incorporated by reference. The

IPFs associated with the proposed activities in South Pass Blocks 6, 17, 59, 60, and 67 that could affect archaeological resources is limited to direct contact or disturbance impacts from (1) routine and accidental bottom area disturbance (anchor emplacement activities), (2) non-catastrophic accidental oil spills, and (3) accidental loss of debris from a vessel. For this SEA, impacts were evaluated and assigned levels of environmental impact caused by IPFs as listed below. **Table 3-8** provides a summary of impacts to archaeological resources.

- **Negligible** – The lowest level of detection that would have neither adverse nor beneficial impacts.
- **Minor** – Disturbance of archaeological resources would result in little, if any, loss of site integrity.
- **Moderate** – Site disturbance would result in a loss of integrity and a partial loss of the character-defining features and information potential that form the basis of the site's National Register of Historic Places' eligibility. Mitigation is accomplished by a combination of archaeological data recovery and in-place preservation.
- **Major** – The disturbances result on a loss of site integrity to the extent that the resource is no longer eligible for listing in the National Register of Historic Places. The site's character-defining features and information potential area lost to the extent that archaeological data recovery is the primary form of mitigation.

Table 3-7. Summary of Impact Levels to Archaeological Resources

Impact-Producing Factor	Magnitude of Potential Impact		
	Alternative 1	Alternative 2	Alternative 3
Routine Activities			
Drilling	NA	NA	NA
Accidental Events			
Oil/Chemical Spill and Oil-Spill Response	None	Negligible	Negligible
Marine Trash and Debris	None to Minor	Negligible to Minor	Negligible to Minor

3.6.2.1 Alternative 1

If selected, Alternative 1, No Action Alternative, would result in the operator not undertaking the proposed activities. Therefore, the site-specific IPFs mentioned above would not take place and any impact that these actions could cause would not occur. Likewise, under the No Action Alternative, there would be no possibility of a site-specific oil spill. As a result, whatever archaeological resources may be present in the Area of Potential Effect would not be affected if Alternative 1 was selected.

3.6.2.2 Alternative 2

If selected, Alternative 2, Proposed Action, would result in the operator undertaking the proposed activities as requested and conditioned in ROW Modification Number P-15060, P-15061,

and P-15062 . Potential impacts to archaeological resources include, but are not limited to, damage to potential resources from anchor emplacement activities, lost/discarded material, and potential impacts from a non-catastrophic accidental oil spill. As described in the proposed applications and discussed below, the proposed activities are expected to have significant impacts on known or unknown historical archaeological resources without additional mitigation measures being employed.

3.6.2.3 Alternative 3

If selected, Alternative 3, Proposed Action with Additional Mitigation Measures, would result in the operator undertaking the proposed activities as requested and conditioned in ROW Modification Number p-15060, P-15061, and P-15062. Potential impacts to archaeological resources include, but are not limited to, damage to potential resources from anchor emplacement activities, lost/discarded material, and potential impacts from a non-catastrophic accidental oil spill. As described in the proposed applications and discussed below, the proposed activities are not expected to have significant impacts on known or unknown historical archaeological resources due to the applied mitigation measures.

3.6.3 Routine Activities

Bottom Disturbance

Impacts to an undetected historic site could result from direct physical contact causing irreversible damage. Impacts from the proposed operations could alter the provenience and destroy fragile remains within a wreck or aircraft crash site, such as the hull, wood, glass, ceramic artifacts and possibly even human remains, or information related to the operation or purpose of the historic vessel or aircraft. The destruction and loss of these data eliminate the ability of an archaeologist to fully and accurately detail activity areas found at the site, such as variation and technological advances lost to history, the age, function, and cultural affiliation of the historic vessel or aircraft, and its overall contribution to understanding and documenting the maritime heritage and culture of the region.

If an unknown archaeological resource was to exist where bottom-disturbing operations are proposed to occur and the operator was unaware of its existence prior to disturbing the bottom, the operator's activities might have a significant impact on that resource. However, the potential for this to occur may be reduced through the use of surveys.

3.6.4 Accidental Events

Oil/Chemical Spills and Oil-Spill Response

Accidental events producing non-catastrophic oil spills may impact archaeological resources along the Gulf Coast. Should a spill contact a terrestrial archaeological site, damage might include direct impact from oil-spill cleanup equipment, contamination of materials, and/or looting. It is expected that any spill cleanup operations would be considered a Federal action for the purposes of Section 106 of the NHPA and would be conducted in such a way as to avoid, minimize, or mitigate to the extent possible adverse impacts to archaeological resources. Recent research suggests the impact of direct

contact of oil on historic properties may be long term and not easily reversible without risking damage to fragile historic materials or requiring substantial treatments (Chin and Church, 2010; Rees et al., 2019).

An oil spill occurring and contacting any submerged archaeological resource is unlikely, given that oil released tends to rise quickly to the surface and that the average size of any spill would be small. However, if it occurred, an oil spill contacting a coastal archaeological resource is possible and the use of dispersants is reasonably foreseeable[9].

Impacts from accidental events related to the Proposed Action such as accidental oil spills and associated remediation efforts have not been quantified because of incomplete or unavailable information. Impacts from an accidental oil spill and remediation are not expected because of the low probability of a vessel accident or pipeline leaks.

Marine Trash and Debris

Another impact that could result from an accidental event is from the loss of debris from a vessel or MODU during offshore operations. Debris such as structural components (i.e., grating, wire, tubing, etc.), boxes, pallets, and other loose items can become dislodged during heavy seas or storm events and fall to the seabed.

Additionally, lost material could result in the masking of actual archaeological resources or the introduction of false targets that could be mistaken in the remote-sensing geophysical record as historic resources. Impacts to archaeological resources from the loss of debris from a vessel or structure as a result of the Proposed Action is negligible to minor because the potential for a disturbance to the identified or potential archaeological resources within the APE is low. The potential for marine trash and debris resulting from the proposed undertaking is expected to be mitigated further by the NMFS 2020 BiOp (as amended) Appendix B: "Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols."

Conclusion

If an unknown archaeological resource was to exist where bottom-disturbing operations are proposed to occur and the operator was unaware of its existence prior to disturbing the bottom, the operator's activities might have a significant impact on that resource. Such an impact would be damage and/or disturbance to the resource from the bottom-disturbing activities. In ROW Modification P-15060, P-15061, and P-15062, KNOC proposes to utilize an anchored pipeline lay vessel along with an anchored dive support vessel to complete the proposed activities.

Review of the Archaeological Report based on a high-resolution geophysical survey submitted by the operator identified five potential historic properties within the APE. Avoidance of these features

[9] Refer to BOEM's *Gulf of Mexico Catastrophic Spill Event Analysis* technical report for an analysis of the potential impacts of a catastrophic oil spill on coastal and submerged archaeological resources (BOEM, 2021a).

by the prescribed distance is specified as a condition of approval of the plan as described in BOEM's regulations. Therefore, the proposed activities are expected to have negligible impacts on archaeological resources. Impacts from accidental events related to the Proposed Action are expected to be negligible.

4 CONSULTATION AND COORDINATION

Coastal Zone Management Act

Per 15 CFR part 930 subpart D (private activities that require a Federal permit or license) and subpart E (OCS plans), proposed activities must be "fully consistent" with enforceable policies of a State's coastal management program. KNOC received ROW consistency concurrence from the State of Louisiana on March 1, 2024, and from the State of Alabama on June 4, 2024.

Endangered Species Act

The ESA of 1973 (16 U.S.C. §§ 1531 *et seq*.), as amended, establishes a national policy designed to protect and conserve threatened and endangered species and the ecosystems upon which they depend. Section 7(a)(2) of the ESA requires each Federal agency to ensure that any action that it authorizes, funds, or carries out is not likely to jeopardize the continued existence of a listed species or result in the adverse modification of designated critical habitat.

BOEM and BSEE engaged in consultation under the ESA with NMFS and FWS. On March 13, 2020, NMFS issued a BiOp and related terms and conditions for OCS oil and gas activities in the GOM for the protection of ESA-listed species, including holding lease sales (requirements noted within Information to Lessees and lease stipulations). On April 26, 2021, NMFS issued the "Amended Incidental Take Statement and Revised Appendices to the Programmatic Biological Opinion on the Gulf of Mexico Oil and Gas Program." The NMFS 2020 BiOp (as amended) and 2021 Amended ITS also addresses any future lease sales and any approvals issued by BOEM and BSEE, under both existing and future OCS oil and gas leases in the GOM, over a 10-year period commencing March 2020. Applicable terms and conditions and reasonable and prudent measures from the NMFS 2020 BiOp (as amended) and 2021 Amended ITS will be applied at the lease sale stage. Other specific conditions of approval will also be applied to postlease approvals and have been applied in this instance.

In November 2020, BOEM and BSEE in the spirit of adaptive management and in agreement with NMFS, submitted revised procedures for the NMFS 2020 BiOp, in that, some activities previously requiring step-down review by NMFS to not be continued and apply programmatic standardized mitigation measures to protect resources. BOEM petitioned NMFS for rulemaking under the MMPA, to assist industry in obtaining incidental take coverage for marine mammals due to oil and gas and G&G surveys in the GOM. NMFS issued a final rule as a result of the petition on Tuesday, January 19, 2021 (86 FR 5322) with an effective date of April 19, 2021. On April 26, 2021, the NMFS 2020 BiOp was amended to incorporate adaptive management for step-down review, MMPA Rulemaking, and revised Appendices A, C, and I.

Based on BOEM's internal step-down review a NMFS step-down review was required and concurrence was received by BOEM on April 4, 2024. BOEM concludes the action or activity may affect listed species or critical habitat, but it is an action or activity whose effects have been covered programmatically by this programmatic biological opinion.

On April 20, 2018, the FWS issued a 10-year BO for BOEM and BSEE activities in the GOM, including lease sales and approvals of all "on the water" activities during this time. The FWS 2018 BO does not include any terms and conditions for the protection of endangered species that the Bureaus, lessees, or operators must implement. The FWS also noted that any future consultations may be informal, dependent upon the likelihood of take. This plan is being reviewed in accordance with both BOs, and the applicable terms and conditions and reasonable and prudent measures of the NMFS 2020 BO will be applied to the activities proposed under the applications.

Marine Mammal Protection Act

BOEM petitioned NMFS for rulemaking under the MMPA (16 U.S.C. §§ 1361 *et seq.*) to assist industry in obtaining incidental take coverage for marine mammals due to oil and gas G&G surveys in the GOM. The MMPA Incidental Take Regulation (ITR) was finalized on January 19, 2021, and implemented on April 19, 2021. The rule will be in place for 5 years.

Magnuson-Stevens Fishery Conservation and Management Act

Pursuant to Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act, Federal agencies are required to consult with NMFS on any action that may result in adverse effects to EFH. The NMFS published the final rule implementing the EFH provisions of the Magnuson-Stevens Fisheries Conservation and Management Act (50 CFR part 600) on January 17, 2002. Certain OCS oil- and gas-related activities authorized by BOEM may result in adverse effects to EFH and therefore require EFH consultation. As such, BOEM prepared the *Essential Fish Habitat Assessment for the Gulf of Mexico* technical report on behalf of BOEM and BSEE; it describes the routine activities on the Gulf of Mexico OCS, analyzes the effects of routine and accidental activities on EFH, and identifies mitigating measures (BOEM, 2016). The current programmatic EFH consultation with NMFS was concluded on September 27, 2022, with BOEM and BSEE concurrence with NMFS' conservation recommendations. The agreed upon conservation recommendations contain provisions for bottom-disturbing activities that would trigger an individual project-specific EFH consultation when they occur within specified distances of topographic features and live-bottom (Pinnacle Trend) features (refer to NTL 2009-G39). Reinitiation will occur when NMFS and BOEM jointly agree to reinitiate consultation, when BOEM significantly alters the proposed action (e.g., the Eastern Planning Area becomes available for leasing), or upon meeting conditions for site-specific EFH consultation (e.g., as identified in conservation recommendations).

National Historic Preservation Act

In accordance with the NHPA (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 NHPA, issued by the Advisory Council on Historic Preservation (36 CFR part 800), specify the required review process. In accordance with 36 CFR § 800.8(c), BOEM uses the NEPA substitution process and documentation to comply with Section 106 of the NHPA. Because of the extensive geographic area analyzed in the 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS, and 2023 SEIS, BOEM defers identification of historic properties and completion of the Section

106 review process until site-specific analysis of postlease activities can be completed prior to approving those activities. Due to the site-specific analysis described in this SEA and additional mitigation measures, if applicable, BOEM has determined that no significant impacts to historic properties are likely to occur as a result of the Proposed Action.

Clean Air Act

The CAA Amendments of 1977 designated 156 Class I Areas, consisting of national parks and wilderness areas that are offered special protection for air quality and the AQRVs. Breton National Wildlife Refuge and Wilderness Area in Louisiana is a Class I Area. The Class I Areas, compared to the Class II Areas, have lower Prevention of Significant Deterioration (PSD) air quality increments that new sources may not exceed and are protected against excessive increases in several AQRVs, including visibility impairment, acid (sulfur and nitrogen) deposition, and nitrogen eutrophication. The Regional Haze Rule (40 CFR § 51.308) has a goal of natural visibility conditions by 2064 at Class I Areas, and States must submit Regional Haze Rule State Implementation Plans that demonstrate progress towards that goal.

The proposed activities are located 40 mi (64 km) from the Breton NWR and Wilderness Area; a site specific review determined that coordination with FWS was not required.

Clean Water Act

The USEPA (Regions 4 and 6) regulates the discharge of routine operational waste streams generated from offshore oil- and gas-related activities. Section 403 of the CWA requires that NPDES permits be issued for discharges to State territorial waters, the contiguous zone, and the ocean in compliance with the USEPA's regulations for preventing unreasonable degradation of the receiving waters. There are two general NPDES permits that cover the GOM. Permit GMG290000, issued by USEPA Region 6, covers the WPA and CPA; Permit GEG460000, issued by USEPA Region 4, covers the EPA and a small part of the CPA.

The final NPDES General Permit No. GMG290000 for New and Existing Sources and New Dischargers in the Offshore Subcategory of the Oil and Gas Extraction Point Source Category for the Western and Central Portion of the Outer Continental Shelf of the Gulf of Mexico was reissued by USEPA Region 6 on May 11, 2023, with an effective date of May 11, 2023, and an expiration date of May 10, 2028 (USEPA, 2023).

Government-to-Government Tribal Consultation

In accordance with Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments," Federal agencies are required to establish regular and meaningful consultation and collaboration with Tribal officials in the development of Federal policies that have Tribal implications to strengthen the United States' government-to-government relationships with Indian Tribes and to reduce the imposition of unfunded mandates upon Indian Tribes.

BOEM has formally invited Tribal Nations with current or ancestral ties to the Gulf of Mexico region to consult on the development of OCS oil- and gas-related activities, including the 2017-2022 National OCS Program and Programmatic EIS, 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS, and 2023 SEIS, and the *Gulf of Mexico OCS Proposed Geological and Geophysical Activities: Western, Central, and Eastern Planning Areas; Final Programmatic Environmental Impact Statement* (BOEM, 2017c). Tribes that BOEM has invited to consult on these activities include the Alabama-Coushatta Tribe of Texas, Caddo Nation of Oklahoma, Chitimacha Tribe of Louisiana, Choctaw Nation of Oklahoma, Coushatta Tribe of Louisiana, Jena Band of Choctaw Indians, Miccosukee Tribe of Indians of Florida, Mississippi Band of Choctaw Indians, Muscogee (Creek) Nation, Poarch Band of Creek Indians, Seminole Tribe of Florida, Seminole Nation of Oklahoma, and Tunica-Biloxi Indian Tribe of Louisiana.

No tribes have accepted invitations for government-to-government consultation on these activities; however, tribal representatives have requested to be notified if any pre-contact archaeological resources are identified and/or adversely impacted by BOEM-permitted activities. To date, no such discoveries or adverse impacts have occurred. Were they to occur during activities associated with the proposed plan, BOEM will notify and invite consultations with the above tribes as requested.

Greenhouse Gas Analysis

BOEM produced the technical report Gulf of Mexico OCS Oil and Gas Leasing Greenhouse Gas Emissions and Social Cost Analysis (2022 GOM GHG Analysis), which summarizes the life cycle greenhouse gas (GHG) emissions estimated to result from a typical Gulf of Mexico (GOM) conventional energy lease sale. The report was released after the 2017-2022 GOM Multisale EIS and 2018 GOM Supplemental EIS and is being included as a reference for ongoing GOM site-specific environmental reviews, including those associated with plan reviews. The analysis encompasses emissions potentially resulting from the full life cycle of oil and gas exploration, development, production, and consumption from a representative Gulf of Mexico lease sale; it also estimates emissions from use of energy substitutes in the absence of that leasing.

BOEM acknowledges that the models used in those analyses were developed for programmatic analysis applied at a regional level and there may be limitations on the scalability of the models from this analysis to the site-specific review here. The programmatic analysis depends on a global price change, and individual site-specific decisions may not cause large enough changes in production to generate a market response for substitute energy sources. The site-specific analysis represents a small subset of the activities analyzed for the 2022 GOM GHG Analysis. BOEM has reviewed that analysis and determined that it provides the best available information and that the reasonably foreseeable impacts of the activities proposed in ROW Modification Number P-15060, P-15061, and P-15062 are not likely to result in significant impacts beyond a subset of those analyzed in the 2022 GOM GHG Analysis.

U.S. Government Accountability Office

In February 2016, the U.S. Government Accountability Office (GAO) prepared a report entitled "Oil and Gas Management: Interior's Bureau of Safety and Environmental Enforcement Restructuring Has Not Addressed Long-Standing Oversight Deficiencies" (GAO 2016). This report examined the extent to which BSEE's restructuring at the time had an effect on its capabilities for (1) investigations, (2) environmental compliance, and (3) enforcement. The GAO reviewed laws, regulations, and policies related to BSEE's restructuring and oversight activities. In the report, the GAO had nine recommendations, including that BSEE (1) complete and update its investigative policies and procedures, (2) conduct and document a risk analysis of the regional-based reporting structure, and (3) develop procedures for enforcement actions. BSEE began addressing the recommendations in 2016 and according to GAO, as of 2021, all recommendations related to BSEE's restructuring and offshore oil and gas oversight have been closed and implemented (GAO 2021). The GAO removed the segment from its High Risk Series in 2021. After independently reviewing the GAO reports and the updates on the GAO website closing out the recommendations on oversight and restructuring, BOEM has determined that the GAO report and the recommendations that have now been implemented by BSEE do not change the reasonably foreseeable environmental impacts that may result from an oil and gas lease sale and that were evaluated in the 2017-2022 GOM Multisale EIS or 2018 GOM Supplemental EIS. BOEM has also determined the GAO report or implementation of the recommendations does not affect BOEM's conclusions regarding impacts reasonably foreseeable from the proposed activities (i.e., will not result in significant impacts) as related to this site-specific review.

5 PUBLIC COMMENT

KNOC's ROW Modification Applications P-15060, P-15061, and P-15062 are not subject to a regulatory due date. Therefore the deemed submitted designation and the 10 day public review is not required for the pipeline modification activities.

APPENDICES

A. IMPACT-PRODUCING FACTOR DESCRIPTIONS

Descriptions of the impact-producing factors (IPFs) are provided below. The information provided below are summaries of the information included in the main text of this SEA. Additional detailed information can also be found in the 2017-2022 GOM Multisale EIS, 2018 GOM Supplemental EIS, and 2023 SEIS (BOEM, 2017a, 2017b, and 2023a).

Routine Activities

(1) **Bottom disturbance** from well and anchor emplacement and drilling activities – Physical disturbance to the seabed, benthic habitats, and/or communities. Typically, wells drilled in shallow water (0-300 m [0-984 ft]) create a splay of drilling muds and cuttings that spread 250 m (820 ft) from the well, and the coverage area would be approximately 500 m (1,640 ft) from the well in deepwater (300 to 1,524 m [984 to 5,000 ft]) and ultra deepwater (greater than 1,524 m [5,000 ft]) water depths.

(2) **Noise** from drilling activities and vessel and helicopter transportation – A subjective term reflective of societal values regarding what constitutes unwanted or undesirable intrusions of sound. Noise generated from these activities can be transmitted through both air and water, and may be of long or short duration, distance, and sound level. The intensity level and frequency of the noise emissions are highly variable, both between and among the various types of sound sources, along with the received sound levels to the resources. The primary sources of vessel noise are propeller cavitation, propeller singing, and rotating machinery; other sources include auxiliaries, flow noise from water dragging along the hull, and bubbles breaking in the wake (Richardson et al., 1995)[10]. Drilling operations (these can include pile driving, generators, pumps, etc.) often produce noise that includes strong tonal components at low frequencies, including infrasonic frequencies in at least some cases[11].

(3) **Discharges and Wastes** from vessel operations and exploration activities – Releases into the environment resulting from multiple sources. The primary operational wastes and discharges generated during offshore oil and gas

[10] The intensity of noise from service vessels is roughly related to ship size, laden or not, and speed. Large ships tend to be noisier than small ones, and ships underway with a full load (or towing or pushing a load) produce more noise than empty vessels. For example, a 16-m (52-ft) crewboat may have a 90-hertz (Hz) tone with a source level of 156 dB re: 1µPa, and a small ship may have a broadband source level of 170-180 dB re: 1µPa (Richardson et al., 1995). Helicopter sounds contain dominant tones (resulting from rotors) generally below 500 Hz (Richardson et al., 1995).

[11] Dynamically positioned MODUs (drillships and semisubmersibles) are noisier than anchored MODUs (Richardson et al., 1995). Sound and vibration paths to the water are through either the air or the risers, in contrast to the direct paths through the hull of a drillship. Sound from drilling activities has been measured from the 20- to 1,000-Hz band levels at a range of 1.8 km (1.1 mi) at levels of 113-126 dB re: 1µPa.

exploration and development are drilling fluids, drill cuttings, various waters (e.g., bilge, ballast, fire, and cooling), deck drainage, sanitary wastes, and domestic wastes. During production activities, additional waste streams include produced water, produced sand, and well-treatment, workover, and completion fluids. Minor additional discharges occur from numerous sources. These discharges may include desalination unit discharges, blowout preventer fluids, boiler blowdown discharges, excess cement slurry, several fluids used in subsea production, and uncontaminated freshwater and saltwater.

(4) **Space Use Conflicts** – Wells, platforms, pipelines, subsea infrastructure, and other structures create obstructions to the recovery of marine minerals and other existing or future users (commercial and recreational fishing, aquaculture, renewable, artificial reefs, etc.) of the OCS. BOEM is required to consider the impact of the proposed activities on other users of the Gulf of Mexico OCS. For marine minerals, no-dredging zones are 500 ft (152 m) from any structure and 1,000 ft (305 m) from a pipeline. The well and platforms would be permanent obstructions, even if removed to 15 ft (5 m) below the substrate, as dredging cannot be performed within 500 ft (152 m) due to the risk to the dredge and infrastructure. The pipeline obstruction could be temporary in that pipelines can be removed upon abandonment. All military activities in the Gulf of Mexico OCS occur within military warning areas designated by the Federal Aviation Administration in coordination with the U.S. Department of Defense. Lessees and permittees conducting oil and gas operations within these warning areas are required to coordinate with the appropriate military command.

(5) **Air Emissions** from equipment and vessels – Emissions associated with drilling from OCS oil- and gas-related activities are attributed to gasoline, diesel, and natural gas fuel usage in engines such as propulsion engines, prime engines, mud pumps, draw works, and emergency power. Emissions associated with production from OCS oil- and gas-related activities are attributed to boilers, diesel engines, combustion flares, fugitives, glycol dehydrators, natural gas engines, turbines, pneumatic pumps, pressure/level controllers, storage tanks, cold vents, and others. Pollutants emitted during drilling activities include combustion gases (i.e., CO, NO_x, PM, SO_2, CO_2, CH_4, and N_2O), as well as non-combustion sources (i.e., VOCs, PM, and CH_4)[12].

Accidental events

(1) **Oil/Chemical Spills** (loss of well control and chemical/drilling fluid) **and Oil-Spill Response** – BSEE requires operators to report any spill greater than 1 barrel (bbl) (42 gallons [gal]) occurring on the OCS and maintains a database for all

[12] CO – carbon monoxide; NO_x – nitrogen oxide; PM – particulate matter; SO_2 – sulfur dioxide; CO_2 – carbon dioxide; CH_4 – methane; N_2O – nitrous oxide; and VOC – volatile organic compound.

reported incidents[13]. All losses of well control are required to be reported to BSEE.

(1) **Air emissions** from emergency flaring/venting and/or oil spills – Activities that produce emissions include drilling operations, platform construction and emplacement, platform operations, flaring, fugitive emissions, evaporation of volatile organic compounds during transfers and spills, and support vessel emissions. Various onshore facility activities supporting offshore oil and gas operations, or receiving oil or gas from them, emit air pollutants. This includes emissions from helicopters, vessels, stationary engines (e.g., generators), and equipment leaks (i.e., fugitive emissions). The USEPA defined criteria pollutants released by OCS sources include CO, NO_2, PM_{10}, $PM_{2.5}$ and SO_2.

(2) **Vessel Strike (Vessel to Marine Species or Habitat) and Collisions (Vessel to Vessel; Vessel to Structure)** – BOEM's data show that, from 2007 through 2019, there were 181 OCS oil- and gas-related vessel collisions (BSEE, 2021). Most collision mishaps are the result of service vessels colliding with platforms or vessel collisions with pipeline risers. Fires resulted from hydrocarbon releases in several of the collision incidents. Diesel fuel is the product most frequently spilled, while oil, natural gas, corrosion inhibitor, hydraulic fluid, and lube oil have also been released as the result of a vessel collision. Approximately 10 percent of vessel collisions with platforms in the OCS caused diesel spills.

Vessels could strike marine mammals, sea turtles, and other marine animals during transit. To limit or prevent such strikes, the National Marine Fisheries Service (NMFS) provides all boat operators with whale-watching guidelines, which is derived from the Marine Mammal Protection Act (MMPA). These guidelines suggest safe navigational practices based on speed and distance limitations when encountering marine mammals. Requirements in the NMFS 2021 Amended ITS Appendix C: "Gulf of Mexico Vessel Strike Avoidance and Injured/Dead Aquatic Protected Species Reporting Protocols" address vessel strike prevention.

(3) **Marine Trash and Debris** – During construction or operation activities, equipment may be dropped to the seafloor. If this happens within the planned

[13] Not included in BSEE's data records are spills less than 1 bbl. Spills of any size and composition are required to be reported to the U.S. Coast Guard's (USCG) National Response Center and are further documented in the USCG's Marine Information for Safety and Law Enforcement (2001-present) database and its predecessors. Also not included in BSEE's database are spills that have occurred in Federal waters from OCS barging operations and from other service vessels that support the OCS oil and gas industry. These data are included in the USCG's record of all spills; however, the USCG's database does not include the source of oil (OCS versus non-OCS) or in the case of spills from vessels, the type of vessel operations; such information is needed to determine if a particular spill occurred as a result of OCS operations. Spills from vessels are provided for tankers in worldwide waters and tankers and barges in U.S. coastal and offshore waters.

construction site, the bottom disturbance impacts are conservatively considered as part of the routine impacts; however, accidental drops may occur during transport. The discharge of marine debris by the offshore oil and gas industry and supporting activities is subject to a number of laws and treaties. These include the Marine Debris Research, Prevention, and Reduction Act; the Marine Plastic Pollution Research and Control Act; and the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex V Prevention of Pollution by Garbage from Ships. Regulation and enforcement of these laws is conducted by a number of agencies such as the U.S. Environmental Protection Agency (USEPA), National Oceanic and Atmospheric Administration (NOAA), and U.S. Coast Guard (USCG). Requirements in the NMFS 2020 BO Appendix B: “Gulf of Mexico Marine Trash and Debris Awareness and Elimination Survey Protocols” address marine debris prevention.

(4) **Entanglement/Entrapment** – Marine animals may become entangled or entraped in facility (platform) or vessel moon pool, flexible lines, equipment, or gear used during construction, drilling, production/operation, and decommissioning activities. Lines in the water, moon pools, or accidental marine debris may pose an entanglement/entrapment risk. Entanglement and entrapment can lead to injury, infection, reduced mobility, increased susceptibility to predations, decreased feeding ability, fitness consequences (increased potential for vessel strike due to an inability to avoid), and/or mortality of marine wildlife. Requirements in the NMFS 2021 Amended ITS Slack-line Precautions COA, Moon Pool Monitoring COA, and Reporting Requirements COA address entanglement/entrapment prevention.

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D. ARMY CORPS OF ENGINEERS MEMORANDUM FOR RECORD

Nation Wide Permit MVN-2024-00217-EDM

SUBJECT: DEPARTMENT OF THE ARMY MEMORANDUM DOCUMENTING GENERAL PERMIT VERIFICATION

1.0 Introduction and Overview

Information about the proposal subject to one or more of the United States Army Corps of Engineers' (Corps') regulatory authorities is provided in Section 1, detailed evaluation of the activity is found in Sections 2 through 5 and findings are documented in Section 6 of this memorandum. Further, summary information about the activity including the administrative history of actions taken during project evaluation is attached (ORM2 summary) and incorporated into this memorandum.

NOTE: This document uses the term pre-construction notification (PCN) to identify when notification is sent to the Corps to evaluate a proposed activity on a case-by-case basis to ensure that the activity will cause no more than minimal adverse environmental effects, individually and cumulatively for verification under a general permit (GP). While PCN is commonly associated with Nationwide Permit (NWP) verification requests, this document uses the term PCN for notification sent to the Corps for all GP verifications (i.e., NWPs, Regional GPs, Programmatic GPs).

1.1 Applicant name

KNOC Eagle Ford Corporation

1.2 Activity location

Southeast Pass and the Gulf of Mexico in state waters, Plaquemines Parish, Louisiana, and extending past the 3-mile line into federal waters to the South Pass Block 60 subsea tie-in.

1.3 Description of activity requiring verification

To install and maintain 4-inch and 2-inch pipelines extending from the South Pass Block 60 subsea tie-in to an existing production barge in Southeast Pass.

Work Description for Nation Wide Permit 8 (NWP 8): Work occurring in federal waters only from the South Pass Block 60 subsea tie-in to the 3-mile line. The 4-inch and 2-inch pipelines (18,046 feet total) will be jetted to a minimum of 3 feet below the mudline, which will displace approximately 1.24 acres of waterbottoms. 3 pipeline crossings will occur and will cover a total of 768 square feet with sandbags.

Work Description for Programmatic General Permit II (PGP II): Work occurring from the state waters side of the 3-mile line to the Southeast Pass facility. The 4-inch and 2-inch pipelines (19,359 feet total) will be jetted to a minimum of 3 feet below the mudline, which will displace approximately 1.33 acres of waterbottoms. 7 pipeline crossings will occur and will cover a total of 1,792 square feet with sandbags. HDD drilling will be used to install 9,148 feet of the pipelines that will enter offshore and exit near the facility. 12.19 acres of waterbottoms will be dredged at the entry point, and 0.75 acres of temporary workspace will be required for barges and liftboat. 0.1 acres of waterbottoms will be dredged at the exit point, and 0.62 of temporary workspace will be required for barges. 21.81 acres of waters will be required for temporary backstring staging.

Note: The Department of Interior, Bureau of Safety and Environmental Enforcement (BSEE) regulates all oil and gas activities on the OCS and is responsible for evaluating all impacts on the total environment, including post-activity environmental compliance. The project is located in OCS waters and under mineral lease from the Department of Interior; therefore, CEMVN-RGE's responsibility is to evaluate the impact of the pipelines on navigation and national security [33 CFR 322.5(f)].

1.4 Existing conditions and any applicable project history:

Marine, estuarine, emergent estuarine, and riverine environments with existing oil and gas infrastructure.

1.4.1 Jurisdictional Determination

Is this project supported by a jurisdictional determination? No Jurisdictional Determination

1.5 Permit authority

Table 1 – Permit Authority	
Section 10 of the Rivers and Harbors Act (33 USC 403)	X
Section 404 of the Clean Water Act (33 USC 1344)	X

1.6 Applicable

Permits NWP 8 and

PGP II

1.7 Waiver Discussion

Does the activity require a written waiver? No

2.0 EVALUATION OF THE PRE-CONSTRUCTION NOTIFICATION (PCN)

2.1 Direct and indirect effects which are caused by the GP activity

Direct effects will occur from construction which will increase noise, air, and water pollution. Navigational safety may increase during temporary placement of work structures. Turbidity will increase in the area and organisms may be displaced. Indirect effects may be linked to increased oil/gas activity. Benthic organisms may require waterbottoms to return to pre-construction conditions before recolonization.

2.2 Site specific factors

Existing oil and gas facilities within the site. Impacts to waterbottoms should be temporary. Site should return to pre-construction conditions once sediments have filled the displaced areas.

No compensatory mitigation is required for the proposed action as no wetlands are proposed to be impacted.

2.3 Coordination

2.3.1 Interagency Coordination

Was the PCN coordinated with other agencies? Yes
The PCN was transmitted to agencies on 11 March 2024.
Comments received from other agencies or organizations regarding compliance with other laws, policies, or requirements are detailed in Section 4.0 of this document.

Louisiana Department of Wildlife and Fisheries (LDWF) As of
22 May 2024, LDWF did not respond to the PCN.

Environmental Protection Agency (EPA)
As of 22 May 2024, EPA did not respond to the PCN.

Bureau of Ocean Energy Management (BOEM)
By response dated 9 May 2024, BOEM provided an archaeological report attached in this file for identification of potential historic sites.

2.3.2 Corps internal coordination

Was the PCN coordinated with other Corps business lines? Yes

CEMVN Real Estate Interest Assessment: No RE Instrument required Internal Corps
Office: Real Estate Region South Division (RE)
By email dated 12 March 2024, RE stated that no real estate instrument will be required.

3.0 MITIGATION

3.1 Avoidance and minimization

Provide brief description of how the activity has been designed on-site to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site:

No impacts to wetlands are anticipated. All work taking place in open water and on non- vegetated waterbottoms. HDD will be used so that pipelines do not cross surface of wetlands.

3.2 Compensatory mitigation requirement

Is compensatory mitigation required for unavoidable impacts to jurisdictional aquatic resources to reduce the individual and cumulative adverse environmental effects to a minimal level? No

4.0 COMPLIANCE WITH OTHER LAWS, POLICIES AND REQUIREMENTS

4.1 Section 7(a)(2) of the Endangered Species Act (ESA)

4.1.1 ESA action area

Jurisdictional Waters of the US, to the 3-mile line.

4.1.2 Lead federal agency for Section 7 of the ESA

Has another federal agency been identified as the lead agency for complying with Section 7 of the ESA with the Corps designated as a cooperating agency and has that consultation been completed? Yes, for the portion in federal waters.

Identify the lead agency, the actions taken to document compliance with Section 7 of the ESA and whether those actions are sufficient to ensure the activity(s) requiring Department of the Army authorization is in compliance with Section 7 of the ESA:

Department of Interior for NWP 8 work only, see Section 1.3.

The Corps has reviewed the documentation provided by the agency and determined it is sufficient to confirm Section 7 ESA compliance for this permit authorization, and additional consultation is not necessary.

4.1.3 Listed/proposed species and/or designated/proposed critical habitat

Are there listed or proposed species or designated critical habitat or proposed critical habitat that may be present or in the vicinity of the Corps' action area?

Yes

USFWS: SLOPES/IPaC assessment and coordination conducted on 22 May 2024. IPaC/SLOPES identified the following species and/or critical habitat:

Tricolored Bat (*Perimyotis subflavus)*, West Indian Manatee (*Trichechus manatus)*, Black- capped Petrel (*Pterodroma hasitata)*, Eastern Black Rail (*Laterallus jamaicensis ssp. jamaicensis)*, Piping Plover (*Charadrius melodus)*, Rufa Red Knot (*Calidris canutus rufa)*, Hawksbill Sea Turtle (*Eretmochelys imbricata)*, Kemp's Ridley Sea Turtle (*Lepidochelys kempii*), Leatherback Sea Turtle (*Dermochelys coriacea)*, Loggerhead Sea Turtle (*Caretta caretta)*

NMFS: Assessment of the project site with the NOAA Fisheries Southeast Region (SERO) Section 7 Mapper was conducted on 22 May 2024.
The map identified the following species and/or critical habitat:

Gulf Sturgeon (*Acipenser oxyrinchus desotoi*), Giant Manta Ray (*Mobula birostris)* Hawksbill Sea Turtle (*Eretmochelys imbricata*), Kemp's Ridley Sea Turtle (*Lepidochelys kempii*), Leatherback Sea Turtle (*Dermochelys coriacea*), Loggerhead Sea Turtle (*Caretta caretta*)

Effect determination(s), including no effect, for all known species/habitat, and basis for determination(s):

Not Likely to Adversely Affect (NLAA) for the West Indian Manatee, Eastern Black Rail, Hawksbill Sea Turtle, Kemp's Ridley Sea Turtle, Leatherback Sea Turtle, Loggerhead Sea Turtle, Piping Plover, and Rufa Red Knot. No effect for all other species since most of the work is occurring at the waterbottoms and will mainly contribute to turbidity temporarily.
Also, due to the area of disturbance compared with the area of available habitat, organisms should be able to avoid work area. The use of HDD will eliminate any impacts to the emergent wetlands.

4.2 Magnuson-Stevens Fishery Conservation and Management Act (Magnuson Stevens Act), Essential Fish Habitat (EFH)

4.2.1 Lead federal agency for EFH provisions of the Magnuson-Stevens Act

Has another federal agency been identified as the lead agency for complying with the EFH provisions of the Magnuson-Stevens Act with the Corps designated as a cooperating agency and has that consultation been completed? Yes

Identify the agency, the actions taken to document compliance with the Magnuson Stevens Act and whether those actions are sufficient to ensure the activity(s) requiring DA authorization is in compliance the EFH provisions.
Department of Interior for NWP 8 work only, see Section 1.3

4.2.2 Magnuson-Stevens Act

Did the proposed project require review under the Magnuson-Stevens Act? Yes CEMVN determined the project will not adversely affect EFH; however, coordination with NMFS for EFH is required due to permit type and/or project location.

The NMFS EFH online mapping system indicates EFH for Gulf of Mexico and/or Highly Migratory Species within the vicinity of the project location.
During the review and approval of the current PGP authorizations, NMFS HCD was provided the opportunity to coordinate directly for issuance.

By email dated 12 March 2024, the NMFS Habitat and Conservation Division (HCD) responded to the PCN stating they do not object to the issuance of the permit..

4.2.3 EFH species or complexes

Were EFH species or complexes considered? Yes
The NMFS EFH online mapping system indicates EFH for Gulf of Mexico and/or Highly Migratory Species within the vicinity of the project location including:

Various life stages of shrimp, red drum, mullet, reef fish, and coastal migratory pelagic species.

Effect determination and basis for that determination:
Negligible Effect: Due to the relatively small area of disturbance compared to similar available habitat, the activity should result in no more than minimal effects to EFH, either individually or cumulatively.

4.3 Section 106 of the National Historic Preservation Act (NHPA)

4.3.1 Section 106 permit area

The permit area includes only those areas comprising waters of the United States that will be directly affected by the proposed work/structures. Activities outside of waters of the U.S. are not included; all three tests in 33 CFR 325, Appendix C(g)(1) have not been met.

Final description of the permit area: NWP 8 Area – Subsea tie-in to the 3-mile line. PGP II Area – 3-mile line to an existing, on-shore oil/gas facility.

4.3.2 Lead federal agency for Section 106 of the NHPA

Has another federal agency been identified as the lead federal agency for complying with Section 106 of the NHPA with the Corps designated as a cooperating agency and has that consultation been completed? Yes

Pursuant to Section 101 of the NHPA, the United States federal government established the State Historic Preservation Office (SHPO) and within the non-tribal boundaries of CEMVN, the Louisiana Office of Cultural Development maintains the role of the SHPO with the duty to direct Section 106 reviews.

CEMVN coordinated with SHPO and the lead agency on the determination of compliance with the NHPA.

If yes, identify that agency, and whether the undertaking they consulted on included the Corps' undertaking(s). Briefly summarize actions taken by the lead federal agency.

Department of Interior for NWP 8 work only, see Section 1.3

The Corps has reviewed the documentation provided by the agency and determined it is sufficient to confirm Section 106 compliance for this permit authorization, and additional consultation is not necessary. On 4 April 2024 and 9 May 2024, archaeological surveys reported 5 potential shipwrecks within the survey area, however, they are not within the area of direct impacts. The project is anticipated to not interfere with these sites. Several anomalies were also discovered but were not treated as potential sites of interest. To further minimize potential impacts to potential or known historic site, special conditions will be added to the permit. This path forward was established on 21 May 2024 in coordination with the Eastern Evaluation Branch Chief.

4.3.3 Historic properties

Known historic properties?

Yes

The National Register of Historic Places (NRHP) South Region Register does not indicate any Historic Places within the project vicinity.
A Historic Properties Survey (HPS) has identified historic and/or cultural resources.

Effect determination and basis for that determination: No Potential to Cause Effect (NPCE) The CEMVN Section 106 Screening tool was utilized to determine NPCE.
BOEM condition to be added for portion of work in federal waters.

4.4 Tribal Trust Responsibilities

4.4.1 Tribal government-to-government consultation

Was government-to-government consultation conducted with federally-recognized tribe(s)? No

4.5 Section 401 of the Clean Water Act – Water Quality Certification (WQC)

4.5.1 Section 401 WQC requirement

Is an individual Section 401 WQC required, and if so, has the certification been issued or waived?
NWP 8 - Department of Interior see Section 1.3 for the portion of work in federal waters. PGP II - A

general WQC has been granted for the portion of work in state waters.

4.6 Coastal Zone Management Act (CZMA)

4.6.1 CZMA consistency concurrence

Is a CZMA consistency concurrence required, and if so, has the concurrence been issued, objected to, or presumed?

A general CZMA consistency concurrence has been issued for this permit.
By letter dated 20 March 2024, the Louisiana Office of Coastal Management (OCM) issued the Coastal Use Permit (CUP) P20231047.

4.7 Wild and Scenic Rivers Act

4.7.1 National Wild and Scenic River System

Is the project located in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system? No.

Saline Bayou from Saline Lake upstream to the Kisatchie National Forest (approx. 19 total miles) is the only waterway in Louisiana in the National Wild and Scenic River System (designated a National Scenic River Corridor under management of the U.S. Forest Service on 30 October 1986) and is located outside of the CEMVN boundary.

4.7.2 Louisiana State Scenic Rivers Program

Is the project located in or adjacent to a designated Louisiana Natural or Historic Scenic River? No, the LDWF Scenic River Tracking Map does not indicate any scenic rivers in the vicinity.

4.8 Effects on Corps Civil Works Projects (33 USC 408)

4.8.1 Permission requirements under Section 14 of the Rivers and Harbors Act (33 USC 408)

Does the applicant also require permission under Section 14 of the Rivers and Harbors Act (33 USC 408) because the activity, in whole or in part, would alter, occupy, or use a Corps Civil Works project?

No, there are no federal projects in or near the vicinity of the proposal.

4.9 Compliance Statement

The Corps has determined that it has fulfilled its responsibilities under the following laws, regulations, policies, and guidance:

Table 4 – Compliance with Federal Laws and Responsibilities		
Laws, Regulations, Policies, and Guidance	**Yes**	**N/A**
Section 7(a)(2) of the ESA	X	
EFH provisions of the Magnuson-Stevens Act	X	
Section 106 of the NHPA	X	
Tribal Trust	X	
Section 401 of the Clean Water Act	X	
CZMA	X	
Wild and Scenic Rivers Act	X	
Section 408 - 33 USC 408	X	
Other: N/A		

5.0 SPECIAL CONDITIONS

5.1 Special condition(s) requirement(s)

General Conditions for the NWP 8 and the PGP will be included with the authorization.

Are special conditions required to ensure minimal effects, ensure the authorized activity is not contrary to the public interest and/or ensure compliance of the activity with any of the laws above?

Yes

5.2 Special conditions

Special Condition 1: State Waters Only: Permittees that discover any previously unknown historic, cultural, or archeological remains and artifacts while accomplishing the permitted activity must immediately notify the U.S. Army Corps of Engineers New Orleans District Regulatory Division (CEMVN-RG), halt all construction activity at the location of discovery, and avoid construction activities within a fifty (50) foot buffer zone of the location of discovery until the required coordination has been completed. CEMVN-RG will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

Rationale: *Requirement for proper handling and notification if historic or cultural materials are uncovered during construction.*

Special Condition 2: State Waters Only: If abandoned cemeteries, unmarked graves, or human remains are discovered during the permitted activity, the permittee will stop work immediately and comply with the Louisiana Unmarked Human Burial Sites Preservation Act (La. R.S. 8:671 et seq.).

The permittee will notify local law enforcement, CEMVN-RG, and the Louisiana Division of Archaeology (LDOA), within the Louisiana Department of Culture, Recreation and Tourism, Office of Cultural Development, by telephone at 225- 342-8170 to assess the nature and age of the human skeletal remains within twenty-four
(24) hours of the discovery of unmarked human remains and will accompany local law enforcement personnel during all field investigations. If the appropriate local law enforcement official determines that the remains are not a crime scene, and the remains are more than 50 years old, LDOA has jurisdiction over the remains. In no instance will human remains be removed from the discovery site until jurisdiction is established. In cases where the LDOA assumes jurisdiction and the remains are determined to be American Indian, LDOA will consult with Tribes, CEMVN-RG, and the permittee to determine the appropriate course of action.

Rationale: *Required discovery condition for human remains.*

Special Condition 3: Federal Waters Only: Should any possible cultural material (i.e., wooden structure, anchors, etc.) be discovered during the permitted activity, the permittee will stop work immediately and contact the Bureau of Ocean Management's (BOEM), Marine Archaeologist, Gulf of Mexico, Outer Continental Shelf Region, Scott Sorset at archaeology@boem.gov. Work shall not resume until BOEM confirms that the discovery is not a potential culturally significant feature and the appropriate steps on how to proceed.

Special Condition 4: Standard Manatee Conditions for in-water activities.

Rationale: *Required for NLAA determination.*

6.0 DETERMINATION

6.1 General Permit Statement

The activity will result in no more than minimal individual and cumulative adverse effects on the aquatic environment and will not be contrary to the public interest, provided the permittee complies with the special conditions identified above.

6.2 Compliance Statement

This activity, as described, complies with all terms and conditions of the permits identified in Section 1.6.