

Finding of No Significant Impact
for
Marine Geophysical Surveys by the University of Texas
in the Northwestern Gulf of Mexico

LEAD AGENCY: U.S. Department of Energy; National Energy Technology Laboratory

ACTION: Finding of No Significant Impact (FONSI)

SUMMARY:

In compliance with the National Environmental Policy Act (NEPA) of 1969 (Title 42, Section 4321 et seq., United States Code) and Department of Energy (DOE)'s NEPA implementing procedures (Chapter 10, Part 1021, Code of Federal Regulations), the U.S. Department of Energy (DOE) National Energy Technology Laboratory (NETL) prepared the Final Environmental Assessment (EA) for Marine Geophysical Surveys by the University of Texas in the Northwestern Gulf of Mexico (DOE/EA-2127). This EA analyzes the potential environmental, cultural, and social impacts of partially funding the University of Texas at Austin (UT) to conduct high-resolution 3-dimensional (HR3D) marine seismic surveys in the Gulf of Mexico (GoM). The proposed seismic surveys would be conducted from a research vessel on the shallow shelf in Texas state waters. Two Generator-Injector (GI) airguns would be used for the survey with a total discharge volume of ~210 in³. These surveys would be used to validate novel dynamic acoustic positioning technology for improving the accuracy in time and space of HR3D marine seismic technology. In particular, the seismic data would be used for field validation of monitoring, verification, and accounting technology for future offshore sub-seabed carbon storage. DOE's Proposed Action would provide cost-shared funding to UT in the amount of approximately \$2.5 million of the project's \$3.1 million total cost. All discussions and findings related to the Proposed Action and the No-Action Alternative are presented in the attached Final EA and Appendices. The Final EA is hereby incorporated by reference.

Based on the analyses in the EA, DOE finds that implementing the Proposed Action would not constitute a major federal action that would significantly affect the quality of the physical, biological, or human environment, within the meaning of NEPA. Therefore, the preparation of an Environmental Impact Statement is not required, and DOE is issuing this Finding of No Significant Impact (FONSI).

ALTERNATIVES CONSIDERED:

PROPOSED ACTION

DOE proposes to provide cost-shared funding to UT to conduct HR3D marine seismic surveys in the GoM. The proposed seismic surveys would be conducted from a research vessel on the shallow shelf in Texas state waters. The surveys would use up to 2 GI airguns, with a total discharge volume of ~210 in³. These

surveys would be used to validate novel dynamic acoustic positioning technology for improving the accuracy in time and space of HR3D marine seismic technology. In particular, the seismic data would be used for field validation of monitoring, verification, and accounting technology (MVA) for future offshore sub-seabed carbon storage. DOE would provide approximately \$2.5 million of the project's \$3.1 million total cost.

The proposed surveys would take place during February or March 2024 for a period of approximately 10 days, including 7 days of seismic operations, and would occur within the 222 km² survey area located at ~28.9–29.1°N, ~94.9–95.2°W. The seismic survey would be conducted within Texas state waters less than 20 m deep and would involve one source vessel. Up to two 105 in³ GI-airguns would be towed behind the source vessel as the energy source, at a depth of ~3 m; the total possible discharge volume would be ~210 in³. The receiving system would consist of four 25-m solid-state (solid flexible polymer – not gel or oil filled) hydrophone streamers, spaced 10-m apart (i.e., 30-m spread), towed at a 2-m depth. The airguns would fire at a shot interval of ~12.5 m (~5–10 s). As the airgun array is towed along the survey lines, the hydrophone streamer would receive the returning acoustic signals and transfer the data to the on-board processing system. Approximately 1704 km of seismic acquisition are proposed.

NO-ACTION ALTERNATIVE

Under the No-Action Alternative, DOE would not provide cost-shared funding to the proposed project; resulting in potential delays if UT opts to search for other funding sources. More likely, the proposed geophysical surveys in the Northwestern Gulf of Mexico would not take place. DOE assumes, for the purposes of NEPA, that under the No-Action Alternative the recipient would not pursue the project. Consequently, no seismic data would be collected for field validation of monitoring, verification, and account technology for future offshore sub-seabed carbon storage.

ENVIRONMENTAL CONSEQUENCES:

The Final EA includes an analysis on the affected environment (Chapter III) and the potential effects of the Proposed Action on the environment (Chapter IV). The description of the affected environment focuses only on those resources potentially subject to impacts, which in this case are marine biological resources. Initial review and analysis of the proposed project activity determined that the following resource areas did not require further analyses in the EA: air quality/greenhouse gases, land use, safety and hazardous materials and management, geological resources, water resources, terrestrial biological resources, visual resources, socioeconomic conditions, and environmental justice.

Potential impacts of the Proposed Action on the environment would be primarily a result of the operation of the airgun(s) during the seismic surveys. The potential effects of sounds from airguns on marine species, including mammals and sea turtles, are described in detail in the Final EA (Chapter IV) and could include the following: tolerance, masking of natural sounds, behavioral disturbance, temporary or permanent hearing impairment, and non-auditory physical or physiological effects. It is unlikely that the Proposed Action would result in any cases of temporary or especially permanent hearing impairment, or any significant non-auditory physical or physiological effects. Some behavioral disturbance is expected if animals occur near the seismic operations, but this would be localized, short-term, and involve limited numbers of animals.

The Proposed Action includes monitoring and mitigation measures to further minimize potential impacts on the environment. Mitigation efforts include pre-cruise planning activities such as consideration of energy source optimization/minimization; survey timing (i.e., environmental conditions: seasonal presence of animals and weather); and calculation of mitigation zones. The operational mitigation program would further minimize potential impacts to marine species to a level of insignificance. As detailed in Chapters II and IV of the EA, the Proposed Action would include operational monitoring and mitigation measures, such as visual observations; enforcement of clearance zones; pre-clearance and ramp ups; and shutdowns of the airgun(s) for sea turtles. Shutdowns of the airgun(s) would be waived for dolphins. The fact that the airgun(s) direct the majority of the energy downward, and less energy laterally, would also be an inherent mitigation measure. NMFS has also set forth vessel strike avoidance measures for the proposed activity.

With the planned monitoring and mitigation measures, unavoidable impacts to marine species that could be encountered would be expected to be minimal, and limited to short-term, localized changes in behavior and distribution near the seismic vessel. At most, effects on marine mammals may be interpreted as falling within the U.S. Marine Mammal Protection Act (MMPA) definition of Level B Harassment for those species managed by the National Marine Fisheries Service (NMFS). Level A takes, based on current NMFS Technical Acoustic Guidance¹, would not be anticipated and therefore were not requested and will not be issued by NMFS. No long-term or significant effects would be expected on individual marine mammals, sea turtles, fish, or on the populations to which they belong, or on their habitats.

The potential cumulative effects of the Proposed Action were evaluated in Section 4.1.6 of the Final EA. Human activities in the area around the survey vessel would likely include other research, vessel traffic, oil and gas activities, and fisheries activities. Fisheries activities within the region and potential impacts are described in further detail in the Final EA, Chapter IV. Fisheries activities would not be precluded in the survey areas; however, a safe distance would need to be kept in order to avoid possible entanglement with the towed equipment. Potential conflicts with ocean users would be avoided through Notice to Mariners and direct radio communications during the surveys. Considering the limited time that the planned seismic surveys would take place and temporary nature of potential environmental impacts, the proposed project is not expected to have any significant impacts on human activities in the area.

The “No Action” alternative would remove the potential of the limited direct and indirect environmental consequences as described. However, it would preclude field validation of monitoring, verification, and account technology for future offshore sub-seabed carbon storage. The “No Action” alternative would not meet the purpose and need of the Proposed Action.

COORDINATION WITH OTHER AGENCIES AND PROCESSES:

DOE updated the Final EA based on the outcomes from agency consultations. Discussions with NMFS during MMPA and Endangered Species Act (ESA) consultation resulted in minor refinements to the information initially provided in the Draft EA. Based on the discussions with NMFS, the Final EA was updated with information on monitoring and mitigation measures set forth by NMFS, additional marine mammal density information and revised number of survey days for the calculation of potential takes of

¹ 2018 Revision to: Technical guidance for assessing the effects of anthropogenic sound on marine mammal hearing (version 2.0). Underwater thresholds for onset of permanent and temporary threshold shifts. Office of Protected Resources, NMFS, Silver Spring, MD.

dolphins and sea turtles, and removal of requested takes for marine mammal species that are unlikely to occur in the project area. In addition, minor edits to correct typos or improve clarity were also made. All changes from the Draft EA are shown in the Final EA as bold text to allow readers to quickly identify altered material. However, the new information that was included in the Final EA did not alter the overall conclusions of the Draft EA.

The Draft EA was sent to the NMFS during the ESA Section 7 consultation process. NMFS concluded the Section 7 consultation on 6 November 2023 and issued the final Biological Opinion and Incidental Take Statement (ITS) on 14 November 2023. The Draft EA was also used as supporting documentation for an Incidental Harassment Authorization (IHA) application submitted by UT, on behalf of itself and DOE, to NMFS, under the U.S. MMPA, for “taking by harassment” (disturbance) of small numbers of marine mammals during the proposed seismic surveys. On 8 August 2023, NMFS issued in the Federal Register a notice of intent to issue an IHA for the survey and a 30-day public comment period; no public comments were received. On 27 September 2023, NMFS issued a notice of issuance of the IHA in the Federal Register. DOE was notified on 21 September 2023 that the IHA was approved; it is valid from 29 September 2023 to 28 September 2024.

Additionally, the Draft EA was used to support the ESA Section 7 and Essential Fish Habitat (EFH) consultation processes with NMFS. NMFS offered no EFH recommendations for the proposed activity and agreed with DOE’s determination that the proposed activity would have no adverse effects on EFH. Additionally, the A Coastal Zone Management Act (CZMA) consistency determination was submitted to the Texas General Land Office (GLO) which administers the Texas Coastal Management Program (CMP). GLO determined that there are no significant unresolved consistency issues with respect to the project, and that the project would be consistent with the CMP goals and policies.

PUBLIC AVAILABILITY:

DOE encourages public participation in the NEPA process. The public was invited to provide written comments on the Draft EA to DOE by e-mail or ground delivery during the 30-day comment period, which occurred from March 17, 2023, through April 16, 2023. Copies of the Draft EA were made available for review at the Rosenberg Library, 2310 Sealy Avenue, Galveston, TX 77550 and on DOE NETL’s website at <https://netl.doe.gov/node/6939>. Copies of the Draft EA were also distributed to stakeholders. No comments were received from other agencies, non-governmental organizations, or the public.

This FONSI and the associated Final EA are available on the National Energy Technology Laboratory website at <https://www.netl.doe.gov/node/6939> and on the DOE NEPA website at <https://www.energy.gov/nepa/doeea-2191-marine-geophysical-surveys-northwestern-gulf-mexico-fall-2023>.

MITIGATION REQUIREMENTS:

No additional mitigation measures beyond those contained in the IHA and Biological Opinion issued by NMFS are required. However, DOE will take into consideration the conservation recommendations from the Biological Opinion.

FOR FURTHER INFORMATION OR TO REQUEST COPIES CONTACT:

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DETERMINATION:

Based on the information presented in the Final EA (DOE/EA-2191), DOE finds that providing cost-shared funding to UT for the proposed project would not constitute a major federal action that would significantly affect the quality of the physical, biological, or human environment, within the meaning of NEPA. Therefore, the preparation of an Environmental Impact Statement is not required, and DOE is issuing this FONSI.

Issued in Pittsburgh, Pennsylvania on this 12 day of December, 2023.

Sean I. Plasynski

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