

**U.S. DEPARTMENT OF ENERGY  
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY  
NEPA DETERMINATION**



**RECIPIENT:** Geothermix, LLC

**STATE:** TX

**PROJECT TITLE :** Thermoelectric Power Generation from Hot Oilfield Fluids: A Field Demonstration in the Austin Chalk in Texas

|  |                                      |                            |                   |
|--|--------------------------------------|----------------------------|-------------------|
| <b>Funding Opportunity Announcement Number</b> | <b>Procurement Instrument Number</b> | <b>NEPA Control Number</b> | <b>CID Number</b> |
| DE-FOA-0002525                                 | DE-EE0009964                         | GFO-0009964-001            |                   |

**Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), I have made the following determination:**

**CX, EA, EIS APPENDIX AND NUMBER:**

Description:

**A9 Information gathering, analysis, and dissemination**

Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)

**B5.2 Modifications to pumps and piping**

Modifications to existing pump and piping configurations (including, but not limited to, manifolds, metering systems, and other instrumentation on such configurations conveying materials such as air, brine, carbon dioxide, geothermal system fluids, hydrogen gas, natural gas, nitrogen gas, oil, produced water, steam, and water). Covered modifications would not have the potential to cause significant changes to design process flow rates or permitted air emissions.

**B5.15 Small-scale renewable energy research and development and pilot projects**

Small-scale renewable energy research and development projects and small-scale pilot projects, provided that the projects are located within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to Geothermix, LLC. to fabricate, lab test, install, field test and demonstrate a geothermal power generation unit (unit). The unit would utilize waste heat from existing oil and gas operations to produce commercial quantities of electrical power with a near-zero carbon footprint.

Award activities include laboratory fabrication and testing of geothermal power generation units at the University of Texas (Austin, TX). All facilities at the University of Texas are preexisting purpose-built facilities for the type of work to be conducted for this award. Facility modifications would not be required. Field installation and testing would occur at the Navidad Operating Company's existing Hancock oil field facility (outside Woodville, TX). The Hancock oil field facility is located on private property. Field installation and testing would transport hot fluids or gases produced from the existing oil and gas operations through the fabricated unit to generate electricity. The proposed field demonstration is planned to operate and collect data for two years. Temperature and pressure parameters would be maintained to Hancock requirements in order to maintain operations of the oil and gas facility. Installation and operation of the geothermal power generation unit would not require ground disturbance. Existing aboveground facilities would be modified to pipe waste heat through the unit. All facility modifications would be made in accordance to applicable regulatory design and permit requirements.

The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) website identifies one candidate (Monarch Butterfly), two threatened (Piping Plover, Red Knot), and two endangered (Red-cockaded Woodpecker and Texas Trailing Phlox) species that may occur in the proposed project area. Due to the lack of critical habitat in the vicinity and the existing oil and gas operations at the site; DOE has determined the proposed project would have no effect to threatened, endangered or candidate species in the area.

Minimal air emissions would occur from the use of vehicles to and from the Hancock field site. The Hancock field site operations are an existing source of hydrocarbons. Navidad Operating Company has existing permits for air emissions, and would be emitting such emissions regardless of award activities. Project activities would involve

hazards associated with installation activities, working with high temperature and high pressure liquids and gases, and generating electricity. Any risks working with hazards would be mitigated through established corporate and university safety protocols. Geothermix would observe all applicable local, state, and federal health, safety, and environmental regulations. DOE does not anticipate any impacts to resources of concern due to the proposed activities of the project.

## NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Geothermal Technologies Office (GTO)  
NEPA review completed by Amy Lukens, 6/2/2022

## FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

The proposed action is categorically excluded from further NEPA review.

## SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:

  
NEPA Compliance Officer

Date: 6/2/2022

## FIELD OFFICE MANAGER DETERMINATION

- Field Office Manager review not required  
 Field Office Manager review required

## BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature:

Field Office Manager

Date: