PMC-ND

(1.08.09.13)

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

RECIPIENT: Fervo Energy Company **STATE:** UT

PROJECT TITLE: A Greenfield EGS pilot demonstration at Milford, Utah

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002826	DE-EE0011277	GFO-0011277-001	GO11277

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.)
B3.7 New terrestrial infill exploratory and experimental wells	Siting, construction, and operation of new terrestrial infill exploratory and experimental (test) wells, for either extraction or injection use, in a locally characterized geological formation in a field that contains existing operating wells, properly abandoned wells, or unminable coal seams containing natural gas, provided that the site characterization has verified a low potential for seismicity, subsidence, and contamination of freshwater aquifers, and the actions are otherwise consistent with applicable best practices and DOE protocols, including those that protect against uncontrolled releases of harmful materials. Such wells may include those for brine, carbon dioxide, coalbed methane, gas hydrate, geothermal, natural gas, and oil. Uses for carbon sequestration wells include, but are not limited to, the study of saline formations, enhanced oil recovery, and enhanced coalbed methane extraction.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Fervo Energy Company (Fervo) to design, drill, complete, stimulate, test, and decommission a triplet horizontal well Enhanced Geothermal System (EGS) capable of generating at least 5 megawatts of electric power. The triplet system would be designed as one central horizontal production well offset by two horizontal injection wells. Fervo would stimulate all three wells with a multistage, plug-and-perf stimulation treatment design with proppant, and perform injection and crossflow well tests to characterize the hydraulic and thermal performance of the system.

The project would be located in the direct vicinity of the Frontier Observatory for Research in Geothermal Energy (FORGE), an established field laboratory for the development of EGS technologies and techniques, managed by the University of Utah and sponsored by DOE. The work to be performed under the proposed award falls entirely within the scope of an ongoing geothermal project in this area operated by Fervo, who has a partnership with FORGE on local drilling campaigns. Fervo is in the process of building a larger-scale commercial EGS system, wellfield, and power plant, and has already drilled and completed stimulation activities for multiple demonstration wells. DOE funding would primarily support advanced research and development focused on well stimulation and testing techniques.

Project management, data analysis, and other desktop activities would be undertaken by Fervo at their offices in Houston, TX. All other project activities would occur at Fervo's existing Cape Station "Gold" Geothermal Well Pad, located approximately 10 miles northeast of Milford in Beaver County, Utah, on federal lands administered by the Bureau of Land Management (BLM). The Cedar City Field Office of the BLM previously completed an Environmental Assessment (DOI-BLM-UT-C010-2023-0004-EA) under the National Environmental Policy Act (NEPA) to review the issuance of geothermal drilling permits for Fervo's Cape Station development proposal, resulting in a Finding of No Significant Impacts (February 13, 2023). Prior BLM NEPA review and subsequent authorization of up to 29 geothermal exploration wells with associated components encompassed the activities proposed to occur under this DOE award. In addition, the Utah Division of Water Rights (DWRi) has issued permits for the Gold pad wells under consideration for the proposed project, and a subsurface right of way from Utah's Institutional Trust Lands Administration has been approved and issued.

The proposed project would be comprised of one (1) Budget Period with an estimated duration of 12-15 months. Initial

tasks would involve finalizing project plans, engineering design, permitting, and site preparation, followed by drilling and completion of the wells. All three wells would then undergo a stimulation and testing program, which would include an injection test and approximately 30-day and 90 day crossflow tests to characterize the performance of the system.

The project would not result in any new ground disturbance, as all activities would occur on the Gold well pad using existing access roads. Drilling rigs and various heavy machinery would be brought to the site to drill and case the extraction and injection wells, as well as temporarily install various equipment at the surface such as water lines, brine collection lines, and pumps to allow for testing the well system. Proposed work falls within the normal use and mission of Fervo's on-lease operations. Air emissions resulting from equipment operation would be de minimis.

The wells would be designed to target a depth range that meets the resource temperature requirements for commercial production, anticipated to be between 3,500 and 12,000 feet (ft) below ground surface. A final drilling plan is pending new well data analysis and increased understanding of the subsurface obtained during initial project tasks. Regardless of design details, well casing would meet all applicable regulatory requirements to prevent co-mingling of the geothermal fluids with underground aquifers. Drilling, completion, and testing of each well may require a total of approximately 300 acre-ft of water, within the limits of Fervo's current water rights leases in place for this location. Stormwater, thermal discharges, rock, sand, and non-hazardous drilling fluid has the potential to be discharged from the site. Fervo is required to develop and implement a Storm Water Pollution Prevention Plan during construction of the wells and would incorporate all pertinent best management practices to prevent and contain offsite movement of runoff and materials. With the exception of fluids discharged to dedicated reserve pits during flow testing, no geothermal fluids would be discharged to the ground.

No hazardous waste is anticipated to be produced by the proposed project. After the well drilling and testing operations are completed, the liquids from the reserve pits would either naturally evaporate or be removed as necessary to reclaim this land area. The solid contents remaining in each reserve pit, typically consisting of non-hazardous, non-toxic drilling mud and rock cuttings, would be tested in accordance with BLM operating standards and guidelines and/or with project-specific requirements of the Utah state permitting agencies to confirm that they are not hazardous. Non-hazardous and non-toxic drilling mud and cuttings would be buried in the reserve pit. If any substances are determined to be hazardous, all applicable federal, state, and local regulations would be followed to ensure the proper handling and disposal of this material.

At the conclusion of the proposed project, wells judged by the project team to have no commercial potential would be plugged and abandoned in conformance with the well abandonment requirements of the BLM and DWRi. Areas able to be reclaimed would be ripped, tilled, or disked on contour as necessary, and would be reclaimed by reestablishing vegetative cover using a BLM-approved seed mix. The stockpiled topsoil would also be spread on the area to aid in revegetation.

Fervo and its subsidiaries utilize a site-specific workplace health and safety plan in compliance with Occupational Safety and Health Administration guidelines. Existing health and safety policies and procedures would be followed, including employee training and personal protective equipment. Any impacts to wildlife and cultural resources potentially present in the proposed project area would be minimized through the implementation of design features and adherence to existing geothermal lease stipulations. If the recipient or other project participants encounter cultural or archaeological artifacts during project activities, all activities must immediately cease in the vicinity of the discovery. The recipient must notify the DOE Project Officer and the Utah State Historic Preservation Office of the discovery within forty-eight hours of the discovery. Project activities in the vicinity of the discovery must cease until an evaluation of the discovery is completed by the appropriate officials and the DOE Contracting Officer provides written authorization to resume the activities. If the recipient seeks to relocate the affected work to another nearby site, the recipient must first obtain written authorization from the DOE Contracting Officer.

DOE has considered the location, scale, duration, and nature of the proposed activities to determine potential impacts on sensitive resources, including those of a biological, ecological, cultural, and socioeconomic nature. DOE does not anticipate impacts on these resources which would be considered significant or require DOE to consult with other agencies or stakeholders.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Geothermal Technologies Office (GTO)
Review completed by Whitney Donoghue on 6/4/2024.

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: Electronically Signed By: Andrew Montano Date: 6/5/2024

NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

- [x] 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: _____ Date: _____

Field Office Manager