

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



**RECIPIENT:** West Virginia University Research Corporation

**STATE:** WV

**PROJECT TITLE :** Analysis of Geothermal Deep Direct-Use Combined with Reservoir Thermal Energy Storage on the West Virginia University Campus-Morgantown, WV

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0002219	DE-EE0009597	GFO-0009597-002	G09597

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.)

**B3.1 Site characterization and environmental monitoring**

Site characterization and environmental monitoring (including, but not limited to, siting, construction, modification, operation, and dismantlement and removal or otherwise proper closure (such as of a well) of characterization and monitoring devices, and siting, construction, and associated operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis). Such activities would be designed in conformance with applicable requirements and use best management practices to limit the potential effects of any resultant ground disturbance. Covered activities include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. (This class of actions excludes activities in aquatic environments. See B3.16 of this appendix for such activities.) Specific activities include, but are not limited to: (a) Geological, geophysical (such as gravity, magnetic, electrical, seismic, radar, and temperature gradient), geochemical, and engineering surveys and mapping, and the establishment of survey marks. Seismic techniques would not include large-scale reflection or refraction testing; (b) Installation and operation of field instruments (such as stream-gauging stations or flow-measuring devices, telemetry systems, geochemical monitoring tools, and geophysical exploration tools); (c) Drilling of wells for sampling or monitoring of groundwater or the vadose (unsaturated) zone, well logging, and installation of water-level recording devices in wells; (d) Aquifer and underground reservoir response testing; (e) Installation and operation of ambient air monitoring equipment; (f) Sampling and characterization of water, soil, rock, or contaminants (such as drilling using truck- or mobile-scale equipment, and modification, use, and plugging of boreholes); (g) Sampling and characterization of water effluents, air emissions, or solid waste streams; (h) Installation and operation of meteorological towers and associated activities (such as assessment of potential wind energy resources); (i) Sampling of flora or fauna; and (j) Archeological, historic, and cultural resource identification in compliance with 36 CFR part 800 and 43 CFR part 7.

**B3.6 Small-scale research and development, laboratory operations, and pilot projects**

Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to the West Virginia University Research Corporation (WVU) to perform a second phase feasibility analysis for the development of an integrated Geothermal District Heating and Cooling (GDHC) and underground thermal energy storage (UTES) system for the WVU campus. The objective of the proposed project is to drill an exploratory well to better characterize thermal energy and geologic target strata for a potential production well. In addition, the project would better characterize surface loads/demands at the WVU campus, to aid in evaluating the technical and economic feasibility of a geothermal district heating system.

The award would consist of two 18-month Budget Periods (BP) and a final 12-month BP. Drilling and well measurements would occur in BP1. Fieldwork is expected to last for the full duration of BP1 and would be followed by

another 30 months of office- and laboratory-based modeling, analysis, design, engineering, and reporting. The DOE previously completed a NEPA determination (GFO-0009597-001, CXs A9, B3.1, and B3.6, 08/18/2021), stating that award activities would not be carried out until all requisite permits and approvals have been obtained.

This NEPA determination is being carried out to review a location change for the proposed exploratory geothermal well. Northeast Natural Energy LLC (NNE) (Morgantown, WV) is now the subrecipient for this award, and would carry out drilling of the exploratory geothermal well on their existing Marcellus Shale production well pad located in the Morgantown Industrial Park. Project-related activities at the site would not expand the area of ground disturbance beyond the cleared well site or increase the physical footprint of the well pad. This location change would not cause additional impacts associated with the DOE project beyond those considered in the previously completed NEPA determination.

## NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

Before undertaking any Task 1.2 ("Drill and core a vertical scientific observation well") activities, the Recipient is required to ensure that all requisite permits and approvals have been obtained. Further, the Recipient is required to submit a copy of all WVDEP permits to the DOE Project Officer prior to commencing Task 1.2 activities and must ensure compliance with any and all associated terms and conditions.

Notes:

Geothermal Technologies Office (GTO)  
Review completed by Alex Colling on 05/26/2022.

## 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:

 Electronically Signed By: **Casey Strickland**

NEPA Compliance Officer

Date: **6/13/2022**

## 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: \_\_\_\_\_