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

RECIPIENT: University of Utah **STATE:** UT

PROJECT TITLE: GEOTHERMAL FAULT ZONE AND FLUID IMAGING THROUGH JOINT AIRBORNE ZTEM AND GROUND MT DATA INVERSION ANALYSIS

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001445	DE-EE0007697	GFO-0007697-001	GO7697

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), 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.
B3.2 Aviation activities	Aviation activities for survey, monitoring, or security purposes that comply with Federal Aviation Administration regulations.

Rationale for determination:

DOE is proposing to provide federal funding to the University of Utah to achieve detailed electrical resistivity resolution at geothermal reservoir scales by combining airborne natural electromagnetic field surveying with ground magnetotelluric (MT) measurements at the Roosevelt Hot Springs geothermal system in southwest Utah to approximate an airborne MT geophysical method in an attempt to delineate with high resolution the presence of prospective fracture zones or controlling structures in geothermal systems.

Project activities include airborne field surveying, ground-based MT surveying, soil gas sampling, data processing, modeling, and project management/reporting. Airborne surveying would be completed over an approximate eight-by-eight square mile area with flight levels of approximately 500 feet. Ground-based MT surveying would occur on Bureau of Land Management (BLM) managed lands. Any work occurring on BLM managed lands would be submitted to the appropriate district office for review prior to initiating field activities on those lands. Field work would require little or no surface disturbance with any surface disturbance being completed by hand. At MT station locations (approximately 75), cylindrical coils (2.5" x 48" tubes, two horizontal and one vertical) and electrode plates (three per site) would be buried so a small amount of surface disturbance would be required. Disturbance at each MT site would involve two trenches 5 inches deep for the horizontal coils, approximately 2.5 feet deep for the vertical coil, and small

six by six inch holes for the electrode plates with an electronic data logger remaining on the surface. Total surface disturbance at each site would be less than 10 square feet. All disturbance would be reclaimed within 24 hours. Installation of soil noble gas detectors would require minimal surface disturbance (similar to an MT coil) for installation and minimal time in the field for sampling (less than one week).

U.S. Fish and Wildlife Service lists three endangered or threatened species (California Condor, Yellow-billed Cuckoo, and Utah Prairie Dog) and 25 migratory bird species that could occur in the area. The project area is north of inhabited Utah Prairie Dog habitat. Because of project area location, minimal disturbance, short duration, and type of the proposed activities; DOE has determined that there would be no effect to any of the listed species. Data analysis, processing, and modeling would occur at university facilities in Salt Lake City, Utah.

During the installation of field equipment, if cultural or archaeological artifacts are encountered, the recipient would stop the site installation immediately and inform the DOE Project Officer of the finding. The affected installation would be relocated to another nearby site.

Exact locations for individual installations within the project area have yet to be selected, but DOE does not anticipate any impacts to resources of concern regardless of location because all access to field work locations would either be by existing roads or by foot, surveys and field work would require little or no new surface disturbance, the amount of time for installation and sampling activities at each location is short, and locations would be selected with the above siting requirement in mind.

Based on the review of the proposal, DOE has determined the proposal fits within the class of action(s) and the integral elements of Appendix B to Subpart D of 10 CFR 1021 outlined in the DOE categorical exclusion(s) selected above. DOE has also determined that: (1) there are no extraordinary circumstances (as defined by 10 CFR 1021.410(2)) related to the proposal that may affect the significance of the environmental effects of the proposal; (2) the proposal has not been segmented to meet the definition of a categorical exclusion; and (3) the proposal is not connected to other actions with potentially significant impacts, related to other proposals with cumulatively significant actions, or an improper interim action. This proposal is categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If the Recipient intends to make changes to the scope or objective of this project, the Recipient is required to contact the Project Officer, identified in Block 15 of the Assistance Agreement before proceeding. The Recipient must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved. If the Recipient moves forward with activities that are not authorized for Federal funding by the DOE Contracting Officer in advance of a final NEPA decision, the Recipient is doing so at risk of not receiving Federal funding and such costs may not be recognized as allowable cost share.

Insert the following language in the award:

You are required to:
During the installation of field equipment, if cultural or archaeological artifacts are encountered, the recipient must stop the site installation immediately and inform the DOE Project Officer of the finding. The recipient must relocate the affected installation to another nearby site.

Note to Specialist :

Geothermal Technologies Office
This NEPA determination requires a tailored NEPA provision.
NEPA review completed by Casey Strickland, 08/04/16

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Kristin Kerwin Date: 8/5/2016

NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

☐ Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

☐ Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office

Manager's attention.

☐ Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

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

Field Office Manager's Signature: _____ Date: _____

Field Office Manager