

PMC-ND

(1.08.09.13)

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



RECIPIENT: University of Utah/Energy & Geoscience Institute

STATE: UT

PROJECT TITLE : Structurally Controlled Geothermal Systems in the Eastern Great Basin Extensional Regime, Utah

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000841	DE-EE0006732	GFO-0006732-001	GO6732

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. |
| B3.6 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 University of Utah (Utah) would utilize DOE and cost share funds to address the overarching theme of uncertainty quantification and reduction for geothermal exploration, specifically through the development of Geothermal Play Fairways. Phase/Budget Period 1 of the FOA was reviewed by GFO-FOA0000841-001 on July 31, 2014. Utah was one of the initial awardees that have been selected to move into Budget Period 2 (BP2). This NEPA Determination is for BP2 activities only. Additional NEPA review will be required if the recipient is selected to move forward into Budget Period 3.

BP2 includes integration of existing magnetotelluric (MT), natural seismicity, fluid geochemistry, and well lithology data

to analyze the likelihood of potential plays in southwestern Utah. New field work is involved and would include MT, passive seismic, gravity, helium isotope, well water and rock sampling, and geologic mapping with associated computer and laboratory analyses. Utah has identified nine areas of interest over a large area in the southwest part of the State where field work would occur on Bureau of Land Management (BLM), U.S. Forest Service (USFS), and private lands. Any work occurring on BLM or USFS managed lands would be submitted to the appropriate agency for review prior to initiating field activities on those lands. All field work would require little or no surface disturbance with any surface disturbance being completed by hand. At MT station locations (approximately 100), 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 the 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. Passive seismic installations (approximately 12 sites) would require very little disturbance, similar to one MT coil, and would be in the field for at least one month. Installation of passive helium gas sensors 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 (USFWS) lists three endangered or threatened species (California Condor, Yellow-billed Cuckoo, and Utah Prairie Dog) and 30 migratory bird species that could occur in the area but because of siting requirements (see below), minimal disturbance, short duration, and type of the proposed activities there would be no effect to any of the listed species. Other field work such as gravity surveys, water well and rock sampling, and geologic mapping would not require any surface disturbance. Laboratory analysis of well water geochemistry and x-ray diffraction of rock samples would occur in dedicated laboratories designed for this type of work at the University of Utah.

Field work and installation sites would be located north of latitude 38.21 degrees North to avoid occupied Utah Prairie Dog (*Cynomys parvidens*) habitat. If it is decided that field work needs to be completed south of this latitude, additional NEPA review and USFWS consultation will be required. During the installation of field equipment, if cultural or archeological 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 southwest Utah 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 requirements in mind.

Based on review of the project information, DOE has determined that project activities would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined that these activities are consistent with actions contained in DOE categorical exclusions A9 "Information gathering, analysis, and dissemination," B3.1 "Site characterization and environmental monitoring," and B3.6 "Small-scale research and development, laboratory operations, and pilot projects," and are categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a conditional NEPA determination for this award, and funding for certain tasks under this award is contingent upon the final NEPA determination.

Insert the following language in the award:

You are restricted from taking any action using federal funds, which would have an adverse effect on the environment or limit the choice of reasonable alternatives prior to DOE/NNSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:

Budget Period 3

This restriction does not preclude you from:

Budget Period 1

Budget Period 2

If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are 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:

The recipient will locate all field work and installation sites north of latitude 38.21 degrees North to ensure avoidance of occupied Utah Prairie Dog (*Cynomys parvidens*) habitat. If it is decided that additional field work needs to be

completed south of this latitude, the recipient will submit new field work information to the DOE Project Officer so that additional NEPA review and USFWS consultation can be initiating prior any new field work activities occurring.

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

Note to Specialist :

This NEPA Determination requires a tailored NEPA provision.
Geothermal Technologies Office
Casey Strickland 03/15/16

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____


NEPA Compliance Officer

Date: _____

3/18/2016

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: _____

Field Office Manager

Date: _____