

PMC-ND

(1.08.09.13)

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



**RECIPIENT:**Board of Regents, NSHE, obo University of Nevada Reno

**STATE:** NV

**PROJECT TITLE :** Quantifying EGS Reservoir Complexity with an Integrated Geophysical Approach and Improved Resolution Ambient Seismic Noise Interferometry

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
	DE-EE0006767	GFO-0006767-002	GO6767

**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:

<b>B3.1 Site characterization and environmental monitoring</b>	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.
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**Rationale for determination:**

Board of Regents, NSHE, obo University of Nevada, Reno (hereafter UNR) would utilize DOE and cost share funds to apply high resolution ambient seismic noise seismic interferometry to Enhanced Geothermal Systems (EGS) favorability characterization at the Dixie Valley Geothermal System in Nevada. UNR is developing a new exploration technology which includes application of seismic interferometry and seismic array signal processing techniques developed for nuclear monitoring to conventional geothermal seismic reflection surveys. This project would use this technique to evaluate the usefulness for EGS exploration of seismic parameter information in comparison with information from and at the same scale as other geophysical exploration methods deployed in the same project area. Project activities include (1) new data collection, (2) use of seismic event waveforms from AltaRock Energy Inc. (2014) seismic surveys to investigate the possibility of extracting supplementary seismic parameter information, and (3) generation of new EGS favorability maps by factoring the proposed higher seismic resolution data to compliment and improve the previous investigations.

A previous NEPA Determination (GFO-0006767-001) was approved on September 23, 2014 for all activities except seismic survey fieldwork to acquire new seismic data proposed in Task 2. The seismic fieldwork would be a passive survey with no active source. The area of the survey has been defined and would occur in the northern Dixie Valley area where subsurface geothermal resources are managed by the Bureau of Land Management's (BLM) Carson City District Office. A Notice of Intent to Conduct Geothermal Resource Exploration Operations (NOI) for geophysical exploration was submitted to the BLM for the proposed Task 2 activities. The BLM reviewed all activities and determined that there were no extraordinary circumstances that would preclude the use of their CX for geophysical exploration and therefore approved the NOI on October 21, 2015 (see uploaded LR2000 case recordation and NOI). DOE agrees with BLM's conclusion that there are no extraordinary circumstances or resources of concern that would preclude the application of a categorical exclusion to the proposed activities in Task 2.

Based on review of the project information, DOE has determined that Task 2 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 exclusion B3.1 "Site characterization and environmental monitoring," and are 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 you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

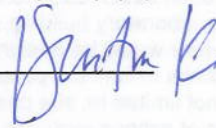
Note to Specialist :

This NEPA Determination no longer requires a tailored NEPA provision.  
Geothermal Technologies Office  
Casey Strickland 11/06/15

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

NEPA Compliance Officer Signature: \_\_\_\_\_

 Electronically Signed By: Kristin Kerwin  
NEPA Compliance Officer



Date: 11/12/2015

**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: \_\_\_\_\_