

PMC-ND
(1.08.09.13)

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



RECIPIENT: Colorado School of Mines, Geophysics department

STATE: CO

PROJECT TITLE : Time-lapse Joint Inversion of Geophysical Data and its Application to Geothermal Prospecting

| | | | |
|--|--------------------------------------|----------------------------|-------------------|
| Funding Opportunity Announcement Number | Procurement Instrument Number | NEPA Control Number | CID Number |
| DE-FOA-0000522 | DE-EE0005513 | GFO-0005513-002 | GO5513 |

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.

Rationale for determination:

The Colorado School of Mines (CSM) would utilize DOE and cost share funds to improve the characterization of geothermal reservoirs by developing joint inversion of several geophysical techniques to better delineate the geothermal resource and monitor thermal fluid motion. Laboratory work would occur at the Green Center on the CSM campus in Golden, CO.

This project includes two phases. Phase 1 was approved by GFO-0005513-001 on February 10, 2012. This NEPA determination is for Phase 2 activities.

In Phase 2 of the project, additional data would be collected at the Jersey Valley, Nevada (magnetotelluric, SP, resistivity). Data collection would include surveying, laying cables, and inserting shallow probes. The data would be processed and interpreted at the Colorado School of Mines through computer modeling and integration with previously collected data, published material, and information provided by Ormat. Data collection would occur in the area around Ormat's Jersey Valley geothermal plant. Surveys would be performed adjacent to or immediately to the west of the plant. If data is to be collected along the county road, or cables cross the county road (Jersey Valley road), a separate road use permit would be obtained from Pershing County Road Department. All other required permits have been obtained by Ormat Inc. through the Bureau of Land Management, Battle Mountain District. Non-invasive geophysical data acquisition techniques would be used, so negligible physical impacts would occur as part of the data collection. All equipment, probes, surveying stakes, etc. would be removed and transported back to the Colorado School of

Mines once data collection has been completed.

Based on review of the project information, DOE has determined that the remaining 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," and B3.1 "Site characterization and environmental monitoring," and 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 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 :

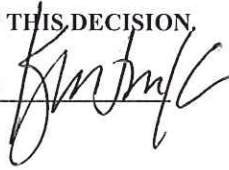
This NEPA Determination does not require a tailored NEPA provision.

Casey Strickland 9/26/2013

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

 Electronically Signed By: Kristin Kerwin
NEPA Compliance Officer



Date: _____

9/30/2013

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: _____