

PMC-EF2a

(2.0.02)

**U.S. DEPARTMENT OF ENERGY  
EERE PROJECT MANAGEMENT CENTER  
NEPA DETERMINATION**



RECIPIENT: Nevada Geothermal Power Co.

STATE: OR

**PROJECT  
TITLE :** Crump Geyser Topic I

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DOE-FOA_0000109	DE-EE0002835	GFO-10-164	2835

**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 (including, but not limited to, literature surveys, inventories, audits), data analysis (including computer modeling), document preparation (such as conceptual design or feasibility studies, analytical energy supply and demand studies), and dissemination (including, but not limited to, document mailings, publication, and distribution; and classroom training and informational programs), but not including site characterization or environmental monitoring.
- B3.1** Onsite and offsite site characterization and environmental monitoring, including siting, construction (or modification), operation, and dismantlement or closing (abandonment) 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. Activities covered include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. Specific activities include, but are not limited to:

## Rational for determination:

Nevada Geothermal Power Company (NGP) would demonstrate the potential Crump Geyser geothermal resources in Southern Oregon by gathering data on existing system. In Phase I (exploration geophysics), NGP would collect and interpret multiple levels of magnetic field measurements, precision Bouguer gravity, detailed geologic mapping, and shallow seismic reflection and refraction data to help define the pattern of fault offsets in the shallow basalt formation found at Crump Geyser. These data would be used by NGP to target the temperature gradient and slim-wells to be drilled in Phase II. This analysis is Phase I only. The project would be divided into Phase I with four tasks (Task 3 will be conditioned):

Task 1.0 Magnetic Surveys: Magnetic data would reveal offsets in the shallow basalt.

Subtask 1.1 Ultralight airmag survey: The ultralight survey would apply a magnetometer flown along narrowly spaced, 100' altitude draped flight lines along the trend of the valley in the survey area. This method is applied commercially and has the advantage of low cost and high precision for relatively small survey areas.

Subtask 1.2 ATV-towed ground mag survey: USGS has recently developed a ground magnetometer that can be towed behind an ATV. This method has the advantages of continuous recording along the survey lines, extensive off-road access, low magnetic signature from the vehicle, and very precise surface data. The method would still be subject to geologic noise from basalt boulders in the sediments off the survey line. The ultralight data would be flown across the ATV lines to help reduce the impact of this noise source.

Subtask 1.3 Magnetic data integration with existing magnetic data: The new magnetic data would be integrated with existing high elevation air mag and a point-by-point ground mag survey that was collected by NGP.

Task 2.0 Precision Gravity Survey: Precision gravity data would be collected to detail offsets in the shallow basalt formation. Precision gravity data is usually applied to monitor gravity changes due to reservoir fluid mass extraction. The application of these precise data to Bouguer surveys is rare because error in the Bouguer corrections can be large relative to the precision of the method. In this case the valley floor is flat such that the elevation corrections would be small and most of the terrain corrections would be in the outer zones. This should allow interpretation of subtle changes between the tightly spaced stations over a shallow target. The gravity data would be collected with hand-held field devise that measures variations in subsurface density.

Task 3 is not Categorical Excludable since the seismic lines have not been identified and therefore cannot be analyzed at this time.

Task 3.0 Gas Piston Source Shallow Seismic Reflection Survey: Once the initial results of the gravity and magnetic data are available, a set of seismic lines would be surveyed in areas that appear to be within relatively large fault blocks. The survey would be targeted to estimate the depth of the basalt in these areas. The method would apply a gas piston seismic source that can be carried in a pick-up truck.

Task 4.0 Data interpretation and temperature gradient well targeting: The geophysical data would be integrated and interpreted to define the pattern of fault offsets of the basalt. Several of these faults and areas between the faults would be targeted with shallow, 300', temperature gradient wells.

At this time, the locations of seismic lines have not been identified, and therefore cannot be analyzed. Therefore, Phase I Task 3 is not authorized. Phase I Task 3, Phase II, III would be analyzed once the location of the geothermal well is identified and submitted to the DOE.

Condition of Approval: Allowable: Phase I Tasks 1, 2, and 4; Prohibited: Phase I, Task 3; Phase II; Phase III. This proposal comprises data analysis, and onsite characterization actions to promote the research and development of geothermal resources; therefore this project is categorized as CX A9 and B3.1.

**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 affect 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:

Prohibited: Phase I, Task 3; Phase II; Phase III

This restriction does not preclude you from:

Allowable: Phase I Tasks 1, 2, and 4

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.

Note to Specialist :

None Given.

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

NEPA Compliance Officer Signature:  Date: 02/08/2010  
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