

PMC-EF2a

(2.01.02)

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



RECIPIENT: University of Southern California

STATE: CA

PROJECT TITLE : Characterizing Fractures in Geysers Geothermal Field by Micro-seismic Data, Using Soft Computing, Fractals, and Shear Wave Anisotropy

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-EE0000075	DE-EE0002747	GFO-10-239	2747

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.

## Rational for determination:

The University of Southern California is proposing a project to predict characteristics of fractures and their orientation prior to drilling new wells. The project will also focus on determining the location of the fractures, fracture spacing and orientation during drilling, as well as characterizing open fractures after stimulation to help identify the location of fluid flow pathways within the EGS reservoir.

Project tasks include the following:

- \* Gather all the relevant MEQ data and process, analyze and interpret them
- \* Combine the data from the augmented receiver network at the DOE-funded Calpine EGS Demonstration Project with the results of Task 1.
- \* Develop a subsurface 3-D seismic velocity model for the largely-undeveloped 10 sq. mile area of the northwestern Geysers where Calpine is proposing further development.
- \* Use the 3D velocity field to create a fracture map
- \* Project Management and Reporting.

This project involves information gathering only; therefore a CX A9 will apply.

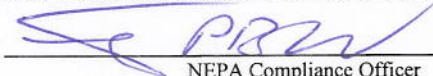
**NEPA PROVISION**

Note to Specialist :

None Given.

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

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

  
 NEPA Compliance Officer

Date: \_\_\_\_\_

3/10/10

**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

Project: \_\_\_\_\_  
 NEPA Case Number: \_\_\_\_\_  
 EIS Case Number: \_\_\_\_\_

Based on my review of the information concerning the proposed action, as NEPA requires, I have made the following determination:

CX EA, EA, EIS APPLICABLE AND NUMBER: \_\_\_\_\_  
 Description: \_\_\_\_\_  
 All information gathered including, but not limited to, historic survey, inventory, data reviews including computer modeling, document review (such as conceptual design or feasibility studies, analytical energy supply and demand studies), and assessment (including, but not limited to, document matrix, subsides, and distribution and classroom training and educational programs), but not including the structural or environmental monitoring.

Rational for determination:  
 The University of Southern California is proposing a project to predict characteristics of features and their orientation prior to drilling new wells. The project will also focus on determining the location of the features, feature spacing and orientation during drilling, as well as characterizing open features after stimulation to help identify the location of fluid flow pathways within the EGS reservoir.

- Project tasks include the following:
- \* Gather all the relevant BEO data and process, analyze and interpret them
  - \* Combine the data from the segmented reservoir network at the DOE-funded Calpine EGS Demonstration Project with the results of Task 1.
  - \* Develop a multi-scale 3-D seismic velocity model for the largely undeveloped 10 sq. mile area of the northwestern Calpine where Calpine is proposing further development
  - \* Use the 3D velocity field to create a seismic map
  - \* Project management and reporting

The project involves information gathering only; therefore a CX EA will apply.

NEPA-FOIA RATION  
 None to provide  
 None Given

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION  
 \_\_\_\_\_  
 NEPA Compliance Officer

Date: 3/10/10

FIELD OFFICE MANAGER DETERMINATION  
 Field Office Manager review required