

PMC-EF2a

(2.0+02)

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



RECIPIENT: Paulsson, Inc.

STATE: CA

PROJECT TITLE : Development of a 300°C, 200 level, 3C Fiber Optic Downhole Seismic Receiver Array for Surveying and Monitoring of Geothermal Reservoirs

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000522	DE-EE0005509	GFO-0005509-002	GO5509

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.)
B3.6 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.

Rational for determination:

Paulsson, Inc. (Paulsson) would utilize DOE and cost share funds to design, build, and test a new borehole seismic receiver system that can be operated in wells drilled into Enhanced Geothermal System (EGS) type geothermal reservoirs. Laboratory work would occur at Paulsson's facility at 16543 Arminta Street in Van Nuys, California.

A previous NEPA determination was made for Phase I of this project by GFO-0005509-001 on February 1, 2012. This project has recently received a "go" decision for Phase II, so this NEPA determination is specific to Phase II tasks of the project. There has been no change in the scope of work for this project since the original NEPA determination.

Phase II of this project consists of the following tasks:

Task 7.0 – Fabrication of the 200 Level 3C Demonstration System: This task includes all work elements required to manufacture and assemble the 200 level 3C demonstration system.

Subtask 7.1 – Manufacture Geophones

Subtask 7.2 – Manufacture Interrogator

Subtask 7.3 – Manufacture Pressure Housings

Subtask 7.4 – Manufacture the Upgraded Clamping System for the Deployment System

Subtask 7.5 – Assemble the 200 Level Array and Bench Test

Task 8.0 – Geophysical Surveys using the 200 level 3C Demonstration System: This task includes all work elements required to conduct the geophysical field survey using the 200 level 3C demonstration system. This test would be performed in a test well or a producing well. Processing and analyses of the results would also be completed. Evaluation of the field test would be completed in a report.

Subtask 8.1 – Selection of Field Test Site

Subtask 8.2 – Develop Test Plan

Subtask 8.3 – Assemble 200 Level 3C Array

Subtask 8.4 – Deploy 200 Level 3C Array at Field Test Site: Deploy a 200 level array in one well deployed on 15,000 ft of Paulsson's existing drill pipe.

Subtask 8.5 – Perform Seismic Survey with Demonstration Array: Perform a 3D VSP (Vertical Seismic Profiling) and micro seismic survey at the field test site. Seismic data acquired would be processed and interpreted.

According to the R&D laboratory questionnaire, no additional permits are needed for laboratory activities. No liquid effluent, air pollutants, or toxic wastes would be produced from project activities. All chemicals are stored and

disposed of appropriately. Laboratory operations follow OSHA, MSHA, International Association of Geophysical Contractors, and geophysical industry standards.

Because the field test site for deployment of the array and the seismic survey work methodology have yet to be determined, Subtasks 8.4 and 8.5 cannot be analyzed at this time. A NEPA determination for these subtasks in Phase 2 of the project would be premature at this time but would need to be made prior to Paulsson beginning any field work associated with these subtasks.

Condition of Approval: Allowable – Phase II (Task 7.0, including all subtasks, and Task 8.0, including Subtasks 8.1 through 8.3); Prohibited – Phase II (Subtasks 8.4 and 8.5).

Remaining project activities (excluding Subtask 8.4 and 8.5) are composed of information gathering, analysis, and dissemination; and laboratory operations; therefore the DOE has categorized this into Categorical Exclusions A9 and B3.6.

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:

- Subtask 8.4
- Subtask 8.5

This restriction does not preclude you from:

- Task 7.0, including all subtasks
- Task 8.0, Subtasks 8.1 through 8.3

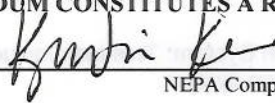
If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

Casey Strickland 3/7/13

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____



NEPA Compliance Officer

Date: _____

3/14/2013

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: _____