PMC-EF2a

(2.06.02)

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-0005509-001	0

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.

B3.11 Outdoor tests and experiments on materials and equipment components

Outdoor tests and experiments for the development, quality assurance, or reliability of materials and equipment (including, but not limited to, weapon system components) under controlled conditions. Covered actions include, but are not limited to, burn tests (such as tests of electric cable fire resistance or the combustion characteristics of fuels), impact tests (such as pneumatic ejector tests using earthen embankments or concrete slabs designated and routinely used for that purpose), or drop, puncture, water-immersion, or thermal tests. Covered actions would not involve source, special nuclear, or byproduct materials, except encapsulated sources manufactured to applicable standards that contain source, special nuclear, or byproduct materials may be used for nondestructive actions such as detector/sensor development and testing and first responder field training.

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. This project includes two Phases but this NEPA review is for Phase I only. Prior to initiating Phase II activities, there would be a go/no-go decision point after which DOE would determine whether or not to fund Phase II activities. Additional NEPA review will be required if this project is selected to continue with Phase II activities.

See the Statement of Project Objectives for details of the tasks below:

Phase I

1. Project Management and Planning
2. Determine System Specifications
3. Design of the Borehole Seismic System
4. Manufacturing of Prototypes
5. Environmental and Bench Test of Prototypes
6. Geophysical Test of Prototype Five Level Array – the prototype array would be deployed in an existing well and a geophysical survey would be conducted utilizing vibroseis as the surface seismic source.
7. Test Evaluation and Report of Prototype Sensor and Prototype Array

There is a Go/No-Go decision point prior to Phase II. Phase II will require additional NEPA review if the project is selected to continue with those activities.

Field testing of the system would occur at an existing geothermal well site. Vibroseis would be used as the surface seismic source for system testing. Vibroseis equipment would only be deployed on the existing well pad and existing