PMC-EF2a

(2.06.02)

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

RECIPIENT: University of Utah **STATE:** UT

PROJECT TITLE : Novel Geothermal Development of Deep Sedimentary Systems in the U.S.

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000336	DE-EE0005128	GFO-0005128-001	GO5128

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.

B3.6 Siting, construction (or modification), operation, and decommissioning of facilities for indoor bench-scale research projects and conventional laboratory operations (for example, preparation of chemical standards and sample analysis); small-scale research and development projects; and small-scale pilot projects (generally less than two years) conducted to verify a concept before demonstration actions. Construction (or modification) will be within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible).

Rational for determination:

The University of Utah would utilize DOE and cost share funds to research the geothermal power potential of deep sedimentary basins in the U.S. by assessing the electric generating capacity, economics and environmental risks of developing deep sedimentary reservoirs, and developing a preliminary design for heat extraction. Laboratory work would take place at the X-ray diffraction and fluid inclusion laboratories located at the Energy and Geoscience Institute, 423 Wakara Way, Research Park, Salt Lake City, UT.

This project includes two Phases but this NEPA review is for Phase 1 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.

PHASE 1: Feasibility Studies, Component Design and Validation Plan

Task 1.0 Sub-surface Resource Characterization – consists of review of the nature of permeability in drilled, sediment-hosted geothermal systems world-wide and the examination of a 100,000 km2 swath of the Basin and Range high heat-flow province to review its geothermal resource potential and possible environmental impacts of development.
Task 2.0: Simulation of Heat Exchange Processes and Thermal Evolution of Deep Sedimentary Reservoirs
Task 3.0: Optimizing Reservoir Performance (Well Field Design) and Power Generation
Task 4.0: Reservoir Implications of CO2 in Produced Fluids and as Co-injected Fluid – investigate potential effects of adding or co-injecting CO2 as a working fluid.
Task 5.0: Economic Modeling
Task 6.0: Assessment of Environmental Implications
Task 7.0: Integration of Task Results
Task 8.0: Project Management and Reporting

Phase II: Component Development and Validation – Phase II would focus on the most attractive resource areas with the goal of identifying 4 to 6 possible pilot project areas by the end of the phase. Detailed investigations would be conducted in the most prospective resource areas to verify reservoir characteristics and power potential.

Reports and other deliverables will be provided in accordance with the Federal Assistance Reporting Checklist following the instructions included therein.

According to the R&D Laboratory Questionnaire, no permits for the laboratory work would be required, no air pollution, liquid effluent, or toxic wastes would be generated. Standard laboratory safety equipment (fume hoods, alarms, etc.) are integrated into the laboratory facility and all workers follow a Hazard Management Plan that is reviewed by a

Health and Safety Officer. All chemicals are handled and stored in containers following guidelines provided by MSDS sheets and solvents are stored in fireproof metal cabinets.

Phase I Budget: $670,786 (DOE) $167,725 (cost share)

Phase 1 of this project is comprised of information gathering, data analysis, document preparation; and indoor bench-scale research projects and conventional laboratory operations; therefore CX A9 and B3.6 apply.

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:
Phase II. Additional NEPA review will be required if this project is selected to continue with Phase II activities.
This restriction does not preclude you from:
Phase 1 (all tasks and sub-tasks).
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 :

EF2a prepared by Casey Strickland

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 8/24/2011
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