PMC-EF2a
(2.06.02)

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

RECIPIENT: Louisiana State University and A&M College **STATE:** LA

PROJECT TITLE : Geothermal Resource Development with Zero Mass Withdrawal, Engineered Free Convection, and Wellbore Energy Conversion

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FO-0000336	DE-EE0005125	GFO-0005125-001	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 (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:

Louisiana State University (LSU) would utilize DOE and cost share funds to research the technical and economic feasibility, and environmental and social attractiveness, of a novel method of heat extraction from geothermal reservoirs. The emphasis is on assessing the potential for a heat extraction method that couples forced and free convection to maximize extraction efficiency. Laboratory work would take place at the LSU Petroleum Engineering Department Laboratory: P.F. Taylor Room 3430, Baton Rouge LA 70803.

The project includes a single phase with multiple tasks.
1. Resource Scope and Characterization: assess the extent and size of the accessible and developable geothermal resources
2. Reservoir Engineering of the Heat Extraction Process – simulations, studies, and forecasts
3. Wellbore Energy Conversion: perform design and feasibility calculations for downhole equipment
4. Wellbore Integrity: assess the durability of the casing-cement system in the hot saline environment, with particular emphasis on temperature changes and brine geochemistry
5. Geomechanical Risk Analysis: investigate the possibility and magnitude of seismic and subsidence caused by geothermal development using geomechanical simulations
6. Economic Systems Analysis: response models from reservoir and wellbore calculations will be combined with cost estimates to provide estimates for cost of electricity
7. Geospatial Analysis: appropriate overlays of economic indicators, emergency and medical facilities, and historical power outages will be used in combination with hot saline aquifer resource maps to assess the desirability of this development method

All permits for laboratory work are in place with state and federal authorities, no air pollution would be produced, and all liquid effluent and toxic wastes are handled, stored, discharged and/or disposed of in an appropriate manner. Standard laboratory safety equipment (fume hoods, alarms, etc.) are integrated into the laboratory facility and LSU laboratories are subject to the OSHA Laboratory Standard. A Chemical Hygiene Plan is also in place.

Project budget: $997,332 (DOE) $252,409 (cost share)

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 final NEPA determination for this award

Insert the following language in the award:

If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

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