

PMC-EF2a

(204.02)

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



RECIPIENT:GE Global Research

STATE: NY

PROJECT TITLE : High Temperature High Volume Lifting For Enhanced Geothermal Systems

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-PS36-09GO99018	DE-EE0002752	GFO-10-233	GO2752

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:

GE Global Research (GE) would define, design, fabricate, and test a prototype Advanced Lifting System (ALS) for fluids in Enhanced Geothermal Systems (EGS). The work would take place at the GE Global Research Center campus, an OSHA VPP Star facility, at 1 Research Circle, Niskayuna, NY 12309.

The project is divided into three phases with multiple tasks:

PHASE 1 – DEFINE EGS INDUSTRY REQUIREMENTS AND DEVELOP A CONCEPTUAL ALS DESIGN

1. Define well fluid lifting system requirements by analyzing EGS industry market trends, needs, and other various constraints.
 2. Review various lifting systems and relevant technologies to determine their efficacy in meeting system requirements determined in Task 1 and identify technology gaps for the most promising candidates.
 3. Establish a conceptual design for an ALS based on lifting methods and technology gaps identified in Task 2. Define performance requirements at the component level to develop a detailed Technology Development Plan (TDP) to enable the ALS concept.
 4. Project Management and Reporting for Phase 1.
- PHASE 2 – DEVELOP REQUIRED LIFTING SYSTEM COMPONENTS**
5. Execute the TDP and validate components.
 6. Update the ALS conceptual design and "scale" it for lab demonstration to incorporate lessons learned from the TDP and component validation tests.
 7. Create ALS Test & Demonstration Plan to prove the integration of new and existing technologies into the ALS solution.
 8. Project Management and Reporting for Phase 2.
- PHASE 3 – DEMONSTRATE LAB-SCALE ALS**
9. Detailed design and fabrication of lab-scale ALS demonstrator.
 10. Detailed design and fabrication of the flow loop.
 11. Lab-scale ALS demonstration.
 12. Project Management and Reporting for Phases 1-3.

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

According to the GE laboratory questionnaire, no additional permits are needed and there would be no air emissions associated with this work. All aqueous wastewater (water with sand) would be collected and disposed of as non-hazardous waste. Health and safety professionals would be on staff to assist with compliance to safety regulations. The closed flow loop would be installed in an existing test cell which is a remotely monitored, closed area. All test equipment would undergo a safety review prior to use and emergency stop provisions would automatically shut down the test equipment in the event that test conditions approach design limits.

This project is comprised of information gathering, data analysis, document preparation, and conventional laboratory

operations; therefore the DOE has categorized this proposal into Categorical Exclusions A9 and B3.6.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

None Given.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

NEPA Compliance Officer

Date: _____

3/8/10

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: _____

Field Office Manager

Date: _____