

PMC-EF2a

(2.04.02)

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



RECIPIENT: Composite Technology Development, Inc.

STATE: CO

PROJECT TITLE : High Temperature, High Pressure Devices for Zonal Isolation in Geothermal Wells

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-EE0000075	DE-EE0002771	GFO-10-226	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:

Composite Technology Development, Inc. (CTD) would develop and demonstrate high-temperature high-pressure (HTHP) zonal isolation devices for use in Enhanced Geothermal Systems (EGS). The work would take place in CTD's facilities located at 2600 Campus Drive, Suite D, Lafayette, CO 80501.

The project consists of multiple tasks:

1. Develop specifications for the zonal isolation device based on environmental conditions and loads associated with operation in an EGS environment.
2. Preliminary design development based on a prior conceptual design and data from Task 1 which includes component, sub-component, and material-level considerations.
3. Material and component design selection.
4. Screening and Evaluation of potential zonal isolation component designs.
5. Designing, fabricating, and testing of a zonal isolation demonstrator based upon lessons learned from Tasks 2, 3, and 4 to assess the functionality of a HTHP zonal isolation device.
6. Evaluation of results from the first demonstration unit to incorporate any design modifications necessary into a second demonstration unit that will be produced and tested.
7. Develop a final design for a HTHP qualification prototype using the results from all previous testing.
8. Manufacture and testing of the qualification prototype finalized in Task 7.
9. Development of a pilot-scale manufacturing plan for the HTHP zonal isolation devices.
10. Project management and reporting.

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

According to the CTD laboratory questionnaire, no additional permits are needed. Some air pollutants would be produced in the form of VOC and HAP emissions. All emission amounts are tracked and would be kept well below emissions limits set by Boulder County of the State of Colorado. The company claims that the use of solvents or chemicals that generate these pollutants would be minimized and any liquid effluent produced during the project would be solidified into a non-hazardous material and disposed of properly. CTD provides personal protection equipment, fume hoods, general room ventilation, fire alarms, and any additional equipment needed to ensure safety. According to the company, the safety program complies with local, State and OSHA regulations and is monitored by a safety team.

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: 3/10/10

**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: \_\_\_\_\_