PMC-EF2a
(2.04.02)

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

RECIPIENT: Johnson Controls **STATE:** OR

PROJECT TITLE : Novel Energy Conversion Equipment for Low Temperature Geothermal Resources

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000109	DE-EE0002858	GFO-10-205	GO2858

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.

B3.1 Onsite and offsite site characterization and environmental monitoring, including siting, construction (or modification), operation, and dismantlement or closing (abandonment) of characterization and monitoring devices and siting, construction, and associated operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis. Activities covered include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. Specific activities include, but are not limited to:

DOE/EA 1621 Oregon Institute of Technology Deep Geothermal Well and Power Plant Project (September 2008)

Rational for determination:

In September 2008, a NEPA determination was signed for the Oregon Institute of Technology (OIT) Deep Geothermal Well and Power Plant Environmental Assessment DOE/EA-1621. Johnson Controls (Johnson) would design an electrical generating plant at the OIT site identified in DOE/EA-1621. In Phase I, Johnson would study, evaluate, and design a power plant as identified in DOE/EA-1621. This design would be used by Johnson to manufacture and test a demonstration unit at the OIT site in Phase II and install the power plant in Phase III as identified in DOE/EA-1621. The project would be divided into three phases with multiple tasks:
Phase 1 – Feasibility Study, Technology Evaluation, and Design
Task 1) Permits and Resource Characterization: All required permits would be obtained and the resource characterized.
Task 2) Identify Optimal Technical Concept: To facilitate the cost evaluation, the general design would be specified to the size, type, and pressure of the heat exchangers and the size and pressure of the turbine along with details of any required unique features.

Go/No-Go Decision: At the conclusion of Task 2, a go/no-go decision, in coordination with the DOE, whether to pursue this project further.

Task 3) Design: A design would be modeled and drawings created

Phase 2 – Manufacturing and Preliminary Testing
Task 4) Manufacturing of Demonstration Unit- The fabrication of the turbine components would be completed by a specialized turbine design and manufacturing company.
Task 5) Pre-Installation Evaluation of Demonstration Unit- When manufacture of the demonstration unit is complete it would be shipped to the test facilities for performance and control testing. Johnson would make detailed performance measurements at the test facilities certified for accuracy by the Air Conditioning and Refrigeration Institute (ARI).

Phase 3 – Installation, Operation, and Maintenance
Task 6) Installation, Operation, and Maintenance- After completion of the pre-installation test in Task 5, the prototype would be shipped to OIT and installed. This plant would operate as a field test of the selected design concept to preempt potential problems in subsequent releases of similar equipment by first recording issues here. The results of controlled environment and commissioning testing would be used with observed costs and anticipated improvements to determine the ultimate feasibility of a line of commercial power conversion equipment for use with geothermal and other heat sources.
Task 7) Reporting – Reports and other deliverables would be provided in accordance with the Federal Assistance

Reporting Checklist following the instructions included therein.

Condition of Approval: All mitigation and best management practices identified in the Oregon Institute of Technology (OIT) Deep Geothermal Well and Power Plant Environmental Assessment DOE/EA-1621 are applicable to this proposal. This proposal comprises actions identified in DOE/EA-1621. Additionally, CX A7 and B3.1 can be used for information gathering and onsite characterization.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Insert the following language in the award:

You are required to:
All mitigation and best management practices identified in the Oregon Institute of Technology (OIT) Deep Geothermal Well and Power Plant Environmental Assessment DOE/EA-1621 are applicable to this proposal.

Note to Specialist :

None Given.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 4/16/10
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