

PMC-EF2a

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



(2.04.02)

RECIPIENT: Presco Energy, LLC

STATE: NV

**PROJECT TITLE :** Application of 2D VSP Imaging to the Targeting of Exploration and Development Wells in a Basin and Range Geothermal System - Humboldt House-Rye Patch Geothermal Area - Pershing Co, Nevada

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0000109	DE-EE0002840	GFO-10-139	GO2840

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:

- 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:
- B5.12** Workover (operations to restore production, such as deepening, plugging back, pulling and resetting lines, and squeeze cementing) of an existing oil, gas, or geothermal well to restore production when workover operations will be restricted to the existing wellpad and not involve any new site preparation or earth work that would adversely affect adjacent habitat.

## Rational for determination:

Presco Energy, LLC (Presco) would demonstrate the potential geothermal resource at the Humboldt house-Rye Patch (HH-RP) area in Pershing County, Nevada. Presco would collect and interpret data from both geophone arrays and 2D surveys, deepen 2 existing geothermal wells, and followed by testing and evaluation. The BLM Humboldt River Field Office is processing this geophysical proposal under a Notice of Intent with a categorical exclusion. The project would be divided into three Phases with multiple tasks:

## Phase I – Resource Evaluation

Task 1.1) Permitting, Design and Wellbore Re-Heat Tests: Thermochem's vibroseis source equipment at the site for the 2D profiles, as well as the use of the existing wells for receiver deployment. The wellbore re-heat tests – pump-in of cool water and real-time monitor of heating to TD – would be conducted in both receiver wells to design a "dynamic cooling" protocol that ensures wellbore temperatures remain below the receiver temperature limits.

Task 1.2) Field Acquisition and Processing: Acquire and process high-fold reflection data recorded in two existing receiver wells and surface geophones using vibroseis source arrays along 2D profiles at strategic positions crossing the range front fault system at Humboldt House-Rye Patch (HH-RP), Nevada. By combining the surface and borehole data, the high resolution velocity model would be extended to near-target depths, much below that typically achieved using surface data only. The expected outcomes are reflection images with sufficient resolution to identify fault intersections.

Task 1.3) Interpretation, Modeling and Selection of Phase II Targets: Integrated results of the technologies applied with the current knowledge base in the HH-RP resource area would be revised and restated in the reservoir model and select well targets for Phase II tasks.

Task 1.4) Reporting: Analysis of the interpretation and selection processes would be prepared for presentation in academic and professional forums, facilitating technology transfer.

## PHASE II: Drilling of Existing Wells

Task 2.1) Permitting, Well work Design and Costing: Obtain the regulatory approvals necessary to proceed with deepening and completion of the existing validation wells on private surface/minerals. The well design would incorporate the results of the Phase I targeting process, and the need for re-costing of original estimates.

Task 2.2) Drill and Complete Validation Wells (1st well: #51-21; Sec 21, T31N, R33E), (2nd well: #52-28; Sec 28, T31N, R33E): Deepen and complete Validation Well 1 and 2 to the specific target(s) identified using the Phase I technology. Samples, fluids and temperatures would be monitored using wellsite logging services, and cores (if appropriate) be acquired at intervals identified during drilling. The completions would install casing, including any slotted intervals, and wellhead.

## PHASE III: Well Testing

Task 3.1) Permitting, Design and Contracting of Extended Well Testing: Obtain necessary regulatory approvals for the

test production of reservoir fluids to the surface and the impoundment thereof, as well as implement the appropriate protocols for design and contracting with the testing company.

Task 3.2) Mobilization of Test Equipment and Construction of Test Sites: Ensure all necessary equipment is on site, operational, necessary facilities built prior to testing with quality protocols in place.

Task 3.3) Test of Validation Wells: determine the well productivity for electric generation service, as well as validate the technology used to target the wells. Confirm discovery of commercial geothermal "reserves" and validate the utility and benefit of the technology to reduce risk.

Task 3.4) Final Project Report: Provide a final accounting of all data collected, and a comprehensive assessment of the technology and ability to reduce financial risk.

Task 3.5) Final Presentations to DOE and Industry and Academic Forums: Provide a comprehensive review of the process, interpretation and result of Project activities to appropriate agencies and forums as soon as practicable following Project completion.

According to Thermochem and Presco, safety protocols are in place for instruments, geophysical work, chemicals, and waste monitored by a Health and Safety officer that meet or exceed state and federal requirements.

Condition of Approval: Allowable: Phase I contingent upon Bureau of Land Management review and concurrence. This proposal comprises data analysis, onsite characterization actions, and deepening existing geothermal wells to promote the research and development of geothermal resources; therefore this project is categorized as CX B3.1 and B5.12.

**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:

NA

This restriction does not preclude you from:

Phase I contingent upon Bureau of Land Management review and concurrence, II and III

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 :

None Given.

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature:

  
NEPA Compliance Officer

Date:

4/19/10

**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:

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Field Office Manager

Date:

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