PMC-EF2a
(2.04.02)

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

**RECIPIENT:** Fairbanks North Star Borough **STATE:** AK

**PROJECT TITLE :** Fairbanks Geothermal Energy Project

| Funding Opportunity Announcement Number | Procurement Instrument Number | NEPA Control Number | CID Number |
|---|---|---|---|
| | DE-EE0003219 | GFO-0003219-002 | 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:

**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.

**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:

**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.

Rational for determination:

DOE is proposing to provide funding to Fairbanks North Star Borough (FNSB) to deepen existing privately owned production and injection geothermal wells to increase the power generation at the existing power plant to form and sustain the geothermal reservoir in the Fairbanks North Star Borough, Alaska at the Chena Hot Springs Resort. Fairbanks North Star Borough (FNSB) would model a geothermal resource, drill a test well, and potentially a production well to determine if the geothermal resource could be exploited for traditional or enhanced geothermal system production to produce 5 MW of power.

Deepen Production well TG-8
Arctic Drilling would deepen well TG-8 from 1,020 ft deep to 2,700 ft. Deepening this well would allow access to hotter water from the reservoir, enhancing the power generation capacity. The deeper casing design would prevent cooler water from formations at shallower depths from cooling down the well, which is currently occurring. The casing for this well will be cemented in for safety purposes.

Deepen Injection Well TG-7
Arctic Drilling would deepen well TG-7 from 1,020 ft deep to 2,700 ft. Deepening this well would allow more water into more of the reservoir, enhancing the power generation capacity. The casing design would keep the re-injected water from circulating at shallow depths.

Drilling would occur with cold water and drilling mud will not be used. Drilling water would be stored in a temporary retention. The retention pond would be approximately 15' diameter by 5 ' deep and hold approximately 7000 gallons of water. The pond would be revegitated after drilling is complete.

The project would occur on existing geothermal well pads with access using existing roads. There are no expected adverse effects to threatened and endangered species, wetlands, floodplains, or cultural resources as a result of the proposed project. Drilling permits are not required for wells less than 3,000 ft deep, per Alaska Department of Natural Resources. There are safety protocols are in place for the proposed work that meet or exceed state and federal requirements.

DOE has made several NEPA determinations for federally funded geothermal projects at the Chena Hot Springs Resort in Alaska. GFO-04-236A (3/15/2005) allowed for a geothermal resource evaluation of the Chena Hot Springs area and site selection of a geothermal well. GFO-088-188 (11/4/2008) allowed for installation of a UTC Power PureCycle 225 binary Rankine Cycle power plant. GFO-04-236B (4/8/2009) allowed for drilling and construction for a

3000' geothermal well. GFO-10-123 (3/23/2010) allowed for demonstration of new cement technology for casing geothermal wells at Chena Hot Springs. GFO-10-367 (5/5/2010) allowed for the development of a hybrid water/air cooled condenser and enhanced turbine for the power plant at Chena Hot Springs. This NEPA determination applies to a scope of work that, while separate from those listed above, is connected to the previous actions in that they all develop or enhance the geothermal resource at Chena Hot Springs.

After a review of the information submitted by the recipient for the proposed project, DOE has determined that the proposed action will not have a significant impact (either individually or cumulatively) to human health and/or the environment. CX B5.12 applies to deepening the two wells identified in this NEPA determination. CX B3.1 applies to the geophysical modeling activities. CX A9 applies to project management actives.

This NEPA determination does not apply to drilling any new wells.

DOE ($909,091; DE-EE0003219) and cost share ($1,400,409) funding (total $2,309,500).

**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 :

This EF2A was written by Christopher Carusona II

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

NEPA Compliance Officer Signature: _____ Date: 8/25/2011

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