PMC-EF2a
(2.04.02)

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

RECIPIENT: SURPRISE VALLEY ELECTRIFICATION CORP **STATE:** OR

PROJECT TITLE : RECOVERY ACT: RURAL ELECTRIC COOPERATIVE GEOTHERMAL DEVELOPMENT ELECTRIC AND AGRICULTURE

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000109	DE-EE00003006	GFO-0003006-003	GO3006

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:

B5.1 Actions to conserve energy, demonstrate potential energy conservation, and promote energy-efficiency that do not increase the indoor concentrations of potentially harmful substances. These actions may involve financial and technical assistance to individuals (such as builders, owners, consultants, designers), organizations (such as utilities), and state and local governments. Covered actions include, but are not limited to: programmed lowering of thermostat settings, placement of timers on hot water heaters, installation of solar hot water systems, installation of efficient lighting, improvements in generator efficiency and appliance efficiency ratings, development of energy-efficient manufacturing or industrial practices, and small-scale conservation and renewable energy research and development and pilot projects. The actions could involve building renovations or new structures in commercial, residential, agricultural, or industrial sectors. These actions do not include rulemakings, standard-settings, or proposed DOE legislation.

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:

Surprise Valley Electrification Corporation (Surprise) would demonstrate the potential geothermal resource near Paisley, Oregon. In Phase I (exploration and geothermal modeling; partially awarded by GFO-10-344 on 4/27/2010 and blanket CX A9). Tasks 1.3 and 1.4 (rework of existing wells) were authorized by GFO-0003006-002 on 11/24/2010. However, the existing geothermal irrigation wells were found unsafe and nonconducive for the project. Therefore, Tasks 1.3 and 1.4 were modified, so another NEPA review was needed. Once the modeling is complete, the data would be used to locate drilling, flow testing, power plant site selection, power plant installation, transmission upgrades, connecting to the grid. A land use and development agreement was reached between the surface owner (owning the water/mineral/geothermal rights) and Surprise on June 24, 2009. The project would be divided into three phases with multiple tasks.

This analysis is specific to Subtasks 1.3 through 1.7. Subtasks 1.3 through 1.7 are Categorical Excludable since the tasks include drilling two exploratory geothermal wells (1 production, 1 injection), flow testing, preliminary design, and research for the geothermal resource authorized by DOE funds (Recovery Act: Electric Cooperative Geothermal Development) in the amount of $96,000 for expenditure by Surprise Valley Electrification Corporation under the blanket CX A9 and A11 and approved by GFO-10-344 on 4/27/2010.

PHASE 1 (Planning, Geology, Engineering,)

Subtask 1.1) Permitting for the following permits/rights: Drilling Permit, and bond, geothermal water injection permit, and geothermal production well. Oregon State controls the water rights for types and timing of use. Approved by GFO-10-344 on 4/27/2010 and blanket CX A9

Subtask 1.2) Produce a Reservoir Model: Create a numerical model of the geothermal reservoir to determine the location and depth of the injection well and the sustainable flow the system can produce. Approved by GFO-10-344 on 4/27/2010 and blanket CX A9

This analysis specific to Subtasks 1.3 through 1.7
Subtask 1.3) Drill Production Well: Drill a geothermal production well on an existing irrigation well pad near Paisley, Oregon (T.33S., R.18E., Sect. 23, NWSW) with perforations in both the cold and hot producing regions of the bore. Surprise would drill a production well using a truck mounted drill rig and blowout preventor (BOP) with a closed system (tank holds the drilling mud) to about 1200', finishing the well to geothermal production well standards.
Subtask 1.4) Drill Injection Well: Based on the Reservoir Model, the injection well would be drilled near Paisley, Oregon (T.33S., R.18E., Sect. 23, NESW) in an agricultural field using a truck mounted drill rig and BOP with a closed system (tank holds the drilling mud) to about 1200', finishing the well to geothermal production well standards. The injection well pad would be 50x50 feet (3-6 inches in depth with gravel) or smaller. The gravel would come from the local quarry on the property between the injection and the production well.

Subtask 1.5) Flow Testing: Conduct a flow test of the production well and the injection well.
Subtask 1.6) Preliminary Plant Sizing, Layout, Collection System and Integration: The power plant sizing, its location, and the general layout of the system would occur. Since this is an operating ranch, the layout would accommodate the existing ranching operation.
Subtask 1.7) Preliminary Transmission Design: Conduct a feasibility analysis to determine what upgrades would be necessary for up to 10 MWs of power out of this area, and the remaining portions of the system designed.
Go/no-go Decision Point: The successful completion of phase one would produce data from which the plant size, its operating characteristics and the economic merits of this power plant can be projected with a high degree of certainty. The development team would prepare a decision brief for DOE and Surprise. The decision brief would detail the flow test results, project power output, installation costs, and the average cost of power over the next 30 years. A decision to proceed would be made based upon the data and results from Phase 1 suggesting that the power plant can be installed and operated successfully, as proposed.
The following tasks are not Categorical Excludable since the geothermal resource has not been proven for a power plant, the road, and transmission paths have not been identified therefore these tasks cannot be analyzed at this time:

PHASE 2 (Installation of Power Plant Equipment)
Subtask 2.1) Select/Order Turbine Generators
Subtask 2.2) Select/Order Pipe for Gathering System
Subtask 2.3) Well Pump Servicing/work
Subtask 2.4) Select/Order Electrical Upgrade Equipment
Subtask 2.5) Installation Permit: A Lake County, Oregon permit would be needed.
Subtask 2.6) Plant Assembly, Installation, and Electrical Upgrade for Well Rework/Drilling, Power Houses, Pipes connecting the Production and Injection well to the Turbine Heat Exchanger, Electrical Upgrade and connection to the power plant, Cooling System, Turbine Installation, Monitoring & Control System

PHASE 3 (Commissioning, Operation, Maintenance, & Monitoring)
Subtask 3.1) Commissioning: Commissioning includes a demonstration of all emergency and normal conditions, validation that remote monitoring is functioning and a written set of emergency procedures and general maintenance.
Subtask 3.2) Operate and Maintenance: Monitoring cooling water, lubrication, well pump, and other operating characteristics of the plant.
Subtask 3.3) Monitor & Report: Surprise would report data to DOE as required.
Subtask 4.0) Project Management and Reporting: Reports and other deliverables would be provided in accordance with the Federal Assistance Reporting Checklists.

According to Alternative Drilling Company (drilling contractor), all drilling operations would be conducted in compliance with applicable laws, regulations, and good safety practice in general. No one is expected to take unnecessary or dangerous risk, and avoid risky operations. Alternative Drilling Company safety program includes:

Potential Hazards for the Operation:
Heavy Rotating Machinery
Heavy Lifting
Uneven/slippery Work Surface
Potentially Cold Weather
High Noise Work Area
Blow Out of Loss of Well Control
Cold Weather/Frostbite Conditions

Workers would wear appropriate protection equipment (hard hat, gloves, hearing, eyes, cold weather, etc.), and operate equipment in a safe and reasonable manner.

At the change of each shift operators would spend a few minutes updating replacement workers, updating logs, and transitioning the job responsibilities in a safe and informed manner.

All drilling fluids, drilling materials and produced fluid would be maintained on the site. The cuttings from the well

would be sequestered on the property in the immediate vicinity of the drilling rig. Upon inspection of the drilling cuttings and validation that they are non toxic, cutting would be used on the property as fill material.

Fuel, a hazardous material, is used on this project to operate the mobile drilling equipment. Caution and care would be exercised to prevent spillage of the fuel. Should a spill occur it would be quickly cleaned up and the earth saturated with the fuel scooped up and placed in a 5 gallon bucket for proper disposal. Should a larger more catastrophic spill occur, heavy equipment on site would be used to contain, remove, and clean up.

An archaeological survey was prepared by Montana Long with ASM Affiliates on November 12, 2010 with the following summary:
"The current inventory did not identify any cultural resources within the survey area. It is evident from the use of fill gravel, the presence of a culvert along the road, and the depth of tire rutting in the turnaround area, that seasonal runoff from rain and snow on the adjacent hillside periodically inundates the project area. In addition to exacerbating the extent of the ground disturbance from vehicle and farm equipment traffic, this saturation also results in a generally poor depositional context for maintaining the integrity of cultural sites and features.
Given the dearth of cultural materials and the level of surface disturbance, it is unlikely that any cultural resources will be adversely impacted by the proposed improvements to the current wellpad. In addition, modifications to the access road are limited to the addition of gravel overlay and will not involve subsurface disturbance."

A wildlife survey was completed by Sue Fox with Wildlife Consultants on November 16, 2010 with the following summary:
"No special status species were identified during the baseline wildlife survey although potential habitat is present for the following species: burrowing owl, silver-haired bat, small-footed myotis, long-eared myotis, fringed myotis, long-legged myotis, and Yuma myotis. The six bat species could potentially roost in trees within and near the project area. Due to the disturbed nature of the project area (i.e., used for farming and ranching, and traffic and equipment), it is unlikely that any special status wildlife species will be adversely affected by the proposed improvements to the current wellpad and the addition of gravel overlay to the access road."
At this time, the geothermal resource has not been proven for a power plant and the power plant has not been designed or located, therefore cannot be analyzed. Therefore, Phase III would be analyzed once the location of the geothermal resource was proven for a power plant and the power plant designed and located.
Condition of Approval: Allowable: Phase I, Phase II, Phase III (Subtask 3.3 and 4.1only); Prohibited: Phase III (except Subtasks 3.3 and 4.1). Phase I, II, III Subtask 3.3 and 4.1 comprises monitoring, site characterization, actions to conserve energy and renewable energy research and development and pilot projects; reporting to promote the research and development of geothermal resources; therefore this project is categorized as CX A9, B3.1, and B 5.1.

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:
Phase III (except Subtasks 3.3 and 4.1)
This restriction does not preclude you from:
Phase I, Phase II, Phase III (Subtask 3.3 and 4.1only)
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 :

This project involves tasks which are unallowable prior to further environmental analysis. NEPA requests that this project be placed on ASAP Approval.

EF2A written by Christopher Carusona

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 1/27/11

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