PMC-EF2a
(2.06.02)

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

RECIPIENT: Ohio Department of Development **STATE:** OH

PROJECT TITLE: Ohio State ARRA-EECBG - Act 3 (Competitive Grants) Antioch College- Geothermal

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000013	DE-EE0000714		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:

B5.1 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.

Rational for determination:

The Glen Helen Ecology Institute at Antioch College is proposing a project to install a ground source heat pump system with a heating and cooling capacity of 26.8 tons. The system will have a closed loop vertical heat exchanger consisting of 21 boreholes drilled to a depth of 340 feet spaced 20 feet apart. At no point during operation will any interaction take place with the groundwater. The proposed installation and construction activities will occur in less than one acre of an existing flat parking lot covered with crusher fines. All boreholes will be cased in a thermally enhanced bentonite grout that is designed to withstand cracking from the changes in temperature between the ground and the heat exchange pipe. This ensures that the area around the borehole is sealed to keep any surface runoff from contaminating ground water. The system will employ high density polyethylene pipe that is heat fused at the joints which greatly minimizes the risk of leaks in the system preventing possible contamination of soil and ground water sources. The refrigerant is an environmentally friendly mixture of 23% food grade biodegradable propylene glycol and potable water. The recipient states that a state certified or licensed driller will be the lead driller for the project and will follow guidelines for installation established by IGSHP Association as well as NGWA recommendations. The recipient states that a building permit will be issued as part of the larger energy conservation project by Greene County. The borefield will be drilled in an existing flat parking lot covered with crusher fines. The connecting pipes within the field and the boreholes are not expected to be a source of erosion concern. The Ecology Institute will follow their own "Woodland Restoration Protocol." This Protocol removes and reserves top soil along the path of disturbance and the top surface leaf mold as well as woody plants. The disturbed subsoil is captured for reinstallation as backfill in the cut. The specifications will require that the drilling contractor take any unused borehole grout bags from the site. There are not any other waste materials associated with this geothermal project. To address potential hydrology issues, the recipient states that the Glen Helen Outdoor Education Center's well is one mile away and separated from the borefield by two intervening ravines. No other specific wells used for domestic purposes are known to be present within this one-mile radius. It is noted that, for cultural resources, contact has been made with the State Historic Preservation Officer. There has been a review of the site as the recipient has previously engaged architectural historians to review all of the landscapes and buildings of the college. Relative to federally designated T&E species, the Glen Helen Ecology Institute scientists have concluded that there are no known T&E species within Glen Helen and its near environs. Analyzing the National Wetland Inventory on the EPA's NEPAssist, the reviewer has concluded that there are no floodplains or coastal zones in proximity to the proposed site location. The proposed site location is 1.2 miles from the nearest wetland providing an ample buffer against any adverse effects.

After a thorough review of the submitted information, it has been determined that the proposed project will not have a

significant impact to human health and/or environment. Therefore, all activities in the proposed project are categorically excluded under CX B5.1 "actions to conserve energy" from further NEPA review.

NEPA PROVISION

Note to Specialist :

None Given.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 4/14/10

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