

PMC-EF2a

(2.04.02)

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



RECIPIENT: IL Department of Commerce & Economic Opportunity

STATE: IL

PROJECT TITLE : Public Building Commission of Peoria; Geo-Exchange System for New Harrison Birth through 8th Grade School.

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000052	EE0000119	GFO-10-454	EE119

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 Illinois Department of Commerce and Economic Opportunity will provide \$211,000 in Recovery Act funds to the Public Building Commission of Peoria to install a 211-ton, vertical closed-loop ground source heat pump (GSHP) system as part of the current construction of the new 109,000 square-foot single-story Harrison Birth through 8th Grade Community Learning Center located at 2702 W. Krause, Peoria, IL. The Learning Center is in the final stages of construction and is expected to be complete by the beginning of the fall 2010 semester. Installation of the GSHP system is complete.

DOE performed a site visit on June 16, 2010 to inspect the project and to determine whether any significant environmental impacts occurred during project construction. The building is designed for four separate learning villages surrounding a central core. Construction of the building is complete and the interior spaces are mostly complete. The outside areas need to be landscaped.

The geothermal system is used to provide heating and cooling of the entire school except for the gymnasium, the multi-purpose room, and the kitchen. The geothermal system design has the capability of incorporating a cooling tower in the event increased cooling capacity is required for future operations. A boiler system will supplement the geothermal system to ensure occupant comfort in the school during seasonal extremes and provide thermal relief for the well fields.

The well field is divided into four zones (corresponding to the four learning villages), located in a total disturbed area of approximately 1 acre. The wells for the GSHP system consist of 118 bore holes each approximately 250 feet deep. The geothermal wells feed 66 geothermal heat pumps with a total cooling load of 192.8 tons. The school site was originally a subsidized housing development and derelict land, which was removed for construction of the new school. Thus, drilling and installation of the well field has occurred on previously disturbed land. The surrounding area is a highly developed, urban area. The project is unlikely to have an adverse effect on threatened and endangered species.

Installation of the geothermal wells was completed by Kickapoo Drilling Company. The Company is licensed with the Illinois Department of Health, certified with the National Ground Water Association, and accredited with the International Ground Source Heat Pump Association. The boreholes were grouted 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 employs high density polyethylene pipe that is heat fused at the joints to minimize the risk of leaks in the system. The system uses potable water and propylene glycol as the heat exchange fluid.

An erosion control plan is in place for the entire construction site to ensure that mitigation and best management practices are implemented during construction. The main geothermal well fields will be seeded for grass, and will be located under a soccer field. Another well field is located under what will be the employee parking lot.

The project site is located in the City of Peoria, which resides atop a sand and gravel aquifer. The project will not impact the City's water supply as the City draws its water through the Illinois American Water Company per requirements of the Illinois Environmental Protection Agency. Likewise, the City has an ordinance prohibiting private groundwater wells for use as a potable water supply.

Geothermal wells are considered Class V Underground Injection wells and are subject to the criteria and standards applicable to Class V wells under Subpart F of 35 Illinois Administrative Code Part 730, which requires a permit to install and operate the wells. Therefore, a UIC permit was obtained from the Illinois Environmental Protection Agency, in accordance with 35 Illinois Administrative Code Part 705.

After a thorough review of the submitted information and a post-construction assessment of project site, it has been determined that the project has not had a significant impact to human health and/or environment. Based on the information obtained, the work outlined is consistent with activities identified in Categorical Exclusion B5.1.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

According to the project officer, funding for this project is \$211,000. As the work sponsored by DOE Recovery Act funds is nearly complete (absent landscaping), payment based on submitted invoices for the work completed may be warranted.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 6/25/10
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