PMC-EF2a

(2.04.02)

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

RECIPIENT: East Marshall Community School District; sub-recipient of Iowa Energy Bank Revolving Loan Program **STATE:** IA

PROJECT TITLE : EL-11-002 East Marshall High School Geothermal Project

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
EE 0000162	DE-EE0000162	GFO-0000162-017	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:

B5.19 Ground source heat pumps
The installation, modification, operation, and removal of commercially available smallscale ground source heat pumps to support operations in single facilities (such as a school or community center) or contiguous facilities (such as an office complex) (1) only where (a) major associated activities (such as drilling and discharge) are regulated, and (b) appropriate leakage and contaminant control measures would be in place (including for cross-contamination between aquifers); (2) that would not have the potential to cause significant changes in subsurface temperature; and (3) would be located within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

B2.1 Workplace enhancements
Modifications within or contiguous to an existing structure, in a previously disturbed or developed area, to enhance workplace habitability (including, but not limited to, installation or improvements to lighting, radiation shielding, or heating/ventilating/air conditioning and its instrumentation, and noise reduction).

Rational for determination:

DOE provided SEP ARRA funding to the Iowa Economic Development Authority (IEDA), which is administering the Iowa Energy Bank Revolving Loan Program. East Marshall Community School District (East Marshall) would be the sub-recipient of a $250,000 loan from this program. East Marshall would use DOE funding to: 1) expand an existing ground source heat pump (GSHP) well field and 2) install heat pump equipment to replace original unit ventilators in the 1978 addition.

East Marshall High School (204 North Franklin Street, Le Grand, Iowa 50142) is located on the northwest side of Le Grand, Iowa. The school is bordered by open fields on the north and west sides. The high school was built in 1920. The athletic field is located northwest of the high school.

In 2005, East Marshall installed a 91 ton capacity, vertical, closed-loop GSHP system to serve the 1978 addition to the high school. This GSHP system is located adjacent to the athletic field, in an area that was originally graded for the athletic field. The existing GSHP system consists of 96 boreholes, each 15 feet apart and 250 feet deep. The size of the existing borefield is approximately 23,600 square-feet.

The proposed project would add 32 more boreholes. The additional boreholes would be located directly north of and contiguous to the original borefield. The new capacity of the GSHP system would be 127 tons (128 boreholes). The new borefield would be approximately 30,800 square-feet. Minimal land disturbance of less than 7,000 square feet would occur at the project site. In order to prevent run-off during well drilling, a silt fence and a VacTron (vacuums excess drilling fluids) will be used.

The state certified and licensed driller will follow IGSHPA and NGWA regulations during installation. The system would use HDPE piping that is heat fused and all wells would be fully grouted with a thermally enhanced grout. All loops would be pressure tested before and after installation. The system would not use a refrigerant, only potable water. The system currently uses a heat exchanger. This heat exchanger prevents the loop system from freezing, thus eliminating the need to use glycol in the system.

The proposed systems would not impact groundwater. A test borehole was drilled for the 2005 project. No groundwater was encountered. There are no known aquifers near the proposed system. Le Grand is connected to a rural water system. If the system were to reach an aquifer, the aquifer would be protected because the system would be installed using techniques, which protect the groundwater and the loop fluids from contaminating one another.

Areas containing karst topography and related federally listed species in Oklahoma have been identified, and the proposed projects would not occur in proximity to those resources. Based on this, DOE has determined there would not be any adverse impacts to these resources as a result of the proposed project.

In a letter dated November 14, 2011, the State Historic Preservation Officer (SHPO) determined no historic properties will be affected by the proposed project.

Based on this information, DOE has determined the work outlined is consistent with activities identified in categorical exclusion B5.19 (installation of ground source heat pumps) and B2.1 (modifiaction to existing HVAC system).

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 :

Cristina Tyler 12.20.2011

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 12/27/2011

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