

PMC-ef2a

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



(20402)

RECIPIENT: City of Eagan

STATE: MN

PROJECT TITLE : Recovery Act: City of Eagan Ice Arena

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000116	DE-EE0002807	GFO-10-286	2807

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:

- A11** Technical advice and planning assistance to international, national, state, and local organizations.
- 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.
- 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 city of Eagan has completed drilling test boreholes and excavating the construction site.

The city of Eagan is proposing to design and install a high efficiency central plant heat pump system that will use the circulating water/ethylene glycol mixture

"Both the Ethylene Glycol Panel and the U.S. Environmental Protection Agency (EPA) agree that ethylene glycol biodegrades in the environment and that studies show it is relatively non-toxic to aquatic life". (Fate, effects and potential environmental risks of ethylene glycol: a review- CA Staples, JB Williams, GR Craig, KM Roberts - Chemosphere, 2001 - Elsevier).

4 of the GSHP systems will be used to reduce costs for the ice production required by for the city's ice arena, 2 of the GSHP systems will be used to baseline temperatures for air conditioning, heating hot water, and domestic hot water. In addition to the project funding for the Ground Source Heat Pumps, funds for this project will be used for additional energy and cost savings measures. These include a dry fluid cooler for "free cooling" an internal system housed in the existing HVAC service room, high efficiency motors, variable frequency drives, digital controls, and low emissivity ceilings over the ice rinks (A panel based system secured to the existing ceiling).

The system is comprised of six, 60 ton heat pumps, four of which will be used during ice production, and 2 of which will be used to baseline the production of hot water. The well field will contain 32 boreholes drilled to a depth of 350ft. A test bore concluded that there are no existing aquifers in the surrounding area nor directly below the project location, this eliminates the possibility of ground water contamination from surface or system leaks. The closed loop system will use High Density Polyethylene pipe that is heat fused at the joints to minimize the chance of leakage into the surrounding environment. It is noted that the existing ethylene glycol refrigerant used in the current chiller system will be reused with the new heat pump system. All construction will take place in an existing asphalt parking lot. The well field will be installed under an existing asphalt parking lot next to the arena. The existing asphalt will be removed and recycled. New asphalt will be paved over the well field. No previously undisturbed land will be disturbed during installation. All water and drilling spoils will be contained within piping systems and construction dumpsters. No water or drilling spoils will be allowed to flow onto the site. Erosion control measures are limited since the drilling location is on an existing parking lot. The following steps will be taken: Sediment trenches (ponds) will be dug along the Northeast edge of the construction zone to allow sediment to settle out. The test bore indicates the existing sand/gravel soil type will absorb most of the water. Sediment erosion logs will be placed around the outer areas of the excavation site to filter any water that may escape the excavation site. The parking lot drainage grates will be

removed, and inlet protection devices (silt trappers) were installed to filter any fluids that may have escaped the erosion logs. The recipient states that no wetlands, floodplains, or coastal zones will be affected by the installation of the GSHP system. Since the drilling location is an existing parking lot, no re-vegetation will be required. The recipient will follow the specification that states the well driller must follow the IGSHPA guidelines and at a minimum, the project foreman must be IGSHPA certified. The NGWA guidelines are enforced through the State of Minnesota codes and regulations as required. The driller will be State licensed or certified and will follow all federal, state and local codes associated with drilling geothermal wells. It is noted that the city of Eagan has completed and provided the GSHP questionnaire (see attached).

A CX A9 and A11 will apply to all Phase 1 and Phase 3 activities and for Task 12 (Phase 2), as all tasks involve the gathering of information and analysis towards the design of the proposed system, monitoring of the system once installed, and the dissemination of technical advice and planning to the City of Eagan. A CX B5.1 will apply to Tasks 9, 10 and 11 (Phase 2), for the installation of the ground-loop heat exchange system, and renovations to install heat pumps, ductwork, and piping to improve the energy-efficiency of the facility.

After review of the above information, it can be determined that the proposed project will not have a significant impact human health and/or environment. Therefore the proposed project is hereby Categoricaly Excluded under CX A9 "Information Gathering", CX A11 "technical advice" and CX B5.1 "actions to conserve energy", from further NEPA review.

NEPA PROVISION

DOE has made a final NEPA determination for this award

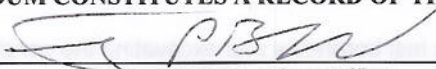
Insert the following language in the award:

Note to Specialist :

None Given.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:


NEPA Compliance Officer

Date:

3/29/10

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:

Field Office Manager

Date: