PMC-EF2a

(2.04.02)

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

RECIPIENT: City of Philip and Philip Health Services **STATE:** SD

PROJECT TITLE: Philip Health Services Geothermal Project

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000119			EE0

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.

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 Philip is proposing to use ARRA funds provided by DOE to install two 6" 1,746 linear feet geothermal lines to link Hans P. Peterson Memorial Hospital and adjacent health care facilities, known as Philip Health Services, with an existing Philip Geothermal District System. This project is also seeking funding through the United States Department of Agriculture (USDA) Rural Development Program. The project will involve converting/retrofitting Philip Health Services fuel oil boilers to a geothermal system with a fuel oil boiler back-up system.

The existing Philip open loop geothermal system currently delivers 200 gpm of 157 F water starting at the Haakon County school facility and through the downtown heating district. The Philip Geothermal District System was originally built during the early 1980's via a Department of Energy Grant. The proposed connection to Philip Health Services will be the last user on the system before the water goes to an existing barium chloride treatment plant. Water from the treatment plant is pumped into a closed system evaporation pond which is currently regulated under the Philip Geothermal District System "water rights" permit. Water temperature is expected to be between 100-130 F when it enters the hospital heat exchanger. A heat pump operating on the other side of the heat exchanger will extract heat from the geothermal loop. With 100 F water entering and 80 F leaving the heat exchanger (design conditions), approximately 167 tons of heat will be transferred to be used for comfort and domestic water heating within the building. If the school/heating district demand is less and supply water temperature rises, more heat transfer to the building will be possible. There will be no installation of boreholes or wells since the proposed lines will be connecting to an existing geothermal system. The heat exchanger fluid used on the building side of the heat exchange system will be a non-toxic refrigerant of propylene glycol which will minimize the risk of contamination to surface water. The existing open loop geothermal side currently uses ground water as the heat exchanger fluid.

This proposed project will involve the digging of a 12' wide trench to install two 6" 1,746 linear feet geothermal lines to link Philip Health Services with the existing Philip Geothermal District System. The geothermal lines will utilize previously disturbed private easements as well as a City of Philip right-of-way, and the portion of one alley. The location of the proposed tie-in is an open area near the existing treatment plant. From this location the pipeline would extend north through a residential area, onward to an alley going north up through W Pine Street where it will connect to Philip Health Services. The shortest path with the least amount of utility conflicts would be the selected route for crossing Pine Street to connect the geothermal line to Philip Health Services.

The City of Philip submitted consultation letters regarding the Philip Geothermal Energy Efficiency Project to South Dakota (SD) Game Fish and Parks, US Fish and Wildlife Service (USFWS), the South Dakota State Historic Preservation Office (SHPO), US Army Corps of Engineers (USACE), the US Natural Resources Conservation Service,

the Santee Sioux Tribe, the Fort Peck Assiniboine & Sioux Tribes, the Cheyenne River Sioux Tribe, the Crow Creek Sioux Tribal Council, the Lower Brule Tribal Council, the Pine Ridge Reservation, the Standing Rock Sioux Tribe, the Rosebud Sioux Tribe, and the Sisseton Wahpeton Oyate Tribe. No objection letters to this project were received.

The City of Philip received letters from the SD Game Fish and Parks, the USFWS, and the USACE concurring that the project will have no significant impact on fish and wildlife resources and that no wetlands would be affected by this project. A letter was received from the South Dakota SHPO office concurring that no historic properties will be affected by this project.

The Philip Health Services buildings no longer exist within a 100 year floodplain. The Philip Health Services buildings located at Lots 8 through 14, Block 4, Russell's Addition, City of Philip, Haakon County as described in the Warranty Deeds recorded in Book 148, Page 206, and as Document No. 87-290, all in the Office of Register of Deeds, Haakon County, South Dakota were removed from the floodplain on July 22, 1999 as documented in letters from the Federal Emergency Management Agency (FEMA). Other surrounding properties were also removed from the floodplain. Therefore, all geothermal components, appurtenances, and retrofits pertaining to the Philip Health Services buildings conversion will not be located within the 100 year floodplain.

The Philip Health Services Geothermal System has preexisting lines located within Philip's Zone A 100 year floodplain which were installed 8 feet underground. The two proposed geothermal lines that will link Philip Health Services to the existing Philip Geothermal District System are the only system components of this project that will be located within the 100 year floodplain. However, these geothermal lines will be installed 12 feet underground to be below the five to six feet of frost penetration in the winter. The City of Philip determined that a Floodplain Development permit is not required for the geothermal lines installation and will not lead to a rise in the event of a flood. Since the geothermal lines will be installed underground, there is a very low probability that they will be impacted by major flooding. Also, the trenching will not alter any waterway or impact the flood plain, therefore the city determined no flood plain permit is necessary.

Philip Health Services did obtain a required building/excavation permit for this project from the City of Philip. The South Dakota Department of Environment & Natural Resources (DENR) staff were consulted by phone and stated that no permits pertaining to water rights will be required for the undertaking of the geothermal project. The two 6" 1,746 linear feet geothermal lines will simply link to the existing Philip Geothermal District System that already has the necessary "water rights" and other required DENR permits in place with the exception of a Storm Water Permit. A storm water pollution control plan will be presented to the SDDENR for approval with the required Storm Water Permit.

All waste generated from this project will either be recycled, disposed of at Philip's Rubble site, or at the Rapid City Regional Landfill (for items not accepted at Philip's rubble site.) Excess materials will be hauled off-site by the contractor and no hazardous waste is anticipated to be generated from this project.

The area does not include shallow aquifers that are used for potable drinking water in the area. The underlying aquifers include high levels of iron, radionuclides, and other constituents which are unsuitable for drinking water. The project is near a drainage tributary of the Bad River and is normally dry except during storm events. Best management practices and precautions will be taken during construction to prevent erosion in this area. The applicant has committed to implement erosion controls to be in place during construction and will include; wattles, silt fencing, and inlet silt bags. The disturbed soils will be tracked for temporary stabilization. Site restoration will be completed following pipeline installation. The area will be reseeded and mulched following construction with erosion controls in-place until re-vegetation is established.

After a thorough review of the proposed project, it has been concluded 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 A9 "information gathering" and 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:

Insert the following language in the award:

You are required to:
Obtain SDDENR approval for the required Storm Water Permit prior to project implementation .

Note to Specialist :

None Given.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 4/22/10
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