

PMC-EF2a

(2.04.02)

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



RECIPIENT:Forrest County

STATE: MS

PROJECT TITLE : Geothermal Program - Forrest County Geothermal Energy Project (Phase 2)

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-EE0000116	DE-EE0002969	GFO-0002969-002	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:

Forrest County, Alabama is proposing to install an 800 ton Closed-loop Ground-Source Heat Pump, consisting of 650 boreholes and 35 rooftop solar exchangers to service two separate buildings with one district energy GSHP system (Expo Center and Detention Facility).

Well driller and GSHP system installer will follow the IGSHPA and NGWA recommendations for the installation of the Closed-loop system and be certified to install these systems. All boreholes will be encased with thermally enhanced bentonite grout thereby reducing the likelihood of cracking which could lead to surface to groundwater intrusion and system failure/leakage. HPDE piping meeting the specifications that satisfy IGSHPA guidelines would be used for all underground piping. The Detention Facility is currently under construction, the engineers for the Detention Facility have accounted for the increased structural load of the proposed roof-top solar heat exchangers.

The system will use Environol for its heat-exchange fluid; Environol is comprised of a ¼ Ethanol and ¾ Water ratio with other limited trace materials including a blue coloring agent. Local drinking water supplies are obtained from well aquifers (Upper and Lower Catahoula) located between 460 – 680 feet deep. The Mississippi Automated Resource Information System (MARIS) provides area hydrology information. No impact to the area hydrology is anticipated, as the proposed project would not penetrate the confining layers of these ground water resources. Furthermore Ethanol is rapidly bio-degraded in sub-surface ecosystems and there are no legacy concerns with the chemical in the unlikely event of system leakage. If the system loses pressure caused by a leak, the GSHP system has an automatic shut-down feature and the system will not be turned back on until the system can be serviced. These factors greatly reduce the risks and associated impacts posed by anti-freeze leakage.

“Eco-Systems consulting conducted a preliminary evaluation of the onsite ecological communities within the review area to determine the potential for the presence of federally protected species. The evaluation was initiated with an offsite evaluation of federally listed species known to occur in Forest County, Mississippi and a literature search of the preferred habitats associated with those species. Other published literature and related information such as USGS topographic quadrangle maps, National Wetland Inventory (NWI) maps, soils information, and satellite imagery were used to describe ecological communities and assist in establishing habitat suitability. The field visit included observations of the review area conditions for the determination of potential presence/absence of habitat suitable for federally listed species and visible signs of species occurrence within the review area. Based on the available literature and our site reconnaissance, no federally listed species were observed during our investigation. Therefore, due to the absence of preferred habitat and the lack of evidence of occurrences of federally protected species, it is our opinion that no threatened or endangered species occur onsite. Furthermore, no critical habitat is known to occur onsite.”

DOE reviewed this report and other information made available by USFWS to reach our conclusion; based on the fact that all construction related activities will occur on previously disturbed, clear-cut, and graded land; DOE has determined that the installation of the proposed Closed-loop Ground-Source Heat Pump would have no impact on the following Federally listed Threatened and Endangered Species: Gopher tortoise (*Gopherus polyphemus*), Yellow-blotched map turtle (*Graptemys flavimaculata*), American black bear (*Ursus americanus*), Pearl darter (*Percina aurora*), Gulf sturgeon (*Acipenser oxyrinchus desotoi*), Louisiana quillwort (*Isoetes louisianensis*), Stirrupshell (*Quadrula stapes*), Arctic peregrine Falcon (*Falco peregrinus tundrius*).

In a meeting held on August, 25th 2010, the project proponents were requested to contact the State of Mississippi's SHPO pursuant to the DOE's responsibilities under Section 106 of the National Historic Preservation Act. DOE was instructed that the county consulted with and received no objection from the SHPO on original development plans for the Expo Center and Detention Facility; this consultation included the entire land parcel inclusive of the footprint of the GSHP system.

Eco-Systems conducted a preliminary evaluation of jurisdictional waters and their determination indicates the presence of approximately 11.3 acres of wetlands and approximately 3,432 linear feet of stream channel onsite that would likely be under the jurisdiction of the USACE. DOE submitted the project file and the "limited environmental assessment" to the Army Corps of Engineers (Mobile District) for their review and determination of the applicability of Section 404 of the Clean Water Act to the proposed project. On a letter dated Oct. 22nd 2010, USACE determined that the proposed project would not require a 404 permit. The proposed well field is in proximity to, but will not occur within, any wetlands or stream channels at the project site; therefore there are not expected to be any adverse effects to those resources as a result of the proposed project. Erosion control measures described in the paragraph below will further ensure that impacts to wetlands from well field installation activities will not occur.

Silt fences and hay bales will be used to control site runoff. Grass will be replanted were soil is disturb as part of well drilling. All waste materials will be collected onsite and removed by the appropriate personnel. The project proponent issued their contract award for a general contractor with the following language, "All crossing of indicated wetlands shall be by boring. No trenching or excavation is allowed in wetlands... Contractor shall provide (a) storm water prevention plan to protect wetlands."

DOE has determined that the proposed GSHP system will not have a significant impact to the human health and/or environment. This project is hereby Categorical Excluded under B5.1 "Actions to Conserve Energy".

NEPA PROVISION

Insert the following language in the award:

You are required to:

If any archaeological resources are discovered during ground disturbing activities we require that work is stopped immediately and that you consult with both the Department of Energy and your State Historic Preservation Office prior to restarting any ground disturbing activities.

Note to Specialist :

EF-2a completed by John Jediny

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

NEPA Compliance Officer

Date: _____

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 :