PMC-EF2a

(2.06.02)

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

RECIPIENT: Indie Energy Systems Company, LLC **STATE:** IL

PROJECT TITLE: Retrofit of the Local 150 of International Union of Operating Engineers Headquarters Campus

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-EE0000116	DE-EE0002818	GFO-10-298	2818

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:

Indie Energy Systems Company, LLC have completed all phases of construction and implementation of the Ground Source Heat Pump project. Indie Energy has completed installation of the borefield and all internal retrofits to the building. A site visit was conducted on 4/3/2010 by John Jediny, NEPA Specialist. Upon conducting the site visit, the DOE official noticed that there were 3 large runoff areas just off the Local 150's property where the geothermal system was installed. This land is owned and operated by the Cook County Forest Preserve (CCFP). DOE instructed Indie Energy and the Local 150 (Land owner and owner of the GSHP system) to start consultation with CCFP. DOE required Indie Energy and the Local 150 to make CCFP aware of the circumstances caused due to the run-off and sedimentation that occurred on their property. Indie Energy and CCFP have produced a signed agreement in the form of an assurance letter as proof of consultation and an agreed upon plan for site restoration. The letter on file with DOE ("Indie Energy & CCFP- Site Restoration Agreement") states the following; "

"The Forest Preserve District of Cook County ("FPD") is aware of the non-hazardous sediment run-off caused by the closed-loop geothermal borehole drilling that took place between October 22, 2009 and January 14, 2010 on the FPD land adjacent to the Local 150 of the International Operating Engineers ("Local 150") headquarters. 6200 Joliet Rd., Countryside, IL. That run-off is made up of a limestone mixture that became visible in the spring... Indie Energy wishes to perform a clean-up of the non-hazardous sediment run-off on the FPD land adjacent to the Local 150 headquarters. 6200 Joliet Rd., Countryside, IL. FPD agrees that Indie Energy in coordination with FPD, will develop a site restoration plan with the input of a professional restoration consultant to be selected by the FPD at its sole discretion. Indie Energy will pay the cost of restoration planning and implementation as well as the consultant selected by the FPD. Indie Energy hereby commits in writing to initiate the restoration plan approved by the FPD within two weeks of said approval, and to complete restoration actions within six weeks of the start date at its expense. Once Indie Energy completes that restoration according to the plan approved by the FPD, the FPD will release Indie Energy and its subcontractors from further responsibility regarding this matter."

DOE has conducted a review of the laboratory testing performed; the samples were taken during the drilling of test boreholes. These sample were submitted to a lab for screening of possible VOC contamination. First Environmental Laboratories (FEL) has concluded that "All Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been meet... FEL accreditation number is 100292 and their current certificate number is 002205." (FEL, Oct. 21, 2009).

The Indie Energy Geothermal retrofit of the Local 150 of the International Union of Operating Engineers campus has replaced more than 400 tons of conventional heating and cooling systems with ground source heat pump technology (GSHP). The system will use a district heating and cooling approach, serving three buildings comprising 166,000 square feet of commercial and office space. The system will also use a hybrid system approach, integrating GSHP technology with conventional HVAC equipment, to provide the cost savings and emissions-reducing benefits of Smart Geothermal. The geothermal district system will utilize a closed-loop geothermal heat exchange network. The well fields will serve three buildings.

The project consisted of data collection, analysis, design, thermal conductivity testing which includes on-site testing using mobile testing equipment with heaters, pumps, controls, and data recording. The test was performed on an existing closed-loop borehole of the geothermal ground loop system. The testing unit is contained in a trailer unit and was set up on site in the parking lot area. The projects implementation phase consisted of construction activities such as: GSHP drilling and construction, interior HVAC retrofit, and system commissioning. The GSHP system is a closed loop vertical system with a capacity of 400 tons. The district geothermal ground loop consists of 83 boreholes at an average depth of 650 feet. At no point during operation will any interaction take place with the groundwater. This system employs high density polyethylene pipe that is heat fused according to IGSHPA guideline at the joints to prevent leaks and greatly minimizing the risk of refrigerant contamination of ground water. In the very small chance that it does, the system has employed an environmentally approved mixture of potable water and food-grade propylene glycol as the refrigerant further minimizing impacts in the event of system leak. The recipient has provided documentation that a water quality test was performed on the project. There are no water wells in the direct vicinity (surrounding lots), reducing the risk for surface and subsurface contamination of other water resources in the event of a leak. The area surrounding the location of the GSHP system is serviced by a municipal source of drinking water, therefore negating the risk of an impact of the human health of the surrounding area. All boreholes will be grouted in accordance with the State of Illinois guidelines which will ensure that there is no contamination of ground water from surface runoff at the boreholes. The recipient states that a State of Illinois licensed driller is the lead driller for the project and the installation follows guidelines for installation established by IGSHP Association, ensuring best management practices. During the drilling process, all cuttings were forced out of the borehole through casings and diverter hoses and then channeled to a construction dumpster, where all cuttings are gathered. Cuttings were taken off-site for clean disposal at the municipal landfill. No drilling fluids or muds are used in the process as it is a dry drilling system powered by compressed air. All of the geothermal closed-loop boreholes are located beneath an existing asphalt parking lot. Erosion control measures were limited since the drilling location is on an existing parking lot. All water and drilling spoils should have been contained within piping systems and construction dumpsters. As stated above it has become evident that not all waste water and slurry contents were captured and transported off site; however because we understand that this material is non-hazardous/contaminated material and we have a signed mutual agreement for the restoration of the site between Indie Energy and CCFP and an assurance from Indie Energy that they will implement that agreed upon plan we can say that this system does not have a significant impact to human health and/or environment. Since the drilling location was in the parking lot, no re-vegetation will be required. There was no impact to wetlands, floodplains or coastal zones caused by the installation of the GSHP. Because the project took place on a site that is already heavily disturbed by pavement, it is highly unlikely that any endangered fauna or flora used the site. Information submitted by the recipient regarding cultural and historical resources in the area has been reviewed. There will be no impact to these cultural resources due to the installation of the GSHP system.

The task yet to be performed will consist of system operation, monitoring, collecting data on system performance, and development of marketing studies and media.

After a thorough review of the project, DOE has concluded that the project will not have and has not had a significant impact to human health and/or environment. Therefore, all activities under the Statement of Work for the project are categorically excluded under CX A9 "information gathering" 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:

Insert the following language in the award:

You are required to:

Complete the site restoration according to the plan approved by the FPD (Cook County Forest Preserve)

Note to Specialist :

None Given.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 6/8/10

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