PMC-EF2a
(20402)

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

RECIPIENT: ELECTRATHERM, Inc. **STATE:** NV

PROJECT TITLE: "Small Scale Electrical Power Generation from Heat Co-Produced in Geothermal Fluids: MiningOperation"

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-EE0000336	DE-EE0004435	GFO-0004435-003	GO4435

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:

B3.1 Site characterization and environmental monitoring	Site characterization and environmental monitoring (including, but not limited to, siting, construction, modification, operation, and dismantlement and removal or otherwise proper closure (such as of a well) of characterization and monitoring devices, and siting, construction, and associated operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis). Such activities would be designed in conformance with applicable requirements and use best management practices to limit the potential effects of any resultant ground disturbance. Covered activities include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. (This class of actions excludes activities in aquatic environments. See B3.16 of this appendix for such activities.) Specific activities include, but are not limited to: (a) Geological, geophysical (such as gravity, magnetic, electrical, seismic, radar, and temperature gradient), geochemical, and engineering surveys and mapping, and the establishment of survey marks. Seismic techniques would not include large-scale reflection or refraction testing; (b) Installation and operation of field instruments (such as stream-gauging stations or flow-measuring devices, telemetry systems, geochemical monitoring tools, and geophysical exploration tools); (c) Drilling of wells for sampling or monitoring of groundwater or the vadose (unsaturated) zone, well logging, and installation of water-level recording devices in wells; (d) Aquifer and underground reservoir response testing; (e) Installation and operation of ambient air monitoring equipment; (f) Sampling and characterization of water, soil, rock, or contaminants (such as drilling using truck- or mobile-scale equipment, and modification, use, and plugging of boreholes); (g) Sampling and characterization of water effluents, air emissions, or solid waste streams; (h) Installation and operation of meteorological towers and associated activities (such as assessment of potential wind energy resources); (i) Sampling of flora or fauna; and (j) Archeological, historic, and cultural resource identification in compliance with 36 CFR part 800 and 43 CFR part 7.
B5.15 Small-scale renewable energy research and development and pilot projects	Small-scale renewable energy research and development projects and small-scale pilot projects, provided that the projects are 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.

Rational for determination:

ElectraTherm would use U.S. Department of Energy (DOE) grant funds to analyze, design, test, optimize, build, install, run and report results from its micro-geothermal plant running on heat co-produced in geothermal fluid at a mining operation. Product development includes design and testing innovations in the use of operating fluids, condensing design, variations in power block options, power use and/or storage, hardware interface with a corrosive environment and heat source, as well as remote monitoring. Laboratory work would occur at ElectraTherm's headquarters in Reno, Nevada. Field portions of the project would occur at the Florida Canyon Mine located 40 miles southwest of Winnemucca, Nevada.

Phase I of this project was previously approved by GFO-0004435-001 on October 18, 2010. As part of the requirements of the Funding Opportunity Announcement that this project was selected under (DE-FOA-0000318), a down select process was completed and this project was selected to move forward with Phase II and Phase III activities. Phase II and Phase III activities were approved by GFO-0004435-002 on May 31, 2012. Subsequent to that NEPA determination, ElectraTherm added a task (Task 18) to the Statement of Project Objectives. This change in the project scope necessitated another NEPA review of the additional task (Task 18). All other tasks are still covered by the previous NEPA determinations listed above.

Task 18 – Material Corrosion Testing and Heat Exchanger Life
ElectraTherm would install an evaporator heat exchanger material corrosion coupon rig which would be plumbed in parallel to the ORC demonstrator power plant hot well water supply at the Florida Canyon Mine site. The rig would

evaluate various heat exchanger materials such as stainless steel and titanium to determine the needed maintenance cleaning cycles and expected heat exchanger life. Periodic (bi-monthly) well water sampling of all three wells on the mine site would be monitored to determine changing well conditions with usage and time of the year and how this relationship may affect material corrosion rates.

Installation of all new equipment would occur at the existing well site presently utilized in mining operations by the Florida Canyon Mine. Installation of the equipment and the water sampling of the three wells at the mine site require no additional permits beyond those already in place.

Task 18 activities are categorized as site characterization and environmental monitoring; and a small-scale renewable energy research and development and pilot project; therefore the DOE has categorized this additional task into Categorical Exclusions B3.1 and B5.15.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

EF2a prepared by Casey Strickland

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 7/19/2012

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