

PMC-ND

(1.08.09.13)

**U.S. DEPARTMENT OF ENERGY
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
NEPA DETERMINATION**

**RECIPIENT:** Mohawk Innovative Technology, Inc.**STATE:** NY

PROJECT TITLE: Oil-Free, High Temperature Heat Transfer Fluid Circulator

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001697	DE-EE0008374	GFO-0008374-001	

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, analysis, and dissemination Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)

B3.6 Small-scale research and development, laboratory operations, and pilot projects Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Mohawk Innovative Technology, Inc. (MiTi) to design, fabricate, and test a maintenance- and oil-free high temperature prototype Heat Transfer Fluid (HTF) gas circulator for Concentrating Solar Power (CSP) systems with Thermal Energy Storage.

The types of activities associated with the proposed project include data analysis, computer modeling, preliminary design and engineering, and laboratory-scale research and development. MiTi would first conduct office-based analytical studies to identify the most economically and technically viable configuration for a high temperature gas circulator intended for use in a heat transfer loop. Then a proof-of-concept subscale engineering demonstration unit (composed of foil bearings and high speed rotating machinery) would be designed, fabricated, assembled, and instrumented using existing equipment at MiTi's purpose-built laboratory and test facilities in Albany, NY. Additional components for test equipment would be fabricated by certified 3rd party vendors. Initial checkout tests would be performed at MiTi; however, subsequent performance tests potentially involving the shipment, installation, and testing of the prototype circulator at a future megawatt-scale supercritical carbon dioxide (sCO₂) Test Loop would be carried out at a partner location to be determined (Task 5). Therefore this NEPA Determination only applies to Tasks 1-4 of the proposed project.

The proposed project would involve the use and handling of Hexane solvent (approximately 80,000 gallons over the proposed two year project duration) for part cleaning and cooling during inspection, assembly, and testing. All such handling would occur in-lab, and this hazardous chemical would be managed in accordance with applicable Federal, state, and local environmental regulations. The project would also involve testing of high speed/high energy rotating machinery at high temperature. Proposed testing would not exceed the scope of standard operations at MiTi's headquarters, and would occur in a confined test cell designed to provide protection to workers from any hazards using sand filled cinder block walls in accordance with OSHA standards. No change in the use, mission, or operation of existing facilities would arise out of this effort.

Based on the review of the proposal, DOE has determined Tasks 1-4 of the proposed project fit within the class of action(s) and the integral elements of Appendix B to Subpart D of 10 CFR 1021 outlined in the DOE categorical exclusion(s) selected above. DOE has also determined that: (1) there are no extraordinary circumstances (as defined by 10 CFR 1021.410(2)) related to the proposal that may affect the significance of the environmental effects of the proposal; (2) the proposal has not been segmented to meet the definition of a categorical exclusion; and (3) the proposal is not connected to other actions with potentially significant impacts, related to other proposals with cumulatively significant actions, or an improper interim action. Tasks 1-4 of the proposed project are categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a conditional NEPA determination for this award, and funding for certain tasks under this award is contingent upon the final NEPA determination.

Insert the following language in the award:

You are restricted from taking any action using federal funds, which would have an adverse affect on the environment or limit the choice of reasonable alternatives prior to DOE/NNSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:

Task 5.0 – Assessment of Outcomes and Path Forward.

This restriction does not preclude you from:

Task 1.0 – Tradeoff Studies.

Task 2.0 – Circulator Design.

Task 3.0 – HTF Circulator Hardware Fabrication and Integration.

Task 4.0 – Performance Test HTF Circulator.

If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

Solar Energy Technologies Office

This NEPA determination requires a tailored NEPA Provision.

NEPA review completed by Whitney Doss, 8/16/2018

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:



Casey Strickland

Date: 8/16/2018

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