

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Hayward Tyler, Inc.**STATE:** VT

**PROJECT TITLE:** Development of High Temperature (> 700o C) Molten Salt Pump Technology for Gen3 Solar Power Tower Systems

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0001697	DE-EE0008373	GFO-0008373-001	

**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.)

**A11 Technical advice and assistance to organizations**

Technical advice and planning assistance to international, national, state, and local organizations.

**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 Hayward Tyler, Inc. to design and develop a submerged bearing type and associated materials for recommended use in next generation Concentrated Solar Power (CSP) systems. In order to validate these components, molten salt pump and bearing "test rigs" would be designed and assembled in collaboration with Oakridge National Laboratory (ORNL), a partner for the proposed project that would provide technological expertise as well as the facilities for hosting and operating the test rigs.

The types of activities associated with the proposed project would include data analysis, computer modeling, preliminary design and engineering, and laboratory research. Computer-based development of the design for a high temperature molten salt pump would be conducted by Hayward Tyler. Conceptual and design reviews would be provided by subrecipient High Temperature System Designs. The high temperature molten salt pump test rig would be fabricated, assembled, and operated for temporary data collection purposes at ORNL in Oakridge, TN. The bearing test rig would be developed, fabricated, and undergo initial testing with water at Hayward Tyler at their established manufacturing facility in Colchester, VT, then shipped to ORNL for assembly. Selection and testing of materials utilizing both test rigs would occur entirely at ORNL.

The proposed project involves the use of high-temperature molten salt within a closed-loop system. All such work would occur in-lab at ORNL, following existing operational safety policies and procedures. Small quantities of hazardous materials used by the proposed project would be managed in accordance with all applicable Federal, state, and local environmental regulations. Non-hazardous waste streams generated by the testing process, including scrap metal and oil, would be recycled by certified off-site vendors. Upon conclusion of the proposed project, the test systems would be disassembled.

The facilities in which project work would occur were purpose-built for the type of activities being proposed; therefore, no adverse impacts to sensitive resources are expected as a result of the proposed activities at any project location. No change in the use, mission or operation of existing facilities would arise out of these efforts. The recipient and project partners have all applicable permits in place, and would not need additional permits for the proposed activities.

Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

Based on the review of the proposal, DOE has determined the proposal fits 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. This proposal is categorically excluded from further NEPA review.

### NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If the Recipient intends to make changes to the scope or objective of this project, the Recipient is required to contact the Project Officer, identified in Block 15 of the Assistance Agreement before proceeding. The Recipient must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved. If the Recipient moves forward with activities that are not authorized for Federal funding by the DOE Contracting Officer in advance of a final NEPA decision, the Recipient is doing so at risk of not receiving Federal funding and such costs may not be recognized as allowable cost share.

Insert the following language in the award:

You are required to:

Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

Note to Specialist :

Solar Energy Technologies Office

This NEPA determination requires a tailored NEPA Provision.

NEPA review completed by Whitney Doss, 8/27/2018

### SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: \_\_\_\_\_



Kristin Kerwin

NEPA Compliance Officer

Date: 8/28/2018

### 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: \_\_\_\_\_  
Field Office Manager

Date: \_\_\_\_\_