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(1.08.09.13)

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

**RECIPIENT:** ThermoChem Recovery International**STATE:** MD

**PROJECT TITLE :** Project Development for Pilot and Demonstration Scale Manufacturing of Biofuels, Bioproducts and Biopower (PD2B3)

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0001232	DE-EE0007964	GFO-0007964-001	GO7964

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:

<b>A9 Information gathering, analysis, and dissemination</b>	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.)
<b>B3.6 Small-scale research and development, laboratory operations, and pilot projects</b>	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 ThermoChem Recovery International (TRI) to design, test, and validate an advanced heat exchanger and CO<sub>2</sub> capture system for a pilot-scale integrated biorefinery to produce transportation fuels from woody waste. This NEPA determination is for Phase 1 including both Budget Periods 1 and 2. If the recipient is selected to move forward into Phase 2, further NEPA review will be necessary once Phase 2 tasks are defined.

Phase 1 of the proposed project would consist of validating data and developing plans for integrating partner technologies at TRI's biorefinery Process Demonstration Unit in Durham, NC. Associated activities would include data analysis, computer modeling, preliminary mechanical design/engineering, laboratory scale research/development, document preparation, business planning, and equipment selection. Design, modeling and planning activities would occur at the offices of TRI in Baltimore, MD and Durham, NC. Additional desktop work including data analysis, process modeling, and prototype design would take place at the offices of subrecipients located in Houston, TX, Albuquerque, NM, Melville, NY, Research Triangle Park, NC, Tulsa, OK, and either Satsuma, AL or Montreal, Canada.

There are no Phase 1 activities that would involve the testing of biorefinery unit operations at pilot-scale. Laboratory-based work including sorbent characterization, Fischer-Tropsch wax development, operation of bench scale reactors, and other process/product testing would occur at the dedicated research facilities of: TRI's Advanced Development Center in Durham, NC; the RTI Research Triangle Laboratory in Research Triangle Park, NC; Velocys in Plain City, OH; and Southwest Research Institute (SwRI) in San Antonio, TX. All such work would occur within existing, purpose-built laboratories owned and/or operated by TRI and the aforementioned subrecipients. No change in the use, mission or operation of existing facilities would arise out of these efforts. Equipment installations and/or physical modifications to existing facilities would not be required. The recipient/subrecipients' facilities are each fully permitted for the type of activities being proposed; no new permits, licenses or authorizations would be required for this project.

The proposed project would involve the use and handling of various hazardous materials, including gases, solid CO<sub>2</sub> sorbents, organic solvents, and flammable materials. These activities would present no new risks or materials, nor a significant increase in the quantities of materials used, beyond those encountered in currently ongoing work at these facilities. The established Occupational Health and Environment Management System procedures at TRI, Velocys,



SwRI and RTI ensures that all activities are in compliance with external regulations and corporate policies. Hazardous materials would be managed within properly constructed laboratory enclosures equipped with requisite safety systems such as engineering controls and monitoring. Work would be conducted by trained personnel implementing appropriate site-specific health and safety protocols, including proper personal protective equipment use.

Small quantities of hazardous and non-hazardous waste generated by the proposed project would be disposed of following standard practices at each facility in accordance with federal, state, and local environmental regulations. Any remaining biofuel products would be managed through a petroleum recycling program in-place at SwRI. No siting, construction or major expansion of waste storage, disposal, recovery, or treatment actions/facilities would be required. Minor and temporary air emissions generated by Phase 1 activities would be properly treated before gas is vented to the atmosphere. Emission sources would not exceed currently permitted limits for relevant project locations.

Based on the review of the proposal, DOE has determined the tasks in Phase 1 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. Phase 1 tasks 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:

Phase 2

This restriction does not preclude you from:

Phase 1 (includes all tasks and subtasks in Budget Periods 1 and 2)

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 :

Bioenergy Technologies Office

This NEPA determination requires a tailored NEPA Provision.

NEPA review completed by Whitney Doss, 06/30/2017

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

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



Casey Strickland

*Casey Strickland*

Date: 7/3/2017

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: \_\_\_\_\_

Field Office Manager

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