

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Research Triangle Institute**STATE:** NC**PROJECT TITLE**
: Building Blocks from Biocrude: High Value Methoxyphenols

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001433	DE-EE0007730	GFO-0007730-001	

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 the Research Triangle Institute (RTI) International to develop a comprehensive separation strategy to efficiently and economically recover valuable methoxyphenols (MPs) as building blocks to demonstrate that bioproducts could enable cost-effective production of biofuels via integrated catalytic pyrolysis and hydroprocessing. Activities associated with the proposed project would include initial validations (Task 1), development of separation strategy (Task 2), market assessments and techno-economic (TEA) and life-cycle analyses (LCA) (Tasks 3, 5 & 7), in-lab separations (Task 4), and pathway validation (Task 6).

DOE intends to conduct a go/no-go review and decision prior to authorizing tasks in Budget Period 2. While this NEPA determination applies to the entire Statement of Project Objectives, it does not authorize the recipient to conduct Budget Period 2 activities.

Pyrolysis and distillation of biocrude from loblolly pine would be completed in RTI's existing 1 ton-per-day (TPD) unit in Research Triangle Park, NC. The design, fabrication, and operation of a lab-scale distillation column would be required at this location in order to validate the separation strategy from the small-scale studies. Upgrading of the non-MP fraction into biofuels would be tested in RTI's existing 350-mL hydroprocessing unit also in Research Triangle Park, NC. This facility is purpose-built for the type of activities being proposed; therefore, no adverse impacts to sensitive resources are expected as a result of the proposed project. No change in the use, mission or operation of existing facilities would arise out of this effort. The facility has all applicable permits in place, and would not need additional permits for the proposed activities.

In support of these experimental activities, project partners AECOM and Arkema would develop conceptual process designs, and complete data analyses, computer modeling, and market analyses. AECOM would perform techno-economic analyses of the integrated process being demonstrated, as well as life-cycle assessments of the process to quantify greenhouse gas emissions reductions from their offices in Greenwood Village, CO. Arkema would conduct market assessments for MPs being isolated experimentally and develop quality metrics and standards for separated bio-products from their offices in Colombes, France. These are intellectual, academic, or analytical activities only and would use no physical materials beyond standard office supplies and equipment.

The proposed project would necessitate the use and handling of hazardous materials, including gases, catalysts, and

organic solvents. Chemical exposure is minimized by using glove boxes or fume hoods as needed in addition to the toxic gas sensors and high air changes in the lab. Personal protective equipment is required of all lab employees including safety glasses, gloves, lab coats and face shields, as needed. All waste produced would be non-hazardous and would be disposed of through normal municipal waste streams. Facilities meet or exceed federal safety and hazardous materials standards and no siting, construction or major expansion of waste storage, disposal, recovery, or treatment actions/facilities would be required.

Based on the review of the proposal, DOE has determined the proposal fits within the class of action(s) and the integral elements of 10 CFR 1021 subpart B 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. Furthermore, the proposed activities at Arkema located in Colombes, France are exempt from further review under EO 12114 per Section 5.1.1 (Actions not having a significant effect on the environment outside the US) of the DOE EO 12114 Implementing Guidelines. 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.

Note to Specialist :

Bioenergy Technologies Office

This NEPA determination does not require a tailored NEPA provision.

Review completed by Rebecca McCord, 09/12/2016.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:



Electronically Signed By: Kristin Kerwin

Date: 9/14/2016

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: