

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Georgia Tech Research Corporation**STATE:** GA

PROJECT TITLE: Advanced Multiphase (MP) forming for enhanced efficiency of drying paper, tissue and other fiber composite products

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002252	DE-EE0009396	GFO-0009396-001	G09396

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), 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 funding to the Georgia Tech Research Corporation to design, manufacture, and install a Multiphase (MP) forming platform to reduce energy consumption and carbon dioxide emissions in the industrial production of fiber composites such as tissue, paper, and board. In this method of manufacturing fiber-based materials, water would be replaced by high-density (HD) foam to reduce the amount of evaporative drying needed in the final stage of production. Software and hardware tools would be developed for use in MP forming. The project would be completed over two Budget Periods (BPs) with a Go/No-Go Decision Point in between each BP. This NEPA Determination is applicable to both BPs.

Georgia Institute of Technology (Georgia Tech) would oversee the project with Sandia National Lab (SNL), Solenis, and Kimberly Clark as subrecipients. Solenis and Kimberly Clark would provide technical expertise, no experiments or physical activities would take place at either of these locations. SNL would use existing facilities to assist with x-ray diagnostics, measurement of HD foam properties, and measurement of fiber orientation in the forming jet. They would also design the transparent fluid with the same rheological properties as HD foam to be used in experiments.

Project activities at Georgia Tech would be performed in the Aidun Laboratory at the Renewable Bioproducts Institute (RBI). They would create models to illustrate the flow of HD foam with and without fiber and develop and implement high resolution x-ray imaging to visualize fiber orientation in a fiber web sample. The MP forming platform would be designed, fabricated, and installed at the Georgia Tech lab and used in implementation of new dewatering technologies. The platform would be approximately 15 meters long and would include a forming section, approach flow, manifold, tube bank, headbox/nozzle, dewatering elements, sample collections, online diagnostics instruments, and system control instrumentation. It would be used to test wet sample segments where they would be pressed, dried, and measured for solid content. Georgia Tech would also design and fabricate new nozzle designs (to adjust fiber orientation) to experiment with the control of fiber orientation in fiber-laden foam. The fiber orientation in samples would be measured by a high-resolution x-ray imaging system installed at Georgia Tech. They would examine and demonstrate the effectiveness of nozzle designs in fiber orientation in MP forming. Findings would be broadly communicated to industry to facilitate commercial implementation.

No changes in the use, mission, or operation of existing facilities would be required as part of this project and no additional permits would be required in order to conduct any of the work activities.

Project activities would involve high noise levels from pumps and motors in the lab. Any risks associated with these noise levels or other hazards would be mitigated through adherence to established health and safety policies and procedures. Protocols would include ear protection, employee training, the use of personal protective equipment, monitoring, and internal assessments. The noise level in the adjacent lab at Georgia Tech is predicted to be 60 decibels, therefore under the level requiring ear protection. Noise levels for this lab and other nearby office spaces would be verified by Georgia Tech's environment, safety, and health office. All waste products would be disposed of according to each organization's waste disposal protocols and by licensed waste management service providers. Georgia Tech and its project partners would observe all applicable Federal, state, and local health, safety, and environmental regulations.

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Advanced Manufacturing Office
This NEPA determination does not require a tailored NEPA provision.
Review completed by Shaina Aguilar on 6/7/21.

FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

The proposed action is categorically excluded from further NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:

 Electronically Signed By: Casey Strickland
NEPA Compliance Officer

Date: 6/9/2021

FIELD OFFICE MANAGER DETERMINATION

- Field Office Manager review not required
- Field Office Manager review required

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature:

Field Office Manager

Date: