PMC-ND
(1.08.09.13)

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

RECIPIENT: University of Kentucky Research Foundation **STATE:** KY

PROJECT TITLE: Low-Cost, High-Strength Hollow Carbon Fiber for Compressed Gas Storage Tanks

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002229	DE-EE0009241	GFO-0009241-001	GO9241

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 federal funding to the University of Kentucky Research Foundation for the solution processing of hollow polymeric fibers, their thermal conversion to carbon fibers, and their characterization. The project would also manufacture and test composite overwrapped pressure vessels from the developed hollow carbon fibers. Performance and cost analyses would be performed throughout the project.

Proposed project activities would include the development and characterization of precursor fibers; oxidation profiling and evaluation of oxidation accelerants; fiber carbonization profiling and characterization; performance and cost analysis; prototype tank manufacturing and testing; and tank end-of-life reuse and recyclability evaluation. Laboratory activities would occur in existing laboratories designed for this type of work that would utilize standard laboratory equipment; therefore no modifications, new permits, additional licenses and/or authorizations would be necessary. No ground disturbing activities, no changes in the operation of existing facilities, and no installation of equipment outdoors would occur for project activities. Project activities that involve working with fibers would take place at the University of Kentucky's Center for Applied Energy Research (Lexington, KY), Solvay Composite Materials (Piedmont, SC), and Oak Ridge National Laboratory (Oak Ridge, TN). Design, manufacturing and testing of composite pressure vessels would be performed at Steelhead Composites Inc. (Golden, CO and Westminster, CO). Consulting services and desk-based analysis would be provided by Advanced Fiber Technologies, Inc. (Townsend, DE) and Strategic Analysis, Inc. (Arlington, VA) respectively. 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.

The project would involve the use and handling of various hazardous materials, including solvents and towpreg materials. All such handling would occur in-lab or within a manufacturing cell with dedicated proper handling and disposal practices including annual training and use of personal protective equipment as well as utilizing engineering controls to prevent exposure. All hazardous materials would be managed in accordance with federal, state and local environmental regulations. All materials generated would either be stored as samples or be disposed of according to established waste management practices in compliance with all federal and state regulations. DOE does not anticipate any impacts to resources of concern due to the proposed activities of the project.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Hydrogen and Fuel Cell Technologies Office
This NEPA determination does not require a tailored NEPA provision.

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 Date: 12/7/2020
NEPA Compliance Officer

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: _____ Date: _____
Field Office Manager