

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Collaborative Composite Solutions Corpoation/IACMI**STATE:** TN

PROJECT TITLE: Melt-Spun PAN Precursor for Cost-Effective Carbon Fibers in High Pressure Compressed Gas Tankage

| | | | |
|--|--------------------------------------|----------------------------|-------------------|
| Funding Opportunity Announcement Number | Procurement Instrument Number | NEPA Control Number | CID Number |
| DE-FOA-0002229 | DE-EE0009242 | GFO-0009242-001 | GO9242 |

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.)
- B1.31 Installation or relocation of machinery and equipment** Installation or relocation and operation of machinery and equipment (including, but not limited to, laboratory equipment, electronic hardware, manufacturing machinery, maintenance equipment, and health and safety equipment), provided that uses of the installed or relocated items are consistent with the general missions of the receiving structure. Covered actions include modifications to an existing building, within or contiguous to a previously disturbed or developed area, that are necessary for equipment installation and relocation. Such modifications would not appreciably increase the footprint or height of the existing building or have the potential to cause significant changes to the type and magnitude of environmental impacts.
- 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 Collaborative Composites Solutions Corporation (CCSC) to develop and demonstrate melt spinning of polyacrylonitrile (PAN) precursor to reduce costs of high strength carbon fibers for use in hydrogen storage vessels. Project activities include precursor formulation development, design and build of customized equipment for precursor spinning, process optimization, precursor conversion trials, techno-economic modeling, scale-up of precursor and carbon fiber production, manufacturing and testing of high-pressure tanks, end-of-life recycling assessment, and final reporting.

CCSC (Knoxville, TN) operates the Institute for Advanced Composites Manufacturing Innovation (IACMI) and would manage this project. Oak Ridge National Laboratory (ORNL) would develop and scale the melt spinning process and heat treat the carbon fibers. Design, fabrication, and build of custom equipment for generating melt-spun PAN fiber for use in downstream system processes would take place in Nashville, TN at JR Automation's facility. Equipment would be disassembled and shipped to ORNL for installation and runoff. Prescott Composites would assist in evaluating the economic/commercial viability of project results. Prescott Composites is nearing the selection stage for development and production sites where they will build out a new facility and therefore has not identified a location where their project activities would take place. Prescott's facility would be built regardless of the DOE funded project and no federal funding or project cost share would be used for its commissioning. Virginia Tech (Blacksburg, VA) would provide chemistry support on PAN polymer formulation and testing. Hexagon R&D (Lincoln, NE) would fabricate and test composite fuel tanks.

Project activities would occur in existing facilities and laboratories designed for the type of work planned. Pilot scale equipment would be installed within existing lab space at ORNL that may also require installation of utilities, work spaces, hoods, exhaust, etc. It is anticipated that this equipment would be scaled up later in the project. 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. No modifications to other facilities, 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.

Equipment building and installation activities would follow health and safety procedures including use of appropriate personal protective equipment. The project would involve the use and handling of various hazardous materials, including industrial solvents and reactive compounds. All such handling, including novel/innovative materials introduced over the course of the project, would occur in-lab following standard laboratory/company health and safety policies and procedures. Spinning equipment at ORNL would be well ventilated and extensively monitored. All materials and wastes would be managed in accordance with all federal, state, and local environmental regulations. Wastes generated during the project, including excess process materials and test articles, would be disposed of based on the standard company policies and procedures of each project partner. 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:



Casey Strickland

NEPA Compliance Officer

Date: 2/5/2021

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: _____