PMC-ND
(1.08.09.13)

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

RECIPIENT: Auburn University **STATE:** AL

PROJECT TITLE: Bioproduction and Evaluation of Renewable Butyl Acetate as a Desirable Bioblendstock forDiesel Fuel

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001919	DE-EE0008483	GFO-0008483-001	GO8483

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 Auburn University (AU) to develop an integrated bioprocess for efficient butyl acetate (BA) production by way of systematic genome engineering, evaluate BA as a viable bioblendstock for diesel fuel, and test the suitability of various blended fuel (BA/biodiesel) compositions in a series of laboratory-based experiments.

The proposed project would consist primarily of research and development tasks to be conducted entirely indoors within dedicated laboratory facilities at multiple universities plus one privately owned biotech research facility. (Supplementary data analysis and computer modeling tasks would be conducted at the offices of subrecipients EcoEngineers, LLC in Des Moines, IA and Virginia Polytechnic Institute in Blacksburg, VA.) Specifically, in-lab activities would include non-pathogenic microbial strain development and bench-scale fermentations for BA production, vacuum distillations, biomaterial fabrications, droplet combustion testing, and engine testing. Strain development, fermentation, and distillation of the extractant would occur at AU in Auburn, AL. Experimental testing of BA as a bioblendstock would take place at Cornell University in Ithaca, NY and the University of Alabama in Tuscaloosa, AL. Additional process optimization efforts as well as biomaterials fabrication would be undertaken by Microvi Biotech, Inc. in Hayward, CA.

The proposed project would involve the use and handling of small quantities (volumes in liter ranging from the orders of 1 to 100) of hazardous materials such as solvents and flammables. Hazardous gases could potentially be produced during the proposed combustion experiments. At every project location, existing university or corporate health and safety procedures would be followed, to include employee training, proper protective equipment, engineering controls, monitoring, and internal assessments. All project participants are dedicated to proper hazardous material management and disposal practices in accordance with applicable Federal, state, and local environmental regulations. Waste and/or surplus chemicals would be handled by the respective chemical safety program at each participating university. Microvi Biotech Inc. would dispose of all waste in accordance with established programs of Alameda County, CA.

The proposed project would also involve the use and development of recombinant DNA and genetically modified organisms. Genome engineering and fermentation would occur at the Recipient's existing Biosafety Level (BSL) 2 laboratory, which has the necessary equipment to safely perform the proposed genetic modification techniques in full compliance with standard accepted protocols for BSL-2 laboratories as determined by the Centers for Disease Control and Prevention (CDC) in addition to any other site-specific regulations. Genetically modified organisms (GMO) and derived biomass would also be utilized during further experiments at Microvi Biotech. The types of research proposed to be conducted at both AU and Microvi Biotech represent routine activities at their respective laboratories, where all employees have been trained in the proper use, storage, handling, and disposal of biohazardous materials. Small quantities of spent GMO biomass (approximately 100 liters) and/or wastewater from the fermentation process (not to exceed approximately 500 liters) generated by the project would be treated and disposed of using systems already in place at these facilities, under the oversight of responsible on-site departments/programs.

No siting, construction or major expansion of hazardous, biohazardous, and/or non-hazardous waste storage, disposal, recovery, or treatment actions/facilities would be required at any project location. All project work would occur at facilities that were purpose-built for the type of activities being proposed; therefore no adverse impacts to sensitive resources are expected as a result of laboratory tasks at any location. No change in the use, mission or operation of existing facilities would arise out of project efforts. The Recipient and subrecipients have all applicable permits in place, and would not require additional permits for the proposed activities.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Bioenergy Technologies Office
This NEPA determination does not require a tailored NEPA Provision.
NEPA review completed by Whitney Doss, 12/19/2018

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: 12/19/2018

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