

PMC-ND
(1.08.09.13)

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



RECIPIENT: Michigan State University

STATE: MI

PROJECT TITLE : Alkaline-Oxidative Pretreatment of Woody Biomass for Optimal Co-Product Production

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001433	DE-EE0008148	GFO-0008148-001	

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 Michigan State University to develop a two-stage alkaline-oxidative deconstruction approach to generate a clean sugar stream for the production of hydrocarbon fuels along with lignins that can feed multiple product streams and enable the economic viability of integrated processing.

The proposed project would involve the characterization, optimization, and analysis of a two-stage alkaline-oxidative treatment and lignin depolymerization. Associated activities would include data analysis, computer modeling, laboratory scale research and development, and project management and reporting. Laboratory-based project activities would occur at three academic institutions. Work related to the first stage alkaline pre-extraction would be performed at Montana State University's Hodge Laboratory (Bozeman, MT), the second stage alkaline-oxidative post-treatment would be performed at Michigan State University's Hegg Laboratory (East Lansing, MI), and lignin depolymerization would be performed at the University of Wisconsin-Madison's Stahl Laboratory (Madison, WI). Office-based computer modeling consisting of technoeconomic and life cycle analysis of data provided by this research would be performed at the Michigan Biorefinery Institute (Lansing, Michigan).

Experiments would be completed at small scale: the quantities of biomass feedstock processed throughout the expected three year project duration would range from ~20-30 kg and generate up to ~150 L of liquid byproducts depending on location. All laboratory work would occur in existing, dedicated university research facilities. These facilities were purpose-built for the type of activities being proposed; therefore, no physical modifications or additional permits would be required. The only new equipment required to complete project activities would be laboratory-scale mills for particle size reduction at Montana State University, and these would be retained for future work. No change in the use, mission or operation of existing facilities would arise out of this effort.

The proposed project would involve the use and handling of various hazardous chemicals, including solvents, acids and bases, and toxic reagents. All such handling would occur in-lab under chemical fume hoods as per air quality and human health regulations. The three research institutions involved have existing policies in place for the proper handling, storage, and disposal of hazardous materials in accordance with federal, state, and local environmental regulations. Laboratory compliance and enforcement of these policies is overseen by the Environmental Health & Safety Office at Michigan State University, the Office of Environment, Health, & Safety at the University of Wisconsin-

Madison, and the Safety & Risk Management Office at Montana State University. Non-hazardous wastes such as pretreated biomass and lignin solids and liquid streams from sample analysis would be disposed of via established waste collection and treatment actions/infrastructure at the respective academic facilities.

Based on the review of the proposal, DOE has determined the proposal fits within the class of action(s) and the integral elements of Appendix B to Subpart D of 10 CFR 1021 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. 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.
NEPA review completed by Whitney Doss, 08/28/2017

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____



Casey Strickland

Date: _____

8/28/2017

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: _____