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



RECIPIENT: American Process Inc.

STATE: GA

**PROJECT****TITLE :** Continuous Membrane Assisted IBE fermentation from AVAP(R) Sugars**Funding Opportunity Announcement Number**

DE-FOA-001085

**Procurement Instrument Number**

DE-EE0006879

**NEPA Control Number**

GFO-0006879-001

**CID Number**

GO6879

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 funding to American Process, Inc. (API) to improve the individual unit operations and the integration of the unit operations for the production of isopropanol, butanol and ethanol solvents from agricultural and woody cellulosic biomass using Continuous Membrane Assisted IBE (isopropanol-butanol-ethanol) Fermentation.

The proposed project activities would consist of data analysis; computer modeling; preliminary engineering and design; and laboratory and pilot-scale research and development. Laboratory-scale research and development would occur at both the University of Maine and the API facility in Thomaston, GA while all pilot-scale research and development activities would occur at the API facility. The API facility is an existing plant currently used for biomass conversion. The project would develop a continuous fermentation system involving the biological conversion of cellulosic sugars produced by the existing API facility into a mixture of butanol, isopropanol and ethanol. A total of 1,570 kilograms of solvent would be produced throughout the duration of the project. Physical modifications to the facility as a result of the proposed project would include new insulation, air-conditioning and general water and sewer hookups as well as a new walk-in fume hood and exhaust system to allow for the installation of new fermentation and solvent extraction equipment in an existing lab storage area.

The proposed project would use the genetically modified organism (GMO) *Clostridium Acetobutylicum* in the fermentation process which would be collected with a membrane and then recycled back to the fermentation vessel for reuse. The API laboratory is Biosafety Level 1 (BSL-1) compliant to insure appropriate GMO safety practices are followed. Prior to disposal, laboratory and pilot-scale fermentation broth containing GMOs would be subjected to autoclaving/heating for destruction of micro-organisms. The equipment and any spills would be disinfected using hypochlorite or Lysol(R) solution. A Toxic Substances Control Act (TSCA) Microbial Commercial Activity Notice (MCAN) Tier 1 exemption would be applied for through the Environmental Protection Agency (EPA) prior to beginning work with GMOs.

The proposed project would involve the use and handling of various chemicals and solvents. Existing corporate health and safety policies and procedures would be followed including employee training, proper protective equipment, engineering controls, monitoring, and internal audits. Any hazardous materials would be managed in accordance with federal, state, and local environmental regulations. Pending approval of the MCAN Tier 1 exemption by the EPA, the API facility is otherwise fully permitted as described in Item 2e in the Environmental Questionnaire 1.



Based on a review of the project information and the above analysis, DOE has determined that the proposed project would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined that this project is consistent with actions outlined in DOE categorical exclusion A9 "information gathering," and B3.6 "Small-scale research and development, laboratory operations, and pilot projects" and is therefore 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 you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Insert the following language in the award:

You are required to:

A Toxic Substances Control Act (TSCA) Microbial Commercial Activity Notice (MCAN) Tier 1 exemption must be granted by Environmental Protection Agency (EPA) prior to the recipient and/or subrecipient beginning work with GMOs.

Note to Specialist :

Bioenergy Technologies Office

This NEPA Determination requires a tailored NEPA provision.

NEPA review completed by Logan Sholar, 1/20/15

#### SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: \_\_\_\_\_

NEPA Compliance Officer

Date: \_\_\_\_\_

#### 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: \_\_\_\_\_