

PMC-ND
(1.08.09.13)

**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) Cellulosic Sugars

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001085	DE-EE0006879	GFO-0006879-002	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 federal funding to American Process Inc. (API) to engineer a genetically modified AVAPclo strain in order to improve the performance of the organism for production of solvents from biomass. API received a final NEPA determination (GFO-0006879-001; CX A9, B3.6; 01/20/15) for their project that reviewed all Budget Period (BP) 1 and 2 activities, but since that time there have been changes made to the reviewed Statement of Project Objectives. It was recommended during the Stage Gate review that the project add the proposed genetic engineering research to the scope of work for BP2. Therefore, this second NEPA determination is to review activities associated with the addition to BP2 of Subtask 9.0: "Perform the AVAPclo strain genetic modification research to promote isopropanol production."

The additional proposed subtask would include laboratory-scale research to engineer a modified AVAPclo strain (engineered *C. acetobutylicum* DSM 792 with integrated ADH gene) and batch fermentation experiments to verify performance of the modified strain. Genetic engineering work would take place at Auburn University's Biosystems Engineering Department in Auburn, AL. Performance testing of the modified micro-organism would occur at API's Biorefinery Research Lab in Thomaston, GA. The facilities in which lab work would occur are purpose-built for the type of activities being proposed; therefore, no adverse impacts to sensitive resources are expected as a result of the proposed project. No change in the use, mission or operation of existing facilities would arise out of this effort. 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.

Proposed research involving the use of genetically modified organisms (GMOs) would be performed within contained laboratory structures in compliance with NIH biosafety level (BSL) 1 or higher guidelines. Genetic engineering work would be carried out within a BSL-2 laboratory by experienced Auburn University research staff. At the Thomaston Biorefinery, the GMOs would be maintained within a BSL1 laboratory and handled by properly trained personnel. The AVAPclo *C. acetobutylicum* organism would be transported between Auburn and Thomaston by properly trained API staff. The amount transported between labs would consist of less than 10 cryovials containing ~1 milliliter each. The vials would be placed in sealed bags with secondary containment and all packaging would be sterilized upon receipt. Fermentation experiments would consist of a maximum of 15 liters of broth. All equipment as well as solid and liquid wastes produced by genetic modification activities would undergo disinfection treatment to deactivate the organism in accordance with BSL procedures. Micro-organism spores would be stored in a specialized freezer for future use or

destroyed.

Subtask 9.0 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.

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.

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 Whitney Doss, 3/1/2017**

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____



Casey Strickland

NEPA Compliance Officer

Date: _____

3/7/2017

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: _____