

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** University of California, Los Angeles**STATE:** CA

**PROJECT TITLE:** Targeted Extraction of Valuable Intermediate Products and Clean Water from Municipal Wastewater Using Electroactive Anaerobic Membrane Bioreactors

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0002336	DE-EE0009494	GFO-0009494-001	GO9494

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.

**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.

Rationale for determination:

The U.S. Department of Energy is proposing to provide funding to the University of California, Los Angeles (UCLA) in support of a research and development project with the goal of improving efficiency of municipal wastewater treatment and produce valuable by-products including water and chemicals. The proposed project would be completed over two Budget Periods (BPs) with a go/no-go decision point after BP1.

Proposed project activities would include the design, development, fabrication, lab-scale demonstration, field testing of polymeric membranes and biological reactors, process modeling and simulation, and a technoeconomic and life cycle analysis. Membranes work would take place in the research labs of the Civil and Environmental Engineering department at the University of California, Los Angeles campus, located in Westwood, CA. Bioreactor work would take place in the research labs of the Civil and Environmental Engineering department at Princeton University, in Princeton, NJ. Demonstration of the integrated process would take place at the Hyperion Water Reclamation Plant, located in El Segundo, CA.

All laboratory activities would be conducted in existing, purpose-built lab facilities in accordance with environmental, health & safety procedures. The project would involve the use of carbon nanotube powders (CNT), which are toxic, if inhaled. To mitigate the risk of exposure, CNT powders would only be handled inside chemical fume hoods and added to aqueous surfactant suspensions.

Demonstration of the integrated process developed during the project would occur at the Hyperion Water Reclamation Plant. Hyperion is an existing water treatment facility that has been in operation since 1894. The facility can currently accommodate a maximum daily flow of 450 million gallons of water per day. An (approximately) 1 cubic meter reactor would be installed and operated for 12-months. Demonstration of the integrated process would not impact ongoing operations at the facility. No new permits would be needed for the proposed demonstration activities.

DOE does not anticipate any adverse impacts to any resources of concern as a result of this project.

## NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Advanced Manufacturing 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: \_\_\_\_\_

 Electronically  
Signed By: Kristin Kerwin

NEPA Compliance Officer

Date: 8/18/2021

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