

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Kennedy/Jenks Consultants**STATE:** CA

**PROJECT TITLE:** Reinventing Wastewater Treatment Plants: Energy Neutral Treatment and Enhanced Fertilizer Production through a Novel Resource Recovery Center

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0002336	DE-EE0009495	GFO-0009495-001	G09495

**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 Kennedy/Jenks Consultants to develop a suite of wastewater treatment technologies and processes. Kennedy/Jenks and its project partners would develop cloth media filters (to replace traditional primary clarifiers), a novel anaerobic digestion process, and a novel membrane evaporation process, which would work in conjunction to improve the efficiency of wastewater treatment and biproduct recovery processes as compared to current technologies. The project would be completed over three Budget Periods (BPs). This NEPA Determination is applicable to all three BPs.

Proposed project activities would include conceptual design work, data analysis, computer modeling, laboratory testing of components and materials, cloth media filtration system assembly, and pilot-scale testing of the cloth media filtration system. Cloth media filtration system components would be custom-made for the project and procured from a qualified third-party manufacturer. Kennedy/Jenks Consultants would coordinate all project activities and perform data analysis at its office facilities in San Francisco and Irvine, CA. Additional data analysis/computer modeling would be performed by project partners Baylor University and Colorado School of Mines (CSM) at office facilities at their campuses in Waco, TX and Golden, CO, respectively. Laboratory testing would be performed by CSM at its laboratory facilities in Golden, CO. Additional verification testing of components would be performed by Arizona State University (ASU) at laboratory facilities at its campus in Tempe, AZ.

Pilot system performance testing would be performed initially at the Mines Park Water Reclamation Hub, operated by CSM in Golden, CO. An existing 7,000 gallon per day sequencing batch membrane bioreactor (SB-MBR) system would be modified for the purposes of the project and used to conduct the testing. Modifications would consist of the incorporation of the cloth filtration filters, an anaerobic digester, 2 – 3 filtration tanks (300 – 500 gallon capacity), and auxiliary equipment (e.g., pumps, mixers, and filters) into the SB-MBR system. New electrical connections would also be established. All new equipment would be installed indoors next to the existing equipment. Installations and equipment modifications would be performed by qualified personnel. No ground disturbance would be required.

Testing would consist of the operation of the SB-MBR system with the cloth media filtration system and anaerobic digester integrated into the hardware to assess their filtration and biogas production performance, respectively. Wastewater would be directed through the system and the cloth media filters would siphon large solids into the filtration tanks and the system's anaerobic digester for processing. Digested solids from the anaerobic digester would then be diverted to existing membrane evaporation systems within the SB-MBR for further processing. The system

would be operated for approximately four weeks to assess its performance. No additional permits or authorizations would be required.

Following this initial testing, additional pilot testing would be performed at the South Platte Renew Wastewater Treatment Facility of Littleton/Englewood, CO. The system to be tested at this location would be very similar to the system used at the Mines Park Water Reclamation Hub and would include all of the primary components of the previous system (e.g., cloth media filters, an anaerobic digester, tanks, and auxiliary equipment). The system would be slightly larger and would be designed for mobile transport/connection. The entire system would be contained within a cargo trailer, which would be stationed at the South Platte Renew facility and connected to existing water and electrical connections at the facility. All connections would be established by qualified South Platte Renew personnel. Testing at South Platte Renew would be performed for approximately six to eight months. No facility modifications, ground disturbance, or changes to the use, mission, or operation of existing facilities would be required at this location. No additional permits or authorizations would be required.

Project work would involve the use and handling of laboratory chemicals and untreated wastewater. All such handling would be performed in dedicated laboratory and wastewater treatment facilities that work with these materials as part of their regular course of business. Potential hazards would be mitigated through adherence to established institutional health and safety policies and procedures. Protocols would include personnel training, the use of personal protective equipment, engineering controls, monitoring, and internal assessments. Effluent waste would be generated at the Mines Park Water Reclamation Hub and the South Platte Renew Wastewater Treatment Facility. All such waste would be treated and disposed of in accordance with established institutional waste management policies. Kennedy/Jenks Consultants and its project partners would observe all applicable Federal, state, and local health, safety, and environmental regulations.

## NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Advanced Manufacturing Office

This NEPA determination does not require a tailored NEPA provision.

Review completed by Jonathan Hartman, 08/10/2021

## 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:



Casey Strickland

NEPA Compliance Officer

Date: 8/10/2021

**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: \_\_\_\_\_