

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



RECIPIENT: Aequor Inc.

STATE: CA

PROJECT TITLE : Aequor's Algal Crop Protection Treatment

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002910	DE-EE0011056	GFO-0011056-001	GO11056

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.

B5.15 Small-scale renewable energy research and development and pilot projects

Small-scale renewable energy research and development projects and small-scale pilot projects, provided that the projects are located within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to Aequor, Inc. (Aequor) to test the efficacy of treatments against predators and pathogens of algal strains and antipathogenic compounds.

Award activities would include outreach, education, training, laboratory research, laboratory trials, and field site testing. Aequor (San Diego, CA) would establish pest models, formulate algae treatment, carry out indoor lab experiments, evaluate the effects of treatments on algae growth and pest inhibition, biosynthesis of a marine bacteria supernatant, and data analysis. Sandia National Laboratory (SNL; Mesa, AZ) would also conduct indoor laboratory work, indoor pilot scale cultivation of algae, and chemical testing. Arizona State University's Arizona Center for Algae Technology and Innovation (ASU AzCATI; Mesa, AZ) would conduct outdoor field tests including small pilot mini ponds and lab experimentation.

Award activities would include crop protection treatment evaluation at laboratory scale and in ponds, indoor crash assays, modeling, outdoor raceway pond trials, supernatant preparation and evaluation for effect on algae and pests, co-culturing tests, microscopy and PCR analyses, and treatment formulation suitable for outdoor ponds. Outdoor raceway pond trials would include cultivation of three trials in 6 x 4.2-meter squared ponds to test the Aequor treatments. Outdoor biomass cultivation impact testing of chemical-based treatment on algae strains would occur in 820-liter outdoor ponds. Scale-up and evaluation of crop protection treatments would take place in 100- or 1000-liter outdoor ponds.

Additional award activities would include a diversity, equity, and inclusion (DEI) strategic plan. A diversity-focused education program would be created, including DEI content. A Minority Serving Institution in the local area would be included.

Award activities would involve potential hazards including solvents, compressed gases, DNA dyes, hazardous chemicals, and cultivation media preparation. Outdoor cultivation would include work with compressed gas lines,

motors, pumps, chemicals, and pond cleaning. Chemical waste would be managed as hazardous waste. Spent algae, growth media, and dead algae biomass waste would be generated. Solid biological material would be autoclaved and disposed of as municipal waste. All outdoor algae cultivation water would go through bleach treatment to kill live biological contaminants. It would then be processed through the sanitary sewer and would follow all local sanitary discharge guidelines. All applicable local, state, and federal regulations would be followed. All organizations would follow existing safety and biosafety protocols.

There would be no physical modifications, ground disturbing activities, or changes in facility uses. All award activities would be carried out in existing laboratory environments. All field activities would take place in pre-existing raceway pond environments at ASU AzCATI.

United States Department of Agriculture (USDA) APHIS permits may be required to receive, isolate, and ship pests between partner sites or third-party cultures. Existing USDA APHIS permits at SNL would be required for algal strains and fungi used, as well as an electronic discharge approval application for liquid effluent to be discharged to the sanitary sewer. California Fish and Wildlife permits would be needed for new algal strains. An updated wastewater application is required for any process changes that are not included in the current internal wastewater discharge permits, and prior to any type of discharge to sinks/drains.

DOE has considered the scale, duration, and nature of proposed activities to determine potential impacts on resources, including those of an ecological, historical, cultural, and socioeconomic nature. DOE does not anticipate impacts on these resources which would be considered significant or require DOE to consult with other agencies or stakeholders.

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

United States Department of Agriculture (USDA) APHIS permits may be required to receive, isolate, and ship pests, algal strains, and fungi between partner sites or third-party cultures. California Fish and Wildlife permits would be needed for new algal strains. An electronic discharge approval application for liquid effluent to be discharged to the sanitary sewer. An updated wastewater application is required for any process changes that are not included in the current internal wastewater discharge permits, and prior to any type of discharge to sinks/drains.

Notes:

Bioenergy Technologies Office
NEPA review completed by Alex Colling on 6/5/2024.

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: Andrew Montano** Date: **6/20/2024**
NEPA Compliance Officer

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: _____ Date: _____
Field Office Manager