U.S. Department of Energy
Categorical Exclusion Determination Form

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Proposed Action Title: Pacific Northwest National Laboratory -- Exploring Macroalgae as Critical Mineral Crops, E=(MC)2

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Kodiak and Kodiak Island, AK; San Jose, CA; Steamboat Springs, CO; Blacksburg, VA; WA

Proposed Action Description:

Funding will support the project team's small-scale research of methods to efficiently extract rare earth elements and platinum group metals from marine macroalgae. Specifically, the project team will (1) collect, process, and evaluate macroalgae samples, (2) develop, test, and validate methods to optimally extract minerals and metals from macroalgae samples, and (3) develop, test, and validate adsorbents for extracting metals using specialized metal organic framework molecules that reversibly bind to rare earth elements in solution. If successful, this project will develop a sustainable and efficient mineral extraction process from seaweed and supply of rare earth elements, while maintaining the value of algae for other purposes such as feedstock or biofuels, without the environmental impacts of traditional mining operations.

Project activities will be conducted at existing facilities at Pacific Northwest National Laboratory (Sequim and Richland, WA), Virginia Polytechnic Institute and State University (Blacksburg, VA), Sustainability Science (Steamboat Springs, CO), Marine Agronomics (Olympia and Friday Harbor, WA), BLU3 (San Jose, CA and Kodiak, AK), and field collection at seaweed farms on Kodiak Island, AK designed for the applicable activities. Project tasks will be conducted in accordance with established safety and materials/waste management protocols and pursuant to applicable Federal, State, and local regulatory requirements. No modifications will be made to existing facilities to accommodate the proposed work.

Categorical Exclusion(s) Applied:

A9 - Information gathering, analysis, and dissemination

B3.6 - Small-scale research and development, laboratory operations, and pilot projects

B3.1 - Site characterization and environmental monitoring

For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions, including the full text of each categorical exclusion, see Subpart D of 10 CFR Part 1021.

Regulatory Requirements in 10 CFR 1021.410(b): (See full text in regulation)

☑ The proposal 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 proposal that may affect the significance of the environmental effects of the proposal.

☑ The proposal 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.

Based on my review of the proposed action, as NEPA Compliance Officer (as authorized under DOE Order 451.1B), I have determined that the proposed action fits within the specified class(es) of action, the other regulatory requirements set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.

NEPA Compliance Officer: GEOFFREY GOODE Digitally signed by GEOFFREY GOODE Date: 2024.06.13 12:20:13 -04'00' Date Determined:

(This form will be locked for editing upon signature)