

PMC-EF2a

(20402)

**U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER
NEPA DETERMINATION**



RECIPIENT: The Regents of the University of California, U.C. San Diego

STATE: CA

PROJECT TITLE : Development of Renewable Biofuels Technology by Transcriptomic Analysis and Metabolic Engineering of Diatoms

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
NSF 08-588	DE-EE0001222	GFO-10-184	0

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 (including, but not limited to, literature surveys, inventories, audits), data analysis (including computer modeling), document preparation (such as conceptual design or feasibility studies, analytical energy supply and demand studies), and dissemination (including, but not limited to, document mailings, publication, and distribution; and classroom training and informational programs), but not including site characterization or environmental monitoring.
- B3.6** Siting, construction (or modification), operation, and decommissioning of facilities for indoor bench-scale research projects and conventional laboratory operations (for example, preparation of chemical standards and sample analysis); small-scale research and development projects; and small-scale pilot projects (generally less than two years) conducted to verify a concept before demonstration actions. Construction (or modification) will be within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible).

Rational for determination:

University of California San Diego will use DOE funds to perform two tasks:

Task 1: Transcriptomic analysis of environmentally triggered lipid accumulation in two species of diatom algae

Task 2: Metabolic engineering of the cell to alter carbon partitioning for abundant lipid accumulation coupled with high biomass accumulation

In the first task, environmental conditions will be manipulated in order to trigger higher lipid accumulation and sequencing analysis will be conducted to identify those genes that affect lipid accumulation and carbon partitioning in order to prepare for the second task of metabolic engineering. In the second task, the two strains will be metabolically engineered to produce both a high lipid and high carbohydrate content based upon the results from the first task. The approaches developed in both tasks will be taught to high school students and undergraduate students at the university.

Analysis and engineering will be performed on *Thalassiosira pseudonana* and *Cyclotella cryptica* diatom species, both of which are commonly occurring non-pathogenic algae species. UCSD has permits in place for biohazardous and chemical wastes and has disclosed that no additional permits will be required for this work. All work will be performed in a laboratory at Scripps Institute of Oceanography, and will be conducted in accordance with all UCSD Environment Health and Safety Guidelines. These guidelines address chemical, biological, and hazardous waste handling and disposal and dictate extensive training of all employees and students prior to working in the lab. All GMOs will be maintained in the lab environment, killed prior to disposal, and delivered to an off-site biowaste vendor incineration facility, in accordance with UCSD EH&S standards.

This project comprises conventional research and laboratory operations in an existing laboratory facility and is therefore classified under CX B3.6. The education and outreach component of this project is classified under CX A9.

NEPA PROVISION

Note to Specialist :

None Given.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:


NEPA Compliance Officer

Date:

3/30/10

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:

(Faint, mirrored text from the reverse side of the page, including phrases like 'Task 1: Environmental analysis...', 'Task 2: Methodology...', 'Task 3: Methodology...', 'Task 4: Methodology...', 'Task 5: Methodology...', 'Task 6: Methodology...', 'Task 7: Methodology...', 'Task 8: Methodology...', 'Task 9: Methodology...', 'Task 10: Methodology...', 'Task 11: Methodology...', 'Task 12: Methodology...', 'Task 13: Methodology...', 'Task 14: Methodology...', 'Task 15: Methodology...', 'Task 16: Methodology...', 'Task 17: Methodology...', 'Task 18: Methodology...', 'Task 19: Methodology...', 'Task 20: Methodology...', 'Task 21: Methodology...', 'Task 22: Methodology...', 'Task 23: Methodology...', 'Task 24: Methodology...', 'Task 25: Methodology...', 'Task 26: Methodology...', 'Task 27: Methodology...', 'Task 28: Methodology...', 'Task 29: Methodology...', 'Task 30: Methodology...', 'Task 31: Methodology...', 'Task 32: Methodology...', 'Task 33: Methodology...', 'Task 34: Methodology...', 'Task 35: Methodology...', 'Task 36: Methodology...', 'Task 37: Methodology...', 'Task 38: Methodology...', 'Task 39: Methodology...', 'Task 40: Methodology...', 'Task 41: Methodology...', 'Task 42: Methodology...', 'Task 43: Methodology...', 'Task 44: Methodology...', 'Task 45: Methodology...', 'Task 46: Methodology...', 'Task 47: Methodology...', 'Task 48: Methodology...', 'Task 49: Methodology...', 'Task 50: Methodology...', 'Task 51: Methodology...', 'Task 52: Methodology...', 'Task 53: Methodology...', 'Task 54: Methodology...', 'Task 55: Methodology...', 'Task 56: Methodology...', 'Task 57: Methodology...', 'Task 58: Methodology...', 'Task 59: Methodology...', 'Task 60: Methodology...', 'Task 61: Methodology...', 'Task 62: Methodology...', 'Task 63: Methodology...', 'Task 64: Methodology...', 'Task 65: Methodology...', 'Task 66: Methodology...', 'Task 67: Methodology...', 'Task 68: Methodology...', 'Task 69: Methodology...', 'Task 70: Methodology...', 'Task 71: Methodology...', 'Task 72: Methodology...', 'Task 73: Methodology...', 'Task 74: Methodology...', 'Task 75: Methodology...', 'Task 76: Methodology...', 'Task 77: Methodology...', 'Task 78: Methodology...', 'Task 79: Methodology...', 'Task 80: Methodology...', 'Task 81: Methodology...', 'Task 82: Methodology...', 'Task 83: Methodology...', 'Task 84: Methodology...', 'Task 85: Methodology...', 'Task 86: Methodology...', 'Task 87: Methodology...', 'Task 88: Methodology...', 'Task 89: Methodology...', 'Task 90: Methodology...', 'Task 91: Methodology...', 'Task 92: Methodology...', 'Task 93: Methodology...', 'Task 94: Methodology...', 'Task 95: Methodology...', 'Task 96: Methodology...', 'Task 97: Methodology...', 'Task 98: Methodology...', 'Task 99: Methodology...', 'Task 100: Methodology...')