PMC-EF2a
(2.04.02)

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

RECIPIENT: Semprus BioSciences **STATE:** MA

PROJECT TITLE: Environmentally Benign and Permanent Surface Modifications to Prevent Biofouling on Marine and Hydrokinetic Devices

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000293	DE-EE0004566	GFO-0004566-001	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:

Semprus BioSciences, in Cambridge, Massachusetts, is proposing to use DOE funding to develop an innovative, non-toxic surface coating that would prevent the growth of aquatic organisms on marine and hydrokinetic (MHK) energy devices. This research into underwater coatings that prevent biofouling would have the potential to positively impact all MHK systems and improve the conversion efficiency for MHK systems.

The proposed project would take place at three separate locations: 1) Semprus BioScience in Cambridge, Massachusetts, 2) Newcastle University Ridley Laboratories in the United Kingdom and 3) the Center for Corrosion and Biofouling Control at the Florida Institute of Technology (FIT) in Melbourne, Florida.

The first laboratory, Semprus BioSciences, is a 9,500 square-foot laboratory located at One Kendall Square Building 1400, 1st Floor, Cambridge, Masachusetts. In the submitted R & D Questionnaire, Semprus BioSciences has appropriately addressed all issues pertaining to safety (biosafety, chemical safety and radiation safety), hazardous waste management and permitting. In accordance with the Massachusetts Water Resource Authority (MWRA) permit requirements, Semprus Biosciences follows a "nothing down the drain" policy with regard to chemicals. Bleached biologicals are discharged to the sinks. All liquid radioactive waste is absorbed to a dry state and containerized for decay onsite or offsite disposal.

Permits include:
1) SQG of Hazardous Waste Generator ID # MAC300012960
2) MDPH RCP Radioactive Materials License # 55-0591
3) MWRA Wastewater Discharge Permit # 09103712
4) City of Cambridge MA Fire Dept. Flammable Liquid Storage Permit

The second laboratory is the Newcastle University Ridley Laboratories, located at the Ridley Building, Claremont Road, Newcastle upon Tyne, NE1 7RU, United Kingdom. In the submitted R & D Questionnaire, Newcastle University has appropriately addressed all issues pertaining to safety, permitting and hazardous waste management. Disposal of solid and liquid hazardous waste is fully compliant with the UK Hazardous Waste Regulations 2005, under which campus laboratories are registered with premises code AFW643. Clinical laboratory waste, excluding chemical waste, is collected biweekly from secure storage areas by SRCL Waste Management, operating under EA Waste Carrier Licence CB/HP3918YQ. Chemical laboratory waste is held for intermediate storage and collected for safe disposal approximately every three months by Mulberry Waste Ltd, Leyland, Lancashire, under EA waste carrier license EAN/961999/CB.

The Center for Corrosion and Biofouling Control at FIT, located on the Indian River Lagoon, Melbourne, Florida, is the test site. In the submitted R & D Questionnaire, the Center for Corrosion and Biofouling Control has appropriately addressed all issues pertaining to safety, permitting and waste management. FIT's Environmental and Regulatory Compliance Department is responsible for managing the University's safety program. FIT maintains multiple hazardous waste generator registrations for its site as well as a license from the Florida Department of Health for the handling of radioactive materials. FIT holds a Salt Water Discharge Permit from the City of Vero Beach for its Aquaculture Operations.

Task 1.0 would be performed at Semprus Biosciences. In the lab, polymers would be synthesized and formulated for non-biofouling modification systems. Polymers and other components would be dissolved in a solvent to make a solution ready for dip or spray application. The coatings would be tested for long-term stability, non-toxicity and a broad spectrum of anti-biofouling metrics.

Task 2.0 would be performed at the Newcastle University Ridley Laboratories. In the lab, marine fouling of barnacle cyprids would be tracked and the resulting vector/time data would be processed into behavioral parameters such as total distance moved, turn angle and average velocity.

Task 3.0 would be perfomed at FIT's Center for Corrosion and Biofouling Control. The anti-fouling studies would be conducted from a static, floating platform located on the Indian River Lagoon, Melbourne, Florida. Test coatings would be attached to PVC frames and immersed in seawater. After sixty days of immersion, fouling rating and adhesion strength of the marine organism would be evaluated.

In view of the information provided by the State and the recipient, DOE has determined that the impacts related to the proposed project are anticipated to have negligible affects on the human and natural environment. The proposed project is consistent with actions outlined in A9 (information gathering) and B3.6 (indoor bench-scale research and laboratory operations) and is, therefore, categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

Cristina Tyler: 1/10/2010

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Kristin Ker Date: 1/25/2011

NEPA Compliance Officer

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: _____ Date: _____

Field Office Manager