PMC-EF2a
(3.01.02)

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

RECIPIENT: Dehlsen Associates **STATE:** CA

PROJECT TITLE : Marine & Hydrokinetic Energy System Development of the Aquantis 2.5MW Ocean-Current Electricity Generation Device

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000293	DE-EE0003643	GFO-0003643-001	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:

Dehlsen Associates, in Carpinteria, California, is proposing to use federal funding to develop the Aquantis Current Plane (C-Plane), a marine current turbine designed to convert the kinetic energy from the flow, to base-load electric power generation. The C-Plane is a 2.5MW hydrofoil platform with twin, 40 meter, counter-rotating blades that would operate 50 meters under the ocean's surface. This technology is derived from wind power generation technology adapted to the ocean environment.

Tasks 1 through 5 have been funded by DOE and are under way per award EE0002648.

This review is for Tasks 6 through 9.

Budget Period 1
Task 6: Dynamic Stability and Simulation
Task 6.1: Naval Architecture
Task 6.2: Hydrodynamic Analysis
Task 6.2.1: Hydrodynamic Coefficient Development
Task 6.3: Wind Tunnel Validation—1/50th
Task 6.3.1: Scale Wind Tunnel Model—1/50th
Task 6.4: C-Plane Dynamic Simulation Analysis
Task 6.5: Mooring Analysis
Task 6.5.1: OrcaFlex
Task 6.6: System of System Modeling, Stability, CFD, FEA

Budget Period 2
Task 7: Fabrication and Instrumentation
Task 7.1: Scale C-Plane Model Platform and Mooring Fabrication—1/20th
Task 7.2: Platform Instrumentations: IMU, Transducers Load Cell
Task 7.3: Scale Turbine Blades Fabrication—1/20th
Task 7.4: Rotor Instrumentation: Fiber-Optic Strain Gage
Task 7.5: Drive Train and Power Electronics
Task 7.6: Basin test Towing Hardware
Task 8: Experimental Validation: Tow Tank and At-Sea Testing
Task 8.1: Tow Tank Tests: Basin Evaluation
Task 8.2: At- Sea Evaluation
Task 9: Documentation and Reporting

Task 9.1: Project Management and Reporting: Deliverable/Toll Gates

All lab work and tow tank testing would be performed at the Naval Sea Systems Command Naval Surface Warfare Center Carderock Division (NSWCCD) located at 9500 MacArthur Blvd., West Bethesda, MD 20817-5700. An R&D questionnaire was completed, which addressed the protocols in place regarding laboratory safety, risk management, chemical handling and waste disposal. The safety protocols the Navy uses during testing at the Carderock facility would be implemented by facility personnel using defined Divisional safety procedures based on the Navy Safety and Occupational Health Program Manual (OPNAV 5100.23G), OSHA Standards and are fully implemented through the Navy test facilities. Environmental and Natural Resources Program Manual, OPNAV Instruction 5090.1C, is used to define the environmental standards for the Navy.

Task 6 would consist of a series of computer modeling and hand calculations to develop a 1/50th scale model of the C-Plane. These activities would be conducted at the NSWCCD in a lab setting. Using a wind tunnel test, NSWCCD would test a 1/50th scale model of the C-Plane in an 8 feet by 10 feet subsonic wind tunnel on the Carderock Division campus.

Task 7 would involve the fabrication and instrumentation of a 1/20th scale model of the C-Plane.

Task 8.1 would involve tow tank testing. A 1/20th scale C-Plane would be tow tank tested at the David Taylor Model Basin, operated by NSWCCD. This test facility has a towing tank that is 1,886 feet long, 52 feet wide and 22 feet deep and contains 15.83 million gallons of water. The tow basins are not typically drained. Instead, water is shuffled around among various facilities and a large storage tank. No chemicals (i.e., chlorine, acid, bases) are added to treat the water. The pH, chlorine and alkalinity of the water content is measured on a weekly basis. When the water is drained, NSWCCD ensures that the physical properties of the water, including heavy metals content, conforms to standard wastewater that can be processed through the city processing plant, the Washington Suburban Sanitation Commission (WSSC).

Task 8.2 would involve open water deployment and testing of the scale model C-Plane at the South Florida Ocean Measurement Facility (SFOMF) in South Florida operated by NSWCCD. The Navy is preparing an Environmental Planning Document and Environmental Assessment for the SFOMF Carderock facility at Dania Beach. At this time, open-water testing of the C-Plane model is prohibited.

Task 9 would consist of project management and reporting.

In view of the information provided by the recipient, DOE has determined that the impacts related to Task 6-8.1and Task 9 of the proposed project are anticipated to have negligible affects on the human and natural environment. Task 6-8.1and Task 9 are consistent with actions outlined in A9 (information gathering) and B3.6 (indoor bench-scale research and lab operations) and are, therefore, categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a conditional NEPA determination for this award, and funding for certain tasks under this award is contingent upon the final NEPA determination.

Insert the following language in the award:

You are restricted from taking any action using federal funds, which would have an adverse affect on the environment or limit the choice of reasonable alternatives prior to DOE/NNSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:
Task 8.2
This restriction does not preclude you from:
Task 6
Task 7
Task 8.1
Task 9
If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

Cristina Tyler 4.12.2011

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 4/13/2011
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