PMC-EF2n

PROJECT

(2/04/02)

## U.S. DEPARTMENT OF ENERGY EERE PROJECT MANAGEMENT CENTER



STATE: MN

NEPA DETERMINATION

**RECIPIENT:**University of Minnesota

Turbine aeration design software for mitigating adverse environmental impacts resulting from

TITLE: conventional hydropower turbines

Funding Opportunity Announcement Number Procurement Instrument Number NEPA Control Number CID Number EE5416 DE-FOA-0000486 EE0005416 GFO-0005416-001

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, 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 smallscale 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.

## Rational for determination:

DOE is proposing to provide federal funding to the University of Minnesota (UM) to conduct laboratory research and development activities that advance hydropower technology. DOE funding would be used to develop software that models aeration capabilities of hydropower turbines.

All research and laboratory work would be conducted at UM's Saint Anthony Falls Laboratory (SAFL) located at 2 3rd Ave SE, Minneapolis, Minnesota 55414. UM has completed an R&D questionnaire addressing the protocols for laboratory safety, risk management, chemical handling and waste disposal. UM complies with standard laboratory safety procedures and labs are inspected by university staff and safety personnel. Internally, the department is monitored by the project principal investigator. Externally, the department is monitored by the Saint Anthony Falls Research Safety Officer.

In the SAFL water tunnel, high-resolution cameras would collect data on wake velocity and bubble size distribution downstream of the hydrofoil at various operating conditions. Downstream oxygen concentration would also be measured to allow the team to calculate the mass transfer of oxygen from the bubbles to the water at various operating conditions.

UM has all applicable permits in place to conduct research on campus. Solid and liquid effluent, if determined to have a pollutant, is collected by using tail boxes from which the flow can re-circulate and eventually be collected and disposed. Chemical waste is stored in secondary containment and packed for disposal off site.

Based on this information, DOE has determined the work outlined is consistent with activities identified in categorical exclusion A9 (information gathering) and B3.6 (small-scale research and development, laboratory operations and pilot projects).

## NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of

Note to Specialist:		
Cristina Tyler 1.13.2012		
DOE Funding: \$250,000 Cost Share: \$312,969 Total Project Cost: \$562,969		
IGNATURE OF THIS MEMORANDU	UM CONSTITUTES A RECORD OF THIS	DECISION.
	5 - 5 - VO -	
EPA Compliance Officer Signature:	NEPA Compliance Officer	Date:
IELD OFFICE MANAGER DETERM	IINATION	
Field Office Manager review required	d months and a second s	
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Proposed action fits within a categori	ical exclusion but involves a high profile or con	troversial issue that warrants Field Office
Manager's attention		
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