

PMC-EF2a

(2.04.02)

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



**RECIPIENT:** The Curators of the University of Missouri for Missouri University of Science and Technology      **STATE:** MO

**PROJECT TITLE :** Remote Monitoring of the Structural Health of Hydrokinetic Composite Turbine Blades

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000293	DE-EE0004569	GFO-0004569-001	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:**

The Curators of the University of Missouri for Missouri University of Science and Technology are proposing to use DOE funding to complete a proof-of-concept demonstration of a composite turbine blade that can acquire and transmit data about its structural health. The proposed project seeks to experimentally demonstrate the critical fabrication and function of the blade and monitoring component, thereby proving the concept. The recipient plans to accomplish the proposed project through the tasks outlined below:

- Task 1.0: Structure & Monitoring Sensor Development
- Task 2.0: Acoustic Communication & Broadcasting Development
- Task 3.0: Assembled Component Testing and Assessment
- Task 4.0: Project Management and Reporting

The component concept will be proof-of-concept tested. The objective is to demonstrate that strain measurement data can be transmitted underwater and then radio broadcast through the air to a monitoring station. A prototype composite turbine blade with embedded fiber optic strain gage sensor will be used for this testing. Radio broadcast of data demonstrates the remote monitoring capability with this type of component.

All aspects of the proposed project will occur within existing buildings as described in the attached R&D questionnaire. There will be no new construction or expansion of existing buildings as a result of the proposed project. No new permits are required for the completion of the proposed project.

The proposed project consists of preliminary design, computer-based modeling and in-lab testing consistent with activities outlined in A9 "information gathering" and B3.6 "small-scale research and development; therefore, it is 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 :

EF2a completed by Logan Sholar

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature:  Date: 11/24/10  
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