

PMC-EF2a

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



RECIPIENT: South Carolina Research Foundation

STATE: SC

PROJECT TITLE : High Temperature Hydrogen Generation Systems

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
N/A	DE-EE0003222	GFO -10-601	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:

**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 South Carolina (USC) would develop a science and technology foundation for systems that utilize waste heat to generate hydrogen. This would be accomplished by developing a heterogeneous material system for solid oxide electrolysis cells (SOEC) electrodes, develop an understanding of electrode microstructures and their control of functionality, develop degradation mitigation strategies and models for performance prognosis, and the creation of an SOEC manufacturing and test facility for the South Carolina region. They would outfit an existing structure with a fuel cell testing system and a Hogen hydrogen generator. Preliminary laboratory work would take place in the USC Department of Mechanical Engineering with work shifting to a new facility (USC Innovista Complex, Horizon I Research Building).

According to the R&D Laboratory Questionnaire, no additional permits are needed for the project work. USC Environmental Health and Safety (USC EHS) would be the oversight authority ensuring safe laboratory practices. A laboratory safety officer would work alongside the Principle Investigator to monitor the safe practices set forth by the University and CFR 1910.1450 OSHA, EPA, SC DHEC, CDC, NIH and Homeland Security regulations. Together they are responsible for enforcing safety protocols. Gases are stored, used, and handled according to the IAW NFPA 55 (Storage, Use, and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders, and Tanks) and USC EHS standards. Chemicals are labeled and stored according to the IAW, NFPA 45 (Fire Protection for Laboratories Using Chemicals) standards. Hazardous solid waste is disposed of on a weekly schedule by USC EHS personnel. No liquid effluents would be produced. Personal safety equipment available includes fume hoods, hydrogen leak alarms, hydrogen sulfide leak alarms, hydrocarbon leak alarms, automatic responder notification and automatic gas shutoff valves.

All project work is comprised of conventional laboratory operations; therefore the DOE has categorized this proposal into Categorical Exclusion B3.6.

**NEPA PROVISION**

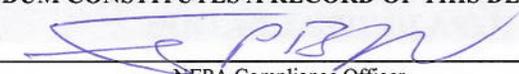
DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

EF2a prepared by Casey Strickland

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

NEPA Compliance Officer Signature:  Date: 8/19/10  
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