

PMC-EF2a

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



(2.06.02)

RECIPIENT: UNLV

STATE: NV

**PROJECT TITLE :** Development of Biofuels Using Ionic Transfer Membranes

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
CDP	DE-FG36-08GO86036	GFO-06-209-002	GO86036

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).
- 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.

**Rational for determination:**

DOE is proposing to continue providing funding to the University of Nevada Las Vegas (UNLV) to further their research on the development of a tubular NaSICON (Sodium Super Ionic Conductors) membrane process that produces high-purity sodium methoxide from low-cost aqueous sodium hydroxide. The project was previously approved by GFO-06-209 on October 10, 2006 with a CX B3.6 and also by GFO-06-209-001 on February 22, 2010 with a CX B3.6. Due to changes to the project scope another NEPA determination was needed.

The project consists of laboratory, modeling, and reporting tasks. The project focuses on designing, building, and testing several NaSICON tube and shell configuration-sized development cells with several tubes stacked in an efficient arrangement. It would be demonstrated that it is possible to fabricate ceramic membranes with operational lifetimes longer than 12 months. It is anticipated that a sodium phosphonated coated polymer will transport sodium ions more efficiently than the previously investigated sodium sulfonate coated polymer. An alternative NaSICON ceramic fabrication route, which makes use of controlled nucleation of a precursor glass of NaSICON composition, would be investigated. Statistical lifetime performance would be conducted and evaluated to establish the stability phenomenon of membranes with engineered properties and coated membranes.

All work will take place in controlled, existing laboratory environments at both UNLV and the subcontractor's (Ceramatec's) facility. Each facility has submitted to DOE an R&D questionnaire which thoroughly addresses safety, waste stream, chemical handling and effluent discharge.

All project work is comprised of information gathering, data analysis, document preparation; and conventional laboratory operations; therefore the DOE has categorized this proposal into Categorical Exclusions A9 and 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:   
NEPA Compliance Officer

Date: 8/19/10

**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: \_\_\_\_\_  
Field Office Manager

Date: \_\_\_\_\_