PMC-EF2a

(2.04.02)

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

RECIPIENT: HRL Laboratories, LLC **STATE:** CA

PROJECT TITLE : Room Temperature Hydrogen Storage in Nano-confined Liquids

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000421	EE0005659	GFO-0005659-001	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, 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 small-scale 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:

HRL Laboratories, LLC (HRL) would utilize funding to complete the following objectives: (1) to measure the enhanced hydrogen storage capacity at pressures up to 200 bar and ultimately 350 bar of various liquid solvents when they are confined within the pore volume of select nanoporous scaffolds; (2) to validate, understand and extend the measured storage capacities using molecular dynamics simulations; (3) to optimize the scaffold and liquid in order to maximize the hydrogen storage capacity; and (4) to modify the scaffold and/or the confined liquid to reduce the vapor content of the discharged hydrogen. All project activities are laboratory work that would take place at HRL facilities located at 3011 Malibu Canyon Road in Malibu, California.

See the Statement of Project Objectives for details of the tasks below.

Phase I

1. Perform hydrogen sorption measurements at high pressure
2. Optimize scaffold/liquid composition to optimize hydrogen storage capacity
3. Theory and mechanism
4. Reduced liquid vapor pressure
5. Program management

Phase II

6. Extend hydrogen sorption measurements to high pressure
7. Optimize scaffold/liquid composition to optimize hydrogen storage capacity
8. Theory and mechanism
9. Reduce liquid vapor pressure
10. Program management

Phase II is designed to extend the hydrogen storage measurements to higher pressures (350 bar), and further increase hydrogen storage capacity on the most promising candidates by a combined theoretical/experimental approach.

According to the R&D Laboratory Questionnaire, no additional permits are needed for the project work beyond permits that are already in place. Project activities would not produce any liquid effluents or air pollutants. HRL has a safety program in place that is implemented by HRL's Environmental Health and Safety Organization. HRL's Chemical Hygiene Plan addresses: chemical use, storage, handling and disposal; gas and gas cylinder safety; personal protective equipment use; and laboratory hood use. All procedures follow OSHA standards.

Project Budget: $1,199,616 (DOE) $299,904 (cost share)

All project work is composed of information gathering, analysis, and dissemination; 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:

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 approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Note to Specialist :

EF2a prepared by Casey Strickland

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 2/13/2012
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