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(1.08.09.13)

**U.S. DEPARTMENT OF ENERGY
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
NEPA DETERMINATION**



RECIPIENT: Southwest Research Institute

STATE: TX

PROJECT TITLE : Linear Motor Reciprocating Compressor (LMRC) for Forecourt Hydrogen Compression

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000821	DE-EE0006666	GFO-0006666-001	

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 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.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Southwest Research Institute (SwRI) to develop, fabricate, and demonstrate a Linear Motor Reciprocating Compressor (LMRC) that would be used for hydrogen gas compression at hydrogen refueling stations.

The proposed project would develop a LMRC capable of delivering gaseous hydrogen at a minimum pressure of 875 bar (12,700 psi) and flow rates greater than 10 kg/hr, which would allow for 700 bar forecourt (station onsite) gaseous dispensing. In budget period (BP) 1, the detailed design of the compressor, along with a performance and cost analysis would be completed. In BP 2, the construction and commissioning of the bench-scale LMRC would be completed. In BP 3, SwRI would demonstrate that the operation of the bench-scale system meets the project specifications of delivering gaseous hydrogen at a minimum pressure, flow rate, and isentropic efficiency. All project work would take place at SwRI's Research and Development Laboratories at 6220 Culebra Road, San Antonio, TX 78238 and at ACI Services, Inc.'s facilities located at 125 Steubenville Ave, Cambridge, OH 43725. There would be no testing or demonstration of the technology outside of the above-listed facilities. Both facilities are existing buildings on private property complying with all federal safety, health, and emergency plan regulations. No facilities modifications are anticipated and no new permits would be required. Little or no toxic waste would be generated by this project and any generated would be disposed of according to government regulations. All equipment testing would be completed by trained laboratory employees. Testing involving high pressure hydrogen would be performed in appropriate test facilities that are designed to contain an explosion and have the necessary ventilation systems and gas sensing technology to detect and handle any leakage or accumulation of hydrogen.

Based on review of the project information and the above analysis, DOE has determined the research, development and testing activities would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined the proposed project is consistent with actions contained in DOE categorical exclusion A9 "information gathering, data analysis and computer modeling," B3.6 "small-scale research and development, laboratory operations and pilot projects," and 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:

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 :

Review completed by Logan Sholar on 07/23/14.

This NEPA Determination does not require a tailored NEPA provision.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: 
NEPA Compliance Officer

Date: 7/24/2014

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: _____