

PMC-ND  
(1.08.09.13)

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



RECIPIENT: SRI International

STATE: CA

**PROJECT TITLE :** Hydrothermal Liquefaction Pathways for Low-Nitrogen Biocrude from Wet Algae

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0000812	EE0006635	GFO-0006635-001	

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.)
- B3.16 Research activities in aquatic environments** Small-scale, temporary surveying, site characterization, and research activities in aquatic environments, limited to: (a) Acquisition of rights-of-way, easements, and temporary use permits; (b) Installation, operation, and removal of passive scientific measurement devices, including, but not limited to, antennae, tide gauges, flow testing equipment for existing wells, weighted hydrophones, salinity measurement devices, and water quality measurement devices; (c) Natural resource inventories, data and sample collection, environmental monitoring, and basic and applied research, excluding (1) large-scale vibratory coring techniques and (2) seismic activities other than passive techniques; and (d) Surveying and mapping. These activities would be conducted in accordance with, where applicable, an approved spill prevention, control, and response plan and would incorporate appropriate control technologies and best management practices. None of the activities listed above would occur within the boundary of an established marine sanctuary or wildlife refuge, a governmentally proposed marine sanctuary or wildlife refuge, or a governmentally recognized area of high biological sensitivity, unless authorized by the agency responsible for such refuge, sanctuary, or area (or after consultation with the responsible agency, if no authorization is required). If the proposed activities would occur outside such refuge, sanctuary, or area and if the activities would have the potential to cause impacts within such refuge, sanctuary, or area, then the responsible agency shall be consulted in order to determine whether authorization is required and whether such activities would have the potential to cause significant impacts on such refuge, sanctuary, or area. Areas of high biological sensitivity include, but are not limited to, areas of known ecological importance, whale and marine mammal mating and calving/pupping areas, and fish and invertebrate spawning and nursery areas recognized as being limited or unique and vulnerable to perturbation; these areas can occur in bays, estuaries, near shore, and far offshore, and may vary seasonally. No permanent facilities or devices would be constructed or installed. Covered actions do not include drilling of resource exploration or extraction wells.
- 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 SRI International (SRI) to find an efficient path from biomass to transportation fuels in the presence of heteroatoms intrinsic to the biomass.

SRI proposes to study the chemical pathways of the hydrothermal liquefaction (HTL) process with the selected types of N-rich biomass, perform preliminary work on scaling up, refine the study of chemical reaction as needed, then carry out modeling for mass and energy balances, life-cycle analysis (LCA), and greenhouse gases (GHG) emissions estimations.

This NEPA determination covers the entire project. Activities would include computer modeling data collection and

analysis, project/facility/office site visits, and biofuel production demonstrations to validate existing equipment, facilities, production processes, and data and partnership agreements. SRI would work with multiple partners at multiple locations that are included in the "Project Locations" document in the Project Management Center (PMC).

SRI completed an Environmental Questionnaire addressing the protocols for laboratory and facility safety, risk management and waste disposal at all facilities associated with this project. All laboratory facilities are established and currently perform work similar to the proposed activities. All facilities have standard safety procedures and equipment in place, and comply with appropriate federal, state and local regulations. All facilities have all applicable permits in place, and would not need additional permits for the proposed activities. All handling, transportation and disposal of hazardous and non-hazardous bio-oils, biofuels, wastes, gases, chemicals, and effluents would comply with appropriate federal, state and local regulations. No new structures or modifications to existing facilities would be needed. Additionally, no new permits are required for any of the project sites.

The Algae Systems facility in Daphne, AL is the only laboratory facility which would also include a marine environment for the offshore photobioreactors. This existing facility would not require modification, and has all required permits for operation.

Based on review of the project information and the above analysis, DOE has determined the proposed 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 the actions contained in DOE categorical exclusions A9 "information gathering, analysis, and dissemination, B3.16 "research activities in aquatic environments," and 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 :

Bioenergy Technologies Office  
This NEPA determination does not require a tailored NEPA Provision.  
NEPA review completed by Diana Heyder 10/29/2014

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

NEPA Compliance Officer Signature: \_\_\_\_\_



Electronically Signed By: Kristin Kerwin  
NEPA Compliance Officer

Date: 10/29/2014

**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: \_\_\_\_\_