PMC-EF2a
(2.04.02)

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

RECIPIENT: Desert Research Institute **STATE:** NV

PROJECT TITLE : Algal Based Fuels

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
CDP	DE-EE0000600	GFO-10-142-001	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 (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.

B3.1 Onsite and offsite site characterization and environmental monitoring, including siting, construction (or modification), operation, and dismantlement or closing (abandonment) of characterization and monitoring devices and siting, construction, and associated operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis. Activities covered include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. Specific activities include, but are not limited to:

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).

B5.1 Actions to conserve energy, demonstrate potential energy conservation, and promote energy-efficiency that do not increase the indoor concentrations of potentially harmful substances. These actions may involve financial and technical assistance to individuals (such as builders, owners, consultants, designers), organizations (such as utilities), and state and local governments. Covered actions include, but are not limited to: programmed lowering of thermostat settings, placement of timers on hot water heaters, installation of solar hot water systems, installation of efficient lighting, improvements in generator efficiency and appliance efficiency ratings, development of energy-efficient manufacturing or industrial practices, and small-scale conservation and renewable energy research and development and pilot projects. The actions could involve building renovations or new structures in commercial, residential, agricultural, or industrial sectors. These actions do not include rulemakings, standard-settings, or proposed DOE legislation.

Rational for determination:

As part of an annual, on-going Congressionally Directed Project, the Desert Research Institute (DRI) would use federal funds to build on the basic research on the growth of algae in geothermal waters and initiate Research and Development regarding optimization routines and systems requirements for eventual energy and biomass production systems in Nevada. Efforts will continue to evaluate combinations of chemical and controllable environmental conditions and manipulations that may lead to viable energy-producing and CO2-capturing systems using algae as the biomass resource. The proposed work is consistent with the recent recommendations from the Algal Biofuels Technical Roadmap Workshop (December 9-10 2008, Maryland, sponsored by DOE) for the development of baseline data regarding the effects of regional environmental variability on cultivars and potential production operations.

This project would involve:
- screening and matching of algal species and strains with geothermal sources for high lipid production,
- screening and evaluation of algal strains and consortia amenable to lipid production in specific geothermal waters,
- optimization of algal strains and consortia production capacities with respect to varying light/dark cycles and temperatures,
- building a pilot-scale field facility in Nevada to demonstrate and conduct preliminary field work targeting the feasibility of growing algae and harvesting lipids in authentic geothermal fluids,
- exploration and evaluation of new and potential beneficial uses of algal residues and biodiesel byproducts, development of education and workforce development opportunities on Nevada campuses, and project management and reporting.

Work analyzing lipid production would take place in a laboratory setting and the applicant has an R & D questionnaire submitted which thoroughly addresses the safety and chemical handling protocols.

The pilot-scale facility would require the use of two lined 10'x25' ponds (0.011 acres total). The ponds would utilize existing concrete basins at the Tahoe-Reno Industrial Center wastewater treatment plant and would not require new construction or site clearing or grading.

DRI's labs follow established protocols, practices and procedures outlined in the DRI Chemical Hygiene Plan. The plan and associated safety procedures are reviewed annually to assure they are current to applicable regulations as well as accepted best management practices Principal investigators/lab supervisors are responsible for implementing the plan and developing appropriate lab specific safety protocols. Employees working in DRI laboratories are required to annual training. DRI Environmental Health and Safety conducts annual laboratory safety inspections. The DRI is subject to Nevada OSHA regulations as well as the International Fire Code (IFC) (enforced by the Nevada State Fire Marshal's office), hazardous waste (RCRA) regulations (enforced by the Nevada Division of Environmental Protection) and numerous local requirements. In addition to the lab standard, 29 CFR 1910.1450 upon which our chemical hygiene plan is based, there are many EH&S programs, policies and procedures in place at DRI (http://safety.dri.edu.), some of which may relate to work conducted by those involved with this project.

The DRI will not need to apply for any new permits to complete this work and currently has up to date hazardous materials storage permits (issued by the State Fire Marshal) and industrial waste water permits (issued by local authorities). DRI also has EPA identification numbers for hazardous waste disposal. No GMOs will be used throughout the entire project.

This project is comprised of information gathering and conventional research and development strategies in existing laboratory facilities and offsite monitoring of project activities, as well as use of pilot scale research ponds on an existing concrete drainage point in zoned industrial lands for algae production; therefore a CX A9, B3.1, B3.6, & B5.1 apply to this project.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

None Given.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Kristin Kerwin Date: 9/14/2010

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