



Department of Energy

Brookhaven Site Office

P.O. Box 5000

Upton, New York 11973

Dr. Samuel H. Aronson, Director
Brookhaven Science Associates, LLC
Brookhaven National Laboratory
Upton, New York 11973

SEP 30 2009

Dear Dr. Aronson:

SUBJECT: MODIFICATION NO. A233 TO U.S. DEPARTMENT OF ENERGY CONTRACT
NO. DE-AC02-98CH10886; AMERICAN RECOVERY AND REINVESTMENT
ACT (ARRA) APPROPRIATION

Enclosed for your records is a signed copy of the subject contract modification, which increases the amount of funds, obligated hereunder by \$772,800.00 from \$5,753,351,967.67 to a total of \$5,754,124,767.67. Please be advised that since ARRA funding has been added to the contract, specific contract language for implementing ARRA funded projects has also been added to the contract.

Sincerely,

A handwritten signature in cursive script that reads "Evelyn Landini".

Evelyn Landini
Contracting Officer

Enclosure:
Form SF30 (Amendment of Solicitation/Modification of contract)

cc: G. Cadieux, GC-61, FORS, w/o encl.
D. Wilson, SC-CH, w/encl.
C. Richardson, SC-CH, w/o encl.
R. Wantiez, SC-CH, w/o encl.
L. Rogers, SC-CH, w/o encl.
F. D'Agostino, SC-BHSO, w/encl.
R. Hoskinson, SC-BHSO, w/encl.
D. Greco, BSA, w/encl.
J. Hauser, BSA, w/o encl.
K. Fox, BSA, w/o encl.
P. Ferrara, BSA, w/encl.
R. Melucci, BSA, w/o encl.
L. Barrett, BSA, w/encl.
P. Yerry, BSA, w/o encl.
M. Cowell, BSA, w/encl.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. A233	3. EFFECTIVE DATE See block 16C	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
6. ISSUED BY CODE U.S. Department of Energy Brookhaven Site Office 53 Bell Avenue, Building 464 Upton, NY 11974-5000		7. ADMINISTERED BY (If other than Item 6) Code	

8. NAME AND ADDRESS OF CONTRACTOR (No. street, county, State and ZIP Code) Brookhaven Science Associates, LLC 25 Brookhaven Avenue Building 460 Upton, New York 11973-5000	(✓)	9.A. AMENDMENT OF SOLICITATION NO.
		9.B. DATED (SEE ITEM 11)
	x	10.A. MODIFICATION OF Contract/Order NO. DE-AC02-98CH10886
		10.B. DATED (SEE ITEM 13) 01/05/1998
CODE N/A	FACILITY CODE N/A	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers is extended, is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning ___ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
All required accounting and appropriations data are included in the attached financial worksheet and Section C.6 of the contract.

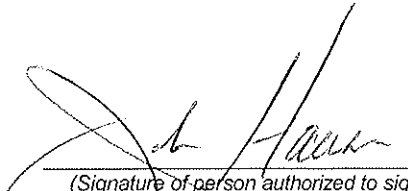

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

<input type="checkbox"/>	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
<input type="checkbox"/>	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).
<input type="checkbox"/>	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
<input checked="" type="checkbox"/>	D. OTHER (Specify type of modification and authority) Mutual agreement of the parties

E. IMPORTANT: Contractor is not is required to sign this document and return 1 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section heading, including solicitation/contract subject matter where feasible.)
This Modification is issued to obligate American Recovery and Reinvestment Act of 2009 funds in the amount of \$772,800 under Treasury Accounting Symbol 89-09/10-0331. As a result, Section C.6, "Recovery Act Projects" has been amended to add a new EERE Project entitled EGS R&D. Also, any references to the ARPA-E have been corrected to read Advanced Research Projects Agency – Energy (ARPA-E).

Furthermore, revise Clause I.104, "Obligation of Funds."

15A. NAME AND TITLE OF SIGNER (Type or print) John Hauser Chief Financial Officer	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Evelyn Landini Contracting Officer
15B. CONTRACTOR/OFFEROR	16B. UNITED STATES OF AMERICA
15C. DATE SIGNED 9/30/09	16C. DATE SIGNED 9/30/09
 (Signature of person authorized to sign)	 (Signature of Contracting Officer)

Said contract, as modified previously, is hereby further modified as follows:

1. **Section C.6, Recovery Act Projects:** Replace the first page of this section with the revised attached page which adds a project to Category 5 Recovery Act projects for EERE entitled "EGS R&D" and corrects the project name for ARPA-E to read Advanced Research Projects Agency – Energy.
2. **Section C.6.5, Recovery Act Projects Category 5:** Replace the pages of this Section with the attached revised pages which add Project 2 entitled EGS R&D.
3. **Clause I.104 - OBLIGATION OF FUNDS:** The first sentence of paragraph (a) is revised to read as follows: "The amount presently obligated by the Government with respect to this Contract is **\$5,754,124,767.67.**"
4. The following is a history of the change in the obligated amount since the last Modification that updated Clause I.104.

PRIOR OBLIGATION A223	\$ 5,737,073,999.82
INCREASE IN MOD A224	1,825,960.85
INCREASE IN MOD A225	304,100.00
INCREASE IN MOD A226	2,770,917.00
INCREASE IN MOD A227	3,206,266.01
INCREASE IN MOD A228	208,737.86
INCREASE IN MOD A229	377,690.00
INCREASE IN MOD A230	131,353.40
INCREASE IN MOD A231	81,000.00
INCREASE IN MOD A232	7,371,942.73
INCREASE IN MOD A233 ARRA	<u>\$ 772,800.00</u>
CURRENT TOTAL OBLIGATION:	\$ 5,754,124,767.67

Attachments:

Financial Worksheet
Section C.6

- Section C.6.5 – EERE – EGS R&D

C.6 – RECOVERY ACT PROJECTS

This section is created to identify individual Recovery Act Projects as follows:

1. Recovery Act Project Category 1: Basic Energy Sciences (BES)
 - National Synchrotron Light Source II (NSLS-II)
 - Nanoscale Science Research Centers
 - Light Source Improvements

2. Recovery Act Project Category 2: Science Laboratories Infrastructure (SLI)
 - Roofing
 - Mechanical & Electrical Upgrades
 - Chemistry Bldg Fire Safety Corrections
 - Interdisciplinary Science Building

3. Recovery Act Project Category 3: Environmental Management (EM)
 - Accelerated Cleanup of Surplus Nuclear Facilities

4. Recovery Act Project Category 4: Nuclear Physics (NP)
 - PHENIX Silicon Vertex MIE
 - PHENIX Forward Vertex Detector MIE
 - Enhanced AIP Funding at NP User Facilities
 - Enhanced Utilization of Isotope Facilities
 - Nuclear Science Workforce

5. Recovery Act Project Category 5: Energy Efficiency and Renewable Energy (EERE)
 - Federal Lab Support for Recovery Act Transactions ARRA FY09
 - EGS R&D

6. Recovery Act Project Category 6: High Energy Physics (HEP)
 - Advanced Technology R&D Augmentation
 - Long Baseline Neutrino Experiment

7. Recovery Act Project Category 7: Advanced Research Projects Agency - Energy (ARPA-E)
 - Brookhaven National Laboratory (BNL) - Reviewer for ARPA-E

**C.6.5 – Recovery Act Project Category 5:
 Energy Efficiency and Renewable Energy (EERE)**

- A. This modification increases the obligation of American Recovery and Reinvestment Act of 2009 funds by \$772,800.00 from \$115,000.00 to a revised total of \$887,800.00. The value of each project is indicated separately below.
- B. Clause I.104 DEAR 970.5232-4 “Obligation of Funds” has been adjusted accordingly.
- C. The specific work funded by this modification is as follows:

**1. Federal Lab Support for Recovery Act Transactions FY09
 (\$50K + \$65K = Revised TEC \$115K)**

Statement of Work:

These funds are for Management and Oversight (Program Direction) to enable the Laboratory to provide project management and technical staff assistance to applicants of DOE’s Office of Energy Efficiency and Renewable Energy.

The specific Contractor Recovery Act Statement of Work, Milestones, Outcomes and Measures, and Deliverables funded by this modification are identified in the following referenced Work Authorization:

Work Authorization Number	Work Authorization Title
480004-20476-09 and Rev 01 Project Code 2004040	Federal Lab Support for Recovery Act Transactions FY09

2. EGS R&D (\$772.8K)

Statement of Work:

Original Scope: Brookhaven National Laboratory will elucidate comprehensively the carbonation reaction mechanisms between the supercritical carbon dioxide and reservoir rocks in aqueous and non-aqueous environments, and develop chemical modeling of CO2-reservoir rock interactions. (\$200.4K)

Rev 01: Brookhaven National Laboratory will develop and characterize field-applicable geopolymer sealing materials in the laboratory and transfer the developed material technology to geothermal drilling service companies. (\$347.4K)

Rev 02: Brookhaven National Laboratory, working with Los Alamos National Laboratory and Pacific Northwest National Laboratory, will develop and implement 1) suites of tracers consisting of compounds with different chemical and physical properties that will interact in measurable ways with fractured rock matrix, and 2) single and interwell test designs and corresponding interpretation methods to extract the temperature distribution and surface area information from breakthrough curves. (\$225K)

The specific Contractor Recovery Act Statement of Work, Milestones, Outcomes and Measures, and Deliverables funded by this modification are identified in the following referenced Work Authorization:

Work Authorization Number	Work Authorization Title
GT-480004-20685-09 and Rev 01 and Rev 02 Project Code 2004190	EGS R&D

- D. The work described in this modification shall be performed using funds obligated under this contract, which have been appropriated under the Recovery Act of 2009, Pub. L. 111-5, and as such, is subject to the special statutory conditions and the additional contractual terms and conditions that are listed in paragraph E below and the changes made to Sections E and G of the contract pertaining to the Recovery Act. The funds obligated hereunder shall only be used to accomplish the work as set forth in paragraph C. above and may not be used for any other purpose without the prior written consent of the Contracting Officer.
- E. The Contractor shall complete all Recovery Act Work funded by this modification in accordance with Recovery Act requirements, including the required completion dates specified therein, and by the completion date identified in the approved work authorization for the activity.