

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE PAGE OF PAGES
1 1

2. AMENDMENT/MODIFICATION NO. A508	3. EFFECTIVE DATE See Block 16C	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
6. ISSUED BY U.S. Department of Energy Brookhaven Site Office 53 Bell Avenue, Building 464 Upton, NY 11973-5000	CODE 06005	7. ADMINISTERED BY (If other than Item 6) Code	06005

8. NAME AND ADDRESS OF CONTRACTOR (No. street, county, State and ZIP Code) Brookhaven Science Associates, LLC 40 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)
See attached financial worksheet.

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

	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.
	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).
X	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: Mutual agreement of the parties
	D. OTHER (Specify type of modification and authority)

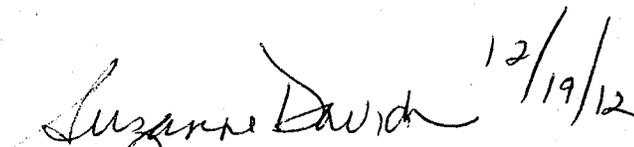
E. IMPORTANT: Contractor is not is required to sign this document and return 1 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section heading, including solicitation/contract subject matter where feasible.)

This Modification is issued to reflect the de-obligation of American Recovery and Reinvestment Act of 2009 funds under Treasury Accounting Symbol 89-09/10-0331 in the amount of \$959.42. Accordingly, Section C.6.5 - Recovery Act Project Category 5: "Energy Efficiency and Renewable Energy (EERE)" has been revised to reflect the de-obligation of funds in the amounts of \$959.42 from EGS R&D to reflect the close-out of all actions provided under Work Authorizations GT-480004-20685-13.

Attachments:

Section C.6.5, Recovery Act Project Category 5:
▪ EGS R&D

15A. NAME AND TITLE OF SIGNER (Type or print) Suzanne M. Davidson 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 12/19/12	16C. DATE SIGNED 12/20/12
(Signature of person authorized to sign) 	BY  (Signature of Contracting Officer)

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

- A. The American Recovery and Reinvestment Act of 2009 funds obligated under this Category in FY 2009 and FY 2010 are specified below in Section C.
- B. Clause I.139 DEAR 970.5232-4 “Obligation of Funds” has been adjusted accordingly.
- C. The specific work included within this work scope is as follows:

1. Federal Lab Support for Recovery Act Transactions (TEC \$113,950.63)

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.

Funding in the amount of (\$1,050.63) have been withdrawn and distributed to Agreement # 11951.

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, Rev 01 and Rev 02 Project Code 2004040	Federal Lab Support for Recovery Act Transactions

2. EGS R&D (TEC \$1.897K)

Statement of Work:

Agreement # 19965: 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. (\$334K + 159.87K FY10 = \$493.87K) - (\$97.73) = \$493.772K

Rev 07: For FY12 provided under Work Authorization GT-480004-20685-12, changes the the Expected Completion Date of the project from 09/30/2011 to 09/30/2012.

Rev 13: In FY 13, funds in the amount of \$97.73 were withdrawn to reflect the de-obligation and closeout of all actions provided under Work Authorization #GT-480004-20685-13.

Agreement # 19964: 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. (\$375K +155.625K FY10 = \$530.625K) – (\$78.89) = \$530.546K

Rev 08: For FY12 provided under Work Authorization GT-480004-20685-12, changes the Expected Completion Date of the project from 09/30/2011 to 09/30/2012.

Rev 12: In FY13, funds in the amount of \$78.89 were withdrawn to reflect the de-obligation and closeout of all actions provided under Work Authorization #GT-480004-20685-13.

Agreement # 19963: 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. (\$579K + \$293.41K FY10 = \$872.41K) – (\$782.80) = \$871,627K

Rev 09: For FY12 provided under Work Authorization GT-480004-20685-12, changes the the Expected Completion Date of the project from 09/30/2011 to 09/30/2012.

Rev 10: For FY12 provided under Work Authorization GT-480004-20685-12, revises Section A of Attachment A entitled: "Contractor Recovery Act Performance Requirements".

Rev 11: In FY 13 funds in the amount of \$782.80 were withdrawn to reflect the de-obligation and closeout of all actions provided under Work Authorization #GT-480004-20685-13.

Accordingly, the final obligated amount of the project is \$1,895,945.58.

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, Rev 01, Rev 02, Rev 03 GT-480004-20685-10, Rev 01, Rev 02, Rev 03 GT-480004-20685-10, Rev 04, Rev 05, Rev 06 GT-480004-20685-12, Rev 07, Rev 08, Rev 09, & Rev 10 GT-480004-20685-13, Rev 11, Rev 12, & Rev 13 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.