

2. AMENDMENT/MODIFICATION NO. 0006 3. EFFECTIVE DATE See block 15(c) 4. REQUISITION/PURCHASE REQ. NO. RES-12-365 08/10/2012 5. PROJECT NO. (if applicable)

6. ISSUED BY CODE 3100 7. ADMINISTERED BY (if other than item 6) CODE 3100
 U.S. Nuclear Regulatory Commission
 Division of Contracts
 Attn: Morie Gunter-Henderson
 Mail Stop TWB-01B10M
 Washington, DC 20555

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) (X) 9A. AMENDMENT OF SOLICITATION NO.
 TUTTLE, M & ASSOCIATES
 MARTITIA TUTTLE
 128 TIBBETTS LN; PO Box 345
 GEORGETOWN ME 045483538
 CODE 041635702 FACILITY CODE X 9B. DATED (SEE ITEM 11)
 10A. MODIFICATION OF CONTRACT/ORDER NO. NRC-HQ-11-C-04-0041
 X 10B. DATED (SEE ITEM 13) 05-13-2011

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 ACKNOWLEDGMENT 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) Obligate: \$.00
 B&R: 2012-60-17-6-161 JOB: V6175 BOC: 252A 31X0200
 Faimis: RES-C12-365 PSC: B519 NAICS: 541360

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

(X) 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 data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
 C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
 X D. OTHER (Specify type of modification and authority) Mutual Agreement Between the Parties. 52.243-2-Changes Cost Reimbursement(1987) Alt V (APR 1984)

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 headings, including solicitation/contract subject matter where feasible.)
 Ceiling Amount: \$803,032.00 (changed)
 Obligated Amount: \$346,960.00 (unchanged)
 Period of Performance: 5/13/2011 - 1/12/2016 (changed)
 SEE CONTINUATION PAGES.

Except as provided herein, all terms and conditions of the document referenced in Item 8A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print) Martitia P Tuttle, Director	15B. CONTRACTOR/OFFEROR <i>Martitia P. Tuttle</i> (Signature of person authorized to sign)	15C. DATE SIGNED 9/5/12	15A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Morie Gunter-Henderson Contracting Officer	15B. UNITED STATES OF AMERICA BY <i>Morie Gunter-Henderson</i> (Signature of Contracting Officer)	15C. DATE SIGNED 9/6/12
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SEP 07 2012

TEMPLATE - ADM001

SUNSI REVIEW COMPLETE

ADM002

The purpose of this modification is to:

(1) Cancel the Stop Work Order that was issued on December 23, 2011, associated with Task 2 and Subtasks 3b, 3c and 3d of the project entitled, "Paleoliquefaction studies in Moderate Seismicity Regions with a History of Large Events," and incorporate additional effort under task 3 in accordance with M. Tuttle & Associates (M&A) proposal dated 23 May 2012. The M. Tuttle & Associates Initial proposal dated January 18, 2011 and proposal dated 23 May, 2012 is hereby incorporated into the contract through modification number 6;

NOTE: The effort added to the contract under this modification which requires concurrence from State and Tribal Historic Preservation Officers shall not be performed until written authorization to proceed is obtained from the Contracting Officer.

(2) Increase the contract level of effort by 322 hours (106 hrs for M&A, 116 hours for University of Memphis and 100 hours for its Consultant) from 2,600 hours to 2,922 hours thus the contract ceiling is increased by \$56,378.00 from \$746,654 to \$803,032, to accommodate the additional effort under task 3 required to assist the NRC in complying with the National Historic Preservation Act (NHPA) Section 106 review process and the National Environmental Protection Act (NEPA) as indicated in the Tuttle & Associates proposal dated May 23, 2012, which is hereby incorporated into the contract;

(3) Revise the contract section entitled "SCOPE OF WORK, TASK 3" under subtask 3b, 3c and 3d, to allow Tuttle & Associates to perform work associated with assisting the NRC to comply with the national Historic Preservation Act (NEPA) Section 106 process and the National Environmental Protection Act (NEPA);

(4) Revise Section entitled "DELIVERABLES/SCHEDULES AND/OR MILESTONES", Phase 3 Deliverables: to revise the delivery schedule.

Accordingly the contract is modified as follows:

- Under Section B.1 PRICE/COST SCHEDULE, CLIN 3 and the estimated total cost is revised to reflect cost and fee increase. Therefore, Section B.1 is deleted in its entirety and the following is substituted in-lieu there:

B.1 PRICE/COST SCHEDULE

CLIN	DESCRIPTION	REIMBURSABLE COST	FIXED FEE	TOTAL COST PLUS FIXED FEE
001	Task 1 "Develop a NUREG/CR"			\$113,990.00
002	Task 2 "Stakeholder Training Workshop"			\$99,913.00
003	Task 3 "Comprehensive Paleoseismolo Study"			\$589,129
	Estimated total			\$803,032

- Under section B.3 entitled "CONSIDERATION AND OBLIGATION—COST PLUS FIXED FEE (JUN 1988) ALTERNATE 1 (JUN 1991), paragraph (a), (b), (c) and (d) are deleted in its entirety and the following is substituted in-lieu thereof:

(a) The total estimated cost to the Government for full performance of this contract is \$803,032.00, of which the sum of \$790,378.00, represents the estimated reimbursable costs, and of which \$12,654, represents the fixed fee.

(b) There shall be no adjustment in the amount of the Contractor's fixed fee by reason of differences between any estimate of cost for performance of the work under this contract and the actual cost for performance of that work.

(c) The amount currently obligated by the Government with respect to this contract is \$346,960.00, of which the sum of \$340,893.00 represents the estimated reimbursable costs, and of which \$6,067.00 represents the fixed fee.

(d) It is estimated that the amount currently allotted will cover performance through November 2012.

3) Under SCOPE OF WORK, TASK 3, is hereby deleted in its entirety and the following is substituted in-lieu thereof:

"Task 3

In performance of Task 3, the contractor will assist the NRC in complying with NEPA and NHPA and coordinate compliance efforts with State Historic Preservation Officers (SHPOs) and Tribal Historic Preservation Officers (THPOs). For the states of Arkansas, Missouri, Kentucky, Tennessee, and Mississippi, the contractor developed a plan to comply with NHPA. The plan shall include (1) generating maps showing those portions of rivers, (the ditches maintained by the Army Corps of Engineers will be listed in letters to SHPOs and THPOs, but these ditches will not be shown on generated maps) , along which earthquake-induced liquefaction features will be sought, studied, and dated and writing summaries for each state describing the planned field work and anticipated ground disturbance along each river [this work falls under Task 3b and 3c] and (2) conducting site evaluations including archeological shovel testing and analysis and writing of a site evaluation report including a plan for reducing and/or mitigating adverse effects to cultural deposits resulting from trenching of earthquake-induced liquefaction features as needed [this falls under Task 3d). Tasks 3a, 3b, 3c, and 3d must be completed in order to perform Tasks 3f and 3g. Task 3e is required to complete Task 3g. In addition to the contract original proposal the contractor shall complete task 3 in accordance with its proposal dated May 13, 2012.

Carry out a comprehensive paleoseismology study on major liquefaction features in the CEUS seismic zones in order to reduce uncertainties in recurrence rate, location and magnitude estimates of large earthquakes in the CEUS, This may be accomplished through the following subtasks.

- a) Review of Previously Collected Paleoliquefaction Data
- b) Sample Collection for Dating Prehistoric Sand Blows In Previously Searched Areas
- c) Survey for Liquefaction Features in Key Areas Not Previously Searched
- d) Detailed Site Investigations
- e) Radiocarbon and OSL Dating
- f) Evaluation of Scenario Earthquakes
- g) Analysis and Interpretation of Data

It is anticipated that the Principal Investigator (PI) may utilize subconsultants such as a geotechnical engineer, geophysicist, and/or archeologist to assist in completing portions of these subtasks."

4) Under Section entitled "DELIVERABLES/SCHEDULES AND/OR MILESTONES", Phase 3 Deliverables: to revise the delivery schedule is deleted entirely and the following is substituted in-lieu thereof:

"Phase 3 Deliverables: Submit a draft final project report within 53 months after contract award date and a final report one month after receiving NRC comments on the draft report. Present research findings to the NRC staff at the end of the project period (within 56 months after contract award date). The final report will document all three tasks completed and provide details and findings from the field studies completed as part of Task 3. Task 3 shall not start until written authorization to proceed is obtained from the NRC Contracting Officer.

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED