

## AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

BPA NO.

1. CONTRACT ID CODE

PAGE  
1OF  
32. AMENDMENT/MODIFICATION NO.  
M0063. EFFECTIVE DATE  
See Block 16c4. REQUISITION/PURCHASE REQ. NO.  
RES-11-245  
Dated: 7/14/11

5. PROJECT NO. (If applicable)

6. ISSUED BY

CODE 3100

U.S. Nuclear Regulatory Commission  
Div. of Contracts  
Attn: Morie Gunter-Henderson  
Mail Stop TWB-01B10M  
Washington, DC 20555

7. ADMINISTERED BY (If other than Item 6)

CODE 3100

U.S. Nuclear Regulatory Commission  
Div. of Contracts  
Mail Stop TWB-01-B10M  
Washington, DC 20555

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)

(X) 9A. AMENDMENT OF SOLICITATION NO.

PURDUE UNIVERSITY

9B. DATED (SEE ITEM 11)

ATTN: KENNETH W. SUTER  
YOUNG HALL  
302 WOOD STREET10A. MODIFICATION OF CONTRACT/ORDER NO.  
NRC-04-07-094 NRC TASK ORDER 008

WEST LAFAYETTE IN 479072108

10B. DATED (SEE ITEM 13)

CODE 072051394

FACILITY CODE NAICS:541330

X 10-01-2009

## 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: \$30,000.00 B&R: 2011-60-11-6-174 JC: N6910  
BOC: 252A APPN: 31X0200.160 Commitment #: 113451  
DUNS: 072051394 NAICS:54171213. 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 date, 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:

D. OTHER (Specify type of modification and authority) Mutual agreement between the parties

X

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.)

The purpose of this modification is to incorporate the attached revised SOW which increases the ceiling by \$30,000.00 and add funding in the amount of \$30,000.00. Accordingly section A.1 of The task order entitled: Consideration and Obligation is revised to read as follows: paragraph (a) The total estimated amount of this Task Order ceiling for the products/services ordered, delivered, and accepted under this contract is \$242,584.00. The first sentence of paragraph (b) is revised as follows: (b) The amount presently obligated with respect to this Task Order is \$242,584.00.

All other terms and conditions remain the same.

Ceiling Amount: \$242,584.00 (changed)

Obligated Amount: \$242,584.00 (changed)

Period of Performance: October 1, 2009 - December 31, 2011 (Unchanged)

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)  
Kenneth W. Suter  
Contract Analyst15A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)  
Morie Gunter-Henderson  
Contracting Officer

15B. CONTRACTOR OFFEROR

15C. DATE SIGNED

(Signature of person authorized to sign)

15B. UNITED STATES OF AMERICA

BY

(Signature of Contracting Officer)

15C. DATE SIGNED

8/18/11

NSN 7540-01-152-8070  
PREVIOUS EDITION NOT USABLESTANDARD FORM 30 (REV. 10-83)  
Prescribed by GSA - FAR (48 CFR) 53.243

SUNSI REVIEW COMPLETE AUG 19 2011

TEMPLATE - ADM001

ADM002

STATEMENT OF WORK FOR COMMERCIAL  
Job Code No. N6910  
**NRC-04-07-094 Task Order 8**  
Modification No. 6

**TITLE:** TRACE Code Models and Correlations Development

NRC Project Officer: Andrew Ireland  
Phone: (301) 251-7553

**SUMMARY OF MODIFICATIONS:**

- Add "Task 6: Separate-effect Bench-top Experimental Feasibility Study" to the Work Requirements section
- Changes to the deliverable schedule to include the new Task 6 deliverables
- Changes to the LEVEL OF EFFORT

The modification to Task Order #8 necessitates the following changes to the original Statement of Work:

**WORK REQUIREMENTS: Addition of a new Task.**

**Task 6: Separate-effect Bench-top Experimental Feasibility Study**

There is very little data relevant to the dry- and wet-grid phenomenon currently available that can be used for model development and validation. Although a physics-based modeling package for the dry- and wet-grid phenomena has been developed in the current research project (Tasks 1-5), the various components of the modeling package cannot be fine-tuned and validated because of the absence of appropriate experimental data. Separate-effect bench-top experiments need to be conducted to obtain the much needed data under comparable dry- and wet-grid conditions.

In view of the above, it is highly desired to design and fabricate a test assembly involving the use of a short section of rod bundle such that spacer grids of various types with distinctly different blockage ratios can be installed in an interchangeable manner in the test section. To facilitate the construction and operation of such a test assembly, dummy heater rods without power and housing made of transparent material shall be used. The tests shall focus on the hydrodynamic aspects of the dry- and wet-grid phenomena, using air and water droplets as the working fluids. Flow visualization shall be done using the upgraded VisiSizer system from Oxford Lasers to measure the drop size distribution and the droplet velocities.

The feasibility study shall focus on three main areas:

1. Feasibility of measuring the drop size distribution and the droplet velocities at two separate locations immediately upstream and downstream of a spacer grid using the upgraded VisiSizer system from Oxford Lasers.
2. Exploring the flow conditions (i.e., air flow rates and injected droplet sizes and velocities) and the surface treatment needed to maintain a dry grid configuration.

3. Exploring the flow conditions (i.e., air flow rates and injected droplet sizes and velocities) and the surface treatment needed to maintain a wet grid configuration.

Deliverables	Level of Effort	Completion Date
Feasibility report on the spacer grid bench-top experiments	3 staff-months	12/31/2011

**DELIVERABLES AND DELIVERY SCHEDULE: Addition of Task 6 Deliverables**

6. Final report describing the facility, test procedures, and experimental results of the bench-top feasibility experiments to be delivered by 12/31/2011.

**LEVEL OF EFFORT: Change to the number of staff months**

The total level of effort for Tasks 1-6 is estimated at 23 staff-months, with approximately 2 at the Faculty (tenure/tenure track) level, 7 at the Staff Research Associate level, and 14 at the Research Assistant level.