

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

CONTRACT ID CODE: _____ PAGE 1 OF PAGE 1

2. AMENDMENT/MODIFICATION NO. 012
 3. EFFECTIVE DATE 4-5-2002
 4. REQUISITION/PURCHASE REQ. NO. RES-98-041
 5. PROJECT NO. (If applicable) RES-C02-022

6. ISSUED BY U.S. Nuclear Regulatory Commission
 Division of Contracts and Property Mgt.
 Attn: T-7-I-2
 Contract Management Branch
 Washington DC 20555
 CODE _____
 7. ADMINISTERED BY (If other than Item 6) _____ CODE _____

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)
 Pennsylvania State University
 Office of Sponsored Programs
 110 Technology Center
 University Park
 PA 16802
 (X) 9A. AMENDMENT OF SOLICITATION NO. _____
 9B. DATED (SEE ITEM 11) _____
 10A. MODIFICATION OF CONTRACT/ORDER NO. NRC-04-98-041
 10B. DATED (SEE ITEM 13) X 11-03-2002
 CODE _____ FACILITY CODE _____

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 of 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) 31X0200 26015110205 W6855 252A \$249,301

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 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 FAR 52.243-2 Alt V Changes - Cost Reimbursement
 D. OTHER (Specify type of modification and authority) _____

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

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
 See attached continuation sheet

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) Susan Leitzell, Associate Director Office of Sponsored Programs	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Stephen M. Pool
15B. CONTRACTOR/OFFEROR <i>(Signature of person authorized to sign)</i>	16B. UNITED STATES OF AMERICA BY <i>(Signature of Contracting Officer)</i>
15C. DATE SIGNED MAY 09 2002	16C. DATE SIGNED 04-01-2002

TEMPLATE-ADM09

ADM02

CONTINUATION PAGE

The purpose of this modification is (1) to incorporate a change to the Statement of Work of this contract, (2) to adjust the estimated cost of the contract, and to (3) allot the final incremental of funds to the contract. Accordingly, the contract is modified as follows:

1. Task 13 of Section C of the contract is modified by the following language:

Subtask of Subchannel Analyses in Task 13:

The contractor shall:

a. Provide comparisons to the subchannel vapor temperature measurements from the traversing steam probes as well as the fixed steam temperature measurements from the spacer grids.

b. Perform subchannel analyses to provide local fluid conditions such as steam temperatures and velocities which could then be used with the measured heater rod surface temperatures and heat fluxes to calculate local convective heat transfer coefficients and Nusselt Numbers.

c. Generate a forced convection correlation using Nusselt number versus Reynolds number over the Reynolds number range used in the tests.

d. Develop a single phase grid enhancement correlation using the measurements downstream of the spacer grids.

e. Compare the reduced data and correlations to those in the literature for rod bundles.

f. Prepare a report giving the results of the analyses as well as a copy of the code, COBRA-IV or COBRA-TF, with the recommended correlations.

Travel: Two trips to the NRC should be planned for a program review and ACRS presentations.

Deliverable Items:

1. A quick look report should be provided to the NRC within a week after hot shakedown tests and the first test.
2. A standard set of plots should be provided to the NRC after each test.
3. A data report should be provided to the NRC after each test series. Qualified data should be provided in CDs in the NRC data bank format. In addition, a data uncertainty and qualification report should be provided.
4. A copy of the computer codes used in the data analyses should be provided along with the input decks and notes used for developing or modifying the input decks.

(end of subtask)

2. As a result of the above the estimated cost of the contract is increased by \$64,000 from \$3,355,301 to \$3,419,301. In addition, \$249,301 in funding is hereby allotted to this contract. The contract is now fully funded. Section B.3 of the contract is replaced with the following section:

B.3 CONSIDERATION AND OBLIGATION - COST REMIBURSEMENT

(a) The total estimated cost of performance cost to the Government for full performance under this contract is \$3,419,301.

(b) The amount presently obligated by the Government under this contract is \$3,419,301.

3. A summary of obligations follows:

FY 98 Obs \$900,000
FY 99 Obs \$600,000
FY 00 Obs \$820,000
FY 01 Obs \$550,000
FY 02 Obs \$549,301
Total \$3,419,301

4. All other terms and conditions remain unchanged.