

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE		PAGE 1	OF PAGES
2. AMENDMENT/MODIFICATION NO.  006		3. EFFECTIVE DATE  <b>OCT 22 2001</b>		4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO. (If applicable)	
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		7. ADMINISTERED BY (If other than Item 6)  CODE					
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)  Oregon State University 130 Radiation Center Corvallis, Oregon 97331-5902 Prin. Investigator: Dr. Jose N. Reyes Tel. No.: (541) 737-2343				(X)		9A. AMENDMENT OF SOLICITATION NO.	
						9B. DATED (SEE ITEM 11)	
						10A. MODIFICATION OF CONTRACT/ORDER NO. NRC-04-99-040	
						10B. DATED (SEE ITEM 13) 02-01-1999	
CODE		FACILITY CODE		X			
<b>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</b>							
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended, <input type="checkbox"/> 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) N/A							
<b>13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.</b>							
(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) X Changes - Cost Reimbursement Alternate IV (APR 1984)							
<b>E. IMPORTANT:</b> Contractor <input type="checkbox"/> is not, <input checked="" type="checkbox"/> is required to sign this document and return <u>2</u> copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)  (see page 2)							
15A. NAME AND TITLE OF SIGNER (Type or print) <b>CLEM LACAVA</b> Asst Contract Administrator				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Mary Mace			
15B. CONTRACTOR/OFFEROR <i>Clem Lacava</i> (Signature of person authorized to sign)		15C. DATE SIGNED 10/22/01		16B. UNITED STATES OF AMERICA BY <i>Mary Mace</i> (Signature of Contracting Officer)		16C. DATE SIGNED 9-28-01	

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.

This modification is issued to (1) cancel work required under previously approved Modification No. 5 under the subject contract, and (2) revise the Statement of Work (SOW) in accordance with the attached SOW and incorporate the contractor's technical proposal dated 9/12/01.

NOTE: The revised SOW for this modification redirects the work under the contract and no additional funds are required. Previously obligated funding will cover the work as stated.

A summary of obligations for this contract, from date of award through the date of this action, is given below:

Total FY1999 Obligations:	\$ 325,000
Total FY2000 Obligations:	\$ 440,000
Total FY2001 Obligations:	\$ 403,000

Cumulative Total of NRC Obligations:	\$1,168,000
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This modification obligates \$-0- in FY2001 funds.

All other terms and conditions remain the same.

## STATEMENT OF WORK

## 1. WORK SCOPE

Contractor shall perform 7 additional tests and 12 additional analyses, as indicated below, in lieu of previously funded steam generator heat transfer tests, boron mixing tests, and entrainment tests. Detailed test conditions shall be prepared and submitted for NRC approval before tests are initiated.

## A. Additional APEX-CE Tests

1. Perform three additional separate effect tests similar to CE-4 and CE-5, but inject into two adjacent cold legs, two opposite cold legs, and three cold legs. Evaluate plume interactions and mixing in downcomer.
2. Repeat 2-inch hot leg break (CE-8) and main steam line break (CE-12), and separate effects cold leg injection (CE-4, CE-5) separate effects tests with upper plenum-downcomer bypass closed off.

## B. Additional APEX-CE Analyses

1. Analyze CE-10 (stuck open ADV and pressurizer SRV) and CE-13 (2-inch hot leg break separate effects) using RELAP5
2. Analyze 2-inch hot leg break (CE-8) with REMIX in addition to the existing RELAP calculation.
3. Analyze CE-4 and/or CE-5 and/or CE-6 with RELAP/REMIX/STAR-CD. Currently no overlap exists amongst the three codes for experiment analysis.

Estimated Level of Effort = 12 man-months

## 2. DOCUMENTATION

At the completion of each test or a group of tests, a report should be prepared and submitted to the NRC. Computer code input decks used in this project and notebooks for developing or modifying input decks as part of this project should also be provided electronically as well as in paper form.

## 3. TRAVEL

Two 3-day trips by one person from Corvallis, Oregon, to Rockville, Maryland, should be included.

## 4. SCHEDULE FOR PERFORMANCE

The tests and analyses should be completed by March 31, 2002.

## 5. DELIVERABLES

A test report should be provided for each test or a group of tests. Computer code input decks used in this project and explanations of how their numerical numbers are derived as part of this project should also be provided electronically as well as in paper form.