

0504

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE	PAGE OF PAGES 1 2
2. AMENDMENT/MODIFICATION NO. Four (4)	3. EFFECTIVE DATE FEB 24 1997	4. REQUISITION/PURCHASE REQ. NO. RES-96-041	5. PROJECT NO. (If applicable) RES-C97-025	
6. ISSUED BY U.S. Nuclear Regulatory Commission Division of Contracts Technical Acquisition Branch 1 Mail Stop T-7-1-2 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) Scientech, Inc. 910 Clopper Road Gaithersburg, MD 20878 Principal Investigator/Technical Contact: Daniel Prelewicz Telephone No.: (301) 468-6426			9A. AMENDMENT OF SOLICITATION NO.	
			9B. DATED (SEE ITEM 11)	
			10A. MODIFICATION OF CONTRACT/ORDER NO. X NRC-04-96-041	
			10B. DATED (SEE ITEM 13) 11/13/95	
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. Offerors 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)
B&R No.: 76015122010 Job Code W6460 BOC: 252A
APPN No.: 31X0200.760 Amount Obligated: \$50,000.00

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 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 By 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 2 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
Please see the attached page.

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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) Douglas A. Knight Manager, Contracts & Administration	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Mary H. Mace Contracting Officer
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	16B. UNITED STATES OF AMERICA (Signature of Contracting Officer)
15C. DATE SIGNED 2/24/97	16C. DATE SIGNED 2-14-97

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The purpose of this modification is to (1) incorporate within-scope work under the subject contract as referenced in the Contractor's proposal dated January 24, 1997, in accordance with the attached Statement of Work (ATTACHMENT 1), which is added to Section C, Statement of Work, subsection C.3, Scope of Work, and replaces Subtask 4.1 from Modification No. 1, (2) increase the contract ceiling amount by \$49,936.00 from \$813,052.00 to \$862,988.00, and (3) increase the obligated amount by \$50,000.00 from \$780,000.00 to \$830,000.00. Accordingly, the contract is hereby modified as follows:

1. Section B.3, CONSIDERATION AND OBLIGATION--COST PLUS FIXED FEE (JUNE 1988) ALTERNATE I (JUNE 1991), paragraphs a and c are deleted in their entirety and the following paragraphs are substituted in lieu thereof:
 - "a. The total estimated cost to the Government for full performance of this contract is \$862,988.00, of which the sum of \$814,326.00 represents the estimated reimbursable costs, and of which \$48,662.00 represents the fixed fee."
 - "c. The amount currently obligated by the Government with respect to this contract is \$830,000.00."

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

Total FY 96 Obligation Amount:	\$780,000.00
Total FY 97 Obligation Amount:	\$ 50,000.00
Cumulative Total of NRC Obligations:	\$830,000.00

This modification obligates NRC FY 97 funds in the amount of \$50,000.00.

All other terms and conditions under this contract remain unchanged.

MODIFICATION TO TASK 4.1
OF CONTRACT NO. NRC-04-96-041
INTEGRAL TEST FACILITY CALCULATIONS
USING RELAP5/MOD3

Modification of Task 4.1

The TRAC input deck recently converted from the INEL-developed RELAP5 input deck for the ROSA/AP600 test facility has several shortcomings in nodalization and modeling approaches. The contractor shall make necessary improvements in the TRAC input deck to obtain satisfactory results within a reasonable execution time. The needed work currently envisioned is described below.

1. Nodalization Improvements

- a) Downcomer to Core Vessel. Currently, there are very small pipe components connecting the 3D downcomer to the 3D core vessels. This is forcing the time-steps to be very small. Any hope of getting a faster running deck must attack this area of the model. The stand alone model should be used to study the effects of using a coarser nodalization before applying a change to the full deck.
- b) IRWST. The stand alone IRWST model can be used to study the nodalization for the IRWST. A finer nodalization may be needed for the horizontal portions of the tube side, and coarser nodalization for the shell side, to get a faster running, more accurate model.
- c) ADS1-3 Valves. During a test run, ADS1-3 was inadvertently actuated at 20 seconds into the transient. The result was to bring the calculation to a stop (time-steps of $\sim 1.0E-6$ sec). A different nodalization could prevent this from occurring. Testing could be done by separating out the ADS1-3 system and creating a stand alone model for testing various nodalizations. This would allow testing without the full deck. Once the best nodalization of the valve nest has been determined, a final test could be done on the full deck.

2. Model Improvements

An initial comparison of the loop differential pressures (DP's) between RELAP and TRAC-P shows that there are differences in flow losses between the two codes. It is not known whether the RELAP values are "truth." Experiment data can be used to compare RELAP and TRAC-P. This would help determine which code is properly calculating the friction losses and thus permit correcting any discrepancies.

3. TRAC Input Deck Test

As the ADS1-3 situation shows, a true test of the TRAC-P deck will be a SBLOCA calculation. Since the TRAC deck previously developed under

Task 4.1 is a translation of the RELAP deck, a comparison to the RELAP and experimental SBLOCA results will demonstrate how well TRAC-P performs. It also allows the testing of the TRAC-P model to shake out any bugs in the control systems.

Deliverable under Subtask 4.1

The Contractor shall submit the improved input deck developed under this subtask on electronic media (disk or tape) and certify the media to be free of viruses prior to delivery to the NRC. The input deck is due to the NRC 4 months after initiation of this subtask. The contractor shall also submit a letter report describing the development of the input deck and providing diagrams. The letter report is due to the NRC 5 months after initiation of this subtask. The letter report will contain listing of the input deck.

Duration of Subtask 4.1

This subtask shall be completed 5 months after initiation.

Estimated Level-of-Effort

The estimated level of effort for this subtask is 3 staff-months.

NRC Furnished Material

The NRC will provide RELAP5 and TRAC materials as necessary.