

2. AMENDMENT/MODIFICATION NO. M004	3. EFFECTIVE DATE See Block 15c.	4. REQUISITION/PURCHASE REQ. NO. RES-03-074 RES-C05-043	5. PROJECT NO. (If applicable)
6. ISSUED BY U.S. Nuclear Regulatory Commission Div. of Contracts Attn: Jeffrey R. Mitchell, 301-415-6465 Mail Stop T-7-I-2 Washington, DC 20555	CODE 3100	7. ADMINISTERED BY (If other than Item 6) U.S. Nuclear Regulatory Commission Attn: Sudhamay Basu, 301-415-6774 Mail Stop: T10-K8 Washington, DC 20555	CODE 3100

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) ENERGY RESEARCH, INC. ATTN: TRACEY MULLINIX 6167 EXECUTIVE BLVD. ROCKVILLE MD 208523901	(X)	9A. AMENDMENT OF SOLICITATION NO.
		9B. DATED (SEE ITEM 11)
		10A. MODIFICATION OF CONTRACT/ORDER NO. GS23F0110M DR-04-03-074
	X	10B. DATED (SEE ITEM 13) 09-10-2003
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 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) 56015113107 Y6933 252A 31x0200.560 Obligate \$24,030.00

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).
X	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: 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.)

-----Refer to Attached Page Two for a description of Modification No. Four-----

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) MOUSEN KHATIB-RAHBAR, PRESIDENT	15A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Sharon D. Stewart Contracting Officer
15B. CONTRACTOR/OFFEROR John Kim-Ru (Signature of person authorized to sign)	15B. UNITED STATES OF AMERICA BY [Signature] (Signature of Contracting Officer)
15C. DATE SIGNED 6/23/05	15C. DATE SIGNED 6/20/05

The purpose of this modification is to: (1) increase the level of effort under the Statement of Work by adding section C.1.3.7 (2) Add to Section C.1.6 "Furnished Materials" (3) add 200 more labor hours, from 3,634 hours to 3,834 hours (4) increase the ceiling amount by \$24,030.00 from \$322,511.16 to \$346,541.16 (5) obligate FY'05 funds in the amount of \$24,030.00, thereby increasing the obligated amount of the subject delivery order from \$322,511.16 to \$346,541.16. Accordingly, the contract is hereby modified as follows:

- 1) Add the following section to the Statement of Work

C.1.3.7 ESBWR Assessment Using Ontario Hydro Void Fraction Tests

Develop an input deck for the TRACE code to simulate the Ontario Hydro void fraction tests. Existing input decks, if any, should be examined and utilized for the purpose. The input model should use appropriate nodalization to capture two-phase flow distribution and void fraction distribution. Calculate void fraction distribution and its evolution, and compare with the test data. Prepare an assessment report highlighting how well the code calculations compare with the test data. Based on the assessment, provide recommendations on the applicability of relevant TRACE model(s) for ESBWR plant calculations.

Estimated Completion Date: 08/31/2005

- 2) Add the following to: C.1.6 NRC-FURNISHED MATERIALS

TRACE code (for use in connection with the above tasks)
Ontario Hydro void fraction data and associated report (to be treated as proprietary material)

3. The total quantity, as identified on the SF 1449 Block No. 21, is increased by 200 hours, from 3,634 hours to 3,834 hours.

- 3.1 Item No. 1.3 is deleted in its entirety and replaced with the following:

"Fiscal Year 2005 Labor Rates and Labor Hours

Executive
Executive Engineer Scientist
Senior Engineer/Scientist
Engineer/Scientist
Senior Consulting Engineer



4. The fixed ceiling price of the Delivery Order is increased by \$24,030.00 from \$322,511.16 to \$346,541.16.

5. The total obligated amount is increased by \$24,030.00, from \$322,511.16 to \$346,541.16.

A summary of obligations for this Delivery Order, from award through the date of this modification is provided below:

Total FY03 Obligation Amount	\$200,000.00
Total FY04 Obligation Amount	\$122,511.16
Total FY05 Obligation Amount	\$ 24,030.00
Cumulative Total of NRC Obligations	\$346,541.16

This modification obligates FY05 funds in the amount of \$24,030.00

All other terms and conditions of the delivery order remain unchanged.