

2. AMENDMENT/MODIFICATION NO. MOD 5	3. EFFECTIVE DATE See Block 15c.	4. REQUISITION/PURCHASE REQ. NO. RES-03-074 RES-C06-603	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.
CODE 621211259 FACILITY CODE		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

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) 660-15-113-277 Y6933 252A 31x0200.660
Obligate \$29,621.60

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 Bilateral
	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. Five-----

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) Mohsen Khatib-Rohbar, President	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Donald A. King Contracting Officer
15B. CONTRACTOR/OFFICER <i>[Signature]</i> (Signature of person authorized to sign)	15C. DATE SIGNED 4/5/06
16B. UNITED STATES OF AMERICA BY <i>[Signature]</i> (Signature of Contracting Officer)	16C. DATE SIGNED 3/27/06

This confirms the verbal authorization provided to Energy Research, Inc on February 28, 2006 to begin work under the subject modification, effective February 28, 2006, with a temporary ceiling of \$20,000.00.

The purpose of this modification is to (1) increase the level of effort under the Statement of Work by adding section C.1.3.6.A, C.1.3.6.B and C.1.4.A (2) add NRC Clause "2052.215-78 Travel approvals and reimbursement - Alternate 1" (3) add 120 more labor hours thereby increasing the estimated total hours from 3,834 to 3,954 (4) Add Section 1.4 under price/cost Schedule "Fiscal Year 2006 Labor Rates and Labor Hours" (5) increase the ceiling amount by \$29,621.60 from \$346,541.16 to \$376,162.76 and (6) obligate FY06 funds in the amount of \$29,621.60, thereby increasing the obligated amount of the subject delivery order from \$346,541.16 to \$376,162.76. Accordingly, the contract is hereby modified as follows:

(1) THE FOLLOWING WILL BE ADDED TO THE STATEMENT OF WORK

ADD C.1.3.6.A Task 1. Preparation of Presentation & Meeting Material

Contractor shall prepare presentation material in the following specific areas:

- Severe Accident Regulatory Decisions
- Operating Reactors
- Certified Advanced Light Water Reactors

Overview of MELCOR Code

Severe Accident Analysis

Melt Progression Analysis

In-Vessel Phenomena:

- Core Degradation & Melt Progression
- Molten Core Debris Interaction w/Lower Head of Reactor Pressure Vessel
- In-Vessel and Ex-Vessel major Considerations
- Fuel-Coolant Interactions/Load

Ex-Vessel Phenomena:

- Core - Concrete Interactions
- DCH
- Melt Spread & Coolability
- Hydrogen transport & Combustion
- Containment Failure Analysis & Experiments

In addition, the contractor will also prepare material to support discussions on benchmarking thermal-hydraulic computer codes, by defining at least two standard problems dealing with Three Mile Island (early phase), and a well-defined containment test (e.g., PANDA, PUMA, etc.)

ADD C.1.3.6.B **Task 2 Participation in Meetings**

Contractor will participate in meetings at NRC Headquarters, and travel to India as requested by the NRC Technical Monitor.

REPORTING REQUIREMENTS, DELIVERABLES AND DELIVERY SCHEDULE

All the presentation and discussion material (under task 1) should be prepared and submitted to the NRC Technical Monitor by March 8, 2006. A trip report (under task 2) should be prepared within 3 weeks upon return from the trip. The tentative travel and meetings at the Indian Atomic Energy Regulatory Board (AERB) are from March 23 through March 31, 2006 in Mumbai (Bombay), India.

ADD C.1.4.A **MEETINGS AND TRAVEL REQUIREMENTS**

Three visits to NRC Headquarters, for one person, for 4 hours each, to meet with NRC staff, and one trip for one person to India (Mumbai), for one-week duration. For the purpose of travel assume departure U.S. on March 23, 2006 and departure India on March 31, 2006.

TECHNICAL AND OTHER SPECIAL QUALIFICATIONS REQUIRED

Key personal shall have a Ph.D. in Nuclear Engineering, with extensive experience in severe accident analysis, that includes intimate knowledge of severe accident phenomena, U.S. and international research programs, severe accident computer codes (especially MELCOR), thermal-hydraulic codes, and international peer recognition. International experience in safety regulations is essential. Demonstrated experience in delivery of lectures and presentations in the subject areas required.

(2) 2052.215-78 Travel approvals and reimbursement - Alternate 1.

As prescribed in §2015.209-70(d), the contracting officer shall insert the following clause in cost reimbursement solicitations and contracts which include a ceiling amount on travel. Requests for foreign travel must be submitted to the NRC 30 days in advance of the travel date.

Travel Approvals and Reimbursement - Alternate 1 (Oct 1999)

- (a) Total expenditure for travel may not exceed \$15,000.00 without the prior approval of the contracting officer.
- (b) All foreign travel must be approved in advance by the NRC on NRC Form 445, Request for Approval of Official Foreign Travel, and must be in compliance with FAR 52.247-63 Preference for U.S. Flag Air Carriers. The contractor shall submit NRC Form 445 to the NRC no later than 30 days prior to the commencement of travel.
- (c) The contractor will be reimbursed only for travel costs incurred that are directly related to this contract and are allowable subject to the limitations prescribed in FAR 31.205-46.
- (d) It is the responsibility of the contractor to notify the contracting officer in accordance with the FAR Limitations of Cost clause of this contract when, at any time, the contractor learns that travel expenses will cause the contractor to exceed the travel ceiling amount identified in paragraph (a) of this clause.

(e) Reasonable travel costs for research and related activities performed at State and nonprofit institutions, in accordance with Section 12 of Pub. L. 100-679, must be charged in accordance with the contractor's institutional policy to the degree that the limitations of Office of Management and Budget (OMB) guidance are not exceeded. Applicable guidance documents include OMB Circular A-87, Cost Principles for State and Local Governments; OMB Circular A-122, Cost Principles for Nonprofit Organizations; and OMB Circular A-21, Cost Principles for Educational Institutions.

3. The total quantity, as identified on the SF 1449 Block No. 21, is increased by 120 hours, from 3,834 hours to 3,954 hours.
4. Item No. 1.4 is added to the price/cost schedule:

"Fiscal Year 2006 Labor Rates and Labor Hours
Executive [REDACTED]
Support Staff [REDACTED]
5. The fixed ceiling cost of the Delivery Order is increased by \$29,621.60 from \$346,541.16 to \$376,162.76.
6. The total obligated amount is increased by \$29,621.60, from \$346,541.16 to \$376,162.76.

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
Total FY06 Obligation Amount	\$ 29,621.60

Cumulative Total of NRC Obligations \$376,162.76

This modification obligates FY06 funds in the amount of \$29,621.60

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