| AMENDMENT OF SOLICITATION  | MODIFICATION OF CONTRA   | ACT BPA NO 1. CONT   | RACT ID CODE PAGE OF PA                          |
|--|--|--|--|
| 2. AMENDMENT/MODIFICATION NO.  | MENDMENT/MODIFICATION NO. 3. EFFECTIVE DATE 4. REQUISITION/PURCHASE REQ. NO. |  | 5. PROJECT NO.(If applicable)                    |
| M001   | SEP 2 1 2007   | RES-06-078   |  |
| 6. ISSUED BY   | CODE 3100  | 7. ADMINISTERED BY (If other than Item 6)  | CODE 3100  |
| U.S. Nuclear Regulatory Commission   |  | U.S. Nuclear Regulatory Сол  | mission  |
| Div. of Contracts<br>Attn: Michael Mills, CMB2   |  | Div. of Contracts Mail Stop T-7-I-2  |  |
| Mail Stop T-7-I-2  |  | ·  |  |
| Washington, DC 20555   |  | Washington, DC 20555   |  |
| 8. NAME AND ADDRESS OF CONTRACTOR (No., street   | et, county, State and ZIP Code)  | (X) SA AMENDA  | IENT OF SOLICITATION NO.                         |
| ENERGY RESEARCH INC  |  |  |  |
|  |  | 9E. DATED  | (SEE ITEM 11)                                    |
|  |  | 10A MODIEI   | CATION OF CONTRACT/ORDER NO.                     |
| 6167 EXECUTIVE BLVD  |  |  | 10M DR-04-06-0781                                |
| ROCKVILLE MD 208523901   |  | 108. DATED   | (SEE ITEM 13)                                    |
| CODE   | FACILITY CODE  | X  |  |
| 11. T  | HIS ITEM ONLY APPLIES TO   | AMENDMENTS OF SOLICITATION   | IS   |
| The above numbered solicitation is amend   | ded as set forth in Item 14. The hour a                                      | and date specified for receipt of Offers   | is extended. is not extended.                    |
| Offers must acknowledge receipt of this ame  | •  | cified in the solicitation or as amended, by one                                 | •  |
| (a) By completing Items 8 and 15, and return   |  | ment; (b) By acknowledging receipt of this ame                                   |  |
|  | _  | the solicitation and amendment numbers. FAII RECEIPT OF OFFERS PRIOR TO THE HOUR |  |
|  |  | esire to change an offer already submitted, suc                                  |  |
| • =  | n or letter makes reference to the solic                                     | itation and this amendment, and is received pri                                  | or to the opening hour                           |
| and date specified.  12. ACCOUNTING AND APPROPRIATION DATA (If requ  | ired) . D. D. 275 15 112 206   | T-h 0-d N7222 - D00- 0503  |  |
|  |  | Job Code: N7313 BOC: 252A<br>\$72,353.80 FFS No. OIP-07-318                      |  |
|  |  | DIFICATIONS OF CONTRACTS/ORD   |  |
| <del></del>  |  | DER NO. AS DESCRIBED IN ITEM   | <del></del>                                      |
| A THIS CHANGE ORDER IS ISSUED PURSUANT T   | O: (Specify authority) THE CHANGES SET FOR                                   | TH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN                              | LITEM 10A.                                       |
| B. THE ABOVE NUMBERED CONTRACT/ORDER IS  | MODIFIED TO REFLECT THE ADMINISTRATIVE                                       | CHANGES (such as changes in paying office, appropriation                         | on date, etc.)                                   |
| SET FORTH IN ITEM 14, PURSUANT TO THE AUTH   | 10RITY OF FAR 43.103(b).   |  |  |
| C. THIS SUPPLEMENTAL AGREEMENT IS ENTERE   | ED INTO PURSUANT TO AUTHORITY OF:  | ,  |  |
| D. OTHER (Specify type of modification and authority   | 0 52 243-3 ChangesTim  | e & Materials of Labor Hours   |  |
| X (Specify type of induffication and authority   | 7 52.245-5 Changes11m  | e a Maceriais of Dabor modis   |  |
| E. IMPORTANT: Contractor is  | not. X is required to sign this docum  | ment and return <sup>2</sup> copies to the issu                                  | ing office                                       |
|  | rganized by UCF section headings, including solicite                         |  | any once.  |
| 14. DESCRIPTION OF AMENDMENTMODIFICATION (O This modification obligates 5  |  | ·  |  |
| This modification incorporate  |  |  | ,  |
|  | -  |  |  |
| Refer to page 2 for the deta:  | ils of this modification.  |  | •  |
|  |  |  |  |
|  |  |  |  |
|  |  | •  |  |
|  |  |  |  |
| DUNS No. 621211259   |  |  |  |
|  |  |  |  |
| Except as provided herein, all terms and conditions of the doc   | turnent referenced in Item 9A or 10A, as heretofore of                       | hanged, remains unchanged and in full force and effect.                          | · · · · · · · · · · · · · · · · · · ·            |
| 15A NAME AND TITLE OF SIGNER (Type or print)   | Rahbar   | 16A NAME AND TITLE OF CONTRACTING OFFICER Stephen Pool                           | (Type or print)                                  |
| Blomson, Chick by  | ( Lace of the late of  | Contracting Officer  | ) //   |
| 168 CONTRACTOR OF THE CONTRACT | . 15C DATE SIGNED  | 16B UNITED STATES OF AMERICA   | / / 16C. DATE SIGNED /                           |
| 15B. CONTRACTOR OFFEROR  | // DATE SIGNED   | 1 1/1/00 VV 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2                              | JOS. DATE SIGNED                                 |
| (Signature of person authorized to sign)   |  | (Signature of Contracting Officer)   | <del>                                     </del> |
| NSN 1546-01-152-8070   |  | · /  | STANDARD FOR AND TREV. 10-83)                    |
| PREVIOUS EDITION NOT USABLE  |  |  | Prescribe Area (ISA) FRANCISCO (SERVICE) 53,243  |

TEMPLATE - ADMOOS

Milling

The purpose of this bilateral modification is to: (1) incorporate the attached statement of work for a within-scope change, and (2) increase the obligated amount by \$72,353.80. Accordingly, the delivery order is modified as follows:

- (1) The attached modification to the statement of work is hereby incorporated as part of this delivery order; and,
- (2) the amount obligated under this order is increased by \$72,353.80, from \$168,352.40, to \$240,706.20.

All other terms and conditions remain unchanged.

A summary of obligations for this delivery order from the date of award through this action is provided below.

Total FY 2006 obligation amount: \$168,352.40 Total FY 2007 obligation amount: \$72,353.80

Cumulative Total of NRC Obligations: \$240,706.20

Fixed Ceiling Price: \$240,706.20

This delivery order is fully funded.

# STATEMENT OF WORK NRC/ATOMIC ENERGY REGULATORY BOARD OF INDIA STANDARD PROBLEM EXERCISES MODIFICATION NO. 1 DR-04-06-078

#### 1.0 **BACKGROUND**

The Office of Nuclear Regulatory Research (RES) is supporting the NRC efforts in the United States - Indian cooperation in the field of nuclear power regulations. At the Seventh NRC-Atomic Energy Regulatory Board (AERB) of India Bilateral Meeting (March 24 through April 5, 2006) headed by Commissioner Lyons, it was agreed to by NRC and AERB to conduct two standard problem exercises: a severe accident analysis - the TMI-2 accident, and a PANDA experiment that simulates various phases of passive decay heat removal in advanced boiling water reactor containment. The last bilateral meeting was held on January 8-12, 2007, at NRC in Rockville, Maryland, whereby the final specifications for the standard problems were discussed and agreed upon by NRC and AERB. The next bilateral meeting is tentatively scheduled for November 2007 in Mumbia, India, and preliminary analysis of TMI-2 and PANDA experiments performed by NRC will be presented.

### 2.0 **OBJECTIVE**

To support and perform the joint NRC-AERB standard problem exercises: TMI-2 accident and an PANDA experiment<sup>1</sup>

## 3.0 SCOPE (Add Task 3.4)

In cooperation with RES staff, the contractor shall perform the following task as follows:

#### 3.4 Perform MELCOR uncertainty analysis for the TMI-2 accident

The contractor shall perform MELCOR uncertainty analysis to address reactor coolant behavior prior to the core being uncovered, overheating and oxidation of intact fuel pins, debris relocation within the core boundaries, relocation of the molten debris to the water baffle and lower plenum regions, and overheating of the reactor pressure vessel and eventual cooling of the wall and the core debris.

Deliverable:

Preliminary analysis (letter report): October 2007

Final analysis (letter report) April 2008

Estimated Completion date: April 30, 2008

Estimated Level-of-Effort:

350-staff-hours (mixture of labor categories as delineated

600

<sup>1</sup> International Standard Problem 42 (PANDA Experiments) - Final Comparison and Interpretation Report (Blind Exercise) NEA/CSNI/R(2003)6