

**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

BPA NO.

1. CONTRACT ID CODE

PAGE

OF

1

4

2. AMENDMENT/MODIFICATION NO.

002

3. EFFECTIVE DATE

See Block 16C

4. REQUISITION/PURCHASE REQ. NO.

FFS-RES-C10-464

5. PROJECT NO. (If applicable)

6. ISSUED BY

CODE

3100

7. ADMINISTERED BY (If other than Item 6)

CODE

3100

U.S. Nuclear Regulatory Commission  
Div. of Contracts  
Attn: Jerry Purcell Jr.  
Mail Stop: TWB-01-B10M  
Rockville MD 20852

U.S. Nuclear Regulatory Commission  
Div. of Contracts  
Mail Stop: TWB-01-B10M  
Rockville MD 20852

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)

THE WREATHWOOD GROUP  
  
4157 MACDUFF WAY  
  
DUBLIN OH 430169578

DUNS 6144961

(X)

9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

10A. MODIFICATION OF CONTRACT/ORDER NO.  
GS23F0372K NRC-04-09-214

10B. DATED (SEE ITEM 13)  
06-26-2008

CODE 008437345

FACILITY CODE DUN614496128

X

**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) BB&R: 060-15-111-205 JC:N6803 BOC: 252A FFS: RES-C10-708  
APPN: 31X0200.060 Obligation Amount: \$26,000.00

**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 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) Issue Work Order in accordance with clause 2052.215-71 "Project Officer Authority"

**E. IMPORTANT:** Contractor  is not,  is required to sign this document and return <sup>2</sup> \_\_\_\_\_ copies to the issuing office.

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

The purpose of this modification is to 1) issue a work order and 2) provide incremental funding in the amount of \$26,000.00.

Specific Changes Are As Follows:

Contract Ceiling: \$108,480.00 (Unchanged)  
This Action Obligates: \$26,000.00  
Previous Obligation Amount: \$46,100.00  
Total Obligated Amount: \$72,100.00 (Changed)  
Period of Performance: March 18, 2009 - March 16, 2012 (Unchanged)

All OTHER TERMS AND CONDITIONS SHALL REMAIN THE SAME AND ARE IN FULL EFFECT

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)

Dennis C Bley  
The Wreath Wood Group

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

Kala Shankar  
Contracting Officer

15B. CONTRACTOR/OFFEROR

(Signature of person authorized to sign)

15C. DATE SIGNED

7/3/10

16B. UNITED STATES OF AMERICA

BY Kala Shankar  
(Signature of Contracting Officer)

16C. DATE SIGNED

6/29/10

WORK ORDER  
STATEMENT OF WORK FOR CONTRACT  
NRC-04-09-214

TITLE: Provide HRA Technical Support

BACKGROUND

The Office of Nuclear Regulatory Research (RES) has multiple tasks to improve the quality of human reliability analysis (HRA) such as the International HRA Benchmark Study and the development of the human event repository and analysis (HERA) system. The quality of this work could affect HRA quality and, consequently, the quality of the NRC's risk-informed decision making. In order to ensure high quality products, the NRC needs assistance from experts with combined knowledge in HRA, probabilistic risk assessment(PRA), plant operation, and plant safety to participate in and/or review the NRC's HRA-related research activities.

This project is for the selected contractor to provide technical support on the four HRA activity areas specified in the original SOW. The specific work will be specified by work orders. All new work orders will be within the four classes of HRA activities specified in the scope of work of the original SOW issued to the contractor.

OBJECTIVE

Provide technical support to assist the development of a method for the use of HERA data to inform human error probability predictions in HRA and PRA.

SCOPE OF WORK

The original SOW identified four umbrella HRA research activities that could be requested for technical support under the project (i.e., N6803). The original SOW states that "Upon request by the NRC, the contractor will provide technical expertise to support the following activities:

1. Support the International HRA Empirical Study whose objectives are to benchmark HRA methods using simulator experiments. The particular tasks involve the analysis of simulator scenarios using the ATHEANA method, documentation of analyses and feedback to the HRA Empirical Study project team on the Study and the use of its results.
2. Support the Human Event Repository and Analysis (HERA) system, including the review and feedback on the methodology for coding human events into HERA; participation in workshops related to improvement of the HERA system such as improvement of the terminology and structure of the database; recommendations for data searching strategies; and the development of quantitative approaches for the use of the HERA data in HRA.
3. Support ATHEANA method related activities such as guidance and computerized tools.

4. Participate in workshops addressing HRA method applicability issues and in particular workshops addressing issues related to consistency of HRA results and insights when different HRA methods are used in the same application.

The specific work in this modified SOW includes are within the scope of above umbrella activities 1, 2, and 4. The specific tasks of this SOW mod are:

- Task 1 Assist the developments of sub event parsing rules and performance profile for the development an HRA database. The specific activities include developing the data methodology, attending the relevant meetings and workshops. Two workshops are expected in August and November in 2010. This task is within the scope of the umbrella activity 2.
- Task 2 Perform HRA predictions against simulator exercises in an effort to evaluate various HRA methods. The specific activities include a plant visit, performing HRA estimates, and attending relevant workshops and meetings. This task is within the scope of the umbrella activities 1 and 4.

#### LEVEL OF EFFORT

Total level of effort for this modification is 100 staff-hours.

#### PERIOD OF PERFORMANCE

This modified SOW: 6/2010 – 12/31/2010.

Entire project: 3/18/2009 – 3/16/2012.

#### REPORTING REQUIREMENTS (no change)

Monthly Letter Status Report. (no change)

#### PUBLICATIONS NOTE (no change)

#### DELIVERABLES/SCHEDULES AND/OR MILESTONES (no change)

#### ORGANIZATIONAL CONFLICT OF INTEREST DISCLOSURE (no change)

#### MEETINGS AND TRAVEL

A one-person three-day domestic trip is expected for a plant visit as specified in Task 2. The workshops for Task 1 are expected to be in local area. No travel is anticipated for Task 1.

#### NRC-FURNISHED MATERIAL (no change)

#### TECHNICAL DIRECTION

Technical direction will be provided by the Project Manager, James Chang, who can be reached at:

Mail Stop: CS4C7M  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555-0001  
Phone: (301) 251-7589  
Fax: (301) 251-7435  
Email: James.Chang@nrc.gov

Express mail should be sent to:  
U. S. Nuclear Regulatory Commission  
Mail Stop: CS4C7M  
11545 Rockville Pike  
Rockville, MD 20852-2738