

2. AMENDMENT/MODIFICATION NO. M002 3. EFFECTIVE DATE See Block 16C 4. REQUISITION/PURCHASE REQ. NO. NRR-12-151 5. PROJECT NO. (if applicable)

6. ISSUED BY CODE 3100 U.S. Nuclear Regulatory Commission Div. of Contracts Attn: Valerie Whipple Mail Stop: TWB-01-B10M Washington, DC 20555 7. ADMINISTERED BY (if other than Item 6) CODE 3100 U.S. Nuclear Regulatory Commission Div. of Contracts Mail Stop: TWB-01-B10M Washington, DC 20555

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) SOUTHWEST RESEARCH INSTITUTE S W R I 6220 CULEBRA RD SAN ANTONIO TX 782385166 9A. AMENDMENT OF SOLICITATION NO. 9B. DATED (SEE ITEM 11) 10A. MODIFICATION OF CONTRACT/ORDER NO. NRC-HQ-11-C-03-0047 NRCT005 10B. DATED (SEE ITEM 13) 09-23-2011

**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) B&R:20-11-4-148 JCN:J4640T4 BOC:253A APPN:31x0200 NO FUNDING AT THIS TIME DUNS:007936842 PSC:R421 NAICS:541690

**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 48.109(b). C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: D. OTHER (Specify type of modification and authority) Unilateral Modification X

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

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

See page two (2) for details.

Total Obligated: \$184,600.00 (unchanged)  
 Total Ceiling: \$244,965.00 (changed)  
 Period of Performance: September 23, 2011 through June 30, 2013 (unchanged)

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) R.B. Kalmbach, Executive Director, Contracts 15A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Valerie M. Whipple Contracting Officer 15B. CONTRACTOR/OFFEROR 15C. DATE SIGNED 6/29/2012 15B. UNITED STATES OF AMERICA BY [Signature] 15C. DATE SIGNED 7/2/12

TEMPLATE - ADM001 SUNSI REVIEW COMPLETE JUL 02 2012 ADM002

**PURPOSE:**

The purpose of this modification is to effect a within scope change. Task Order 5 was initially awarded for the technical review and safety evaluation of a NFPA 805 license amendment request for the **Kewaunee Power Station**. On September 21, 2011, Dominion Energy Kewaunee (DEK) submitted a License Amendment Request (LAR 250) to NFPA 805 in accordance with 10 CFR 50.48(c). However, on December 16, 2011, DEK requested NRC postpone the review of LAR 250 because DEK has publicly announced that the Kewaunee Power Station is being actively marketed for sale. On January 13, 2012, DEK requested that NRC withdraw LAR 250 from NRC review.

Arkansas Nuclear One, Unit 1, 2 (ANO 2) has submitted a license amendment request (LAR) to adopt 10 CFR 50.48(c) (NFPA 805). **Therefore, the purpose of this modification is to substitute Kewaunee Power Station, NFPA 805 LRA 250 with ANO 2, submitted on March 27, 2012.** In addition, the task order amount is increased slightly from \$237,654 to 244,965.

Accordingly, the following change is hereby made:

1. SECTION 1. CONSIDERATION AND OBLIGATION—COST PLUS FIXED FEE (JUN 1988) ALTERNATE 1 (JUN 1991), paragraph (a) is deleted in its entirety and replaced with the following:
  - (a) The total estimated cost to the Government for full performance of this contract is **\$244,965** of which the sum of \_\_\_\_\_ represents the estimated reimbursable costs, and of which \_\_\_\_\_ represents the fixed fee. In the event that the Government exercised optional tasks, the task order shall increase as follows:
2. Section 3. 2052.215-78 TRAVEL APPROVALS AND REIMBURSEMENT -ALTERNATE 1 (OCT 1999), paragraph (a) is deleted in its entirety and replaced with the following:
  - (a) Total expenditure for travel may not exceed \_\_\_\_\_ without the prior approval of the contracting officer.

A summary of obligations under this task order, from date of award through this modification, is given below:

Award:	\$184,600.00
Modification No. 1:	\$ 0
Total Obligations:	\$184,600.00

This modification does not obligate funds.

**All other terms and conditions under this task order remain unchanged.**

## STATEMENT OF WORK

**Project Title:** Review of License Amendment Requests for Nuclear Power Plants Transitioning to the National Fire Protection Association (NFPA) Standard, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants" (NFPA 805).

**Job Code Number (JCN):** J-4640, under Contract NRC-HQ-11-C-03-0047

**Task Area:** Technical Review and Safety Evaluation of NFPA 805 License Amendment Request for the Arkansas Nuclear One, Units, 2 (ANO 2) Covering Fire Modeling and Fire Protection Programmatic Review.

**TAC No.:** ME8282 – Fee Recoverable

**Task Order #:** 5

**Budget & Reporting No.:** 20-11-4-151

**NRC Issuing Office:** Office of Nuclear Reactor Regulation

**NRC Technical Monitor (TM)/Project Officer:** Naeem Iqbal, 301-415-3346;  
Naeem.Iqbal@nrc.gov

**Fee Recoverable:** Yes

**Performing Organization:** Center for Nuclear Waste Regulatory Analyses (CNWRA, hereafter Center)

### 1.0 Background

The Office of Nuclear Reactor Regulation (NRR) is a major program office of the NRC that is responsible for the licensing and regulatory oversight of civilian nuclear power reactors and non-power research reactors in the United States. NRR implements regulations and develops and implements policies, programs, and procedures pertaining to all aspects of licensing and inspection of these facilities. A wide range of NRR activities include the review of operating license amendments and the development of programs to guide Region-based inspections from the outset of plant construction throughout the facility's operating lifetime. NRR identifies and takes actions regarding conditions and licensee performance that may adversely affect public health and safety, the environment, or the safeguarding of nuclear reactor facilities, and assesses and recommends or takes actions regarding incidents or accidents. NRR functions through a matrix organization which includes an Associate Directorate for Engineering and Safety Systems, which is made up of four Divisions which provide technical expertise and positions on licensing actions, resolution of technical issues and development of inspection guidance.

The Division of Risk Assessment (DRA) is responsible for performing Probabilistic Risk Assessment (PRA) safety evaluations of licensee implementation of NRR requirements, changes to existing licenses, and provides technical expertise for special inspections, projects,

programs and policy activities. These reviews are performed under the cognizance of four branches: Fire Protection Branch (AFPB), PRA Licensing Branch (APLA), PRA Operational Support and Maintenance Branch (APOB), and Accident Dose Branch (AADB).

AFPB is responsible for the review and evaluation of functional performance requirements, design, and performance of essential fire protection, detection, and suppression systems. Specifically, AFPB reviews and evaluates issues related to post-fire safe shutdown, multiple spurious actuations, manual operator actions, and electrical raceway fire barrier systems. AFPB is currently implementing a new risk-informed, performance-based (RI/PB) rule under Section 50.48(c) of Title 10 of the Code of Federal Regulations (10 CFR 50.48(c)). This rule endorses the National Fire Protection Association (NFPA) standard, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, (NFPA 805)."

This project-level description of work outlines the requirements for technical assistance to be provided by the Center for Nuclear Waste Regulatory Analyses (CNWRA) to the Fire Protection and PRA Licensing Branches, Division of Risk Assessment, NRR, in completing the technical review and developing the safety evaluation for 1 NRC licensee that submits a license amendment request to adopt 10 CFR 50.48(c), (NFPA 805).

Fifty-one of the 104 Nuclear power plants (NPPs) have notified the NRC of their intent to transition their fire protection licensing basis to NFPA 805. Most of these NPPs are required to submit their License Amendment Requests (LARs) in FY 2011. However, a pending Commission decision may allow staggered submittals of the applications over a 4 year period beginning in July of 2011. If approved submittals will be received as follows: 7 in FY 2011, 10 in FY2012, 10 in FY 2013, and 3 in FY 2014.

## **2.0 Objective**

The objective of this task order is to obtain technical expertise from the Center for Nuclear Waste Regulatory Analyses (CNWRA), to provide the technical review and safety evaluation for one 10 CFR 50.48 (c) (NFPA 805) license amendment request. This activity will specifically include conducting the review of a LAR, consistent with the Standard Review Plan for RI/PB fire protection licensing basis (9.5.1.2) and in accordance with the rule language in Section 50.48(c)(3)(I). This project will require coordination between CNWRA and the PNNL (Pacific Northwest National Laboratory). For each LAR received, PNNL (under a separate contract) will be providing technical expertise in fire modeling and programmatic areas. The areas that CNWRA will be providing the technical review and safety evaluation are as follows:

- Fire Modeling
- Fire Protection Programmatic Issues

## **3.0 Technical and Other Special Qualifications Required**

This contract will require up to two specialists on a part-time, interim basis with expertise and experience in fire modeling, and fire protection programmatic issues. This specialist should also possess knowledge of and/or experience with: a) PWR and BWR nuclear power plant system designs, b) NRC regulations, technical specifications, and inspection procedures related to nuclear power plant operations at full-power conditions and shutdown modes, and c) familiarity with the development of NRC safety evaluations (SEs).

The proposal should identify key personnel and the role each will play in performing the work.

It is the responsibility of the contractor to assign technical staff, employees, subcontractors, or specialists who have the required educational background, experience, or combination thereof to meet both the technical and regulatory objectives of the work specified in this SOW. The NRC will rely on representations made by the contractor concerning the qualifications of the personnel assigned to this task order including assurance that all information contained in the technical and cost proposal, including resumes, is accurate and truthful.

The use of key personnel and any proposed change to key personnel on this contract is subject to the NRC Project Manager's approval. This includes proposed use of principal persons (i.e., key contributors) during the life of the contract.

If any work would be subcontracted or performed by consultants, the CNWRA shall obtain the NRC Project Manager's written approval of the subcontractor or consultant prior to initiation of the subcontract effort. Conflict of interest considerations shall apply to any subcontracted effort.

#### **4.0 Work Requirements and Schedule**

The contractor shall provide the services of staff personnel to perform a thorough review and development of a safety evaluation for one 10 CFR 50.48 (c) (NFPA 805) license amendment request covering the review areas of fire modeling and fire protection programmatic review. Below is the review effort expected to complete this activity. The review follows the applicable sections of NUREG-0800, "Standard Review Plan."

##### **REVIEW ACTIVITIES**

##### **COMPLETION SCHEDULE**

- |                                                                                                                                                                                                                                                                                                                                            |                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1. Conduct detailed evaluation of the LAR, develop Request for Additional Information (RAI) and prepare Technical Letter Report (TLR).<br>a. Review initial LAR.<br>b. Review any supplemental LAR material.<br>c. Review any back-up calculations.<br>d. Develop pre-audit questions (draft RAIs).<br>e. Participate in conference calls. | Eight weeks after LAR is accepted for review and notified by TM to proceed with review. |
| 2. Participate in the site audit and develop audit report input and trip report.                                                                                                                                                                                                                                                           | Two weeks after trip completion.                                                        |
| 3. Re-evaluate draft RAIs (Task 1.d) and prepare TLR.<br>a. Utilizing site audit findings.<br>b. Participate in conference calls.                                                                                                                                                                                                          | Two weeks after trip completion.                                                        |
| 4. Evaluate RAI responses and prepare TLR.<br>a. Develop draft safety evaluation sections.<br>b. Develop additional RAIs, as needed.<br>c. Participate in conference calls.                                                                                                                                                                | Four weeks after receiving RAI responses.                                               |
| 5. Evaluate and incorporate RAI responses & prepare final draft SER.                                                                                                                                                                                                                                                                       | Two weeks after receipt of RAI responses.                                               |
| 6. Incorporate NRC comments into the Final SER.                                                                                                                                                                                                                                                                                            | One week after receiving NRC                                                            |

comments.

## **5.0 Monthly letter status report**

The CNWRA shall submit monthly letter status reports (MLSR) as specified in the basic task ordering agreement. The CNWRA shall issue each MLSR no later than the 20th of the month, and a total of the month ending (or billing cycle) costs shall be provided by e-mail to the NRC TAPM no later than the 15th of the month. For purposes of billing, assume an even split between dockets for a multiple, same site application. On an exception basis, the technical monitor will determine if a separate task order should be issued to capture significant docket specific expenditures.

The technical status section of the report shall contain a summary of the work performed during the reporting period on this Task Order, and milestones reached, or, if missed, an explanation; any problems or delays encountered or anticipated with recommendations for resolution; and plans for the next reporting period. The status shall include information on travel during the period to include trip start and end dates, destination, and travelers.

### **Electronic Spending Plan**

Along with the MLSR, the CNWRA shall submit monthly an updated version of the Electronic Spending Plan (ESP). The timetable and submission format are equal to the MLSR. There shall be one ESP for all TOs within a JCN. If changes and updates are needed at the interim period, the CNWRA shall note that in the Log sheet and then make the changes in the ESP sheet.

### **E-mail progress report**

The CNWRA shall provide an interim progress report bi-weekly to include staff hours expended and percent completed for each subtask under this task order and the forecast for the remainder of the work effort. The report shall be sent electronically by e-mail to the NRC TAPM and TM.

### **Technical reporting requirements**

Typically, reports will involve:

- Trip reports with meeting summaries, observations and recommendations;
- Technical letter reports;
- Draft and final Technical Evaluation Reports (TERs) that summarize the work performed, orientation activities, results attained, findings, conclusions, and recommendations.

Unless otherwise specified above, the CNWRA shall provide all deliverables as draft products. The NRC TM will review all draft deliverables (and coordinate any internal NRC staff review, if needed) and provide comments back to the CNWRA. The CNWRA shall revise the draft deliverable based on the comments provided by the NRC TM, and then deliver the final version of the deliverable. When mutually agreed upon between the CNWRA and the NRC TM, the CNWRA may submit preliminary or partial drafts to help gauge its understanding of the particular work requirement.

The CNWRA shall provide the deliverables in hard copy and electronic formats. The electronic format shall be Microsoft® WORD or other word processing software approved by the NRC TM. For each deliverable, the CNWRA shall provide one hard copy and electronic copy to both the NRC TAPM and TM. The schedule for deliverables shall be contained in the approved project plan for the task order effort.

The transmittal letter and cover page of each report, or other deliverable, as appropriate, shall contain the Job Control Number (JCN), Project Title, NRC Technical Assignment Control (TAC) Number(s), as appropriate. At the direction of the NRC TM, certain deliverables may need to be prepared in NUREG or NUREG/CR format.

## **6.0 Performance Standards**

The CNWRA performance will be evaluated based on meeting the performance standards provided in the basic task ordering agreement. As provided in the basic task ordering agreement a feedback form shall be completed documenting this evaluation. It should be noted that award of subsequent task orders will be based on the laboratory's success in meeting the schedule, milestones and deliverable requirements of the preceding task orders.

## **7.0 Period of Performance**

The projected period of performance is 18 months from authorization of the modification.

## **8.0 Meetings and Travel**

The following travel assumptions should be considered in planning the work effort. It is likely that the entire review team will be necessary to accomplish the activities. The actual travel contingent will be determined by the NRC TM after discussion with the CNWRA PM. Travel in excess of the total number of person-trips must be approved by the NRC TAPM; travel within the work scope limits will be approved by the NRC TM.

The following meetings are necessary to plan for:

The CNWRA PI and Subject Matter Expert (SME) shall attend the site audit conducted at ANO 2 located in London, Arkansas. (three staff, two days of travel, 5 days of audit).

The CNWRA shall plan on making key personnel assigned available for any project progress meeting or program review that may be held at the NRC Headquarters or CNWRA's location while the project is active. This may require one meeting at NRC Headquarters (three staff, two days of travel, one day of meeting).

Other travel will be confirmed with the NRC TM prior to commencement of the travel.

Routine status meetings (weekly to monthly) by the NRC TM and facilitator should be conducted using electronic means of Tele/Video-conferences or other means to minimize travel costs. Periodically, over the course of this contact, the CNWRA will interact (e.g., via e-mail or telephone) with the NRC TM to discuss (a) project progress, (b) questions, (c) NRC comments, and (d) the conduct and content of tasks associated with this contract. It is anticipated that most of the communication between the NRC and the CNWRA will be handled in this manner. Periodically, a program review meeting, which involves NRC and CNWRA management, may

be held at the NRC or CNWRA's location to review overall program objectives and project performance; program reviews are typically held annually.

## **9.0 NRC Furnished Material**

The NRC TM will provide those NRC documents related to licensing activities (for example, any Non-Publicly available SERs, audit reports, and related documents) that are readily available. The NRC TM will provide access to training material pertinent to the NFPA 805 LARs reviews or other NRC documents and docketed correspondence on related issues. The CNWRA staff shall identify any additional NRC documentation that is needed and the TM will determine whether these will be provided by the NRC or obtained directly by the CNWRA from ADAMS, NRC public document room or the NRC website at [www.nrc.gov](http://www.nrc.gov).

For this task order the NRC will provide to or provide access to CNWRA (not an all inclusive listing) the following materials:

1. One NFPA 805 LAR for technical review. NRC will inform CNWRA of the date that the submittal was placed in ADAMS for review schedule purposes.
  2. Regulatory Guide 1.205, "Risk-Informed, Performance-Based Fire Protection For Existing Light-Water Nuclear Power Plants"
  3. NUREG-0800, Standard Review Plan, Section 9.5.1.2, "Risk-Informed, Performance-Based Fire Protection Program"
  4. Office of Nuclear Reactor Regulation, Office Instruction, Revision 3 of LIC-101, "License Amendment Review Procedures"
  5. NEI 04-02, Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48(c), Revision 2, Nuclear Energy Institute (NEI), Washington, DC, April 2008.
  6. NFPA 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition, National Fire Protection Association, Quincy MA.
  7. NUREG/CR-6850, "EPRI/NRC-RES, Fire PRA Methodology for Nuclear Power Facilities," Volumes 1 and 2, USNRC, September 2005.
  8. Regulatory Guide 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," ML070240001 (Clarification to RG 1.200, Revision 1, ML071940235) (Draft Revision 1 was issued as DG-1161, 09/2006, ML062480134) (Revision 0, 02/2004, ML040630078, was issued with SRP Chapter 19.1, ML040630300) (Draft Revision 0 was issued as DG-1122, 11/02, ML023360076)
  9. NUREG-1824, "Verification and Validation of Selected Fire Models for Nuclear Power Plant Applications," U.S. Nuclear Regulatory Commission, Washington, DC, May 2007
  10. Regulatory Guide 1.174, Revision 1, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," USNRC, November 2002.
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11. NRC NUREG 0800, Standard Review Plan, Chapter 19.2, "Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance," Revision 0, June 2007.

12. NEI 00-01, Guidance for Post Fire Safe Shutdown Analysis, Revisions 1 & 2, Nuclear Energy Institute (NEI), Washington, DC.

13. Templates for development of various technical review related documents including but not limited to Audit Reports, Requests for Additional Information, Safety Evaluations, Technical Specifications, etc.

14. Other NRC guidance such as Frequently Asked Questions (FAQs), historical documents related to previous 10 CFR 50.48(c) reviews, etc.

**10.0      Level of Effort**

The estimated level of effort in hours apportioned among the review areas is as follows:

<b>Labor Category</b>	<b>Level of Effort (Hours)</b>
Principle Investigator and Support	
Fire Modeling	
Fire Protection Programmatic Review	
<b>Total</b>	<b>1130</b>