

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		1. CONTRACT ID CODE	PAGE OF PAGES 1 9
2. AMENDMENT/MODIFICATION NO. M0002	3. EFFECTIVE DATE See Block 16C	4. REQUISITION/PURCHASE REQ. NO. NRR-15-0281	5. PROJECT NO. (If applicable)
6. ISSUED BY US NRC - HQ ACQUISITION MANAGEMENT DIVISION MAIL STOP TWFN-5E03 ATTN ARACELIS PEREZ-ORTIZ WASHINGTON DC 20555-0001	CODE NRCHQ	7. ADMINISTERED BY (If other than Item 6) US NRC - HQ ACQUISITION MANAGEMENT DIVISION MAIL STOP TWFN-5E03 WASHINGTON DC 20555-0001	CODE NRCHQ
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) S W R I 6220 CULEBRA RD SAN ANTONIO TX 782385166		(x) 9A. AMENDMENT OF SOLICITATION NO.	9B. DATED (SEE ITEM 11)
CODE 007936842	FACILITY CODE	x 10A. MODIFICATION OF CONTRACT/ORDER NO. NRC-HQ-50-14-E-0001 NRC-HQ-20-15-T-0008	10B. DATED (SEE ITEM 13) 05/20/2015

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 ACKNOWLEDGEMENT 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) Net Increase: \$12,800.00
2015-X0200-FEEBASED-20-20D008-11-4-149-1128-251A

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	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:
X	D. OTHER (Specify type of modification and authority) Mutual Agreement

E. IMPORTANT: Contractor is not. is required to sign this document and return 1 copies to the issuing office.



14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
NRC-HQ-50-14-E-0001/NRC-HQ-20-15-T-0008 (31)

The purpose of this task order modification is to: (1) revise the Statement of Work (SOW) to add task 6.4 "Discussion Meeting" thereby increasing the total estimated costs by \$47,944.00 from \$111,842.00 to \$159,786.00; (2) provide incremental funding in the amount of \$12,800.00 thereby increasing the obligated amount from \$75,000.00 to \$87,800.00; and (3) extend the period of performance from November 21, 2015, to February 28, 2016.

Refer to continuation pages for details.

Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9 A 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	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) DOMONIQUE MALONE
15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)	15C. DATE SIGNED 09/21/2015
15B. CONTRACTOR/OFFEROR  (Signature of Contracting Officer)	16C. DATE SIGNED 9/22/2015

NSN 7540-01-152-8070
Previous edition unusable

STANDARD FORM 30 (REV. 10-83)
Prescribed by GSA
FAR (48 CFR) 53.243

TEMPLATE - ADMIN

SUNSI REVIEW COMPLETE

OCT 22 2015

ADM002

CONTINUATION SHEET

REFERENCE NO. OF DOCUMENT BEING CONTINUED
NRC-HQ-50-14-E-0001/NRC-HQ-20-15-T-0008/M0002

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NAME OF OFFEROR OR CONTRACTOR
S W R I

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	Total Estimated Costs: \$159,786.00 (Changed) Total Obligated Amount: \$87,800.00 (Changed) Period of Performance: 05/22/2015 - 02/28/2016 (Changed) Account code: 2015-X0200-FEEBASED-20-20D008-11-4-149-1128-251A				

The purpose of this task order modification is to:

- (1) revise the Statement of Work (SOW) to add task 6.4 "Discussion Meeting" thereby increasing the total estimated costs by \$47,944.00 from \$111,842.00 to \$159,786.00;
- (2) provide incremental funding in the amount of \$12,800.00 thereby increasing the obligated amount from \$75,000.00 to \$87,800; and
- (3) extend the period of performance from November 21, 2015, to February 28, 2016.

Accordingly the following changes are hereby made:

- 1) Section B - Supplies or Services/Prices, paragraph **PRICE/COST SCHEDULE**, is deleted in its entirety and the following is substituted in-lieu thereof:

ITEM NO.	DESCRIPTION OF SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL ESTIMATED CPFF
00001	Braidwood Ultimate Heat Sink Technical Assistance	[REDACTED]	[REDACTED]	[REDACTED]
Total				\$159,786.00

- 2) Section B - Supplies or Services/Prices, paragraph **NRCB040A CONSIDERATION AND OBLIGATION—COST-PLUS-FIXED-FEE ALTERNATE I (AUG 2011)**, is deleted in its entirety and the following is substituted in-lieu thereof:

(a) The total estimated cost to the Government for full performance of this contract is **\$159,786.00** of which the sum of [REDACTED] represents the estimated reimbursable costs, and of which \$ [REDACTED] represents the fixed-fee.

(b) The amount currently obligated by the Government with respect to this contract is [REDACTED] of which the sum of [REDACTED] represents the estimated reimbursable costs, and of which [REDACTED] represents the fixed-fee.

(c) This is an incrementally-funded contract and FAR 52.232-22 - "Limitation of Funds" applies.

(d) In accordance with FAR 52.216-8 - Fixed Fee, it is the policy of the NRC to withhold payment of fee after payment of [REDACTED] percent of the fee has been paid in order to protect the Government's interest. The amount of fixed-fee withheld from the contractor will not exceed [REDACTED] percent of the total fee or [REDACTED], whichever is less. Accordingly, the maximum amount of fixed-fee that may be held in reserve is [REDACTED].

- 3) Section F - Deliveries or Performance, paragraph **NRCF032 TASK/DELIVERY ORDER PERIOD OF PERFORMANCE (SEP 2013)**, is deleted in its entirety and the following is substituted in-lieu thereof:

"This order shall commence on May 22, 2015 and will expire on February 28, 2016."

- 4) Section H - Special Contract Requirements, paragraph (a) of clause **2052.215-78 TRAVEL APPROVALS AND REIMBURSEMENT (OCT 1999) - ALTERNATE I (OCT 1999)** is deleted in its entirety and the following is substituted in-lieu thereof:

"(a) Total expenditure for travel may not exceed **\$2,917.00** without the prior approval of the contracting officer."

- 5) Section C - Description/Specifications Statement of Work, is deleted in its entirety and the following is substituted in-lieu thereof:

SECTION C - Description/Specifications

Statement of Work

1. PROJECT TITLE

Braidwood Ultimate Heat Sink Technical Assistance

2. BACKGROUND

Exelon Generation Company, LLC, (the licensee) submitted a request for amendment to the operating licenses for Braidwood Station Units 1 and 2. The proposed license amendment request (LAR) raises the temperature limit for the Ultimate Heat Sink (UHS) set forth in Technical Specification Surveillance Requirement 3.7.9.2. The change to TS SR 3.7.9.2 is based on revised meteorological data and analysis of the UHS temperature response under the most limiting conditions.

3. SCOPE

The Nuclear Regulatory Commission (NRC) requires technical assistance in performing the review of the LAR. The contractor will perform a review of the LAR in its entirety, with a focus on the technical and regulatory adequacy of the methodology used to support the proposed increase in the UHS temperature limit. This review includes all major portions of the methodology, including the use of revised meteorological data, the thermal performance of the UHS, the potential impacts to equipment credited in accident analyses, and the impacts of increased UHS temperature on affected accident analyses.

4. OBJECTIVE

The objective of the NRC Safety Evaluation is to provide the technical, safety, and legal basis for the NRC's decision regarding an LAR. To support this objective, the contractor will review the methodology and results described in the LAR for technical adequacy and agreement with applicable NRC guidance. Additionally, the contractor will draft a Technical Evaluation Report (TER) describing their review and conclusions on the technical and regulatory adequacy of LAR. If portions of the methodology are not shown to be technically adequate to support the conclusions expressed in the LAR, or if portions of the methodology do not agree with NRC guidance, then the contractor will identify these "gaps" in writing as a request for additional information (RAI) and provide them to the NRC technical point of contact and Contracting Officer's Representative (COR). The NRC technical point of contact and COR will coordinate issuing the RAI to the licensee to address the gaps and obtain responses. The contractor will review responses to the RAI and use those responses to finalize the TER.

5. APPLICABLE DOCUMENTS AND STANDARDS

1. 10 CFR 50.90
2. 10 CFR 50.37
3. 10 CFR 50 Appendix A General Design Criteria

4. SRP 9.2.5, "Ultimate Heat Sink"
5. NUREG-0693 "Analysis of Ultimate Heat Sink Cooling Ponds"
6. Regulatory Guide 1.27 Revision 3, "Ultimate Heat Sink"
7. SRP 15.0.2, "Review of transients and Accident Analysis Methods"
8. Ryan, P.J., and Harleman, D.R.F., Analytical and Experimental Study of Transient Cooling Pond Behavior. Report No. 161, Department of Civil Engineering MIT, January 1973.
9. Brady, D.K., Graves, Jr. W.L., and Geyer, J.C., Cooling Water Studies for Edison Electric Institute. Research Project RP-49, Department of Geography and Environmental Engineering, The Johns Hopkins University, November 1969
10. Effects of Geographical Location on Cooling Pond Requirements and Performance, EPA, Water Quality Office

6. SPECIFIC TASKS

6.1 Kickoff Meeting

6.1.1 Preparation for Kickoff Meeting; become familiar with the LAR and importance references.

6.1.2 Attend Kickoff Meeting

Attend a one-time kick-off meeting (via conference call) to discuss the scope of work, expectations, task order management, and performance requirements of the task order. The kick-off meeting shall be held within twenty (20) working days after the contractor receives the LAR materials.

6.2 Review LAR Submission

6.2.1 Evaluate the LAR Submittal

Review the LAR to determine the technical accuracy and regulatory compliance of the request. Specifically focusing on whether the methodology is consistent with NUREG-0693 and is defensible based on the expected heat transfer from the UHS pond. The evaluation should include a review of: 1) the calculations and computer programs, which form the basis of the LAR, for technical acceptability; 2) the associated design inputs, assumptions, methodology and conclusions; 3) the applicant's selection of meteorological data for design input; 4) the applicant's choice

of UHS modeling as it pertains to the actual physical parameters of the UHS and water flow paths; 5) the applicant's use of the analytical methods of NUREG 0693, as it pertains to determining UHS outlet temperature in 3 hour intervals; 6) the suitability of instrumentation and instrument accuracy, and 7) the responses to existing requests for additional information. This review will not include the containment analyses.

Upon notification from the COR, participate in conference calls with the licensee to

discuss the LAR materials.

6.2.2 Prepare Draft Technical Evaluation Report

The contractor shall prepare a draft TER that describes the results of the review and evaluation. The TER must contain draft text, tables, and illustrations, as appropriate, suitable for inclusion in NRC staff's safety evaluation. The TER must provide sufficient information to support the conclusions regarding the technical and regulatory adequacy of the LAR. It must be written so that a person with either non-nuclear

technical background or non-technical background can understand the basis for conclusions cited. The draft TER should identify gaps in the technical or regulatory adequacy of the LAR.

The contractor shall prepare a final draft TER that incorporates comments provided by the COR.

6.2.3 Prepare RAIs

The contractor shall prepare a draft RAI with questions that will address the gaps identified in the technical and regulatory adequacy of the LAR. Questions included in the RAI must have a clear and concise regulatory basis, describing why additional information is required to come to a conclusion on the adequacy of the LAR. The RAI will be written in a format provided by the NRC technical point of contact or COR.

The contractor shall participate in conference calls with the NRC technical point of contact to discuss the RAI and the need for specific questions.

The contractor shall participate in conference calls with the NRC staff and licensee staff, as necessary, to clarify the intent of specific questions.

6.2.4 Review RAI Responses

The contractor shall review the licensee's response to the RAI and determine whether it adequately resolves the identified gaps.

The contractor shall participate in conference calls with the NRC staff and licensee staff, as necessary, to clarify information provided in the response to the RAI.

6.2.5 Update the TER

The contractor shall update the draft TER prepared under Task 6.2.2 to incorporate licensee's RAI response and revise affected portions of the draft text, tables, and illustrations in the TER.

The contractor shall prepare a final TER that incorporates comments provided by the COR.

6.3 (OPTIONAL) Perform Confirmatory Analysis

Upon approval from the CO, the contractor shall perform an independent confirmatory analysis to evaluate the validity and conservatism of the licensee's calculations. The independent confirmatory analysis will use a combination of available technical models to be mutually agreed upon by the contractor and NRC technical point of contact. The methodology, results, and conclusions of the confirmatory analysis must be described in the TER and the analysis will be used to justify the conclusions of the TER.

6.4 Discussion Meeting

6.4.1 Attend a 2 person, 2 day meeting to provide for a discussion of relevant topics for the review of the Braidwood amendment and past experience from the LaSalle UHS amendment. This meeting should include a discussion of the following: (1) an overview of the contractor's mathematical analysis of the UHS fluid flow and heat transfer and the software used to perform the analysis, (2) overview of the use of meteorological data, (3) a discussion of the computer programs employed to perform this review, (4) a discussion of the impacts to equipment credited in accident analysis, and (5) additional insights on the analysis of calculation results and the determination of acceptability.

7. DELIVERABLES AND DELIVERY SCHEDULE

All deliverables shall include the following identifying information:

- Task Order No.
- TAC No.
- Licensee
- Facility Name and Unit Nos.

The contractor shall provide all reports as draft products. The COR will review all draft deliverables (and coordinate any internal NRC staff review, if needed) and provide comments back to the contractor. The contractor shall revise the draft deliverables based on the comments provided by the COR, and deliver the final version of the deliverable.

When mutually agreed upon between the contractor and the COR, the contractor may submit preliminary or partial drafts to help gauge the contractor's understanding of the particular work requirement.

The above deliverables shall be provided electronically and in hard copy (upon request) to the Contracting Officer (CO), COR, and NRC technical point of contact.

The COR will acknowledge receipt and acceptance of the required deliverables by e-mail.

8. REQUIRED LABOR CATEGORIES

Professional Level 3 with extensive background and experience in heat transfer phenomena associated with ponds and lakes, how such phenomena is commonly modeled, and the models, methods, and rationale for the methodology described in NUREG-0693 "Analysis of Ultimate Heat Sink Cooling Ponds". Expertise must also include familiarity with NRC regulations, criteria, or guidelines pertaining to UHS analysis and how such information is documented in a safety evaluation.

Project Manager; the contractor shall provide a project manager to oversee the effort and ensure the timely, accurate, and complete submittal of the required task order deliverables.

The NRC will rely on representation 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 proposals, including resumes, is accurate and truthful. The resume for each professional proposed to work under this task order (principal investigators, technical staff, employees, consultants, specialists or subcontractors) shall describe the individual's experience in applying his or her area of engineering specialization to work in the proposed area. The use of particular personnel on this task order is subject to COR and CO approval. This includes any proposed changes to key personnel during the period of performance of the task order.

9. GOVERNMENT-FURNISHED PROPERTY

N/A

10. PLACE OF PERFORMANCE

Primary place of performance will be at the contractor's site.

11. PERIOD OF PERFORMANCE

The period of performance for this task order is from May 22, 2015, through February 28, 2016.

12. SECURITY

Information required for performance of this work is anticipated to be UNCLASSIFIED. Proprietary Information or other Sensitive Unclassified Non-Safeguards Information (SUNSI) may be required to complete the work.

13. TRAVEL

One three-person, two day trip to NRC Headquarters is anticipated.