

**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

BPA NO.

1. CONTRACT ID CODE

PAGE 1

OF PAGES 2

2. AMENDMENT/MODIFICATION NO.  
0009

3. EFFECTIVE DATE  
See block 16c.

4. REQUISITION/PURCHASE REQ. NO.  
NRO-11-260  
dated: 6/1/2011

5. PROJECT NO. (if applicable)

6. ISSUED BY CODE 3100  
U.S. Nuclear Regulatory Commission  
Div. of Contracts  
Attn: Morie Gunter-Henderson  
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)

N J NUMARK ASSOCIATES INC  
NUMARK ASSOCIATES

1220 19TH ST NW STE 500  
WASHINGTON DC 200362444

CODE 788247377

FACILITY CODE

(X) 9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

10A. MODIFICATION OF CONTRACT/ORDER NO.  
NRC-42-07-481 0019

10B. DATED (SEE ITEM 13)  
05-14-2008

**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: 2011-25-17-4-118 JC: 04159 BOC: 252A APPN: 31X0200  
Obligate: \$28,084.00  
FSS #112907-001 NAICS Code: 541990 DUNS: 788247377

**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(a).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

D. OTHER (Specify type of modification and authority) Mutual Agreement Between The Parties

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.)

The purpose of this modification is to (1) increase the level of effort as seen in the attached revised statement of work; (2) increase the ceiling by \$56,064.00 and (3) add incremental funds in the amount of \$28,084.00.

Task Order Ceiling Amount: \$399,123.00 (changed)  
Total Obligated Amount: \$ 371,084.00 (Changed)  
Period of Performance: 05/14/2008 - 09/30/2012 (Unchnaged)

ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME.

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)  
Paul G. Edelstein, VP Contracts and Administration

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)  
Morie Gunter-Henderson  
Contracting Officer

15B. CONTRACTOR/OFFEROR  
(Signature of person authorized to sign)

15C. DATE SIGNED  
27 Jul 2011

16B. UNITED STATES OF AMERICA  
BY (Signature of Contracting Officer)

16C. DATE SIGNED  
7/27/11

NSN 7540-01-152-8070  
PREVIOUS EDITION NOT USABLE

STANDARD FORM 39 (REV. 10-83)  
Prescribed by GSA - FAR (48 CFR) 53.243

TEMPLATE - ADM001

SUNSI REVIEW COMPLETE

JUL 28 2011

ADM002

The purpose of this modification is to (1) increase the level of effort in accordance with the attached SOW, (2) Increase the ceiling by \$44,481.00 and, (3) add incremental funds in the amount of \$28,084.00.

Page 2, paragraph 2 of Task Order 19 is hereby deleted in it's entirety and replaced with the following paragraph:

"Task Order No. 19 shall be in effect from 5/14/08 through 9/30/2012 with a cost ceiling of \$399,123.00. The amount of \$380,118.00 represents the estimated reimbursable costs, and the amount of \$19,005.00 represents the fixed fee."

Page 2, paragraph 3 of Task Order 19 is hereby deleted in it's entirety and replaced with the following paragraph:

"The amount obligated by the Government in respect to this task order is \$371,084.00 of which \$353,414.00 represents the reimbursable coast, and the amount of \$17,670.00 represents the fixed fee."

All other terms and conditions remain unchanged.

**MODIFICATION**  
**TASK ORDER STATEMENT OF WORK**

JCN/Contract No. <b>Q-4159</b>	Contractor <b>Numark Associates, Inc.</b>	Task Order No. <b>NRC-42-07-481 (019) 0009</b>
Applicant <b>AREVA NP Inc.</b>	Design/Site <b>EPR</b>	Docket No. <b>052000020</b>
Title/Description <b>Review of EPR Standard Design Certification Application FSAR Sections 3.3.1, 3.3.2, 3.4.2, 3.5.3, 14.3.2 and Related GSIs for the Design of Seismic Category I Structures</b>		
TAC No. <b>RX0132</b>	B&R Number <b>2011-25-174-118</b>	SRP Section <b>3.3.1, 3.3.2, 3.4.2, 3.5.3, and 14.3.2</b>
NRC Task Order Project Officer (PO)		
<b>Meghan Blair</b>	<b>(301) 415-5242</b>	<b>Meghan.Blair@nrc.gov</b>
NRC Technical Monitor (TM)		
<b>Manas Chakravorty</b>	<b>(301) 415-3738</b>	<b>Manas.Chakravorty@nrc.gov</b>

**1.0 BACKGROUND**

The Office of New Reactors (NRO) is responsible for accomplishing key components of the Nuclear Regulatory Commission's nuclear reactor safety mission for new reactor facilities licensed in accordance with 10 CFR Part 52. As such, NRO is responsible for regulatory activities in the primary program areas of new reactor licensing including application reviews for reactor design certification (DC), early site permits (ESPs), combined operating license (COL) applications, and new reactor pre-application activities. Applications are submitted pursuant to Part 52 of Title 10 of the Code of Federal Regulations (10 CFR 52), "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants." The NRC reviews DC applications based on information furnished by nuclear steam supply system vendors pursuant to 10 CFR 52.47, "Contents of Applications."

A Standard Review Plan (SRP) (NUREG-0800) was prepared for the guidance of staff reviewers in the Office of New Reactors in performing safety reviews of applications to construct or operate nuclear power plants and the review of applications to approve standard designs and sites for nuclear power plants. The principal purpose of the SRP is to assure the quality and uniformity of the NRC staff safety reviews.

The staff publishes the results of these reviews in a Safety Evaluation Report (SER).

**2.0 OBJECTIVE**

The objective of this task order is to obtain technical expertise from the contractor to NRC staff in determining whether or not the subject design certification application appropriate regulatory requirements relating to Sections 3.3.1, 3.3.2, 3.4.2, 3.5.3 and

related Generic Safety Issues (GSIs) and the associated Tier 1 information of the FSAR submitted with the EPR DC application.

Specifically, a review of SRP Sections 3.3.1, 3.3.2, 3.4.2, 3.5.3, 14.3.2, and related GSIs is required to ensure that analysis, design, construction, and in-service inspection of seismic Category I structures meet the applicable requirements of 10 CFR 50.55a, 10 CFR 50, Appendix A, General Design Criterion (GDC) 1, 2, 4, 5, 16, 50, 51, and 53 and other applicable regulations. The review shall focus on the (1) materials, (2) geometry, (3) codes, standards, and specifications, (4) loadings and load combinations, (5) design and analysis procedures, (6) structural acceptance criteria, and (7) testing and in-service surveillance requirements, as appropriate. The level of effort for this task order is based on the expectation that the contractor is familiar with the review procedures of the SRP sections in the work scope and the technical reviewer has the required knowledge and experience in the subject matter as outlined in Section 5 of this document.

The primary deliverable, or output of this regulatory review, shall be the Technical Evaluation Report (TER). The TER will serve as input to the NRC's SER which will document the NRC's technical, safety, and legal basis for approving the design certification. The TER documents the contractor's technical evaluation of a proposed design against relevant regulatory criteria. The technical evaluation should include a description of the proposed design and an analysis of the proposal in terms of regulatory requirements, established NRC positions (e.g., SRP or regulatory guides), industry standards, or other relevant criteria. The contractor should explain the methods used in its review of the design (e.g., a comparison of applicant's proposal against regulatory criteria, a review of input assumptions combined with use of approved methodology, or an independent calculation to confirm results presented by an applicant). The technical evaluation should be specific as to what information is relied on to form the basis for approving or denying the proposed design. The technical evaluation should also contain the contractor's specific conclusion that the proposed design is technically acceptable and meets regulatory guidance or other industry standards or reasons why the proposed design is unacceptable. The TER, and ultimately the SER, should be written in a manner whereby a person with a technical (non-nuclear) background and unfamiliar with the applicant's request could understand the basis for the staff's conclusions. The TER format is described in Attachment 1 to this Task Order Statement of Work (SOW). The specific work scope and schedule required for this task order are provided in Section 4 and the requirements for communicating work progress and status are provided in Section 6.

#### **Modification**

**The objective of this modification is to support additional review due to an increase in the number of RAIs assumed in the original scope, additional review of Draft submittals from the applicant and additional teleconferences with the applicant to resolve concerns, related to applicant responses to many RAIs which did not meet the acceptance criteria.**

**3.0 WORK REQUIREMENTS, SCHEDULE AND DELIVERABLES**

Tasks/Standards	Scheduled Completion	Deliverables
<p>1. <b>REQUIREMENT:</b> Become familiar with the EPR FSAR Sections 3.3.1, 3.3.2, 3.4.2, 3.5.3, 14.3.2, and related GSIs, the related sections of the FSAR Tier 1 information, and applicable regulatory guides. Review the basis upon which the staff granted the design certification by reviewing the corresponding sections of the AP1000 DCD and the final SER issued for the AP1000 design. Attend NRC offered training on regulations and TER development. <b>(Phase 1 task)</b></p> <p><b>STANDARD:</b> Provide written confirmation that familiarization is complete.</p>	<p>Two weeks after authorization of work</p>	<p>Documentation that assigned personnel has reviewed references</p>
<p>2. <b>REQUIREMENT:</b> Participate in an orientation/kick-off meeting with the NRC staff to discuss the scope of the work, expectations, and task order management. Establish an agreed upon schedule that is consistent and aligned with the NRC's EPM program. <b>(Phase 1 task)</b></p> <p><b>STANDARD:</b> Attendance by individuals designated by NRC.</p>	<p>Four weeks after authorization of work</p>	<p>A jointly agreed upon schedule</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>3. <b>REQUIREMENT:</b> Using applicable SRP acceptance criteria and regulatory guides as guidelines, review the EPR FSAR Sections 3.3.1, 3.3.2, 3.4.2, 3.5.3, 14.3.2, and applicable GSIs, associated Tier 1 information, and related documents/appendices to determine the adequacy of these parts of the DC application. Determine if the analysis methods, modeling approaches, design criteria, and design codes for Category I structures proposed by the applicant meet the appropriate acceptance criteria. Review the adequacy and acceptability of the applicant's approach for implementing ITAAC for EPR Category I structures. Review identified COL action items and interface parameters for sufficiency and adequacy. Identify a preliminary set of Tier 2 information to be characterized as Tier 2*. Identify issues and those aspects of the application that need additional or clarifying information. Prepare draft questions as input to formal Requests for Additional Information (RAIs). <b>(Phase 1 task)</b></p> <p>b. Prepare a draft TER for Sections 3.3.1, 3.3.2, 3.4.2, 3.5.3, 14.3.2, and applicable GSIs, including a discussion of the RAI contents and their bases.</p> <p>c. Participate in conference calls with the applicant (if required by TM) to discuss the information to be provided or clarified to bring closure to the open issues.</p> <p>d. Prepare an RAI tracking table summarizing RAI text, applicant response, and status.</p> <p><b>STANDARD:</b> Provide: (1) Preliminary TER that follows the NRC provided template without deviation; (2) RAIs that follow NRC guidance in Section III, RAI Guidance, of Attachment 1 to the Contract Statement of Work without deviation; and (3) RAI tracking table in accordance with the provided template in Attachment 2 of this Task Order Statement of Work.</p>	<p>Eight weeks after the end of task 2</p>	<p>a. Preliminary TER with RAIs if applicable</p> <p>b. An RAI tracking table</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>4. REQUIREMENT:</p> <p>a. Review responses to the RAI questions to determine if they adequately resolve the outstanding issues identified in Task 3. Update Tier 2* information. Identify any other open items. Develop input to new or supplemental RAIs as necessary. Incorporate the review results in the TER completed under Task 3. Update the RAI tracking table.</p> <p>b. Prepare a list of documents to be audited and issues to be discussed during an audit under Task 5. Based on review of EPR FSAR Tier 2 Section 14.3.2, ITAAC and EPR FSAR Tier 1 Section 2.1, Structures, prepare a list of ITAAC related issues/documents (including applicant's on-site documents, as needed) to be discussed during an audit under Task 5.</p> <p>c. As a result of review efforts in Tasks 5, 6, and 7, review responses to the RAI questions to determine if they adequately resolve the outstanding issues. As necessary, develop input to new or supplemental RAIs. Update the RAI tracking table. Continue this process until closing of all open items at the end of Task 10. <b>(Phase 2 and 3 task)</b></p> <p>STANDARD: Update TER with open items and RAI tracking table as RAIs are reviewed and resolved.</p>	<p>a. Review of RAI response within three weeks after receipt of the responses</p> <p>b. Updated TER, RAI tracking table, and audit list to be prepared two weeks prior to Task</p> <p>c. On going review and response to RAI within three weeks after receipt of the applicant's responses</p>	<p>a. Updated RAI tracking table and TER with open items</p> <p>b. Audit List</p> <p>c. Input to new or supplemental RAIs</p> <p>d. Updated RAI tracking table monthly</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>5. REQUIREMENT: Prepare for and travel to the applicant's designated facilities and participate in an NRC review team to accomplish the following: <b>(Phase 2 task)</b></p> <p>a. Audit the analysis reports, the structural modeling, the design calculations and the ITAAC assessment reports covered by SRP Sections 3.3.1, 3.3.2, 3.4.2, 3.5.3, 14.3.2, and applicable GSIs to determine the adequacy of the EPR design.</p> <p>b. Evaluate and discuss the applicant's responses to the unresolved issues identified in Task 4 to establish plans for the resolution of the open items.</p> <p>c. Obtain information related to Sections 3.3.1, 3.3.2, 3.4.2, 3.5.3, 14.3.2, and applicable GSIs of the EPR Nuclear Island (NI) structures, containment and other Category I structures and foundation. The information should be sufficiently detailed to enable the contractor to perform a comprehensive evaluation, including confirmatory analyses (if requested by the TM), of the applicant's design under all applicable loading conditions.</p> <p>d. Prepare a trip report (as an input to the NRC Audit Report) to summarize the information reviewed, results of the audit, and meeting discussions.</p> <p>e. Prepare input to new or supplemental RAIs as necessary.</p> <p>STANDARD: Participate in audit. Submit: (1) a Trip Report and (2) Input to RAIs in accordance with NRC</p>	<p>Trip duration is one week.</p> <p>Deliverables are due two weeks after the trip.</p>	<p>a. Trip Report</p> <p>b. Input to new or supplemental RAIs</p>



Tasks/Standards	Scheduled Completion	Deliverables
<p>6. <b>REQUIREMENT:</b> Perform an evaluation of Sections 3.3.1, 3.3.2, 3.4.2, 3.5.3, 14.3.2, and applicable GSIs aspects of the EPR structural design to verify the adequacy of the modeling techniques, analysis methods, computer codes used, and the resulting design loads. Include the following: <b>(Phase 2 task)</b></p> <ul style="list-style-type: none"> <li>a. Evaluate the adequacy of the Sections 3.3.1, 3.3.2, 3.4.2, 3.5.3, 14.3.2, and applicable GSIs related design information obtained from the applicant including results of ITAAC review findings. Prepare a technical letter report (TLR).</li> <li>b. Evaluate Sections 3.3.1, 3.3.2, 3.4.2, 3.5.3, 14.3.2, and applicable GSIs. Using the methodology provided in FSAR Tier 2 Section 3.5.3, "Barrier Design Procedures," perform two confirmatory analyses of EPR specific reinforced concrete barrier design cases (to be designated by TM) to verify the design adequacy and the structural integrity of the containment and other Category I structures. Discuss review findings and prepare a TLR.</li> <li>c. Compare the confirmatory analysis results with the corresponding EPR installed barriers and address the discrepancies, if any. Prepare a TLR.</li> <li>d. Compile the results of the work performed under Tasks 6.a, 6.b, and 6.c, and prepare a confirmatory analysis summary report.</li> <li>e. As necessary, prepare draft questions as input to formal RAIs arising from the confirmatory analysis results.</li> </ul> <p><b>STANDARD:</b> Provide three TLRs that summarize the contractor's assessment of the applicant's analysis and design information, the confirmatory analysis scope and results, and comparisons between the two sets of results, respectively. Provide a Confirmatory Analysis Summary Report in accordance with the outline and the format provided in Attachment 3 to this SOW. Submit input to RAIs in accordance with NRC</p>	<ul style="list-style-type: none"> <li>a. Three weeks after receipt of design information</li> <li>b. Four weeks after completion of Subtask 6.a</li> <li>c. One week after completion of Subtask 6.b</li> <li>d. Two weeks after completion of Subtask 6.c</li> <li>e. One week after completion of Subtask 6.d</li> </ul>	<ul style="list-style-type: none"> <li>a. Three technical letter reports</li> <li>b. Confirmatory Analysis Summary Report</li> <li>c. Input to RAIs as necessary</li> </ul>

Tasks/Standards	Scheduled Completion	Deliverables
<p>7. <b>REQUIREMENT:</b> Review FSAR revisions submitted by the applicant to identify any significant changes and their impact. Prepare input to formal RAIs as necessary to address FSAR changes. As requested by the TM, participate in conference calls with the applicant to clarify additional information needed to close open items and to assess the impact of FSAR revisions. For significant FSAR revisions and as requested by the TM, update the TER. <b>(Phase 2 task)</b></p> <p><b>STANDARD:</b> Participate in conference calls as requested. Update the RAI tracking table. Submit input to RAIs and updated TER in accordance with NRC</p>	<p>Three weeks after receipt of FSAR revision</p>	<p>a. Input to RAIs and updated TER as necessary b. Updated RAI tracking table</p>
<p>8. <b>REQUIREMENT:</b> Incorporate the results of the review efforts in Task 4c and update the TER as input to the staff's SER w/OI for Sections 3.3.1, 3.3.2, 3.4.2, 3.5.3, 14.3.2, and applicable GSIs. The TER should summarize information reviewed, key technical issues evaluated/resolved, any confirmatory analyses performed, significant staff evaluation findings and their technical bases covering the staff's review of the FSAR Sections 3.3.1, 3.3.2, 3.4.2, 3.5.3, 14.3.2, and applicable GSIs. <b>(Phase 2 task)</b></p> <p><b>STANDARD:</b> Complete TER that follows the NRC provided template without deviation. Update the RAI tracking table following the NRC template.</p>	<p>Four weeks after completion of Task 6 or as agreed upon with the TM to accommodate ACRS schedule</p>	<p>a. Updated TER with open items b. Updated RAI tracking table</p>
<p>9. <b>REQUIREMENT:</b> If needed and requested by the TM, prepare for and travel to the applicant's designated facilities to discuss the resolution of unresolved open items, and to perform an additional audit of analysis and design reports as needed. As applicable, discuss the confirmatory analysis results with the applicant and assist the staff in resolving the remaining open items. Prepare a draft trip report (as an input to the NRC Audit Report) to summarize the information reviewed, results of the audit, and meeting discussions. <b>(Phase 2 task)</b></p> <p><b>STANDARD:</b> Participate in audit. Submit a Trip Report.</p>	<p>Trip duration is three days</p> <p>Deliverables due two weeks after the trip</p>	<p>Trip Report</p>
<p>10. <b>REQUIREMENT:</b> As needed and requested by the TM, provide technical support to the staff during ACRS review meetings. <b>(Phase 3 task)</b></p> <p><b>STANDARD:</b> Ensure presentation materials are reviewed and approved by NRC staff. Attend meetings, if requested.</p>	<p>TBD based on project schedule</p>	<p>Prepare presentation materials. Attend meetings, if requested.</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>11. REQUIREMENT: Prepare final TER with no Ol's (as an input to the staff's FSER) including addressing any ACRS questions, and participate in ACRS review meetings as requested by the TM. (Phases 4 and 5 task)</p> <p>STANDARD: Complete TER that follows the NRC provided template without deviation. Attend meetings,</p>	TBD based on project schedule	Final TER with no open items
<p>12. REQUIREMENT: As needed and requested by the staff, provide technical support to the staff to prepare the FSER. (Phase 6 task)</p> <p>STANDARD: Provide technical support, if requested.</p>	TBD as needed	N/A

\* These Work Schedules are subject to change by the NRC Contracting Officer (CO) to support the needs of the NRC Licensing Program Plan.

The Technical Monitor may issue technical instruction from time to time throughout the duration of this task order. Technical instructions must be within the general statement of work delineated in the task order and shall not constitute new assignments of work or changes of such a nature as to justify an adjustment in cost or period of performance. The contractor shall refer to Section G.1 of the base contract for further information and guidance on any technical directions issued under this task order.

Any modifications to the scope of work, cost or period of performance of this task order must be issued by the CO and will be coordinated with the NRO Project Officer.

**4.0 TECHNICAL AND OTHER SPECIAL QUALIFICATIONS REQUIRED**

As specified in the basic contract, the contractor shall provide individuals who have the required educational background and work experience to meet the objectives of the work specified in this task order. Specific qualifications of structural engineers for this effort include:

Senior structural engineers with knowledge and experience in the following: (1) design and analysis of nuclear steel and concrete containment and other Category I structures, systems, and mat foundations for various load combinations, (2) modeling of complicated structures, (3) linear/non-linear seismic/dynamic structural analysis, (4) finite element structural analysis methods, (5) use of sophisticated structural analysis computer codes, (6) Understanding of NRC's regulatory philosophy related to ITAAC implementation and (7) the use of nuclear power plant industry codes and standards.

The contractor shall provide a contractor project manager (PM) to oversee the effort and ensure the timely submittal of quality deliverables so that all information is accurate and complete as defined in the base contract.

The NRC will rely on representations made by the contractor concerning the personnel assigned to this task order, including assurance that all information contained

technical and cost proposals, including resumes, is accurate and truthful. The resume professional proposed to work under this task order (contractors, subcontractors or 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 subject to the NRC technical monitors (TM's) approval. This includes any proposed key personnel during the life of the task order.

## **5.0 REPORTING REQUIREMENTS**

### **Task Order Progress Report**

The contractor shall provide a bi-weekly progress report summarizing accomplishments, expenditures, contractor staff hours expended, percent completed for each task under this task order, and any problems encountered by the contractor. The report shall be sent via e-mail to the NRC TM, Task Order Project Officer (PO) and CO.

Please refer to Section F of the basic contract award document for contract reporting requirements.

### **Technical reporting requirements**

Unless otherwise specified above, the contractor 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 contractor. The contractor shall revise the draft deliverable based on the comments provided by the TM, and then deliver the final version of the deliverable. When mutually agreed upon between the contractor and the TM, the contractor may submit preliminary or partial drafts to help gauge the contractor's understanding of the particular work requirement.

The contractor shall provide the following deliverables in hard copy and electronic formats. The electronic format shall be provided in MS Word or other word processing software approved by the TM. For each deliverable, the contractor shall provide one hard copy and electronic copy to both the PM and the TM. The schedule for deliverables shall be contained in the approved project plan for the task order effort.

In all correspondence, include identifying information: JCN No.: Q-4159; Technical Assignment Control No. (TAC), RX0132; Task Order No.: 019; the licensee: Areva NP; and, the site: N/A.

1. At the completion of Task 1, submit a TLR indicating that assigned personnel has reviewed the required references.
2. At the completion of Task 2, submit a project schedule.
3. At the completion of Task 3, submit a TER that contains, for each sub-section of the SER: the regulatory acceptance criteria, a description of the information proposed by the applicant including the assumptions for the analysis, design, and references to consensus standards, review findings (including the basis for the findings), as a result of comparison with the review guidelines, and a list of RAIs. Submit a tracking table for the RAIs. See Attachment 1 to this SOW for the outline, format and content of the TER report. See Attachment 1 in the base contract SOW for the guidelines for developing RAIs. See Attachment 2 to this SOW for the format of the RAI tracking table.

4. At the completion of Task 4.a, submit an update to the TER completed under Task 3 that incorporates review results and the findings from the resolution of the RAIs. Submit new or supplemental RAIs. Submit updated RAI tracking table.
5. At the completion of Task 4.b, submit an audit list.
6. During the performance of Task 4.c, submit RAIs as necessary and an updated RAI tracking table monthly.
7. At the completion of Task 5, submit a Trip Report to summarize the information reviewed, results of the audit, meeting discussions, a list of outstanding issues, and significance of these issues. Submit RAIs as necessary.
8. At the completion of Task 6.a, submit a TLR containing the contractor's assessment of the adequacy of the Sections 3.3.1, 3.3.2, 3.4.2, 3.5.3, 14.3.2, and applicable GSIs related design information obtained from the applicant including results of ITAAC review findings.
9. If applicable, at the completion of Task 6.b, submit a TLR describing the confirmatory analysis including the scope, objective, models, loadings, and parametric variations.
10. If applicable, at the completion of Task 6.c, submit a TLR comparing the results of the confirmatory analysis with the results from the applicant's analysis. Discuss any significant differences and provide technical reasons for the same.
11. If applicable, at the completion of Task 6.d, submit a Confirmatory Analysis Summary Report that compiles the results of Tasks 6.a through 6.c. See Attachment 3 to this SOW for outline and format of the report. If necessary, submit RAIs as a result of the work completed in Task 6.
12. During the performance of Task 7, following each revision of the FSAR, update the RAI tracking table, submit a list of open items and their significance, and submit RAIs as necessary. If required by the TM, submit an updated TER with open items.
13. At the completion of Task 8, submit an update to the TER developed in Task 4.a including the review information developed in Tasks 5, 6 and 7, and the RAI responses reviewed under Task 4.c. This will be the input to the staff's SER with open items. Submit a TLR summarizing the remaining open items and related issues to be discussed with the applicant in the second design audit (optional, to be determined by the TM) under Task 9.
14. If applicable, at the completion of Task 9, submit a Trip Report to summarize the information reviewed, results of the audit, and meeting discussions.
15. At the completion of Task 11, update the TER developed in Task 8 including closure of all the open items and the responses to ACRS questions, as necessary. Submit the final TER with no open items which forms the input to the staff's final safety evaluation report (FSER).
16. At the completion of Task 12, review the staff's FSER for adequacy and completion and provide written comments.
17. During the performance of Tasks 10 and 12, describe each request for assistance and the information provided in the MLSR under the "Work Performed" section.
18. For the RAI tracking table and the TLRs, submit only electronic copies to the TM and TAPM.

## 6.0 MEETINGS AND TRAVEL

- One, two-person, one-day working meeting to kick off project and for contractor orientation (Task 2) \*
- One, two-person, one-day working meeting at NRC headquarters to discuss the preparation of the TER with open items (Task 4.a) \*
- One, one-person, five-day trip to the applicant's facility to perform first design audit (Tasks 5)
- One, one-person, one-day working meeting at NRC headquarters to discuss the findings and the conclusions of the confirmatory analysis (Task 6) \*
- One, one-person, three-day trip, if needed, to the applicant's facility to perform second design audit (Task 9)
- Two, one-person, one-day meetings, if needed, for an ACRS meeting (Tasks 10 and 11)

\*At the discretion of the NRC TM, quarterly progress meetings may be conducted at the contractor's offices or via telephone or video conference.

## 7.0 NRC FURNISHED MATERIAL

The following NRC furnished materials will be provided to the contractor together with the SOW:

- (a) CD-ROM containing the EPR FSAR including Sections 3.8.1 through 3.8.5 and the associated appendices.
- (b) CD-ROM containing the Final Safety Evaluation Report (FSER) and the Design Control Documents (DCD) for AP1000.

## 8.0 LEVEL OF EFFORT

The estimated level of efforts in professional man-hours apportioned among the subtasks and by labor category is as follows:

Task(s)	Labor Category	Level of Effort FY 2008 (hours)	Level of Effort FY 2009 (hours)	Level of Effort FY 2010 (hours)	Level of Effort FY 2011 (hours)	Level of Effort FY 2012 (hours)
1	Senior Structural	60				
2	Senior Structural	20				
3	Senior Structural	200				
4	Senior Structural	80	160	20	30	
5	Senior Structural	160				

6	Senior Structural		160			
7	Senior Structural		80	25		
8	Senior Structural		60		30	30
9	Senior Structural		80			
10	Senior Structural			30		
11	Senior Structural			30	20	20
12	Senior Structural			16		
All	Project	40	40	20	10	10
<b>Total</b>		560	580	141	90	60

#### 9.0 PERIOD OF PERFORMANCE

The projected period of performance is **52** months from authorization of work.

#### 10.0 OTHER APPLICABLE INFORMATION

##### License Fee Recovery

All work under this task order is fee recoverable under 10 CFR Part 170 and shall be charged to the appropriate TAC number(s).

##### Expected Classification or Sensitivity

All work under this project is expected to be unclassified and not sensitive.

##### Assumptions and Understandings:

The level of effort for Task 1 is based on the volume of materials to be reviewed; this task is for familiarity and not for evaluation.

The level of effort for Task 3 is based on the assumption that the contractor is familiar with the review procedures of SRP Sections 3.3.1, 3.3.2, 3.4.2, 3.5.3, 14.3.2, and applicable GSIs.

**The level of effort for Task 4 is based on the assumption that there will be 94 RAIs** including supplemental RAIs. Five days are allocated for updating the preliminary TER prepared in Task 3 to incorporate RAI responses.

The level of effort for Task 5 is based on one, two-person, five-day trip (including travel time) plus five days to prepare for the trip and to write the trip reports.

The level of effort for Task 6 is based on a selected design evaluation of structural elements and review of applicant's proposed ITAAC implementation of Category I structures within the certified scope.

The level of efforts for Task 7 is based on the assumption that there will be five revisions for the FSAR and it will take two days to review the effect of the changes. three additional days are assumed for TER updates as may be requested by the TM.

The level of effort for Task 9 is based on one, two-person, three-day trip (including travel time) plus two days to prepare for the trip and to write the trip reports.

The level of effort for Task 10 is based on one, one-person trip to NRC headquarters for an ACRS meeting, and time needed to prepare presentation material.

The level of effort for Task 11 is based on one, one-person trip to NRC headquarters for an ACRS meeting, and time needed to prepare the final TER with no open items as input to the staff's FSER.

It is assumed that the contractor has access to the NRC furnished material available on the Internet.

It is understood that the scope of the review consists of conference calls with the NRC staff, and with the NRC staff and the applicant, to discuss open items in an attempt to obtain additional information or reach resolution.

During the course of the review, the Technical Monitor, and possibly other NRC personnel, may travel to the contractor offices to discuss the status of the review and participate in the resolution of open items. It is assumed that the level of effort covers such meetings.

Attachments:

1. Outline, Format, and Sample for the TER (draft SER input)
2. Sample Request for Information (RAI) Tracking Table
3. Sample Outline and Format for the Confirmatory Analysis Summary Report



## Attachment 1

### Outline, format, and sample for the Technical Evaluation Report (TER) (draft SER input)

#### **X.Y.Z Title of Section**

##### **X.Y.Z.1 Regulatory Criteria**

Develop an outline that follows the format and topics presented in the AREAS OF REVIEW section of the appropriate SRP section. This information will correspond to the SRP sections that are the subject of this Task Order. For each unique SRP review area contained in the TER, the contractor should specify the acceptance criteria that were used for its review. Summarize the applicable regulations and other regulatory references, including regulatory guides, generic letters, or NRC staff positions, that are relevant to this topic.

Technical reviewers are encouraged to use the descriptions of acceptance criteria from previously issued Safety Evaluation Reports for completed design certifications (e.g., NUREG-1793 for the AP1000 Final Safety Evaluation Report) when applicable.

##### **X.Y.Z.2 Summary of Technical Information**

Describe the key technical points that were made in the application. It is not necessary to restate the application verbatim or to address all the details in the application.

##### **X.Y.Z.3 Technical Evaluation**

Document the contractor's evaluation of the application against the relevant regulatory criteria. The evaluation should support the contractor's conclusions as to whether the regulations are met. State what the contractor did to evaluate the applicant's submittal. The contractor's evaluation may include verification that the applicant followed applicable regulatory guidance, performance of independent calculations, and validation that the appropriate assumptions were made. The contractor may state that certain information provided by the applicant was not considered essential to the contractor's review and was not reviewed by the contractor. While the contractor may summarize the information offered by the applicant in support of its application, the contractor should clearly articulate the bases for its conclusions. The documentation of the bases of the contractor's conclusions should be comprehensive, equally addressing the application sections which did not require independent calculations or requests for additional information as well as those requiring such efforts.

Contractor should provide a clear and concise description of any request for additional information (RAIs). The description should include a justification of the requested information that the requested information is not provided in the application and is absolutely needed to determine or confirm whether the relevant regulatory requirements (articulate specific requirements) have been met. The contractor should discuss its technical evaluation of the licensee's response to the RAIs and determine whether it is acceptable. The contractor should clearly articulate the bases for its acceptance or rejection. If the RAI response is not acceptable, it will be classified as an 'open item'. All open items will be resolved in Phase 3.

**Attachment 1 (Continued)**

X.Y.Z.4 Conclusions

The contractor shall follow the suggested language provided in the Evaluation Findings section in SRP. Summarize the contractor's conclusions regarding the application, including words such as the following. As set forth above in Sections X.Y.Z.2 and X.Y.Z.3 of this report, [provide specific bases for conclusions that follow]. Accordingly, the staff concludes that the application meets[or, if applicable, does not meet] the relevant requirements of 10 CFR Part XX and is [or, if applicable, is not] acceptable.

X.Y.Z.5 References

**Attachment 2**

**Sample Request for Additional Information (RAI) Tracking Table**

**RAI Tracking Table  
AREVA NP U.S. EPR Design Certification – SER Section 3.8**

<b>RAI Number</b>	<b>Question Summary</b>	<b>Full RAI Text / Applicant Response / Staff Assessment</b>
3.8-xx	Provide a summary of the question	<p><u>Text:</u> <i>Provide full text of RAI.</i></p> <p><u>[Applicant Response] (xx/xx/0x):</u> <i>Summarize applicant response</i></p> <p><u>Staff Assessment:</u> <i>Provide a detail description of the staff assessment, technical basis, and conclusion [resolved/unresolved]</i></p> <p><u>Supplemental RAI (if any)</u> <i>Repeat the above entries.</i></p>

### Attachment 3

#### Sample Outline and Format for the Confirmatory Analysis Summary Report

In preparing the Confirmatory Analysis Summary Report provide the following information as a minimum.

**1. Introduction**

Summarize the background information for the overall technical assistance efforts. Describe the contractor's evaluation efforts and the role of the confirmatory analysis. Describe the arrangement of the report.

**2. Scope and Purpose of Confirmatory Analysis**

Explain the purpose and the objectives of the confirmatory analysis. Describe the scope of the analysis and its adequacy to provide reliable insight into the applicant's design. Explain how the objectives are achieved.

**3. Evaluation of Applicant's Analyses**

Summarize AREVA's approach to analyzing the Nuclear Island structures and other Category I structures. Describe the computer codes used, modeling approach, modeling assumptions, modeling parameters used in input, boundary conditions, loading conditions, critical sections presented in the application, and some key results. Provide the contractor's assessment of the adequacy of the above information.

**4. Confirmatory Analysis**

Describe the confirmatory analysis features including models, computer codes used, assumptions, parameters, boundary conditions, input, and loading. Summarize key results of the confirmatory analysis, especially those pertaining to critical sections and critical loading conditions.

**5. Analysis Results Assessment**

Provide comparisons between the confirmatory analysis results and those submitted by the applicant. Highlight agreement in results and identify and discuss deviations. Explain the technical bases for the deviations and their significance. Provide conclusions in terms of the adequacy of the applicant's design.

**6. Summary and Conclusions**

Summarize the evaluation findings and conclusions based on the efforts detailed in this report.