

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>		BPA NO.	1. CONTRACT ID CODE	PAGE 1	OF PAGE 1
2. AMENDMENT/MODIFICATION NO. 0002		3. EFFECTIVE DATE See Block 15c.	4. REQUISITION/PURCHASE REQ. NO. NRC-42-07-036 T89M2 0703689160	5. PROJECT NO. (if applicable)	
6. ISSUED BY U.S. Nuclear Regulatory Commission Div. of Contracts Attn: Jeffrey R. Mitchell, 301-492-3639 Mail Stop: TWB-01-B10M Washington, DC 20555		CODE 3100	7. ADMINISTERED BY (if other than item 6) U.S. Nuclear Regulatory Commission Div. of Contracts Mail Stop: TWB-01-B10M Washington, DC 20555		CODE 3100
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)  INFORMATION SYSTEMS LABORATORIES, INC ISL ATTN: DR. JAMES F. MEYER  11140 ROCKVILLE PIKE, SUITE 500  ROCKVILLE MD 20852			(X)	9A. AMENDMENT OF SOLICITATION NO.	
				9B. DATED (SEE ITEM 11)	
				10A. MODIFICATION OF CONTRACT/ORDER NO. NRC-42-07-036 0089	
CODE 107928806				10B. DATED (SEE ITEM 13) 09-12-2009	
FACILITY CODE			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) 025-15-171-103 Q4160 252A 31x0200.025  
Obligate \$100,000.00

**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 data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
X	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: <b>Bilateral Mutual Agreement of the Parties</b>
	D. OTHER (Specify type of modification and authority)

**E. IMPORTANT:** Contractor  is not,  is required to sign this document and return <sup>1</sup> \_\_\_\_\_ copies to the issuing office.

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

.....REFER TO ATTACHED PAGE TWO FOR A DESCRIPTION OF MODIFICATION NO. TWO.....

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) <i>Bruce B. Maruca</i> U.P.		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Jeffrey R. Mitchell Contracting Officer	
15B. CONTRACTOR/OFFEROR <i>[Signature]</i> (Signature of person authorized to sign)		15C. DATE SIGNED 4/28/2010	16B. UNITED STATES OF AMERICA BY <i>[Signature]</i> (Signature of Contracting Officer)
			16C. DATE SIGNED 4/28/2010

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

STANDARD FORM 50 (REV. 10-83)  
Prescribed by GSA - FAR (48 CFR) 53.243

**SUNSI REVIEW COMPLETE**

APR 30 2010

**ADM002**

TEMPLATE - ADM002

This confirms the verbal authorization given on April 22, 2010.

The purpose of this modification is to (1) to incorporate the revised Task Order Statement of Work, (2) increase the contract ceiling by \$165,076.00 from \$133,691.00 to \$298,767.00, (3) provide incremental funding in the amount of \$100,000.00 thereby increasing the total obligations from \$133,691.00 to \$233,691.00, and (4) extend the period of performance from October 31, 2010 to December 31, 2010. Accordingly, the subject task order is modified as follows:

Refer to the Task Order No. 89 "Statement of Work" is here by deleted in its entirety and replaced with the following Statement of Work attached to this Modification No. 2 entitled "Statement of Work Rev 1".

Task Order No. 89 shall be in effect from September 12, 2009 through December 31, 2010, with a cost ceiling of \$298,767.00. The amount of \$280,543.00 represents the estimated reimbursable costs, and the amount of \$18,314.00 represents the fixed fee.

The amount obligated by the Government with respect to this task order is \$233,691.00, of which \$219,366.00 represents the estimated reimbursable costs, and the amount of \$14,325.00 represents the fixed fee.

**\*\*\*\*ALL OTHER TERMS AND CONDITIONS OF THE SUBJECT TASK ORDER REMAIN UNCHANGED\*\*\*\***

**MODIFICATION NO. 2  
TASK ORDER STATEMENT OF WORK  
REVISION NO. 1**

JCN Q-4160	Contractor Information Systems Laboratories, Inc.	Task Order No. 89 (Mod 2)
Applicant AREVA	Design/Site EPR/NA	Docket No. 5200020
Title/Description Support of Safety Evaluation Report Review with Respect to Reactor Systems Design Certification for Areva EPR		
TAC No. RX0683	B&R Number 025-15-171-103	SRP Section(s) or ESRP Tier 2 Chapters 4, 5, 6, 7, 9, 14 and their associated Tier 1 sections
NRC Task Order Project Officer (PO) Min Lee		301-415-0502 <a href="mailto:Min.Lee@nrc.gov">Min.Lee@nrc.gov</a>
NRC Technical Monitor (TM) John T. Budzynski		301-415-1979 <a href="mailto:John.Budzynski@nrc.gov">John.Budzynski@nrc.gov</a>

**1.0 BACKGROUND**

AREVA (NP) submitted to U.S. Nuclear Regulatory Commission (NRC) the design certification document (DCD) for its application of Evolutionary Pressurized Reactor (EPR) in December, 2007.

A Standard Review Plan (NUREG-0800) is 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 staff safety reviews. As part of the full scope of EPR DCD review staff of Reactor Systems, Nuclear Performance & Code Review Branch (SRSB) will conduct review of important parts of DCD corresponding to SRP Chapter 15 and other reactor system related design features in SRP chapter 4, 5, 6, 7, 9 and 14 and Regulatory Guide 1.206 Chapter 15.

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 assist the staff in determining the adequacy of the AREVA EPR design certification application relating to sections of SRP Chapters listed in Table 2.0, other reactor system design features, and applications of topical report results. **Obtain technical expertise to assist the staff in determining the adequacy of the AREVA EPR design certificate application to meet appropriate regulatory requirements related to SRP Chapters 7 and 15 and other reactor systems safety related design features with respect to diversity and defense-in-depth.**

The objective of this revised task order is to review and determine the acceptability of the proposed operator responses and the supporting analysis of all AOOs with the presence of a common mode failure of the reactor protection system. Review DC applicant's submittals that address how the reactor system diversity and defense-in-depth I&C design features will be implemented. The DC applicant's submittals may reference proprietary supporting documents, in which case, the review of these referenced documents may be performed at the applicant's offices to determine the acceptability of the design.

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 staff's Safety Evaluation Report (SER) which will document the NRC's technical, safety, and legal basis for approving the DC application. The TER must provide sufficient information to adequately explain the rationale for why there is reasonable assurance that public health and safety is protected. 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 present TER format for EPR DCD evaluation will be used. The specific work and schedule required for this task order is provided in Section 3.

Table 2.0

<b>SRP &amp; EPR DCD SECTION</b>	<b>RG 1.206 SECTIONS</b>	<b>SRP SECTION TITLE</b>	<b>EPM FINISH DATE</b>
4.3	C.1.4.3	Nuclear Design	9/15
4.4	C.1.4.4	Thermal and Hydraulic Design	9/15
4.6	C.1.4.6	Functional Design of Control Rod Drive System	9/15
5.2.2	C.1.5.2.2	Overpressure Protection	8/31
5.4	C.1.5.4	Reactor Coolant System Component and Subsystem Design	8/31
5.4.7 (Tier 1, 2.2.3)	C.1.5.4.7	Residual Heat Removal (RHR) System	8/31
5.4.11	C.1.5.4.11	Pressurizer Relief Tank	8/31
5.4.12	C.1.5.4.12	Reactor Coolant System High Point Vents	8/31
6.3	C.1.6.3	Emergency Core Cooling System	9/15
7.8	N/A	<b>Diverse I &amp; C Systems</b>	<b>9/15</b>
9.3.4 (Tier 1, 2.2.6)	C.1.9.3.4	Chemical and Volume Control System (Including Boron Recovery System)	8/31
14.2	C.1.14.2	Initial Plant Test Program - Design Certification and New License Applicants	8/31
SRP 14.3.4 DCD 14.3	C.1.14.3	Reactor Systems - Inspections, Tests, Analyses, and Acceptance Criteria	9/15

Note: All sections refer to DCD Tier 2 except as noted for DCD Tier 1

**3.0 WORK REQUIREMENTS, SCHEDULE AND DELIVERABLES**

Tasks/Standards	Scheduled Completion	Deliverables
<p>1. Become familiar with the EPR DCD sections listed in Table 2.0, staff draft Safety Evaluation Report (SER) and relevant material related to GSI, USI, GL, BL and TMI action items.</p> <p><b>1a. Become familiar with SRP Chapters and the related EPR DCD sections of 6.3, 7.8, and 15.</b></p> <p><b>1b. Participate in an orientation/kick-off meeting with the NRC staff to discuss the scope of the work, expectations and task order management.</b></p>	<p>Two weeks after authorization of work.</p> <p><b>1a &amp; b. Two weeks after authorization of work.</b></p>	<p>N/A</p>
<p>2. Review the draft SER for the sections listed in Table 2.0 in respect to SRP sections and all GSI related action items (GSI, USI, GLs, BLs, and TMI action items), and open items.</p> <p><b>STANDARD: Ensure that the SER satisfies the NRC requirements listed in the documents stated above.</b></p> <p>2a. Review the draft SERs in respect to the submitted DCD material, supporting technical reports, and RAI responses for completeness.</p> <p>Identify discrepancies including technical issues and those aspects of the application between SERs and DCD that need additional or clarifying information.</p> <p>Evaluate RAI responses to determine if the outstanding issues are adequately addressed in the draft SERs. Identify open items.</p>	<p>No later than August 19, 09. (For DCD sections due August 31.)</p> <p>No later than August 31, 09. (For DCD sections due September 15.)</p> <p>(See Table 2.0)</p>	<p>1. Provide weekly status reports.</p> <p>2. Deliver SER identifying potential technical issues and open items.</p> <p>3. Provide a summary report documenting the all changes to SERs.</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>3. Review relevant sections in Chapter 15 in respect to DCD sections and in conjunction with Task 4.</p> <p><b>3a. Review the relevant sections in Chapter 15 in respect to DCD Subsections 6.3 and 7.8 and in conjunction with technical report.</b></p> <p><b>3b. Determine the technical adequacy that the methods and approach proposed by the applicant satisfy the diversity and defense-in-depth requirements.</b></p> <p><b>(1) Ensure that the limiting events are adequately evaluated in the technical report.</b></p> <p><b>(2) Perform confirmatory runs of the transient events identified in the Technical Report and compare the results to the technical report results.</b></p> <p><b>(3) Identify and include an explanation of the differences between the two analysis in the TER (Subtask 4a).</b></p> <p><b>3c. Identify any significant technical issues not already identified by the NRC staff and prepare Requests for Additional Information. Review RAI responses from AREVA to determine if they adequately resolve the outstanding issues. As needed and requested by the staff, provide technical support during teleconferences and meetings with AREVA to resolve technical issues associated with the analyses provided in the topical report. Prepare a Draft Technical Evaluation Report (TER).</b></p> <p><b>STANDARD: Ensure that the SER satisfies the NRC requirements in respect to diversity and defense-in-depth.</b></p>	<p>See Task 2.a to meet phase 2 due date</p> <p><b>3a. Four weeks after authorization of work</b></p> <p><b>3b. Eight weeks after authorization of work</b></p> <p><b>3c. 2 weeks after receipt of responses to Requests for Additional Information</b></p>	<p>1. In conjunction with Task 4, provide completed SER with open items.</p>
<p>4. Review relevant applications of EPR Topical Reports to DCD sections.</p>	<p>See Task 2.a to meet phase 2 due date</p>	<p>See Task 3</p>

Tasks/Standards	Scheduled Completion	Deliverables
4a. Review the applicant's responses to the open items identified as a result of the detailed review and design audit (if applicable). Identify any unresolved issues. Prepare a final technical evaluation report (TER).	4 weeks after receipt of the responses	Technical Evaluation Report
5a. Develop ACRS presentation slides and material for staff to review and modify the SER based on staff's comments. Support staff's ACRS presentations.	No later than December 1, 2009.  TBD	1. ACRS presentation slides. 2. ACRS meeting trip report. 2. Provide weekly status report.
b. Finalize SER with open items based on staff comments and ACRS comments.	No later than 30 days after ACRS presentations.	1. Final SER with possible open items; 2. Provide weekly status report.

Note: NRC TM will determine what computer code would be used to perform the analysis at the initiation of this task.

\* 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 base 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 for this effort include:

1. All key technical staff including the project manager must have the following technical qualifications:
  - Extensive expertise of using computer codes and methodologies for the analyses of fuel, nuclear, thermal-hydraulic, and criticality analyses;

- **Minimum qualification:** Each of the proposed personnel should have analyzed at least four different PWR units. The qualification statements shall be substantiated by technical reports prepared by the proposed personnel.
- **Extensive regulatory analysis and review experience with Light-Water Reactor Design, Nuclear Fuel Design, Thermal-hydraulic Design, and System Analysis related to SRP Sections listed in Table 2.0 and associated PWR safety systems.**

**Minimum qualification:** The review work performed by the proposed staff is related to PWR SRP Sections listed in Table 2.0 submittals. The qualification needs to be substantiated by TER reports or other relevant technical reports.

2. **In addition to the specific qualifications noted above, the contractor shall provide individuals who have the required educational background and work experience to meet the objectives of the work specified in the revised task order.**

**All key technical staff including the project manager must have the following technical qualifications:**

- **Extensive expertise of using methodologies for performing diversity and defense-in-depth analysis of reactor systems**
  - **Extensive RELAP5/TRACE analysis of EPR LOCA and transient simulations**
  - **Reactor Core Analysis**
  - **New Reactor Designs**
  - **Plant (Systems) Engineering**
  - **Reactor Systems**
- **Extensive regulatory analysis and review experience with Light-Water Reactor Design Analysis related to SRP Chapter 15 and associated PWR reactor systems with respect to safety related applications.**
3. **The project manager shall be on a part time basis (less than 10% of his/her full time work load).**

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 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 (contractor, subcontractor, or consultant) 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 contract is subject to the NRC technical monitor's (TM) approval. This includes any proposed changes to 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 Manager 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 Task Order Project Officer 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-4160; Task Order No.: 89; Technical Assignment Control Number (TAC): RX0683; the licensee: AREVA; and, the site: N/A.

## **6.0 MEETINGS AND TRAVEL**

One, three-person, two-day meeting with ACRS.

\* At the discretion of the NRC TM, meetings may be conducted via telephone or video conference or changed.

## **7.0 NRC FURNISHED MATERIAL**

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

- a. CD-ROM containing AREVA EPR DCD Chapter 4, 5, 6, 9, and 14 sections and the relevant supporting materials from the DCD application.
- b. CD-ROM containing the Final Safety Evaluation Report of the DCD.

**8.0 PERIOD OF PERFORMANCE**

The period of performance is from 09/12/09 through 12/31/2010.

**9.0. OTHER APPLICABLE INFORMATION**

**a. License Fee Recovery**

- All work under this task order is fee recoverable and must be charged to the appropriate TAC number(s).

**b. Assumptions and Understandings:**

- The level of effort is based on the volume of materials to be reviewed; Task 1. is for familiarity and not for evaluation.
- The level of effort for Task 2 is based on the assumption that the contractor is familiar with the review procedures of SRP Sections listed in Table 2.0.
- All meetings and travels are estimated based on the current project plan which may be subject to change.
- It is assumed that the contractor has access to the NRC furnished material 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.