

**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

BPA NO. 1 CONTRACT ID CODE PAGE 1 OF PAGE 2

2. AMENDMENT/MODIFICATION NO. 0003	3. EFFECTIVE DATE See Block 15c.	4. REQUISITION/PURCHASE REQ. NO. 0703616160	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  CODE 107928806 FACILITY CODE	(X)	9A. AMENDMENT OF SOLICITATION NO.
		9B. DATED (SEE ITEM 11)
		10A. MODIFICATION OF CONTRACT/ORDER NO. NRC-42-07-036 0016
	X	10B. DATED (SEE ITEM 13) 01-11-2008

**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.B.&R 025-15-171-103; JC: Q-4160; BOC: 252A  
APPN: 31X0200.025; Obligate: \$92,627.00

**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 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) Bilateral Mutual Agreement of Both 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.)

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

Task Order Ceiling Amount: \$754,838.00 (changed)  
 Total Obligated Amount: \$714,283.00 (changed)  
 Period of Performance: 01/24/08 - 09/15/10 (changed)

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) James F. Meyer, Special V.P.	15B. CONTRACTOR/OFFEROR 	15C. DATE SIGNED 1/19/10	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Jeffrey R. Mitchell Contracting Officer	16B. UNITED STATES OF AMERICA BY	16C. DATE SIGNED 1/19/2010
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NSN 7540-01-152-8070 PREVIOUS EDITION NOT USABLE

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

TEMPLATE - ADM001

SUNSI REVIEW COMPLETE

JAN 14 2010

ADM002

The purpose of this modification is to (1) to incorporate the revised task order Statement of Work, (2) increase the contract ceiling by \$133,182.00 from \$621,656.00 to \$754,838.00, (3) provide incremental funding in the amount of \$92,627.00 thereby increasing the total obligations from \$621,656.00 to \$714,283.00 (4) extend the period of performance from July 23, 2010 to September 15, 2010 and (5) accept ISL's 2009 Provisional Billing/Forward Pricing Rates for this Task Order No. 16.

Accordingly, the subject task order is modified as follows:

Refer to the Task Order No. 16 "Statement of Work" is here by deleted in its entirety and replaced with the following Statement of Work attached to this Modification No. 3 entitled "Statement of Work Rev 2".

Task Order No. 16 shall be in effect from January 24, 2008 through September 15, 2010, with a cost ceiling of \$754,838.00. The amount of \$703,808.00 represents the estimated reimbursable costs, and the amount of \$51,030.00 represents the fixed fee.

The amount obligated by the Government with respect to this task order is \$714,283.00, of which \$665,995.00 represents the estimated reimbursable costs, and the amount of \$48,288.00 represents the fixed fee.

**A.1 2052.216-71 INDIRECT COST RATES (JAN 1993)**

(a) Pending the establishment of final indirect rates which must be negotiated based on audit of actual costs, the contractor shall be reimbursed for allowable indirect costs as follows:

APPLIES ONLY TO TASK ORDER NO. 16, UNDER NRC-42-07-036

INDIRECT COST POOL	RATE	BASE	PERIOD
Fringe Benefits		Direct Labor	January 1, 2009 - Task 16 Expiration
Overhead		Direct Labor	January 1, 2009 - Task 16 Expiration
G&A		Total Value Added Cost Input	January 1, 2009 - Task 16 Expiration
Material Handling		Materials and Subcontractor	January 1, 2009 - Task 16 Expiration
		Costs	

(b) The contracting officer may adjust these rates as appropriate during the term of the contract upon acceptance of any revisions proposed by the contractor. It is the contractor's responsibility to notify the contracting officer in accordance with FAR 52.232-20, Limitation of Cost, or FAR 52.232-22, Limitation of Funds, as applicable, if these changes affect performance of work within the established cost or funding limitations.

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

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

JCN Q4160	Contractor ISL, Inc.	Task Order No. NRC-42-07-036 (16) <b>(Modification 3)</b>
Applicant AREVA	Design/Site EPR	Docket No. 5200020
Title/Description AREVA EPR Design Certificate Document Chapter 15 Review Support Activity		
TAC No. RX0149	B&R Number <b>025-15-171-103</b>	SRP Section(s) or ESRP Chapter 15
NRC Technical Assistance Project Manager (TAPM)		
Min Lee	301-415-0502	Min.Lee@nrc.gov
NRC Technical Monitor (TM)		
Fred Forsaty	301-415-8523	Fred.Forsaty@nrc.gov

**1.0 BACKGROUND**

AREVA (NP) submitted to U.S. Nuclear Regulatory Commission (NRC) the design certificate document (DCD) for its application of Economical Pressurized Reactor (EPR) in December, 2007. NRC staff has initiated the acceptance review of DCD and conduct design certificate review after the acceptance review indicates the adequacy of the design.

A Standard Review Plan (SRP) (NUREG-0800) is prepared for the guidance of staff reviewers in the Office of New Reactors in performing safety reviews of new reactor design certification applications. 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, staffs 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, 9 and 14 and Reg 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 certificate application relating to SRP Chapter 15 and other reactor system design features.

### 3.0 WORK REQUIREMENTS, SCHEDULE AND DELIVERABLES

Tasks/Standards	Scheduled Completion	Deliverables
<p>1. Become familiar with SRP Chapter 15. and all the TMI action items, Generic Safety Issues (GSI), Unresolved Safety Issues (USI), Generic Letter (GL) and Bulletins (BL) documented in Chapter 15, Regulatory Guide 1.206.</p> <p>STANDARD: Written confirmation that familiarization is complete</p>	<p>One week after authorization of work.</p>	<p>A memo documenting the completion of reading the SRP Chapter 15 and TMI action items, GSI, USI, GL and BLs.</p>
<p>2. Participate in an orientation/kick-off meeting with the NRC staff and AREVA to become familiar with the Chapter 15 of DCD submittals and relevant material related to GSI, USI, GL, BL and TMI action items.</p> <p>STANDARD: Attendance by individuals designated by NRC technical monitor.</p>	<p>Two weeks after authorization of work.</p>	<p>N/A</p>
<p>3. Review the DCD application Chapter 15 to determine the completeness and overall technical adequacy of the DCD submittals. Communicate immediately with staff regarding any issues related to the completeness and technical adequacy of DCD.</p>	<p>Five weeks after authorization of work or directed by the technical monitor.</p>	<p>A memo documenting the results of acceptance review.</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>4. Review Chapter 15.0-15.4 and all GSI related action items (GSI, USI, GLs, BLs and TMI action items).</p> <p>Determine if the methods and approach proposed by the applicant meet the review guidance. Identify issues and the need for any additional or clarifying information (requests for additional information, RAIs). Identify those aspects of the application that need additional or clarifying information (RAIs). Evaluate the applicant analysis using NRC's confirmatory analysis results of TRACE EPR model. Thoroughly review AREVA SRELAP-5 EPR model and its development process. Based on the review, prepare a Technical Evaluation Report (TER).</p> <p>STANDARD: Complete Technical Evaluation Report that follows the NRC provided template without deviation. However, if deviation is needed, prior approval of the template from NRC technical monitor is needed.</p>		
<p>a. Prepare and participate the NRC on-site review activity to interact with AREVA technical staff and identify additional supporting materials needed to support the official RAI and TER development.</p>	<p>Two weeks after the initiation of official DCD review or notified by the NRC technical monitor.</p>	<p>Trip report with the list of additional technical reports and draft RAIs, which identify the potential technical issues.</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>b. Review the submitted DCD material and supporting technical reports and develop 1<sup>st</sup> round of RAIs and participate meetings with staff and AREVA personals.</p> <p>Identify the most limiting accident scenarios for LOCA, AOO and RIA events. Recommend the confirmatory analysis cases to the staff.</p>	<p>Starting from the official initiation of DCD review for ten working weeks.</p>	<ol style="list-style-type: none"> <li>1. Provide weekly status reports.</li> <li>2. Deliver draft RAIs identifying potential technical issues.</li> <li>3. Deliver 1<sup>st</sup> draft TER following NRC's SER template.</li> <li>4. Provide a summary report documenting the identified confirmatory cases.</li> </ol>
<p>c. Evaluate and discuss the applicant's responses to the 1<sup>st</sup> round of RAIs identified in Task 4.b to determine if the outstanding issues are adequately resolved.</p>	<p>Eleventh to sixteenth week into the DCD review.</p>	<ol style="list-style-type: none"> <li>1. Provide weekly status reports.</li> <li>2. Incorporate the resolved RAIs into the draft TER.</li> </ol>
<p>c1. Review AREVA Boron Precipitation Technical report. Prepare 2<sup>nd</sup> round of RAIs and prepare TER as part of Section 15.6.5 TER development.</p>	<p>Complete the work before May 30, 2009. Follow-up support if Tech Report is revised- complete by 7/1/2010</p>	<p>Phase 2 TER.</p>
<p>c2. Review three topical report SEs (LBLOCA, Fuel Mechanical and Set Point Methodology). Identify the limitations and evaluate the impacts of these limitations to Chapter 15 analysis. Develop technical constraints and proper ITTAC and follow-up conditions and items.</p>	<p>Complete the work before May 30, 2009. Follow-up support if Tech Report is revised- complete by 7/1/2010</p>	<p>Phase 2 TER.</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>c3. Additional LOCA calculations will be performed as the results of latest RAIs sent to AREVA. Review the modified FSAR sections and relevant new calculation reports and develop Phase Two TER input on Section 15.6.5.</p> <p><b>Review Boron Precipitation, Boron Dilution, Long Term Cooling and Core Downstream activities. Assist staff with the RAIs and review of the RAI responses. Travel to NRC to participate in public and ACRS meetings and NRC sponsored Audits.</b></p> <p><b>Review and provide interface to EPR RLBLOCA Topical.</b></p>	<p>Complete the work before May 30, 2009. Follow-up support if Tech Report is revised- complete by 7/1/2010</p> <p><b>Complete the work before February 28, 2010. Follow-up support if Tech Report is revised.</b></p> <p><b>Complete by July 28, 2010</b></p>	<p>Phase 2 TER input.</p> <p><b>Phase 2 TER input.</b></p>
<p>c4. Travel to NRC and perform S-RELAP5 EPR LBLOCA sensitivity runs and Develop technical positions relevant to core flow oscillation, vessel pressurization and other significant issues identified through RAI process.</p>	<p>Complete the work before May 30, 2009</p>	<p>Phase 2 TER input.</p>
<p>d. Review the submitted DCD material and supporting technical reports and develop 2<sup>nd</sup> round of RAIs based on the 1<sup>st</sup> round of RAI responses and participate meetings with staff and AREVA personals.</p>	<p>Seventeenth to eighteenth week into the DCD review.</p>	<p>1. Deliver 2<sup>nd</sup> draft RAIs identifying potential technical issues.</p> <p>2. Provide weekly status report.</p>
<p>e. Review ARVA's technical reports about reflux condensation during SBLOCA and Boron precipitation during LBLOCA. Identify potential technical issues and RAIs.</p>	<p>Nineteenth to twenty first weeks into the DCD review.</p>	<p>1. Deliver a summary review report.</p> <p>2. Provide weekly status report.</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>f. Evaluate and discuss the applicant's responses to the 2<sup>nd</sup> round of RAIs identified in Task 4.d to determine if the outstanding issues are adequately resolved. Identify open items.</p>	<p>Twenty first to twenty fifth week into the DCD review.</p>	<p>1. Deliver a draft TER with open items identified. 2. Provide weekly status report.</p>
<p>g. Develop ACRS presentation slides and material for staff to review and modify the TER based on staff's comments. Support staff's ACRS presentations.</p>	<p>Twenty fifth to twenty eighth week into the DCD review.</p>	<p>1. ACRS presentation slides. 2. ACRS meeting trip report. 2. Provide weekly status report.</p>
<p>h. Finalize TER with open items based on staff comments and ACRS comments.</p>	<p>Twenty ninth to thirty second week into the DCD review.</p>	<p>1. Final TER with possible open items; 2. Provide weekly status report.</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>5. Use the EPR TRACE and RELAP-5 models developed by NRC Office of Regulatory Research to perform EPR cold leg and hot leg large break LOCA analysis.</p> <p>a. Update the EPR model using the latest information provided by AREVA. Meet with NRC TM to discuss the status of the work.</p> <p>b. Finalize the model change with detailed steady state calculation and document all the changes in a complete written report with a proper QA review.</p> <p>c. In parallel of Task 5.c, use the EPR model to perform the EPR cold leg and hot leg large break LOCA scoping analyses until the long term cooling is achieved.</p> <p>d. After the completion of Task 5.b and Task 5.c, finalize the EPR LBLOCA analysis and prepare a complete written report with a proper QA review. The detailed calculation report shall describe the detailed progression of the LBLOCA scenario and consolidate Task 5.b report with this report.</p> <p>e. Provide a Power Point presentation summarizing the calculation results of the final EPR calculation report and meet with NRC technical staff to discuss any findings.</p> <p>f. Travel to NRC to participate in a meeting with ACRS. Prepare a summary meeting notes.</p> <p>Note: NRC TM will determine what computer code would be used to perform the analysis at the initiation of this task.</p>	<p>One week after authorization of work or receiving the latest AREVA EPR information.</p> <p>Three weeks after initiation of Task 5.a.</p> <p>Three weeks after authorization of work.</p> <p>Four weeks after completion of Task 5.c</p> <p>One week after completion of Task 5.d</p> <p>Per TM direction</p>	<p>Provide a summary sheet documenting the model changes.</p> <p>Provide a complete model update report.</p> <p>Provide a calculation summary sheet documenting the key changes.</p> <p>Provide a complete EPR LBLOCA analysis report.</p> <p>Power Point presentation.</p> <p>ACRS meeting notes.</p>

\* These Work Schedules are subject to change by the NRC Contracting Officer (CO), Project Manager (NRC PM) and Technical Monitors to support the needs of the NRC Licensing Program Plan.

#### **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 RELAP-5 and TRACE code to perform PWR steady state, LOCA and AOO analyses;

Minimum qualification: Each of the proposed personnel should have analyzed at least four different PWR units. For each unit, the proposed candidate should have analyzed at least SBLOCA and LBLOCA and two most DNBR limiting transients. The qualification statements shall be substantiated by technical reports prepared by the proposed personnel.

- Extensive knowledge of RELAP-5 and TRACE code internal numerical schemes and physical models;

Minimum qualification: Each of the proposed personnel should have at least participated in the RELAP-5 code and TRACE code development work. The work experience needs to be substantiated by technical reports prepared by the proposed personnel. The reports need to demonstrate the depth of the numerical scheme and the model development work, the impact of the model on code performance and the associated assessment work. Technical papers or reports, including publications are considered essential evidence to demonstrate the person's qualification.

- Extensive regulatory analysis and review experience with SRP Chapter 15 and associated PWR safety systems.

Minimum qualification: The review work performed by the proposed staff is related to PWR Chapter 15 submittals. The qualification needs to be substantiated by TER reports or other relevant technical reports.

2. The project manager shall be on a part time basis (30% 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) and Contracting Officer (CO) 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, TAPM 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 WordPerfect 10.0 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 TAPM 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; **TAC No.: RX0149**; Task Order: 16 the applicant: AREVA.

## **7.0 MEETINGS AND TRAVEL**

Two three-person, one-day working meeting to kickoff project and contractor orientation at NRC headquarters.

One two-person, 5-day on-site DCD review trip to Lynchberg, VA.

**One three-person, two-day meeting to discuss topical report review.**

One three-person, two-day meeting with ACRS

One person 5-day computer analysis using NRC's HP workstation.

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

## **8.0 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 15 sections and the relevant supporting materials from the DCD application.
- b. CD-ROM containing the Final Safety Evaluation Report of the DCD.

## **9.0 PERIOD OF PERFORMANCE**

The period of performance is from January 24, 2008 through September 15, 2010.

## **10.0 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 4 is based on the assumption that the contractor is familiar with the review procedures of SRP 15.0-15.4.
- All meetings and travels are estimated based on the current project plan which may subject to change.
- It is assumed that the contractor has access to the NRC furnished material.
- 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.