

2. AMENDMENT/MODIFICATION NO. 0005 3. EFFECTIVE DATE See Block 15c. 4. REQUISITION/PURCHASE REQ. NO. 0703661160 5. PROJECT NO. (if applicable)

6. ISSUED BY CODE 3100 7. ADMINISTERED BY (if other than Item 6) CODE 3100
 U.S. Nuclear Regulatory Commission U.S. Nuclear Regulatory Commission
 Div. of Contracts Div. of Contracts
 Attn: Jeffrey R. Mitchell, 301-492-3639 Mail Stop TWB 01-B10M
 Mail Stop TWB 01-B10M Washington, DC 20555
 Washington, DC 20555

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 0061
 10B. DATED (SEE ITEM 13) 09-17-2008

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) 025-15-171-103 Q4160 252A 31x0200.025
 Obligate \$54,991.00

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).
 C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: Bilateral
 Mutual Agreement of the Parties
 D. OTHER (Specify type of modification and authority)

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.)
 This confirms the verbal authorization given to extend the period of performance from November 15, 2009 to September 30, 2010.

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

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) 16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
 James F. Meyer, Senior V.P. Jeffrey R. Mitchell
 Contracting Officer
 15B. CONTRACTOR/OFFICER'S SIGNATURE 15C. DATE SIGNED 16B. UNITED STATES OF AMERICA 16C. DATE SIGNED
 (Signature of person authorized to sign) 1/14/10 BY Jeffrey R. Mitchell 1/14/2010
 (Signature of Contracting Officer)

TEMPLATE - ADMOD SUNSI REVIEW COMPLETE JAN 14 2010 ADMOD?

NRC-42-07-036 0061 0005

The purpose of this modification is to (1) to incorporate the revised task order Statement of Work, (2) extend the period of performance from November 15, 2009 to September 30, 2010, (3) increase the contract ceiling by \$54,991.00 from \$235,896.00 to \$290,887.00, and (4) provide incremental funding in the amount of \$54,991.00 thereby increasing the total obligations from \$235,896.00 to \$290,887.00.

Accordingly, the subject task order is modified as follows:

Refer to the Task Order No. 61 "Statement of Work" is here by deleted in its entirety and replaced with the following Statement of Work attached to this Modification No. 5 entitled "Statement of Work Rev 3".

Task Order No. 61 shall be in effect from September 17, 2008 through September 30, 2010, with a cost ceiling of \$290,887.00. The amount of \$271,228.00 represents the estimated reimbursable costs, and the amount of \$19,659.00 represents the fixed fee.

The amount obligated by the Government with respect to this task order is \$290,887.00, of which \$271,228.00 represents the estimated reimbursable costs, and the amount of \$19,659.00 represents the fixed fee.

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

TASK ORDER STATEMENT OF WORK
REVISION NO. 3

JCN Q4160	Contractor ISL	Task Order No. NRC-42-07-036 (61) Modification 5
Applicant AREVA	Design/Site EPR	Docket No. 05200020
Title/Description AREVA EPR Realistic Large Break Topical Report Review Support Activity		
TAC No. RX0503	B&R Number 025-15-171-103	SRP Section(s) or ESRP Chapter 15
NRC Task Order Project Officer (PO)		
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 topical report (TR); "U. S. EPR Realistic Large Break Loss of Coolant Accident Topical Report", Doc. Number: ANP-10278 (P) R0 for review by the nuclear regulatory commission (NRC). As indicated in the TR, this TR contains information that AREVA considers proprietary, and therefore should be withheld from disclosure pursuant to 10 CFR 2.390 (a)(4) and 10CFR 9.17 (a)(4).

In addition, AREVA references topical report "Fluence and Uncertainty Methodologies" BAW-2241P-A R2 (ML0733106610) in Chapter 5 with respect to monitoring and calculating the peak reactor vessel wall fluence. The content of FSAR Chapters 4 and 5 must sufficiently address the fluence monitoring and calculations in compliance with NRC regulations and the approved topical report.

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 TR review, NRC staffs will conduct review of important parts of the TR 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 the following areas:

Task 1 - determine the adequacy of AREVA EPR RLBLOCA topical report (TR), the relevant application of this TR to EPR FSAR Chapter 15.

Task 2 - perform additional confirmatory analysis to support staff review of FSAR Chapter 15 and Chapter 6.

Task 3 – Support NRC staff on EPR phase 2 review and relevant topical report review such as perform an evaluation to ensure that the peak reactor vessel wall fluence for the design life of the plant is sufficiently addressed in FSAR Sections 4.3, 5.3.1 and 5.3.2 in accordance with the guidance of SRPs 4.3, 5.3.1, and 5.3.2 and AREVA "Fluence and Uncertainty Methodologies"

topical report, BAW-2241P-A R2 (ML0733106610). In addition, evaluation of FSAR Chapter 15 sections as directed by NRC staff.

3.0 WORK REQUIREMENTS, SCHEDULE AND DELIVERABLES

Task 1- Realistic LBLOCA related work

Subtask Description	Due Date Or Days
1.1 Become familiar with Topical Report and associated references	2 weeks after authorization of work
1.2 Detailed review of the Topical Report and two rounds of RAI responses to determine its adequacy. Determine if the methods and approach proposed by the applicant meet the appropriate review guidance. Identify issues and those aspects of the application that need additional or clarifying information. a. Prepare draft questions as input to a formal Request for Additional Information (RAI). b. Prepare a draft technical evaluation report (TER).	3 weeks after authorization of work
1.3 Review responses to the RAI questions and the NRC comments to determine if they adequately resolve the outstanding issues. Identify any other open items.	5 days after receipt of the responses.
1.4 Review the applicant's response to the open items identified as a result of the design audit (Tasks 4 and 5). Identify any unresolved issues. Prepare a technical evaluation report (TER) documenting the results of the review, including a summary of the review and evaluation of the applicant's responses to the RAIs. Determine their acceptability and identify limitations and conditions of the topical report. a. Draft. b. Incorporate NRC comments and prepare the final report.	2 weeks after receipt of final set of RAI responses 1 week after receipt of NRC comments
1.5 Prepare a slide presentation for an ACRS subcommittee meeting at NRC Headquarters, travel and participate in the subcommittee meeting. Prepare a trip report. Specifically, a. Prepare slides summarizing the Topical Report and presenting the review conclusions. (1) Draft presentation slides. (2) Incorporate NRC comments and prepare the final slides. b. Travel to NRC HQ and participate in the ACRS meeting. c. Prepare a trip report.	6 weeks before ACRS meeting (TBD) 1 week after receipt of NRC comments 3 days (TBD) 1 day after trip

Task 2- Confirmatory Analyses

Subtask Description	Due Date Or Days
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Subtask Description	Due Date Or Days
2.1 Hot leg breaks for M&E release (Pcont=14.7 psia, ECCS Trains 1 & 4 available) a. Run 1 has 4 AFW; Run 2 has 2 AFW available b. TO DO: i. Model break valves/cont. cells ii. Control system for M&E release iii. Set Pcont to 14.7 psia iv. Add control system for Vapor generation v. Make 2 runs and do the plots	1 week after authorization of work or directed by the technical monitor
2.2 Pump Suction breaks for M&E release (Pcont=14.7 psia, ECCS trains 1 & 4 available) a. Run 1 has 4 AFW; Run 2 has 2 AFW available b. TO DO: i. Set Pcont to 14.7 psia ii. Add control system for Vapor generation iii. Make 2 runs and do the plots	2 weeks after authorization of work or directed by the technical monitor
2.3 Pump Suction break with high Kr at core inlet (effect on M&E) a. Restart of Existing run.	3 weeks after authorization or directed by the technical monitor
2.4 SNAP Animation a. Create SNAP animation for RELAP5 LBLOCA runs	4 weeks after authorization of work
2.5 QA of RELAP5 deck used in Items 1 – 3 a. Compare RELAP5 to SRELAP5 input b. QA changes made to model to do LBLOCA runs vi. Core renoding vii. Break modeling viii. Additional control systems c. QA of database items at AREVA Rockville office	5 weeks after authorization of work
2.6 Examine 6.5" SBLOCA with various RCP trip times. a. Modify LBLOCA deck for SBLOCA i. MSRT operation ii. Break model b. Run base SBLOCA deck. c. Reruns: 2-3 SBLOCAs with differing RCP trip times	6 weeks after authorization of work
2.7 Rerun Cold Leg LBLOCA with high Kr at core inlet (effect on PCT) a. Restart at time LP is refilled and use large Kr at core inlet	7 weeks after authorization of work
2.8 Documentation a. Development of model from SRELAP5 & subsequent modifications b. Documentation of LBLOCA PCT runs c. Documentation of LBLOCA M&E runs	12 weeks after authorization of work

Subtask Description	Due Date Or Days
2.9 Documentation a. Development of model from SRELAP5 & subsequent modifications based on AREVA's <u>modified LBLOCA runs.</u> b. Documentation of 2009 LBLOCA PCT runs c. Documentation of 2009 LBLOCA M&E runs	12 weeks after authorization of work

Task 3.1 - Reactor wall fluence monitoring and calculations

Subtask Description	Due Date Or Days
3.1.1 Become familiar with Fluence Topical Report and associated sections of Chapters 4 and 5 with regard to reactor vessel fluence.	2 days after authorization of work
3.1.2 Review of the Sections 4.3, 5.3.1 and 5.3.2 and two rounds of RAI responses to determine its adequacy. Determine if the sections meet the appropriate review guidance with regard to reactor vessel fluence. Identify issues and those aspects of the application that need additional or clarifying information. a. Prepare draft questions as input to a formal Request for Additional Information (RAI). b. Prepare a supplemental statement to incorporate into phase 2 TER for these sections	5 days after authorization of work
3.1.3 Review responses to the RAI questions and the NRC comments to determine if they adequately resolve the outstanding issues. Identify any other open items.	2 days after receipt of the responses
3.1.4 Review the applicant's response to the open items. Finalize the supplemental statement including documenting the results of the review, including a summary of the review and evaluation of the applicant's responses to the RAIs. Incorporate the supplemental statement into phase 2 TER for FSAR Sections 4.3 and 5.3.	4 days after receipt of the responses

Task 3.2 – FSAR Chapter 15 Evaluation

Subtask Description	Due Date Or Days
3.2.1 Become familiar with significant issues identified by the NRC staff in Chapter 15 and associated topical reports.	3 days after authorization of work
3.2.2 Evaluate FSAR Chapter 15 and associated topical reports to address and resolve significant issues identified in Task 3.2.1 and prepare RAIs.	2 weeks after authorization of work
3.2.3 Review responses to the RAI questions and the NRC comments to determine if they adequately resolve the outstanding issues. Identify any other open items.	20 days after receipt of the responses

3.2.4 Review the applicant's response to the open items. Finalize the supplemental statement including documenting the results of the review, including a summary of the review and evaluation of the applicant's responses to the RAIs. Incorporate the supplemental statement into phase 2 TER for FSAR Chapter 15 related sections as directed by the NRC staff.	30 days after receipt of the responses
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* 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 RELAP-5 and TRACE code to perform PWR steady state, LOCA and AOO analyses.
 - Extensive knowledge of RELAP-5 and TRACE code internal numerical schemes and physical models.
 - Extensive regulatory analysis and review experience with SRP Chapter 15 and associated PWR safety systems.
 - Experience and working knowledge of EPR Chapter 15 review activities.
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's) 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 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 Q4160; Technical Assignment Control No. (TAC): RX0503; Task Order 61; the applicant: AREVA; and, the site: EPR.

1. At the completion of Task 1.4, submit a Technical Evaluation Report (TER) that contains, for each Sub-section of the SER (see Attachment 1 for the outline, format and content of the report): 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 Requests for Additional Information (RAIs). See Attachment 1, Section J in the base contract SOW for guidelines for developing RAIs.
2. At the completion of Task 2.8, submit a report; a) documenting the work under task 2.5; b) discussion of the analyses performed, their results, validity of the results and possible implications of the results; c) documenting on a DVD the RELAP5 executables used, the base deck and the input decks for all the computer runs, output files and graphics files.
3. At the completion of Task 1.5, submit a trip report, as an input to NRC audit report, that contains a summary of documents audited, a summary of meeting discussion conducted with the applicant, list of outstanding issues, significance of these issues, and the basis for the conclusion. Submit a TER (see Attachment 1) that contains a safety evaluation report implementing the ACRS comments with open items resulting from the work performed under JCN Q4160, Task Order No. 61.

6.0 MEETINGS AND TRAVEL

- One three-person, one-day working meeting to kickoff project and contractor orientation at NRC headquarters.
- **One three-person, one day working meeting to discuss topical report content**
- 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 RLBLOCA Topical Report and the relevant supporting materials from the application.
- b. CD-ROM containing the Final Safety Evaluation Report of the DCD.

8.0 PERIOD OF PERFORMANCE

The projected period of performance **continues through 9/30/2010**.

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 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.

During the course of the review, the Technical Monitor, and possibly other NRC personnel, may travel to the contractor site 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 a meeting.

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 [ESP] [DC] [COL] application. The TER must provide sufficient information to adequately explain the NRC staff's 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 TER format is described in Attachment 1 to this Task Order Statement of Work.

Attachments:

1. Outline, Format, and Content for the TER Input