

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

BPA NO.

1. CONTRACT ID CODE

PAGE 1

OF PAGE 2

2. AMENDMENT/MODIFICATION NO. 0001

3. EFFECTIVE DATE See Block 15c.

4. REQUISITION/PURCHASE REQ. NO. 42-07-036T051M001 09703651160

5. PROJECT NO. (If applicable)

6. ISSUED BY CODE 3100

U.S. Nuclear Regulatory Commission Div. of Contracts Attn: Jeffrey R. Mitchell, 301-492-3639 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)

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 0051

10B. DATED (SEE ITEM 13) 08/13/2008

CODE 107928806

FACILITY CODE

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.

12. ACCOUNTING AND APPROPRIATION DATA (If required) 925-15-171-103 Q4160 252A 31x0200.925 Obligate \$7,020.00

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).

X 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, X is required to sign this document and return 2 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. ONE

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)

BRUCE B. MROWCA V.P.

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

Jeffrey R. Mitchell Contracting Officer

15B. CONTRACTOR/OFFEROR

Signature of person authorized to sign

15C. DATE SIGNED

6/9/2009

16B. UNITED STATES OF AMERICA

Signature of Contracting Officer

16C. DATE SIGNED

6/9/2009

This confirms the verbal authorization that was provided to Information Systems laboratories, Inc., on April 12, 2009, to continue the efforts under Task Order 51 to allow time for the NRC to negotiate a within scope modification, as indicated below.

The purpose of this modification is to (1) to incorporate the revised task order Statement of Work, (2) increase the contract ceiling by \$7,020.00 from \$63,544.00 to \$70,564.00, (3) provide incremental funding in the amount of \$7,020.00 thereby increasing the total obligations from \$63,544.00 to 70,564.00, (4) extend the period of performance from April 12, 2009 to November 30, 2009 and (5) accept ISL's 2009 Provisional Billing/Forward Pricing Rates for this Task Order No. 51. Accordingly, the subject task order is modified as follows:

Refer to the Task Order No. 51 "Statement of Work" is here by deleted in its entirety and replaced with the following Statement of Work attached to this Modification No. 1 entitled "Statement of Work Rev 1".

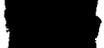
Task Order No. 51 shall be in effect from August 13, 2008 through November 30, 2009, with a cost ceiling of \$70,564.00. The amount of \$66,649.00 represents the estimated reimbursable costs, and the amount of \$3,915.00 represents the fixed fee.

The amount obligated by the Government with respect to this task order is \$70,564.00, of which \$66,649.00 represents the estimated reimbursable costs, and the amount of \$3,915.00 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. 51, UNDER NRC-42-07-036

INDIRECT COST POOL	RATE	BASE	PERIOD
Fringe Benefits		Direct Labor	January 1, 2009 - Task 51 Expiration
Overhead		Direct Labor	January 1, 2009 - Task 51 Expiration
G&A		Total Value Added Cost Input	January 1, 2009 - Task 51 Expiration
Material Handling		Materials and Subcontractor Costs	January 1, 2009 - Task 51 Expiration

(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 51 – MODIFICATION 1
STATEMENT OF WORK REVISION NO. 1

JCN Q4160	Contractor ISL	Task Order No. 51 (Modification 1)
Applicant Westinghouse	Design/Site AP1000/Design Certification	Docket No. 05200006
Title/Description AP1000 DC Amendment - Evaluation of BE Large-Break LOCA Analysis		
TAC No. RX0554	B&R Number 925-15-171-103	SRP or ESRP Section(s) Chapter 15.6.5
NRC Task Order Project Officer (PO)		
Richard Daniel	301-415-6319	Richard.Daniel@nrc.gov
NRC Technical Monitor (TM)		
Y. Gene Hsui	301-415-2877	Yi-hsiung.Hsui@nrc.gov

1.0 BACKGROUND

In 2007 Westinghouse Electric Company submitted an amendment request to the U.S. Nuclear Regulatory Commission (NRC) to revise the AP1000 Design Certification Rule per 10 CFR 50.63, "Finality of Standard Design Certifications." On January 18, 2008, NRC completed its acceptance review of the Design Certification Amendment (DCA) request and determined that Revision 16 to the AP1000 DC can be docketed.

By a letter dated February 15, 2008, Westinghouse submitted a 10 CFR 50.46 report to inform NRC of the emergency core cooling system (ECCS) evaluation model changes and errors for the AP1000 Standard Plant Design. The errors and changes of the ECCS EM are related to the best-estimate large-break loss-of-coolant accident (BELOCA) analysis, which is described in AP1000 Design Control Document (DCD) Section 15.6.5.4A. The AP1000 BELOCA analysis uses the WCOBRA/TRAC computer code to calculate large-break LOCA transient behavior, and the code scaling, applicability, and uncertainty (CSAU) methodology to assess uncertainties associated with the BELOCA analysis. Westinghouse discovered a programming error in the WCOBRA/TRAC HOTSPOT routine that causes an estimated peak cladding temperature (PCT) error of about 70°F. Therefore, Westinghouse informed the NRC of its intent to perform a re-analysis of the large-break LOCA with correction to the programming error, and to use the ASTRUM (automatic statistical treatment of uncertainty method) statistical method to assess the uncertainties. The ASTRUM method is also based on the CSAU methodology with one exception of using the non-parametric method to account for uncertainties. The ASTRUM method has been approved by the NRC for applications to the operating Westinghouse-designed PWRs. The NRC staff needs to review the revised WCOBRA/TRAC large-break LOCA analysis and the uncertainty evaluation using ASTRUM to confirm its compliance with the ECCS acceptance criteria specified in 10 CFR 50.46. The staff will publish the results of the review in a supplemental Safety Evaluation Report (SER).

2.0 OBJECTIVE

The objective of this task order is to obtain technical expertise from Information System Laboratory, Inc. (ISL) to assist the NRC staff in the review of the revised large-break LOCA analysis using the corrected WCOBRA/TRAC code and the uncertainty analysis using ASTRUM to determine its compliance with 10 CFR 50.46 ECCS acceptance criteria.

3.0 WORK REQUIREMENTS, SCHEDULE AND DELIVERABLES

Tasks Requirements and Standards	Scheduled Completion	Deliverables
<p>1. REQUIREMENT: Become familiar with (1) the AP1000 Design, including the passive ECCS design, (2) AP1000 DCD section 15.6.5.4A, Large-Break LOCA analysis methodology and results, (3) SRP 15.6.5, (4) WCAP-12945-P-A (CQD for BELOCA Analysis), and (5) WCAP-16009-P-A (ASTRUM).</p> <p>STANDARD: Written confirmation that familiarization is complete</p>	<p>1 week after authorization of work.</p>	<p>Documentation that assigned personnel have reviewed references</p>
<p>2. REQUIREMENT: Participate in an orientation/kick-off meeting with the NRC staff to discuss the scope of work, expectations, and task order management.</p> <p>STANDARD: Attendance by the contractor project manager and assigned technical reviewers</p>	<p>1.5 weeks after authorization of work.</p>	<p>N/A</p>
<p>3. REQUIREMENT: Review Westinghouse submittal regarding the re-analysis of the BELOCA using WCOBRA/TRAC and the ASTRUM uncertainty methodology. The review should include the error corrections made to the WCOBRA/TRAC HOTSPOT routine related to fuel relocation calculation, inputs and assumptions of the BELOCA analysis, the application of the ASTRUM uncertainty analysis, and the overall analysis results for compliance with the acceptance criteria of 10 CFR 50.46.</p> <p>STANDARD: Complete preliminary Technical Evaluation Report (TER) that follows the NRC provided template. No deviation from the guidance defined in Section III, RAI guidance of Attachment 1.</p>	<p>8 weeks after authorization of work</p>	<p>Technical Evaluation Report and RAIs, if applicable</p>
<p>a. Prepare a preliminary TER related to the AP1000 BELOCA analysis, identify technical issues and those aspects of the application that need additional or clarifying information and generate draft requests for additional information (RAIs).</p>	<p>6 weeks after the authorization of work.</p>	<p>PSEER and Draft RAIs</p>

Tasks Requirements and Standards	Scheduled Completion	Deliverables
<p>b. Discuss draft RAIs with NRC Technical Monitor. Participate in conference calls with the applicant, if necessary, to discuss the draft RAIs and additional supporting materials needed to support the official RAI and TER development. Based on these discussions, generate formal RAIs to be sent to the applicant for their response.</p>	<p>2 week after completion of Task 3a.</p>	<p>Final RAIs</p>
<p>4. REQUIREMENT: Evaluate the RAI responses to determine if they adequately resolve the outstanding issues. Discuss with the NRC TM and identify open items that were not resolved from the RAI responses. Prepare a Draft TER with open items.</p> <p>STANDARD: Complete draft TER that follows the NRC provided template without deviation.</p>	<p>3 weeks after receipt of RAI responses.</p>	<p>Draft TER with open items, if any</p>
<p>5. REQUIREMENT: Participate with the NRC staff and the applicant in the discussion of open items. Evaluate applicant's responses to open items. Identify any unresolved issues with open items if any, as a TER based on staff's comments.</p> <p>STANDARD: Complete TER that follows the NRC provided template without deviation.</p>	<p>6 weeks after completion of task 4.</p>	<p>Final draft TER</p>
<p>6. REQUIREMENT: If required, develop ACRS presentation slides and material for staff to review. Support staff's ACRS presentations.</p> <p>STANDARD: Ensure presentation materials are reviewed and approved by NRC staff.</p>	<p>TBD pending the ACRS meeting schedule.</p>	<p>ACRS presentation material. Attend ACRS meeting if required</p>

* 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 task ordering agreement, 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 expertise in:

- Pressurized Light-Water Reactor Design
- Thermal-hydraulic
- Transients and Accidents Analyses, including loss-of-coolant accidents (LOCA)
- Uncertainty treatment and analysis.

The contractor shall provide a 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 (principal investigators, technical staff, employees, consultants, specialists or subcontractors) shall describe the individual's experience in applying his or her area of engineering specialization to work in the proposed area. The use of particular personnel on this 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, 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 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.: Q4160; Task Order No.51; the applicant: Westinghouse; and, Design Certification Amendment.

1. At the completion of Task 3a, submit a Technical Evaluation Report (TER) that contains, for each Sub-section of the SER (see Attachment 1 for the list of the SER sections and 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 in the base contract SOW for the guidelines for developing RAIs.
2. At the completion of Task 4, submit a TER (see Attachment 1) that contains a summary of the review results and the updated report completed under Task 3 incorporating the findings from the resolution of the RAIs. Include a separate list of the remaining open items and the basis for such determination.
3. At the completion of Task 5, submit a TER (see Attachment 1) that contains a safety evaluation report with open items resulting from the work performed in Task 4, and update of the Technical Evaluation Report developed under Task 4.

6.0 MEETINGS AND TRAVEL

One 1-person, 1-day working meeting to kickoff project and contractor orientation.*

One 1-person, 1-day working meetings at NRC headquarters to review deliverables*

One, 1-person, 1-day meetings, if needed, for hearing or ACRS meeting.

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

7.0 NRC FURNISHED MATERIAL

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

a. CD-ROM containing AP1000 DCD, Revision 16,

b. Technical reports (TR):

APP-GW-GLR-134, "AP1000 DCD Impacts to Support COLA Standardization."

APP-GW-GLE-026, Rev. 0, "Application of ASTRUM Methodology for Best Estimate Large Break Loss of Coolant Accident Analysis for AP1000," June 2008.

APP-GW-GLE-026, Rev. 1, "Application of ASTRUM Methodology for Best Estimate Large Break Loss of Coolant Accident Analysis for AP1000," January 2009.

- c. CD-ROM containing the NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design."
- d. Westinghouse submittals related to BELOCA analysis:

Westinghouse responses to NRC requests of additional information (RAI).

8.0 PERIOD OF PERFORMANCE

The period of performance is from 08/13/08 – 11/30/09.

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 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 15.6.5, WCOBRA/TRAC code, and ASTRUM method.

The level of effort for Task 4 is based on the assumption that there will be 10 RAIs and it will take, on the average, 4 hours to review and address each response.

The level of effort for Task 5 is based on the need to resolve 10 open items and it will take, on the average, 4 hours to review and resolve each open item, and prepare an SER.

The level of effort in Task 6 is based on requiring one trip to NRC headquarters.

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.

Attachment: Outline, Format, and Content for the TER Input

Outline, format, and sample for the 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.

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.

X.Y.Z.4 Conclusions

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