

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

BPA NO.

1. CONTRACT ID CODE

PAGE

1

OF PAGE

2

2. AMENDMENT/MODIFICATION NO.

M002

3. EFFECTIVE DATE

See Block 15c.

4. REQUISITION/PURCHASE REQ. NO.

42-08-064T005M002

09806405182

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
Div. of Contracts
Attn: Jeffrey R. Mitchell, 301-492-3639
Mail Stop TWB 01-B10M
Washington, DC 20555

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-42-08-064 NRC-T005

10B. DATED (SEE ITEM 13)

02-17-2009

CODE 107928806

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)

925-15-171-103 Q4182 252A 31x0200.925
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 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, ☒ 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.)

Task Order Ceiling Amount: \$708,405.00 (changed)

Total Obligated Amount: \$350,000.00 (changed)

Period of Performance: 01/28/2009 - 03/31/2010 (unchanged)

See continuation pages

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)

Barbara R. Mrawca

V.P.

15B. CONTRACTOR/OFFEROR

(Signature of person authorized to sign)

15C. DATE SIGNED

9/16/09

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

Jeffrey R. Mitchell
Contracting Officer

16B. UNITED STATES OF AMERICA

BY (Signature of Contracting Officer)

16C. DATE SIGNED

9/16/2009

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

SEP 24 2009

ADM002

The purpose of this modification is to (1) to incorporate the revised task order Statement of Work, (2) increase the contract ceiling by \$233,483.00 from \$474,922.00 to \$708,405.00 and (3) provide incremental funding in the amount of \$100,000.00 thereby increasing the total obligations from \$250,000.00 to 350,000.00. Accordingly, the subject task order is modified as follows:

Refer to the Task Order No. 05 "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. 05 shall be in effect from January 28, 2009 through March 31, 2010, with a cost ceiling of \$708,405.00. The amount of \$657,391.00 represents the estimated reimbursable costs, and the amount of \$51,014.00 represents the fixed fee.

The amount obligated by the Government with respect to this task order is \$350,000.00, of which \$324,796.00 represents the estimated reimbursable costs, and the amount of \$25,204.00 represents the fixed fee.

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

REVISION NO. 1

JCN Q-4182	Contractor Information Systems Laboratories, Inc.	Task Order No. NRC-42-08-064(TO 5/Mod 2)
Applicant Mitsubishi Heavy Industries	Design/Site US-APWR	Docket No. 5200021
Title/Description Confirmatory runs for US-APWR non-LOCA, SBLOCA and LBLOCA		
TAC No. RX0574	B&R Number 925-15-171-103	SRP or ESRP Section(s) Chapter 15
NRC Task Order Project Officer (PO) Min Lee 301-415-0502 Min.Lee@nrc.gov		
NRC Technical Monitor (TM) Fred Forsaty, 301-415-5823 Fred.forsaty@nrc.gov		

1.0 BACKGROUND

Combined Operating License (COL) Applications are submitted pursuant to Part 52 of Title 10 of the *Code of Federal Regulations* (10 CFR 52), "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants." The U.S. Nuclear Regulatory Commission (NRC) reviews COL Applications based on information furnished by electric utility companies pursuant to 10 CFR 52.79, "Contents of Applications Technical Information."

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.

An Environmental Safety Review Plan (NUREG-1555) is prepared for the guidance of staff reviewers in performing environmental reviews of applications related to nuclear power plants. The ESRPs are companions to regulatory guides that address siting and environmental issues. As with NUREG-0800 the purpose of the ESRP is to assure the quality and uniformity of environmental reviews.

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

2.0 OBJECTIVE

The objective of this task order is to obtain technical expertise from the contractor to assist the NRC staff in determining whether or not the subject DC application meets appropriate regulatory requirements. Specifically, technical assistance is required to perform and document confirmatory non-LOCA, SBLOCA and LBLOCA analyses using the RELAP-5 mod 3.3 thermal-hydraulics computer code. This report will be used as a basis for the NRC staff's safety evaluation report (SER) which will document the NRC's technical, safety, and legal basis for approving the

topical report (TR). The confirmatory analyses report 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 confirmatory analyses report, 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 confirmatory analyses report format is described in Attachment 1 to this task order statement of work (SOW).

In addition, the objective of this modified task order will be satisfied by ISL's assistance with the following:

1. Confirmatory LBLOCA analysis using MHI supplied WCOBRA-TRAC/AUSTRIM executable and input deck(s)
2. Review of US-APWR FSAR Chapter 15.6.5

3.0 WORK REQUIREMENTS, SCHEDULE AND DELIVERABLES

Tasks/Standards	Scheduled Completion	Deliverables
<p>1. REQUIREMENT: Determine which LBLOCA, SBLOCA and non-LOCA confirmatory cases should be run based on APWR Chapter 15 DCD.</p> <p>Determine the information needed from MHI to expedite development of the RELAP5 mod 3.3 LBLOCA, SBLOCA and non-LOCA models.</p> <p>Review LBLOCA topical and corresponding DCD 15.6.5. Review LBLOCA RAIs responses. Review WCOBRA-TRAC/AUSTRIM WCAP used by MHI.</p> <p>STANDARD: Written confirmation that familiarization is complete.</p>	4 weeks after authorization of work	Email describing limiting cases chosen and, if necessary, MHI information needed
<p>2. REQUIREMENT: Participate in an orientation/kick-off meeting with the NRC staff to discuss the scope of the work, expectations and contract management</p> <p>STANDARD: Attendance by individuals designated by NRC.</p>	2 days, four (4) to six weeks (6) after authorization	N/A

Tasks/Standards	Scheduled Completion	Deliverables
<p>3. REQUIREMENT: Develop RELAP-5 mod 3.3 LBLOCA, SBLOCA and non-LOCA models. The RELAP5 mod 3.3 model should include all pertinent APWR design features and MHI added models (e.g., Appendix K). Models should be developed in a way to turn on and off MHI added models.</p> <p>STANDARD: Completed Technical Evaluation Report that follows the NRC provided template without deviation. No deviation from the guidance defined in Section III, RAI Guidance of Attachment1. One round of comment incorporation is acceptable.</p>		<p>For SBLOCA a report comparing RELAP-5 mod 3.3 results with MHI's, and safety limits. For SBLOCA a draft Technical Evaluation Report and RAIs.</p> <p>For LBLOCA a report comparing RELAP-5 mod 3.3 and MHI results and proposed RAIs</p>
a. Develop SBLOCA model and full-power, steady-state comparison	3 months following authorization	<p>For Non-LOCA a report comparing RELAP-5 mod 3.3 and MHI results and proposed RAIs</p>
b. SBLOCA sensitivity calculations, comparison to MHI results and applicable safety limits.	6 months following authorization	
c. Develop LBLOCA model and full-power, steady-state comparison	8 months following authorization	
d. LBLOCA sensitivity calculations and comparison to MHI results	10 months following authorization	
e. Develop Non-LOCA model(s) and full-power, steady-state comparison	8 months following authorization	
f. Perform limiting non-LOCA heatup, cooldown and a steam generator tube rupture cases	10 months following authorization	

Tasks/Standards	Scheduled Completion	Deliverables
<p>3A.REQUIREMENT: Develop follow-up LBLOCA RAIs if necessary.</p> <ul style="list-style-type: none"> a. Review application of WCOBRA-TRAC/HOTSPOT to the APWR design and determine adequacy and any limitations that may exist. b. Review that APWR design features are adequately modeled. c. Review that ASTRUM method is applied correctly. d. Perform limited scope sensitivity study using WCOBRA-TRAC/HOTSPOT to determine that the limiting PCT given in 15.6.5 is correct and parameter sensitivity is reasonable. e. Review FSAR Chapter 15.6.5 Long Term Cooling Issues. <p>STANDARD: Completed TER that follows the NRC provided template without deviation. No deviation from the guidance defined in Section III, RAI Guidance of Attachment1. One round of comment incorporation is acceptable.</p>	<p>3 months following authorization</p>	<p>RAIs and Combined (BNL/ISL) Draft LBLOCA TER and DCD Chap 15.6.5 LBLOCA section.</p>
<p>4. REQUIREMENT: Review response to the RAIs to determine if they adequately resolve the outstanding issues. Identify any other open items. Incorporate the review results in the evaluation report completed under Task 3 and Task 3A.</p> <p>STANDARD: Completed Technical Evaluation Report that follows the NRC provided template without deviation. No deviation from the guidance defined in Section III, RAI Guidance of Attachment1. One round of comment incorporation is acceptable.</p>	<p>9 months following authorization</p> <p>5 months following authorization</p>	<p>Revised Technical Evaluation Report and any follow-up RAIs</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>5. REQUIREMENT: <i>(If applicable)</i> Prepare for and travel to the applicant's office and participate in an NRC review team to:</p> <ul style="list-style-type: none"> a. Audit the applicant as determined by NRC Technical Lead b. Evaluate and discuss the applicant's responses to the unresolved issues identified in Task 4 to determine if the outstanding issues are adequately resolved. c. Prepare a trip report (as an input to NRC Audit Report) to summarize the information reviewed, results of the audit, and meeting discussions. <p>STANDARD: Complete evaluation as defined in Task. Submit Trip Report within weeks of site review.</p>	<p>10 months following authorization</p> <p>6 months following authorization</p>	<p>Trip Report</p>
<p>6. REQUIREMENT: Review the applicant's response to the open items identified as a result of the design audit (Tasks 4 & 5). Identify any unresolved issues and prepare a safety evaluation report w/open items if any, as a Technical Evaluation Report.</p> <p>STANDARD: Complete Technical Evaluation Report that follows the NRC provided template without deviation.</p>	<p>11 months following authorization</p> <p>7 months following authorization</p>	<p>Safety Evaluation Report Input w/open items</p>
<p>7. REQUIREMENT: As needed and requested by the staff, provide technical support to the staff during related ACRS meetings and hearing proceedings.</p> <p>STANDARD: Ensure presentation materials are reviewed and approved by NRC staff.</p>	<p>TBD</p>	<p>Prepare Presentation Materials. Attend Meetings, 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 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: a) expertise and experience in analysis of nuclear reactor thermal-hydraulics, b) expertise in use of the RELAP-5 computer code, c) expertise and familiarity with NRC regulations pertaining to analysis of nuclear reactor thermal-hydraulics, LOCA and Non-LOCA analyses under the standard review plan (SRP) Sections 4.0 and Chapter 15, d) familiarity with requests for additional information (RAI) development, and e) experience and familiarity with development of technical evaluation report (TER) supporting positions developed during the review of APWR reactor designs.

NOTE: Work on this task order will involve the handling of proprietary information.

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 Q-4182; Technical Assignment Control No.: RX0574, Task Order 5; and the licensee: Mitsubishi Heavy Industries.

1. At the completion of Task 3, 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** 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 (if applicable), 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. Incorporate the findings in the report developed under Task 3.
4. At the completion of Task 6, submit a TER (**see Attachment 1**) that contains a safety evaluation report with open items resulting from the work performed in Task 4 & 5, and update of the Technical Evaluation Report developed under Task 5.

6.0 MEETINGS AND TRAVEL

One 2-person, 1-day working meeting to kickoff project and contractor orientation.*

(If required) One, 2-person, 2-day trip to the applicant's facility (Tasks 5).

One 2-person, 1-day working meetings at NRC headquarters to review deliverables*

One, 2-person, 2-day meetings, if needed, for hearing or ACRS meeting.

(any additional trips that may be required)

*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. Topical Reports: Non-LOCA (MUAP-07010), SBLOCA (MUAP-07013) and LBLOCA (MUAP-07011); Technical Report SBLOCA Sensitivity (MUAP-07025).
- b. CD-ROM containing the Final Safety Evaluation Report of the DCD.

8.0 PERIOD OF PERFORMANCE

The period of performance is from 01/28/2009 – 03/31/2010.

9.0. OTHER APPLICABLE INFORMATION

- a. License Fee Recovery

All work under this task order is/is not fee recoverable and must be charged to the appropriate TAC number(s).

- b. Assumptions and Understandings:

The level of effort for Task 3 is based on the assumption that the contractor is familiar with the review procedures of (ESRP/SRP) Sections 15.0.

The level of effort for Task 4 is based on the assumption that there will be 50 RAIs and it will take, on the average, 2.5 hours to review and address each response.

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

The level of effort for Task 6 is based on the need to resolve 20 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 7 is based on requiring one trip to the site and 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.

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 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

Attachment 1
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