

2. AMENDMENT/MODIFICATION NO. M004	3. EFFECTIVE DATE See Block 16c	4. REQUISITION/PURCHASE REQ. NO. NRO-12-164 Dated: 6/8/2012	5. PROJECT NO.(If applicable)
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6. ISSUED BY U.S. Nuclear Regulatory Commission Div. of Contracts Attn:Matthew J. Bucher, 301-492-3485 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
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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-T015
		10B. DATED (SEE ITEM 13) 05-09-2009
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) B&R#:2012-25-17-4-118 JC:Q4182 B.O.C:252A APN:31X0200  
Obligate Funds: \$26,000.00 FAIMIS #:122448  
DUNS:107928806 NAICS: 541990

**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 Contract Modification FAR 52.243-2 Alt 1 Changes-Cost Reimbursable
	D. OTHER (Specify type of modification and authority)



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

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)  
The purpose of this modification is to increase the number of hours associated with this task order. The new work being covered by this increase is covered in the revised Statement of Work, see attachment 1. A complete description of this modification can be found on page two (2).

Obligation Amount: \$214,579.00 (changed)  
Ceiling Amount: \$238,864.00 (changed)  
Period of Performance: 5/6/2009-12/31/2013 (changed)

Except as specified herein, all other terms, conditions and pricing remain unchanged and in full force and effect.

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) DANIEL A. PRELEWICZ VICE-PRESIDENT & DEPUTY MANAGER	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Matthew J. Bucher Contracting Officer
15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)	15C. DATE SIGNED 6/29/2012
16B. UNITED STATES OF AMERICA  (Signature of Contracting Officer)	16C. DATE SIGNED 6-29-2012

The purpose of this modification is to (1) incorporate the revised task order Statement of Work, (2) increase the contract ceiling by \$50,285.00 from \$188,579.00 to \$238,864.00, (3) provide incremental funding in the amount of \$26,000.00 thereby increasing the total obligations from \$188,579.00 to \$214,579.00 and (4) extend the period of performance from August 30st, 2012 to December 31, 2013. Accordingly the subject task order is modified as follows:

Refer to the Task Order No. 15 "Statement of Work" is hereby deleted in its entirety and replaced with the following Statement of Work attached to this Modification No. 4 entitled "Statement of Work Rev 2".

Task Order No. 15 shall be in effect from May 6, 2009 through December 31, 2013, with a cost ceiling of \$238,864.00. The amount of \$225,726.48 represents the estimated reimbursable costs, and the amount of \$13,137.52 represents the fixed fee.

The amount obligated by the Government with respect to this task order is \$214,579.00, of which \$202,777.16 represents the estimated reimbursable costs, and the amount of \$11,801.84 represents the fixed fee.

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

**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 support review of US-APWR Design Certification Section 6.3.

The objective of this modified task order is for the contractor to provide the NRC with the following additional assistance to support the review of US-APWR Design Certification Section 6.3:

- Review of DCD Rev. 2 which has significant changes to Section 6.3
- Additional RAI review and follow-up as information in the DCD and RAI responses have not been adequate
- An additional audit since the applicant was not prepared for initial audit

The objective of this Statement of Work, Revision No. 2, is for the contractor to provide the NRC with additional assistance in reviewing the US-APWR long term cooling (LTC) methodology in the latest update to the DCD.

**3.0 WORK REQUIREMENTS, SCHEDULE AND DELIVERABLES**

<b>Tasks/Standards</b>	<b>Scheduled Completion</b>	<b>Deliverables</b>
1. REQUIREMENT: Become familiar with (ESRP or SRP) Sections <u>6.3</u> and ( <i>other references if applicable</i> )  STANDARD: Written confirmation that familiarization is complete	One week after authorization of work	Documentation that assigned personnel have reviewed SRP, and applicable sections of RG 1.206 and TMI action items
2. REQUIREMENT: Participate in an orientation/kick-off meeting with the NRC staff to discuss the scope of the work, expectations and contract management  STANDARD: Attendance by individuals designated by NRC.	2 weeks after authorization of work	N/A

Tasks/Standards	Scheduled Completion	Deliverables
<p>3. <b>REQUIREMENT:</b> Review the DCD application Section 6.3 to determine the adequacy of ECCS system and if the design is consistent with the assumptions in DCD Chapter 15.6.5. 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). Prepare a Technical Evaluation Report.</p> <p>Evaluate DCD Rev. 2 with additional focus on SI pump performance and gas accumulation. Prepare any additional RAIs and revise the Technical Evaluation Report.</p> <p><b>STANDARD:</b> 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>4 weeks after authorization of work</p> <p>2 weeks after authorization of modification</p>	<p>Technical Evaluation Report and RAIs, if applicable</p> <p>RAIs and Revised Technical Evaluation Report based on Rev. 2</p>
<p>a. Completion of the Task.</p>	<p>4 weeks after authorization of work</p>	<p>Final RAIs</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>4. <b>REQUIREMENT:</b> 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.</p> <p>Review any RAIs responses based on DCD Rev. 2 and incorporate the review results into the evaluation report.</p> <p><b>STANDARD:</b> 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>4 weeks after receipt of the responses.</p> <p>2 weeks after receipt of additional RAI responses</p>	<p>Revised Technical Evaluation Report</p>
<p>5. <b>REQUIREMENT:</b> <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"> <li>a. Audit supporting analysis or references</li> <li>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.</li> <li>c. Prepare a trip report (as an input to NRC Audit Report) to summarize the information reviewed, results of the audit, and meeting discussions.</li> </ul> <p>Prepare revised audit plan and participate in a follow-on one-day audit at the applicant's office. Prepare trip report.</p> <p><b>STANDARD:</b> Complete evaluation as defined in Task. Submit Trip Report within weeks of site review.</p>	<p>2 weeks after the trip</p> <p>2 weeks after NPSH follow-on audit</p>	<p>Trip Report</p> <p>Revised Audit Plan and Trip Report</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>6. <b>REQUIREMENT:</b> Review the applicant's response to the open items identified as a result of the design audits (Tasks 4 &amp; 5). Identify any unresolved issues and prepare a safety evaluation report w/open items if any, as a Technical Evaluation Report.</p> <p><b>STANDARD:</b> Complete Technical Evaluation Report that follows the NRC provided template without deviation.</p>	<p>4 weeks after receipt of responses</p>	<p>Safety Evaluation Report Input w/open items</p>
<p>7. <b>REQUIREMENT:</b> As needed and requested by the staff, provide technical support to the staff during related ACRS meetings and hearing proceedings.</p> <p><b>STANDARD:</b> Ensure presentation materials are reviewed and approved by NRC staff.</p>	<p>TBD</p>	<p>Prepare Presentation Materials. Attend Meetings, if required</p>
<p>8. <b>Review US-APWR long term cooling (LTC) methodology specifically in relation to boron mixing and boron participation in the latest update to the DCD. Determine the adequacy of the methodology and if the design is consistent with the assumptions in DCD Chapter 15.6.5. 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 (RAIs). Review RAI responses and prepare a Technical Evaluation Report.</b></p>	<p><b>4 weeks after receipt of RAI responses</b></p>	<p><b>Technical Evaluation Report</b></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:

1. All key technical staff including the project manager must have the following technical qualifications:
  - Extensive expertise PWR system operation, reactor system thermal-hydraulics, pump system performance testing and valve system evaluation, piping system hydraulic performance evaluation;
  - Extensive regulatory analysis and review experience with Light-Water Reactor Design, Nuclear Fuel Design, Thermal-hydraulic Design, and System Analysis related to SRP Sections listed in Table 2.0 and associated PWR safety systems.
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 Q-4182; Technical Assignment Control RX0654, Task Order 15; the licensee: MHI; and, the site: USAPWR Design Certification Review.

1. At the completion of Task 3, submit a Technical Evaluation Report (TER) that reflects the review of DCD Rev. 2 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 that reflects the review of DCD Rev. 2 (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 trip reports, as an input to NRC audit reports, 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 that reflects the review of DCD Rev. 2 (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.
5. **At the completion of Task 8, submit a TER (see Attachment 1) that contains safety evaluation report input with open items.**

#### **6.0 MEETINGS AND TRAVEL**

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

*(If required)* One, 2-person, 3-day trips 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.

**One, 2-person, 3-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 the Final Safety Evaluation Report of the DCD.
- b. DCD Rev. 2

**8.0 LEVEL OF EFFORT**

The estimated level of effort in professional staff days apportioned among the tasks and by labor category is as follows:

Task(s)	Labor Category	Level of Effort FY-09 (hours)	Level of Effort FY-10 (hours)	Level of Effort FY-12 (hours)
1	SME	60		
2	SME	20		
3	SME	260	0+80=80	
4	SME	100	0+100=100	
5	SME	60	0+60=60	
6	SME	60	0+60=60	
7	SME	40	40	
<b>8</b>				<b>200</b>
Task 1 - 8	Project Manager	40	20+20=40	<b>30</b>
Task 1 - 7	Admin Support	20	20	
<b>Total</b>		660	80+320=400	<b>230</b>

**9.0 PERIOD OF PERFORMANCE**

The period of performance is award of task order through **12/31/2013**.

## 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 for Task 3 is based on the assumption that the contractor is familiar with the review procedures of (ESRP/SRP) Sections 6.3.

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 two, two-person, 2-day trips (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