ORDER FOR SUPPLIES OR SERVICES

IMPORTANT: Mark all packages and papers with contract and/or order numbers. BPA NO.

1. DATE OF ORDER: FEB 25 2009
2. CONTRACT NO. (If any): NRC-42-08-064
3. ORDER NO.: NRC-T006 MODIFICATION NO.
4. REQUISITION/REFERENCE NO.: 42-08-064T006 09806406182
5. ISSUING OFFICE (Address correspondence to):
U.S. Nuclear Regulatory Commission
Div. of Contracts
Attn: Jeffrey R. Mitchell, 301-492-3639
Mail Stop TWB-01-B10M
Washington, DC 20555

6. SHIP TO:
a. NAME OF CONSIGNEE: U.S. Nuclear Regulatory Commission
b. STREET ADDRESS: Attn: Richard Daniel, 301 415 6319
c. CITY: Washington
d. STATE: DC
e. ZIP CODE: 20555
f. SHIP VIA

7. TO:
a. NAME OF CONTRACTOR: INFORMATION SYSTEMS LABORATORIES, INC ISL
b. COMPANY NAME: ATTN: DR. JAMES F. MEYER
c. STREET ADDRESS: 11140 ROCKVILLE PIKE, SUITE 500
d. CITY: ROCKVILLE
e. STATE: MD
f. ZIP CODE: 20852

8. TYPE OF ORDER
[ ] a. PURCHASE
REFERENCE YOUR _____
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.
[X] b. DELIVERY
Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA: See CONTINUATION Page
925-15-171-103 Q4182 252A 31x0200.925
Obligate $200,000.00
DUNS: 107928806

10. REQUISITIONING OFFICE: NRO

11. BUSINESS CLASSIFICATION (Check appropriate box(es))
[ ] a. SMALL
[X] b. OTHER THAN SMALL
[ ] c. DISADVANTAGED
[ ] d. WOMEN-OWNED
[ ] e. HUBZone
[ ] f. EMERGING SMALL BUSINESS
[ ] g. SERVICE-DISABLED VETERAN-OWNED

12. F.O.B. POINT: Destination

13. PLACE OF
a. INSPECTION
b. ACCEPTANCE

14. GOVERNMENT B/L NO.

15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)

16. DISCOUNT TERMS

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	Issuance of Task Order 6 under Contract No. NRC-42-08-064 Title: Review of MARVEL-M to Support US-APWR Period of Performance: 01/28/2009 - 06/30/2010 Estimated Reimbursable Cost: $387,638.00 Fixed Fee: $26,457.00 Total Cost Plus Fixed Fee: $414,095.00 Funding in the amount of $200,000.00 is provided SEE CONTINUING PAGES		See CONTINUATION Page			

18. SHIPPING POINT
19. GROSS SHIPPING WEIGHT
20. INVOICE NO.

17(h) TOTAL (Cont. pages)

17(i). GRAND TOTAL

SEE BILLING INSTRUCTIONS ON REVERSE

21. MAIL INVOICE TO:
a. NAME: Department of Interior / NBC
NRCPayments@nbc.gov
b. STREET ADDRESS (or P.O. Box): Attn: Fiscal Services Branch - D2770
7301 W. Mansfield Avenue
c. CITY: Denver
d. STATE: CO
e. ZIP CODE: 80235-2230

22. UNITED STATES OF AMERICA BY (Signature): Jeffrey R. Mitchell

23. NAME (Typed): Jeffrey R. Mitchell
Contracting Officer
TITLE: CONTRACTING/ORDERING OFFICER

TEMPLATE - ADM001

SUNSI REVIEW COMPLETE MAR 11 2009 ADM002

NRC-42-08-064 NRC-T006

This confirms the verbal authorization that was provided to Information Systems laboratories, Inc., on January 28, 2009, to begin work under the subject task order, with a temporary ceiling of $75,000.00.

In accordance with Section G.4, Task Order Procedures, of Contract No. NRC-42-08-064, this definitizes Task Order No. 6. The effort shall be performed in accordance with the attached Statement of Work.

Task Order No. 6 shall be in effect from January 28, 2009 through June 30, 2010, with a cost ceiling of $414,095.00. The amount of $387,638.00 represents the estimated reimbursable costs, and the amount of $26,457.00 represents the fixed fee.

The amount obligated by the Government with respect to this task order is $200,000.00, of which $187,201.00 represents the estimated reimbursable costs, and the amount of $12,799.00 represents the fixed fee.

The issuance of this task order does not amend any terms or conditions of the subject contract.

Your contacts during the course of this task order are:

Technical Matter: Richard Daniel
Task Order Project Officer
301-415-6319

Contractual Matters: Jeffrey R. Mitchell
Contract Specialist
301-492-3639

Acceptance of Task Order No. 6 should be made by having an official, authorized to bind your organization, execute three copies of this document in the space provided and return two copies to the Contract Specialist at the address identified in Block No. 5 of the OF 347. You should retain the third copy for your records.

ACCEPTANCE:

R. B. Hu
NAME

V.P.
TITLE

1/28/2009
DATE

TASK ORDER STATEMENT OF WORK

JCN	Contractor	Task Order No.
Q-4182	Information Systems Laboratories, Inc.	NRC-42-08-064(TO 6)
Applicant	Design/Site	Docket No.
Mitsubishi Heavy Industries	US-APWR	5200021
Title/Description		
Review of MARVEL-M to Support US-APWR		
TAC No.	B&R Number	SRP or ESRP Section(s)
RX0605	925-15-171-103	Chapter 15
NRC Task Order Project Officer (PO)		
Richard Daniel	301-415-6319	richard.daniel@nrc.gov
NRC Technical Monitor (TM)		
Jeffrey Schmidt	301-415-4016	Jeffrey.Schmidt2@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 in evaluating the adequacy of the MARVEL-M code to model US-APWR Non-LOCA accidents. Review should evaluate if the appropriate equations, numerical solutions, nodalization used as well as the adequacy of MARVEL-M validation/comparison test cases.

3.0 WORK REQUIREMENTS, SCHEDULE AND DELIVERABLES

Tasks/Standards	Scheduled Completion	Deliverables
1. REQUIREMENT: Review Non-LOCA Topical Report (MUAP-07010) to become familiar with models, methods, and comparison to other codes and/or plant data. STANDARD: Written confirmation that familiarization is complete.	2 weeks after authorization of work	Notification that reading has been completed
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.	3 weeks after authorization	N/A

Tasks/Standards	Scheduled Completion	Deliverables
3. REQUIREMENT: Review fundamental equations, numerical methods, correlation(s) validity relative to use in Chapter 15 events. Determine if theory, numerical methods and correlations are used within their applicable ranges or limitations exist which have not been indentified or documented. 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. a. Review code validation/comparison test cases for completeness, identify any deficiencies. Review and evaluate validation test/comparison cases presented in MUAP-07010 and determine if presented results are similar to other industry accepted model results for like transients. b. Independently created model maybe used as an aid to evaluate validation test cases. Determine any code input limitations or ranges of applicability when modeling limiting accidents.	Twelve (12) months following Task 2	Technical Evaluation Report and RAIs.

Tasks/Standards	Scheduled Completion	Deliverables
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. 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.	Four (4) weeks *after* receipt of the responses.	Revised Technical Evaluation Report and any follow-up RAIs
5. REQUIREMENT: *(If applicable)* Prepare for and travel to the applicant's office and participate in an NRC review team to: 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. STANDARD: Complete evaluation as defined in Task. Submit Trip Report within weeks of site review.	Two (2) weeks following audit	Trip Report

Tasks/Standards	Scheduled Completion	Deliverables
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. STANDARD: Complete Technical Evaluation Report that follows the NRC provided template without deviation.	Four (4) weeks following completion of Task 5	Safety Evaluation Report Input w/open items
7. REQUIREMENT: As needed and requested by the staff, provide technical support to the staff during related ACRS meetings and hearing proceedings. STANDARD: Ensure presentation materials are reviewed and approved by NRC staff.	TBD	Prepare Presentation Materials. Attend Meetings, if required

* 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 MARVEL or similar plant transient computer code, c) expertise and familiarity with NRC regulations pertaining to analysis of nuclear reactor thermal-hydraulics, 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. (TAC), RX0605 Task Order 6_; the licensee: Mitsubishi Heavy Industries; and, the site: N/A.

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 Appendix J** of 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 local 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).

b. CD-ROM containing the Final Safety Evaluation Report of the DCD.

8.0 PERIOD OF PERFORMANCE

The period of performance is from January 28, 2009 through June 30, 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