

INTERAGENCY AGREEMENT		1. IAA NO. NRC-HQ-20-15-T-0032/M0006			PAGE OF 1 10	
2. ORDER NO.		3. REQUISITION NO. NRR-17-0122		4. SOLICITATION NO.		
5. EFFECTIVE DATE 06/22/2017		6. AWARD DATE 07/13/2017		7. PERIOD OF PERFORMANCE 08/31/2015 TO 06/30/2018		
8. SERVICING AGENCY OAK RIDGE NATIONAL LAB ALC: DUNS: 012075755 +4: US DEPARTMENT OF ENERGY OAK RIDGE NATION LABORATORY SITE OFFICE BUILDING 4500N MS 6269 PO BOX 2008 OAK RIDGE TN 37831-6269 POC Deborah Garland, CO TELEPHONE NO. (865) 241-9566				9. DELIVER TO DUANE HARDESTY US NUCLEAR REGULATORY COMMISSION OFFICE OF NUCLEAR REACTOR REGULATION 11555 ROCKVILLE PIKE ROCKVILLE MD 20852		
10. REQUESTING AGENCY ACQUISITION MANAGEMENT DIVISION ALC: 31000001 DUNS: 040535809 +4: US NUCLEAR REGULATORY COMMISSION TWO WHITE FLINT NORTH 11545 ROCKVILLE PIKE MAIL STOP T-5E3 ROCKVILLE MD 20852-2738 POC Sandra Nesmith TELEPHONE NO. (301)415-6836				11. INVOICE OFFICE US NUCLEAR REGULATORY COMMISSION ONE WHITE FLINT NORTH 11555 ROCKVILLE PIKE MAILSTOP O3-E17A ROCKVILLE MD 20852-2738		
12. ISSUING OFFICE US NRC - HQ ACQUISITION MANAGEMENT DIVISION MAIL STOP TWFN-5E03 WASHINGTON DC 20555-0001				13. LEGISLATIVE AUTHORITY Energy Reorganization Act of 1974		
				14. PROJECT ID		
				15. PROJECT TITLE UPDATE NON-POWER REACTOR INSTRUMENTATION AND CONTR		
16. ACCOUNTING DATA 2017-X0200-FEEBASED-20-20D006-1061-11-4-178-253D-11-4-178-1061						
17. ITEM NO.	18. SUPPLIES/SERVICES		19. QUANTITY	20. UNIT	21. UNIT PRICE	22. AMOUNT
	NRC-HQ-25-14-D-0004 NRC-HQ-20-15-T-0032 Task Order Title: Update Interim Staff Guidance for Licensing Instrumentation and Control System Upgrades for Non-Power Reactors Master IAA: NRCHQ2512D0004 SUMMARY OF CHANGES: The purpose of this modification is to (1) add an additional within scope task; (2) extend the Continued ...					
23. PAYMENT PROVISIONS				24. TOTAL AMOUNT \$125,000.00		
25a. SIGNATURE OF GOVERNMENT REPRESENTATIVE (SERVICING)				25a. SIGNATURE OF GOVERNMENT REPRESENTATIVE (REQUESTING) 		
25b. NAME AND TITLE		25c. DATE	26b. CONTRACTING OFFICER SANDRA R. NESMITH		26c. DATE 07/13/2017	

period of performance through June 30, 2018; (3) increase the authorized cost ceiling by \$209,000.00 from \$105,000.00 to \$314,000.00; and (4) provide incremental funding in the amount of \$125,000.00

Accordingly, this task order is modified as follows:

1. Reference to the "Statement of Work," is hereby deleted in its entirety and replaced with the following Statement of Work attached to this Modification No. 6 entitled "Statement of Work, Rev. 2."
2. The period of performance has changed from 8/31/15 - 6/30/17 to 8/31/15 - 6/30/18.
3. The new authorized cost ceiling has increased from \$105,00.00 to \$314,000.00.
5. Incremental funding in the amount of \$125,000.00 is provided, thereby increasing the total obligations for this task order from \$70,000.00 to \$195,000.00.

All other terms and conditions remain unchanged.

Attachment: Statement of Work, Rev. 2

ORNL PI: Michael Muhlheim, 865-574-0386
NRC COR: Duane Hardesty, 301-415-3274

DUNS: 040535809 TAS: 31X0200.320
ALC: 31000001

STATEMENT OF WORK

NRC Agreement Number NRC-HQ-25-14-D-0004	NRC Agreement Modification Number 	NRC Task Order Number (If Applicable) NRC-HQ-20-15-T-0032	NRC Task Order Modification Number (If Applicable) 6
Project Title Update Interim Staff Guidance for Licensing Instrumentation and Control System Upgrades for Non-Power Reactors			
Job Code Number A11010	B&R Number 11-4-178	DOE Laboratory Oakridge National Laboratory (ORNL)	
NRC Requisitioning Office NRR			
NRC Form 187, Contract Security and Classification Requirements <input type="checkbox"/> Applicable X Not Applicable		X Involves Proprietary Information <input type="checkbox"/> Involves Sensitive Unclassified	
X Non Fee-Recoverable		<input type="checkbox"/> Fee-Recoverable (If checked, complete all applicable sections below)	
Docket Number (If Fee-Recoverable/Applicable) N/A		Inspection Report Number (If Fee Recoverable/Applicable) N/A	
Technical Assignment Control Number (If Fee-Recoverable/Applicable)		Technical Assignment Control Number Description (If Fee-Recoverable/Applicable)	

1.0 BACKGROUND

The Nuclear Regulatory Commission (NRC) has the authority and responsibility to review and evaluate requests for licensing actions made by its licensees and publish guidance documentation. The NRC staff, with technical support from Oakridge National Laboratory (ORNL), intends to publish a final version of the Interim Staff Guidance (ISG) for licensing instrumentation and control (I&C) systems at non-power production or utilization facilities (NPUFs).

The NRC staff is anticipating receiving comments from licensees, members of the public, industry representatives and other stakeholders when the ISG is published in the Federal Register. The NRC staff is entering into this agreement in order to obtain additional technical support necessary in order to review and respond to the received comments in a timely fashion. Specifically, ORNL must review and evaluate the comments and propose revisions, as appropriate, for the ISG and provide comment responses indicating how each comment was adjudicated. ORNL must also perform a pilot study using the ISG, as updated, to ensure the usability of the ISG, including incorporating any applicable lessons learned based on the ISG pilot for the licensing of I&C systems.

2.0 OBJECTIVE

The objective of this task order is to update the draft I&C ISG, incorporating comments received from the public comment period and provide a proposed final ISG revision that incorporates the responses to public comments, as appropriate and updates to the ISG based on the pilot study for any applicable changes to the ISG on licensing NPUF I&C systems.

3.0 SCOPE OF WORK

The purpose of this task order is to obtain final ISG for the licensing of I&C upgrades to augment the guidance provided in NUREG-1537, "Guidance for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors," Part 1, "Format and Content," and NUREG-1537, Part 2, "Standard Review Plan and Acceptance Criteria." This ISG will form the basis for licenses and applicants to prepare licensing applications (Part 1) and for the NRC staff's use in reviewing applications for licensing I&C systems (Part 2). To ensure the ISG is usable for licensing actions, ORNL will conduct a pilot study using the ISG to perform the review of an actual license application for a digital upgrade.

The DOE Oakridge National Laboratory (ORNL) must provide all resources necessary to accomplish the tasks and deliverables described in this (SOW), which must be provided to the NRC Contracting Officer's Representative (COR):

- Kick-off Meeting;
- Propose updated relevant guidance;
- Bin comments received in public comment period and proposes responses and ISG updates, as appropriate;
- Provide final ISG addressing needed updates based on a pilot study using the ISG for an NPUF I&C upgrade;
- Other related tasks, as necessary

4.0 SPECIFIC TASKS

ORNL must perform the following tasks:

Task 1: Kick Off Meeting

Prior to the initiation of work, the NRC COR will conduct a kickoff meeting via a telephone conference call to discuss the status of the draft I&C ISG and discuss any questions from ORNL. Routine telephone conversations between the NRC COR and ORNL will occur as necessary throughout the contract period.

Task 2: Proposed Draft ISG Revisions

Following the kickoff meeting, ORNL must develop an outline of proposed revisions to the draft ISG, by subject area and system, for inclusion in the final ISG based on knowledge of recent updates to guidance for licensing I&C upgrades. After NRC approval of the approach, ORNL must provide a markup proposed draft I&C ISG including revisions documenting the proposed revisions to the ISG.

Task 3: Binning of Public Comments, Comment Responses and Updated Draft ISG

Following Task 2, ORNL must review the comments received from the public comment period,

bin the comments by subject area, provide responses to each comment suitable for responding to each comment, and provide a proposed draft revision to the ISG documenting the evaluation of the received comments.

Task 4: Updated Final ISG

The NRC staff will provide ORNL with comments on the proposed draft ISG revisions; ORNL must address the staff's comments and generate the final proposed draft ISG revision. If ORNL finds technical issues with the ISG, during conduct of the pilot of the ISG, the Laboratory must propose changes to the ISG to correct these issues and bring this to the attention of the NRC COR via email or telephone for the NRC COR's approval prior to beginning incorporation of these other revisions.

The proposed draft ISG revisions must be provided to the NRC COR as a Word file, and must follow the guidance in NUREG-1379, "NRC Editorial Style Guide," Rev. 2. The proposed draft ISG revisions must be submitted to the NRC COR by the established due date as reflected in Section 5-Deliverables and/or Milestones Schedule and must be technically acceptable, with no spelling or grammatical errors and in a format that is compatible with the 2012 draft ISG.

Task 5: Pilot study and Technical Evaluation Report using Final ISG

The NRC staff will provide ORNL with a sample Safety Evaluation Report (SER) outline and all required applicant information for conducting a pilot study using the ISG to review the acceptability of a licensee's proposed I&C system upgrade. Although the licensee application is subject to change based on availability of an I&C application or needs of the NRC, the review is expected to be for the University of Massachusetts at Lowell (Lowell) digital upgrade. ORNL will provide a Technical Evaluation Report (TER) based on the SER outline and revised to reflect format and content of the updated ISG. The scope of the TER is limited to the acceptability of the applicant's proposed I&C upgrade (Chapter 7 of application). However, ORNL should immediately inform the COR if ORNL discovers other issues that may impact the safety evaluation report being generated by the NRC staff with regards to reasonable assurance for protecting health and safety of the public.

This task shall include reviewing the submitted materials to be evaluated and becoming familiar with the specific scope of the licensee's I&C upgrade. Additionally, a site familiarization visit to the licensee's facility will be required. The contractor shall identify the applicable regulatory and ISG criteria that will serve as the bases for his evaluation/acceptance of the proposed design. The Chapter 7 ISG to NUREG-1537 principally establish the review process for digital I&C systems that will be applied in this evaluation. The suitability of the licensee's digital I&C platform (including individual boards that function together to serve as a platform) for use in safety systems depends on the quality of its components; quality of the design process; and comprehensiveness of its equipment qualification, along with consideration of system implementation characteristics such as real-time performance, independence, and support of on-line surveillance requirements as demonstrated through the digital I&C platform's verification, validation, and qualification efforts. Because this equipment is intended for use in safety systems and other safety-related applications, the TER will be evaluated against the equipment ability to support -specific system provisions of NUREG-1537, Chapter 7, ISG acceptance criteria as developed by ORNL under this contract.

During the TER review, if ORNL identifies any review areas where the licensee's provided

information is insufficient to complete the review analysis, ORNL shall inform the NRC COR and provide placeholders in the Draft TER document indicating the specific information needed including traceability to RAI responses that are needed or pending from the licensee, before the review can be completed. For these placeholders, ORNL shall identify and document the applicable regulations in 10 CFR and any associated acceptance criteria in the ISG to NUREG-1537, in order to establish a basis to support a written request for additional information (RAI). The contractor shall provide a draft document containing all of the proposed RAIs, including the referenced regulatory basis to the NRC COR as a Word file.

Upon receiving responses to the RAI, ORNL must perform a review of the licensee's RAI responses and provide the NRC COR with a written assessment indicating whether or not the RAI responses are technically acceptable for the contractor to complete its review. If the contractor determines that an RAI response is insufficient to resolve the RAI in question, the contractor must provide a specific written description of the deficiencies to the NRC COR, who will address the issue with the licensee.

The NRC COR will provide feedback to the contractor on the draft TER document, and the COR and ORNL shall mutually resolve any outstanding issues. After resolution of any outstanding issues from the licensee's RAI responses, the NRC COR shall perform a final acceptance review of the draft TER document, and ORNL shall provide a final TER document as a task order deliverable.

Following resolution of all RAI comments, the contractor's technical editor shall review the Final TE Input document prior to delivery to the NRC COR. After technical editing, the contractor must provide the Final TER document to the NRC COR.

The contractor must provide the Final TER document to the COR as a Word file, and following the guidance in NUREG-1379, "NRC Editorial Style Guide," Rev. 2. The Word file must not contain any hidden text or linked fields as these may not be compatible with the NRC Word version in use, unless approved by COR.

The contractor must deliver the Final TER document on time, technically acceptable, without spelling or grammatical errors, and in the specified format.

5.0 DELIVERABLES AND/OR MILESTONES SCHEDULE

All deliverables must be delivered no later than the date specified in the task order schedule and must be submitted to the NRC COR electronically with a copy provided to the NRC Contracting Officer (CO). Any changes in the schedule must be issued via a bilateral modification to the task order. Deliverables must be transmitted with a cover letter addressed to the NRC COR, on ORNL's letterhead, describing the contents and identifying task order number and title. Below is an example of an estimated delivery schedule. The specific dates for these deliverables will be agreed upon between the NRC COR and ORNL after task order award.

Task Number	Deliverable/Milestone Description <i>(include NRG criteria if applicable)</i>	Due Date <i>(if any)</i>
1	ORNL to participate in Kick-Off Meeting via teleconference with NRC COR.	Within 5 days of task order award.
2	Proposed Draft ISG Revisions	One Month after task order award
3	Binning of Public Comments, Comment Responses and Updated Draft ISG.	One Month after Comment period for FRN closes
4	Updated Final ISG	Two weeks following receipt of the NRC staff comments on the proposed draft ISG revisions document.
5	TER based on Pilot study using Final ISG on an applicant I&C upgrade application	One Month after Final RAI responses from licensee

It is anticipated the NRC COR will require approximately two (2) weeks to review the proposed ISG revisions.

6.0 TECHNICAL AND OTHER SPECIAL QUALIFICATIONS REQUIRED

Specialized experience for ORNL personnel performing under this task order must meet the minimum requirements for education and experience. NRC requests resumes for each individual proposed to fill these labor categories and reserves the right to approve/disapprove individuals proposed for each labor category.

The work must be coordinated by a principal investigator who will be the staff's primary point of contact throughout the performance of the agreement. The evaluation of public comment responses and incorporation of responses and other technical content into the draft ISG must be performed by senior technical laboratory personnel with experience and familiarity with the current guidance for licensing I&C systems for NPRs, as published in NUREG-1537, "Guidance for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors," dated February 1996 and the Draft ISG to Chapter 7 of NUREG-1537 produced in 2013. The ISG updates must be performed by a senior key technical subject matter expert that has 1) B.S. in Electrical Engineering or similar technical field, and 2) minimum 3 years technical expertise in research and test reactor I&C systems similar to those at facilities currently licensed by the U.S. NRC.

7.0 MEETINGS AND TRAVEL

All travel requires written Government approval from the CO, unless otherwise delegated to the COR. The following is supported under this agreement:

It is anticipated that for performance of work, one ORNL senior key staff member will be required to attend a site familiarization visit to the licensee site related to the I&C facility

upgrade. For purposes of planning, the contractor should assume a 3 –day trip to the University of Massachusetts at Lowell.

It is also anticipated that one ORNL senior key staff member will be required to visit the NRC during the revision of the ISG. ORNL will assume a 2-day trip to NRC Headquarters.

8.0 REPORTING REQUIREMENTS

ORNL is responsible for structuring the deliverable to follow agency standards. The current agency standard is Microsoft Office Suite 2013. The current agency Portable Document Format (PDF) standard is Adobe Acrobat XI Professional. Deliverables must be submitted free of spelling and grammatical errors and conform to requirements stated in this section. An ORNL technical editor should be used to ensure the final deliverable conforms to these reporting requirements.

Monthly Letter Status Reports

In accordance with Management Directive 11.7, NRC Procedures for Placement and Monitoring of Work with the U.S. Department of Energy, the DOE Laboratory must electronically submit a Monthly Letter Status Report (MLSR) by the 20th day of each month to the Contracting Officer Representative (COR) with copies to the Contracting Officer (CO) and the Office Administration/Acquisition Management Division to ContractsPOT.Resource@nrc.gov. If a project is a task ordering agreement, a separate MLSR must be submitted for each task order with a summary project MLSR, even if no work has been performed during a reporting period. Once NRC has determined that all work on a task order is completed and that final costs are acceptable, a task order may be omitted from the MLSR.

The MLSR must include the following: agreement number; task order number, if applicable; job code number; title of the project; project period of performance; task order period of performance, if applicable; COR's name, telephone number, and e-mail address; full name and address of the performing organization; principal investigator's name, telephone number, and e-mail address; and reporting period.

9.0 PERIOD OF PERFORMANCE

The duration of this Task Order will be from task order award to June 30, 2018.

10.0 CONTRACTING OFFICER'S REPRESENTATIVE

The NRC COR monitors all technical aspects of the agreement/task order and assists in its administration. The COR is authorized to perform the following functions: assure that ORNL performs the technical requirements of the agreement/task order; perform inspections necessary in connection with agreement/task order performance; maintain written and oral communications with ORNL concerning technical aspects of the agreement/task order; issue written interpretations of technical requirements, including Government drawings, designs, specifications; monitor ORNL's performance and notify the ORNL of any deficiencies; coordinate availability of NRC-furnished material and/or GFP; and provide site entry of ORNL personnel.

Contracting Officer's Representative

Name: Duane A. Hardesty
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Alternate Contracting Officer's Representative

Name: Linh Tran
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Mail Stop: 012D20
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11.0 MATERIALS REQUIRED (TYPE N/A IF NOT APPLICABLE)

N/A

12.0 NRC-FURNISHED PROPERTY/MATERIALS (TYPE N/A IF NOT APPLICABLE)

The NRC COR will provide the following documents to ORNL in performance of work under this task order:

- The Draft ISG to Chapter 7 of NUREG-1537, Part 1 and Part 2.
- Comments provided during FRN public comment period;
- All applicant information and supplements related to the licensee's application for an I&C upgrade;
 - University of Massachusetts, Lowell - Safety Analysis Report, (Chapters 1-7), Agency-wide Document Access and Management System (ADAMS) Accession number ML15293A386
 - University Of Massachusetts, Lowell - Safety Analysis Report, (Chapters 8-15), ADAMS Accession No. ML15293A387.
- Other related information, as necessary

13.0 RESEARCH QUALITY

N/A

14.0 STANDARDS FOR CONTRACTORS WHO PREPARE NUREG-SERIES MANUSCRIPTS

N/A

16.0 OTHER CONSIDERATIONS

N/A

References

N/A

Access to Non-NRC Facilities/Equipment

N/A

Applicable Publications

N/A

Controls over document handling and non-disclosure of materials

N/A