

INTERAGENCY AGREEMENT		1. IAA NO. NRC-HQ-25-15-T-0006		PAGE 1 OF 2		
2. ORDER NO.		3. REQUISITION NO. NRO-15-0099		4. SOLICITATION NO.		
5. EFFECTIVE DATE 06/29/2015		6. AWARD DATE 06/29/2015		7. PERIOD OF PERFORMANCE 07/01/2015 TO 02/28/2016		
8. SERVING AGENCY BROOKHAVEN NATIONAL LABORATORY ALC: DUNS: 027579460 +4: BROOKHAVEN SITE OFFICE PO BOX 5000 BLDG 464 UPTON NY 11973-5000 POC Kim Nekulak TELEPHONE NO. 631-344-7439		9. DELIVER TO JACQWAN WALKER MAIL STOP T7-C28 11555 ROCKVILLE PIKE CROWNSVILLE MD 20852				
10. REQUESTING AGENCY ACQUISITION MANAGEMENT DIVISION ALC: 31000001 DUNS: 040535809 +4: US NUCLEAR REGULATORY COMMISSION ONE WHITE FLINT NORTH 11555 ROCKVILLE PIKE ROCKVILLE MD 20852-2738 POC Jeffrey R. Mitchell TELEPHONE NO. 301-415-5074		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 SEE BLOCK 18 BELOW				
16. ACCOUNTING DATA 2015-X0200-FEEBASED-25-25D002-17-4-118-3002-251D						
17. ITEM NO.	18. SUPPLIES/SERVICES		19. QUANTITY	20. UNIT	21. UNIT PRICE	22. AMOUNT
	TASK ORDERING AGREEMENT: NRC-HQ-25-14-D-0002 TASK ORDER NUMBER: NRC-HQ-25-15-T-0006 The NRC and the DOE Lab (BNL) hereby enter into this Agreement/Task Order, NRCHQ2514D0002 - NRCHQ2515T0006, for the project entitled, Technical Assistance in Support of KHNP APR1400 Design Certification Relating to Human Factors Review. The performance period for this agreement shall commence on July 1, 2015 and will expire on Continued ...					
23. PAYMENT PROVISIONS			24. TOTAL AMOUNT \$148,382.00			
25a. SIGNATURE OF GOVERNMENT REPRESENTATIVE (SERVING)			25b. SIGNATURE OF GOVERNMENT REPRESENTATIVE (REQUESTING)			
25c. NAME AND TITLE Kim M. Nekulak Contracting Officer			25d. CONTRACTING OFFICER JEFFREY R. MITCHELL			
25e. DATE JUL 16 2015			25f. DATE 6/27/2015			

IAA NO NRC-HQ-25-15-T-0006	ORDER NO	PAGE 2 OF 2
00001	<p>February 28, 2016.</p> <p>Consideration and Obligations:</p> <p>(a) Authorized Cost Ceiling \$148,382.00.</p> <p>(b) The amount presently obligated with respect to this DOE Agreement is \$148,382.00. When and if the amount(s) paid and payable to the DOE Laboratory hereunder shall equal the obligated amount, the DOE Laboratory shall not be obligated to continue performance of the work unless and until the NRC Contracting Officer shall increase the amount obligated with respect to this DOE Agreement. Any work undertaken by the DOE Laboratory in excess of the obligated amount specified above is done so at the DOE Laboratory's sole risk.</p> <p>The following documents are hereby made part of this Agreement:</p> <p>Attachment No. 1: Statement of Work</p> <p>NRC CONTRACTING OFFICERS REPRESENTATIVE (COR): Jacquan Walker</p> <p>PNNL PROJECT MANAGER: W. Horak and J. O'Hara</p> <p>Master IAA: NRCHQ2514D0002</p> <p>Authorized Cost Ceiling Line Item Ceiling \$148,382.00 Incrementally Funded Amount: \$148,382.00</p> <p>This agreement is entered into pursuant to the authority of the Energy Reorganization Act of 1974, as amended (42 U.S.C 5801 et seq.). This work will be performed in accordance with the NRC/DOE Memorandum of Understanding dated November 24, 1998. To the best of our knowledge, the work requested will not place the DOE and its contractor in direct competition with the domestic private sector.</p> <p>[X] Fee Recoverable Work TAC Code: RX0849</p> <p>[] Non-fee Recoverable Work</p> <p>The total amount of award: \$148,382.00. The obligation for this award is shown in box 24.</p>	148,382.00

STATEMENT OF WORK

NRC Agreement Number NRC-HQ-25-14-D-0002	NRC Agreement Modification Number	NRC Task Order Number (If Applicable) NRC-HQ-25-15-T-0006	NRC Task Order Modification Number (If Applicable)
Project Title Technical Assistance in Support of KHNP APR1400 Design Certification Relating to Human Factors Review			
Job Code Number 3002	B&R Number	DOE Laboratory Brookhaven National Lab	
NRC Requisitioning Office Division of Construction Inspection and Operational Programs			
NRC Form 187, Contract Security and Classification Requirements <input type="checkbox"/> Applicable <input type="checkbox"/> Note Applicable <input type="checkbox"/> Non Fee-Recoverable		 <input type="checkbox"/> Involves Proprietary Information <input type="checkbox"/> Involves Sensitive Unclassified <input type="checkbox"/> Fee-Recoverable (If checked, complete all applicable sections below)	
Docket Number (If Fee-Recoverable/Applicable)		Inspection Report Number (If Fee Recoverable/Applicable)	
Technical Assignment Control Number (If Fee-Recoverable/Applicable)		Technical Assignment Control Number Description (If Fee-Recoverable/Applicable)	

1.0 Background

The U.S. Nuclear Regulatory Commission (NRC) and the nuclear industry have embarked on an effort to improve and standardize future commercial nuclear power plant designs. NRC regulations in 10 CFR Part 52, titled "EARLY SITE PERMITS; STANDARD DESIGN CERTIFICATIONS; AND COMBINED LICENSES FOR NUCLEAR POWER PLANTS," encourage standardization and streamlined the licensing process. Nuclear plant designers or vendors have begun the design of advanced plants, which are being submitted to the NRC for review and approval under Part 52. One such example is the Korea Electric Power Corporation (KEPCO) and Korea Hydro and Nuclear Power's (KHNP) APR1400 application.

The licensing process will consist of a final design approval by the NRC, in consultation with the Advisory Commission on Reactor Safety (ACRS), and then a standard design certification that is issued as an NRC rule. The certification, when issued, would be valid for 15 years (renewable). During its tenure, neither the NRC nor the designer can change or impose new requirements on the standard design certification without a new rulemaking. Utilities would have the option of purchasing the design standard and utilizing it as already approved by the NRC.

In order to ensure that a plant, as built, conforms to the standard design certification, inspections, tests, analyses, and acceptance criteria (ITAAC) must be specified as part of the standard design certification. Then a utility that is building the plant, and the NRC, will ensure that the ITAAC are performed and met. A utility desiring to license and operate a nuclear power plant under Part 52 will obtain a combined operating license (COL). After completing construction authorized by the COL, the plant can be authorized to operate, after demonstrating the ITAAC have been satisfied. The COL applicant may propose a new design or reference an existing standard design certification.

The Operator Licensing and Human Performance Branch (COLB) is currently evaluating the human factors engineering (HFE) programs submitted as part of the Part 52 certification process for the APR1400 design. The review is based on NRC's Standard Review Plan (SRP) Chapter 18 and NUREG-0711, "Human Factors Engineering Program Review Model." Since the NRC's personnel resources to conduct these reviews are limited, it is anticipated that technical support will be required in order to meet the schedule and the human factors review requirements of submitted applications, such as KHNP's APR1400.

2.0 Objective

The objective of this Task Order is to obtain expert technical assistance from Brookhaven National Laboratory (BNL) to assist NRC staff in the review and evaluation of the KHNP APR1400 Design Control Document (DCD), subsequent revisions, and any APR1400 License Technical Reports received (up to a total of ten and any subsequent revisions).

3.0 Scope of Work

The review will be guided by SRP Chapter 18, NUREG 0711, and related guidance documents. BNL will provide assistance in developing requests for additional (or clarifying) information (RAI) and in providing technical input to the preliminary and final safety evaluation reports (SERs). BNL will also provide technical hearing support to the staff during ACRS meetings and ASLB proceedings, as needed by the staff.

The primary deliverable, or output of this regulatory review, shall be a safety evaluation (SE) for Section 18.10 "Human Factors Verification and Validation" of the KHNP APR1400 DCD. The SE will serve as input to the overall Chapter 18 SER, which will document the NRC's technical, safety, and legal basis for approving the APR1400. The SER 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 DOE Laboratory must provide all resources necessary to accomplish the tasks and deliverables described in this statement of work (SOW). The NRC will provide BNL with the most current SE format.

4.0 Specific Tasks

#	Tasks
1.	Review the following to determine if the methods and approach proposed by the applicant meet the review guidance: <ul style="list-style-type: none">• Section 18 of the APR1400 DCD application, and other sections containing HFE-related content (e.g., Sections 7, 13, 19, etc.)

	<ul style="list-style-type: none"> • The implementation plan for Verification and Validation (V&V), • Any technical reports, or result summary reports, associated with the V&V implementation plan
2.	In accordance with the guidance documents, prepare a preliminary SE for the V&V section. Send the draft SE for V&V to the COR for review.
3.	Within the SE for the V&V section, document issues and the need for any additional clarifying information as draft RAIs. Extract the RAIs from the SE and send them to the COR for review and submittal into the eRAI tracking system.

5.0 Deliverables and/or Milestones Schedule

#	Deliverable	Due Date
1.	<p>Draft SER for Section 18.10 "Human Factors Verification and Validation" of the KHNP APR1400 DCD.</p> <p>STANDARD: Completed draft SE, with RAIs, that follows the template NRC will provide without deviation. The SE 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. Also, see Attachment 1 for more detailed information.</p>	10 weeks from the commencement of this SOW
2.	<p>Draft RAIs</p> <p>STANDARD: RAI spreadsheet with RAI number, reviewer name, question summary, and the full text of the RAI, for technical monitor COR review. See Attachment 1, "Technical Evaluation" section (second paragraph) for more detailed information.</p>	10 weeks from the commencement of this SOW

6.0 Technical and Other Special Qualifications Required

Specific qualifications for this effort include at least one senior human factors specialist with knowledge and experience in the following:

- a. The use of US nuclear power plant industry codes and standards
- b. Design certification application reviews in the area of human factors engineering
- c. Analyzing cognitive tasks such as detection, situation assessment and decision making
- d. Digital human system interfaces in control room applications
- e. Control Room tasks and activities

7.0 Meetings and Travel

The following travel assumptions should be considered in planning the work effort. It is likely that a smaller group than the entire review team will be necessary to accomplish some activities; the actual travel contingent will be determined by the NRC contracting officer representative (COR) after discussion with the laboratory PM (and PTL).

- One, two-person, one-day working meeting at NRC headquarters during the fiscal year to review deliverables. At the discretion of the NRC COR, meetings may be conducted at the laboratory or via telephone or video conference.

Foreign travel for the DOE laboratory personnel requires a 60-day lead time for NRC approval. For prior approval of foreign travel, the DOE laboratory shall submit an NRC Form 445, "Request for Approval of Official Foreign Travel." NRC Form 445 is available in the MD 11.7 Documents library and on the NRC Web site at: <http://www.nrc.gov/reading-rm/doc-collections/forms/>. Foreign travel is approved by the NRC Executive Director for Operations (EDO).

All travel requires written Government approval from the CO, unless otherwise delegated to the COR.

8.0 Reporting Requirements

Unless otherwise specified above, the laboratory shall provide all deliverables as draft products. The NRC COR will review all draft deliverables (and coordinate any internal NRC staff review, if needed) and provide comments back to the laboratory. The laboratory shall revise the draft deliverable based on the comments provided by the COR, and then deliver the final version of the deliverable. When mutually agreed upon between the laboratory and the COR, the laboratory may submit preliminary or partial drafts to help gauge the laboratory's understanding of the particular work requirement.

The laboratory 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 COR. For each deliverable, the laboratory shall provide an electronic copy to both the CO and the COR. The schedule for deliverables shall be contained in the approved project plan for the task order effort.

In all correspondence, include identifying information: Cost Center: Q-_____; Technical Assignment Control No. (TAC), if applicable, _____; and the Task Order No.: _____.

Communications with the NRC and among laboratory staff may be subject to hearing file requirements under 10 CFR Part 2. In this circumstance, the NRC COR will identify the type of records that must be provided to the NRC for inclusion in the hearing file.

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 COR with copies to the CO and the Office Administration/Division of Contracts 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 technical status section of the report shall contain a summary of the work performed during the reporting period on this Task Order, and milestones reached, or, if missed, an explanation; any problems or delays encountered or anticipated with recommendations for resolution; and plans for the next reporting period. The status shall include information on travel during the period to include trip start and end dates, destination, and travelers.

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

Intentionally left blank.

10.0 Contracting Officer's Representative

The 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 the DOE Laboratory 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 the DOE Laboratory concerning technical aspects of the agreement/task order; issue written interpretations of technical requirements, including Government drawings, designs, specifications; monitor the DOE Laboratory's performance and notify the DOE Laboratory of any deficiencies; coordinate availability of NRC-furnished material and/or GFP; and provide site entry of DOE Laboratory personnel.

Contracting Officer's Representative

Name: Jacqwan Walker
Agency: U.S. Nuclear Regulatory Commission
Mail Stop: TWF 7-D24
Address: 11555 Rockville Pike
Rockville, MD 20852
E-mail: Jacqwan.Walker@nrc.gov
Phone: (301) 415-4035

11.0 Materials Required

[Not applicable]

12.0 NRC-Furnished Property/Materials

The NRC COR will provide those NRC documents that are not readily available. The NRC COR will provide access to any pertinent NRC documents and docketed correspondence on related issues. The laboratory staff will identify any additional NRC documentation that is needed and the COR will determine whether it will be provided by the NRC or obtained directly by the laboratory from NUDOCs, ADAMS, NRC public document room or the NRC website at www.nrc.gov.

13.0 Research Quality

[Not applicable]

14.0 Standards for Contractors Who Prepare NUREG-Series Manuscripts

[Not applicable]

15.0 Assumptions and Understandings

- It is assumed that the laboratory 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 to discuss:
 - a. any issues that may arise during the laboratory's efforts, or
 - b. to obtain additional information needed to complete the tasks described in this task order.
- For those instances where detailed design acceptance criteria cannot be established, the lab should provide direction detailing what necessary information should (or will be) included in the respective area, and how the respective criteria can be created using the specified elements.
- All work under this project is expected to be unclassified and not sensitive.

Attachment 1
Outline, format, and sample for the 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 SE, 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.

STATEMENT OF WORK

NRC Agreement Number NRC-HQ-25-14-D-0002	NRC Agreement Modification Number	NRC Task Order Number (If Applicable) NRC-HQ-25-15-T-0006	NRC Task Order Modification Number (If Applicable)
Project Title Technical Assistance in Support of KHNP APR1400 Design Certification Relating to Human Factors Review			
Job Code Number 3002	B&R Number	DOE Laboratory Brookhaven National Lab	
NRC Requisitioning Office Office of New Reactors (NRO) / Division of Construction Inspection and Operational Programs			
NRC Form 187, Contract Security and Classification Requirements <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> Note Applicable		<input type="checkbox"/> Involves Proprietary Information <input type="checkbox"/> Involves Sensitive Unclassified	
<input type="checkbox"/> Non Fee-Recoverable		<input checked="" type="checkbox"/> Fee-Recoverable (If checked, complete all applicable sections below)	
Docket Number (If Fee-Recoverable/Applicable) 52-00046		Inspection Report Number (If Fee Recoverable/Applicable)	
Technical Assignment Control Number (If Fee-Recoverable/Applicable) RX0849		Technical Assignment Control Number Description (If Fee-Recoverable/Applicable) Technical Assistance in Support of KHNP APR1400 Design Certification Relating to Human Factors Review	

1.0 Background

The U.S. Nuclear Regulatory Commission (NRC) and the nuclear industry have embarked on an effort to improve and standardize future commercial nuclear power plant designs. NRC regulations in 10 CFR Part 52, titled "EARLY SITE PERMITS; STANDARD DESIGN CERTIFICATIONS; AND COMBINED LICENSES FOR NUCLEAR POWER PLANTS," encourage standardization and streamlined the licensing process. Nuclear plant designers or vendors have begun the design of advanced plants, which are being submitted to the NRC for review and approval under Part 52. One such example is the Korea Electric Power Corporation (KEPCO) and Korea Hydro and Nuclear Power's (KHNP) APR1400 application.

The licensing process will consist of a final design approval by the NRC, in consultation with the Advisory Commission on Reactor Safety (ACRS), and then a standard design certification that is issued as an NRC rule. The certification, when issued, would be valid for 15 years (renewable). During its tenure, neither the NRC nor the designer can change or impose new requirements on the standard design certification without a new rulemaking. Utilities would

have the option of purchasing the design standard and utilizing it as already approved by the NRC.

In order to ensure that a plant, as built, conforms to the standard design certification, inspections, tests, analyses, and acceptance criteria (ITAAC) must be specified as part of the standard design certification. Then a utility that is building the plant, and the NRC, will ensure that the ITAAC are performed and met. A utility desiring to license and operate a nuclear power plant under Part 52 will obtain a combined operating license (COL). After completing construction authorized by the COL, the plant can be authorized to operate, after demonstrating the ITAAC have been satisfied. The COL applicant may propose a new design or reference an existing standard design certification.

The Operator Licensing and Human Performance Branch (COLB) is currently evaluating the human factors engineering (HFE) programs submitted as part of the Part 52 certification process for the APR1400 design. The review is based on NRC's Standard Review Plan (SRP) Chapter 18 and NUREG-0711, "Human Factors Engineering Program Review Model." Since the NRC's personnel resources to conduct these reviews are limited, it is anticipated that technical support will be required in order to meet the schedule and the human factors review requirements of submitted applications, such as KHNP's APR1400.

2.0 Objective

The objective of this Task Order is to obtain expert technical assistance from Brookhaven National Laboratory (BNL) to assist NRC staff in the review and evaluation of the KHNP APR1400 Design Control Document (DCD), subsequent revisions, and any APR1400 License Technical Reports received (up to a total of ten and any subsequent revisions).

3.0 Scope of Work

The review will be guided by SRP Chapter 18, NUREG 0711, and related guidance documents. BNL will provide assistance in developing requests for additional (or clarifying) information (RAI) and in providing technical input to the preliminary and final safety evaluation reports (SERs). BNL will also provide technical hearing support to the staff during ACRS meetings and ASLB proceedings, as needed by the staff.

The primary deliverable, or output of this regulatory review, shall be a safety evaluation (SE) for Sections 18.4 "Task Analysis," and 18.10 "Human Factors Verification and Validation" of the KHNP APR1400 DCD. The SEs will serve as input to the overall Chapter 18 SER, which will document the NRC's technical, safety, and legal basis for approving the APR1400. The SER 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 DOE Laboratory must provide all resources necessary to accomplish the tasks and deliverables described in this statement of work (SOW). The NRC will provide BNL with the most current SE format.

4.0 Specific Tasks

#	Tasks
1.	Review the following to determine if the methods and approach proposed by the applicant meet the review guidance:

	<ul style="list-style-type: none"> Section 18 of the APR1400 DCD application, and other sections containing HFE-related content (e.g., Sections 7, 13, 19, etc.) The implementation plans for Task Analysis (TA) and Verification and Validation (V&V), Any technical reports, or result summary reports, associated with the TA and V&V implementation plans <p>Level of Effort (LOE): 195 hours</p>
2.	<p>In accordance with the guidance documents, prepare a preliminary SE for the TA and V&V sections. Send the draft SE TA and for V&V to the COR for review.</p> <p>LOE: 95 hours</p>
3.	<p>Within the SE for the V&V each section, document issues and the need for any additional clarifying information as draft RAIs. Extract the RAIs from the SE and send them to the COR for review and submittal into the eRAI tracking system.</p> <p>LOE: 95 hours</p>

5.0 Deliverables and/or Milestones Schedule

#	Deliverable	Due Date
1.	<p>Draft SER for Sections 18.4 "Task Analysis," and 18.10 "Human Factors Verification and Validation" of the KHNP APR1400 DCD.</p> <p>STANDARD: Completed draft SE, with RAIs, that follows the template NRC will provide without deviation. The SE 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. Also, see Attachment 1 for more detailed information.</p>	10 weeks from the commencement of this SOW
2.	<p>Draft RAIs</p> <p>STANDARD: RAI spreadsheet with RAI number, reviewer name, question summary, and the full text of the RAI, for technical monitor COR review. See Attachment 1, "Technical Evaluation" section (second paragraph) for more detailed information.</p>	10 weeks from the commencement of this SOW

6.0 Technical and Other Special Qualifications Required

Specific qualifications for this effort include at least one senior human factors specialist with knowledge and experience in the following:

- The use of US nuclear power plant industry codes and standards
- Design certification application reviews in the area of human factors engineering
- Analyzing cognitive tasks such as detection, situation assessment and decision making
- Digital human system interfaces in control room applications
- Control Room tasks and activities

7.0 Meetings and Travel

The following travel assumptions should be considered in planning the work effort. It is likely that a smaller group than the entire review team will be necessary to accomplish some activities; the actual travel contingent will be determined by the NRC contracting officer representative (COR) after discussion with the laboratory PM (and PTL).

- One, two-person, one-day working meeting at NRC headquarters during the fiscal year to review deliverables. At the discretion of the NRC COR, meetings may be conducted at the laboratory or via telephone or video conference.

Foreign travel for the DOE laboratory personnel requires a 60-day lead time for NRC approval. For prior approval of foreign travel, the DOE laboratory shall submit an NRC Form 445, "Request for Approval of Official Foreign Travel." NRC Form 445 is available in the MD 11.7 Documents library and on the NRC Web site at: <http://www.nrc.gov/reading-rm/doc-collections/forms/>. Foreign travel is approved by the NRC Executive Director for Operations (EDO).

All travel requires written Government approval from the CO, unless otherwise delegated to the COR.

8.0 Reporting Requirements

Unless otherwise specified above, the laboratory shall provide all deliverables as draft products. The NRC COR will review all draft deliverables (and coordinate any internal NRC staff review, if needed) and provide comments back to the laboratory. The laboratory shall revise the draft deliverable based on the comments provided by the COR, and then deliver the final version of the deliverable. When mutually agreed upon between the laboratory and the COR, the laboratory may submit preliminary or partial drafts to help gauge the laboratory's understanding of the particular work requirement.

The laboratory 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 COR. For each deliverable, the laboratory shall provide an electronic copy to both the CO and the COR. The schedule for deliverables shall be contained in the approved project plan for the task order effort.

In all correspondence, include identifying information: Cost Center: Q-_____; Technical Assignment Control No. (TAC), if applicable, ____; and the Task Order No.: _____.

Communications with the NRC and among laboratory staff may be subject to hearing file requirements under 10 CFR Part 2. In this circumstance, the NRC COR will identify the type of records that must be provided to the NRC for inclusion in the hearing file.

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 COR with copies to the CO and the Office Administration/Division of Contracts 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 technical status section of the report shall contain a summary of the work performed during the reporting period on this Task Order, and milestones reached, or, if missed, an explanation; any problems or delays encountered or anticipated with recommendations for resolution; and plans for the next reporting period. The status shall include information on travel during the period to include trip start and end dates, destination, and travelers.

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 estimated period of performance for this work is 7 months from date of agreement award.

10.0 Contracting Officer's Representative

The 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 the DOE Laboratory 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 the DOE Laboratory concerning technical aspects of the agreement/task order; issue written interpretations of technical requirements, including Government drawings, designs, specifications; monitor the DOE Laboratory's performance and notify the DOE Laboratory of any deficiencies; coordinate availability of NRC-furnished material and/or GFP; and provide site entry of DOE Laboratory personnel.

Contracting Officer's Representative

Name: Jacqwan Walker
Agency: U.S. Nuclear Regulatory Commission
Mail Stop: TWF 7-D24
Address: 11555 Rockville Pike
Rockville, MD 20852
E-mail: Jacqwan.Walker@nrc.gov
Phone: (301) 415-4035

11.0 Materials Required

[Not applicable]

12.0 NRC-Furnished Property/Materials

The NRC COR will provide those NRC documents that are not readily available. The NRC COR will provide access to any pertinent NRC documents and docketed correspondence on related issues. The laboratory staff will identify any additional NRC documentation that is needed and

the COR will determine whether it will be provided by the NRC or obtained directly by the laboratory from NUDOCS, ADAMS, NRC public document room or the NRC website at www.nrc.gov.

13.0 Research Quality

[Not applicable]

14.0 Standards for Contractors Who Prepare NUREG-Series Manuscripts

[Not applicable]

15.0 Assumptions and Understandings

- It is assumed that the laboratory 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 to discuss:
 - a. any issues that may arise during the laboratory's efforts, or
 - b. to obtain additional information needed to complete the tasks described in this task order.
- For those instances where detailed design acceptance criteria cannot be established, the lab should provide direction detailing what necessary information should (or will be) included in the respective area, and how the respective criteria can be created using the specified elements.
- All work under this project is expected to be unclassified and not sensitive.

Attachment 1
Outline, format, and sample for the 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 SE, 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.