

AUG 09 2016

INTERAGENCY AGREEMENT		1. IAA NO. NRC-HQ-25-16-T-0002		PAGE OF 1 3	
2. ORDER NO.		3. REQUISITION NO. NRO-16-0003		4. SOLICITATION NO.	
5. EFFECTIVE DATE 06/16/2016		6. AWARD DATE 06/16/2016		7. PERIOD OF PERFORMANCE * Sandia start date is date of SFO CO acceptance 06/22/2016 TO 01/31/2017	
8. SERVICING AGENCY ALBUQUERQUESANDIA NATL LAB ALC: DUNS: 155505027 +4: DOENNSASFO CONTRACTING OFFICER PO BOX 5400 ALBUQUERQUE NM 87185-5400 POC Dolores Lineback TELEPHONE NO. 505-845-6055			9. DELIVER TO ANNIE RAMIREZ US NUCLEAR REGULATORY COMMISSION MAIL STOP TWFN 7 H5 11555 ROCKVILLE PIKE ROCKVILLE MD 20852		
10. REQUESTING AGENCY ACQUISITION MANAGEMENT DIVISION ALC: 31000001 DUNS: +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 CONDUCT REVIEW AND INSPECTION OF VENDOR'S ASSESSM		
18. ACCOUNTING DATA 2016-X0200-FEEBASED-25-25D002-17-4-118-3000-251D					
17. ITEM NO.	18. SUPPLIES/SERVICES	19. QUANTITY	20. UNIT	21. UNIT PRICE	22. AMOUNT
	The NRC and the DOE Lab Sandia National Laboratories (SNL) hereby enter into this Task Order NRC-HQ-25-16-T-0002 under Agreement, NRC-HQ-25-14-D-0005 for the project entitled, "Conduct Review and Inspection of vendor's assessment of Aircraft Impact on Advanced GEH ABWR DC renewal Standard Plant Design" The performance period for this agreement shall commence on June 22, 2016 and will expire on January 31, 2017. Continued ...	450140373	(7000099)	3Z	
		SNL		\$76,998.06	
		58		\$ 2,309.94	
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23. PAYMENT PROVISIONS			24. TOTAL AMOUNT \$79,308.00		
25a. SIGNATURE OF GOVERNMENT REPRESENTATIVE (SERVICING) <i>Lindsay Van Ness</i>			25b. SIGNATURE OF GOVERNMENT REPRESENTATIVE (REQUESTING) <i>Jeffrey R. Mitchell</i>		
25c. NAME AND TITLE Dave Ferguson Lindsay Van Ness NNSA Contracting Officer		25d. DATE 8/9/16	25e. CONTRACTING OFFICER JEFFREY R. MITCHELL		25f. DATE 6/16/2016

SUNSI REVIEW COMPLETE

TEMPLATE - ATTENTION

AUG 25 2016 ADM002

Consideration and Obligations:

(a) Authorized Cost Ceiling \$79,308.00.

(b) The amount presently obligated with respect to this DOE Agreement is \$79,308.00. 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.

The following documents are hereby made part of this Agreement:

Attachment No. 1: Statement of Work

NRC CONTRACTING OFFICERS REPRESENTATIVE (COR):
Annie Ramirez (Primary) and Yamir Diaz-Castillo (Alternate)

SNL PROJECT MANAGER: Fredrick McCrory
Master IAA: NRCHQ2514D0005

00001

Authorized Cost Ceiling
Total Obligated Amount \$79,308.00
Incrementally Funded Amount: \$79,308.00

79,308.00

→ 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.

- [x] Fee Recoverable Work
- [] Non-fee Recoverable Work

Notwithstanding the agreement effective dates and period of performance start dates stated elsewhere in the agreement, the effective date of the agreement and start date of the period of performance are the last date of signature by the
Continued ...

parties.

- ALC: 31000001
- DUNS: 040535809
- TAS: 31x0200.320

The total amount of award: \$79,308.00. The obligation for this award is shown in box 24.

INTERAGENCY TASK ORDER STATEMENT OF WORK

UNDER AGREEMENT NO. NRC-HQ-25-12-D-0005

TASK ORDER NO. NRC-HQ-25-16-T-0002

Cost Center 3000	Laboratory Sandia National Laboratory	Task Order No. NRC-HQ-25-16-T-0002
Applicant GE Hitachi Nuclear Energy	Design/Site US-ABWR	Docket No. 52-045
Title/Description Conduct Review and Inspection of vendor's assessment of Aircraft Impact on Advanced GEH ABWR DC renewal Standard Plant Design		
CAC No. RX0853	B&R Number 2016-25-17-4-118	SRP Section(s) or ESRP Appendix 19S
BOC Code 251D	NAICS Code 541330	Office of New Reactors (NRO) DCIP/EVIB
<input checked="" type="checkbox"/> Fee Recoverable <input type="checkbox"/> Non-Fee Recoverable		
NRC Contracting Officer Representative		
Annie Ramirez	(301) 415-6780	annie.ramirez@nrc.gov
NRC Contracting Officer Representative (Alternate)		
Yamir Diaz-Castillo	(301) 415-2228	yamir.diaz-castillo@nrc.gov

1. BACKGROUND

The U.S. Nuclear Regulatory Commission (NRC) is proposing to amend its regulations in Title 10, Part 52, "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants," regarding the consideration of aircraft impacts for new nuclear power reactor designs. The proposed rule requires applicants for new standard design certifications that do not reference a standard design approval; new standard design approvals; combined licenses that do not reference a standard design certification, standard design approval, or manufactured reactor; and new manufacturing licenses that do not reference a standard design certification or standard design approval to assess the effects of the impact of a large, commercial aircraft on the nuclear power plant. Based on the insights gained from this assessment, the applicant shall include in its application a description and evaluation of design features, functional capabilities, and strategies to avoid or mitigate, to the extent practicable, the effects of the aircraft impact with reduced reliance on operator actions. The impact of a large, commercial aircraft is a beyond-design-basis event, and the NRC's requirements applicable to the design, construction, testing operation, and maintenance of design features, functional capabilities, and strategies for design basis events would not be applicable to design features, functional capabilities, or strategies selected by the applicant solely to meet the requirements of this rule. The objective of this rule is to require nuclear power plant designers to perform a

rigorous assessment of design features that could provide additional inherent protection to avoid or mitigate, to the extent practicable, the effects of an aircraft impact, with reduced reliance on operator actions.

The proposed rule would require that the design-specific impact assessment address Commission-specified aircraft characteristics (Safeguards Information).

The guidance for assessing the new reactor designs for aircraft impacts is NEI 07-13, Rev. 8, "Methodology for Performing Aircraft Impact Assessments for New Plant Designs". This guidance is available to the new reactor vendors and licensees for use in their assessments as of April 2011. The NRC staff has reviewed the NEI guidance document, NEI 07-13, Rev. 8, and determined that it describes an acceptable approach for assessing the effects of the impact of a large, commercial aircraft on a nuclear power plant. Regulatory Guide (RG) 1.217 "Guidance for the assessment of Beyond-Design Basis Aircraft Impacts" describes the technical approach. In addition, the NRC staff has developed inspection guidance document, IP-37804 that can be used for evaluating applicant's assessment of the effects of a large commercial aircraft impact on the designed facility.

2. CONFLICT OF INTEREST

The conflict of interest provisions specified in the laboratory basic task ordering agreement apply to this task order. Regarding the use of subcontractors, Section 170A of the Atomic Energy Act of 1954, as amended, organizational conflict of interest (OCOI) requirements govern Department of Energy laboratory agreements for performance of NRC projects and apply to subcontracts and consulting agreements hereunder (48 CFR 2009.570-2 "Contractor"). In this regard, the laboratory understands that NRC is to be provided with disclosures regarding potential OCOIs when the NRC obtains technical, consulting, research and other support services. Accordingly, any potential subcontractor shall review and promptly provide to the laboratory for the laboratory's transmittal to the NRC, disclosures for the subcontractor's current work, planned work and past work for non-NRC entities, (i) in the same technical area, or (ii) on the same or similar matter, as the NRC project scope of work. Non-NRC entities include but are not limited to, NRC licensees, vendors, industry groups or research institutes that represent or are substantially comprised of nuclear utilities. In addition, disclosures shall also be provided by the subcontractor for any concurrent and contemplated work for GE Hitachi. Each disclosure for NRC review shall include a copy of an official scope of work/purchase order, the dollar value of the work, and the period of performance. It is understood that NRC shall make all determinations concerning OCOI.

3. OBJECTIVE

The objective of this task order is to obtain technical expertise from the laboratory to assist the NRC staff in an inspection of the applicant's assessment to determine whether or not the design certification (DC) application for Advanced Boiling Water Reactor (ABWR) design meets appropriate regulatory requirements relating to assessing the effects of a large commercial aircraft impact on the designed facility. An approved methodology and acceptance criteria for

performing aircraft impact assessments for new plant designs are specified in NEI 07-13. The inspection of applicant's assessment shall be performed based on the guidance developed by Sandia National Laboratory for this purpose. Independent confirmatory finite-element computer analyses are not expected to be performed in support of this task order.

The primary deliverable, or output of this regulatory review, shall be inspection report input for the Advanced Boiling Water Reactor (US-ABWR) Design AIA inspection.

The specific work and schedule required for this task order is provided in Section 4.

4. WORK REQUIREMENTS, SCHEDULE AND DELIVERABLES

Tasks/Standards	Scheduled Completion	Deliverables
<p>1. REQUIREMENT: Become familiar with the applicant's aircraft assessment and related regulatory guides and guidance documents.</p> <p>STANDARD: Written confirmation that familiarization is complete</p>	<p>One week after authorization of work</p>	<p>Documentation that assigned personnel have reviewed relevant documents</p>
<p>2. REQUIREMENT: Participate in an orientation/kick-off meeting with the NRC staff to discuss the scope of the work, expectations and contract management</p> <p>STANDARD: Attendance by individuals designated by NRC.</p>	<p>Two weeks after authorization of work</p>	<p>N/A</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>3. REQUIREMENT: Using NEI 07-13 and IP-37804 (both provided by the staff), determine if the methods and approach proposed by the applicants in their assessment meet the review guidance:</p> <ul style="list-style-type: none"> • Review the plant layout and verify that the applicant considered the appropriate impact scenarios. • Review the aircraft loading characteristics to verify that they are comparable to those supplied by the Commission. • Where applicable, verify that the appropriate local and global impact analyses were performed and that the long-term stability of the impacted structure was considered (i.e., progressive collapse and thermal-induced collapse). • Review the assessment of shock-induced failure of equipment components. • Perform independent confirmatory analyses, if required to verify the adequacy of the assessment. Staff's approval is required prior to performing any detailed computer analyses. 	<p>Three to four weeks after authorization of work</p>	<p>Document the review of applicable documents with any findings and/or observations to be used in daily debriefs.</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>4. REQUIREMENT: In conjunction with Task 3, prepare for and travel to the applicant's office and participate in an NRC inspection review team to:</p> <ul style="list-style-type: none"> a. Audit the analysis reports and design calculations as described in the DC application c. Prepare report input (as an input to NRC Inspection Report) to summarize the information reviewed, results of the inspection, and meeting discussions. <p>STANDARD: Complete evaluation as defined in Task. Submit input report within 1 week of the site inspection.</p>	<p>Six (6) weeks after completion of Task 4. Actual schedule TBD.</p>	<p>Inspection Report Input</p>
<p>5. REQUIREMENT: As needed and requested by the staff, provide technical support to the staff during related Advisory Committee on Reactor Safety (ACRS) meetings and hearing proceedings.</p> <p>STANDARD: Ensure presentation materials are reviewed and approved by NRC staff.</p>	<p>TBD</p>	<p>Prepare presentation materials. Attend meetings, if required</p>

5. TECHNICAL AND OTHER SPECIAL QUALIFICATIONS REQUIRED

As specified in the basic task ordering agreement, the laboratory shall provide personnel with substantial knowledge and experience in the design and operation of commercial nuclear power facilities. Experience with the following standard designs is especially desirable: AP1000, ESBWR and ABWR. Experience in the assessment of fire damage and safe shutdown consequences from an aircraft impacting a nuclear power plant are also highly desirable. Personnel with substantial experience skill in the following technical areas may be needed to support the project: three-dimensional finite element structural dynamic analyses of reinforced concrete structures for impact and shock loads (e.g., LS-DYNA), fire hazard analysis, safe shutdown analysis, fire protection engineering systems and principles, beyond design basis accident sequence analysis for nuclear power plants, nuclear power plant fire probabilistic risk assessment/evaluation, key fire protection regulatory issues specific to nuclear power plants (e.g. spurious actuations, manual actions if applicable, etc.). These laboratory personnel shall have demonstrated skill in written and verbal communication and the interpersonal skills

necessary to function effectively as a team member in a fast paced environment. Due to the sensitive nature of some aspects of the project, the work, the laboratory personnel may be required to undergo a criminal background check.

The laboratory shall provide a laboratory 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 laboratory 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 (principal investigators, technical staff, employees, consultants, specialists or subcontractors) shall describe the individual's experience in applying his or her area of specialization to work in the proposed area. The use of particular personnel on this task order is subject to the NRC COR approval. This includes any proposed changes to key personnel during the life of the task order.

The individual(s) identified as key personnel in the Technical Proposal, is (are) considered essential to the successful performance of the work. The DOE Laboratory agrees that these personnel shall not be removed from the project or replaced without complying with the following:

Key Personnel:
Dr. Chris Jones
Dr. Alex Brown

6. REPORTING REQUIREMENTS

Inspection report

The laboratory shall submit an inspection report input reports as specified in Attachment 1 within the basic task ordering agreement. The laboratory shall issue the report input within a week of the inspection. The input shall be provided via e-mail to:

NRC CORs with copies to the following

- Office of Administration/Division of Contracts (electronic copy only) to ContractsPOT.Resource@nrc.gov
- Yamir.Diaz-Castillo@nrc.gov
- NRO_MLSRs@nrc.gov

For purposes of billing, assume an even split between dockets for a multiple, same site application. On an exception basis, the project manager will determine if a separate task order should be issued to capture significant docket-specific expenditures.

Electronic Spending Plan

N/A - this will be a onetime effort therefore only one payment is required.

Technical reporting requirements

Typically, a report will involve the following:

- Trip reports with meeting summaries, observations and recommendations;
- Draft and final inspection report (IR) that summarize the work performed, results attained, findings, conclusions and recommendations. The report should follow IMC 0617 format.

In all correspondence, include the following identifying information:

- Agreement No.:NRC-HQ-25-12-D0005
- Cost Center 3000
- Technical Assignment Control (TAC) No.(if applicable)
- Applicant's Name
- Site Name (if applicable)

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.

Unless otherwise specified above, the laboratory shall provide all deliverables as draft products. The NRC COR will review all draft deliverables and provide comments back to the laboratory. The laboratory shall revise the draft deliverable based on the comments provided by the NRC COR, and then deliver the final version of the deliverable. When mutually agreed upon between the laboratory and the NRC 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 word processing software approved by the NRC COR. For each deliverable, the laboratory shall provide one hard copy and electronic copy to both the NRC COR and alternate COR. The schedule for deliverables shall be contained in the approved project plan for the task order effort.

The transmittal letter and cover page of each report, or other deliverable, as appropriate, shall contain the cost center, project title, NRC technical assignment control (TAC) number or inspection report number, and the facility name and docket number, as appropriate. At the direction of the NRC COR, certain deliverables may need to be prepared in NUREG or NUREG/CR format.

7. PERFORMANCE STANDARDS

Laboratory performance will be evaluated based on meeting the performance standards provided in the basic task ordering agreement. As provided in the basic task ordering agreement a feedback form shall be completed documenting this evaluation. It should be noted

that award of subsequent task orders will be based on the laboratory's success in meeting the schedule, milestones and deliverable requirements of the preceding task orders.

8. PERIOD OF PERFORMANCE

Refer to block 7 on the IAA award form.

9. 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 NRC COR will determine the actual travel contingent after discussion with the laboratory PM. The NRC COR must approve travel in excess of the total number of person-trips; the NRC COR will approve all travel within the work scope limits.

Two - one person, 5 days meetings at the applicant's facility (Tasks 4).

Two - one person, 2 days meeting, if needed, to support ASLB proceedings or ACRS meetings.

At the discretion of the NRC COR, quarterly progress meetings may be conducted at the laboratory or via telephone or videoconference.

10. NRC FURNISHED MATERIAL

The NRC COR will provide those NRC documents related to the applicable portions of the application that are readily available. The NRC COR will provide access to the applicant's safety analysis report, pertinent sections of the COL, DC, or other NRC safety documents and docketed correspondence on related issues. The laboratory staff will identify any additional NRC documentation that is needed and the TM will determine whether this 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.

11. LEVEL OF EFFORT

Intentionally left blank.

12. OTHER APPLICABLE INFORMATION

License Fee Recovery

Work under this task order is fee recoverable under 10 CFR Parts 170 and shall be charged to the appropriate TAC number(s).

Expected Classification or Sensitivity

The inspection report input will be unclassified and will required the use of SGI.

Assumptions and Understandings:

- The level of effort for Task 1 is based on the volume of materials to be reviewed; this task is for familiarity and not for evaluation.
 - The level of effort for Task 2 is based on the assumption of one working day for preparation and engagement for the kick-off meeting and time for post-meeting documentation.
 - The level of effort for Task 3 is based on the assumption that the laboratory is familiar with the review procedures of applicable guidance documents.
 - The level of effort for Task 4 is based on two, one person, and five-day trips (including travel time) plus four days to prepare for the trips and to write the trip reports.
 - The level of effort in Task 5 is based on requiring one trip to the site and one trip to NRC headquarters.
 - 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, and with the NRC staff and the applicant, to discuss open items in an attempt to obtain additional information or reach resolution.
 - During the course of the review, the NRC COR, and possibly other NRC personnel, may travel to the laboratory site to discuss the status of the review and participate in the resolution of open items. It is assumed that the level of effort covers such a meeting.
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Attachment 1

Outline, format, and sample for the inspection report input following IMC 0617 Guidance.

X.Y.Z Title of Section

X.Y.Z.1 Inspection Scope (including regulatory criteria)

[Describe what was inspected, consistent with the Inspection Procedure (IP) if one was used. The narrative can be extracted from the Objectives or Requirements section of the applicable IP. State either what the inspectors did or what the inspection accomplished: "The inspectors reviewed (observed, sampled, evaluated, etc.)..." The Scope statements might also describe why certain items were inspected.

X.Y.Z.2 Observations

Describe the inspectors' conclusions, and do not repeat the activities identified in the scope. "The inspectors reviewed..." is a Scope statement. "The inspectors noted (verified, observed, identified, etc.) ..." is the inspector's observation. When no findings were identified, the Observations and Findings section should state, "No findings of significance were identified." Only include detailed descriptions of the vendor or applicant's procedures or inspection activities if findings were identified with those documents or activities, or it is needed to support an allegation or licensing action.

For violations, apparent violations, and nonconformances, include sufficient detail to describe the requirement and how it was not met. This should include the circumstances of the noncompliance, including the date(s) of the noncompliance and the facts necessary to demonstrate that the requirement was not met. Actual or potential safety consequences should be described to support the significance of the noncompliance. This discussion should include whether the item was shipped, if there is an impact to the operating or new reactor fleet, or if the finding is material to ITAAC acceptance criteria. Corrective action taken or planned, response by the vendor, root cause, management involvement, whether the noncompliance appears isolated or programmatic may also be included to fully describe the violation or nonconformance.]

X.Y.Z.3 Conclusions

Summarize the vendor performance in the area inspected. If findings were identified, a short summary of each violation, apparent violation, or nonconformance should be included with its associated tracking number. If no findings were identified, include the statement, "No findings of significance were identified."

X.Y.Z.4 References

Include all reviewed documentation and a list of people interviewed during the inspection.