

INTERAGENCY AGREEMENT		1. IAA NO. NRC-HQ-25-15-D-0001/M0001		PAGE OF 1 2	
2. ORDER NO.		3. REQUISITION NO. NRO-16-0092		4. SOLICITATION NO.	
5. EFFECTIVE DATE 08/25/2016		6. AWARD DATE 08/25/2016		7. PERIOD OF PERFORMANCE 04/01/2015 TO 12/31/2017	
8. SERVING AGENCY ERN ORLANDO LAWR BERKLEY LABORATORY A.I.C.: DUNS: +4: LAWR BERKELEY NATIONAL LAB 1 CYCLOTRON ROAD - MS 90R1121 BERKELEY CA 94720 POC David Garcia TELEPHONE NO. 510-486-7283			9. DELIVER TO LUISETTE CANDELARIO-QUINTANA US NUCLEAR REGULATORY COMMISSION 11555 ROCKVILLE PIKE MAIL STOP T-7F3 ROCKVILLE MD 20852		
10. REQUESTING AGENCY ACQUISITION MANAGEMENT DIVISION A.I.C: 31000001 DUNS: 040535809 +4: US NUCLEAR REGULATORY COMMISSION ONE WHITE FLINT NORTH 11555 ROCKVILLE PIKE ROCKVILLE MD 20852-2738 POC SHASHI MAJHOTRA TELEPHONE NO. 301-415-7803			11. INVOICE OFFICE Multiple U.S. 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 TWEN-5E03 WASHINGTON DC 20555-0001			13. LEGISLATIVE AUTHORITY Energy Reorganization Act of 1974		
			14. PROJECT ID		
			15. PROJECT TITLE SEE BLOCK 18		
16. ACCOUNTING DATA 2016-X0200-FEEBASED-25-25D005-11-4-212-1062-251D					
17. ITEM NO.	18. SUPPLIES/SERVICES	19. QUANTITY	20. UNIT	21. UNIT PRICE	22. AMOUNT
	Master IAA: N/A Project Title: Near-Term Task Force Recommendation 2.1 Seismic Hazard Review The purpose of this modification is to (1) add additional within scope tasks thereby increasing the authorized cost ceiling by \$69,379.00 from \$62,656.00 to \$132,035.00 and (2) provide incremental funding in the amount of \$50,000.00. Accordingly the agreement is modified as follows: Continued ...				
23. PAYMENT PROVISIONS			24. TOTAL AMOUNT \$50,000.00		
25a. SIGNATURE OF GOVERNMENT REPRESENTATIVE (SERVICING) JACOLYN Digitally signed by JACOLYN BYRD DN: c=US, o=U.S. Government, ou=Department of Energy, cn=JACOLYN BYRD, 0.9.2342.19200300.100.1.1=89001000649505 Date: 2016.08.30 16:23:30 -07'00'			25b. SIGNATURE OF GOVERNMENT REPRESENTATIVE (REQUESTING) <i>[Signature]</i>		25c. DATE 8/30/16
25b. NAME AND TITLE BYRD			26a. CONTRACTING OFFICER JEFFREY R. MITCHELL		

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. 1 entitled "Statement of Work, Rev. 1."

The new authorized cost ceiling is \$132,035.00.

This modification provides incremental funding in the amount of \$50,000.00, thereby increasing the total obligations for this Agreement from \$62,656.000 to \$112,656.00.

All other terms and conditions remain unchanged.

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

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.

- [] Fee Recoverable Work
- [x] 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 parties.

Attachment: Statement of Work, Revision 1

STATEMENT OF WORK

REVISION 1

NRC Agreement Number NRC-HQ-25-15-D-0001	NRC Agreement Modification Number M0001	NRC Task Order Number (If Applicable) N/A	NRC Task Order Modification Number (If Applicable) N/A
Project Title Near-Term Task Force Recommendation 2.1 Seismic Hazard Review			
Job Code Number N/A	B&R Number N/A	DOE Laboratory Lawrence Berkeley National Laboratory (LBNL)	
NRC Requisitioning Office Office of New Reactors (NRO)			
NRC Form 187, Contract Security and Classification Requirements <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> Not Applicable		<input checked="" type="checkbox"/> Involves Proprietary Information <input type="checkbox"/> Involves Sensitive Unclassified	
<input checked="" type="checkbox"/> Non Fee-Recoverable		<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

By a 50.54(f) letter dated March 12, 2012, NRC required licensees to provide additional information to support the evaluation of the NRC staff recommendations for the Near-Term Task Force (NTTF) review of the accident at the Fukushima Dai-ichi nuclear facility. The review will enable the staff to determine whether the nuclear plant licenses should be modified, suspended or revoked. Four enclosures were included in the 50.54(f) letter, which requested that licensees perform updated seismic and flooding hazard analyses, and seismic and flooding walk downs of all the licensed operating plants.

Enclosure 1 of the 50.54(f) requests information regarding the seismic hazard analysis. All licensees were requested to re-evaluate the seismic hazard at their sites using updated seismic hazard information and present-day regulatory guidance and methodologies and, if necessary, to perform a risk evaluation. The licensees were requested to submit, along with the hazard evaluation, an interim evaluation and actions planned or taken to address the re-evaluated hazard where it exceeds the current design basis.

Enclosure 1, Item 8, of the 50.54(f) letter requested that certain licensees to complete a seismic probabilistic risk assessment (SPRA) to assess the total plant response to the re-evaluated hazard and inform the NRC's regulatory decisions on the adequacy of these sites' current seismic design-basis.

2.0 OBJECTIVE

The objective of this task order is to obtain technical expertise from the laboratory to assist the NRC staff in reviewing the responses to the 50.54(f) letter, dated March 12, 2012, Enclosure 1, Recommendation 2.1: Seismic.

The primary output of this regulatory review, shall be the Staff response letters, which will document the NRC's technical, safety, and legal basis for reviewing the Expedited Approach submittals. The staff review must provide sufficient information to adequately explain the NRC staff's rationale for why the response meets or does not meet the intent of the information request, adequacy or non-adequacy of actions taken, and overall acceptability or non-acceptability of the response by assessing against the applicable guidance and review criteria provided by the staff. The contractor provides reviews, comments, and advises all draft staff review results and RAIs, which should be written in a manner whereby a person with either non-nuclear technical background or non-technical background could understand the basis for the staff's conclusions.

The contractor shall support the NRC's effort on the evaluation of Seismic Probabilistic Risk Assessment (SPRA) submittals by developing a SPRA technical review checklist for the NRC staff, including guidance used to evaluate fragility calculations, and by reviewing and commenting on NEI's SPRA submittal template. In addition, the contractor shall conduct a training course to ensure the staff has a clear understanding of SPRA related guidance and review checklist that will be used to conduct the technical reviews of the upcoming SPRA submittals.

3.0 SCOPE OF WORK

The DOE Laboratory must provide all resources necessary to accomplish the tasks and deliverables described in this statement of work (SOW).

The DOE Laboratory must provide support to the review of seismic hazard reevaluation submittal reports received in response to the 50.54(f) request for information.

The DOE Laboratory must provide support in developing SPRA review infrastructure which includes the development of a technical review checklist and conduct a training course at the NRC Headquarters in Rockville, MD for the staff.

The DOE Laboratory must support the NRC staff during workshop and interactions with EPRI and/or industry.

The DOE Laboratory must perform the following tasks:

<p>Phase 2: REQUIREMENT: Assess Staff Reviews of ESEP submittals to ensure:</p> <ul style="list-style-type: none"> a) Expedited Approach review package completeness, b) Consistency with the EPRI guidance, and c) Overall quality <p>STANDARD: Staff review includes information as required by the review template, and other NRC guidance. One round of comment incorporation is acceptable.</p> <p>Phase 3: REQUIREMENT: Develop a SPRA technical review guidance (checklist) for the NRC staff</p> <ul style="list-style-type: none"> a) Incorporate feedback from the NRC Staff, as appropriate. b) Participate in meeting/workshop with EPRI and/or industry regarding fragility methodologies. c) Update SPRA review checklist as appropriate. d) Incorporate examples of Fragility calculations <p>Phase 4: REQUIREMENT: Review and comment on NEI's proposed SPRA submittal template in response to NTTF Recommendation 2.1 Support public meeting to discuss the template with NEI.</p> <p>Phase 5: REQUIREMENT: Prepare for and conduct a multi-day (i.e., 2 or 3 days) training course at the NRC Headquarters in Rockville, MD on:</p> <ul style="list-style-type: none"> a) Support questions from technical reviewers (incl., contract reviewers) on NRC's previously developed training material for SPRA and SMA methods (dated March 2014) b) Provide an overview of the SPRA technical review checklist and include examples that will help the staff and contractors better understand its use. c) Provide an overview of acceptable Fragility methodologies including those discussed in EPRI workshop. Include examples of 	<p>To be performed in accordance with the senior review meetings schedule (as decided by NRC staff)</p> <p>To be performed in accordance with NRC's technical staff feedback and as directed by the COR.</p> <p>This Task is expected to start on July 2016.</p> <p>This Task is expected to be performed between <u>fall 2016 and early winter 2017, as directed by the COR.</u></p>	<p>Participation, review, comment, and advise on the staff review results. Review and comment on the entire RAI process to address questions and unresolved issues with the licensee submittals to ESEP.</p> <p>Participation on NRC staff meetings and fragility workshop. Submittal of the SPRA review checklist incorporating relevant information gathered from the fragility workshop and staff's feedback</p> <p>Participation, review, comment, and advice to the NRC staff on NEI's SPRA template.</p> <p>Develop and deliver course material and conduct the training</p>
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Tasks/Standards	Scheduled Completion	Deliverables
fragility calculations and guide the staff through acceptable review methods STANDARD: The Contractor's input on staff, EPRI and/or industry meetings, delivery of SPRA checklist to include fragility review guidance. Preparation and delivery of training material and conduction of a multi-day (i.e., 2 or 3 days) training course.		

4.0 SPECIFIC TASKS

The DOE Laboratory must perform the following tasks:

TASK 1 – REVIEW TECHNICAL INFORMATION AND ADVISE THE NRC STAFF CONCERNING THE STAFF REVIEWS OF ACTIVITIES PERTAINING TO NTTF RECOMMENDATION 2.1: SEISMIC

1. Familiarize with Fragility and Margin references to Include:
 - a) Seismic Fragility Applications Guide Update EPRI Report 1019200 (Dec 2009)
 - b) Seismic Fragility Application Guide EPRI 1002988 (Dec 2002)
 - c) Methodology for Developing Seismic Fragilities EPRI TR-103959 (June 1994)
 - d) A Methodology for Assessment of Nuclear Plant Seismic Margin EPRI NP 6041 (Oct 1988)
2. Evaluate the overall approach, including key assumptions, used by the licensee to evaluate core and containment cooling capability to ensure it is consistent with the endorsed guidance for the Expedited Seismic Evaluation Process (ESEP) (i.e., EPRI Topical Report, "Seismic Evaluation Guidance – Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic").
3. Assess if the licensee has identified an adequate set of core and containment cooling capability for the ESEP, including Diverse and Flexible Mitigation Capabilities, which is also referred to as the Diverse and Flexible Coping Strategies, (FLEX) equipment and strategies and any associated/supporting actions and SSCs, consistent with the endorsed guidance (i.e., Expedited Seismic Equipment List developed consistent with Section 3 of EPRI TR). Advise the staff and review the staff's proposed Requests for Additional Information (RAI) and other inputs to the Staff Reviews, as requested by the staff.
4. Provide potential questions for areas that are lacking in licensees' submittals and the basis to describe how it could make a difference in the safety finding. Evaluate the licensees' responses.
5. Participate in Senior Review Board calls with NRC staff, as requested: review screening of submittals, discuss RAIs and other review issues, participate in technical discussions, as requested. Evaluate and discuss the licensees' responses to any issues identified to determine if outstanding issues are adequately resolved, upon request from the staff.
6. Review and comment on Industry proposed guidance for implementing NTTF Recommendation 2.1 seismic activities.
7. Review and comment on Industry proposed SPRA submittal template.

8. Participate in routine meetings via conference calls or, when requested, in person on the progress of the reviews.
9. Present potential questions and safety issues and basis to NRC staff and participate in discussions to determine appropriate questions and issues.
10. Assess draft staff reviews as requested, and provide technical review comments to the staff COR.
11. Participate in meeting/workshop with EPRI and industry on SPRA and fragility methodologies.
12. Develop a separate checklist or incorporate within the existing SPRA review guidance checklist fragility methodologies, using information gathered on the EPRI/industry workshop and information from industry fragility guidance such as:
 - Seismic Fragility Applications Guide Update EPRI Report 1019200 (Dec 2009)
 - Seismic Fragility Application Guide EPRI 1002988 (Dec 2002)
 - Methodology for Developing Seismic Fragilities EPRI TR-103959 (June 1994)
 - A Methodology for Assessment of Nuclear Plant Seismic Margin EPRI NP 6041-SLR1 (Aug 1991).
 - Related and applicable DOE Reports
 - Seismic PRA implementation guide
13. Prepare, deliver material and conduct a multi-day training course at the NRC Headquarters in Rockville, MD on the developed SPRA review guidance checklist including industry current fragility methodologies and associated technical basis. If necessary to aid in understanding the use of the checklist, material from the March 19-21, 2014 seismic PRA training course should be incorporated into the multi-day training course. Present examples of fragility calculations and support reviewers questions on the NRC's previously developed training material for SPRA and SMA methods (dated March 2014). The training will be videotaped by the NRC staff

5.0 DELIVERABLES AND/OR MILESTONES SCHEDULE

1. Requests for Additional information, as warranted by the review and audits, as discussed and arranged in NRC coordination meetings.
2. Participate in conference calls and meetings to comment on NRC review results of Expedited Approach and SPRA submittals
3. Comment on Industry proposals to implement other Recommendation 2.1 activities pertaining to seismic, as warranted.
4. SPRA review guidance checklist including fragility methodologies from information gathered on the EPRI/industry workshop and information from industry fragility guidance.
5. Training materials and slides on SPRA guidance including fragility methodologies and its technical basis are to be delivered two weeks before the day of the training. Conduct a 2 day training course at the NRC Headquarters in Rockville, MD on SPRA including fragility guidance methodologies and related examples no later than the date directed by the COR. The training will be videotaped by the NRC staff.

6.0 TECHNICAL AND OTHER SPECIAL QUALIFICATIONS REQUIRED

The laboratory shall provide individuals who have the required educational background and work experience to meet the objectives of the work specified in this agreement. Specific qualifications for this effort should include:

Senior level Engineers with strong academic background and 10 to 15 years of work experience in performing seismic engineering design and analysis as it relates to nuclear power plant safety, knowledge of SPRA, and fragility/CDFM expertise.

Senior staff with system and probability and risk analysis (PRA) expertise.

A 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 this agreement.

The NRC will rely on representations made by the laboratory concerning the qualifications of the personnel assigned to this agreement, 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 agreement (principal investigators, technical staff, employees, consultants, specialists or subcontractors) 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 task order is subject to the COR and CO's approval. This includes any proposed changes to key personnel during the life of the task order.

8.0 MEETINGS AND TRAVEL

The following travel assumptions should be considered in planning the work effort. Travel in excess of the total number of person-trips must be approved by the COR; travel within the work scope limits will be approved by the COR.

- Three (3), one (1) person, three-day trips to NRC Headquarters for audits and meetings, as required and directed by the COR.
- Two two-person, two-day trip, to support meetings/workshops with the NRC staff, industry, and EPRI concerning SPRA and fragility.
- One, two-person, one-day trip to support public meeting with NEI to discuss the SPRA submittal template
- One two-person, two-day trip, to conduct a multi-day training course at the NRC Headquarters in Rockville, MD.

At the discretion of the COR, meetings, including monthly progress may be conducted via telephone.

9.0 REPORTING REQUIREMENTS

The DOE Laboratory is responsible for structuring the deliverable to follow agency standards. The current agency standard is Microsoft Office Suite 2010. The current agency Portable Document Format (PDF) standard is Adobe Acrobat 9 Professional. Deliverables must be submitted free of spelling and grammatical errors and conform to requirements stated in this section.

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, for the prior month's effort, to the Contracting Officer Representative (COR) with copies to the Contracting Officer (CO) and to the Acquisition Management Division at ContractsPOT.Resource@nrc.gov.

The MLSR must include the following: agreement number; job code number; title of the project; project period of performance; 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. At a minimum, the MLSR must include the information discussed in Attachment 1. The preferred format for a MLSR can also be found in Attachment 1.

10.0 PERIOD OF PERFORMANCE

See Block 7 on the IAA award form.

11.0 CONTRACTING OFFICER'S REPRESENTATIVE

The COR monitors all technical aspects of the agreement 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; perform inspections necessary in connection with agreement performance; maintain written and oral communications with the DOE Laboratory concerning technical aspects of the agreement; 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: Luisette Candalaro
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Alternate Contracting Officer's Representative

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E-Mail: Frankie.Vega@nrc.gov
Phone: 301-415-1617

12.0 Materials Required

N/A

13.0 NRC-FURNISHED PROPERTY/MATERIALS

N/A

14.0 RESEARCH QUALITY

N/A

15.0 STANDARDS FOR CONTRACTORS WHO PREPARE NUREG-SERIES MANUSCRIPTS

The U.S. Nuclear Regulatory Commission (NRC) began to capture most of its official records electronically on January 1, 2000. The NRC will capture each final NUREG-series publication in its native application. Therefore, please submit your final manuscript that has been approved by your NRC Project Manager in both electronic and camera-ready copy.

The final manuscript shall be of archival quality and comply with the requirements of NRC Management Directive 3.7 "NUREG-Series Publications." The document shall be technically edited consistent with NUREG-1379, Rev. 2 (May 2009) "NRC Editorial Style Guide." The goals of the "NRC Editorial Style Guide" are readability and consistency for all agency documents.

All format guidance, as specified in NUREG-0650, "Preparing NUREG-Series Publications," Rev. 2 (January 1999), will remain the same with one exception. You will no longer be required to include the NUREG-series designator on the bottom of each page of the manuscript. The NRC will assign this designator when we send the camera-ready copy to the printer and will place the designator on the cover, title page, and spine. The designator for each report will no longer be assigned when the decision to prepare a publication is made. The NRC's Publishing Services Branch will inform the NRC Project Manager for the publication of the assigned designator when the final manuscript is sent to the printer.

For the electronic manuscript, the Contractor shall prepare the text in Microsoft Word, and use any of the following file types for charts, spreadsheets, and the like.

File Types to be Used for NUREG-Series Publications	
File Type	File Extension
Microsoft®Word®	.doc
Microsoft® PowerPoint®	.ppt
Microsoft®Excel	.xls
Microsoft®Access	.mdb
Portable Document Format	.pdf

This list is subject to change if new software packages come into common use at NRC or by our licensees or other stakeholders that participate in the electronic submission process. If a portion of your manuscript is from another source and you cannot obtain an acceptable electronic file type for this portion (e.g., an appendix from an old publication), the NRC can, if necessary, create a tagged image file format

(file extension.tif) for that portion of your report. Note that you should continue to submit original photographs, which will be scanned, since digitized photographs do not print well. If you choose to publish a compact disk (CD) of your publication, place on the CD copies of the manuscript in both (1) a portable document format (PDF); (2) a Microsoft Word file format, and (3) an Adobe Acrobat Reader, or, alternatively, print instructions for obtaining a free copy of Adobe Acrobat Reader on the back cover insert of the jewel box.

16.0 OTHER CONSIDERATIONS

LBNL proposed subcontractor (Dr. Ravindra) scope of work shall be limited to Phases 3b, 3d, 5a and 5c of this Scope of Work. Dr. Ravindra's authorized activities are detailed as follow:

Phase 3: REQUIREMENT: Develop a SPRA technical review guidance (checklist) for the NRC staff.

- b) Participate in meeting/workshop with EPRI and/or industry regarding fragility methodologies
- d) Incorporate examples of Fragility calculations

Phase 5: REQUIREMENT: Prepare for and conduct a multi-day (i.e., 2 or 3 days) training course at the NRC Headquarters in Rockville, MD on:

- a) Support questions from technical reviewers (incl., contract reviewers) on NRC's previously developed training material for SPRA and SMA methods (dated March 2014)
- c) Provide an overview of acceptable Fragility methodologies including those discussed in EPRI workshop. Include examples of fragility calculations and guide the staff through acceptable review methods

References

1. Screening, Prioritization and Implementation Details (SPID) for the Resolution of Fukushima Near-Term Task Force recommendation 2.1: Seismic, EPRI 1025287.
2. Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic, EPRI 3002000704.
3. Seismic Fragility Applications Guide Update, EPRI Report 1019200 (Dec 2009)
4. Seismic Fragility Application Guide, EPRI 1002988 (Dec 2002)
5. Methodology for Developing Seismic Fragilities, EPRI TR-103959 (June 1994) A
6. Methodology for Assessment of Nuclear Plant Seismic Margin, EPRI NP 6041 (Oct 1988)
7. Seismic Fragility Applications Guide Update EPRI Report 1019200 (Dec 2009)
8. Seismic Fragility Application Guide EPRI 1002988 (Dec 2002)
9. Methodology for Developing Seismic Fragilities EPRI TR-103959 (June 1994)
10. A Methodology for Assessment of Nuclear Plant Seismic Margin EPRI NP 6041-SLR1 (Aug 1991)

11. Related and applicable DOE Reports

12. Seismic PRA implementation guide

The NRC COR will provide the references to the DOE laboratory via email.

Access to Non-NRC Facilities/Equipment

N/A

Applicable Publications

N/A

Controls over document handling and non-disclosure of materials

N/A