

## ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES

1 8

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

BPA NO

1. DATE OF ORDER <b>FEB 27 2013</b>		2. CONTRACT NO. (If any) NRC-HQ-12-C-42-0106		6. SHIP TO:	
3. ORDER NO. NRC-T004		4. REQUISITION/REFERENCE NO.		a. NAME OF CONSIGNEE U.S. Nuclear Regulatory Commission	
5. ISSUING OFFICE (Address correspondence to) U.S. Nuclear Regulatory Commission Div. of Contracts Attn: P. Merriweather Mail Stop: TWB-01-B10M Washington, DC 20555				b. STREET ADDRESS	
7. TO:				c. CITY Washington	d. STATE DC
a. NAME OF CONTRACTOR ENERGY RESEARCH, INC.				e. ZIP CODE 20555	
b. COMPANY NAME				f. SHIP VIA	
c. STREET ADDRESS 6189 EXECUTIVE BLVD				8. TYPE OF ORDER	
d. CITY ROCKVILLE				a. PURCHASE <input type="checkbox"/> b. DELIVERY <input checked="" type="checkbox"/>	
e. STATE MD				REFERENCE YOUR	
f. ZIP CODE 208523901				Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.	
9. ACCOUNTING AND APPROPRIATION DATA See CONTINUATION Page 2013-25-17-4-118 Q4251 252A 31X0200 FFS1310821 DUNS 621211259				10. REQUISITIONING OFFICE NRO	

11. BUSINESS CLASSIFICATION (Check appropriate box(es))				12. F.D.B. POINT DISTINATION	
<input checked="" type="checkbox"/> a. SMALL <input type="checkbox"/> b. OTHER THAN SMALL <input type="checkbox"/> c. DISADVANTAGED <input type="checkbox"/> d. WOMEN-OWNED <input type="checkbox"/> e. HUBZone					
<input type="checkbox"/> f. SERVICE-DISABLED VETERAN-OWNED <input type="checkbox"/> g. WOMEN-OWNED SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOSB PROGRAM <input type="checkbox"/> h. EDWOSB					
13. PLACE OF		14. GOVERNMENT B/L NO.		15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date) 12/31/2014	
a. INSPECTION See Block 6		b. ACCEPTANCE See Block 6		16. DISCOUNT TERMS NET 30 DAYS	

## 17. SCHEDULE (See reverse for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	<p>The Contractor shall provide services in accordance with the attached SOW titled "Technical Support for Review of Level 2 and 3 PRAs, Deterministic Severe and SAMDAs for EPR and US-APWR Design Certifications." COR: Christine 301-415-2713 Christine.Briggs@nrc.gov PM Dr. M. Khatib-Rahbar</p> <p>Total Order ceiling: \$79,196.75 Total Obligated Amount: \$5,000.00 Estimated Reimbursable Cost: \$75,425.48 Fee: \$3,771.27 Period of Performance: 4/01/2013-12/31/2014</p> <p><i>[Signature]</i> 2/22/13 Signature of Authorized Official Date</p>			See CONTINUATION Page		

18. SHIPPING POINT		19. GROSS SHIPPING WEIGHT		20. INVOICE NO.	
21. MAIL INVOICE TO:					
a. NAME Department of Interior / NBC NRCPayments@nbc.gov					
b. STREET ADDRESS (or P.O. Box) Attn: Fiscal Services Branch - D2770 7301 W. Mansfield Avenue					
c. CITY Denver					
d. STATE CO					
e. ZIP CODE 80235-2230					
22. UNITED STATES OF AMERICA BY (Signature) <i>[Signature]</i>					
23. NAME (Typed) Pearlette Merriweather Contracting Officer TITLE: CONTRACTING/ORDERING OFFICER					

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TEMPLATE - ADM001

SUNSI REVIEW COMPLETE

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ADM002

**A. 1 SCHEDULE - SUPPLIES OR SERVICES**

The period of performance of this task order is 3/1/2013 – 9/30/2015.

Labor Rates for Period of Performance: 3/1/2013 – 12/31/2013		
001	Labor Category	
	Labor rate Unburden	
	a	Project Manager (ERI)
	b	Support Staff (ERI)
	c	Senior Technical Reviewer (ERI)
	d	Technical Reviewer (ERI)

Subcontractors Labor rates for Period of Performance: 3/1/2013-12-31/2013		
002	Labor Category	
	Burden Labor Rates	
	Executive Subject Matter Expert/Technical Reviewer	
	Senior Subject Matter Expert/Technical Reviewer	
	Subject Matter Expert/Technical Reviewer	
	Associate Subject Matter Expert/Technical Reviewer	

Labor Rates for Period of Performance: 1/1/2014 – 12/31/2014		
003	Labor Category	
	Labor rate Unburden	
	a	Project Manager (ERI)
	b	Support Staff (ERI)
	c	Senior Technical Reviewer (ERI)
	d	Technical Reviewer (ERI)

Subcontractors Labor rates for Period of Performance: 1/1/2014-12-31/2014		
004	Labor Category	
	Burden Labor Rates	
	Executive Subject Matter Expert/Technical Reviewer	
	Senior Subject Matter Expert/Technical Reviewer	
	Subject Matter Expert/Technical Reviewer	
	Associate Subject Matter Expert/Technical Reviewer	

**TASK ORDER STATEMENT OF WORK**

JCN Q-4251	Contractor Energy Research, Inc. (ERI)	Task Order No. 4
Applicant AREVA / Mitsubishi Heavy Industries (MHI)	Design/Site EPR / US-APWR	Docket No. 05200020 / 05200021
Title/Description Technical Support for Review of Level 2 and 3 PRAs, Deterministic Severe Accident Reviews, and SAMDAs for EPR and US-APWR Design Certifications		
TAC No. RX0775 (EPR) RX0776 (APWR)	B&R Number 2013-25-17-4-118	SRP or ESRP Section(s) 19
NRC Contracting Officer Representative (Administrative)		
Christine Briggs	301-415-2713	Christine.Briggs@nrc.gov
NRC Contracting Officer Representative (Technical)		
Todd Hilsmeier	301-415-6788	Todd.Hilsmeier@nrc.gov

**1.0 BACKGROUND**

Combined Operating License (COL) Applications are submitted pursuant to Part 52 of Title 10 of the *Code of Federal Regulations* (10 CFR 52), "Licenses, Certifications, and Approvals for Nuclear Power Plants." The U.S. Nuclear Regulatory Commission (NRC) reviews COL Applications based on information furnished by electric utility companies pursuant to 10 CFR 52.79, "Contents of Applications; Technical Information in Final Safety Analysis Report."

A Standard Review Plan (NUREG-0800) is prepared for the guidance of staff reviewers in the Office of New Reactors in performing safety reviews of applications to construct or operate nuclear power plants and the review of applications to approve standard designs and sites for nuclear power plants. The principal purpose of the SRP is to assure the quality and uniformity of staff safety reviews.

An Environmental Safety Review Plan (ESRP) (NUREG-1555) is prepared for the guidance of staff reviewers in performing environmental reviews of applications related to nuclear power plants. The ESRPs are companions to regulatory guides that address siting and environmental issues. As with NUREG-0800 the purpose of the ESRP is to assure the quality and uniformity of environmental reviews.

The staff publishes the results of these reviews in a Safety Evaluation Report (SER).

As part of Task Order 1 under Contract No. NRC-HQ-11-F-42-0002 GS23F0110M, the contractor provided technical assistance to support the NRC staff in performing safety evaluations of the Level 2 and Level 3 probabilistic risk assessments (PRAs), deterministic severe accident evaluations, and severe accident mitigation design alternatives (SAMDAs) analyses for the EPR and US-APWR design certification (DC) applications. Open items were resolved, requests for additional information (RAIs) were developed, and draft technical evaluation reports (TERs) were prepared. Responses to some of the RAIs were received from the applicant and reviewed by the contractor. The contractor will continue the technical assistance under this new contract, resolving the remaining open items once all RAI responses are provided by the applicant, finalizing the TERs, and supporting Advisory Committee on Reactor Safety meetings as required.

## 2.0 OBJECTIVE

The objective of this task order is to obtain technical expertise from the contractor to assist the NRC staff in determining whether or not the subject design certification applications meet appropriate regulatory requirements. Specifically, technical assistance is required to support the NRC staff in completing the safety evaluations of the Level 2 and Level 3 PRAs, deterministic severe accident evaluations, and SAMDA analyses for the EPR and US-APWR DC applications. The scope of work includes providing technical support to NRC staff in the resolution of remaining open items associated with this subject area, including performing necessary confirmatory assessments and identifying additional information needed to resolve remaining technical concerns. The scope also includes updating the draft TERs for the PRAs, severe accident evaluations, and SAMDA analyses for the EPR and US-APWR designs to reflect the resolution of any previously identified open items/issues and overall conclusions of the reviews.

## 3.0 WORK REQUIREMENTS, SCHEDULE AND DELIVERABLES

Tasks/Standards	Scheduled Completion	Deliverables
<p>1. REQUIREMENT: The contractor shall provide technical support to NRC staff in the resolution of open items as related to the risk of severe accidents for the EPR DC application, including Level 2 and 3 PRAs, deterministic severe accident evaluations, and SAMDAs. This support may include further interactions with the DC applicant, as appropriate, to ensure that the issues are well understood and to arrive at an acceptable path to resolution. This effort may include confirmatory assessments; identification of additional information needed to resolve any remaining technical concerns or open items (which should be provided to the NRC in the form of RAIs for follow-up discussion with the DC applicant); and evaluation of the applicant's responses to additional RAIs.</p> <p>The contractor shall update the associated draft TERs for PRAs, severe accidents, and SAMDAs to reflect the resolution of any previously identified open items and issues, and overall conclusions of the reviews. The contractor shall incorporate NRC comments on the updated TERs and issue the documents as final TERs.</p> <p>STANDARD:</p> <ul style="list-style-type: none"> <li>Additional or clarifying information needed to resolve identified issues or open items shall be provided to the NRC in the form of RAIs for transmittal to the DC applicant.</li> <li>The final TERs will be in a format that can be incorporated into NRC staff SERs with minimal changes.</li> </ul>	<p>* 20 months after start of task</p>	<p>RAIs, if applicable, and Final Technical Evaluation Reports</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>2. <b>REQUIREMENT:</b> The contractor shall provide technical support to NRC staff in the resolution of open items as related to the risk of severe accidents for the US-APWR DC application, including Level 2 and 3 PRAs, deterministic severe accident evaluations, and SAMDAs. This support may include further interactions with the DC applicant, as appropriate, to ensure that the issues are well understood and to arrive at an acceptable path to resolution. This effort may include confirmatory assessments; identification of additional information needed to resolve any remaining technical concerns or open items (which should be provided to the NRC in the form of RAIs for follow-up discussion with the DC applicant); and evaluation of the applicant's responses to additional RAIs.</p> <p>The contractor shall update the associated draft TERs for PRAs, severe accidents, and SAMDAs to reflect the resolution of any previously identified open items and issues, and overall conclusions of the reviews. The contractor shall incorporate NRC comments on the updated TERs and issue the documents as final TERs.</p> <p><b>STANDARD:</b></p> <ul style="list-style-type: none"> <li>• Additional or clarifying information needed to resolve identified issues or open items shall be provided to the NRC in the form of RAIs for transmittal to the DC applicant.</li> <li>• The final TERs will be in a format that can be incorporated into NRC staff SERs with minimal changes.</li> </ul>	* 20 months after start of task	RAIs, if applicable, and Final Technical Evaluation Reports
<p>3. <b>REQUIREMENT:</b> Participate in technical meetings and conference calls between NRC staff and the DC applicants, as needed, concerning Level 2 and 3 PRAs, deterministic severe accident evaluations, and SAMDAs for the designs. As necessary, provide presentations to the Advisory Committee for Reactor Safeguards (ACRS), Commission, and industry groups, and/or support to the NRC staff in preparing such presentations.</p> <p><b>STANDARD:</b> Ensure presentation materials are reviewed and approved by NRC staff.</p>	To be determined	Prepare presentation materials and attend meetings, if required

\* These Work Schedules are subject to change by the NRC Contracting Officer (CO) to support the needs of the NRC Licensing Program Plan.

The Contracting Officer Representative (COR) may issue technical instruction from time to time throughout the duration of this task order. Technical instructions must be within the general statement of work delineated in the task order and shall not constitute new assignments of work or changes of such a nature as to justify an adjustment in cost or period of performance. The contractor shall refer to Section G.1 of the base contract for further information and guidance on any technical directions issued under this task order.

Any modifications to the scope of work, cost, or period of performance of this task order must be issued by the

Contracting Officer (CO) and will be coordinated with the NRC COR.

#### **4.0 TECHNICAL AND OTHER SPECIAL QUALIFICATIONS REQUIRED**

As specified in the base contract, the contractor shall provide individuals who have the required educational background and work experience to meet the objectives of the work specified in this task order. Specific qualifications for this effort include:

- (1) Development and peer review of Level 2 and 3 PRAs and deterministic severe accident evaluations, including treatment of internal and external events during at-power and shutdown conditions;
- (2) Light Water Reactor plant systems, including the design and functional performance of passive systems, containment systems, and severe accident features;
- (3) Thermal-hydraulic, severe accident progression, and offsite consequence analyses, including familiarity with the MAAP, MELCOR, CONTAIN, and MACCS2 computer codes;
- (4) Specialized techniques for treatment and quantification of severe accident phenomena (e.g., ROAAM);
- (5) PRA quality standards and the use of PRA methodologies and results in commercial nuclear reactor applications; and
- (6) NRC regulations, technical specifications, and inspections related to commercial nuclear power plant operations.

The contractor shall provide a contractor project manager (PM) to oversee the effort and ensure the timely submittal of quality deliverables so that all information is accurate and complete as defined in the base contract.

The NRC will rely on representations made by the contractor concerning the qualifications of the personnel assigned to this task order, including assurance that all information contained in the technical and cost proposals, including resumes, is accurate and truthful. The resume for each professional proposed to work under this task order (contractor, subcontractor, or consultant) shall describe the individual's experience in applying his or her area of engineering specialization to work in the proposed area. The use of particular personnel on this contract is subject to the NRC COR's approval. This includes any proposed changes to key personnel during the life of the task order.

#### **5.0 REPORTING REQUIREMENTS**

##### **Task Order Progress Report**

The contractor shall provide a monthly progress report summarizing accomplishments, expenditures, contractor staff hours expended, percent completed for each task under this task order, and any problems encountered by the contractor. The report shall be sent via e-mail to the NRC CORs and CO.

Please refer to Section F of the basic contract award document for other contract reporting requirements

##### **Technical reporting requirements**

Unless otherwise specified above, the contractor 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 contractor. The contractor 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 contractor and the COR, the contractor may submit preliminary or partial drafts to help gauge the contractor's understanding of the particular work requirement.

The contractor shall provide the following deliverables in hard copy (upon request) 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 contractor shall provide one hard copy (upon request) and electronic copy to both the CORs and the CO. The schedule for deliverables shall be contained in the approved project plan for the task order effort.

In all correspondence, include identifying information: JCN No.: Q- 4251; Technical Assignment Control No. (TAC), if applicable: RX0775 (EPR) and RX0776 (US-APWR); Task Order No.: 4; and the applicant.

1. In Task 1, submit a description of any additional information needed to resolve remaining issues, technical concerns, or open items in the form of RAIs for transmittal to the EPR DC applicant. At the completion of Task 1, submit updated TERs for Level 2 and 3 PRA, deterministic severe accident evaluations, and SAMDAs that document the results of the review, the resolution of any previously identified open items, and the overall conclusions of the reviews. Incorporate NRC comments on the updated TERs and issue the documents as final TERs.
2. In Task 2, submit a description of any additional information needed to resolve remaining issues, technical concerns, or open items in the form of RAIs for transmittal to the US-APWR DC applicant. At the completion of Task 2, submit updated TERs for Level 2 and 3 PRA, deterministic severe accident evaluations, and SAMDAs that document the results of the review, the resolution of any previously identified open items, and the overall conclusions of the reviews. Incorporate NRC comments on the updated TERs and issue the documents as final TERs.

## **6.0 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 CO; travel within the work scope limits must be approved by the COR.

1. Six, two-person, one-day trips to NRC Headquarters in Rockville, Maryland to meet with the staff of the NRC and/or subject DC applicants to discuss the results of the evaluations, and to prepare or provide presentations to the ACRS, Commission and industry groups.\*

Additional travel will be coordinated with the NRC COR as the need for such travel is identified to ensure it supports the timely completion of work.

\*At the discretion of the NRC COR, meetings may be conducted via telephone or video conference.

## **7.0 NRC FURNISHED MATERIAL**

The following NRC furnished materials will be provided to the contractor together with SOW:

- Level 2 and 3 PRAs, deterministic severe accident evaluations, and SAMDA submittals for the EPR and US-APWR DC applications.

## **8.0 LEVEL OF EFFORT**

The estimated level of effort in professional staff hours apportioned among the tasks and by labor category is as follows:

Task(s)	Labor Category	Level of Effort FY-13 (hours)	Level of Effort FY-14 (hours)	Level of Effort FY-15 (hours)
1	Level 2 and 3 PRA, severe accident, and SAMDA experts and analysts	170	135	0
2	Level 2 and 3 PRA, severe accident, and SAMDA experts and analysts	60	95	35
3	Level 2 and 3 PRA, severe accident, and SAMDA experts and analysts	15	15	15
<b>Total</b>		245	245	50

## 9.0 PERIOD OF PERFORMANCE

The projected period of performance is from 4/1/2013 – 12/31/2014.

## 10.0. OTHER APPLICABLE INFORMATION

### a. License Fee Recovery

All work under this task order is fee recoverable and must be charged to the appropriate TAC number(s).

### b. Expected Classification or Sensitivity

All work under this project is expected to be Sensitive Unclassified Non-Safeguards Information.

### c. Assumptions and Understandings:

It is assumed that the contractor has access to the NRC furnished material available on the Internet.

It is understood that the scope of the review consists of conference calls with the NRC staff, and with the NRC staff and the subject DC applicants, to discuss open items in an attempt to obtain additional information or reach resolution.

The primary deliverables, or outputs of this regulatory review, shall be the TERs. The TERs will serve as input to the NRC staff's SERs, which will document the NRC's technical, safety, and legal basis for approving the EPR and US-APWR DC applications. The TERs 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 TERs, and ultimately the SERs, 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.