

ORDER FOR SUPPLIES OR SERVICES

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

BPA NO. NRC-DR-42-07-468

1. DATE OF ORDER 8/26/2010	2. CONTRACT NO. (if any) GS23F0110M	6. SHIP TO:	
3. ORDER NO. NRC-T004	MODIFICATION NO.	a. NAME OF CONSIGNEE U.S. Nuclear Regulatory Commission	
4. REQUISITION/REFERENCE NO. NRC-DR-42-07-468 T4; 0746804131		b. STREET ADDRESS Attn: Tracy Clark Mail Stop: T9-F29 11555 Rockville Pike	
5. ISSUING OFFICE (Address correspondence to) U.S. Nuclear Regulatory Commission Div. of Contracts Attn: Jeffrey R. Mitchell, 301-492-3639 Mail Stop T-7-I-2 Washington, DC 20555		c. CITY Rockville	d. STATE MD
7. TO:		e. ZIP CODE 20852	

a. NAME OF CONTRACTOR ENERGY RESEARCH, INC.		f. SHIP VIA	
b. COMPANY NAME ATTN: TRACEY MULLINIX		8. TYPE OF ORDER	
c. STREET ADDRESS P.O BOX 2034		<input type="checkbox"/> a. PURCHASE	<input checked="" type="checkbox"/> b. DELIVERY
d. CITY ROCKVILLE		REFERENCE YOUR 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.	
e. STATE MD	f. ZIP CODE 20847	Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.	
9. ACCOUNTING AND APPROPRIATION DATA 025-15-171-103 Q4131 252A 31x0200 Obligate \$25,000.00 Contractor DUNS: 621211259		10. REQUISITIONING OFFICE NRO	

11. BUSINESS CLASSIFICATION (Check appropriate box(es))				12. F.O.B. POINT N/A	
<input checked="" type="checkbox"/> a. SMALL	<input type="checkbox"/> b. OTHER THAN SMALL	<input type="checkbox"/> c. DISADVANTAGED	<input type="checkbox"/> g. SERVICE-DISABLED VETERAN-OWNED		
<input type="checkbox"/> d. WOMEN-OWNED	<input type="checkbox"/> e. HUBZone	<input type="checkbox"/> f. EMERGING SMALLBUSINESS			
13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date) As Stated	16. DISCOUNT TERMS Net 30	
a. INSPECTION	b. ACCEPTANCE				

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>In accordance with Section A.12 entitled "Task Order Procedures" of the subject contract, this order definitizes Task Order No. 4. This effort shall be performed in accordance with the enclosed Statement of Work.</p> <p>Task Order No. 4. entitled "Technical Support for Review of Level 2 PRA, Severe Accident Evaluations, and SAMDA for ESBWR"</p> <p>The issuance of this task order does not amend any other terms and conditions of the subject contract.</p>					

SEE BILLING INSTRUCTIONS ON REVERSE	18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(h) TOTAL (Cont. pages) 17(i) GRAND TOTAL
	21. MAIL INVOICE TO:				
	a. NAME Department of Interior National Business Center				
	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) 	23. NAME (Typed) Jeffrey R. Mitchell Contracting Officer TITLE: CONTRACTING/ORDERING OFFICER
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In accordance with the Terms and Conditions, TASK ORDER PROCEDURES, of the subject contract, Task Order No. 04 is definitized. The effort shall be performed in accordance with the attached Statement of Work.

CONSIDERATION AND OBLIGATION--COST REIMBURSEMENT (JUN 1988)

(a) The total estimated cost to the Government for full performance under this contract is \$48,837.10.

(b) The amount obligated by the Government with respect to this contract is \$25,000.00. This obligated amount may be unilaterally increased from time to time by the Contracting Officer by written modification to this contract. The obligated amount shall, at no time, exceed the contract ceiling as specified in paragraph (a) above. When and if the amount(s) paid and payable to the Contractor hereunder shall equal the obligated amount, the Contractor shall not be obligated to continue performance of the work unless and until the Contracting Officer shall increase the amount obligated with respect to this contract. Any work undertaken by the Contractor in excess of the obligated amount specified above is done so at the Contractor's sole risk.

DURATION OF CONTRACT PERIOD (MAR 1987)

This contract shall commence on Day of Award/Acceptance and will expire March 31, 2011.

PRICE/COST SCHEDULE

The following is a summary of the labor categories, number of hours and hourly labor rates.

CLIN	LABOR CATEGORY	EST. HOURS	RATE AWARD - 12/31/2010	RATE 01/01/2011-03/31/2011	ESTIMATE (Blended Rate)
001	Executive				
002	Executive Engineer/Scientist				
003	Senior Engineer/Scientist				
004					
004	Travel	1 Lot	Not to Exceed (NTE)		
005a	Other Direct Cost (Copies)	pages			
005b**	Other Direct Cost (Phone & Courier)	1 Lot (NTE)	Actual Cost		
					\$48,837.10

(b) ** These items are Open Market and do not apply to the Federal Supply Schedule Terms and Conditions. These items must comply with the following clauses incorporated by reference:

REFERENCE	NUMBER	TITLE	DATE
REFERENCE	FAR 52.212-4	CONTRACT TERMS AND CONDITIONS COMMERCIAL ITEMS	MARCH 2001
REFERENCE	FAR 52.215-5	CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUES OR EXECUTIVE ORDERS - COMMERCIAL ITEMS	MARCH 2001

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P.003

GS23F0110M NRC-T004

Your contacts during the course of the work order are:

Technical Matters: Tracey Clark, Project Officer
301-416-1474

Contractual Matters: Jeffrey R. Mitchell, Contract Specialist
301-492-3639

The issuance of this work order does not amend any terms or conditions of the delivery order under the GSA FSS Contract.

Accepted Task Order No. 04:



NAME

President

Title

8/26/10

Date

TASK ORDER STATEMENT OF WORK

JCN Q-4131	Contractor Energy Research, Inc. (ERI)	Task Order No. DR-42-07-468 Task Order No. 4
Applicant GE-Hitachi (GEH)	Design/Site ESBWR	Docket No. 05200010
Title/Description Technical Support for Review of Level 2 PRA, Severe Accident Evaluations, and SAMDA for ESBWR		
TAC No. RX0(TBD)	B&R Number 025-15-171-103	SRP or ESRP Section(s) 19
NRC Task Order Project Officer (PO) Tracy Clark 301-415-1474 Tracy.Clark@nrc.gov		
NRC Technical Monitor (TM) 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, SRP, (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).

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 (DC) application meets appropriate regulatory requirements. Specifically, technical assistance is required to review the ESBWR's updated Level 2 Probabilistic Risk Assessment (PRA) and severe accident evaluations due to the recent design changes made to the ESBWR Isolation Condenser System (ICS) and Passive Containment Cooling System (PCCS). Also, the updated Severe Accident Mitigation Design Alternatives (SAMDA) submittal needs to be reviewed relative to the updated ESBWR PRA.

3.0 WORK REQUIREMENTS, SCHEDULE AND DELIVERABLES

Tasks/Standards	Scheduled Completion	Deliverables
<p>1. REQUIREMENT: Review the ESBWR's updated Level 2 PRA and severe accident evaluations as a result of the design changes made to the ESBWR ICS/PCCS systems. The focus of the review will be on the adequacy of the updated Level 2 PRA and severe accident evaluations for the purpose of: establishing that the technical quality of the Level 2 PRA remains sufficient to assure that the Commission's risk requirements are satisfied; developing any additional insights into severe accident progression and phenomenology, containment performance, and important risk contributors and design features; and identifying any additional structures systems or components (SSCs) that should be subject to additional regulatory controls (i.e., ITAAC or COL action items). The contractor will consider the results of NRC-sponsored confirmatory calculations, if applicable, during both the preparation of requests for additional information (RAIs) and technical evaluation report (TER) inputs.</p> <p>Review the ESBWR's updated SAMDA submittal provided in the Licensing Topical Report NEDO-33306, "ESBWR Severe Accident Mitigation Design Alternatives." The focus of the review will be on the adequacy of the updated SAMDA for the purpose of the completeness of design alternatives considered and the reasonableness of the analyses of risk reduction and costs for each candidate improvement.</p> <p>From this review, identify issues and the need for any additional or clarifying information (i.e., RAIs) to resolve these issues. Prepare modifications to the existing TER(s) to document the results of the review, any open items, and a description of additional information needed to resolve the open items.</p> <p>STANDARD:</p> <ul style="list-style-type: none"> • Additional or clarifying information needed to resolve identified issues shall be provided to the NRC in the form of an RAI for transmittal to the applicant. • The TER(s) will be in a format that can be incorporated into an NRC staff safety evaluation report (SER) with minimal changes. 	<p>* 1 month after start of task</p>	<p>RAIs, if applicable, and updated Technical Evaluation Report(s)</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>2. REQUIREMENT: Review GEH's responses to all issues raised during the review of the Level 2 PRA, severe accident evaluations, and SAMDA (including new and revised analyses requested in response to RAIs) to determine if they adequately resolve the outstanding issues.</p> <p>Identify any additional information needed to resolve remaining issues, and provided this information to the NRC in the form of an RAI for follow-up discussion with the applicant.</p> <p>Support NRC in the resolution of open items in the Level 2 PRA, severe accident evaluations, and SAMDA, which could include further interactions with the applicant, as appropriate, to ensure that the issues are well understood and to arrive at an acceptable path to resolution.</p> <p>STANDARD: Additional or clarifying information needed to resolve identified issues or open items shall be provided to the NRC in the form of an RAI for transmittal to the applicant.</p>	<p>* 1 month after receipt of RAI responses</p>	<p>Follow-up RAIs, if applicable</p>
<p>3. REQUIREMENT: Update the modified TER(s) for Level 2 PRA, severe accident evaluations, and SAMDA to document the results of the review, the resolution of any previously identified open items, and the overall conclusions of the review. The updating of the TER(s) will be performed after completion of Tasks 1 and 2. The contractor shall incorporate NRC comments on the updated TER(s) and issue the documents as final TER(s).</p> <p>STANDARD: The final TER(s) will be in a format that can be incorporated into an NRC SER with minimal changes.</p>	<p>* 1 month after closure of open items</p>	<p>Final Technical Evaluation Report(s)</p>

Tasks/Standards	Scheduled Completion	Deliverables
<p>4. REQUIREMENT: Participate in technical meetings with the NRC staff concerning Level 2 PRA, severe accident evaluations, and SAMDA. Participate in technical meetings and conference calls between NRC and GEH staff. 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>STANDARD: 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 NRC Technical Monitor (TM) 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.

Any modifications to the scope of work, cost, or period of performance of this task order must be issued by the CO and will be coordinated with the NRO Project Officer.

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 PRAs and deterministic severe accident evaluations, including treatment of internal and external events during at-power and shutdown conditions;
- (2) Boiling Water Reactor (BWR) 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 TM'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 bi-weekly 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 TM, Task Order Project Officer (PO) and CO.

Technical reporting requirements

Unless otherwise specified above, the contractor shall provide all deliverables as draft products. The NRC TM 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 TM, and then deliver the final version of the deliverable. When mutually agreed upon between the contractor and the TM, 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 and electronic formats. The electronic format shall be provided in MS Word or other word processing software approved by the TM. For each deliverable, the contractor shall provide one hard copy and electronic copy to both the PM and the TM. 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-4131; Technical Assignment Control No. (TAC), if applicable: RX0(TBD); Task Order No. 4 the applicant: GE-Hitachi; and, the site: ESBWR Design Certification.

1. At the completion of Task 1, submit an updated TER(s) for Level 2 PRA, severe accident evaluations, and SAMDA that documents the results of the review, any open items, and a description of additional information needed to resolve the open items. The TER(s) will be in a format that can be incorporated into an NRC SER with minimal changes. The additional information needed should be in the form of an RAI for transmittal to the applicant.
2. Following the completion of the Level 2 PRA, severe accidents evaluations, and SAMDA reviews under Task 2, submit a description of any additional information needed to resolve remaining issues in the form of an RAI for follow-up discussion with the applicant.
3. At the completion of Task 3, submit an updated TER(s) for Level 2 PRA, severe accident evaluations, and SAMDA that documents the results of the review, the resolution of any previously identified open items, and the overall conclusions of the review. Incorporate NRC comments on the updated TER(s) and issue the documents as final TER(s).

6.0 MEETINGS AND TRAVEL

The following meeting and travel requirements are anticipated for planning purposes:

1. Three, two-person, 1-day trips to NRC Headquarters in Rockville, Maryland to meet with the NRC and/or GEH staff 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 TM as the need for such travel is identified to ensure it supports the timely completion of work.

**At the discretion of the NRC TM, 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 the SOW: the ESBWR PRA, severe accidents, and SAMDA submittals necessary to facilitate successful completion of this project.

8.0 PERIOD OF PERFORMANCE

The period of performance is from Day of Award through March 31, 2011.

9.0. 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. Assumptions and Understandings:

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