

ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES

1 9

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

1. DATE OF ORDER 09/28/2015	2. CONTRACT NO. (If any) NRC-HQ-60-15-E-0002	6. SHIP TO:	
3. ORDER NO. NRC-HQ-60-15-T-0001		4. REQUISITION/REFERENCE NO. RES-15-0337	
5. ISSUING OFFICE (Address correspondence to) US NRC - HQ ACQUISITION MANAGEMENT DIVISION MAIL STOP TWFN-5E03 WASHINGTON DC 20555-0001		a. NAME OF CONSIGNEE WALTER LESCHEK	

b. STREET ADDRESS 11555 ROCKVILLE PIKE MAIL STOP TWFN 10 A12		
c. CITY ROCKVILLE	d. STATE MD	e. ZIP CODE 20852
7. TO:		f. SHIP VIA

a. NAME OF CONTRACTOR ENERGY RESEARCH INC	8. TYPE OF ORDER	
b. COMPANY NAME	<input type="checkbox"/> a. PURCHASE	<input checked="" type="checkbox"/> b. DELIVERY
c. STREET ADDRESS 6189 EXECUTIVE BLVD	REFERENCE YOUR:	
d. CITY ROCKVILLE	e. STATE MD	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.		
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 See Schedule	10. REQUISITIONING OFFICE OFF OF NUCLEAR REG RESEARCH
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11. BUSINESS CLASSIFICATION (Check appropriate box(es))	12. F.O.B. POINT
<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)	16. DISCOUNT TERMS
a. INSPECTION Destination	b. ACCEPTANCE Destination		30

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)
	The U.S. Nuclear Regulatory Commission hereby awards Task Order NRC-HQ-60-15-T-0001 Entitled, "Multi-Source Integrated Site PRA," under Contract Number NRC-HQ-60-15-E-0002. Continued ...					

18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.	17(h) TOTAL (Cont. pages)
21. MAIL INVOICE TO:			
a. NAME US NUCLEAR REGULATORY COMMISSION			\$109,816.82
b. STREET ADDRESS (or P.O. Box) ONE WHITE FLINT NORTH 11555 ROCKVILLE PIKE MAILSTOP 03-E17A NRCPAYMENTSNRCGOV			17(i) GRAND TOTAL
c. CITY ROCKVILLE	d. STATE MD	e. ZIP CODE 20852-2738	

22. UNITED STATES OF AMERICA BY (Signature)	09/28/2015	23. NAME (Typed) LISA A. KAUFFMAN TITLE: CONTRACTING/ORDERING OFFICER
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Prescribed by GSA/FAR 48 CFR 53.213(f)

TEMPLATE - ADMIN

SUNSI REVIEW COMPLETE

OCT - 1 2015

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**ORDER FOR SUPPLIES OR SERVICES
SCHEDULE - CONTINUATION**

PAGE NO

2

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


DATE OF ORDER

CONTRACT NO.

NRC-HQ-60-15-E-0002

ORDER NO.

NRC-HQ-60-15-T-0001

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
00001	<p>Period of Performance: September 30, 2015 - September 29, 2017 Total Task Order Ceiling: \$109,816.82 Total Obligated Amount: \$75,000.00</p> <p>Contracting Officer's Representative (COR): Walter Leschek Email: Walter.Leschek@nrc.gov Phone: 301-415-0844</p> <p>Contractor POC (Business): Tracey Mullinix, Contract Administrator Email: tlm@eri-world.com Phone: 301-881-0866</p> <p>Contractor POC (Technical): Dr. Mohsen Kahtib-Rahbar, President Email: mkrl@eri-world.com Phone: 301-881-0866</p> <p> 09/25/15 ERI Authorized Official Date</p> <p>Accounting Info: 2015-C0200-FEEBASED-60-60D002-11-6-213-1052-252A</p> <p>Labor/Fee Line Item Ceiling \$109,816.82 Incrementally Funded Amount: \$75,000.00</p> <p>The obligated amount of award: \$75,000.00. The total for this award is shown in box 17(i).</p>				109,816.82	
TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17(H))					\$109,816.82	

SECTION B - SUPPLIES OR SERVICES AND PRICE/COSTS

B.1 PRICE/COST SCHEDULE

CLIN	DESCRIPTION OF SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL COST PLUS FIXED FEE
0001	Contractor to provide Technical Assistance in accordance with section C: DESCRIPTION/ SPECIFICATIONS/ STATEMENT OF WORK	[REDACTED]	[REDACTED]	[REDACTED]
	Total			\$109,816.82

NRCB044 CONSIDERATION AND OBLIGATION—INDEFINITE-QUANTITY CONTRACT

(a) The estimated total quantity of this contract for the products/services under this contract is **\$109,816.82** of which the sum of [REDACTED] represents the estimated reimbursable costs, and of which [REDACTED] represents fixed fee.

(b) The Contracting Officer will obligate funds on each task order issued.

(c) The amount currently obligated by the Government with respect to this contract is [REDACTED], of which the sum of [REDACTED] represents the estimated reimbursable costs, and of which [REDACTED] represents the fixed-fee.

(d) This is an incrementally-funded contract and FAR 52.232-22 – “Limitation of Funds” applies.

(e) The Contractor shall comply with the provisions of FAR 52.232-20 - Limitation of Cost for fully-funded task orders and FAR 52.232-22 - Limitation of Funds for incrementally-funded task orders, issued hereunder.

SECTION C – DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK

1. PROJECT TITLE

Multi-Source Integrated Site PRA

2. BACKGROUND

A full-scope integrated site Level-3 Probabilistic Risk Assessment (PRA) for a commercial nuclear power plant site can provide valuable insights into the relative importance of various risk contributors by assessing the risks of accidents involving one or more major site radiological sources, including: reactor units, spent fuel pools (SFPs), and dry cask storage (DCS). These insights can be used to further enhance regulatory decision making and to help focus limited agency resources on issues most directly related to the agency's mission to protect public health and safety.

Although Level-3 PRAs have been performed to some extent within both the U.S. and international nuclear industries, the NRC has not sponsored development of a Level-3 PRA for a nuclear power plant site since NUREG-1150.¹ In the more than two decades that have passed since the NUREG-1150 Level-3 PRAs were performed, numerous technical advances have been made that were not reflected in the NUREG-1150 PRA models. The staff has also identified additional scope considerations not previously considered that could be addressed by performing a new full-scope integrated site Level-3 PRA.

During the Annual Commission Meeting on Research Programs, Performance, and Future Plans on February 18, 2010, the staff proposed a scoping study to evaluate the feasibility of performing a new full-scope integrated site Level-3 PRA for a nuclear power plant site. On March 19, 2010, the Commission expressed conditional support² for Level-3 PRA related activities and directed the staff to provide the Commission with various options for proceeding with this work that included costs and perspectives on future regulatory uses for Level-3 PRAs. On July 7, 2011, the NRC technical staff responded to the Staff Requirements Memorandum (SRM) by providing three proposed options for proceeding.³ These three options consisted of: (1) maintaining the status quo (i.e., continuing with evolutionary development of PRA technology); (2) conducting focused research to address identified gaps in existing PRA technology before performing a full-scope integrated site Level-3 PRA; and (3) conducting a full-scope integrated site Level-3 PRA for a selected nuclear power plant site. On September 21, 2011, the Commission approved a modified version of the third option, which extended the completion schedule from three years to four years.⁴

3. SCOPE

¹ NUREG-1150, "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants," Vol. 1, December 1990 (ADAMS Accession No. ML120960691).

² SRM 100218, "Staff Requirements-Briefing on Research Programs, Performance, and Future Plans," dated March 19, 2010 (ADAMS Accession No. ML100780578).

³ SECY-11-0089, "Options for Proceeding with Future Level 3 Probabilistic Risk Assessment Activities," dated July 7, 2011 (ADAMS Accession No. ML11090A039).

⁴ SRM-SECY-11-0089, "Staff Requirements-SECY-11-0089-Options for Proceeding with Future Level 3 Probabilistic Risk Assessment (PRA) Activities," dated September, 21, 2011 (ADAMS Accession No. ML112640419).

The objective of this task is to expand and update Probabilistic Risk Assessment (PRA) methods used in nuclear regulatory activities, in compliance with the 1995 Nuclear Regulatory Commission (NRC) policy statement for implementing risk-informed regulation.

4. SPECIFIC TASKS

The contractor shall provide technical assistance as requested by the to support the NRC in development of a multi-source integrated site PRA model. This model shall encompass all major site radiological sources for a specified commercial nuclear power plant site, including all operating reactor units, SFPs, and DCS. This support shall include participation in the following work activities:

- Selection and implementation of a method for multi-source integrated site PRA model development and integration
- Multi-source integrated site PRA model accident sequence delineation
- Multi-source integrated site PRA model accident sequence quantification

The contractor shall provide support for the above work activities in consideration of: the Level-1, Level-2, and Level-3 analyses; all hazards; all modes of operation; and all major site radiological sources, including all operating reactor units, SFPs, and DCS. This support shall also include necessary interfacing with the relevant personnel supporting the development of the multi-source integrated site PRA model for each of the prior tasks. Following the conclusion of the contractor's support of a given work activity, the contractor shall provide a letter report detailing the contractor's analysis and support of that work activity.

The contractor shall provide reports of the work performed for a given work activity. These reports shall include, at a minimum, the following elements:

- Sources of information used and a description of each information source
- Information about any data that was used (e.g., parameter values, uncertainty distributions, basis for a given parameter value and uncertainty distribution)
- Modeling assumptions including the bases for a given modeling assumption and the impact, potential or actual, on the PRA
- Sources of model uncertainty, a description of the sources of model uncertainty, and the impact on the PRA from a given source of model uncertainty

The NRC shall provide the relevant documentation templates to the contractor, which include the minimum report requirements, as described above. Following the conclusion of the contractor's support of a given work activity under Task 2, the contractor shall provide a letter report detailing the contractor's analysis and support of that work activity.

5. DELIVERABLES AND DELIVERY SCHEDULE

NRC-HQ-60-15-E-0002

NRC-HQ-60-15-T-0001

A Monthly Letter Status Report (MLSR) shall be provided by the contractor by the 20th of each month. This report will be used by the Government to assess the adequacy of the resources proposed by the contractor to accomplish the work contained in this contract and provide status of contractor progress in achieving tasks and producing deliverables. The report shall include contract/order summary information, work completed during the specified period, milestone schedule information, problem resolution, travel plans, and staff hour summary. The MLSR shall be delivered via email in PDF format.

6. PLACE OF PERFORMANCE

It is expected that the work will be performed at the contractor's site.

7. TRAVEL

Estimated travel to NRC Headquarters in Rockville, Maryland, for Task Order 2 is shown in the table below.

Meeting Title	Estimated Date	Number of Contractor Personnel to Attend Meeting
Kickoff Meeting	At Start of Task	1
Progress Meeting No. 1	3 Months After Start of Task	1
Progress Meeting No. 2	6 Months After Start of Task	1
Draft Report Presentation	8 Months After Start of Task	1
Final Report Presentation	12 Months After Start of Task	1
Contingency Meeting No. 1	Unspecified	1
Contingency Meeting No. 2	Unspecified	1

8. SECURITY

The work to be done under this contract is UNCLASSIFIED.

SECTION F - Deliveries or Performance

NRCF030A PERIOD OF PERFORMANCE ALTERNATE I

This order shall commence on September 30, 2015 and will expire on September 29, 2017.
(See FAR 52.216-18 - Ordering).

SECTION H - Special Contract Requirements

2052.215-70 KEY PERSONNEL. (JAN 1993)

(a) The following individuals are considered to be essential to the successful performance of the work hereunder:

Name	Project Role (Task)
Dr. M. Khatib-Rahbar	Project Management, technical leader, overall review and coordination
Dr. R. Karimi	Development of risk integration approach
Mr. P. Amico	Level-1, fire, seismic and other external events consideration for development of risk integration approach
Mr. M. Zavisca	Development of risk integration approach

*The contractor agrees that personnel may not be removed from the contract work or replaced without compliance with paragraphs (b) and (c) of this section.

(b) If one or more of the key personnel, for whatever reason, becomes, or is expected to become, unavailable for work under this contract for a continuous period exceeding 30 work days, or is expected to devote substantially less effort to the work than indicated in the proposal or initially anticipated, the contractor shall immediately notify the contracting officer and shall, subject to the concurrence of the contracting officer, promptly replace the personnel with personnel of at least substantially equal ability and qualifications.

(c) Each request for approval of substitutions must be in writing and contain a detailed explanation of the circumstances necessitating the proposed substitutions. The request must also contain a complete resume for the proposed substitute and other information requested or needed by the contracting officer to evaluate the proposed substitution. The contracting officer

NRC-HQ-60-15-E-0002
NRC-HQ-60-15-T-0001

and the project officer shall evaluate the contractor's request and the contracting officer shall promptly notify the contractor of his or her decision in writing.

(d) If the contracting officer determines that suitable and timely replacement of key personnel who have been reassigned, terminated, or have otherwise become unavailable for the contract work is not reasonably forthcoming, or that the resultant reduction of productive effort would be so substantial as to impair the successful completion of the contract or the service order, the contract may be terminated by the contracting officer for default or for the convenience of the Government, as appropriate. If the contracting officer finds the contractor at fault for the condition, the contract price or fixed fee may be equitably adjusted downward to compensate the Government for any resultant delay, loss, or damage.

2052.215-71 PROJECT OFFICER AUTHORITY. (OCT 1999)

(a) The contracting officer's authorized representative hereinafter referred to as the project officer for this contract is:

Name: Walter Leschek
Address: US NRC MS
 TWFN 10 A12
 Washington DC 20555
Telephone Number: 301-415-0844
Email: Walter.Leschek@nrc.gov

The alternate contracting officer's representative is:

Name: Jeffrey Wood
Address: US NRC MS
 TWFN 10 A12
 Washington DC 20555
Telephone Number: 301-415-0953
Email: Jeffrey.Wood@nrc.gov

(b) Performance of the work under this contract is subject to the technical direction of the NRC project officer. The term technical direction is defined to include the following:

(1) Technical direction to the contractor which shifts work emphasis between areas of work or tasks, authorizes travel which was unanticipated in the Schedule (i.e., travel not contemplated in the Statement of Work or changes to specific travel identified in the Statement of Work), fills in details, or otherwise serves to accomplish the contractual statement of work.

(2) Provide advice and guidance to the contractor in the preparation of drawings, specifications, or technical portions of the work description.

(3) Review and, where required by the contract, approve technical reports, drawings, specifications, and technical information to be delivered by the contractor to the Government under the contract.

(c) Technical direction must be within the general statement of work stated in the contract. The project officer does not have the authority to and may not issue any technical direction which:

NRC-HQ-25-14-E-0001

NRC-HQ-25-15-T-0001

- (1) Constitutes an assignment of work outside the general scope of the contract.
 - (2) Constitutes a change as defined in the "Changes" clause of this contract.
 - (3) In any way causes an increase or decrease in the total estimated contract cost, the fixed fee, if any, or the time required for contract performance.
 - (4) Changes any of the expressed terms, conditions, or specifications of the contract.
 - (5) Terminates the contract, settles any claim or dispute arising under the contract, or issues any unilateral directive whatever.
- (d) All technical directions must be issued in writing by the project officer or must be confirmed by the project officer in writing within ten (10) working days after verbal issuance. A copy of the written direction must be furnished to the contracting officer. A copy of NRC Form 445, Request for Approval of Official Foreign Travel, which has received final approval from the NRC must be furnished to the contracting officer.
- (e) The contractor shall proceed promptly with the performance of technical directions duly issued by the project officer in the manner prescribed by this clause and within the project officer's authority under the provisions of this clause.
- (f) If, in the opinion of the contractor, any instruction or direction issued by the project officer is within one of the categories defined in paragraph (c) of this section, the contractor may not proceed but shall notify the contracting officer in writing within five (5) working days after the receipt of any instruction or direction and shall request that contracting officer to modify the contract accordingly. Upon receiving the notification from the contractor, the contracting officer shall issue an appropriate contract modification or advise the contractor in writing that, in the contracting officer's opinion, the technical direction is within the scope of this article and does not constitute a change under the "Changes" clause.
- (g) Any unauthorized commitment or direction issued by the project officer may result in an unnecessary delay in the contractor's performance and may even result in the contractor expending funds for unallowable costs under the contract.
- (h) A failure of the parties to agree upon the nature of the instruction or direction or upon the contract action to be taken with respect to the instruction or direction is subject to 52.233-1 - Disputes.
- (i) In addition to providing technical direction as defined in paragraph (b) of the section, the project officer shall:
- (1) Monitor the contractor's technical progress, including surveillance and assessment of performance, and recommend to the contracting officer changes in requirements.
 - (2) Assist the contractor in the resolution of technical problems encountered during performance.
 - (3) Review all costs requested for reimbursement by the contractor and submit to the contracting officer recommendations for approval, disapproval, or suspension of payment for supplies and services required under this contract.