

ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES

1 23

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

1. DATE OF ORDER 02/26/2015		2. CONTRACT NO. (If any) NRC-HQ-50-14-E-0001		6. SHIP TO: a. NAME OF CONSIGNEE US NUCLEAR REGULATORY COMMISSION-	
3. ORDER NO. NRC-HQ-20-15-T-0004		4. REQUISITION/REFERENCE NO. NRR-15-0100		b. STREET ADDRESS MAIL PROCESSING CENTER 4930 BOILING BROOK PARKWAY	
5. ISSUING OFFICE (Address correspondence to) US NRC - HQ ACQUISITION MANAGEMENT DIVISION MAIL STOP TWFN-5E03 ATTN HUGO ALCANTARA 301-415-0069 WASHINGTON DC 20555-0001				c. CITY ROCKVILLE	
				d. STATE MD	e. ZIP CODE 20852
7. TO: a. NAME OF CONTRACTOR S W R I				f. SHIP VIA	
b. COMPANY NAME				8. TYPE OF ORDER <input type="checkbox"/> a. PURCHASE <input checked="" type="checkbox"/> b. DELIVERY	
c. STREET ADDRESS 6220 CULEBRA RD				REFERENCE YOUR: SwRI Proposal No. 20-73940 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.	
d. CITY SAN ANTONIO		e. STATE TX	f. ZIP CODE 782385166		
9. ACCOUNTING AND APPROPRIATION DATA See Schedule				10. REQUISITIONING OFFICE OFF OF NUCLEAR REACTOR REGULATION	
11. BUSINESS CLASSIFICATION (Check appropriate box(es)) <input type="checkbox"/> a. SMALL <input checked="" 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					12. F.O.B. POINT
13. PLACE OF a. INSPECTION Destination		b. ACCEPTANCE Destination	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS 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)
	NRC-HQ-50-14-E-0001/NRC-HQ-20-15-T-0004 (27) The Contractor shall provide services in accordance with the Statement of Work entitled "Technical Support to Evaluate License Amendment Request (LAR) for Diablo 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		\$84,561.00				17(i) GRAND TOTAL
b. STREET ADDRESS (or P.O. Box) ONE WHITE FLINT NORTH 11555 ROCKVILLE PIKE MAILSTOP O3-E17A		\$84,561.00				
c. CITY ROCKVILLE		d. STATE MD	e. ZIP CODE 20852-2738			

22. UNITED STATES OF AMERICA BY (Signature)		02/26/2015		23. NAME (Typed) HUGO ALCANTARA TITLE: CONTRACTING/ORDERING OFFICER	
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AUTHORIZED FOR LOCAL REPRODUCTION
PREVIOUS EDITION NOT USABLE

OPTIONAL FORM 347 (Rev. 2/2012)
Prescribed by GSA/FAR 48 CFR 53.213(f)

TEMPLATE - ADM001

SUNSI REVIEW COMPLETE

MAR 26 2015

ADM002

**ORDER 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-50-14-E-0001	ORDER NO. NRC-HQ-20-15-T-0004
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ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
00001	Canyon Digital Process Protection System (PPS) Environmental Qualification" Accounting Info: 2015-X0200-FEEBASED-20-20D002-11-4-151-1028- 253L Labor/Fee The obligated amount of award: \$84,561.00. The total for this award is shown in box 17(i).				84,561.00	

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17(H))

\$84,561.00

CONTRACTOR ACCEPTANCE OF TASK ORDER NRC-HQ-20-15-T-0004(27)

Acceptance of Task Order No: NRC-HQ-20-15-T-0004 (27) should be made by having an official, authorized to bind your organization, execute two copies of this document in the space provided and return one copy to the Contracting Officer. You should retain the other copy for your records.

Accepted Task Order No. NRC-HQ-20-15-T-0004(27):



Name R. B. Kalmbach

Executive Director, Contracts

Title

February 25, 2015

Date

SECTION B - Supplies or Services/Prices

NRCB010 BRIEF PROJECT TITLE AND WORK DESCRIPTION (AUG 2011)

- (a) The title of this project is: "Technical Support to Evaluate License Amendment Request (LAR) for Diablo Canyon Digital Process Protection System (PPS) Environmental Qualification"
- (b) Summary work description: The objective of this task order is to obtain technical expertise to conduct evaluations of assigned LAR reference documents, evaluate the submitted materials against the appropriate regulations and guidance, and provide SE input covering the assigned subject matters to the staff's final SE.

PRICE/COST SCHEDULE

PERIOD OF PERFORMANCE - February 26, 2015 through September 30, 2015				
ITEM NO.	DESCRIPTION OF SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL ESTIMATED CPFF
00001	Evaluate License Amendment Request (LAR) for Diablo Canyon Digital Process Protection System (PPS) Environmental Qualification	[REDACTED]	[REDACTED]	[REDACTED]
Total				\$84,561.00

NRCB040A CONSIDERATION AND OBLIGATION—COST-PLUS-FIXED-FEE ALTERNATE I (AUG 2011)

- (a) The total estimated cost to the Government for full performance of this contract is **\$84,561.00** of which the sum of [REDACTED] represents the estimated reimbursable costs, and of which [REDACTED] represents the fixed-fee.
- (b) The amount currently obligated by the Government with respect to this contract is **\$84,561.00**, of which the sum of [REDACTED] represents the estimated reimbursable costs, and of which [REDACTED] represents the fixed-fee.
- (c) This is a fully-funded cost-reimbursement contract and FAR 52.232-20 - "Limitation of Cost" applies.
- (d) In accordance with FAR 52.216-8 - Fixed Fee, it is the policy of the NRC to withhold payment of fee after payment of [REDACTED] percent of the fee has been paid in order to protect the Government's interest. The amount of fixed-fee withheld from the contractor will not exceed 15 percent of the total fee or \$ [REDACTED] whichever is less. Accordingly, the maximum amount of fixed-fee that may be held in reserve is [REDACTED]

SECTION C - Description/Specifications

Statement of Work for Technical Support to Evaluate License Amendment Request Submitted for Nuclear Regulatory Commission (NRC) Staff Evaluation

Cost Code: 1028

Contract No.: NRC-HQ-50-14-E-0001

Task Order No.: NRC-HQ-20-15-T-0004 (Task Order 27)

NRC Requisition Office: Office of Nuclear Reactor Regulation

Fee Recoverable:

TAC Numbers: MF7522/MF7523

NRC Contracting Officer's Representative (COR): Karl Sturzebecher;
Karl.Sturzebecher@nrc.gov; 301-415-8534

1. PROJECT TITLE

"Technical Support to Evaluate License Amendment Request (LAR) for Diablo Canyon Digital Process Protection System (PPS) Environmental Qualification"

2. BACKGROUND

The U.S. Nuclear Regulatory Commission (NRC), Office of Nuclear Reactor Regulation (NRR), Division of Engineering is responsible for the evaluation of license amendment requests (LARs) submitted by license holders proposing digital safety equipment for use in U.S. based nuclear power generating stations. The NRR staff evaluation (SE) seeks to determine the degree of compliance of the proposed subject with applicable regulations, and to make a reasonable assurance determination that the health and safety of the public would not be adversely affected by the appropriate implementation of that subject scope. The NRR staff's SE shall form a part of the final approved version of the LAR.

Pacific Gas and Electric (PG&E) submitted a License Amendment Request (LAR) to replace the Diablo Canyon Nuclear Power Plant Eagle 21 Process Protection System (PPS) with a new digital PPS. The proposed amendment requested the Nuclear Regulatory Commission review and approval of the proposed design. A supplement LAR was submitted on 4/30/2013 (Agency-wide Document Access and Management System (ADAMS) Accession Number ML13121A089). The NRC staff is currently performing a review of this LAR, including its multiple supporting documents to determine whether the replacement digital system addresses important safety design criteria identified in NRC regulations and guidance.

3. OBJECTIVE

The objective of this effort is to obtain technical support to conduct evaluations of assigned LAR reference documents, evaluate the submitted materials against the appropriate regulations and guidance, and provide SE input covering the assigned subject matters to the staff's final SE.

4. SCOPE OF WORK

The initial scope of this LAR effort is to support the staff of the Instrumentation and Controls Branch (I&C) of the NRR Division of Engineering in its detailed evaluation of the DCPD digital PPS system design against the applicable criteria described in Standard Review Plan, NUREG-0800, Chapter 7. To augment the NRC staff's effort, a portion of the design evaluation is to be performed by the contractor. In this initial LAR effort, it was determined the contractor shall evaluate portions of the environmental qualification of the DCPD PPS equipment, including its performance under the expected environmental extremes of radiation, ambient temperature, humidity, ambient pressure, seismic response, smoke, power supply fluctuation, electrostatic discharge (ESD) and electromagnetic compatibility (EMC) (i.e., environmental, seismic, and Electromagnetic Interference / Radio-Frequency Interference (EMI/RFI) issues), while the NRC staff personnel will concentrate on the digital systems hardware and software development issues, real-time performance, independence, and support of on-line surveillance requirements.

5. SPECIFIC TASKS

Task 1: Project Familiarization Phase and Kick-off Meeting

This task shall include reviewing the submitted materials to be evaluated and becoming familiar with the specific scope of work expected. The contractor shall identify the applicable regulatory criteria that will serve as the bases for the evaluation and acceptance of the proposed design. The contractor shall attend a kick-off meeting/teleconference with the Contracting Officer's Representative (COR), the Technical Monitor, NRC staff Project Manager, and Technical Lead to discuss the details of this initial task order scope prior to initiating any detailed TR evaluation work. During the kick-off meeting, the NRC staff Technical Monitor and Technical Lead shall also outline expectations as to which SE Report Sections shall become due by which dates and milestones to be performed in the below Tasks 2 and 3.

The deliverable required under this task will be a Letter Report identifying the specific chapters, pages, and sections of the LAR that will be evaluated, due date, the list of appropriate LAR reference documents that are to be evaluated, and a statement as to which NRC regulatory criteria will be used for the evaluation of each topical area. The topical areas for this initial LAR will include the evaluation of the environmental (radiation, ambient temperature, humidity, ambient pressure, smoke), seismic, electrical isolation capability, ESD, and EMI/RFI performance of the DCPD PPS equipment to be evaluated and any proposed isolation devices that are implemented to maintain independence of the safety equipment from other redundant or non-safety equipment. Draft and finished deliverables are to be transmitted by way of encrypted email and comments to the draft documents will be sent via the same encrypted email medium.

Task 2: Detailed Evaluation of Environmental, Seismic, and EMI/RFI Qualification Performance

This task shall include performance of a detailed review and evaluation of the submitted LAR materials assigned by the NRC. The evaluation shall include a

detailed comparison of this material against the applicable review criteria identified, and preparation of assigned draft sections of the NRC staff's SE. The contractor's written draft evaluation materials shall be submitted for review and comment by the NRC.

The deliverable under this task will be a letter and draft report sections directed to the COR and I&C Branch Technical Monitor documenting the regulatory and environmental findings of the contractor's initial evaluation. The letter shall outline the specific scope agreed upon with the NRC to be completed by the end of this Task, and any additional information requests.

Task 3: Final Written Evaluation of Topical Report Submitted Materials

This task shall include incorporating the NRC staff's comments on the draft materials prepared under Task 2, and preparing final proof sections of the SE for review and incorporation by the NRC staff Technical Monitor/Team Lead into the final SE.

Deliverable under this task will be a letter and report sections directed to the COR and I&C Branch Technical Monitor/Project Lead documenting the contractor's results of the evaluation. The specific scope agreed upon with the NRC staff Technical Monitor/Team Lead to be completed before the 2015 Fiscal Year or earlier and monitored by project milestone identified during the Project Kick-off meeting

6. APPLICABLE DOCUMENTS AND STANDARDS

The contractor shall evaluate the environmental and seismic qualifications and EMC aspects of the proposed design against the applicable criteria per the following standard review plan and supplemental design criteria:

NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Rev. 5, dated March 2007 provides the acceptance criteria for this review. NUREG-0800, which is referred to as the Standard Review Plan (SRP), sets forth a method for reviewing compliance with applicable sections of Title 10 Part 50 of the Code of Federal Regulations (CFR), "Domestic Licensing of Production and Utilization Facilities." Specifically, SRP Chapter 7, "Instrumentation and Controls," addresses the requirements for I&C systems in nuclear power plants based on light-water reactor designs. SRP Chapter 7 and Interim Staff Guidance (ISG), which augments and supplements SRP Chapter 7, principally establish the review process for digital I&C systems that will be applied in this evaluation.

The suitability of a digital I&C platform (including individual boards that function together to serve as a platform) for use in safety systems depends on the quality of its components; quality of the design process; and comprehensiveness of its equipment qualification, along with consideration of system implementation characteristics such as real-time performance, independence, and support of on-line surveillance requirements as demonstrated through the digital I&C platform's verification, validation, and qualification efforts. Because this equipment is intended for use in safety systems and other safety-related applications, the LAR will be evaluated against the equipment ability to support PPS application-specific system provisions of Institute of Electrical and Electronics Engineers (IEEE) Standard (Std.)

603-1991, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations" based on the guidance contained in SRP Chapter 7, Appendix 7.1-C, "Guidance for Evaluation of Conformance to IEEE Std. 603," which provides acceptance criteria for this standard. The platform topical report will be evaluated against IEEE Std. 7-4.3.2-2003, "IEEE Standard Criteria for Digital Computers in Safety Systems of Nuclear Power Generating Stations," and Appendix 7.1-D, "Guidance for Evaluation of the Application of IEEE Std. 7-4.3.2."

SRP Chapter 7, Table 7-1, "Regulatory Requirements, Acceptance Criteria, and Guidelines for Instrumentation and Control Systems Important to Safety," identifies design criteria and regulations from 10 CFR 50 that are applicable to I&C systems and relevant to the general review of the suitability of a digital I&C platform for use in safety-related applications.

The following regulations associated with Environmental, Seismic, ESD, and EMI/RFI issues are applicable to the topical report:

- 10 CFR 50.49, "Environmental qualification of electric equipment important to safety for nuclear power plants."
- 10 CFR 50.55a (a)(1), "Quality Standards" requires that structures, systems, and components must be designed, fabricated, erected, constructed, tested, and inspected to quality standards commensurate with the importance of the safety function to be performed.
- 10 CFR 50.55a(h), "Protection and Safety Systems" incorporates the 1991 version of IEEE Standard 603, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations," by reference, including the correction sheet dated January 30, 1995.
- 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants"
 - General Design Criterion (GDC) 1, "Quality standards and records"
 - GDC 2, "Design bases for protection against natural phenomena"
 - GDC 4, "Environmental and dynamic effects design bases"
 - GDC 13, "Instrumentation and control"
- 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants"
- 10 CFR Part 50, Appendix S, "Earthquake Engineering Criteria for Nuclear Power Plants"

SRP Chapter 7, Table 7.1, identifies regulatory guides (RGs), branch technical positions (BTPs), and industry standards that contain information, recommendations, and guidance and, in general, provide an acceptable basis to implement the above requirements for both hardware and software features of safety-related digital I&C systems. Based on the scope of the equipment being evaluated in the LAR, the following guides and positions are determined to be relevant for consideration in this SE:

- Regulatory Guide 1.75, "Physical Independence of Electric Systems," Revision 3, describes a method acceptable to the NRC staff for complying with the NRC's regulations with respect to the physical independence requirements of the circuits and electric equipment that comprise or are associated with safety systems.
- Regulatory Guide 1.97, "Criteria for Accident Monitoring Instrumentation for Nuclear Power Plants," Revision 4, describes a method acceptable to the NRC staff for providing instrumentation to monitor variables for accident conditions.

- Regulatory Guide 1.100, "Seismic Qualification of Electrical and Active Mechanical Equipment and Functional Qualification of Active Mechanical Equipment for Nuclear Power Plants," Revision 3, describes a method acceptable to the NRC staff for satisfying the seismic qualification.
- Regulatory Guide 1.152, "Criteria for Use of Computers In Safety Systems of Nuclear Power Plants," Revision 3, describes a method acceptable to the NRC staff for complying with the NRC's regulations as they apply to high functional reliability and design requirements for computers used in safety systems of nuclear power plants.
- Regulatory Guide 1.153, "Criteria for Safety Systems," Revision 1, endorsed IEEE Std. 603-1991 as a method acceptable to the NRC staff for satisfying the NRC's regulations with respect to the design, reliability, qualification, and testability of the power, instrumentation, and control portions of the safety systems of nuclear power plants prior to IEEE Std. 603-1991 incorporation by reference into the regulations.
- Regulatory Guide 1.180, "Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in Safety-Related Instrumentation and Control Systems," Revision 1, describes a method acceptable to the NRC staff for design, installation, and testing practices to address the effects of electromagnetic and radio-frequency interference (EMI/RFI) and power surges on safety-related I&C systems.
- Regulatory Guide 1.209, "Guidelines for Environmental Qualification of Safety-Related Computer-Based Instrumentation and Control Systems in Nuclear Power Plants," describes a method acceptable to the NRC staff for satisfying the environmental qualification of safety-related computer-based I&C systems for service in mild environments at nuclear power plants.

The applicable portions of the following BTPs are also considered appropriate for evaluation of the platform design in accordance with the review guidance established within NUREG-0800, "U.S. Nuclear Regulatory Commission Standard Review Plan (SRP)," Chapter 7, "Instrumentation and Controls", in accordance with 10 CFR 50.34(h)(3), as follows:

- Appendix 7.1-C, "Guidance for Evaluation of Conformance to IEEE Std. 603"
- Appendix 7.1-D, "Guidance for Evaluation of the Application of IEEE Std. 7-4.3.2"
- Branch Technical Position 7-11, "Guidance on Application and Qualification of Isolation Devices"
- Branch Technical Position 7-18, "Guidance on the Use of Programmable Logic Controllers in Digital Computer-Based Instrumentation and Control Systems"

It is possible that certain elements of the subject equipment being described in the LAR may be composed of existing commercial off-the-shelf (COTS) digital I&C parts, such that certain industry guidelines that address dedication and qualification processes may be applicable. The NRC staff has determined that applicable criteria affecting environmental, seismic, and EMI/RFI evaluations of digital equipment designs are contained in the following reviewed and accepted industry guidance documents based on conditions established in previous SE reports.

- Electric Power Research Institute (EPRI) Topical Report (TR)-102323, "Guidelines for Electromagnetic Interference Testing in Power Plants," as accepted by the NRC SE dated April 30, 1996

- EPRI TR-106439, "Guideline on Evaluation and Acceptance of Commercial Grade Digital Equipment for Nuclear Safety Applications," as accepted by the NRC SE dated April 1997
- EPRI TR-107330, "Generic Requirements Specification for Qualifying a Commercially Available PLC for Safety-Related Applications in Nuclear Power Plants," as accepted by the NRC SE dated July 30, 1998

It should be noted that industry standards, documents, and reports use the word "requirements" to denote provisions that must be implemented to ensure compliance with the corresponding document. Additionally, these standards, documents, and reports provide guidance or recommendations that need not be adopted by the user to ensure compliance with the corresponding document, and the optional items are not designated as "requirements." The word "requirement" is used throughout the I&C discipline. However, licensee or vendor documentation of conformance to the "requirements" provided in industry standards, documents, and reports referenced in this SE only constitutes conformance with NRC regulatory requirements insofar as endorsed by the NRC. Furthermore, use of the word "requirements" in these documents does not indicate that the "requirements" are NRC regulatory requirements.

For the above listing of review plans, branch technical positions, industry codes and standards, and regulatory and industry guidance, the contractor scope pertains to the environmental, seismic, power supply fluctuation withstand capability, electrical isolation capability, ESD, and EMI/RFI only.

7. DELIVERABLES AND DELIVERY SCHEDULE

The schedule for project deliverables is as follows:

Task #	Description	Deliverable(s)	Completion Date
1	Kickoff meeting, Task 2 & 3 planning for equipment and interface devices	Identify specific deliverables and dates	26-Feb-15
2	Detailed evaluation performed and update requests for additional information	Letter and report findings and any additional information requirements	26-Mar-15
3	Final Evaluation on Submitted Materials	Final report on the evaluation as per the milestones	30-Sept-15

Monthly Letter Status Report

An electronic Monthly Letter Status Report (MLSR) in a Microsoft Word file is to be submitted to the COR and Contracting Officer (CO) by the 20th of the month following the month to be reported with copies provided to the following:

Contracts

Hugo.Alcantara@nrc.gov

John Thorp, Branch Chief John.Thorp@nrc.gov Mail Stop O-09E05
 Richard Stattel, Project Lead Richard.stattel@nrc.gov Mail Stop: O-09H04
 Karl Sturzebecher, Technical Monitor Karl.Sturzebecher@nrc.gov Mail Stop: O-09D05

Monthly Letter Status Reporting (MLSR) Requirements

A budget is to be developed for each Task based on the agreed upon allocation of the level of effort among the Tasks. Separate expenditures for each Task will be reported in the MLSR against the budget using the following format:

Authorized Cost Ceiling: \$ _____ Funds Obligated to date: \$ _____

<u>Tasks</u>	<u>Planned Budget</u>	<u>Expenditures for the Period</u>	<u>Task Expenditures Cumulative</u>	<u>Percentage vs. Budget</u>
1	\$ _____	\$ _____	\$ _____	%
2.	\$ _____	\$ _____	\$ _____	%
3.	\$ _____	\$ _____	\$ _____	%
Total	\$ _____	\$ _____	\$ _____	%

A monthly expense variance greater than 10 percent must be explained in the "Problem/Resolution" section of the MLSR.

8. REQUIRED LABOR CATEGORIES

The contractor shall have the minimum qualifications of an advanced knowledge of the digital engineering process life cycle, and use of instrumentation and control systems in safety applications at nuclear facilities, and including the design and overall use of digital instrumentation and controls. The Contractor shall have knowledge of appropriate equipment qualification processes for nuclear facility mild environments, moderate-to-severe earthquakes, and industrial EMI/RFI environments. The contractor's knowledge, skills, and experience shall be familiar with typical digital equipment failure modes and have an understanding of potential interactions with safety systems during normal and abnormal conditions. The contractor shall also have knowledge of NRC regulatory requirements, NRC design reviews, and inspection processes. Such knowledge, understanding, and experience are necessary to assist NRC staff during completion of its evaluation of the assigned LTR sections so that the NRC has effective regulatory oversight of the environmental, seismic, electrical isolation, power supply effects, and EMC aspects of the assigned topical report subject matter.

9. GOVERNMENT-FURNISHED PROPERTY

The following NRC materials will be provided to the contractor by the COR either immediately prior to or during the kick-off meeting:

1. The submitted License Amendment Request for replacement of Eagle 21 Process Protection System.

2. NRC documents germane to the assessment of the regulations listed under Section 6.
3. Management Handbook 12.6, "NRC Sensitive Unclassified Information Security Program."

10. PERIOD OF PERFORMANCE

The anticipated period of performance of this task order is February 26, 2015 through September 30, 2015.

11. PLACE OF PERFORMANCE

Work may be performed at the Southwest Research Institute's campus, in San Antonio, Texas, or when necessary at the NRC Offices in Rockville, Maryland.

12. SPECIAL CONSIDERATIONS

TRAVEL

The following travel is anticipated to occur under this task order. All travel requires prior written approval from the COR.

Although work will be primarily performed at the contractor's site, the contractor may be required to travel to the NRC headquarters for update meetings. Details of these trips will be worked out cooperatively between the contractor and the COR.

1. 1 trip, 1 person, for 2 nights and 3 days from SwRI to NRC (Rockville, MD), to discuss the deliverables that have been developed in Tasks 2-3 and comments received from the staff.

SECURITY

The work does not require a security clearance; however, the work will require the contractor to perform an evaluation of business "Proprietary" information and must be willing to agree to the terms and conditions appropriate to the handling of this information. The contractor shall pursue IT2 clearance for access to the NRC network, specifically ADAMS.

SECTION D - Packaging and Marking

NRCD010 PACKAGING AND MARKING

(a) The Contractor shall package material for shipment to the NRC in such a manner that will ensure acceptance by common carrier and safe delivery at destination. Containers and closures shall comply with the Surface Transportation Board, Uniform Freight Classification Rules, or regulations of other carriers as applicable to the mode of transportation.

(b) On the front of the package, the Contractor shall clearly identify the contract number under which the product is being provided.

(c) Additional packaging and/or marking requirements are as follows: None.

NRCD020 BRANDING

The Contractor is required to use the statement below in any publications, presentations, articles, products, or materials funded under this contract/order, to the extent practical, in order to provide NRC with recognition for its involvement in and contribution to the project. If the work performed is funded entirely with NRC funds, then the contractor must acknowledge that information in its documentation/presentation.

Work Supported by the U.S. Nuclear Regulatory Commission (NRC), Office of Nuclear Reactor Regulation, under Contract/order number NRC-HQ-50-14-E-0001/NRC-HQ-20-15-T-0004(27).

SECTION E - Inspection and Acceptance

CONTRACTING OFFICER'S REPRESENTATIVE

(a) The Contracting Officer's authorized representative hereinafter referred to as the Contracting Officer's Representative (COR) for this Task Order is:

Name: Karl Sturzebecher
Address: Mail Stop: OWFN-09D05
Washington, DC 20555
Telephone Number: 301-415-8534

(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:

(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.

SECTION F - Deliveries or Performance

NRCF010 PLACE OF DELIVERY-REPORTS

The items to be furnished hereunder shall be delivered, with all charges paid by the Contractor, to:

- a. Name: Karl Sturzebecher (1 Electronic Copy)
- b. Contracting Officer's Representative (COR)
- c. Address: Karl.Sturzebecher@nrc.gov (1 Electronic Copy)

- d. Name: Hugo Alcantara (1 Electronic Copy)
- e. Contract Specialist (CS)
- f. Address: Hugo.Alcantara@nrc.gov (1 Electronic Copy)

NRCF032 TASK/DELIVERY ORDER PERIOD OF PERFORMANCE (SEP 2013)

This order shall commence on February 26, 2015 and will expire on September 30, 2015.

SECTION G - Contract Administration Data

NRCG030 ELECTRONIC PAYMENT (SEP 2014)

The Debt Collection Improvement Act of 1996 requires that all payments except IRS tax refunds be made by Electronic Funds Transfer. Payment shall be made in accordance with FAR 52.232-33, entitled "Payment by Electronic Funds-Central Contractor Registration".

To receive payment, the contractor shall prepare invoices in accordance with NRC's Billing Instructions. Claims shall be submitted on the payee's letterhead, invoice, or on the Government's Standard Form 1034, "Public Voucher for Purchases and Services Other than Personal," and Standard Form 1035, "Public Voucher for Purchases Other than Personal – Continuation Sheet." The preferred method of submitting invoices is electronically to: NRCPayments@nrc.gov.

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:

<u>Name</u>	<u>Title</u>
Lane Howard	Program Manager
Mr. George Adams	Principal Investigator

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 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.

2052.215-78 TRAVEL APPROVALS AND REIMBURSEMENT (OCT 1999) - ALTERNATE I (OCT 1999)

(a) Total expenditure for travel may not exceed **\$1,167.00** without the prior approval of the contracting officer.

(b) All foreign travel must be approved in advance by the NRC on NRC Form 445, Request for Approval of Official Foreign Travel, and must be in compliance with FAR 52.247-63 Preference for U.S. Flag Air Carriers. The contractor shall submit NRC Form 445 to the NRC no later than 30 days prior to the commencement of travel.

(c) The contractor will be reimbursed only for travel costs incurred that are directly related to this contract and are allowable subject to the limitations prescribed in FAR 31.205-46.

(d) It is the responsibility of the contractor to notify the contracting officer in accordance with the FAR Limitations of Cost clause of this contract when, at any time, the contractor learns that travel expenses will cause the contractor to exceed the travel ceiling amount identified in paragraph (a) of this clause.

(e) Reasonable travel costs for research and related activities performed at State and nonprofit institutions, in accordance with Section 12 of Pub. L. 100-679, must be charged in accordance with the contractor's institutional policy to the degree that the limitations of Office of Management and Budget (OMB) guidance are not exceeded. Applicable guidance documents include OMB Circular A-87, Cost Principles for State and Local Governments; OMB Circular A-122, Cost Principles for Nonprofit Organizations; and OMB Circular A-21, Cost Principles for Educational Institutions.

NRCH400 SECURITY REQUIREMENTS RELATING TO THE PRODUCTION OF REPORT(S) OR THE PUBLICATION OF RESULTS UNDER CONTRACTS, AGREEMENTS, AND GRANTS

Review and Approval of Reports

(a) Reporting Requirements. The contractor/grantee shall comply with the terms and conditions of the contract/grant regarding the contents of the draft and final report, summaries, data, and related documents, to include correcting, deleting, editing, revising, modifying, formatting, and supplementing any of the information contained therein, at no additional cost to the NRC. Performance under the contract/grant will not be deemed accepted or completed until it complies with the NRC's directions. The reports, summaries, data, and related documents will be considered draft until approved by the NRC. The contractor/grantee agrees that the direction, determinations, and decisions on approval or disapproval of reports, summaries, data, and related documents created under this contract/grant remain solely within the discretion of the NRC.

(b) Publication of Results. Prior to any dissemination, display, publication, or release of articles, reports, summaries, data, or related documents developed under the contract/grant, the contractor/grantee shall submit them to the NRC for review and approval. The contractor/grantee shall not release, disseminate, display or publish articles, reports, summaries, data, and related documents, or the contents therein, that have not been reviewed and approved by the NRC for release, display, dissemination or publication. The contractor/grantee agrees to conspicuously place any disclaimers, markings or notices, directed by the NRC, on any articles, reports, summaries, data, and related documents that the contractor/grantee intends to release, display, disseminate or publish to other persons, the public, or any other entities. The contractor/grantee agrees, and grants, a royalty-free, nonexclusive, irrevocable worldwide license to the government, to use, reproduce, modify, distribute, prepare derivative works, release, display or disclose the articles, reports, summaries, data, and related documents developed under the contract/grant, for any governmental purpose and to have or authorize others to do so.

(c) Identification/Marking of Sensitive Unclassified Non-Safeguards Information (SUNSI) and Safeguards Information (SGI). The decision, determination, or direction by the NRC that information possessed, formulated or produced by the contractor/grantee constitutes SUNSI or SGI is solely within the authority and discretion of the NRC. In performing the contract/grant, the contractor/grantee shall clearly mark SUNSI and SGI, to include for example, OUO-Allegation Information or OUO-Security Related Information on any reports, documents, designs, data,

materials, and written information, as directed by the NRC. In addition to marking the information as directed by the NRC, the contractor shall use the applicable NRC cover sheet (e.g., NRC Form 461 Safeguards Information) in maintaining these records and documents. The contractor/grantee shall ensure that SUNSI and SGI is handled, maintained and protected from unauthorized disclosure, consistent with NRC policies and directions. The contractor/grantee shall comply with the requirements to mark, maintain, and protect all information, including documents, summaries, reports, data, designs, and materials in accordance with the provisions of Section 147 of the Atomic Energy Act of 1954 as amended, its implementing regulations (10 CFR 73.21), Sensitive Unclassified Non-Safeguards and Safeguards Information policies, and NRC Management Directives and Handbooks 12.5, 12.6 and 12.7.

(d) Remedies. In addition to any civil, criminal, and contractual remedies available under the applicable laws and regulations, failure to comply with the above provisions, and/or NRC directions, may result in suspension, withholding, or offsetting of any payments invoiced or claimed by the contractor/grantee.

(e) Flowdown. If the contractor/grantee intends to enter into any subcontracts or other agreements to perform this contract/grant, the contractor/grantee shall include all of the above provisions in any subcontracts or agreements.

NRCH410 WHISTLEBLOWER PROTECTION FOR NRC CONTRACTOR AND SUBCONTRACTOR EMPLOYEES

(a) The U.S. Nuclear Regulatory Commission (NRC) contractor and its subcontractor are subject to the Whistleblower Employee Protection public law provisions as codified at 42 U.S.C. 5851. NRC contractor(s) and subcontractor(s) shall comply with the requirements of this Whistleblower Employee Protection law, and the implementing regulations of the NRC and the Department of Labor (DOL). See, for example, DOL Procedures on Handling Complaints at 29 C.F.R. Part 24 concerning the employer obligations, prohibited acts, DOL procedures and the requirement for prominent posting of notice of Employee Rights at Appendix A to Part 24 entitled: "Your Rights Under the Energy Reorganization Act".

(b) Under this Whistleblower Employee Protection law, as implemented by regulations, NRC contractor and subcontractor employees are protected from discharge, reprisal, threats, intimidation, coercion, blacklisting or other employment discrimination practices with respect to compensation, terms, conditions or privileges of their employment because the contractor or subcontractor employee(s) has provided notice to the employer, refused to engage in unlawful practices, assisted in proceedings or testified on activities concerning alleged violations of the Atomic Energy Act of 1954 (as amended) and the Energy Reorganization Act of 1974 (as amended).

(c) The contractor shall insert this or the substance of this clause in any subcontracts involving work performed under this contract.

NRCH470 GREEN PURCHASING (SEP 2013)

(a) In furtherance of the sustainable acquisition goals included in Executive Order 13514, "Federal Leadership in Environmental, Energy, and Economic Performance," products and services acquired under this contract/order shall be energy-efficient (Energy Star or Federal Energy Management Program (FEMP) designated), water-efficient, biobased, environmentally preferable (e.g., Electronic Product Environmental Assessment Tool (EPEAT) certified),

non-ozone depleting, recycled content, and non-toxic or less toxic alternatives, to the maximum extent practicable in meeting NRC contractual requirements.

(b) See NRC's Green Purchasing Plan (GPP) at:
<http://pbadupws.nrc.gov/docs/ML1219/ML12191A130.pdf> and the General Service

Administration's (GSA) Green Procurement Compilation at:
<http://www.gsa.gov/portal/content/198257>.

(c) The contractor shall flow down this clause into all subcontracts and other agreements that relate to performance of this contract/order.

**NRCH480 USE OF AUTOMATED CLEARING HOUSE (ACH) ELECTRONIC
PAYMENT/REMITTANCE ADDRESS**

The Debt Collection Improvement Act of 1996 requires that all Federal payments except IRS tax refunds be made by Electronic Funds Transfer. It is the policy of the Nuclear Regulatory Commission to pay government vendors by the Automated Clearing House (ACH) electronic funds transfer payment system. Item 15C of the Standard Form 33 may be disregarded.

SECTION I - Contract Clauses

All clauses are on the master contract and flow down to each task order.

SECTION J - List of Documents, Exhibits and Other Attachments

<u>Attachment No.</u>	<u>Description</u>
1.	Billing Instructions for Cost-Reimbursement Type Contracts