

ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES
1 28

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

| | | | | | |
|---|------------------------------|---|--|---|----------------|
| 1. DATE OF ORDER 03/11/2016 | | 2. CONTRACT NO. (If any) NRC-HQ-50-14-E-0001 | | 6. SHIP TO: | |
| 3. ORDER NO. NRC-HQ-20-16-T-0002 | | 4. REQUISITION/REFERENCE NO. NRR-16-0064 | | a. NAME OF CONSIGNEE KARL STURZEBECKER | |
| 5. ISSUING OFFICE (Address correspondence to) US NRC - HQ ACQUISITION MANAGEMENT DIVISION MAIL STOP TWFN-5E03 WASHINGTON DC 20555-0001 | | | | b. STREET ADDRESS US NUCLEAR REGULATORY COMMISSION OFFICE OF NUCLEAR REACTOR REGULATION MAIL STOP OWFN 9D2 | |
| | | | | c. CITY WASHINGTON | d. STATE DC |
| | | | | e. ZIP CODE 20555 | |
| 7. TO: | | | | f. SHIP VIA | |
| a. NAME OF CONTRACTOR S W R I | | | | 8. TYPE OF ORDER | |
| b. COMPANY NAME | | | | <input type="checkbox"/> a. PURCHASE | |
| c. STREET ADDRESS 6220 CULEBRA RD | | | | REFERENCE YOUR: | |
| d. CITY SAN ANTONIO | | | | e. STATE TX | |
| | | | | f. ZIP CODE 782385166 | |
| 9. ACCOUNTING AND APPROPRIATION DATA See Schedule | | | | 10. REQUISITIONING OFFICE OFFICE OF NUCLEAR MATERIAL | |
| 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 | | 14. GOVERNMENT B/L NO. | | 15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date) | |
| a. INSPECTION Destination | b. ACCEPTANCE Destination | | | 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) |
|-----------------|---|----------------------------|-------------|----------------------|---------------|-----------------------------|
| | The Contractor shall provide services in accordance with the Statement of Work entitled "Environmental technical support to evaluate the TOSHIBA America Nuclear Energy Digital I&C Safety Platform based on FPGA Technology Topical Report." Continued ... | | | | | |

| | | | | | | | | |
|---|---|--|---------------------------|--|-----------------|----------------|------------------------------------|-------------------------|
| SEE BILLING INSTRUCTIONS ON REVERSE | 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 | | | | | | \$0.00 | |
| | b. STREET ADDRESS (or P.O. Box) ONE WHITE FLINT NORTH 11555 ROCKVILLE PIKE MAILSTOP 03-E17A | | | | | | | |
| c. CITY ROCKVILLE | | | | | | d. STATE MD | e. ZIP CODE 20852-2738 | 17(i) GRAND TOTAL |
| | | | | | | | \$70,249.00 | |

22. UNITED STATES OF AMERICA BY (Signature) 03/11/2016

23. NAME (Typed)
ARACELIS PEREZ-ORTIZ
TITLE: CONTRACTING/ORDERING OFFICER

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

TEMPLATE - ADM001

SUNSI REVIEW COMPLETE

MAR 18 2016

ADM002

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.

03/11/2016

NRC-HQ-50-14-E-0001

ORDER NO.

NRC-HQ-20-16-T-0002

| ITEM NO. (a) | SUPPLIES/SERVICES (b) | QUANTITY ORDERED (c) | UNIT (d) | UNIT PRICE (e) | AMOUNT (f) | QUANTITY ACCEPTED (g) |
|-----------------|--|----------------------------|-------------|----------------------|---------------|-----------------------------|
| | <p>Task Order Base and All Options: \$70,249.00.00 Task Order Obligation Amount: \$35,000.00</p> <p>NRC Contracting Officer's Representative: Karl.Sturzebecker@nrc.gov; Phone: 301-415-8534</p> <p>Accounting Info: 2016-X0200-FEEBASED-20-20D002-11-4-151-1065- 251A Period of Performance: 03/15/2016 to 11/15/2016</p> | | | | | |

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

\$0.00

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Prescribed by GSA FAR (48 CFR) 53.213(f)

NRC-HQ-50-14-E-0001
NRC-HQ-20-16-T-0002


CONTRACTOR ACCEPTANCE OF TASK ORDER NRC-HQ-20-16-T-0002

Acceptance of Task Order No. NRC-HQ-20-16-T-0002 under contract no. NRC-HQ-50-14-E-0001 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-20-16-T-0002:



Name R. B. Kalmbach

 Executive Director, Contracts
Title

03/09/2016
Date

SECTION B - Supplies or Services/Prices

NRCB010 BRIEF PROJECT TITLE AND WORK DESCRIPTION

- (a) Environmental technical support to evaluate the TOSHIBA America Nuclear Energy Digital I&C Safety Platform based on FPGA Technology Topical Report.
- (b) Summary work description: The objective of this effort is to obtain technical support to the NRC staff by conducting evaluations of assigned topical report 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

| CLIN NO | DESCRIPTION OF SUPPLIES/SERVICES | ESTIMATED COST | FIXED FEE | TOTAL CPFF |
|---------|---|----------------|-----------|------------|
| 00001 | Environmental technical support to evaluate the TOSHIBA America Nuclear Energy Digital I&C Safety Platform based on FPGA Technology Topical Report. | | | |
| Total | | | | |

NRCB040A CONSIDERATION AND OBLIGATION—COST-PLUS-FIXED-FEE ALTERNATE I

(a) The total estimated cost to the Government for full performance of this contract is **\$70,249.00** of which the sum of **\$0** represents the estimated reimbursable costs, and of which **\$0** represents the fixed-fee.

(b) There shall be no adjustment in the amount of the Contractor's fixed fee.

(c) The amount currently obligated by the Government with respect to this contract is **\$0** of which the sum of **\$0** represents the estimated reimbursable costs, and of which **\$0** represents the fixed-fee.

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

(e) In accordance with FAR 52.216-8 - Fixed Fee, it is the policy of the NRC to withhold payment of fee after payment of **100** 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 **100** percent of the total fee or **\$0** whichever is less. Accordingly, the maximum amount of fixed-fee that may be held in reserve is **\$0**.

SECTION C - Description/Specifications Statement of Work

1. PROJECT TITLE

Environmental technical support to evaluate the TOSHIBA America Nuclear Energy Digital I&C Safety Platform based on FPGA Technology Topical Report.

2. BACKGROUND

The U.S. Nuclear Regulatory Commission (NRC), Office of Nuclear Reactor Regulation (NRR), Division of Engineering is responsible for the evaluation of Topical Reports submitted by vendors of digital safety equipment proposed for use in U.S. based nuclear power generating stations. The NRC Topical Report (TR) program aims to reduce the impact on industry and NRC staff resources by providing for a streamlined safety evaluation (SE) and approval of particular safety-related subject matter so the approved SE and associated TR can be referenced in subsequent licensing actions. Thus, rather than conducting repeated evaluations of the same subject matter in multiple licensing actions, the TRs are reviewed by the NRR staff with the intent of identifying the maximum appropriate scope of the TR subject matter that is found to be consistent with current regulations and licensing standards that may be found suitable for reference within future licensing actions. The NRR staff 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 SE shall form a part of the final approved version of the TR.

By letter dated August 24, 2015 (Agencywide Documents and Management System (ADAMS) Accession No. ML15246A175), TOSHIBA America notified the NRC of its intention to submit the topical report "Digital I&C Safety Platform based on FPGA Technology" - Topical Report (ML15246A176, ML15260B140, ML15260B144, ML15260B146), for use in digital upgrades in nuclear power plants. The NRC staff has been reviewing this TR since August, 2015.

3. OBJECTIVE

The objective of this effort is to obtain technical support to the NRC staff by conducting evaluations of assigned topical report 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 TR evaluation is to support the staff of the Instrumentation and Controls Branch (I&C) of the NRR Division of Engineering in its detailed review of the TOSHIBA Safety 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 TR evaluation the contractor shall evaluate portions of the environmental qualification of the TOSHIBA 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 system's hardware and software development issues, real-time performance, independence, and support of on-line surveillance requirements as demonstrated through the TOSHIBA equipment's verification, validation, and qualification efforts.

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 sections shall become due by which dates, and milestones to be performed in Tasks 2 and 3.

The deliverable required under this task will be a Letter Report identifying the specific chapters, pages, and sections of the TR that will be evaluated, the due date, the list of appropriate TR 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 TR 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 assigned 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 either NRC/CNWRA Shared Server or 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 TR materials assigned by the NRC. The initial review in Task 1 may find incomplete documentation or data, which is needed to complete the evaluation. In this situation the contractor shall document requests for additional information (RAI) and provide their recommendation to the NRC. RAIs should not be used as general information requests or as a means to encourage commitments from licensees. (See LIC-101) Upon review of the RAI(s) 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 safety evaluation 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 2016 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 instrumentation and control 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 platform topical report will be evaluated against the equipment ability to support 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 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 TR and the limitations of a platform-level review, 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 TR 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 | To be scheduled with COR after Task Order Award. |
| 2 | Detailed evaluation performed and update requests for additional information | Letter and report findings and any additional information requirements | May-16 |
| 3 | Final Evaluation on Submitted Materials | Final report on the evaluation as per the milestones | October-16 |

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 | <u>ContractsPOT.Resource@nrc.gov</u> | |
| Michael Waters, Branch Chief | <u>Michael.Waters@nrc.gov</u> | Mail Stop O-09E03 |
| Rossnyev Alvarado, Project Lead | <u>Rossnyev.Alvarado@nrc.gov</u> | Mail Stop: O-09D03 |
| Karl Sturzebecher, Technical Monitor | <u>Karl.Sturzebecher@nrc.gov</u> | Mail Stop: O-09D03 |

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.

8. REQUIRED LABOR CATEGORIES (Except for Information Technology Services)

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. 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/DATA

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

1. The submitted Licensing Topical Report "Safety System Digital Platform – TOSHIBA – Topical Report" and "Summary of TOSHIBA Platform Equipment Qualification."
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. 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.

11. SPECIAL CONSIDERATIONS

TRAVEL

The following travel is anticipated to occur under the 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

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-20-16-T-0002.

(End of Clause)

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.

(End of Clause)

SECTION E - Inspection and Acceptance

CONTRACTING OFFICER'S REPRESENTATIVE (COR) AUTHORITY

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

Contracting Officer's Representative

Name: Karl Sturzebecher
Mail Stop: OWFN-09D02
Phone: 301-415-8534
E-mail: Karl.Sturzebecher@nrc.gov

Alternate Contracting Officer's Representative

Name: Jocelyn Lian
Mail Stop: OWFN-09E07
Phone: 301-415-4666
E-mail: Jocelyn.Lian@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:

(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.

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.

(End of Clause)

SECTION F - Deliveries or Performance

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

This order shall commence on March 15, 2016, and will expire on November 15, 2016.

(End of Clause)

NRCF010 PLACE OF DELIVERY-REPORTS

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

- a. Contracting Officer's Representative (COR) (1 Electronic Copy)
Address: Refer to Section E, subsection CONTRACTING OFFICER'S REPRESENTATIVE (COR) AUTHORITY
- b. Name: Aracelis Pérez-Ortiz Contract Specialist (CS), (1 Electronic Copy)
Address: Aracelis.Perez-ortiz@nrc.gov

(End of Clause)

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.

(End of Clause)

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> |
|------------------|--|
| Mr. Lane Howard | Project Management |
| Mr. George Adams | Principal Investigator, Senior Research Engineer |

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.

(End of Clause)

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

(a) Total expenditure for travel may not exceed **\$1,290.00** 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.

(End of Clause)

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.

(End of Clause)

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.

(End of Clause)

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.

(End of Clause)

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.

(End of Clause)

SECTION J - List of Documents, Exhibits and Other Attachments

**BILLING INSTRUCTIONS FOR
COST-REIMBURSEMENT TYPE CONTRACTS (JUL 2015)**

General: During performance and through final payment of this contract, the contractor is responsible for the accuracy and completeness of data within the System for Award Management (SAM) database and for any liability resulting from the Government's reliance on inaccurate or incomplete SAM data.

The contractor shall prepare invoices/vouchers for reimbursement of costs in the manner and format described herein. FAILURE TO SUBMIT INVOICES/VOUCHERS IN ACCORDANCE WITH THESE INSTRUCTIONS MAY RESULT IN REJECTION OF THE INVOICE/VOUCHER AS IMPROPER.

Standard Forms: Reimbursement requests shall be submitted on the payee's letterhead, invoice/voucher, 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."

Electronic Invoice/Voucher Submissions: The preferred method of submitting invoices/vouchers is electronically to the U.S. Nuclear Regulatory Commission, via email to: NRCPayments@nrc.gov.

Hard-Copy Invoice/Voucher Submissions: If you submit a hard-copy of the invoice/voucher, a signed original and supporting documentation shall be submitted to the following address:

NRC Payments
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Mailstop O3-E17A
Rockville, MD 20852-2738

Purchase of Capital Property: *(\$50,000 or more with life of one year or longer)*

Contractors must report to the Contracting Officer, electronically, any capital property acquired with contract funds having an initial cost of \$50,000 or more, in accordance with procedures set forth in NRC Management Directive (MD).

Agency Payment Office: Payment will continue to be made by the office designated in the contract in Block 12 of the Standard Form 26, or Block 25 of the Standard Form 33, whichever is applicable.

Frequency: The contractor shall submit requests for reimbursement once each month, unless otherwise authorized by the Contracting Officer.

Format: Invoices/Vouchers shall be submitted in the format depicted on the attached sample form entitled "Invoice/Voucher for Purchases and Services Other Than Personal". Alternate formats are permissible only if they address all requirements of the Billing Instructions. The

instructions for preparation and itemization of the invoice/voucher are included with the sample form.

Task Order Contracts: The contractor must submit a separate invoice/voucher for each individual task order with detailed cost information. This includes all applicable cost elements and other items discussed in paragraphs (a) through (s) of the attached instructions. In addition, the invoice/voucher must specify the contract number, and the NRC-assigned task/delivery order number.

Billing of Costs after Expiration of Contract: If costs are incurred during the contract period and invoiced after the contract has expired, you must cite the period during which these costs were incurred. To be considered a proper expiration invoice/voucher, the contractor shall clearly mark it "EXPIRATION INVOICE" or "EXPIRATION VOUCHER".

Final invoices/vouchers shall be marked "FINAL INVOICE" or "FINAL VOUCHER".

Currency: Invoices/Vouchers must be expressed in U.S. Dollars.

Supersession: These instructions supersede previous Billing Instructions for Cost-Reimbursement Type Contracts.

**INVOICE/VOUCHER FOR PURCHASES AND SERVICES OTHER THAN PERSONAL
(SAMPLE FORMAT - COVER SHEET)**

1. Official Agency Billing Office

NRC Payments
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Mailstop O3-E17A
Rockville, MD 20852-2738

2. Invoice/Voucher Information

- a. Payee's DUNS Number or DUNS+4. The Payee shall include the Payee's Data Universal Number (DUNS) or DUNS+4 number that identifies the Payee's name and address. The DUNS+4 number is the DUNS number plus a 4-character suffix that may be assigned at the discretion of the Payee to identify alternative Electronic Funds Transfer (EFT) accounts for the same parent concern.
- b. Taxpayer Identification Number. The Payee shall include the Payee's taxpayer identification number (TIN) used by the Internal Revenue Service (IRS) in the administration of tax laws. (See IRS Web site: [http://www.irs.gov/Individuals/International-Taxpayers/Taxpayer-Identification-Numbers-\(TIN\)\)](http://www.irs.gov/Individuals/International-Taxpayers/Taxpayer-Identification-Numbers-(TIN)))).
- c. Payee's Name and Address. Show the name of the Payee as it appears in the contract and its correct address. Where the Payee is authorized to assign the proceeds of this contract in accordance with the clause at Federal Acquisition Regulation (FAR) 52.232-23 Assignment of Claims, the Payee shall require as a condition of any such assignment, that the assignee shall register separately in the System for Award Management (SAM) database at <http://sam.gov> and shall be paid by EFT in accordance with the terms of this contract. See FAR 52.232-33 Payment by Electronic Funds Transfer-System for Award Management.
- d. Contract Number. Insert the NRC contract number (including Enterprise-wide Contract (EWC)), GSA Federal Supply Schedule (FSS), Governmentwide Agency Contract (GWAC) number, or Multiple Agency Contract (MAC) number, as applicable.
- e. Task Order Number. Insert the task/delivery order number (If Applicable). **Do not include more than one task order per invoice or the invoice may be rejected as improper.**
- f. Invoice/Voucher. The appropriate sequential number of the invoice/voucher, beginning with 001 should be designated. Contractors may also include an individual internal accounting number, if desired, in addition to the 3-digit sequential number.
- g. Date of Invoice/Voucher. Insert the date the invoice/voucher is prepared.
- h. Billing Period. Insert the beginning and ending dates (day, month, year) of the period during which costs were incurred and for which reimbursement is requested.
- i. Description of Deliverables. Provide a brief description of supplies or services, quantity, unit

cost, and total cost.

j. Work Completed. Provide a general summary description of the services performed or products submitted for the invoice period and specify the section or Contract Line Item Number (CLIN) or SubCLIN in the contract pertaining to the required deliverable(s).

k. Shipping. Insert weight and zone of shipment, if shipped by parcel post.

l. Charges for freight or express shipments. Attach prepaid bill if shipped by freight or express.

m. Instructions. Include instructions to consignee to notify the Contracting Officer of receipt of shipment.

n. For Indefinite Delivery contracts, the final invoice/voucher shall be marked "FINAL INVOICE" or "FINAL VOUCHER".

o. Final invoices must include the name of the NRC Contracting Officer's Representative (COR) and Contracting Officer.

p. Direct Costs. Insert the amount billed for the following cost elements, adjustments, suspensions, and total amounts, for both the current billing period and for the cumulative period (from contract inception to end date of this billing period).

(1) Direct Labor. This consists of salaries and wages paid (or accrued) for direct performance of the contract itemized as follows:

| <u>Labor</u> <u>Category</u> | <u>Hours</u> <u>Billed</u> | <u>Rate</u> | <u>Total</u> | <u>Cumulative</u> <u>Hours Billed</u> |
|---------------------------------|-------------------------------|-------------|--------------|--|
|---------------------------------|-------------------------------|-------------|--------------|--|

(2) Fringe Benefits. This represents fringe benefits applicable to direct labor and billed as a direct cost. Where a rate is used indicate the rate. Fringe benefits included in direct labor or in other indirect cost pools should not be identified here.

(3) Contractor-acquired property (\$50,000 or more). List each item costing \$50,000 or more and having a life expectancy of more than one year. List only those items of equipment for which reimbursement is requested. For each such item, list the following (as applicable): (a) an item description, (b) manufacturer, (c) model number, (d) serial number, (e) acquisition cost, (f) date of purchase, and (g) a copy of the purchasing document.

(4) Contractor-acquired property (under \$50,000), Materials, and Supplies. These are equipment other than that described in (3) above, plus consumable materials and supplies. List by category. List items valued at \$1,000 or more separately. Provide the item number for each piece of equipment valued at \$1,000 or more.

(5) Premium Pay. This enumeration in excess of the basic hourly rate. (Requires written approval of the Contracting Officer.)

(6) Consultant Fee. The supporting information must include the name, hourly or daily rate of the consultant, and reference the NRC approval (if not specifically approved

in the original contract).

(7) Travel. Total costs associated with each trip must be shown in the following format:

| <u>Start Date</u> | | <u>Destination</u> | | <u>Costs</u> |
|-------------------|----|--------------------|----|--------------|
| From | To | From | To | \$ |

(Must include separate detailed costs for airfare, per diem, and other transportation expenses. All costs must be adequately supported by copies of receipts or other documentation.)

(8) Subcontracts. Include separate detailed breakdown of all costs paid to approved subcontractors during the billing period.

(9) Other Costs. List all other direct costs by cost element and dollar amount separately.

q. Indirect Costs (Overhead and General and Administrative Expense). Cite the formula (rate and base) in effect in accordance with the terms of the contract, during the time the costs were incurred and for which reimbursement is requested.

r. Fixed-Fee. If the contract provides for a fixed-fee, it must be reimbursed as indicated in the contract. Cite the formula or method of computation. Include this information as it applies to individual task orders as well.

(1) The NRC will withhold payment of 15% of the negotiated contract fixed-fee amount, not to exceed \$100,000.

(2) If the fee withholding amount has reached \$100,000, the contractor may resume billing the NRC for the balance of its fee under subsequent invoices for work completed.

(3) Any fee amounts withheld by the NRC will be paid to the contractor during contract closeout in increments, following the submission/settlement of indirect rate proposals in accordance with FAR 52.216-8, "Fixed Fee" (JUN 2011).

s. Total Amount Billed. Insert columns for total amounts for the current and cumulative periods.

t. Adjustments. Insert columns for any adjustments, including outstanding suspensions for deficient or defective products or nonconforming services, for the current and cumulative periods.

u. Grand Totals.

3. Sample Invoice/Voucher Information

Sample Invoice/Voucher Information (Supporting Documentation must be attached)

This invoice/voucher represents reimbursable costs for the billing period from _____ through _____.

| | | <u>Amount Billed</u> | |
|------|---|-----------------------|-------------------|
| | | <u>Current Period</u> | <u>Cumulative</u> |
| (a) | <u>Direct Costs</u> | | |
| (1) | Direct labor | \$ _____ | \$ _____ |
| (2) | Fringe benefits (% of direct labor) | \$ _____ | \$ _____ |
| (3) | Government property (\$50,000 or more) | \$ _____ | \$ _____ |
| (4) | Government property, Materials, and Supplies (under \$50,000 per item) | \$ _____ | \$ _____ |
| (5) | Premium pay (NRC approved overtime) | \$ _____ | \$ _____ |
| (6) | Consultants Fee | \$ _____ | \$ _____ |
| (7) | Travel | \$ _____ | \$ _____ |
| (8) | Subcontracts | \$ _____ | \$ _____ |
| (9) | Other costs | \$ _____ | \$ _____ |
| | Total Direct Costs: | \$ _____ | \$ _____ |
| (b) | <u>Indirect Costs</u> (provide the rate information applicable to your firm) | | |
| (10) | Overhead ____ % of _____ (Indicate Base) | \$ _____ | \$ _____ |
| (11) | General and Administrative (G&A) ____ % of _____ (Indicate Base) | \$ _____ | \$ _____ |
| | Total Indirect Costs: | \$ _____ | \$ _____ |
| (c) | <u>Fixed-Fee:</u> | | |
| (12) | Fixed-Fee Calculations: | | |
| i. | Total negotiated contract fixed-fee percent ____ and amount \$ _____ | | |
| ii. | 85% allowable fee amount \$ _____ | | |
| iii. | Cumulative fee billed on prior invoices \$ _____ | | |
| iv. | Fee due this invoice (not to exceed 85% of fee earned based upon negotiated contract fee percentage) \$ _____ | | |
| | <i>Note: The fee balance withheld by NRC may <u>not</u> exceed \$100,000.</i> | | |
| | Total Fixed-Fee: | \$ _____ | \$ _____ |
| (d) | Total Amount Billed | \$ _____ | \$ _____ |
| (e) | Adjustments (+/-) | \$ _____ | \$ _____ |

(f) **Grand Total** \$ _____ \$ _____

(The invoice/voucher format provided above must include information similar to that included below in the following to ensure accuracy and completeness.)

SAMPLE SUPPORTING INFORMATION

The budget information provided below is for format purposes only and is illustrative.

Cost Elements:

1) Direct Labor - \$2,400

| <u>Labor Category</u> | <u>Hours Billed</u> | <u>Rate</u> | <u>Total</u> | <u>Cumulative Hours Billed</u> |
|-----------------------|---------------------|-------------|----------------|--------------------------------|
| Senior Engineer I | 100 | \$14.00 | \$1,400 | 975 |
| Engineer | 50 | \$10.00 | \$ 500 | 465 |
| Computer Analyst | 100 | \$ 5.00 | \$ 500 | 320 |
| | | | <u>\$2,400</u> | 1,760 hrs. |

2) Fringe Benefits - \$480

Fringe @ 20% of Direct Salaries

| <u>Labor Category</u> | <u>Salaries</u> | <u>Fringe Amount</u> |
|-----------------------|-----------------|----------------------|
| Senior Engineer I | \$1,400 | \$280 |
| Engineer | \$ 500 | \$100 |
| Computer Analyst | <u>\$ 500</u> | <u>\$100</u> |
| | <u>\$2,400</u> | <u>\$480</u> |

3) Government-furnished and contractor-acquired property (\$50,000 or more) - \$60,000

Prototype Spectrometer - item number 1000-01 = \$60,000

4) Government-furnished and contractor-acquired property (under \$50,000), Materials, and Supplies - \$2,000

| | |
|---|-----------------|
| 10 Radon tubes @ \$110.00 | = \$1,100 |
| 6 Pairs Electrostatic gloves @ \$150.00 | = <u>\$ 900</u> |
| | <u>\$2,000</u> |

5) Premium Pay - \$150

Walter Murphy - 10 hours @ \$10.00 Per Hour (Reg. Pay) = \$100 x 1.5 OT rate = \$150
(EX: Premium pay for this individual was approved and authorized under this contract by the NRC Contracting Officer by letter dated 6/1/2011.)

6) Consultants' Fee - \$100

Dr. Carney - 1 hour fully-burdened @ \$100 = \$100

7) Travel - \$2,640

(i) Airfare: (2 Roundtrip trips for 1 person @ \$300 per r/t ticket)

| <u>Start Date</u> | <u>End Date</u> | <u>Days</u> | <u>From</u> | <u>To</u> | <u>Cost</u> |
|-------------------|-----------------|-------------|------------------|------------|-------------|
| 4/1/2011 | 4/7/2011 | 7 | Philadelphia, PA | Wash, D.C. | \$300 |
| 7/1/2011 | 7/8/2011 | 8 | Philadelphia, PA | Wash, D.C. | \$300 |

(ii) Per Diem: \$136/day x 15 days = \$2,040

8) Subcontracting - \$30,000

| | |
|-----------|-------------------|
| Company A | = \$10,000 |
| Company B | = <u>\$20,000</u> |
| | \$30,000 |

(EX: Subcontracts for Companies A & B were consented to by the Contracting Officer by letter dated 6/15/2011.)

9) Other Costs - \$5,100

Honorarium for speaker at American Nuclear Society conference = \$5,000
Nuclear Planet Journal subscription fee = \$100

10) Overhead Expense - \$41,148

Overhead @ 40% of Total Direct Costs

11) General and Administrative (G&A) Expense - \$22,784

G&A @ 20% of Total Costs, excluding subcontracts and consultants

12) Fixed-Fee - \$8,218

Fixed-Fee applied to Total Costs @ 5%

Fixed-Fee Calculations:

- i. Total contract fixed-fee \$100,000
- ii. 85% allowable fee \$85,000
- iii. Cumulative fee billed on prior invoices \$85,000
- iv. Fee due this invoice (*not to exceed 85% of fee earned based upon negotiated contract fee percentage*) \$8,218

| | |
|---------------------|------------------|
| Total Amount Billed | \$175,020 |
| Adjustments (+/-) | - <u>\$8,218</u> |
| Grand Total | \$166,802 |