

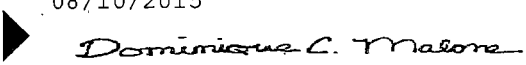
ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES

1

35

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

1. DATE OF ORDER 08/10/2015		2. CONTRACT NO. (If any) NRC-HQ-50-14-E-0001		6. SHIP TO: a. NAME OF CONSIGNEE ALBERT WONG				
3. ORDER NO. NRC-HQ-20-15-T-0019		4. REQUISITION/REFERENCE NO. NRR-15-0233		b. STREET ADDRESS 11555 ROCKVILLE PIKE				
5. ISSUING OFFICE (Address correspondence to) US NRC - HQ ACQUISITION MANAGEMENT DIVISION MAIL STOP TWEN-5E03 WASHINGTON DC 20555-0001				c. CITY ROCKVILLE		d. STATE MD	e. ZIP CODE 20852	
7. TO: a. NAME OF CONTRACTOR S W R I b. COMPANY NAME c. STREET ADDRESS 6220 CULEBRA RD				f. SHIP VIA				
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 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 <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) 04/30/2015		16. DISCOUNT TERMS
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-20-15-T-0019, Task Order 48 The contractor shall provide services in accordance with the task order statement of work entitled: Review of Risk-Informed Evaluation of Boiling Water Reactor Owners Continued ...							
18. SHIPPING POINT		19. GROSS SHIPPING WEIGHT		20. INVOICE NO.		17(h) TOTAL (Cont. pages)		
21. MAIL INVOICE TO:						17(i) GRAND TOTAL		
a. NAME US NUCLEAR REGULATORY COMMISSION						\$507,263.00		
b. STREET ADDRESS (or P.O. Box) ONE WHITE FLINT NORTH 11555 ROCKVILLE PIKE MAILSTOP 03-E17A						\$507,263.00		
c. CITY ROCKVILLE						d. STATE MD	e. ZIP CODE 20852-2738	
22. UNITED STATES OF AMERICA BY (Signature) 				23. NAME (Typed) DOMONIQUE MALONE TITLE: CONTRACTING/ORDERING OFFICER				

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SUNSI REVIEW COMPLETE

AUG 13 2015

TEMPLATE - Admin

ADMIN02

SCHEDULE - CONTINUATION

2

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

DATE OF ORDER

CONTRACT NO.

ORDER NO.

08/10/2015

NRC-HQ-50-14-E-0001

NRC-HQ-20-15-T-0019

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
00001	<p>Group (BWROG) Treatment of the Effects of Debris on ECCS Performance Report</p> <p>NRC Contracting Officer Representative: Albert Wong PH: 301-415-3081 Email: Albert.Wong@nrc.gov</p> <p>NRC Alternate Contracting Officer Representative: Bernard Grenier PH: 301-415-2726 Email: Bernard.Grenier@nrc.gov</p> <p>Accounting Info: 2015-X0200-FEEBASED-20-20D007-11-4-149-1128-252A Period of Performance: 08/10/2015 to 09/30/2017</p> <p>R-I Solution of BWROG ECCS Report Line Item Ceiling\$507,263.00 Incrementally Funded Amount: \$30,000.00</p> <p>The obligated amount of award: \$30,000.00. The total for this award is shown in box 17(i).</p>				507,263.00	


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

\$507,263.00

CONTRACTOR ACCEPTANCE OF TASK ORDER NRC-HQ-20-15-T-0019

Acceptance of Task Order No: NRC-HQ-20-15-T-0019(48) 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-0019(48):



Name R. B. Kalmbach

Executive Director, Contracts

Title

August 5, 2015

Date

SECTION B – TASK ORDER TERMS AND CONDITIONS

B.1 NRCB010 BRIEF PROJECT TITLE AND WORK DESCRIPTION

(a) The title of this project is review of Boiling Water Reactor Owners Group (BWROG) Emergency Core Cooling System (ECCS) Suction Strainer Risk-Informed Analysis.

(b) The contractor shall (1) review the Phase II report (both the draft and final report, along with all associated background materials), (2) evaluate the final Phase II report and perform confirmatory analyses (including modeling and risk assessment) to confirm the results outlined in the Phase II final report, (3) prepare a technical evaluation report (TER) and RAIs based on the evaluation of the Phase II final report to the BWROG, (4) evaluate the RAI responses from the BWROG and update the TER, (5) review final responses to RAIs and update the technical evaluation report (TER) documenting its review and confirmatory analyses, (6) provide technical assistance, as related to the BWROG's Phase II final report, to NRC staff on an as-needed basis, (7) participate in up to two audits at the contractor's site and (8) participate in Advisory Committee on Reactor Safeguards (ACRS) meeting(s).

B.2 PRICE/COST SCHEDULE

<u>CLIN NO.</u>	<u>Description of Supplies/Services</u>	<u>Est Cost</u>	<u>Fixed Fee</u>	<u>CPFF</u>
0001	Review of Risk-Informed Evaluation of Boiling Water Reactor Owners Group (BWROG) Treatment of the Effects of Debris on ECCS Performance Report			
TOTAL CEILING AMOUNT				\$507,263.00

B.3 NRCB040A CONSIDERATION AND OBLIGATION-- TASK ORDERS (AUG 2011)

(a) The total estimated cost to the Government for full performance of this task order is \$507,263.00, of which the sum of [REDACTED] represents the estimated reimbursable costs, and of which [REDACTED] represents the fixed-fee.

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

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

(d) This is not a fully-funded contract and FAR 52.232-20 - "Limitation of Cost" 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 85 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 [REDACTED] 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 - TASK ORDER STATEMENT OF WORK

1. PROJECT TITLE

Review of Boiling Water Reactor Owners Group (BWROG) Emergency Core Cooling System (ECCS) Suction Strainer Risk-Informed Analysis

2. BACKGROUND

In the mid-1990s, the NRC issued two bulletins related to debris in BWR suppression pools. The first, NRC Bulletin 95-02, "Unexpected Clogging of a Residual Heat Removal Pump Strainer While Operating in Suppression Pool Cooling Mode," described circumstances in which latent fibrous and other debris in the suppression pool at a BWR had accumulated at residual heat removal (RHR) suction strainer, causing increased pressure drop across the strainer and challenging RHR pump capabilities. The second, NRC Bulletin 96-03, "Potential Plugging of Emergency Core Cooling Suction Strainers by Debris in Boiling-Water Reactors," identified the susceptibility of ECC pump suction strainers to become clogged by debris dislodged from steam jets or high energy line breaks. In response, BWR utilities took action to remove latent debris from suppression pools, and to ensure that ECC pump suction strainers were designed and fabricated with a measure of resilience to debris, to ensure strainer operability under LOCA scenarios.

Following the resolution of these bulletins, the NRC issued Generic Safety Issue (GSI) 191, "Assessment of Debris Accumulation on PWR Sump Pump Performance," which extended the studies on BWR suppression pool issues to pressurized water reactors. In working to resolve GSI 191, the NRC and industry investigated chemical, as well as ex-vessel and in-vessel downstream effects, associated with debris originating within containment and migrating to the containment sump pool.

The information obtained through study of the PWR generic safety issue indicated that additional evaluation of in-vessel downstream effects in BWRs, along with other relevant topics, may provide a net safety benefit. The NRC issued a letter to the BWROG on April 10, 2008 (commonly referred to as the Grobe letter because the letter was issued by J.A. Grobe, Associate Director for Engineering and Safety Systems of NRR to R. Anderson, BWROG Executive Chairman, ML080500540), characterizing the knowledge gains associated with GSI-191, and requesting BWROG action in addressing the associated concerns generically. Among other topics, the letter discussed the potential for downstream effects arising from the transport of debris into the reactor vessel.

The BWROG proposed a hybrid mechanism (including both deterministic and risk-informed approaches) to address the issues in the Grobe letter. Specifically, the BWROG Disposition Plan identified two issues to be addressed deterministically. The other ten issues were to be dispositioned in a risk-informed manner.

The BWROG is expected to submit a draft and a final report documenting the results from the risk-informed work (known as the Phase II evaluation report) in calendar year 2015. The draft Phase II report is expected to be available in the July 2015 timeframe. The final Phase II report is expected to be issued approximately two months after the issuance of the draft report. The NRC staff seeks CNWRA support to provide specific technical knowledge and

expertise related to these issues during the staff's review and possible acceptance of the approaches proposed by the BWROG.

3. SCOPE OF WORK

CNWRA shall (1) review the Phase II report (both the draft and final report, along with all associated background materials), (2) evaluate the final Phase II report and perform confirmatory analyses (including modeling and risk assessment) to confirm the results outlined in the Phase II final report, (3) prepare a technical evaluation report (TER) and RAIs based on the evaluation of the Phase II final report to the BWROG, (4) evaluate the RAI responses from the BWROG and update the TER, (5) review final responses to RAIs and update the technical evaluation report (TER) documenting its review and confirmatory analyses, (6) provide technical assistance, as related to the BWROG's Phase II final report, to NRC staff on an as-needed basis, (7) participate in up to two audits at the contractor's site and (8) participate in Advisory Committee on Reactor Safeguards (ACRS) meeting(s).

When performing these tasks, the CNWRA is directed to use the general guidance contained in RG 1.174 to determine the acceptability of the BWROG analysis. Although strict adherence to certain aspects of RG 1.174 may not be feasible for generic evaluations, the CNWRA should verify that the BWROG has adhered to the overall "principles, process, and approach" outlined in RG 1.174.

The basis for this approach is located in Section A of RG 1.174, which states that:

"The principles, process, and approach discussed herein also provide useful guidance for the application of risk information to a broader set of activities other than plant specific changes to a plant's licensing basis (i.e., generic activities) and licensees are encouraged to use this guidance in that regard."

ASSUMPTIONS AND UNDERSTANDINGS

- It is understood that the level of effort for each Task contains sufficient effort to conduct telephone conference calls with the NRC staff. Such phone calls, for example, for Task 1 will be to hold a brief "kick-off" meeting to discuss the parameters of the contract and other items of mutual concern and for Task 4 and 5, calls might be arranged by the NRC COR with the BWROG Project Manager and other NRC staff to discuss the RAIs and to reach an understanding with the BWROG. Comments might be provided to the CNWRA such that the RAIs may have to be resubmitted by the CNWRA.
- Some of the tasks (e.g., Tasks 2, 3, and 4) may be pursued in parallel and could be iterative in nature. For example, the confirmatory analysis (Task 3) may answer some of the questions generated during the review (Task 2) and open other questions. Similarly, the list of RAIs (Task 4) may vary depending on the progress made in Tasks 2 and 3.
- The level of effort assumption for Task 4 assumes two rounds of RAIs. Each round of RAIs is assumed to take 16 hours to review, including drafting any necessary follow-up RAIs and updating the draft TLR.

- NRC may request additional information from the BWROG in order to resolve open items. Additional information could include, but are not limited to, supporting analyses, sensitivity studies, and/or justification. RAls need to be written in an unambiguous manner and have an adequate basis to support the evaluation. The basis should explain why the information is needed, including how it will be used to make a reasonable assurance finding. Judgmental language and open-ended questions should be avoided.
- The level of effort assumption for each audit is based upon 16 hours for preparing the audit plan, four hours for travel preparation and travel to the site, 16 hours to conduct the audit and return travel and four hours for preparation of the audit report, for two personnel.
- The level of effort assumption for each ACRS meeting is based upon 16 hours for preparing the slides, four hours for travel preparation and travel to the site, eight hours to attend the meeting and return travel and four hours for preparation of the trip report, for one person.

4. SPECIFIC TASKS

Tasks

1. Review the Draft Phase II Report

Become knowledgeable of NRC guidance documents such as R.G. 1.174. Review the draft report and any references included in the report and prepare a technical letter report of major observations, findings and insights related to the technical merits of the approach used by the BWR Owner's Group and any identified shortcomings pertinent to the safety issues under consideration.

2. Initial Review the Final Phase II Report

Review the final report and determine whether the methodology in the submittal is generally consistent with the principles, process and approach outlined in RG 1.174.

Prepare a technical letter report documenting the results of the review conducted under Tasks 1 and 2.

3. Perform Confirmatory Analyses

Based on finding of Task 2, review the BWROG Phase II analysis to confirm that (i) the BWROG accurately translated staff-reviewed and accepted technical information into probability distributions and associated uncertainties, and (ii) the computational tools used for the submittal accurately sampled the distributions and propagated uncertainty, where appropriate. If bounding values are used, assess whether they are adequate to address uncertainty in a manner consistent with RG 1.174.

- a. Perform sensitivity analysis on input parameters that are significant contributors to risk calculations, i.e. important to the outcome. Assess whether licensee assumptions regarding these parameters are consistent with the current

state of knowledge. Prepare a technical letter report.

- b. Perform confirmatory analysis of proposed head loss correlations and other portions of the evaluation that do not use widely accepted standard computational techniques, and were shown to be important in Subtask 3.a. Prepare a technical letter report.

4. Develop the Technical Evaluation Report (TER) and Requests for Additional Information (RAIs)

Based on work performed and the findings of Tasks 2 and 3, prepare a TER and RAIs based on identified gaps in the review.

- a. Draft TER and RAIs.
- b. Participate in discussions with NRC regarding the adequacy of and need for the RAIs; incorporate NRC comments and submit the final RAIs to the NRC staff.

5. Review of RAI Responses and Update of the TER

- a. Review the BWROG responses to any RAIs and determine if the response adequately addresses the RAI. If an RAI response adequately addresses the concern, update the TER. If the RAI response does not adequately address the RAI, develop follow-up RAI(s) in a TLR.

(1) Draft follow-on RAIs.

(2) Participate in discussions with NRC regarding the adequacy of and need for the RAIs; incorporate NRC comments and submit the final RAIs.

- b. Review the BWROG's final RAI response(s) and determine if the response adequately addresses the RAI. Perform limited analyses as may be necessary. Incorporate the RAI response(s), if acceptable, in the TER or identify as an open item [for a response that does not adequately address the RAI]. Update the TER.

(1) Draft TER with any open items.

(2) Incorporate NRC comments and submit the final TER.

6. Technical Support (OPTIONAL TASK)

At the discretion of the COR and on a case-by-case basis, the contractor may be expected to present new data, updated calculations, new findings, and conclusions, etc. for which specialized technical assistance from the CNWRA could be needed.

7. Audit Support

Consistent with NRR Office Instruction LIC-111 (ML082900195), "Regulatory Audits," participate in up to two staff audits at the vendor's facilities located in Albuquerque, N.M.

- a. Review and provide comments on the audit plan in those areas which are pertinent to CNWRA's involvement. Prepare a technical letter report.
- b. Prepare for and travel to BWROG site to participate in the audit. Based on the audit plan, evaluate those areas of the audit plan assigned to the CNWRA. Prepare an audit report.

8. ACRS Support

a. Subcommittee Meeting

- (1) Based on the final evaluation of the BWROG's report, and the staff audit(s), prepare presentation slides consisting of a summary of the key issues of the staff's technical evaluation report regarding the issues identified in the Grobe letter, in particular those of known interest to the ACRS. Prepare a technical letter report.

(a) Draft.

(b) Incorporate NRC comments and prepare the final Slides.

- (2) Prepare for and travel to NRC HQ to participate in the ACRS Subcommittee meeting to support the staff's positions. Prepare a trip report.

b. Full Committee Meeting

- (1) Based on the results of the Subcommittee meeting, prepare updated presentation slides consisting of a summary of the key issues of the staff's technical evaluation report regarding the Grobe letter, in particular those of known interest to the ACRS. Prepare a technical letter report.

(a) Draft.

(b) Incorporate NRC comments and prepare final slides.

(2) Prepare for and travel to NRC HQ to participate in the ACRS Full Committee meeting to support the staff's positions. Prepare a trip report.

5. APPLICABLE DOCUMENTS AND STANDARDS

- 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors"
- NRC Bulletins 95-02 and 96-03, as described in Section 2, above
- GSI-191, "Assessment of Debris Accumulation on PWR Sump Pump Performance" (Refer to NRC Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors")
- Letter from John A. Grobe, NRC to Richard Anderson, BWROG, "Potential Issues Related to Emergency Core Cooling Systems Strainer Performance at Boiling Water Reactors," dated April 10, 2008, ML080500540
- BWROG ECCS Suction Strainers Risk-Informed Solutions – NRC Public Meeting, September 9, 2014, ML14232A307
- BWROG ECCS Suction Strainers Risk-Informed Solutions – NRC Public Meeting, December 4, 2014, ML14337A227
- BWROG ECCS Suction Strainers Risk-Informed Solutions – NRC Public Teleconference, April 13, 2015, ML15140A359
- Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," Revision 2, May 2011, ML100910006
- Regulatory Guide 1.82, "Water Sources For Long-Term Recirculation
- Cooling Following A Loss-Of-Coolant Accident," Revision 4, March 2012, ML111330278
- NUREG/CR-7011, "Evaluation of Treatment of Effects of Debris in Coolant on ECCS and CSS Performance in Pressurized Water Reactors and Boiling Water Reactors," ML101400088

6. DELIVERABLES AND DELIVERY SCHEDULE

The following deliverables are to be sent electronically:

1. At the completion of Task 1, submit a technical letter report that contains a summary of the work performed, major observations, insights into the approach used by the BWR Owner's Group and any highlights pertinent to the safety issues under consideration. (Due date: NLT two weeks after receipt of the Draft Phase II report)
2. At the completion of Task 2, submit a technical letter report that contains a summary of the work performed and the determination as to whether the methodology in the submittal is consistent with the principles, process and approach outlined in RG 1.174. In particular, specifically address by separate paragraphs or sections principles 2 through 5. (Due date: four weeks from receipt of the Final Phase II report)
3. At the completion of each of Subtasks 3.a. and 3.b., submit a technical letter report that contains a summary of the work performed, findings and conclusions concerning the licensee's assumptions. For Subtask 3.b., specifically provide the results of the comparisons between the BWROG's head loss correlations and those of the CNWRA. (Due dates: 3a: five weeks after completion of Task 2; 3b: five weeks after completion of 3a)
4. At the completion of Task 4, submit a technical letter report, draft and final as appropriate, that contains the technical evaluation report and the RAIs along with the bases upon which they were formulated. Questions included in the RAI(s) shall have a clear and concise regulatory basis and they should describe why additional information is needed to reach a conclusion on the adequacy of the Phase II report. The TER and the RAI(s) shall be written in an NRC-approved format to be provided by the COR. (Due dates: 4a: four weeks after completion of Task 3; 4b: four weeks after receipt of NRC comments)
5. At the completion of Subtask 5.a., submit a technical evaluation report, draft and final as appropriate, that contains the results of the evaluation and any follow-up RAIs or open items along with the bases for the RAI or open item. (Due dates: 5a(1): two weeks after the receipt of RAI responses; 5a(2): two weeks after receipt of NRC comments)
6. At the completion of Task 5.b., submit a technical evaluation report draft and final as appropriate, that contains: (i) an evaluation of the adequacy of the Phase II final report, (ii) a summary of any RAIs and the BWROG responses to the RAIs, (iii) a summary of the CNWRA's evaluation based on all of the information received and any confirmatory analyses performed and (iv) identification of any areas that are potentially inadequately addressed by the BWROG. The draft TER should provide an initial conclusion about whether the BWROG's submittal was generally consistent with RG 1.174 and whether it adequately addressed the technical issues outlined in the Grobe letter. (Due Dates: 5b(1): four weeks after receipt of RAI(s); 5b(2) one week after receipt of NRC comment(s))

NOTE: The final TER should update the initial conclusion on consistency with RG 1.174 and the Grobe letter. The TLR shall include a detailed analysis, with basis,

for finding the licensee's analysis acceptable. The CNWRA's TLR will inform the NRC final evaluation of the BWROGs methodology.

7. At the completion of the each request under Task 6, submit a technical letter report that contains a summary of the request, a summary of work performed and a summary of technical acceptability of request and, if not acceptable, the need for an RAI(s) along with the basis(es) clearly articulated, or simply why the proposed technical position is unfounded. (Due Dates: to be mutually agreed upon)
8. At the completion of Task 7.a., submit a technical letter report, draft and final as appropriate, that contains the audit plan following the style and format of an NRC audit plan available in ML100540281. (Due Date: one week after receipt of the audit plan)
9. At the completion of Task 7.b., submit an audit report that contains the background information concerning the audit, the significant highlights reflecting insights on possible strengths and weakness, any responses to staff questions raised during the audit and actions due and by whom. Include a copy of slides or other visual used during the audit. The report must **clearly identify** any issues in **bold** type at the appropriate text location for which further information/discussion will be needed (e.g., open and unresolved items), and follows the style and format of an NRC audit report outlined in LIC-111 and available in ML100540281. (Due Date: one week after the audit).
10. At the completion of Task 8.a.(1) and 8.b.(1), submit a technical letter report, draft and final as appropriate, that contains the slides ready for presentation at the ACRS meeting. (Due Dates: 8a(1)(a) Draft: two weeks prior to the meeting; 8a(1)(b): two days after receipt of NRC comments; 8a(2): one week after the meeting)
11. At the completion of Task 8.a(2) and 8.b(2)., submit a trip report that contains a brief summary of the highlights of the meeting, key issues discussed and any follow-on actions required as a result of the meeting. (Due Dates: 8b(1)(a) Draft: two weeks prior to the meeting; 8b(1)(b): two days after receipt of NRC comments)

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 PMPR 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.	\$	\$	\$	%
4.	\$	\$	\$	%
5.	\$	\$	\$	%
6.	\$	\$	\$	%
7.	\$	\$	\$	%

8.	\$	\$	\$	%
Total	\$	\$	\$	%

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

NOTE: Once a variance reaches 15 percent, prior approval is required in writing from the NRC COR, or a Modification is to be processed.

7. REQUIRED LABOR CATEGORIES

A Senior Engineer Principal Investigator and one Senior Support Engineers who combined possess the following expertise:

- Boiling water reactor systems expertise, with emphasis on containment and emergency core cooling system design;
- PRA experience in commercial nuclear power plants, preferably with the BWR plants
- Chemical, mechanical or nuclear engineering expertise with computational fluid dynamic experience

A Project Manager to oversee the effort and ensure the timely submittal of accurate and complete deliverables.

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

Tasks	Labor Category	Level of Effort			
		FY-15	FY-16	FY-17	Total
1.	Senior Engineer/PI	20	0	0	20
	Senior M.E./N.E.	<u>20</u>	0	0	<u>20</u>
	Subtotal	40	0	0	40
2.	Senior Engineer/PI	50	50	0	100
	Senior M.E./N.E.	<u>50</u>	<u>50</u>	0	<u>100</u>
	Subtotal	100	100	0	200
3.	Senior Engineer/PI	0	200	0	200
	Senior M.E./N.E.	0	<u>200</u>	0	<u>200</u>
	Subtotal	0	400	0	400
4.	Senior Engineer/PI	0	240	0	240
	Senior M.E./N.E.	0	<u>240</u>	0	<u>240</u>
	Subtotal	0	480	0	480

5.	Senior Engineer/PI	0	240	0	240
	Senior M.E./N.E.	0	<u>240</u>	0	<u>240</u>
	Subtotal	0	480	0	480
6.	Senior Engineer/PI	0	160	0	160
	Senior M.E./N.E.	0	<u>160</u>	0	<u>160</u>
	Subtotal	0	320	0	320
7.	Senior Engineer/PI	40	40	0	80
	Senior M.E./N.E.	40	<u>40</u>	0	<u>80</u>
	Subtotal	80	80	0	160

		<u>FY-15</u>	<u>FY-16</u>	<u>FY-17</u>	<u>Total</u>
8.	Senior Engineer/PI	0	36	36	72
	Senior M.E./N.E.	0	<u>0</u>	0	<u>0</u>
	Subtotal	0	36	36	72
	Total technical review	220	1,896	36	2,152
	Project Management	11	90	4	105
	Program Support	11	90	4	105
	Total by Labor Category:				
	Sr. Engineer/PI	110	966	36	1,112
	Sr. Engineer/M.E./N.E.	<u>110</u>	<u>930</u>	<u>0</u>	<u>1,040</u>
	Total Technical Review	220	1,896	36	2,152

8. GOVERNMENT-FURNISHED PROPERTY

None.

9. PLACE OF PERFORMANCE

Work will be performed at the SWRI/CNWRA site in San Antonio, Texas.

10. SPECIAL CONSIDERATIONS

TRAVEL - Two two-person, two-day trips to the BWROG site located in Albuquerque, N.M.

Two one-person, one-day trips to NRC HQ.

11. SECURITY

Information required for performance of this work is anticipated to be UNCLASSIFIED. Proprietary Information or other Sensitive Unclassified Non-Safeguards Information (SUNSI) may be required to complete the work.

SECTION D – PACKAGING AND MARKING

D.1 NRCD020 BRANDING (AUG2012)

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 _____
, under Contract order number _____.

(End of Clause)

D.2 NRCD010 PACKAGING AND MARKING (AUG 2011)

(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

E.1 INSPECTION AND ACCEPTANCE BY THE NRC (SEP 2013)

Inspection and acceptance of the deliverable items to be furnished hereunder shall be made by the NRC Contracting Officer's Representative (COR) at the destination, accordance with FAR 52.247-34 – F.o.b. Destination.

Contract Deliverables:

1. Kick-Off Meeting
2. Preliminary TER
3. Final Preliminary TER
4. Draft RAI
5. Final RAI
6. Draft Updated TER
7. Final Updated TER
8. Final Updated TER
9. MLSR

E.2 CONTRACTING OFFICER'S REPRESENTATIVE (COR) AUTHORITY

1. The COR for this task order is:

Albert Wong
Office: Office of Nuclear Reactor Regulation
Mailstop: OWFN/7B-1
Rockville, MD 20852
Phone: 301-415-3081
Email: Albert.Wong@nrc.gov

2. The Alternate COR for this task order is:

Bernard Grenier
E-mail address: Bernard.Grenier@nrc.gov
Telephone No: (301) 415-2726

3. Performance of the work under this task order is subject to the technical direction of the NRC COR. The term "technical direction" is defined to include the following:

- i. 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 (SOW) or changes to specific travel identified in the SOW), fills in details, or otherwise serves to accomplish the contractual SOW.
 - ii. Provide advice and guidance to the contractor in the preparation of drawings, specifications, or technical portions of the work description.
 - iii. Review and, where required by the task order contract, approval of technical reports, drawings, specifications, and technical information to be delivered by the contractor to the Government under the contract.
4. Technical direction must be within the general statement of work stated in the task order. The COR does not have the authority to and may not issue any technical direction which:
 - i. Constitutes an assignment of work outside the general scope of the contract.
 - ii. Constitutes a change as defined in the "Changes" clause of this contract.
 - iii. 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.
 - iv. Changes any of the expressed terms, conditions, or specifications of the contract.
 - v. Terminates the contract, settles any claim or dispute arising under the contract, or issues any unilateral directive whatever.
5. Technical directions must be issued in writing by the COR or must be confirmed by the COR 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.
6. The contractor shall proceed promptly with the performance of technical directions duly issued by the COR in the manner prescribed by this clause and within the COR's authority under the provisions of this clause.
7. If, in the opinion of the contractor, any instruction or direction issued by the COR is within one of the categories as 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 the 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.

8. Any unauthorized commitment or direction issued by the COR 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.
9. 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 thereto is subject to 52.233-1, Disputes.
10. In addition to providing technical direction as defined in paragraph (b) of the section, the COR shall:
 - a. Monitor the contractor's technical progress, including surveillance and assessment of performance, and recommend to the Contracting Officer changes in requirements.
 - b. Assist the contractor in the resolution of technical problems encountered during performance.
 - c. 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.
 - d. Assist the contractor in obtaining the badges for the contractor personnel.
 - e. Immediately notify the Security Branch, Division of Facilities and Security (SB/DFS) (via e-mail) when a contractor employee no longer requires access authorization and return of any NRC issued badge to SB/DFS within three days after their termination.
 - f. Ensure that all contractor employees that require access to classified Restricted Data or National Security Information or matter, access to sensitive unclassified information (Safeguards, Official Use Only, and Proprietary information) access to sensitive IT systems or data, unescorted access to NRC controlled buildings/space, or unescorted access to protected and vital areas of nuclear power plants receive approval of SB/DFS prior to access in accordance with Management Directive and Handbook 12.3.
 - g. For contracts for the design, development, maintenance or operation of Privacy Act Systems of Records, obtain from the contractor as part of closeout procedures, written certification that the contractor has returned to NRC, transferred to the successor contractor, or destroyed at the end of the contract in accordance with instructions provided by the NRC Systems Manager for Privacy Act Systems of Records, all records (electronic or paper) which were created, compiled, obtained or maintained under the contract.

SECTION F - DELIVERIES OR PERFORMANCE

F.1 NRCF032 TASK/DELIVERY ORDER PERIOD OF PERFORMANCE (SEP 2013)

This contract shall commence on August 10, 2015 and will expire on September 30, 2017.

(End of Clause)

F.2 NRCF010 PLACE OF DELIVERY — REPORTS (AUG 2011)

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

- a. Name: Albert Wong (Electronic Copy)
- b. Contracting Officer's Representative (COR)
- c. U.S. Nuclear Regulatory Commission
- d. Address: 11555 Rockville Pike
Rockville, MD 20852

e. Electronic copies to: Albert.Wong@nrc.gov; Bernard.Grenier@nrc.gov

f. (List names and email addresses)

- g. Name: Bernard Grenier (Electronic Copy)
- h. Alternate Contracting Officer
- i. U.S. Nuclear Regulatory Commission
- j. Address: 11555 Rockville Pike
Rockville, MD 20852

(End of Clause)

SECTION G – CONTRACT ADMINISTRATION DATA

G.1 BILLING INSTRUCTIONS FOR COST-REIMBURSEMENT TYPE CONTRACTS (MAY 2013)

General: During performance and through final payment of this contract, the contractor is responsible for the accuracy and completeness of data within the Central Contractor Registration (CCR) database and for any liability resulting from the Government's reliance on inaccurate or incomplete CCR 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) 13.1, IV, C – "Reporting Requirements" (revised 2/16/2011).

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 (July 2011).

G.2 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 the Department of the Interior at NRCPayments@nrc.gov. If the contractor submits a hard copy of the invoice, it shall be submitted to the following address:

NRC Payments

U.S. Nuclear Regulatory Commission

One White Flint North

Mailstop O3-E17A

11555 Rockville Pike

Rockville, MD 20852-2738

(End of Clause)

G.3 USE OF AUTOMATED CLEARING HOUSE (ACH) ELECTRONIC PAYMENT/REMITTANCE ADDRESS (AUG 2011)

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 H – SPECIAL CONTRACT REQUIREMENTS

H.1 2052.215-70 KEY PERSONNEL (JAN 1993)

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

Name Title

L. Howard, Program Manager

O. Pensado, Principal Investigator

R. Fosdick, Subject Matter Expert

J. Crosby, Subject Matter Expert

J. Bickel, Subject Matter Expert

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)

SECTION J - List of Documents, Exhibits and Other Attachments

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/Businesses/Small-Businesses-&Self-Employed/Employer-ID-Numbers-\(EINs\)](http://www.irs.gov/Businesses/Small-Businesses-&Self-Employed/Employer-ID-Numbers-(EINs))).
- c. Payee's Name and Address. Show the name of the Payee as it appears in the contract and its correct address. If the Payee assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Payee shall require as a condition of any such assignment, that the assignee shall register separately in the Central Contractor Registration (CCR) database at <http://www.ccr.gov> and shall be paid by EFT in accordance with the terms of this contract. See Federal Acquisition

Regulation (FAR) 52.232-33(g) Payment by Electronic Funds Transfer - Central Contractor Registration (October 2003).

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. 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:

Labor <u>Category</u>	Hours <u>Billed</u>	<u>Rate</u>	<u>Total</u>	Cumulative <u>Hours Billed</u>
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(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.

p. 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.

q. 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).

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

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

t. 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) Indirect Costs (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) Fixed-Fee:

(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*) \$ _____

Note: The fee balance withheld by NRC may not exceed \$100,000.

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

2) Fringe Benefits - \$480

Fringe @ 20% of Direct Salaries

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

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 = \$ 900

\$2,000

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 = \$20,000
\$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